

BECKHOFF New Automation Technology

Manual | EN

TE1000

TwinCAT 3 | PLC Library: Tc2_DALI

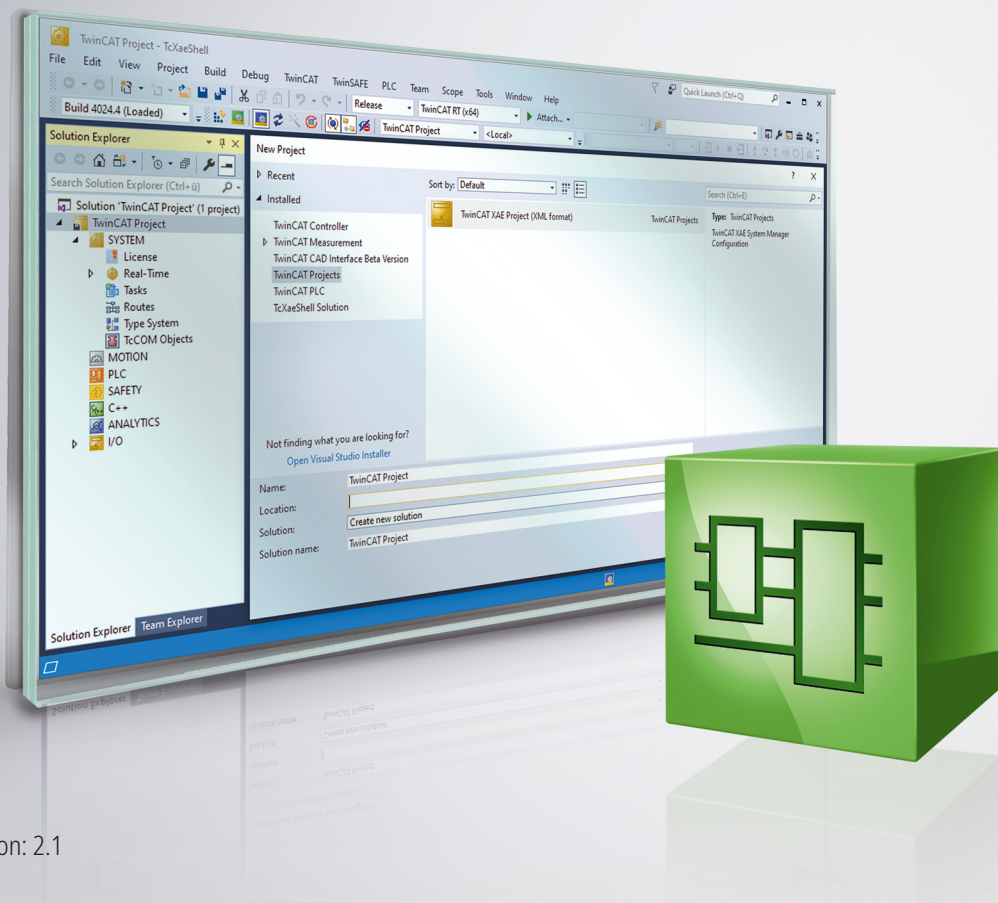


Table of contents

1 Foreword	5
1.1 Notes on the documentation.....	5
1.2 Safety instructions	6
2 Introduction	7
3 DALI	8
4 Programming	10
4.1 POU's	10
4.1.1 High-Level commands	10
4.1.2 Low-Level commands	67
4.1.3 Third-party function blocks.....	364
4.1.4 Error codes	380
4.1.5 [obsolete]	384
4.2 DUTs.....	401
4.2.1 Enums.....	401
4.2.2 Structures	404
4.2.3 [Obsolet]	408
4.3 Integration into TwinCAT	408
4.3.1 KL6821 with PC system (CX5120)	408
5 Appendix	412
5.1 Support and Service	412

1 Foreword

1.1 Notes on the documentation

This description is only intended for the use of trained specialists in control and automation engineering who are familiar with applicable national standards.

It is essential that the documentation and the following notes and explanations are followed when installing and commissioning the components.

It is the duty of the technical personnel to use the documentation published at the respective time of each installation and commissioning.

The responsible staff must ensure that the application or use of the products described satisfy all the requirements for safety, including all the relevant laws, regulations, guidelines and standards.

Disclaimer

The documentation has been prepared with care. The products described are, however, constantly under development.

We reserve the right to revise and change the documentation at any time and without prior announcement. No claims for the modification of products that have already been supplied may be made on the basis of the data, diagrams and descriptions in this documentation.

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The EtherCAT Technology is covered, including but not limited to the following patent applications and patents:

EP1590927, EP1789857, EP1456722, EP2137893, DE102015105702
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1.2 Safety instructions

Safety regulations

Please note the following safety instructions and explanations!
Product-specific safety instructions can be found on following pages or in the areas mounting, wiring, commissioning etc.

Exclusion of liability

All the components are supplied in particular hardware and software configurations appropriate for the application. Modifications to hardware or software configurations other than those described in the documentation are not permitted, and nullify the liability of Beckhoff Automation GmbH & Co. KG.

Personnel qualification

This description is only intended for trained specialists in control, automation and drive engineering who are familiar with the applicable national standards.

Description of symbols

In this documentation the following symbols are used with an accompanying safety instruction or note. The safety instructions must be read carefully and followed without fail!

DANGER

Serious risk of injury!

Failure to follow the safety instructions associated with this symbol directly endangers the life and health of persons.

WARNING

Risk of injury!

Failure to follow the safety instructions associated with this symbol endangers the life and health of persons.

CAUTION

Personal injuries!

Failure to follow the safety instructions associated with this symbol can lead to injuries to persons.

NOTE

Damage to the environment or devices

Failure to follow the instructions associated with this symbol can lead to damage to the environment or equipment.



Tip or pointer

This symbol indicates information that contributes to better understanding.

2 Introduction

● **Update: Tc3_DALI library**



The Tc2_DALI TwinCAT 3 PLC library is the predecessor to Tc3_DALI. We recommend using the Tc3_DALI library.

The Tc2_DALI library will no longer be updated in future. The Tc2_DALI library should not be used for new projects. All the functionalities of the Tc2_DALI library are also available in the new Tc3_DALI library.

The user of this library requires basic knowledge of the following:

- TwinCAT XAE
- PC and network knowledge
- Structure and properties of the Beckhoff Embedded PC and its Bus Terminal system
- Technology of DALI devices
- Relevant safety regulations for building technical equipment

This software library is intended for building automation system partners of Beckhoff Automation GmbH & Co. KG. The system partners operate in the field of building automation and are concerned with the installation, commissioning, expansion, maintenance and service of measurement, control and regulating systems for the technical equipment of buildings.

The Tc2_DALI library is usable on all hardware platforms that support TwinCAT 3.1 or higher.

3 DALI

DALI (Digital Addressable Lighting Interface) is a definition for the standardization of digital interfaces between control gears (lamps) and control units (sensors). The standard (IEC 62386) allows the manufacturers of lighting components to implement complex lighting tasks easily and conveniently.

The KL6811 (DALI/DSI master) and KL6821 (² master) Bus Terminals are integrated into the Bus Terminal system as normal Bus Terminals and are therefore fieldbus-independent. The DALI data is forwarded to the DALI devices via the respective Bus Coupler. Bus controllers also offer a facility for decentralized execution of PLC programs in IEC61131-3.

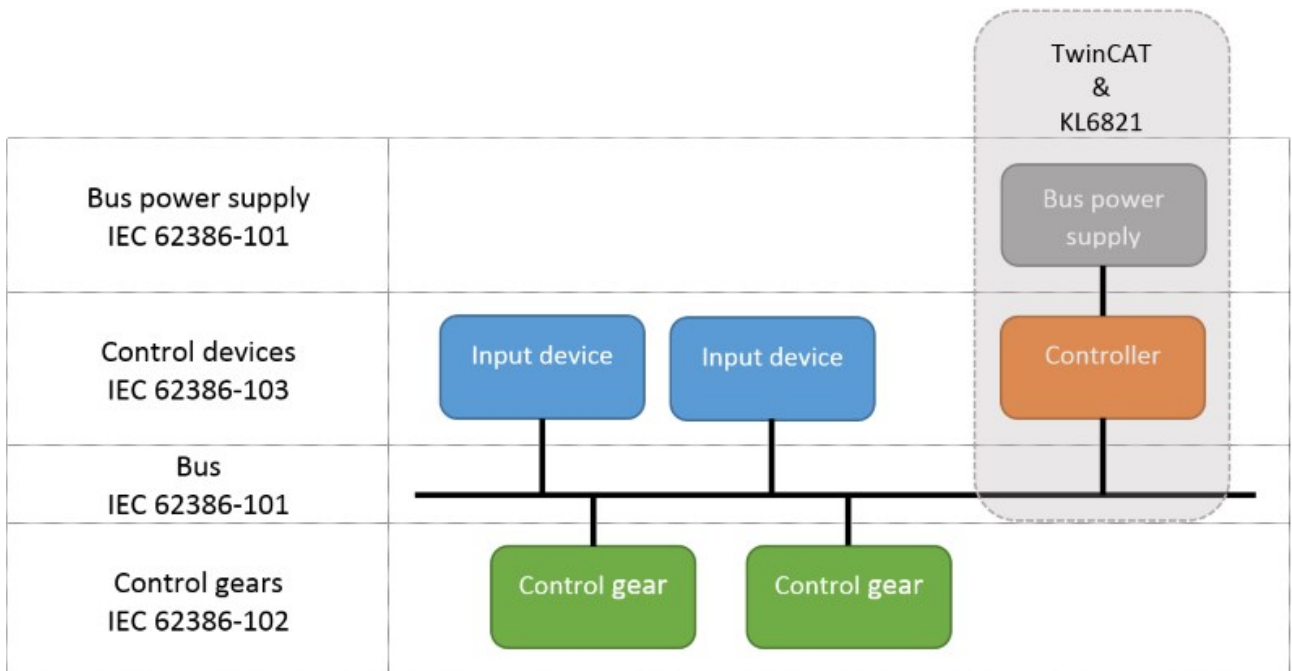
IEC 62386

DALI is specified in the IEC 62386 standard and offers advantages such as flexibility, simplicity, user friendliness and robustness. IEC 62386 has been revised several times and was extended considerably in November 2014 with the publication of the second revision. While in the first revision only control gears (lamps) were considered, from the second revision onwards control units (sensors) are also included. These are described in the respective section of IEC 62386:

IEC 62386-101	General system properties such as cabling, feed-in and telegram structure
IEC 62386-102	General properties of the control gears
	IEC 62386-201: Fluorescent lamps (device type 0) IEC 62386-202: Emergency lighting (device type 1) IEC 62386-203: Discharge lamps (device type 2) ...
IEC 62386-103	General properties of the control devices
	IEC 62386-301: Push buttons IEC 62386-303: Occupancy sensor IEC 62386-304: Brightness sensor ...

The IEC 62386-101, IEC 62386-102 and IEC 62386-103 standards describe general properties, while the IEC 62386-2xx and IEC 62386-3xx standards specify the individual device types.

IEC 62386-103 and IEC 62386-3xx were included in Revision 2 of the DALI standard.

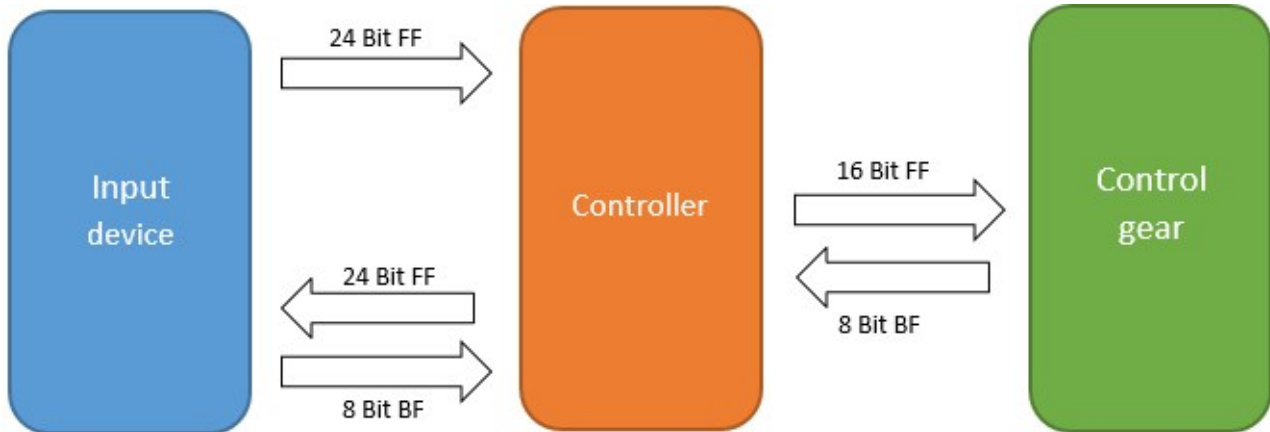


In each DALI line up to 64 control gears and up to 64 input devices can be connected. The KL6821 represents the DALI controller. One such device exists for each DALI line. Any number of DALI lines (KL6821) can be operated with a single TwinCAT controller.

Communication

With regard to the communication, a distinction is made between three telegram types:

- 16-bit query, configuration and control telegram.
- 24-bit query, configuration and control telegram.
- 24-bit event telegram.



BF: backward frame

FF: forward frame

16-bit telegrams

16-bit telegrams are always sent from a DALI controller to a DALI control gear. They are used for configuring the devices, querying parameters or sending control commands. For certain DALI commands the DALI control gear sends an 8-bit response. DALI control gears only send an 8-bit telegram when requested.

In the DALI library these commands are provided in the form of PLC function blocks with the prefix *FB_DALIV2*, e.g. *FB_DALIV2QueryActualLevel()*.

24-bit telegrams

24-bit telegrams are always sent from a DALI controller to a DALI input device. They are used for configuring the devices, querying parameters or sending control commands. For certain DALI commands the DALI input device sends an 8-bit response.

In the DALI library these commands are provided in the form of PLC function blocks with the prefix *FB_DALIV2x*, e.g. *FB_DALIV2xQueryOperatingMode()*.

24-bit events

DALI input devices are able to send events. They are always evaluated by the DALI controller and have a length of 24 bits.

Individual events can be filtered out with the function block *FB_DALIV2xGetEventData()* [▶ 67] for further processing.

Note

Further information on DALI can be found on the website of the DALI Activity Group (<http://www.dali-ag.org>) or the Digital Illumination Interface Alliance (<https://www.digitalilluminationinterface.org>) and in the IEC 62386 standard.

The KL6811 only supports the first revision of the DALI standard. It is not possible to operate control units (sensors) with the KL6811. The KL6821 is backward compatible with the KL6811, but it does not support DSI.

4 Programming

Further libraries required

- Tc2_Standard
- Tc2_System
- Tc2_Uilities
- Tc3_Module

● Memory usage



Integrating the library already consumes PLC memory. Depending on the application program, therefore, the remaining memory may not be sufficient.

4.1 POU's

4.1.1 High-Level commands

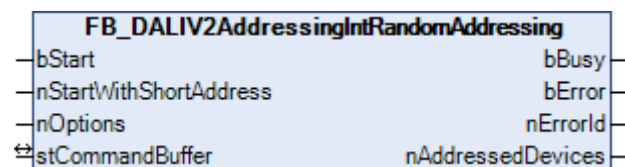
4.1.1.1 Part 102 (control gears)

4.1.1.1.1 Addressing

Function blocks

Name	Description
FB_DALIV2AddressingIntRandomAddressing [▶ 10]	Addresses the control gears according to the random principle. The Bus Terminal's internal addressing function is used here.
FB_DALIV2AddressingPhysicalSelection [▶ 12]	Addresses the control gears according to the 'physical selection' addressing method.
FB_DALIV2AddressingRandomAddressing [▶ 13]	Addresses the control gears according to the random principle.
FB_DALIV2ChangeAddressList [▶ 15]	The short addresses of several control gears can be changed using this function block.
FB_DALIV2SwapShortAddress [▶ 17]	Swap the short addresses of two control gears.
FB_DALIV2SwapShortAddressList [▶ 18]	Swaps the short addresses of several control gears.

FB_DALIV2AddressingIntRandomAddressing



This function block addresses the control gears in random order. The user has no influence over which short address is assigned to which control gear. Short addresses are allocated in ascending order.

Applying a positive edge to the *bStart* input starts the function block, and the *bBusy* output goes TRUE. Depending on the selected options (parameter *nOptions*) the group membership and scenarios are subsequently deleted. The terminal now addresses all control gears independently. Once all control gears

have been addressed, the *bBusy* output switches back to FALSE. The *nAddressedDevices* output variable supplies information about how many control gears have received a short address. Processing this function block can take several minutes, depending on how many control gears are attached. Since the addressing is performed directly by the terminal, this method is somewhat faster than the `FB_DALIV2AddressingRandomAddressing()` [▶ 13] function block. However, this function block does not supply any feedback during addressing. In addition to that, addressing cannot be terminated prematurely.



This function block can only be executed if the terminal has the firmware version 2A or newer.

VAR_INPUT

```
bStart          : BOOL;
nStartWithShortAddress : BYTE := 0;
nOptions        : DWORD := DALIV2_OPTION_OPTICAL_FEEDBACK;
```

bStart: A rising edge at this input activates the function block, thereby starting the addressing sequence.

nStartWithShortAddress: Short address allocated to the first ballast (0 ... 63).

nOptions: Options for addressing the ballasts (see table). The individual constants must be linked with OR operators.

Constant	Description
DALIV2_OPTION_COMPLETE_NEW_INSTALLATION	All ballasts are re-addressed, including ballasts that already have a short address.
DALIV2_OPTION_DELETE_ALL_GROUP_ASSIGNMENTS	Prior to addressing, the group associations are deleted for any ballasts, even those which may not be addressed by the addressing method (see variables <u>GROUP 0-7</u> [▶ 80] and <u>GROUP 8-15</u> [▶ 80]).
DALIV2_OPTION_DELETE_ALL_SCENE_ASSIGNMENTS	Prior to addressing, the scenes are deleted for any ballasts, even those which may not be addressed by the addressing method (see variables <u>SCENE 0</u> [▶ 80] to <u>SCENE 15</u> [▶ 80]).
DALIV2_OPTION_OPTICAL_FEEDBACK	Prior to addressing, all ballasts are set to <u>MIN LEVEL</u> [▶ 80]. Newly addressed ballasts are assigned <u>MAX LEVEL</u> [▶ 80] brightness after allocation of the short address.

VAR_OUTPUT

```
bBusy          : BOOL;
bError         : BOOL;
nErrorId       : UDINT;
nAddressedDevices : BYTE;
```

bBusy: When the function block is activated the output is set, and it remains active until execution of the command has been completed.

bError: This output is switched to TRUE as soon as an error occurs during the execution of a command. The command-specific error code is contained in *nErrorId*. Is reset to FALSE by the execution of a command at the inputs.

nErrorId: Contains the command-specific error code of the most recently executed command. Is reset to 0 by the execution of a command at the inputs. (See error codes [▶ 380])

nAddressedDevices: If addressing has been completed (*bBusy* is FALSE), then the number of addressed control gears is shown at this output.

VAR_IN_OUT

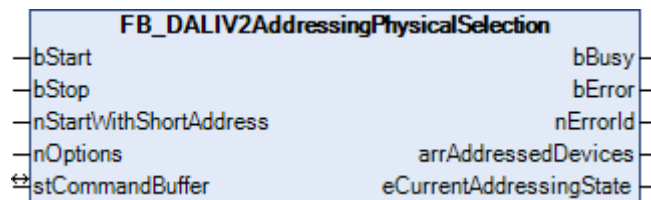
```
stCommandBuffer : ST_DALIV2CommandBuffer;
```

stCommandBuffer: Reference to the internal structure for communication with the function block `FB_KL6821Communication()` [▶ 74] (KL6821).

Requirements

Development environment	required PLC library
TwinCAT from v3.1.4020.14	Tc2_DALI from v3.4.3.0

FB_DALIV2AddressingPhysicalSelection



This function block addresses the control gears through 'physical selection' based on the addressing technique. This means that the individual control gears are selected (and therefore addressed) by removing the lamps. Short addresses are allocated (ascending) in the same order in which the lamps are removed.

Applying a positive edge to the *bStart* input starts the function block, and the *bBusy* output goes TRUE. Depending on the selected options (parameter *nOptions*) the group membership and scenarios are subsequently deleted. The *eCurrentAddressingState* output specifies the next required user operation. It determines whether for the next control gear the lamp should be removed or reinserted. The *arrAddressedDevices* output variable provides information about which control gears have already been allocated a short address. Once all control gears have been addressed, the addressing procedure is completed through a positive edge at input *bStop*, and the *bBusy* output switches back to FALSE.

VAR_INPUT

```

bStart          : BOOL;
bStop           : BOOL;
nStartWithShortAddress : BYTE := 0;
nOptions        : DWORD := DALIV2_OPTION_OPTICAL_FEEDBACK;
    
```

bStart: A rising edge at this input activates the function block, thereby starting the addressing sequence.

bStop: A rising edge at this input deactivates the function block, thereby stopping the addressing sequence.

nStartWithShortAddress: Short address allocated to the first ballast (0 ... 63).

nOptions: Options for addressing the ballasts (see table). The individual constants must be linked with OR operators.

Constant	Description
DALIV2_OPTION_COMPLETE_NEW_INSTALLATION	All ballasts are re-addressed, including ballasts that already have a short address.
DALIV2_OPTION_DELETE_ALL_GROUP_ASSIGNMENTS	Prior to addressing, the group associations are deleted for any ballasts, even those which may not be addressed by the addressing method (see variables <u>GROUP 0-7</u> [▶ 80] and <u>GROUP 8-15</u> [▶ 80]).
DALIV2_OPTION_DELETE_ALL_SCENE_ASSIGNMENTS	Prior to addressing, the scenes are deleted for any ballasts, even those which may not be addressed by the addressing method (see variables <u>SCENE 0</u> [▶ 80] to <u>SCENE 15</u> [▶ 80]).
DALIV2_OPTION_OPTICAL_FEEDBACK	Prior to addressing, all ballasts are set to <u>MIN LEVEL</u> [▶ 80]. Newly addressed ballasts are assigned <u>MAX LEVEL</u> [▶ 80] brightness after allocation of the short address.

VAR_OUTPUT

```
bBusy : BOOL;
bError : BOOL;
nErrorId : UDINT;
arrAddressedDevices : ARRAY [0..63] OF BOOL;
eCurrentAddressingState : E_DALIV2CurrentAddressingState;
```

bBusy: When the function block is activated the output is set, and it remains active until execution of the command has been completed.

bError: This output is switched to TRUE as soon as an error occurs during the execution of a command. The command-specific error code is contained in *nErrorId*. Is reset to FALSE by the execution of a command at the inputs.

nErrorId: Contains the command-specific error code of the most recently executed command. Is reset to 0 by the execution of a command at the inputs. (See [error codes](#) [▶ 380])

arrAddressedDevices: Once a short address is assigned to a control gear, the associated element is set in the structure. The structure index reflects the short address of the control gear.

eCurrentAddressingState: The output variable indicates the current step (see [E_DALIV2CurrentAddressingState](#) [▶ 402]).

Element	Description
eDALIV2AddrStateIdle	No addressing takes place.
eDALIV2AddrStateRemoveLamp	The function block waits for a lamp to be removed at a control gear.
eDALIV2AddrStateReinsertLamp	The function block has detected the control gear on which the lamp was removed (the control gear is selected) and now waits for it to be inserted again.
eDALIV2AddrStateAddressingLamp	The selected control gear is addressed.

VAR_IN_OUT

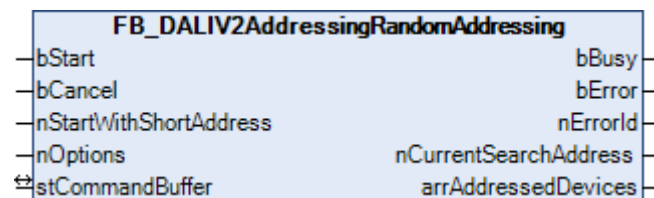
```
stCommandBuffer : ST_DALIV2CommandBuffer;
```

stCommandBuffer: Reference to the internal structure for communication with the function block [FB_KL6811Communication\(\)](#) [▶ 70] (KL6811) or [FB_KL6821Communication\(\)](#) [▶ 74] (KL6821).

Requirements

Development environment	required PLC library
TwinCAT from v3.1.4020.14	Tc2_DALI from v3.4.3.0

FB_DALIV2AddressingRandomAddressing



This function block addresses the control gears in random order. The user has no influence over which short address is assigned to which control gear. Short addresses are allocated in ascending order.

Applying a positive edge to the *bStart* input starts the function block, and the *bBusy* output goes TRUE. Depending on the selected options (parameter *nOptions*) the group membership and scenarios are subsequently deleted. The function block now addresses all control gears independently. The *arrAddressedDevices* output variable provides information about which control gears have already been

allocated a short address. Once all control gears have been addressed, the *bBusy* output switches back to FALSE. Addressing can be aborted through a positive edge at input *bCancel*. Processing this function block can take several minutes, depending on how many control gears are attached.

VAR_INPUT

```
bStart          : BOOL;
bCancel         : BOOL;
nStartWithShortAddress : BYTE := 0;
nOptions        : DWORD := DALIV2_OPTION_OPTICAL_FEEDBACK;
```

bStart: A rising edge at this input activates the function block, thereby starting the addressing sequence.

bCancel: A rising edge at this input deactivates the function block, thereby interrupting the addressing sequence.

nStartWithShortAddress: Short address allocated to the first ballast (0 ... 63).

nOptions: Options for addressing the ballasts (see table). The individual constants must be linked with OR operators.

Constant	Description
DALIV2_OPTION_COMPLETE_NEW_INSTALLATION	All ballasts are re-addressed, including ballasts that already have a short address.
DALIV2_OPTION_DELETE_ALL_GROUP_ASSIGNMENTS	Prior to addressing, the group associations are deleted for any ballasts, even those which may not be addressed by the addressing method (see variables GROUP 0-7 [► 80] and GROUP 8-15 [► 80]).
DALIV2_OPTION_DELETE_ALL_SCENE_ASSIGNMENTS	Prior to addressing, the scenes are deleted for any ballasts, even those which may not be addressed by the addressing method (see variables SCENE 0 [► 80] to SCENE 15 [► 80]).
DALIV2_OPTION_OPTICAL_FEEDBACK	Prior to addressing, all ballasts are set to MIN LEVEL [► 80] . Newly addressed ballasts are assigned MAX LEVEL [► 80] brightness after allocation of the short address.
DALIV2_OPTION_WITHOUT_RANDOMISE	The RANDOMISE command is not called before the addressing sequence. This means that all ballasts retain their existing random address (RANDOM ADDRESS [► 80]). Only use this option when necessary.

VAR_OUTPUT

```
bBusy          : BOOL;
bError         : BOOL;
nErrorId       : UDINT;
nCurrentSearchAddress : UDINT;
arrAddressedDevices : ARRAY [0..63] OF BOOL;
```

bBusy: When the function block is activated the output is set, and it remains active until execution of the command has been completed.

bError: This output is switched to TRUE as soon as an error occurs during the execution of a command. The command-specific error code is contained in *nErrorId*. Is reset to FALSE by the execution of a command at the inputs.

nErrorId: Contains the command-specific error code of the most recently executed command. Is reset to 0 by the execution of a command at the inputs. (See [error codes \[► 380\]](#))

nCurrentSearchAddress: Current search address (see [SEARCH ADDRESS \[► 80\]](#)).

arrAddressedDevices: Once a short address is assigned to a control gear, the associated element is set in the structure. The structure index reflects the short address of the control gear.

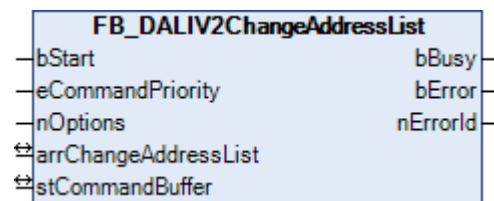
VAR_IN_OUT

```
stCommandBuffer : ST_DALIV2CommandBuffer;
```

stCommandBuffer: Reference to the internal structure for communication with the function block `FB_KL6811Communication()` [▶ 70] (KL6811) or `FB_KL6821Communication()` [▶ 74] (KL6821).

Requirements

Development environment	required PLC library
TwinCAT from v3.1.4020.14	Tc2_DALI from v3.4.3.0

FB_DALIV2ChangeAddressList

The short addresses of several control gears can be changed using this function block. As opposed to the `FB_DALIV2SwapShortAddressList` [▶ 18] function block, it is not necessary for a free, unused short address to be present in the DALI line.

A list of the control gears whose short addresses are to be changed is transferred in the `arrChangeAddressList` array of type `ST_DALIV2ChangeAddressList` [▶ 404]. The list has 64 entries from 0 to 63. Each entry contains a variable `nOldAddress` and `nNewAddress` with which the address assignment is parameterized. The end of the list is programmed with a 255 entry at `nOldAddress`, so that the whole list does not necessarily have to be filled in. If this entry is missing, however, then all entries are accepted. When the function block is started (positive edge on `bStart`), the list end is first determined on the basis of the above-described entry and afterwards the valid list range is examined for the following false entries:

- Address entries > 63
- Double address entry on the original page `nOldAddress` (would not make sense)
- Double address entry on the target page `nNewAddress` (leads to double assignment of an address and, hence, to errors)

The function block then determines the internal long addresses of the DALI devices on the basis of the short addresses and enters them respectively to the parameters `nRandomAddressHigh`, `nRandomAddressMiddle` and `nRandomAddressLow` in the list. If an error occurs during this query, this leads to a false entry for the respective device in the list element `nErrors` (see `ST_DALIV2ChangeAddressList` [▶ 404]). The further sequence in the function block now depends on the option `DALIV2_OPTION_SAFE_ADDRESSING` (`nOptions` input). If it is set, then safe new addressing takes place: first of all, all short addresses of the selected DALI devices are deleted. Then, all required new address status requests are sent to the DALI line. Two cases are now possible:

- If a device responds to this query, then this desired new address is already otherwise assigned. The previously “deleted” DALI devices are programmed with their old addresses and an error message is output.
- If no devices respond to this status query, then the previously “deleted” DALI devices are programmed with the desired new addresses.

The reprogramming is checked afterwards in both cases. If an error occurs during deletion, during the status query or during the reprogramming, this leads to a false entry for the respective device in the list element `nErrors` (see `ST_DALIV2ChangeAddressList` [▶ 404]).

If the option `DALIV2_OPTION_SAFE_ADDRESSING` (`nOptions` input) is **not** set, then the deletion of the short addresses and the status query for the presence of desired new addresses are omitted and the new addresses are programmed directly. This is possible because programming takes place via the long address determined beforehand. Reprogramming is not verified in this case.

The individual bits in the list element *nErrors* have the following meaning:

Bit	Error
0	Error whilst reading the high byte of the long address (<i>nRandomAddressHigh</i>).
1	Error whilst reading the middle byte of the long address (<i>nRandomAddressMiddle</i>).
2	Error whilst reading the low byte of the long address (<i>nRandomAddressLow</i>).
3	Error whilst deleting a short address.
4	Error whilst verifying a short address.
5	Error whilst programming a short address.

VAR_INPUT

```
bStart      : BOOL;
bCancel     : BOOL;
eCommandPriority : E_DALIV2CommandPriority := eDALIV2CommandPriorityHigh;
nOptions    : DWORD := 0;
```

bStart: The function block is activated by a positive edge at this input.

eCommandPriority: Priority (high, medium or low) with which the command is processed by the library (see [E_DALIV2CommandPriority](#) [► 401]).

nOptions: Options for writing the variables (see table). The individual constants must be linked with OR operators.

Constant	Description
DALIV2_OPTION_SAFE_ADDRESSING	Safe addressing: Old short addresses are deleted, the new ones are checked to see if they already exist and reprogramming is verified.

VAR_OUTPUT

```
bBusy      : BOOL;
bError     : BOOL;
nErrorId   : UDINT;
```

bBusy: When the function block is activated the output is set, and it remains active until execution of the command has been completed.

bError: This output is switched to TRUE as soon as an error occurs during the execution of a command. The command-specific error code is contained in *nErrorId*. Is reset to FALSE by the execution of a command at the inputs.

nErrorId: Contains the command-specific error code of the most recently executed command. Is reset to 0 by the execution of a command at the inputs. (See [error codes](#) [► 380])

VAR_IN_OUT

```
arrChangeAddressList : ARRAY [0.. 63] OF ST_DALIV2ChangeAddressList;
stCommandBuffer      : ST_DALIV2CommandBuffer;
```

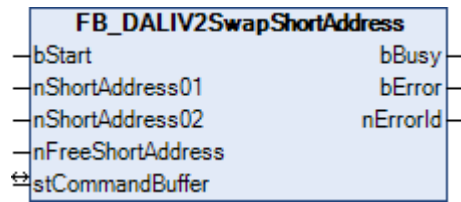
arrChangeAddressList: A reference to the list containing the short addresses to be changed (see [ST_DALIV2ChangeAddressList](#) [► 404]).

stCommandBuffer: Reference to the internal structure for communication with the function block [FB_KL6811Communication\(\)](#) [► 70] (KL6811) or [FB_KL6821Communication\(\)](#) [► 74] (KL6821).

Requirements

Development environment	required PLC library
TwinCAT from v3.1.4020.14	Tc2_DALI from v3.4.3.0

FB_DALIV2SwapShortAddress



The short addresses of two control gears can be swapped using this function block. In order to do this, however, it is necessary that a free, unused short address is present in the DALI line.

VAR_INPUT

```
bStart      : BOOL;
nShortAddress01 : BYTE;
nShortAddress02 : BYTE;
nFreeShortAddress : BYTE;
```

bStart: The function block is activated by a positive edge at this input.

nShortAddress01: Short address of the first ballast (0 – 63).

nShortAddress02: Short address of the second ballast (0 – 63).

nFreeShortAddress: Free short address (0 – 63).

VAR_OUTPUT

```
bBusy      : BOOL;
bError     : BOOL;
nErrorId   : UDINT;
```

bBusy: When the function block is activated the output is set, and it remains active until execution of the command has been completed.

bError: This output is switched to TRUE as soon as an error occurs during the execution of a command. The command-specific error code is contained in *nErrorId*. Is reset to FALSE by the execution of a command at the inputs.

nErrorId: Contains the command-specific error code of the most recently executed command. Is reset to 0 by the execution of a command at the inputs. (See [error codes](#) [▶ 380])

VAR_IN_OUT

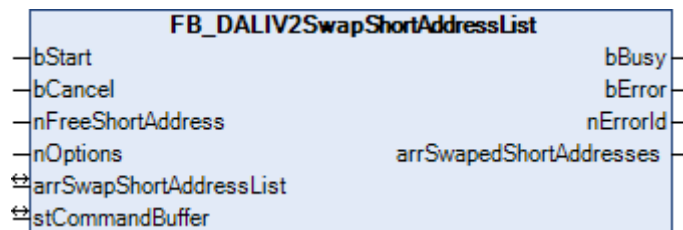
```
stCommandBuffer : ST_DALIV2CommandBuffer;
```

stCommandBuffer: Reference to the internal structure for communication with the function block [FB_KL6811Communication\(\)](#) [▶ 70] (KL6811) or [FB_KL6821Communication\(\)](#) [▶ 74] (KL6821).

Requirements

Development environment	required PLC library
TwinCAT from v3.1.4020.14	Tc2_DALI from v3.4.3.0

FB_DALIV2SwapShortAddressList



The short addresses of several control gears can be swapped using this function block. In order to do this, however, it is necessary that a free, unused short address is present in the DALI line.

In the parameter *arrSwapShortAddressList*, a list of the control gears whose short addresses are to be changed is transferred. The index of the structure thereby corresponds to the short address of the control gear. The element *nNewShortAddress* contains the new short address. *bShortAddressValid* must be tested for TRUE, to ensure that the short address is changed in the corresponding control gear. Applying a positive edge to the *bStart* input starts the function block, and the *bBusy* output goes TRUE. Depending on the chosen options (*nOptions* parameter), all lamps will be set to the value MIN LEVEL. The elements of the output *arrSwapedShortAddresses* are reset. If the new short address is set for a control gear, the corresponding element in the output *arrSwapedShortAddresses* is set to TRUE. If the option DALIV2_OPTION_OPTICAL_FEEDBACK is active, the lamp will in addition be set to the value MAX LEVEL.

VAR_INPUT

```
bStart          : BOOL;
bCancel         : BOOL;
nFreeShortAddress : BYTE;
nOptions        : DWORD := DALIV2_OPTION_OPTICAL_FEEDBACK;
```

bStart: The function block is activated by a positive edge at this input.

bCancel: A rising edge at this input will deactivate the function block and hence abort the swapping of the short addresses.

nFreeShortAddress: Free short address (0 – 63).

nOptions: Options for swapping short addresses (see table). The individual constants must be linked with OR operators.

Constant	Description
DALIV2_OPTION_OPTICAL_FEEDBACK	Before swapping the short addresses, all ballasts are set to <u>MIN LEVEL</u> [▶ 80]. After assigning the new short address, the brightness of the respective ballast will be changed to <u>MAX LEVEL</u> [▶ 80].

VAR_OUTPUT

```
bBusy          : BOOL;
bError         : BOOL;
nErrorId       : UDINT;
arrSwapedShortAddresses : ARRAY [0..63] OF BOOL;
```

bBusy: When the function block is activated the output is set, and it remains active until execution of the command has been completed.

bError: This output is switched to TRUE as soon as an error occurs during the execution of a command. The command-specific error code is contained in *nErrorId*. Is reset to FALSE by the execution of a command at the inputs.

nErrorId: Contains the command-specific error code of the most recently executed command. Is reset to 0 by the execution of a command at the inputs. (See error codes [▶ 380])

arrSwapedShortAddresses: If the new short address has been set for a control gear, the corresponding element will be set in the structure. The structure index reflects the short address of the control gear.

VAR_IN_OUT

```
arrSwapShortAddressList : ARRAY [0..63] OF ST_DALIV2SwapShortAddressList;
stCommandBuffer         : ST_DALIV2CommandBuffer;
```

arrSwapShortAddressList: A reference to the list containing the short addresses to be swapped (see [ST_DALIV2SwapShortAddressList](#) [▶ 406]).

stCommandBuffer: Reference to the internal structure for communication with the function block [FB_KL6811Communication\(\)](#) [▶ 70] (KL6811) or [FB_KL6821Communication\(\)](#) [▶ 74] (KL6821).

Requirements

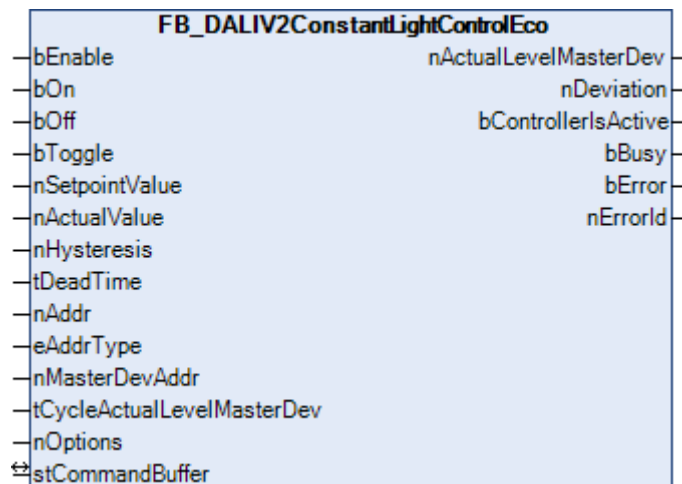
Development environment	required PLC library
TwinCAT from v3.1.4020.14	Tc2_DALI from v3.4.3.0

4.1.1.1.2 Power control

Function blocks

Name	Description
FB_DALIV2ConstantLightControlEco [▶ 20]	Simple function block for constant light control of DALI devices.
FB_DALIV2Dimmer1Switch [▶ 22]	Function block for dimming DALI devices with one switch.
FB_DALIV2Dimmer1SwitchEco [▶ 25]	Memory saving version of FB_DALIV2Dimmer1Switch [▶ 22] with no special functions.
FB_DALIV2Dimmer1SwitchMultiple [▶ 27]	Function block for dimming DALI devices with one switch. For applications in which up to five DALI lines (0..4) can be installed.
FB_DALIV2Dimmer2Switch [▶ 29]	Function block for dimming DALI devices with two switches.
FB_DALIV2Dimmer2SwitchEco [▶ 31]	Memory saving version of FB_DALIV2Dimmer2Switch [▶ 29] with no special functions.
FB_DALIV2Light [▶ 33]	Function block for controlling lamps.
FB_DALIV2LightControl [▶ 35]	Function block for daylight-dependent lighting control with up to 30 interpolation points.
FB_DALIV2Ramp [▶ 37]	Function block for realizing a ramp.
FB_DALIV2Sequencer [▶ 40]	Function block for realizing light sequences with up to 50 interpolation points.
FB_DALIV2StairwellDimmer [▶ 44]	Function block for controlling stairwell lighting.

FB_DALIV2ConstantLightControlEco



The function block `FB_DALIV2ConstantLightControlEco()` is used for constant light control with DALI control gears.

The system tries to match a specified set value through cyclic dimming. The control dynamics are determined by a dead time ($t_{DeadTime}$). The dead time defines the delay between the individual commands for changing the control value. The smaller the dead time, the faster the control. A freely definable hysteresis ($n_{Hysteresis}$) prevents continuous oscillation around the set value. If the actual value is within the hysteresis range around the set value, the lamps brightness remains unchanged. An option is available for specifying whether the lamps should be switched on and off automatically (see table below).

Comment on the nMasterDevAddr parameter

The DALI system provides facilities not just for controlling lamps individually, but also for addressing them as groups or through common commands. Since the individual devices may belong to different groups, the individual lamps may have different brightness states before a group or common control command. So that it is nevertheless possible to be clear whether the lamps now are to be switched on or off, a master device is assigned to each group, whose state is followed by the other devices. It is not necessary to specify a master device if the function block is to be used to control a single lamp, $eAddrType = eAddrTypeShort$. In this case, the $nMasterDevAddr$ parameter has no significance.

VAR_INPUT

```

bEnable          : BOOL := TRUE;
bOn              : BOOL;
bOff             : BOOL;
bToggle         : BOOL;
nSetpointValue  : UINT := 500;
nActualValue    : UINT;
nHysteresis     : UINT := 50;
tDeadTime      : TIME := t#10s;
nAddr           : BYTE := 0;
eAddrType      : E_DALIV2AddrType := eDALIV2AddrTypeShort;
nMasterDevAddr : BYTE := 0;
tCycleActualLevelMasterDev : TIME := t#0s;
nOptions        : DWORD := 0;

```

bEnable: Enables the function block. If this input is FALSE, the inputs bOn , $bOff$ and $bToggle$ are disabled. No control values are output.

bOn: Switches the addressed devices to MAX_LEVEL [► 80] and activates constant light control.

bOff: Switches the addressed devices off and disables constant light control.

bToggle: The lighting is switched on or off, depending on the state of the reference device.

nSetpointValue: This input is used for specifying the set value.

nActualValue: The actual value is applied at this input.

nHysteresis: Control hysteresis around the set value. If the actual value is within this range, the control values for the lamps remain unchanged.

tDeadTime: Dead time between the individual commands used for changing the control value for the DALI lamps.

nAddr: The address of a participating device or of a group.

eAddrType: Short address, group address or broadcast (see [E_DALIV2AddrType](#) [[▶ 401](#)]).

nMasterDevAddr: The address of the master device (reference device) for group and common switching operations.

tCycleActualLevelMasterDev: Cycle time required to read the current actual value (see [ACTUAL DIM LEVEL](#) [[▶ 80](#)]) of the reference lamp in the background. So that the controlling of the lamps is not disturbed, reading always has the lowest priority. If the value is set to 0, reading is prohibited. The value read is output at the *nActualLevelMasterDev* output.

nOptions: Options (see table). The individual constants must be linked with OR operators.

Constant	Description
DALIV2_OPTION_SWITCH_ON_AND_OFF	The DALI commands ON AND STEP UP [▶ 107] and STEP DOWN AND OFF [▶ 111] are used for changing the control value. This causes the lamps to be switched off when MIN LEVEL [▶ 80]. If the control deviation is above the hysteresis, the lamps are switched on again. If this option is not set, the commands STEP UP [▶ 112] and STEP DOWN [▶ 110]. In this cases the lamps remain switched on continuously.
DALIV2_OPTION_SWITCH_ON_WITH_MIN_LEVEL	If the light is switched on again by the constant light control, this option always uses the command MIN LEVEL [▶ 80]. If the option is not set, MAX LEVEL [▶ 80] is used. This option is available from v3.3.2.0 of the Tc2_DALI PLC library.

VAR_OUTPUT

```
nActualLevelMasterDev : BYTE;
nDeviation             : INT;
bControllerIsActive   : BOOL;
bBusy                  : BOOL;
bError                 : BOOL;
nErrorId               : UDINT;
```

nActualLevelMasterDev: Current output value of the master device (always the respectively addressed device if *eAddrType = eAddrTypeShort*).

nDeviation: Current control deviation (set value/actual value).

bControllerIsActive: This output is set once the control is activated.

bBusy: When the function block is activated the output is set, and it remains active until execution of the command has been completed.

bError: This output is switched to TRUE as soon as an error occurs during the execution of a command. The command-specific error code is contained in *nErrorId*. Is reset to FALSE by the execution of a command at the inputs.

nErrorId: Contains the command-specific error code of the most recently executed command. Is reset to 0 by the execution of a command at the inputs. (See [error codes](#) [[▶ 380](#)])

VAR_IN_OUT

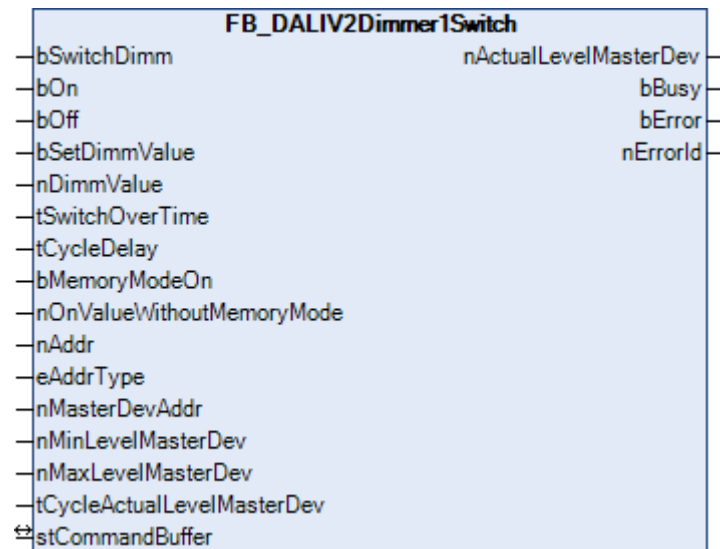
```
stCommandBuffer : ST_DALIV2CommandBuffer;
```

stCommandBuffer: Reference to the internal structure for communication with the function block FB_KL6811Communication() [▶ 70] (KL6811) or FB_KL6821Communication() [▶ 74] (KL6821).

Requirements

Development environment	required PLC library
TwinCAT from v3.1.4020.14	Tc2_DALI from v3.4.3.0

FB_DALIV2Dimmer1Switch



An individual DALI lamp, a DALI group or a complete DALI line can be switched and dimmed using a single switch through this function block.

Operating by means of the bSwitchDimm input

The light is switched on or off by a short signal at the *bSwitchDimm* input. Dimmer mode will be activated if the signal remains for longer than *tSwitchOverTime* (typical recommended value: 200 ms). The output signal then cycles between *nMinLevelMasterDev* and *nMaxLevelMasterDev*. In order to be able to set the maximum or minimum value more easily, the output signal pauses at the level of the maximum and minimum values for the time given by *tCycleDelay*. When the signal is once more removed, the output signal being generated at that time is retained. Another pulse at the input will set the output to 0. If the *bSwitchDimm* is briefly removed in dimmer mode, the function block changes the direction of dimming.

Operation by means of the bOn and bOff inputs

The light is immediately switched on or off if a rising edge is applied to the *bOn* or *bOff* inputs. The output value is set to 0 when switching off. The switch-on behavior can be affected by the memory function (see below).

Operation by means of the bSetDimmValue and nDimmValue inputs

If the value of *nDimmValue* changes the devices concerned will be switched to this brightness value immediately. The significant point here is that the value changes. The lighting is switched off by changing the value to 0. If there is a rising edge at the *bSetDimmValue* input, the value of *nDimmValue* immediately appears at the output. Immediate modification of the output can be suppressed by a static 1- signal at the *bSetDimmValue* input. This makes it possible to apply a value to the *nDimmValue* input, but for this value only to be passed to the output at the next rising edge of *bSetDimmValue*.

The *bSetDimmValue* and *nDimmValue* inputs can be used to implement a variety of lighting scenarios. Using *nDimmValue* to set the outputs directly can be used to achieve particular brightness levels, either directly or by continuously changing the value. *nDimmValue* must have a value between *nMinLevelMasterDev* and *nMaxLevelMasterDev*. The value 0 is an exception. If the value is outside this range, the output value is limited to the upper or lower limit, as appropriate.

The memory function

It is necessary to determine whether the memory function (*bMemoryModeOn* input) is active or not at switch-on. If the memory function is active, then the last set value is adopted as the brightness value as soon as the device is switched on. If the memory function is not active, a brightness specified by the *nOnValueWithoutMemoryMode* parameter is assigned to the devices concerned. It is irrelevant, in this case, whether the light it has been switched on by means of the *bOn* input or the *bSwitchDimm* input. It should be noted that the *nOnValueWithoutMemoryMode* parameter must lie between *nMinLevelMasterDev* and *nMaxLevelMasterDev*. If this is not the case, the output value is adjusted to the upper or lower limit, as appropriate.

Comment on the *tSwitchOverTime* parameter

If a duration of 0 is specified for the parameter *tSwitchOverTime*, the *bSwitchDimm* input can only be used to dim the light. Switching on and off is only possible with the *bOn* and *bOff* inputs.

Comment on the *nMasterDevAddr* parameter

The DALI system provides facilities not just for controlling lamps individually, but also for addressing them as groups or through common commands. Since the individual devices may belong to different groups, the individual lamps may have different brightness states before a group or common control command. So that it is nevertheless possible to be clear whether the lamps now are to be switched on or off, a master device is assigned to each group, whose state is followed by the other devices. It is not necessary to specify a master device if the function block is to be used to control a single lamp, *eAddrType = eAddrTypeShort*. In this case, the *nMasterDevAddr* parameter has no significance.

VAR_INPUT

```

bSwitchDimm      : BOOL;
bOn              : BOOL;
bOff             : BOOL;
bSetDimmValue   : BOOL;
nDimmValue      : BYTE;
tSwitchOverTime : TIME := t#400ms;
tCycleDelay     : TIME := t#500ms;
bMemoryModeOn   : BOOL := FALSE;
nOnValueWithoutMemoryMode : BYTE := 254;
nAddr           : BYTE := 0;
eAddrType       : E_DALIV2AddrType := eDALIV2AddrTypeShort;
nMasterDevAddr  : BYTE := 0;
nMinLevelMasterDev : BYTE := 126;
nMaxLevelMasterDev : BYTE := 254;
tCycleActualLevelMasterDev : TIME := t#0s;

```

bSwitchDimm: Switches or dims the addressed devices.

bOn: Switches the addressed devices to the last output value, or to the value specified by *nOnValueWithoutMemoryMode*.

bOff: Switches the addressed devices off (value 0).

bSetDimmValue: A positive edge at this input sets the addressed devices immediately to the brightness value that is asserted at the *nDimmValue* input. If the value of *nDimmValue* changes, the brightness value is set immediately to the changed value if the *bSetDimmValue* input is FALSE.

nDimmValue: see *bSetDimmValue*.

tSwitchOverTime: Time for switching between the light on/off and dimming functions for the *bSwitchDimm* input.

tCycleDelay: Delay time, if either the minimum or maximum value is reached.

bMemoryModeOn: Switches over to use the memory function, so that the previous value is written to the output as soon as it is switched on.

nOnValueWithoutMemoryMode: Switch-on value if the memory function is not active.

nAddr: The address of a participating device or of a group.

eAddrType: Short address, group address or broadcast (see [E_DALIV2AddrType](#) [[▶ 401](#)]).

nMasterDevAddr: The address of the master device for group and common switching operations.

nMinLevelMasterDev: The minimum value of the master device.

nMaxLevelMasterDev: The maximum value of the master device.

tCycleActualLevelMasterDev: Cycle time required to read the current actual value (see [ACTUAL DIM LEVEL](#) [[▶ 80](#)]) in the background. So that the dimming of the lamps is not disturbed, reading always has the lowest priority. If the value is set to 0, reading is prohibited.

VAR_OUTPUT

```
nActualLevelMasterDev : BYTE;
bBusy                 : BOOL;
bError                : BOOL;
nErrorId               : UDINT;
```

nActualLevelMasterDev: Current output value of the master device (always the respectively addressed device if *eAddrType* = *eAddrTypeShort*).

bBusy: When the function block is activated the output is set, and it remains active until execution of the command has been completed.

bError: This output is switched to TRUE as soon as an error occurs during the execution of a command. The command-specific error code is contained in *nErrorId*. Is reset to FALSE by the execution of a command at the inputs.

nErrorId: Contains the command-specific error code of the most recently executed command. Is reset to 0 by the execution of a command at the inputs. (See [error codes](#) [[▶ 380](#)])

VAR_IN_OUT

```
stCommandBuffer : ST_DALIV2CommandBuffer;
```

stCommandBuffer: Reference to the internal structure for communication with the function block [FB_KL6811Communication\(\)](#) [[▶ 70](#)] (KL6811) or [FB_KL6821Communication\(\)](#) [[▶ 74](#)] (KL6821).

Requirements

Development environment	required PLC library
TwinCAT from v3.1.4020.14	Tc2_DALI from v3.4.3.0

FB_DALIV2Dimmer1SwitchEco



The `FB_DALIDimmer1SwitchEco()` function block is a variant of `FB_DALIV2Dimmer1Switch()` [► 22] that saves memory space. It is not equipped with the special function “Switch off memory function”.

Operating by means of the *bSwitchDimm* input

The light is switched on or off by a short signal at the *bSwitchDimm* input. If the signal remains for longer than *tSwitchOverTime* (recommended value: 200 ms), dimmer mode is activated and the brightness increases or decreases steadily. The dimming direction is changed by briefly removing the *bSwitchDimm* signal.

Operation by means of the *bOn* and *bOff* inputs

The light is immediately switched on or off if a rising edge is applied to the *bOn* or *bOff* inputs. The output value is set to 0 when switching off.

Operation by means of the *bSetDimmValue* and *nDimmValue* inputs

If the value of *nDimmValue* changes the devices concerned will be switched to this brightness value immediately. The significant point here is that the value changes. The lighting is switched off by changing the value to 0. If there is a positive edge at the *bSetDimmValue* input, the value of *nDimmValue* immediately appears at the output. Immediate modification of the output can be suppressed by a static 1- signal at the *bSetDimmValue* input. This makes it possible to apply a value to the *nDimmValue* input, but for this value only to be passed to the output at the next positive edge of *bSetDimmValue*.

The *bSetDimmValue* and *nDimmValue* inputs can be used to implement a variety of lighting scenarios. Direct setting of the output, by means of *nDimmValue*, can be used to achieve particular brightness levels. Either directly or by continuously changing the value.

The memory function

In contrast to `FB_DALIV2Dimmer1Switch()` [► 22], where the memory function can be switched on or off through the *bMemoryModeOn* input, the memory function is always active on this memory-saving version. This means that the most recently set value is adopted for the brightness when switching on. It is irrelevant, in this case, whether the light it has been switched on by means of the *bOn* input or the *bSwitchDimm* input.

Comment on the *tSwitchOverTime* parameter

If a duration of 0 is specified for the parameter *tSwitchOverTime*, the *bSwitchDimm* input can only be used to dim the light. Switching on and off is only possible with the *bOn* and *bOff* inputs.

Comment on the *nMasterDevAddr* parameter

The DALI system provides facilities not just for controlling lamps individually, but also for addressing them as groups or through common commands. Since the individual devices may belong to different groups, the individual lamps may have different brightness states before a group or common control command. So that it is nevertheless possible to be clear whether the lamps now are to be switched on or off, a master device is

assigned to each group, whose state is followed by the other devices. It is not necessary to specify a master device if the function block is to be used to control a single lamp, *eAddrType = eAddrTypeShort*. In this case, the *nMasterDevAddr* parameter has no significance.

VAR_INPUT

```
bSwitchDimm      : BOOL;
bOn              : BOOL;
bOff            : BOOL;
bSetDimmValue   : BOOL;
nDimmValue      : BYTE;
tSwitchOverTime : TIME := t#400ms;
nAddr           : BYTE := 0;
eAddrType       : E_DALIV2AddrType := eDALIV2AddrTypeShort;
nMasterDevAddr  : BYTE := 0;
tCycleActualLevelMasterDev : TIME := t#0s;
```

bSwitchDimm: Switches or dims the addressed devices.

bOn: Switches the addressed devices to the most recent output value.

bOff: Switches the addressed devices off (value 0).

bSetDimmValue: A positive edge at this input sets the addressed devices immediately to the brightness value that is asserted at the *nDimmValue* input. If the value of *nDimmValue* changes, the brightness value is set immediately to the changed value if the *bSetDimmValue* input is FALSE.

nDimmValue: see *bSetDimmValue*.

tSwitchOverTime: Time for switching between the light on/off and dimming functions for the *bSwitchDimm* input.

nAddr: The address of a participating device or of a group.

eAddrType: Short address, group address or broadcast (see [E_DALIV2AddrType](#) [► 401]).

nMasterDevAddr: The address of the master device for group and common switching operations.

tCycleActualLevelMasterDev: Cycle time required to read the current actual value (see [ACTUAL DIM LEVEL](#) [► 80]) in the background. So that the dimming of the lamps is not disturbed, reading always has the lowest priority. If the value is set to 0, reading is prohibited.

VAR_OUTPUT

```
nActualLevelMasterDev : BYTE;
bBusy                : BOOL;
bError              : BOOL;
nErrorId            : UDINT;
```

nActualLevelMasterDev: Current output value of the master device (always the respectively addressed device if *eAddrType = eAddrTypeShort*).

bBusy: When the function block is activated the output is set, and it remains active until execution of the command has been completed.

bError: This output is switched to TRUE as soon as an error occurs during the execution of a command. The command-specific error code is contained in *nErrorId*. Is reset to FALSE by the execution of a command at the inputs.

nErrorId: Contains the command-specific error code of the most recently executed command. Is reset to 0 by the execution of a command at the inputs. (See [error codes](#) [► 380])

VAR_IN_OUT

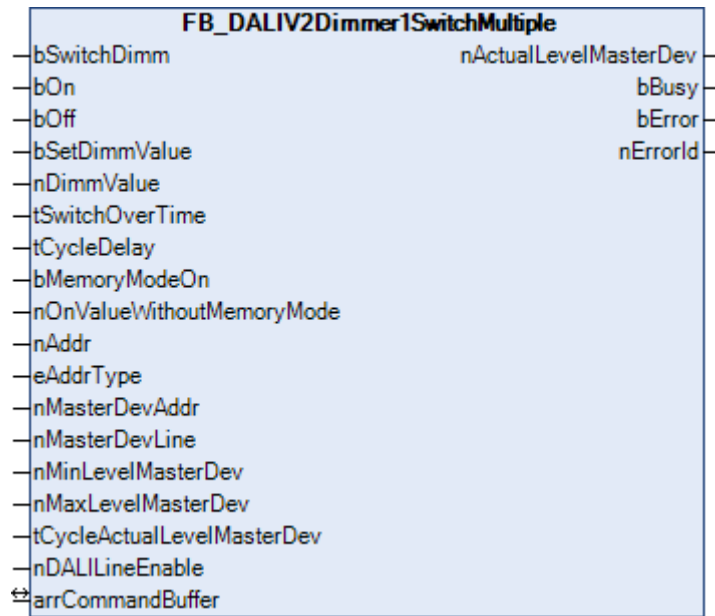
```
stCommandBuffer : ST_DALIV2CommandBuffer;
```

stCommandBuffer: Reference to the internal structure for communication with the function block [FB_KL6811Communication\(\)](#) [► 70] (KL6811) or [FB_KL6821Communication\(\)](#) [► 74] (KL6821).

Requirements

Development environment	required PLC library
TwinCAT from v3.1.4020.14	Tc2_DALI from v3.4.3.0

FB_DALIV2Dimmer1SwitchMultiple



Function block for switching and dimming DALI devices with one switch. For applications in which up to five DALI lines (0..4) can be installed. The basic function of this function block can be found in the description of [FB_DALIV2Dimmer1Switch\(\)](#) [► 22].

VAR_INPUT

```

bSwitchDimm      : BOOL;
bOn              : BOOL;
bOff             : BOOL;
bSetDimmValue   : BOOL;
nDimmValue       : BYTE;
tSwitchOverTime : TIME := t#400ms;
tCycleDelay      : TIME := t#500ms;
bMemoryModeOn   : BOOL := FALSE;
nOnValueWithoutMemoryMode : BYTE := 254;
nAddr           : BYTE := 0;
eAddrType       : E_DALIV2AddrType := eDALIV2AddrTypeShort;
nMasterDevAddr  : BYTE := 0;
nMasterDevLine  : BYTE := 0;
nMinLevelMasterDev : BYTE := 126;
nMaxLevelMasterDev : BYTE := 254;
tCycleActualLevelMasterDev : TIME := t#0s;
nDALILineEnable : BYTE := 2#0000_0001;
    
```

bSwitchDimm: Switches or dims the addressed devices on all the activated DALI lines.

bOn: Switches the addressed devices on all the activated DALI lines to the last output value, or to the value specified by *nOnValueWithoutMemoryMode*.

bOff: Switches the addressed devices on all the activated DALI lines off (value 0).

bSetDimmValue: A positive edge at this input sets the addressed devices on all the activated DALI lines immediately to the brightness value that is asserted at the *nDimmValue* input. If the value of *nDimmValue* changes, the brightness value is set immediately to the changed value if the *bSetDimmValue* input is FALSE.

nDimmValue: see *bSetDimmValue*.

tSwitchOverTime: Time for switching between the light on/off and dimming functions for the *bSwitchDimm* input.

tCycleDelay: Delay time, if either the minimum or maximum value is reached.

bMemoryModeOn: Switches over to use the memory function, so that the previous value is written to the output as soon as it is switched on.

nOnValueWithoutMemoryMode: Switch-on value if the memory function is not active.

nAddr: The address of a participating device or of a group.

eAddrType : Short address, group address or broadcast (see [E_DALIV2AddrType](#) [► 401]).

nMasterDevAddr: The address of the master device for group and common switching operations (0 - 63).

nMasterDevLine: The line on which the master device for group and common configurations is located. Depending on the function block, there is only one master device that is to be selected from one of the activated DALI lines. The lines are numbered from 0 to 4.

nMinLevelMasterDev: The minimum value of the master device.

nMaxLevelMasterDev: The maximum value of the master device.

tCycleActualLevelMasterDev: Cycle time required to read the current actual value (see [ACTUAL DIM LEVEL](#) [► 80]) in the background. So that the dimming of the lamps is not disturbed, reading always has the lowest priority. If the value is set to 0, reading is prohibited.

nDALILineEnable: Input variable in the form of a bit pattern. A 1 in the bit pattern indicates that the DALI line is active. **Example:** 2#01001 means that DALI lines 0 and 3 are enabled.

VAR_OUTPUT

```
nActualLevelMasterDev : BYTE;
bBusy                 : BOOL;
bError                : BOOL;
nErrorId              : UDINT;
```

nActualLevelMasterDev: Current output value of the master device (always the respectively addressed device if *eAddrType = eAddrTypeShort*).

bBusy: When the function block is activated the output is set, and it remains active until execution of the command has been completed.

bError: This output is switched to TRUE as soon as an error occurs during the execution of a command. The command-specific error code is contained in *nErrorId*. Is reset to FALSE by the execution of a command at the inputs.

nErrorId: Contains the command-specific error code of the most recently executed command. Is reset to 0 by the execution of a command at the inputs. (See [error codes](#) [► 380])

VAR_IN_OUT

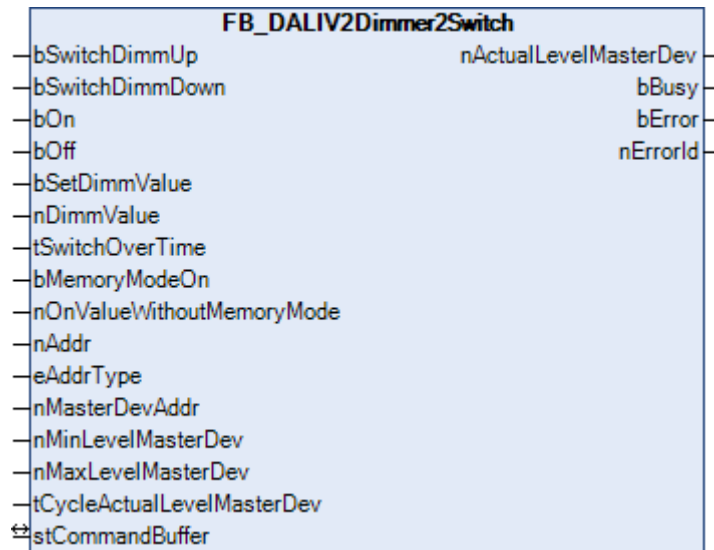
```
stCommandBuffer00 : ST_DALIV2CommandBuffer;
stCommandBuffer01 : ST_DALIV2CommandBuffer;
stCommandBuffer02 : ST_DALIV2CommandBuffer;
stCommandBuffer03 : ST_DALIV2CommandBuffer;
stCommandBuffer04 : ST_DALIV2CommandBuffer;
```

stCommandBuffer00 - stCommandBuffer04 : Reference to the internal structures for communication with the function block [FB_KL6811Communication\(\)](#) [► 70] (KL6811) or [FB_KL6821Communication\(\)](#) [► 74] (KL6821).

Requirements

Development environment	required PLC library
TwinCAT from v3.1.4020.14	Tc2_DALI from v3.4.3.0

FB_DALIV2Dimmer2Switch



The functions available in the FB_DALIDimmer2Switch() function block correspond to those in the FB_DALIV2Dimmer1Switch() [▶ 22] function block. The difference is simply that two switches are connected to the FB_DALIDimmer2Switch() function block. This allows the user to choose specifically between dimming up or dimming down.

Operation by means of the *bSwitchDimmUp* and *bSwitchDimmDown* inputs

The light is switched on or off by a short signal at the *bSwitchDimmUp* or *bSwitchDimmDown* inputs. Dimmer mode will be activated if the signal remains for longer than *tSwitchOverTime* (typical recommended value: 200 ms). The addressed devices are now dimmed to the levels specified by *nMaxLevelMasterDev* and *nMinLevelMasterDev*. When the signal is once more removed, the output signal being generated at that time is retained. Another pulse at one of the inputs will set the output to 0.

Operation by means of the *bOn* and *bOff* inputs

The light is immediately switched on or off if a rising edge is applied to the *bOn* or *bOff* inputs. The output value is set to 0 when switching off. The switch-on behavior can be affected by the memory function (see below).

Operation by means of the *bSetDimmValue* and *nDimmValue* inputs

If the value of *nDimmValue* changes the devices concerned will be switched to this brightness value immediately. The significant point here is that the value changes. The lighting is switched off by changing the value to 0. If there is a rising edge at the *bSetDimmValue* input, the value of *nDimmValue* immediately appears at the output. Immediate modification of the output can be suppressed by a static 1- signal at the *bSetDimmValue* input. This makes it possible to apply a value to the *nDimmValue* input, but for this value only to be passed to the output at the next rising edge of *bSetDimmValue*.

The *bSetDimmValue* and *nDimmValue* inputs can be used to implement a variety of lighting scenarios. Using *nDimmValue* to set the outputs directly can be used to achieve particular brightness levels, either directly or by continuously changing the value. *nDimmValue* must have a value between *nMinLevelMasterDev* and *nMaxLevelMasterDev*. The value 0 is an exception. If the value is outside this range, the output value is limited to the upper or lower limit, as appropriate.

The memory function

It is necessary to determine whether the memory function (*bMemoryModeOn* input) is active or not at switch-on. If the memory function is active, then the last set value is adopted as the brightness value as soon as the device is switched on. If the memory function is not active, a brightness specified by the *nOnValueWithoutMemoryMode* parameter is assigned to the devices concerned. It is irrelevant, in this case, whether the light it has been switched on by means of the *bOn* input or the *bSwitchDimm* input. It should be

noted that the *nOnValueWithoutMemoryMode* parameter must lie between *nMinLevelMasterDev* and *nMaxLevelMasterDev*. If this is not the case, the output value is adjusted to the upper or lower limit, as appropriate.

Comment on the *tSwitchOverTime* parameter

If a duration of 0 is specified for the parameter *tSwitchOverTime*, the *bSwitchDimm* input can only be used to dim the light. Switching on and off is only possible with the *bOn* and *bOff* inputs.

Comment on the *nMasterDevAddr* parameter

The DALI system provides facilities not just for controlling lamps individually, but also for addressing them as groups or through common commands. Since the individual devices may belong to different groups, the individual lamps may have different brightness states before a group or common control command. So that it is nevertheless possible to be clear whether the lamps now are to be switched on or off, a master device is assigned to each group, whose state is followed by the other devices. It is not necessary to specify a master device if the function block is to be used to control a single lamp, *eAddrType = eAddrTypeShort*. In this case, the *nMasterDevAddr* parameter has no significance.

VAR_INPUT

```

bSwitchDimmUp           : BOOL;
bSwitchDimmDown         : BOOL;
bOn                     : BOOL;
bOff                    : BOOL;
bSetDimmValue           : BOOL;
nDimmValue               : BYTE;
tSwitchOverTime         : TIME := t#400ms;
bMemoryModeOn           : BOOL := FALSE;
nOnValueWithoutMemoryMode : BYTE := 254;
nAddr                   : BYTE := 0;
eAddrType               : E_DALIV2AddrType := eDALIV2AddrTypeShort;
nMasterDevAddr          : BYTE := 0;
nMinLevelMasterDev      : BYTE := 126;
nMaxLevelMasterDev      : BYTE := 254;
tCycleActualLevelMasterDev : TIME := t#0s;

```

bSwitchDimmUp: Switches or dims the addressed devices up.

bSwitchDimmDown: Switches or dims the addressed devices down.

bOn: Switches the addressed devices to the last output value, or to the value specified by *nOnValueWithoutMemoryMode*.

bOff: Switches the addressed devices off (value 0).

bSetDimmValue: A positive edge at this input sets the addressed devices immediately to the brightness value that is asserted at the *nDimmValue* input. If the value of *nDimmValue* changes, the brightness value is set immediately to the changed value if the *bSetDimmValue* input is FALSE.

nDimmValue: see *bSetDimmValue*.

tSwitchOverTime: Time for switching between the light on/off and dimming functions for the *bSwitchDimmUp* and *bSwitchDimmDown* inputs.

bMemoryModeOn: Switches over to use the memory function, so that the previous value is written to the output as soon as it is switched on.

nOnValueWithoutMemoryMode: Switch-on value if the memory function is not active.

nAddr: The address of a participating device or of a group.

nMasterDevAddr: The address of the master device for group and common switching operations.

nMinLevelMasterDev: The minimum value of the master device.

nMaxLevelMasterDev: The maximum value of the master device.

eAddrType: Short address, group address or broadcast (see [E_DALIV2AddrType](#) [► 401]).

tCycleActualLevelMasterDev: Cycle time required to read the current actual value (see [ACTUAL DIM LEVEL \[► 80\]](#)) in the background. So that the dimming of the lamps is not disturbed, reading always has the lowest priority. If the value is set to 0, reading is prohibited.

VAR_OUTPUT

```
nActualLevelMasterDev : BYTE;
bBusy                 : BOOL;
bError                : BOOL;
nErrorId              : UDINT;
```

nActualLevelMasterDev: Current output value of the master device (always the respectively addressed device if *eAddrType = eAddrTypeShort*).

bBusy: When the function block is activated the output is set, and it remains active until execution of the command has been completed.

bError: This output is switched to TRUE as soon as an error occurs during the execution of a command. The command-specific error code is contained in *nErrorId*. Is reset to FALSE by the execution of a command at the inputs.

nErrorId: Contains the command-specific error code of the most recently executed command. Is reset to 0 by the execution of a command at the inputs. (See [error codes \[► 380\]](#))

VAR_IN_OUT

```
stCommandBuffer : ST_DALIV2CommandBuffer;
```

stCommandBuffer: Reference to the internal structure for communication with the function block [FB_KL6811Communication\(\) \[► 70\]](#) (KL6811) or [FB_KL6821Communication\(\) \[► 74\]](#) (KL6821).

Requirements

Development environment	required PLC library
TwinCAT from v3.1.4020.14	Tc2_DALI from v3.4.3.0

FB_DALIV2Dimmer2SwitchEco



The [FB_DALIDimmer2SwitchEco\(\)](#) function block is a variant of [FB_DALIV2Dimmer2Switch\(\) \[► 29\]](#) that saves memory space. It is not equipped with the special function “Switch off memory function”.

Operation by means of the bSwitchDimmUp and bSwitchDimmDown inputs

The light is switched on or off by a short signal at the *bSwitchDimmUp* or *bSwitchDimmDown* inputs. Dimmer mode will be activated if the signal remains for longer than *tSwitchOverTime* (typical recommended value: 200ms). The addressed devices are now dimmed. When the signal is once more removed, the output signal being generated at that time is retained. Another pulse at one of the inputs will set the output to 0.

Operation by means of the bOn and bOff inputs

The light is immediately switched on or off if a rising edge is applied to the *bOn* or *bOff* inputs. The output value is set to 0 when switching off.

The memory function

In contrast to `FB_DALIV2Dimmer2Switch()` [► 29], where the memory function can be switched on or off through the *bMemoryModeOn* input, the memory function is always active on this memory-saving version. This means that the most recently set value is adopted for the brightness when switching on. It is irrelevant, in this case, whether the light it has been switched on by means of the *bOn* input or the *bSwitchDimm* input.

Comment on the tSwitchOverTime parameter

If a duration of 0 is specified for the parameter *tSwitchOverTime*, the *bSwitchDimm* input can only be used to dim the light. Switching on and off is only possible with the *bOn* and *bOff* inputs.

Comment on the nMasterDevAddr parameter

The DALI system provides facilities not just for controlling lamps individually, but also for addressing them as groups or through common commands. Since the individual devices may belong to different groups, the individual lamps may have different brightness states before a group or common control command. So that it is nevertheless possible to be clear whether the lamps now are to be switched on or off, a master device is assigned to each group, whose state is followed by the other devices. It is not necessary to specify a master device if the function block is to be used to control a single lamp, *eAddrType* = *eAddrTypeShort*. In this case, the *nMasterDevAddr* parameter has no significance.

VAR_INPUT

```

bSwitchDimmUp           : BOOL;
bSwitchDimmDown         : BOOL;
bOn                     : BOOL;
bOff                    : BOOL;
bSetDimmValue           : BOOL;
nDimmValue              : BYTE;
tSwitchOverTime         : TIME := t#400ms;
nAddr                   : BYTE := 0;
eAddrType               : E_DALIV2AddrType := eDALIV2AddrTypeShort;
nMasterDevAddr          : BYTE := 0;
tCycleActualLevelMasterDev : TIME := t#0s;

```

bSwitchDimmUp: Switches or dims the addressed devices up.

bSwitchDimmDown: Switches or dims the addressed devices down.

bOn: Switches the addressed devices to the most recent output value.

bOff: Switches the addressed devices off (value 0).

bSetDimmValue: A positive edge at this input sets the addressed devices immediately to the brightness value that is asserted at the *nDimmValue* input. If the value of *nDimmValue* changes, the brightness value is set immediately to the changed value if the *bSetDimmValue* input is FALSE.

nDimmValue: see *bSetDimmValue*.

tSwitchOverTime: Time for switching between the light on/off and dimming functions for the *bSwitchDimm* input.

nAddr: The address of a participating device or of a group.

eAddrType: Short address, group address or broadcast (see `E_DALIV2AddrType` [► 401]).

nMasterDevAddr: The address of the master device for group and common switching operations.

tCycleActualLevelMasterDev: Cycle time required to read the current actual value (see `ACTUAL DIM LEVEL` [► 80]) in the background. So that the dimming of the lamps is not disturbed, reading always has the lowest priority. If the value is set to 0, reading is prohibited.

VAR_OUTPUT

```
nActualLevelMasterDev : BYTE;
bBusy                 : BOOL;
bError                : BOOL;
nErrorId              : UDINT;
```

nActualLevelMasterDev: Current output value of the master device (always the respectively addressed device if *eAddrType* = *eAddrTypeShort*).

bBusy: When the function block is activated the output is set, and it remains active until execution of the command has been completed.

bError: This output is switched to TRUE as soon as an error occurs during the execution of a command. The command-specific error code is contained in *nErrorId*. Is reset to FALSE by the execution of a command at the inputs.

nErrorId: Contains the command-specific error code of the most recently executed command. Is reset to 0 by the execution of a command at the inputs. (See [error codes](#) [▶ 380])

VAR_IN_OUT

```
stCommandBuffer : ST_DALIV2CommandBuffer;
```

stCommandBuffer: Reference to the internal structure for communication with the function block [FB_KL6811Communication\(\)](#) [▶ 70] (KL6811) or [FB_KL6821Communication\(\)](#) [▶ 74] (KL6821).

Requirements

Development environment	required PLC library
TwinCAT from v3.1.4020.14	Tc2_DALI from v3.4.3.0

FB_DALIV2Light



The [FB_DALIV2Light\(\)](#) function block is a simple function block for switching DALI lamps on and off.

Operation

A positive edge applied to the *bOn* input will switch the light to the maximum value ([MAX LEVEL](#) [▶ 80]) of the control gear. If the function block is executed successfully, the *bLight* output is set to TRUE. Applying a positive edge to the *bOff* input will switch the light off, and the *bLight* output will be set to FALSE. If a positive edge is applied to *bToggle*, the function block first reads the current light value from the master device, and then decides whether the status of the lamp is on or off. Once this decision has been reached, the lamp is then placed into whatever the other state is, i.e. it is switched from on to off or from off to on.

Comment on the nMasterDevAddr parameter

The DALI system provides facilities not just for controlling lamps individually, but also for addressing them as groups or through common commands. Since the individual devices may belong to different groups, the individual lamps may have different brightness states before a group or common control command. So that it is nevertheless possible to be clear whether the lamps now are to be switched on or off, a master device is

assigned to each group, whose state is followed by the other devices. It is not necessary to specify a master device if the function block is to be used to control a single lamp, $eAddrType = eAddrTypeShort$. In this case, the $nMasterDevAddr$ parameter has no significance.

VAR_INPUT

```
bOn          : BOOL;
bOff         : BOOL;
bToggle     : BOOL;
nAddr       : BYTE := 0;
eAddrType   : E_DALIV2AddrType := eDALIV2AddrTypeShort;
nMasterDevAddr : BYTE := 0;
tCycleActualLevelMasterDev : TIME := t#0s;
```

bOn: Switches the addressed devices on (to the value [MAX LEVEL \[► 80\]](#)).

bOff: Switches the addressed devices off (to value 0).

bToggle: Reverses the status of the addressed devices.

nAddr: The address of a participating device or of a group.

eAddrType: Short address, group address or broadcast (see [E_DALIV2AddrType \[► 401\]](#)).

nMasterDevAddr: The address of the master device for group and common switching operations.

tCycleActualLevelMasterDev: Cycle time required to read the current actual value (see [ACTUAL DIM LEVEL \[► 80\]](#)) in the background. So that the dimming of the lamps is not disturbed, reading always has the lowest priority. If the value is set to 0, reading is prohibited.

VAR_OUTPUT

```
bLight      : BOOL;
bBusy       : BOOL;
bError      : BOOL;
nErrorId    : UDINT;
```

bLight: The status of the lamp or group after the function block has been called.

bBusy: When the function block is activated the output is set, and it remains active until execution of the command has been completed.

bError: This output is switched to TRUE as soon as an error occurs during the execution of a command. The command-specific error code is contained in $nErrorId$. Is reset to FALSE by the execution of a command at the inputs.

nErrorId: Contains the command-specific error code of the most recently executed command. Is reset to 0 by the execution of a command at the inputs. (See [error codes \[► 380\]](#))

VAR_IN_OUT

```
stCommandBuffer : ST_DALIV2CommandBuffer;
```

stCommandBuffer: Reference to the internal structure for communication with the function block [FB_KL6811Communication\(\) \[► 70\]](#) (KL6811) or [FB_KL6821Communication\(\) \[► 74\]](#) (KL6821).

Requirements

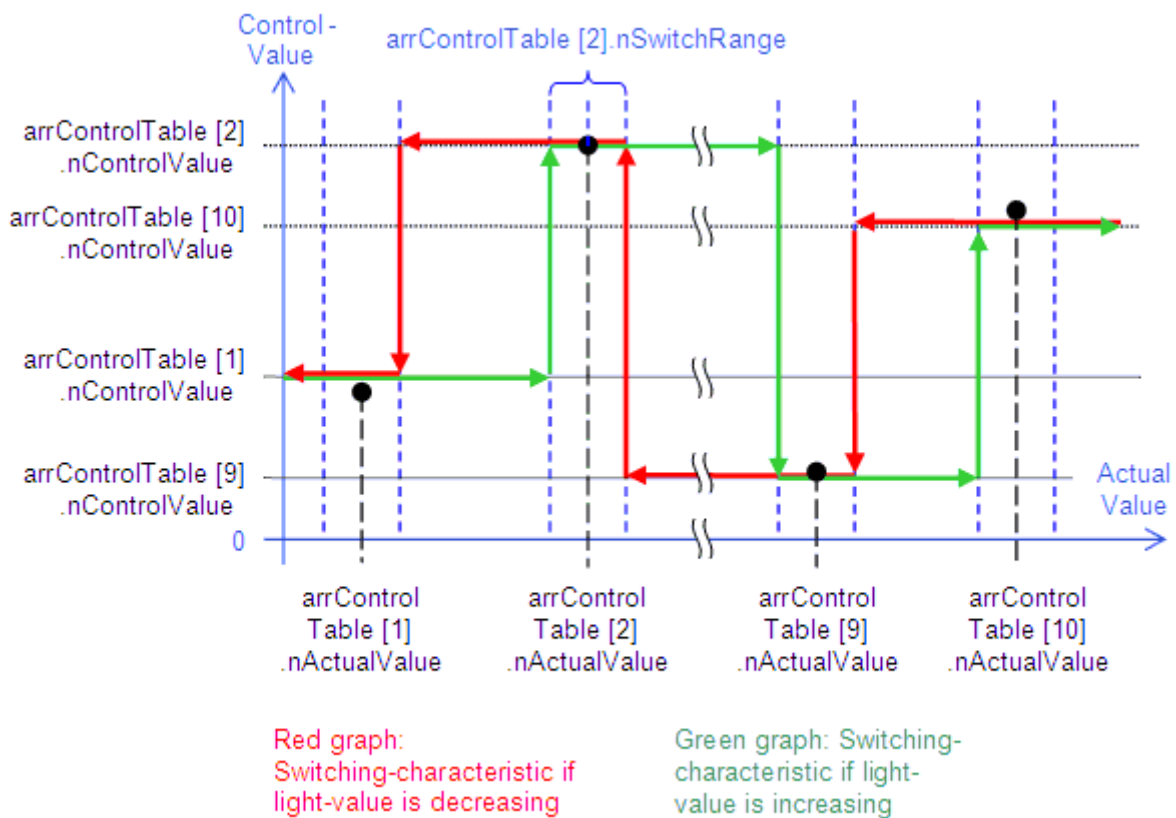
Development environment	required PLC library
TwinCAT from v3.1.4020.14	Tc2_DALI from v3.4.3.0

FB_DALIV2LightControl



Function block for daylight-dependent lighting control with up to 30 interpolation points.

At the core of this function block is an input/control value table of 30 elements with threshold switching. If the actual value of the brightness reaches the range of an interpolation point ($arrControlTable[n].nActualValue - arrControlTable[n].nSwitchRange/2$ to $arrControlTable[n].nActualValue + arrControlTable[n].nSwitchRange/2$), the control value jumps to the corresponding value $arrControlTable[n].nControlValue$ (see diagram). Coupled to this is a ramp block that runs up the control value over the time $tRampTime$. When switching on with a positive edge at bOn , however, the light is initially switched directly to the nearest control value. Only then is the controller activated. While the control is active, 'post-starting' can take place at any time with a positive edge at bOn , thus directly controlling the light to the nearest control variable. A positive edge at $bOff$ directly switches off all the controlled lamps.



The whole range of the table does not have to be used. The first table element that has a 0 as the table end $nSwitchRange$ is regarded as the beginning of the unused range.

Comment on the nMasterDevAddr parameter

The DALI system provides facilities not just for controlling lamps individually, but also for addressing them as groups or through common commands. Since the individual devices may belong to different groups, the individual lamps may have different brightness states before a group or common control command. So that it is nevertheless possible to be clear whether the lamps now are to be switched on or off, a master device is assigned to each group, whose state is followed by the other devices. It is not necessary to specify a master device if the function block is to be used to control a single lamp, *eAddrType = eAddrTypeShort*. In this case, the *nMasterDevAddr* parameter has no significance.

VAR_INPUT

```
bEnable          : BOOL := TRUE;
bOn              : BOOL;
bOff             : BOOL;
nActualValue     : UINT;
tRampTime        : TIME := t#30s;
arrControlTable  : ARRAY[1..30] OF ST_DALIV2ControlTable;
nOptions         : DWORD := 0;
nAddr            : BYTE := 0;
eAddrType        : E_DALIV2AddrType := eDALIV2AddrTypeShort;
nMasterDevAddr   : BYTE := 0;
tCycleActualLevelMasterDev : TIME := t#0s;
```

bEnable: The *bOn* and *bOff* inputs are active as long as this input is TRUE. A negative state deactivates the inputs and resets the function block after processing the last necessary DALI commands. No further DALI commands are then output, apart from the cyclic querying of the brightness of the master device.

bOn: A positive edge switches the controlled lamp directly to the nearest control value.

bOff: A positive edge immediately switches off the controlled lamps.

nActualValue: Actual value of the brightness.

tRampTime: Period during which the control value is controlled to the next value (preset value: 30 s).

arrControlTable: Input/control value table. *arrControlTable [1]* to *arrControlTable [30]* of the type *ST_DALIV2ControlTable* (see [ST_DALIV2ControlTable \[▶ 404\]](#)).

nOptions: Reserved for future developments.

nAddr: Address of the single device in case of individual control or of the group in the case of group control.

nMasterDevAddr: The address of the master device for group and common switching operations.

eAddrType: Short address, group address or broadcast (see [E_DALIV2AddrType \[▶ 401\]](#)).

tCycleActualLevelMasterDev: Cycle time required to read the current control value (see [ACTUAL DIM LEVEL \[▶ 80\]](#)) in the background. So that the dimming of the lamps is not disturbed, reading always has the lowest priority. If the value is set to 0, reading is prohibited.

VAR_OUTPUT

```
nActualLevelMasterDev : BYTE;
bBusy                 : BOOL;
bError                : BOOL;
nErrorId              : UDINT;
```

nActualLevelMasterDev: Current output value of the master device (always the respectively addressed device if *eAddrType = eAddrTypeShort*).

bBusy: When the function block is activated the output is set, and it remains active until execution of the command has been completed.

bError: This output is switched to TRUE as soon as an error occurs during the execution of a command. The command-specific error code is contained in *nErrorId*. Is reset to FALSE by the execution of a command at the inputs.

nErrorId: Contains the command-specific error code of the most recently executed command. Is reset to 0 by the execution of a command at the inputs. (See [error codes \[▶ 380\]](#))

VAR_IN_OUT

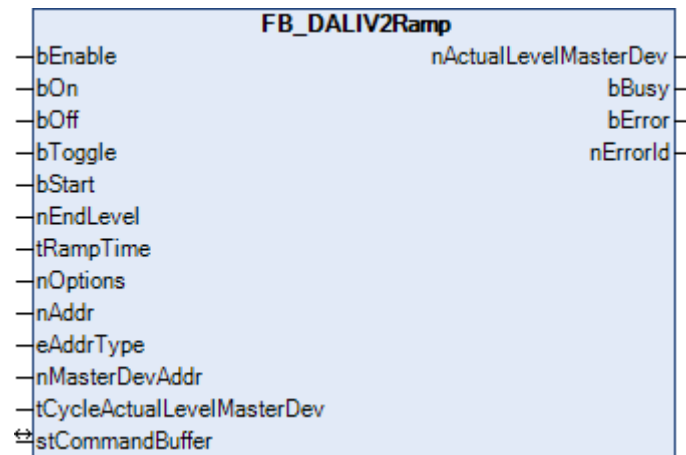
stCommandBuffer : ST_DALIV2CommandBuffer;

stCommandBuffer: Reference to the internal structure for communication with the function block FB_KL6811Communication() [▶ 70] (KL6811) or FB_KL6821Communication() [▶ 74] (KL6821).

Requirements

Development environment	required PLC library
TwinCAT from v3.1.4020.14	Tc2_DALI from v3.4.3.0

FB_DALIV2Ramp



Function block for realizing a light-ramp.

A rising edge at the input *bOn* switches the light to the maximum value of the master lamp. A rising edge at input *bOff* switches the light off. Rising edges at the *bToggle* input invert the respective light state. A positive edge at the *bStart* input allows the function block to dim the light from the current level to *nEndLevel*. The time required for this is defined by *tRampTime*. All inputs are only active as long as *bEnable* is *TRUE*; otherwise the function block is internally reset and no further DALI commands are output.

At each start of the dimming ramp a check takes place to determine whether the *nEndLevel* value lies within the permissible limits (MIN LEVEL [▶ 80] to MAX LEVEL [▶ 80]) of the master device. The value "0" is also allowed.

Ramp implementation

Basically, the function block is designed such that it issues the required number of *OnAndStepUp* or *StepDownAndOff* commands at uniform intervals within the specified ramp time.

However, processing of these step and query commands also takes time. The further the ramp time is reduced, the more likely is it that the internally calculated time for a StepUp or StepDown command is no longer sufficient. The actual ramp time will keep increasing, relative to the set time.

In order to be able to realize small ramps, the operating principle of the function block is switched from step mode to *DirectArcPower* mode when the ramp time falls below an internally preset limit value of 11 s. The DALI command *DirectArcPowerControl* brings the corresponding lamps from their current value to the set end value within the FADE TIME [▶ 80]. In total there are 16 different fade time values, which are stored in the control unit for each lamp:

nFadeTime	tFadeTime (s)
0	<0.0707
1	0.707
2	1.000
3	1.414
4	2.000
5	2.828
6	4.000
7	5.657
8	8.000
9	11.314
10	16.000
11	22.627
12	32.000
13	45.255
14	64.000
15	90.510

The next value for the ramp that is set at the function block is taken from the table and programmed for all control gears to be controlled. At 6 s, step 7 = 5.657 s would apply, for example. The same value would also be used for a ramp time of 5 s. Precise timing would then no longer be possible. After successful completion of the ramp control, the value of the master device **before** the time setting is transferred back to all control gears.

During the ramp motion the value *nActualLevelMasterDev* is output as internally calculated value, in order to avoid burdening the DALI bus with recurring query commands. This calculation is based on the difference between start and end value and the selected ramp time. Since it is a calculated value, it can be subject to errors caused by rounding and command delays and should be used for guidance only. After completion of the ramp the brightness is queried directly and the output value is exact again.

Comment on the nMasterDevAddr parameter

The DALI system provides facilities not just for controlling lamps individually, but also for addressing them as groups or through common commands. Since the individual devices may belong to different groups, the individual lamps may have different brightness states before a group or common control command. So that it is nevertheless possible to be clear whether the lamps now are to be switched on or off, a master device is assigned to each group, whose state is followed by the other devices. It is not necessary to specify a master device if the function block is to be used to control a single lamp, *eAddrType = eAddrTypeShort*. In this case, the *nMasterDevAddr* parameter has no significance.

VAR_INPUT

```

bEnable      : BOOL := TRUE;
bOn          : BOOL;
bOff         : BOOL;
bToggle      : BOOL;
bStart       : BOOL;
nEndLevel    : BYTE;
tRampTime    : TIME := t#8s;
nOptions     : DWORD := 0;
nAddr        : BYTE := 0;
eAddrType    : E_DALIV2AddrType := eDALIV2AddrTypeShort;
nMasterDevAddr : BYTE := 0;
tCycleActualLevelMasterDev : TIME := t#0s;

```

bEnable: The *bOn*, *bOff*, *bToggle* and *bStart* inputs are active as long as this input is TRUE. A negative state deactivates the inputs and resets the function block after processing the last necessary DALI commands. No further DALI commands are then output, apart from the cyclic querying of the brightness of the master device.

bOn: A rising edge directly switches the controlled lamps to the maximum value of the master lamp.

bOff: A positive edge immediately switches off the controlled lamps.

bToggle: A rising edge immediately switches the controlled lamps off if the master lamp is **not** switched off and switches them on if the master lamp is off.

bStart: If a positive edge is applied to this input, the light is dimmed up or down respectively from the current value (the master device is decisive here) to *nEndLevel*. The time required for this is defined by *tRampTime*. The dimming procedure can be interrupted at any time by *bOn*, *bOff* or *bToggle*.

nEndLevel: Target value of the dimming procedure. (Valid range of values: 0 or [MIN LEVEL \[▶ 80\]](#) to [MAX LEVEL \[▶ 80\]](#)).

tRampTime: Ramp time, see *bStart*. (Preset value: 8 seconds).

nOptions: Reserved for future developments.

nAddr: Address of the single device in case of individual control or of the group in the case of group control.

nMasterDevAddr: The address of the master device for group and common switching operations.

eAddrType: Short address, group address or broadcast (see [E_DALIV2AddrType \[▶ 401\]](#)).

tCycleActualLevelMasterDev: Cycle time with which the actual value is read in the background (see [ACTUAL DIM LEVEL \[▶ 80\]](#)). So that the dimming of the lamps is not disturbed, reading always has the lowest priority. If the value is set to 0, reading is prohibited.

VAR_OUTPUT

```
nActualLevelMasterDev : BYTE;
bBusy                  : BOOL;
bError                 : BOOL;
nErrorId               : UDINT;
```

nActualLevelMasterDev: Current output value of the master device (always the respectively addressed device if *eAddrType = eAddrTypeShort*).

bBusy: When the function block is activated the output is set, and it remains active until execution of the command has been completed.

bError: This output is switched to TRUE as soon as an error occurs during the execution of a command. The command-specific error code is contained in *nErrorId*. Is reset to FALSE by the execution of a command at the inputs.

nErrorId: Contains the command-specific error code of the most recently executed command. Is reset to 0 by the execution of a command at the inputs. (See [error codes \[▶ 380\]](#))

VAR_IN_OUT

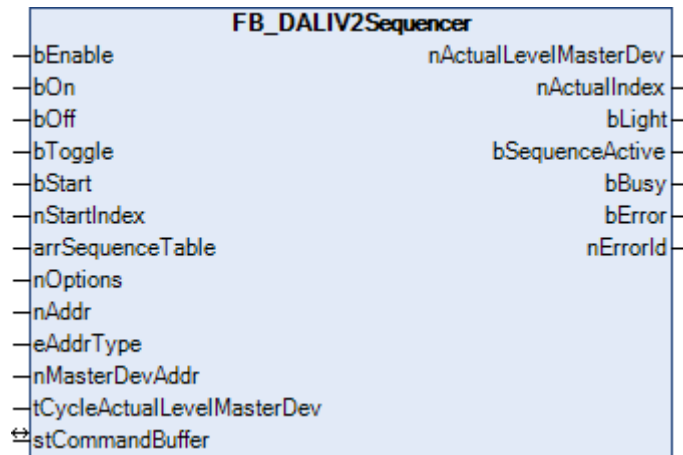
```
stCommandBuffer : ST_DALIV2CommandBuffer;
```

stCommandBuffer: Reference to the internal structure for communication with the function block [FB_KL6811Communication\(\) \[▶ 70\]](#) (KL6811) or [FB_KL6821Communication\(\) \[▶ 74\]](#) (KL6821).

Requirements

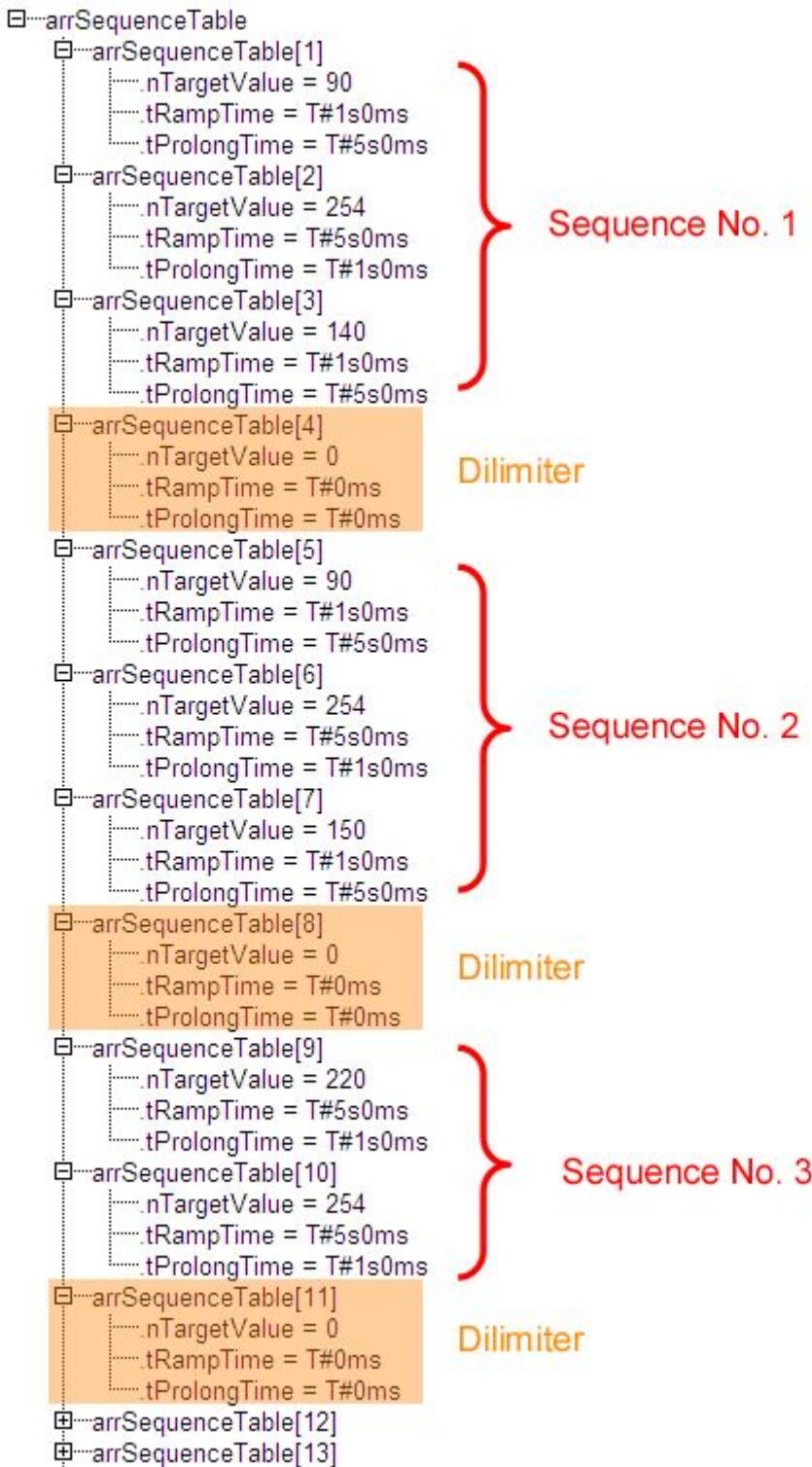
Development environment	required PLC library
TwinCAT from v3.1.4020.14	Tc2_DALI from v3.4.3.0

FB_DALIV2Sequencer

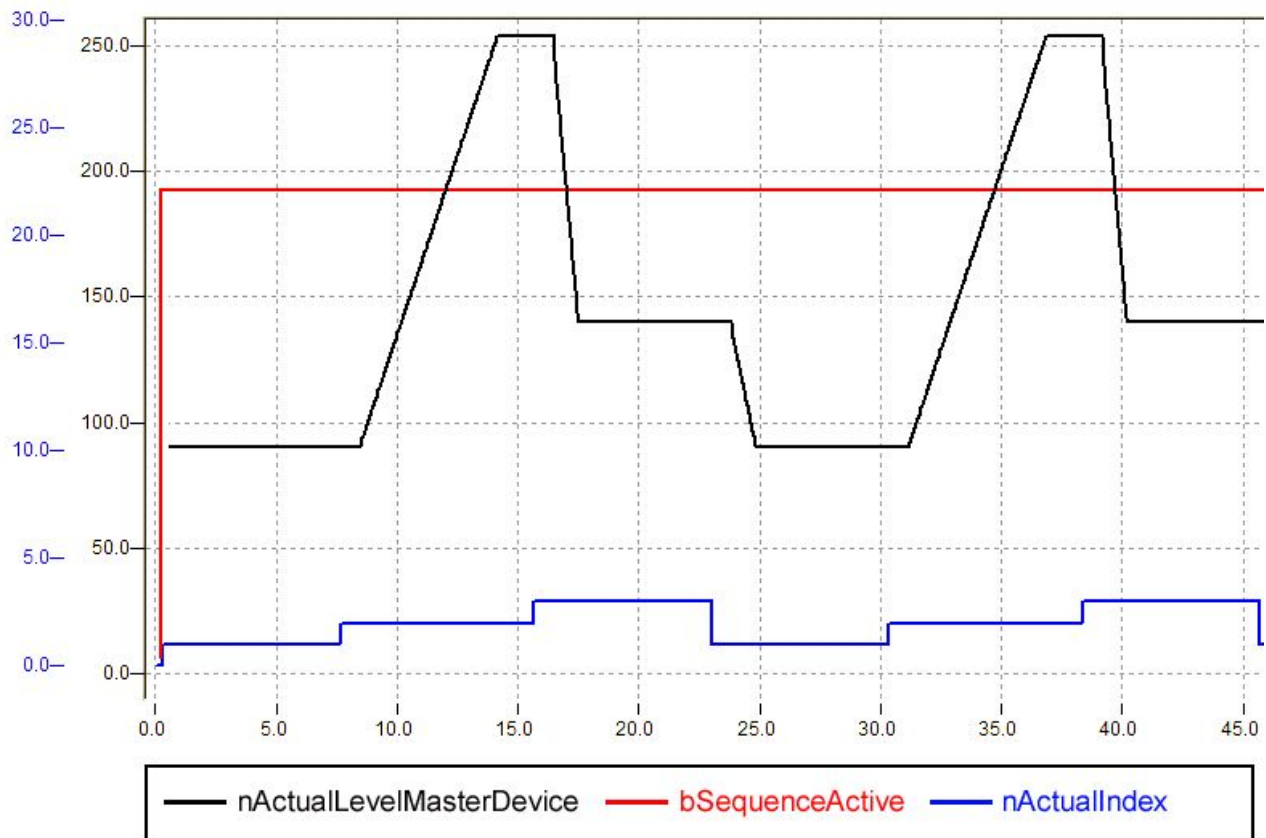


Function block for realizing light sequences with up to 50 interpolation points.

The core of this function block is a ramp block that drives over an adjustable time to individual brightness values defined in a table and then remains at this brightness value for a similarly definable time. After the dwell time the next value is then driven to. As already mentioned, the table *arrSequenceTable* consists of 50 entries with the values for *nTargetValue* (target value), *tRampTime* (time taken to reach the target value) and *tProlongTime* (dwell time at the target value). It is not absolutely necessary to use all 50 values. A 0 entry of all 3 values marks the end of a sequence. Beyond that it is possible using the *nStartIndex* input to have a light sequence begin at any desired place in the table. This allows several different light sequences to be programmed even within the 50 entries, the sequences being separated from one another by 0 entry elements:



Over the course of time sequence 1, for example, looks like the following (*nStartIndex=1*, *nOptions.bit0=TRUE*, see below for explanation):



Beyond that the function block can be switched "normally" on and off (On: maximum value of the lamps, Off: 0) and switched back and forth between "On" and "Off" using the *bToggle* input. However, none of the command inputs is active unless the *bEnable* input is *TRUE*. If it is reset to *FALSE*, no more commands are accepted and the light value retains its current state – even from a ramp.



As explained at the beginning, this function block is based on the [FB_DALIV2Ramp](#) [▶ 37]. The ramp block tries to map the set ramp time as accurately as possible. Nevertheless it is necessary to query data from the DALI control gears both once and cyclically, which takes a different amount of time depending on the set PLC cycle time. Therefore inaccuracies in the ramp time cannot be ruled out.

VAR_INPUT

```

bEnable      : BOOL := TRUE;
bOn          : BOOL;
bOff         : BOOL;
bToggle      : BOOL;
bStart       : BOOL;
nStartIndex  : USINT := 0;
arrSequenceTable : ARRAY [1..nMaxSequenceValues] OF ST_DALIV2SequenceTable;
nOptions     : DWORD := 0;
nAddr        : BYTE := 0;
eAddrType    : E_DALIV2AddrType := eDALIV2AddrTypeShort;
nMasterDevAddr : BYTE := 0;
tCycleActualLevelMasterDev : TIME := t#0s;

```

bEnable: The *bOn*, *bOff*, *bToggle* and *bStart* inputs are active as long as this input is *TRUE*. A negative state deactivates the inputs and resets the function block.

bOn: A positive edge directly switches *nActualLevelMasterDevice* to the maximum value.

bOff: A positive edge immediately switches *nActualLevelMasterDevice* to "0".

bToggle: Switches the light state back and forth respectively between On (maximum value) and Off (0).

bStart: A positive edge starts a light sequence from the beginning defined under *nStartIndex*.

nStartIndex: see *bStart*.

arrSequenceTable: Light value table with the associated ramp and dwell times (see [ST_DALIV2SequenceTable](#) [[▶ 406](#)]).

nOptions: Parameterization input. The setting (or non-setting) of the individual bits of this variable of the type *DWORD* has the following effect:

Bit	Description
0	<p>not set: The function block ceases its activity following the expiry of a sequence. Another positive edge at <i>bStart</i> would be required for a sequence restart.</p> <p>set: Following the expiry of a sequence, the function block automatically continues at the point defined at <i>nStartIndex</i>.</p>
1..31	-- reserved for future options --

nAddr: Address of the single device in case of individual control or of the group in the case of group control.

nMasterDevAddr: The address of the master device for group and common switching operations.

eAddrType: Short address, group address or broadcast (see [E_DALIV2AddrType](#) [[▶ 401](#)]).

tCycleActualLevelMasterDev: Cycle time with which the actual value is read in the background (see [ACTUAL DIM LEVEL](#) [[▶ 80](#)]). So that the controlling of the lamps is not disturbed, reading always has the lowest priority. If the value is set to 0, reading is prohibited.

VAR_OUTPUT

```
nActualLevelMasterDev : BYTE;
nActualIndex          : USINT;
bLight                : BOOL;
bSequenceActive       : BOOL;
bBusy                 : BOOL;
bError                : BOOL;
nErrorId              : UDINT;
```

nActualLevelMasterDev: Current output value of the master device (always the respectively addressed device if *eAddrType = eAddrTypeShort*).

nActualIndex : Reference to the current element in the sequence table. Once a sequence is finished (*bSequenceActive = FALSE*, see below), this output becomes "0".

bLight: This output is set as long as *nActualLevelMasterDev* is greater than "0".

bSequenceActive: On processing a sequence this output is set to *TRUE*.

bBusy: This output is always active as long as the processing of a command (*bOn, bOff, bToggle* or ramp) is active.

bError: This output is switched to *TRUE* as soon as an error occurs during the execution of a command. The command-specific error code is contained in *nErrorId*. Is reset to *FALSE* by the execution of a command at the inputs.

nErrorId: Contains the specific error code of the most recently executed command. Is reset to "0" by the execution of a command at the inputs. (See [error codes](#) [[▶ 380](#)])

VAR_IN_OUT

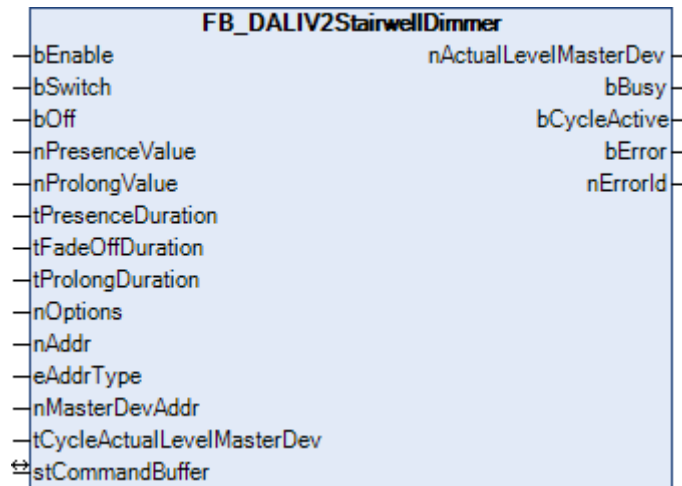
```
stCommandBuffer : ST_DALIV2CommandBuffer;
```

stCommandBuffer: Reference to the internal structure for communication with the function block [FB_KL6811Communication\(\)](#) [[▶ 70](#)] (KL6811) or [FB_KL6821Communication\(\)](#) [[▶ 74](#)] (KL6821).

Requirements

Development environment	required PLC library
TwinCAT from v3.1.4020.14	Tc2_DALI from v3.4.3.0

FB_DALIV2StairwellDimmer



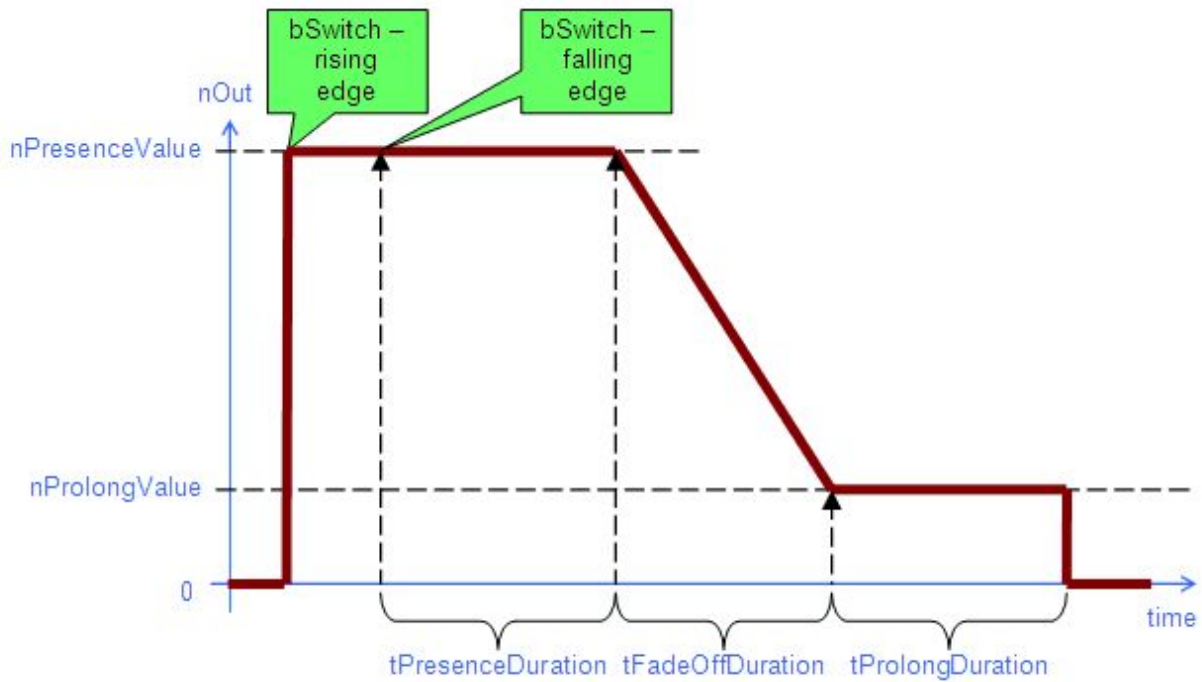
Function block for controlling stairwell lighting.

The light is switched to the value *nPresenceValue* by a positive edge at the *bSwitch* input. A negative edge on *bSwitch* starts or restarts a timer with the running time of *tPresenceDuration*. On expiry of this timer the controlled lamps are dimmed within the time *tFadeTime* to the value *nProlongValue*. This value is maintained for the time period *tProlongDuration*. Following which the light is switched off. A positive edge at the *bOff* input immediately switches the light off, a new positive edge at the *bSwitch* input switches the light on again at any time - even during the dimming and waiting times.

Each time the light is switched on a check is performed to determine whether the values *nPresenceValue* and *nProlongValue* lie within the permissible limits (*MIN LEVEL* [▶ 80] to *MAX LEVEL* [▶ 80]) of the master device. The value "0" is also permitted. Beyond that it is possible for *nPresenceValue* to be smaller than *nProlongValue* or for the two values to be identical.

Comment on the *nMasterDevAddr* parameter

The DALI system provides facilities not just for controlling lamps individually, but also for addressing them as groups or through common commands. Because the individual devices can be members of a variety of groups, it can happen that, prior to the issue of a group or common control command, the individual lamps have different brightness levels. So that it is nevertheless possible to be clear whether the lamps now are to be switched on or off, a master device is assigned to each group, whose state is followed by the other devices. It is not necessary to specify a master device if the function block is to be used to control a single lamp, *eAddrType* = *eAddrTypeShort*. In this case, the *nMasterDevAddr* parameter has no significance.



VAR_INPUT

```

bEnable      : BOOL := TRUE;
bSwitch      : BOOL;
bOff         : BOOL;
nPresenceValue : BYTE;
nProlongValue  : BYTE;
tPresenceDuration : TIME := t#30s;
tFadeOffDuration  : TIME := t#10s;
tProlongDuration  : TIME := t#20s;
nOptions      : DWORD := 0;
nAddr        : BYTE := 0;
eAddrType    : E_DALIV2AddrType := eDALIV2AddrTypeShort;
nMasterDevAddr : BYTE;
tCycleActualLevelMasterDev : TIME := t#0s;
    
```

bEnable: As long as this input is TRUE, the inputs bOn and bOff are active. A negative state disables the inputs and resets the function block after the last required DALI commands have been processed. No further DALI commands are then issued, except the cyclic query of the brightness of the master device.

bSwitch: Upon a positive edge: the controlled lamps are switched directly to *nPresenceValue*. Upon a negative edge: start of the presence time (see diagram).

bOff: Immediately switches off the controlled lamps.

nPresenceValue: Value to which the controlled lamps are to be switched during the presence time. (Valid range of values: 0 or MIN LEVEL [▶ 80] to MAX LEVEL [▶ 80] - preset value: 254).

nProlongValue: Value to which the controlled lamps are to be switched during the dwell time. (Valid range of values: 0 or MIN LEVEL [▶ 80] to MAX LEVEL [▶ 80] - preset value: 200).

tPresenceDuration: Duration of the presence time for which the controlled lamps are switched to *nPresenceValue* after a negative edge at *bSwitch*. (Preset value: 30 seconds).

tFadeOffDuration: Time duration in which the brightness value is controlled from *nPresenceValue* to *nProlongValue*. (Preset value: 10 seconds).

tProlongDuration: Duration of the dwell time. (Preset value: 20 seconds).

nOptions: Reserved for future developments.

nAddr: Address of the single device in case of individual control or of the group in the case of group control.

eAddrType: Short address, group address or broadcast (see [E_DALIV2AddrType](#) [[▶ 401](#)]).

nMasterDevAddr: The address of the master device for group and common switching operations.

tCycleActualLevelMasterDev: Cycle time required to read the current actual value (see [ACTUAL DIM LEVEL](#) [[▶ 80](#)]) in the background. So that the dimming of the lamps is not disturbed, reading always has the lowest priority. If the value is set to 0, reading is prohibited.

VAR_OUTPUT

```
nActualLevelMasterDev : BYTE;
bBusy                 : BOOL;
bError                : BOOL;
nErrorId              : UDINT;
```

nActualLevelMasterDev: Current output value of the master device (always the respectively addressed device if *eAddrType = eAddrTypeShort*).

bBusy: This output is always set when a change of light is active, i.e. on, off and ramp. Start and target value are irrelevant. This output would also be set in the case of a ramp, for example, from 100 to 100 in 10 s.

bCycleActive: Upon activation of the function block the output is set and remains active until the cycle has been processed or the lamps have been switched off.

bError: This output is switched to TRUE as soon as an error occurs during the execution of a command. The command-specific error code is contained in *nErrorId*. Is reset to FALSE by the execution of a command at the inputs.

nErrorId: Contains the command-specific error code of the most recently executed command. Is reset to 0 by the execution of a command at the inputs. (See [error codes](#) [[▶ 380](#)])

VAR_IN_OUT

```
stCommandBuffer : ST_DALIV2CommandBuffer;
```

stCommandBuffer: Reference to the internal structure for communication with the function block [FB_KL6811Communication\(\)](#) [[▶ 70](#)] (KL6811) or [FB_KL6821Communication\(\)](#) [[▶ 74](#)] (KL6821).

Requirements

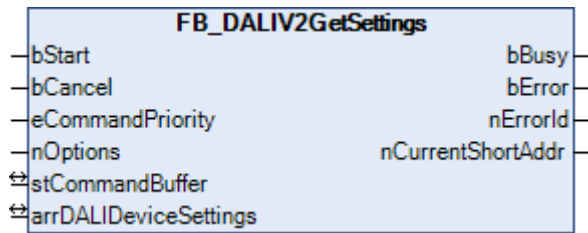
Development environment	required PLC library
TwinCAT from v3.1.4020.14	Tc2_DALI from v3.4.3.0

4.1.1.1.3 Settings

Function blocks

Name	Description
FB_DALIV2GetSettings [▶ 47]	Function block for reading all device data of all control gears in a DALI line.
FB_DALIV2GetSettingsSingleDevice [▶ 49]	Function block for reading all device data of a control gear in a DALI line.
FB_DALIV2SetSettings [▶ 52]	Function block for setting all device data of all control gears in a DALI line.

FB_DALIV2GetSettings



This function block reads the variables (MIN LEVEL, MAX LEVEL, FADE TIME, ...) of all control gears within DALI line and saves them in a structure of type [ST_DALIV2DeviceSettings](#) [[▶ 405](#)].

Applying a positive edge to the *bStart* input starts the function block, and the *bBusy* output goes TRUE. A check is first made as to whether a control gear is present at all. If this is the case, then the *bPresent* bit is set in the corresponding structure (see [ST_DALIV2DeviceSettings](#) [[▶ 405](#)]), after which the settings of the control gear are read out one by one and written in the associated variables in the structure. If it is found that a device is not available, the reading is skipped and work continues with the next device. The structure index here reflects the address of the device. In other words, data for the device with short address 0 is located at *arrDALIDeviceSettings[0]*, and so on through to the device with short address 63 having its data at *arrDALIDeviceSettings[63]*. If a read error occurs when reading from a device, the corresponding bit in *nErrors* is set for the respective structure without the function block itself switching to error mode. The following table shows which bit is set in the *nErrors* variable when an error occurs during the reading of a variable from a control gear.

Bit	Error
0	An error occurred whilst attempting to seek the control gear.
1	Error whilst reading the variable ACTUAL DIM LEVEL [▶ 80].
2	Error whilst reading the variable POWER ON LEVEL [▶ 80].
3	Error whilst reading the variable SYSTEM FAILURE LEVEL [▶ 80].
4	Error whilst reading the variable MIN LEVEL [▶ 80].
5	Error whilst reading the variable MAX LEVEL [▶ 80].
6	Error whilst reading the variable FADE RATE [▶ 80].
7	Error whilst reading the variable FADE TIME [▶ 80].
8	Error whilst reading the variable RANDOM ADDRESS [▶ 80].
9	Error whilst reading the variables GROUP 0-7 [▶ 80] and GROUP 8-15 [▶ 80].
10	Error whilst reading the variables SCENE 0 [▶ 80] to SCENE 15 [▶ 80].
11	Error whilst reading the variable STATUS INFORMATION [▶ 80].
12	Error whilst reading the variable VERSION NUMBER [▶ 80].
13	Error whilst reading the variable DEVICE TYPE [▶ 80].
14	Error whilst reading the variable PHYSICAL MIN LEVEL [▶ 80].

When the function block has been processed, the *bBusy* output changes from TRUE to FALSE. Processing this function block can take several seconds, depending on how many control gears are attached.

VAR_INPUT

```

bStart      : BOOL;
bCancel     : BOOL;
eCommandPriority : E_DALIV2CommandPriority := eDALIV2CommandPriorityMiddle;
nOptions    : DWORD;

```

bStart: The function block is activated by a positive edge at this input.

bCancel: A rising edge at this input will deactivate the function block and hence abort the reading of the variable.

eCommandPriority: Priority (high, medium or low) with which the command is processed by the library (see [E_DALIV2CommandPriority](#) [► 401]).

nOptions: Options for reading the variables (see table). The individual constants must be linked with OR operators.

Constant	Description
DALIV2_OPTION_ACTUAL_DIM_LEVEL	The variable ACTUAL DIM LEVEL [► 80] is read.
DALIV2_OPTION_POWER_ON_LEVEL	The variable POWER ON LEVEL [► 80] is read.
DALIV2_OPTION_SYSTEM_FAILURE_LEVEL	The variable SYSTEM FAILURE LEVEL [► 80] is read.
DALIV2_OPTION_MIN_LEVEL	The variable MIN LEVEL [► 80] is read.
DALIV2_OPTION_MAX_LEVEL	The variable MAX LEVEL [► 80] is read.
DALIV2_OPTION_FADE_RATE_FADE_TIME	The variables FADE RATE [► 80] and FADE TIME [► 80] are read.
DALIV2_OPTION_RANDOM_ADDRESS	The variable RANDOM ADDRESS [► 80] is read.
DALIV2_OPTION_GROUPS	The variables GROUP 0-7 [► 80] and GROUP 8-15 [► 80] are read.
DALIV2_OPTION_SCENE_LEVELS	The variables SCENE 0 [► 80] to SCENE 15 [► 80] are read.
DALIV2_OPTION_STATUS_INFORMATION	The variable STATUS INFORMATION [► 80] is read.
DALIV2_OPTION_VERSION_NUMBER	The variable VERSION NUMBER [► 80] is read.
DALIV2_OPTION_DEVICE_TYPE	The variable DEVICE TYPE [► 80] is read.
DALIV2_OPTION_PHYSICAL_MIN_LEVEL	The variable PHYSICAL MIN LEVEL [► 80] is read.
DALIV2_OPTION_DONT_CLEAR_DEVICE_SETTINGS	The <i>arrDALIDeviceSettings</i> variable is not cleared before reading.
DALIV2_OPTION_ALL	All variables are read.

VAR_OUTPUT

```

bBusy      : BOOL;
bError     : BOOL;
nErrorId   : UDINT;
nCurrentShortAddr : BYTE;

```

bBusy: When the function block is activated the output is set, and it remains active until execution of the command has been completed.

bError: This output is switched to TRUE as soon as an error occurs during the execution of a command. The command-specific error code is contained in *nErrorId*. Is reset to FALSE by the execution of a command at the inputs.

nErrorId: Contains the command-specific error code of the most recently executed command. Is reset to 0 by the execution of a command at the inputs. (See [error codes](#) [► 380])

nCurrentShortAddr: Short address of the current control gear from which variables are being read.

VAR_IN_OUT

```
stCommandBuffer : ST_DALIV2CommandBuffer;
arrDALIDeviceSettings : ARRAY [0..63] OF ST_DALIV2DeviceSettings;
```

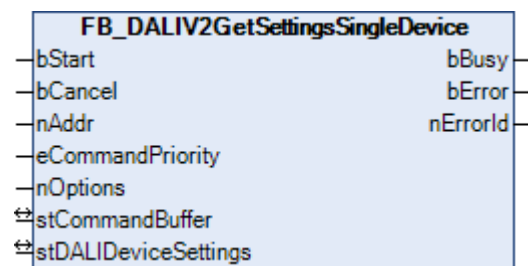
stCommandBuffer: Reference to the internal structure for communication with the function block [FB_KL6811Communication\(\)](#) [▶ 70] (KL6811) or [FB_KL6821Communication\(\)](#) [▶ 74] (KL6821).

arrDALIDeviceSettings: Reference to an array of 64 elements (see [ST_DALIV2DeviceSettings](#) [▶ 405]). The settings of each individual DALI control gear are stored in this variable.

Requirements

Development environment	required PLC library
TwinCAT from v3.1.4020.14	Tc2_DALI from v3.4.3.0

FB_DALIV2GetSettingsSingleDevice



As opposed to the [FB_DALIV2GetSettings\(\)](#) [▶ 47] function block, this block reads the variables (MIN LEVEL, MAX LEVEL, FADE TIME, etc.) from just one particular device and saves them in a structure of the type [ST_DALIV2DeviceSettings](#) [▶ 405].

Applying a positive edge to the *bStart* input starts the function block, and the *bBusy* output goes TRUE. The settings of all control gears are then read sequentially and written into the respective variables of the structure. If a read error occurs when reading from a device, the *nErrors* element is set for the respective structure without the function block itself switching to error mode. The following table shows which bit is set in the *nErrors* variable when an error occurs during the reading of a variable from a control gear.

Bit	Error
0	An error occurred whilst attempting to seek the control gear.
1	Error whilst reading the variable <u>ACTUAL DIM LEVEL</u> [▶ 80].
2	Error whilst reading the variable <u>POWER ON LEVEL</u> [▶ 80].
3	Error whilst reading the variable <u>SYSTEM FAILURE LEVEL</u> [▶ 80].
4	Error whilst reading the variable <u>MIN LEVEL</u> [▶ 80].
5	Error whilst reading the variable <u>MAX LEVEL</u> [▶ 80].
6	Error whilst reading the variable <u>FADE RATE</u> [▶ 80].
7	Error whilst reading the variable <u>FADE TIME</u> [▶ 80].
8	Error whilst reading the variable <u>RANDOM ADDRESS</u> [▶ 80].
9	Error whilst reading the variables <u>GROUP 0-7</u> [▶ 80] and <u>GROUP 8-15</u> [▶ 80].
10	Error whilst reading the variables <u>SCENE 0</u> [▶ 80] to <u>SCENE 15</u> [▶ 80].
11	Error whilst reading the variable <u>STATUS INFORMATION</u> [▶ 80].
12	Error whilst reading the variable <u>VERSION NUMBER</u> [▶ 80].
13	Error whilst reading the variable <u>DEVICE TYPE</u> [▶ 80].
14	Error whilst reading the variable <u>PHYSICAL MIN LEVEL</u> [▶ 80].

When the function block has been processed, the *bBusy* output changes from TRUE to FALSE.

VAR_INPUT

```

bStart      : BOOL;
bCancel     : BOOL;
nAddr       : BYTE;
eCommandPriority : E_DALIV2CommandPriority := eDALIV2CommandPriorityMiddle;
nOptions    : DWORD;

```

bStart: The function block is activated by a positive edge at this input.

bCancel: A rising edge at this input will deactivate the function block and hence abort the reading of the variable.

nAddr: The address of the device whose values are to be read.

eCommandPriority: Priority (high, medium or low) with which the command is processed by the library (see [E_DALIV2CommandPriority](#) [[▶ 401](#)]).

nOptions: Options for reading the variables (see table). The individual constants must be linked with OR operators.

Constant	Description
DALIV2_OPTION_ACTUAL_DIM_LEVEL	The variable <u>ACTUAL DIM LEVEL</u> [▶ 80] is read.
DALIV2_OPTION_POWER_ON_LEVEL	The variable <u>POWER ON LEVEL</u> [▶ 80] is read.
DALIV2_OPTION_SYSTEM_FAILURE_LEVEL	The variable <u>SYSTEM FAILURE LEVEL</u> [▶ 80] is read.
DALIV2_OPTION_MIN_LEVEL	The variable <u>MIN LEVEL</u> [▶ 80] is read.
DALIV2_OPTION_MAX_LEVEL	The variable <u>MAX LEVEL</u> [▶ 80] is read.
DALIV2_OPTION_FADE_RATE_FADE_TIME	The variables <u>FADE RATE</u> [▶ 80] and <u>FADE TIME</u> [▶ 80] are read.
DALIV2_OPTION_RANDOM_ADDRESS	The variable <u>RANDOM ADDRESS</u> [▶ 80] is read.
DALIV2_OPTION_GROUPS	The variables <u>GROUP 0-7</u> [▶ 80] and <u>GROUP 8-15</u> [▶ 80] are read.
DALIV2_OPTION_SCENE_LEVELS	The variables <u>SCENE 0</u> [▶ 80] to <u>SCENE 15</u> [▶ 80] are read.
DALIV2_OPTION_STATUS_INFORMATION	The variable <u>STATUS INFORMATION</u> [▶ 80] is read.
DALIV2_OPTION_VERSION_NUMBER	The variable <u>VERSION NUMBER</u> [▶ 80] is read.
DALIV2_OPTION_DEVICE_TYPE	The variable <u>DEVICE TYPE</u> [▶ 80] is read.
DALIV2_OPTION_PHYSICAL_MIN_LEVEL	The variable <u>PHYSICAL MIN LEVEL</u> [▶ 80] is read.
DALIV2_OPTION_DONT_CLEAR_DEVICE_SETTINGS	The <i>stDALIDeviceSettings</i> variable is not cleared before reading.
DALIV2_OPTION_ALL	All variables are read.

VAR_OUTPUT

```
bBusy      : BOOL;
bError     : BOOL;
nErrorId  : UDINT;
```

bBusy: When the function block is activated the output is set, and it remains active until execution of the command has been completed.

bError: This output is switched to TRUE as soon as an error occurs during the execution of a command. The command-specific error code is contained in *nErrorId*. Is reset to FALSE by the execution of a command at the inputs.

nErrorId: Contains the command-specific error code of the most recently executed command. Is reset to 0 by the execution of a command at the inputs. (See error codes [▶ 380])

VAR_IN_OUT

```
stCommandBuffer      : ST_DALIV2CommandBuffer;
stDALIDeviceSettings : ST_DALIV2DeviceSettings;
```

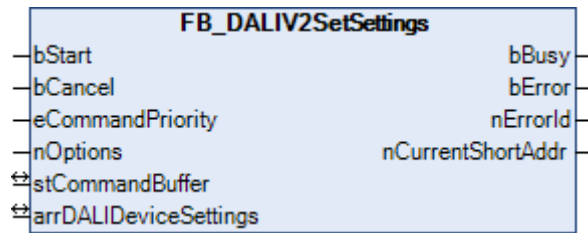
stCommandBuffer: Reference to the internal structure for communication with the function block FB_KL6811Communication() [▶ 70] (KL6811) or FB_KL6821Communication() [▶ 74] (KL6821).

stDALIDeviceSettings: Reference to a structure (see ST_DALIV2DeviceSettings [▶ 405]). The settings of the DALI ballast are stored in this variable.

Requirements

Development environment	required PLC library
TwinCAT from v3.1.4020.14	Tc2_DALI from v3.4.3.0

FB_DALIV2SetSettings



This function block initializes the variables (MIN LEVEL, MAX LEVEL, FADE TIME ...) of all control gears within a DALI line with the values stored in a structure of type [ST_DALIV2DeviceSettings](#) [[▶ 405](#)].

Applying a positive edge to the *bStart* input starts the function block, and the *bBusy* output goes TRUE. The system first checks whether the *bPresent* bit is set in the respective structure (see [ST_DALIV2DeviceSettings](#) [[▶ 405](#)]). If this is the case, all control gear variables that are not read-only are initialized with the respective values of the structure. The structure index here reflects the address of the control gear. In other words, data for the device with short address 0 is located at *arrDALIDeviceSettings[0]*, and so on through to the control gear with short address 63 having its data at *arrDALIDeviceSettings[63]*. If a write error occurs for a device, the *nErrors* element is set for the respective structure without the function block itself switching to error mode. The following table shows which bit is set in the *nErrors* variable when an error occurs during the writing of a variable to a control gear.

Bit	Error
2	Error whilst writing the variable POWER ON LEVEL [▶ 80].
3	Error whilst writing the variable SYSTEM FAILURE LEVEL [▶ 80].
4	Error whilst writing the variable MIN LEVEL [▶ 80].
5	Error whilst writing the variable MAX LEVEL [▶ 80].
6	Error whilst writing the variable FADE RATE [▶ 80].
7	Error whilst writing the variable FADE TIME [▶ 80].
9	Error whilst writing the variables GROUP 0-7 [▶ 80] and GROUP 8-15 [▶ 80].
10	Error whilst writing the variables SCENE 0 [▶ 80] to SCENE 15 [▶ 80].

When the function block has been processed, the *bBusy* output changes from TRUE to FALSE. Processing this function block can take several seconds, depending on how many control gears are attached.

VAR_INPUT

```

bStart          : BOOL;
bCancel         : BOOL;
eCommandPriority : E_DALIV2CommandPriority := eDALIV2CommandPriorityMiddle;
nOptions        : DWORD;

```

bStart: The function block is activated by a positive edge at this input.

bCancel: A rising edge at this input will deactivate the function block and hence abort the initialization of the variable.

eCommandPriority: Priority (high, medium or low) with which the command is processed by the library (see [E_DALIV2CommandPriority](#) [[▶ 401](#)]).

nOptions: Options for writing the variables (see table). The individual constants must be linked with OR operators.

Constant	Description
DALIV2_OPTION_POWER_ON_LEVEL	The variable <u>POWER ON LEVEL</u> [▶ 80] is initialized.
DALIV2_OPTION_SYSTEM_FAILURE_LEVEL	The variable <u>SYSTEM FAILURE LEVEL</u> [▶ 80] is initialized.
DALIV2_OPTION_MIN_LEVEL	The variable <u>MIN LEVEL</u> [▶ 80] is initialized.
DALIV2_OPTION_MAX_LEVEL	The variable <u>MAX LEVEL</u> [▶ 80] is initialized.
DALIV2_OPTION_FADE_RATE	The variable <u>FADE RATE</u> [▶ 80] is initialized.
DALIV2_OPTION_FADE_TIME	The variable <u>FADE TIME</u> [▶ 80] is initialized.
DALIV2_OPTION_GROUPS	The variables <u>GROUP 0-7</u> [▶ 80] and <u>GROUP 8-15</u> [▶ 80] are initialized.
DALIV2_OPTION_SCENE_LEVELS	The variables <u>SCENE 0</u> [▶ 80] to <u>SCENE 15</u> [▶ 80] are initialized.
DALIV2_OPTION_ALL	All variables are initialized.
DALIV2_OPTION_PUSH_DALI_COMMANDS	The buffer containing the feedback messages from the ballasts is not read. Hence, writing becomes faster, but errors are not recognized.

VAR_OUTPUT

```
bBusy          : BOOL;
bError         : BOOL;
nErrorId       : UDINT;
nCurrentShortAddr : BYTE;
```

bBusy: When the function block is activated the output is set, and it remains active until execution of the command has been completed.

bError: This output is switched to TRUE as soon as an error occurs during the execution of a command. The command-specific error code is contained in *nErrorId*. Is reset to FALSE by the execution of a command at the inputs.

nErrorId: Contains the command-specific error code of the most recently executed command. Is reset to 0 by the execution of a command at the inputs. (See error codes [▶ 380])

nCurrentShortAddr: Short address of the current control gear from which variables are being read.

VAR_IN_OUT

```
stCommandBuffer : ST_DALIV2CommandBuffer;
arrDALIDeviceSettings : ARRAY [0..63] OF ST_DALIV2DeviceSettings;
```

stCommandBuffer: Reference to the internal structure for communication with the function block FB_KL6811Communication() [▶ 70] (KL6811) or FB_KL6821Communication() [▶ 74] (KL6821).

arrDALIDeviceSettings: Reference to an array of 64 elements (see ST_DALIV2DeviceSettings [▶ 405]). The settings of each individual DALI control gear are stored in this variable.

Requirements

Development environment	required PLC library
TwinCAT from v3.1.4020.14	Tc2_DALI from v3.4.3.0

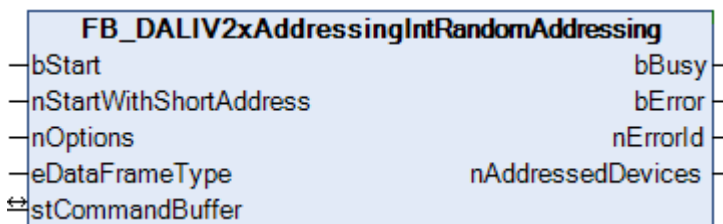
4.1.1.2 Part 103 (control units)

4.1.1.2.1 Addressing

Function blocks

Name	Description
FB_DALIV2xAddressingIntRandomaddressing [▶ 54]	Addresses the control units (sensors) at random. The internal addressing function of the Bus Terminal is used for this purpose.
FB_DALIV2xChangeAddressList [▶ 55]	This function block can be used to change the short addresses of several control units.

FB_DALIV2xAddressingIntRandomAddressing



This function block addresses the control units (sensors) at random. The user has no influence on which control unit is assigned which short address. Short addresses are allocated in ascending order.

Applying a positive edge to the *bStart* input starts the function block, and the *bBusy* output goes TRUE. The terminal now addresses all control units independently. If all control units are addressed, the *bBusy* output goes back to FALSE. The output variable *nAddressedDevices* provides information on how many control units were assigned a short address. Depending on the number of connected control units, processing of this function block can take several minutes.

VAR_INPUT

```

bStart          : BOOL;
nStartWithShortAddress : BYTE := 0;
nOptions        : DWORD := DALIV2_OPTION_OPTICAL_FEEDBACK;
eDataFrameType  : E_DALIV2DataFrameType := eDALIV2DataFrameType24Bit;
    
```

bStart: A positive edge at this input activates the function block, thereby starting the addressing sequence.

nStartWithShortAddress: Short address assigned to the first control unit (0... 63).

nOptions: Options for addressing control units (see table). The individual constants must be linked with OR operators.

eDataFrameType: Output format of the DALI command (*eDALIV2DataFrameType24Bit* or *eDALIV2DataFrameTypeOsram*).

Constant	Description
DALIV2_OPTION_COMPLETE_NEW_INSTALLATION	All control units are redirected, even those that already have a short address.
DALIV2_OPTION_OPTICAL_FEEDBACK	Newly addressed control units receive the DALI command IDENTIFY DEVICE after the short addresses have been assigned.

VAR_OUTPUT

```

bBusy           : BOOL;
bError          : BOOL;
nErrorId        : UDINT;
nAddressedDevices : BYTE;
    
```


bBusy: When the function block is activated the output is set, and it remains active until execution of the command has been completed.

bError: This output is switched to TRUE as soon as an error occurs during the execution of a command. The command-specific error code is contained in *nErrorId*. Is reset to FALSE by the execution of a command at the inputs.

nErrorId: Contains the command-specific error code of the most recently executed command. Is reset to 0 by the execution of a command at the inputs. (See [error codes](#) [▶ 380])

nAddressedDevices: When addressing is completed (*bBusy* is FALSE), the number of addressed control units is displayed at this output.

VAR_IN_OUT

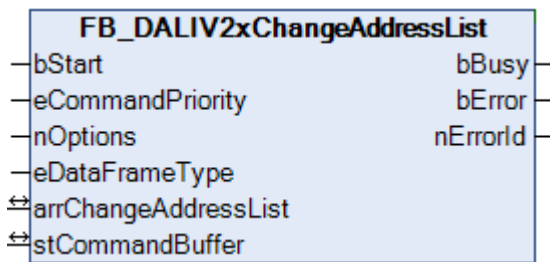
```
stCommandBuffer : ST_DALIV2CommandBuffer;
```

stCommandBuffer: Reference to the internal structure for communication with the function block FB_KL6821Communication() [▶ 74] (KL6821).

Requirements

Development environment	required PLC library
TwinCAT from v3.1.4022.4	Tc2_DALI from v3.6.2.0

FB_DALIV2xChangeAddressList



This function block can be used to change the short addresses of several control units.

A list of the control units for which the short address is to be changed is transferred in the array *arrChangeAddressList* of type *ST_DALIV2ChangeAddressList* [▶ 404]. The list has 64 entries from 0 to 63. Each entry contains a variable *nOldAddress* and *nNewAddress* with which the address assignment is parameterized. The end of the list is programmed with a 255 entry at *nOldAddress*, so that the whole list does not necessarily have to be filled in. If this entry is missing, however, then all entries are accepted. When the function block is started (positive edge on *bStart*), the list end is first determined on the basis of the above-described entry and afterwards the valid list range is examined for the following false entries:

- Address entries > 63
- Double address entry on the original page *nOldAddress* (would not make sense)
- Double address entry on the target page *nNewAddress* (leads to double assignment of an address and, hence, to errors)

The function block then determines the internal long addresses of the DALI devices on the basis of the short addresses and enters them respectively to the parameters *nRandomAddressHigh*, *nRandomAddressMiddle* and *nRandomAddressLow* in the list. If an error occurs during this query, this leads to a false entry for the respective device in the list element *nErrors* (see *ST_DALIV2ChangeAddressList* [▶ 404]). The further sequence in the function block now depends on the option *DALIV2_OPTION_SAFE_ADDRESSING* (*nOptions* input). If it is set, then safe new addressing takes place: first of all, all short addresses of the selected DALI devices are deleted. Afterwards, status queries are sent to all desired new addresses in the DALI line.

Two cases are possible:

- If a device responds to this query, then this desired new address is already otherwise assigned. The previously “deleted” DALI devices are programmed with their old addresses and an error message is output.
- If no devices respond to this status query, then the previously “deleted” DALI devices are programmed with the desired new addresses.

The reprogramming is checked afterwards in both cases. If an error occurs during deletion, during the status query or during the reprogramming, this leads to a false entry for the respective device in the list element `nErrors` (see [ST_DALIV2ChangeAddressList \[► 404\]](#)).

If the option `DALIV2_OPTION_SAFE_ADDRESSING` (`nOptions` input) is **not** set, then the deletion of the short addresses and the status query for the presence of desired new addresses are omitted and the new addresses are programmed directly. This is possible because programming takes place via the long address determined beforehand. Reprogramming is not verified in this case.

The individual bits in the list element `nErrors` have the following meaning:

Bit	Error
0	Error whilst reading the high byte of the long address (<code>nRandomAddressHigh</code>).
1	Error whilst reading the middle byte of the long address (<code>nRandomAddressMiddle</code>).
2	Error whilst reading the low byte of the long address (<code>nRandomAddressLow</code>).
3	Error whilst deleting a short address.
4	Error whilst verifying a short address.
5	Error whilst programming a short address.
6	The value of the variable <code>nOldAddress</code> is equal to the value of the variable <code>nNewAddress</code> . The entry in the list is ignored. (Tc2_DALI from v3.6.10.0)

VAR_INPUT

```

bStart          : BOOL;
eCommandPriority : E_DALIV2CommandPriority [► 401] := eDALIV2CommandPriorityHigh;
nOptions        : DWORD := 0;
eDataFrameType  : E_DALIV2DataFrameType [► 402] := eDALIV2DataFrameType24Bit;

```

bStart: The function block is activated by a positive edge at this input.

eCommandPriority: Priority (high, medium or low) with which the command is processed by the library.

nOptions: Options for writing the variables (see table). The individual constants must be linked with OR operators.

Constant	Description
<code>DALIV2_OPTION_SAFE_ADDRESSING</code>	Secure addressing: Old short addresses are deleted, the new ones are checked for already existing ones and the reprogramming is verified.

eDataFrameType: Output format of the DALI command (`eDALIV2DataFrameType24Bit` or `eDALIV2DataFrameTypeOsram`).

VAR_OUTPUT

```

bBusy   : BOOL;
bError  : BOOL;
nErrorId : UDINT;

```

bBusy: When the function block is activated the output is set, and it remains active until execution of the command has been completed.

bError: This output is switched to TRUE as soon as an error occurs during the execution of a command. The command-specific error code is contained in *nErrorId*. Is reset to FALSE by the execution of a command at the inputs.

nErrorId: Contains the command-specific error code of the most recently executed command. Is reset to 0 by the execution of a command at the inputs. (See [error codes](#) [▶ 380])

VAR_IN_OUT

```
arrChangeAddressList : ARRAY [0..63] OF ST_DALIV2ChangeAddressList;
stCommandBuffer      : ST_DALIV2CommandBuffer;
```

stCommandBuffer: Reference to the internal structure for communication with the function block [FB_KL6821Communication\(\)](#) [▶ 74] (KL6821).

arrChangeAddressList: A reference to the list containing the short addresses to be changed.

Requirements

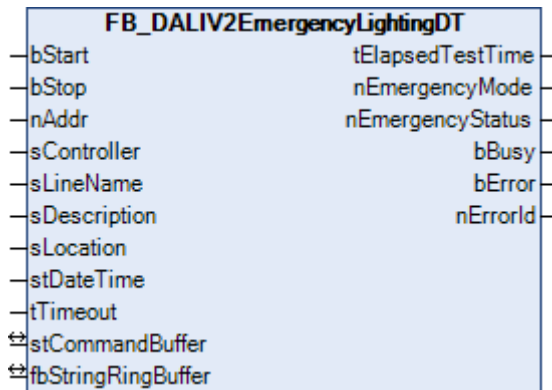
Development environment	required PLC library
TwinCAT from v3.1.4022.4	Tc2_DALI from v3.6.2.0

4.1.1.3 Part 202 (emergency lighting)

Function blocks

Name	Description
FB_DALIV2EmergencyLightingDT [▶ 58]	This function block is for the duration test of a DALI emergency lighting device. At the end of the test the test results are written over a FIFO buffer (IN-OUT variable <i>fbStringRingBuffer</i>), which in turn is read by the FB_DALIV2FileLogging() function block into a file.
FB_DALIV2EmergencyLightingFT [▶ 59]	This function block is for the function test of a DALI emergency lighting device. At the end of the test the test results are written over a FIFO buffer (IN-OUT variable <i>fbStringRingBuffer</i>), which in turn is read by the FB_DALIV2FileLogging() function block into a file.
FB_DALIV2FileLogging [▶ 61]	This function block reads the respective FIFO buffers (IN-OUT variable <i>fbStringRingBuffer</i>) written in the FB_DALIV2EmergencyLightingFT() and FB_DALIV2EmergencyLightingDT() function blocks and writes the contents into a log file.
FB_DALIV2GetSettingsType01 [▶ 62]	This function block reads the variables (BATTERY CHARGE, DURATION TEST RESULT, LAMP EMERGENCY TIME...) from all emergency lighting control gears in a DALI line and stores them in a structure.
FB_DALIV2SetSettingsType01 [▶ 65]	This function block initializes the variables (EMERGENCY LEVEL, FUNCTION TEST DELAY TIME, DURATION TEST DELAY TIME...) of all emergency lighting control gears in a DALI line with the values that are stored in a structure.

4.1.1.3.1 FB_DALIV2EmergencyLightingDT



This function block is for the duration test of a DALI emergency lighting device. At the end of the test the test results are written over a FIFO buffer (IN-OUT variable *fbStringRingBuffer*), which in turn is read by the *FB_DALIV2FileLogging()* function block into a file. Events that hinder or interrupt the test are displayed in addition to the result message at the *bError* and *nErrorID* outputs.

The following events prevent the execution of a duration test:

- The device operates in automatic duration test mode, i.e. a test interval is programmed in the device.
- The device is currently executing a test or a test is automatically pending (function or duration test).
- The emergency battery is not completely charged.
- The device is not in emergency standby ("normal mode") at the start of the test.

Events that interrupt an active duration test include the following:

- The device has not reached the duration test mode after the test has started.
- The test was not completed correctly, after the test start and a certain delay time the device is eventually neither in test mode nor (back) in emergency standby mode ("normal mode").
- A DALI command was incorrectly processed.
- The timeout has expired.

VAR_INPUT

```

bStart      : BOOL;
bStop       : BOOL;
nAddr       : BYTE;
sController : STRING(20);
sLineName   : STRING(10);
sDescription : STRING(20);
sLocation   : STRING(20);
stDateTime  : TIMESTRUCT;
tTimeout    : TIME := t#120m;

```

bStart: The function block is activated by a positive edge at this input.

bStop: If a duration test has been successfully started, the [emergency mode \[► 216\]](#) and the [emergency status \[► 216\]](#) are internally cyclically queried in order to assess when the test is completed and whether errors have occurred during the test. A positive edge at the *bStop* input aborts the duration test in precisely this phase and records a corresponding message in the log file. This is useful if it is only necessary to assess whether the emergency lighting runs for a certain time (until the time of stopping).

nAddr: Address of the device to be tested.

sController: Controller to which the DALI device belongs. Serves the description in the log file.

sLineName: Line to which the DALI device belongs. Serves the description in the log file.

sDescription: Further supplementary description of the device in the log file.

sLocation: Description of the installation location.

stDateTime: Input for current date and time.

tTimeout: Time within which the test must be completed.

VAR_OUTPUT

```
tElapsedTestTime : TIME;
nEmergencyMode   : BYTE;
nEmergencyStatus : BYTE;
bBusy            : BOOL;
bError           : BOOL;
nErrorId         : UDINT;
```

tElapsedTestTime: Test duration. The time output is set to 0 by a rising edge at *bStart* and then counts up as long as the function block is active. Upon a falling edge at *bBusy* the output retains its present value, so that the test duration is still available even after function block processing.

nEmergencyMode: During the test, the presently internally queried emergency mode [▶ 216] of the DALI device is output at this output.

nEmergencyStatus: the same applies to emergency status. [▶ 216]

bBusy: When the function block is activated the output is set, and it remains active until execution of the command has been completed.

bError: This output is switched to TRUE if an error, as described above, occurs during the execution of the test. This output is reset on restarting a test.

nErrorId: Contains the command-specific error code of the most recently executed command. It is reset to 0 on executing a new test. (See error codes [▶ 380])

VAR_IN_OUT

```
stCommandBuffer : ST_DALIV2CommandBuffer;
fbStringRingBuffer : FB_MemRingBuffer;
```

stCommandBuffer: Reference to the internal structure for communication with the function block FB_KL6811Communication() [▶ 70] (KL6811) or FB_KL6821Communication() [▶ 74] (KL6821).

fbStringRingBuffer: Reference to the FIFO buffer in which the log entries are stored.

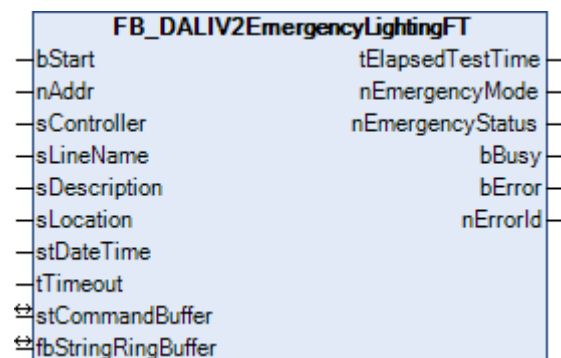


It is not possible for the log function block to write data to a file as long as that file is open.

Requirements

Development environment	required PLC library
TwinCAT from v3.1.4020.14	Tc2_DALI from v3.4.3.0

4.1.1.3.2 FB_DALIV2EmergencyLightingFT



This function block is for the function test of a DALI emergency lighting device. At the end of the test the test results are written over a FIFO buffer (IN-OUT variable *fbStringRingBuffer*), which in turn is read by the *FB_DALIV2FileLogging()* function block into a file. Events that hinder or interrupt the test are displayed in addition to the result message at the *bError* and *nErrorID* outputs.

The following events prevent the execution of a function test:

- The device operates in automatic function test mode, i.e. a test interval is programmed in the device.
- The device is currently executing a test or a test is automatically pending (function or duration test).
- The device is not in emergency standby ("normal mode") at the start of the test.

The events that interrupt a function test that has begun include:

- The device has not reached the function test mode after the test has started.
- The test was not completed correctly, after the test start and a certain delay time the device is eventually neither in test mode nor (back) in emergency standby mode ("normal mode").
- A DALI command was incorrectly processed.
- The timeout has expired.

VAR_INPUT

```
bStart      : BOOL;
nAddr       : BYTE;
sController : STRING(20);
sLineName   : STRING(10);
sDescription : STRING(20);
sLocation   : STRING(20);
stDateTime  : TIMESTRUCT;
tTimeout    : TIME := t#120m;
```

bStart: The function block is activated by a positive edge at this input.

nAddr: Address of the device to be tested.

sController: Controller to which the DALI device belongs. Serves the description in the log file.

sLineName: Line to which the DALI device belongs. Serves the description in the log file.

sDescription: Further supplementary description of the device in the log file.

sLocation: Description of the installation location.

stDateTime: Input for current date and time.

tTimeout: Time within which the test must be completed.

VAR_OUTPUT

```
tElapsedTestTime : TIME;
nEmergencyMode   : BYTE;
nEmergencyStatus : BYTE;
bBusy            : BOOL;
bError           : BOOL;
nErrorId         : UDINT;
```

tElapsedTestTime: Test duration. The time output is set to 0 by a rising edge at *bStart* and then counts up as long as the function block is active. Upon a falling edge at *bBusy* the output retains its present value, so that the test duration is still available even after function block processing.

nEmergencyMode: During the test, the presently internally queried [emergency mode](#) [► 216] of the DALI device is output at this output.

nEmergencyStatus: the same applies to [emergency status](#). [► 216]

bBusy: When the function block is activated the output is set, and it remains active until execution of the command has been completed.

bError: This output is switched to TRUE if an error, as described above, occurs during the execution of the test. This output is reset on restarting a test.

nErrorId: Contains the command-specific error code of the most recently executed command. It is reset to 0 on executing a new test. (See [error codes](#) [▶ 380])

VAR_IN_OUT

```
stCommandBuffer : ST_DALIV2CommandBuffer;
fbStringRingBuffer : FB_MemRingBuffer;
```

stCommandBuffer: Reference to the internal structure for communication with the function block `FB_KL6811Communication()` [▶ 70] (KL6811) or `FB_KL6821Communication()` [▶ 74] (KL6821).

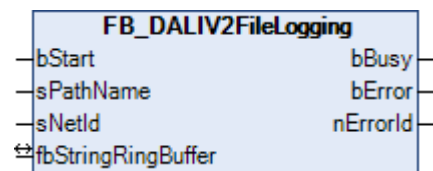
fbStringRingBuffer: Reference to the FIFO buffer in which the log entries are stored.

i It is not possible for the log function block to write data to a file as long as that file is open.

Requirements

Development environment	required PLC library
TwinCAT from v3.1.4020.14	Tc2_DALI from v3.4.3.0

4.1.1.3.3 FB_DALIV2FileLogging



This function block reads the respective FIFO buffers (IN-OUT variable `fbStringRingBuffer`) written in the `FB_DALIV2EmergencyLightingFT()` and `FB_DALIV2EmergencyLightingDT()` function blocks and writes the contents into a log file.

VAR_INPUT

```
bStart : BOOL;
sPathName : STRING;
sNetId : STRING;
```

bStart: The function block is activated by a positive edge at this input.

sPathName: Contains the path and file name for the buffer file to be opened.

i The path can only point to the local file system of the computer! This means that network paths cannot be specified here.

sNetId: A string containing the network address of the TwinCAT computer where the buffer file is to be written or read can be given here. If it is to be run on the local computer, an empty string can be entered.

VAR_OUTPUT

```
bBusy : BOOL;
bError : BOOL;
nErrorId : UDINT;
```

bBusy: When the function block is activated this output is set and remains set until the log buffer is cleared.

bError: If an error should occur during the transmission into the log file, then this output is set after the `bBusy` output has been reset.

nErrId: Supplies the ADS error number or the command-specific error code (see [error codes](#) [▶ 380]) when the *bError* output is set.

VAR_IN_OUT

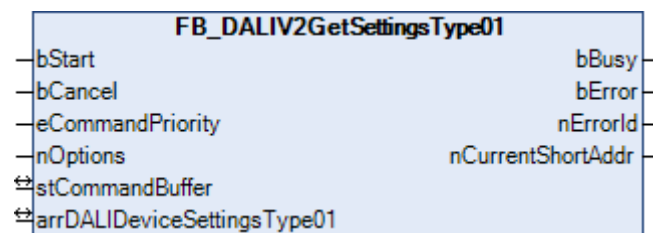
```
fbStringRingBuffer : FB_MemRingBuffer;
```

fbStringRingBuffer: Reference to the FIFO buffer in which the log entries are stored.

Requirements

Development environment	required PLC library
TwinCAT from v3.1.4020.14	Tc2_DALI from v3.4.3.0

4.1.1.3.4 FB_DALIV2GetSettingsType01



This function block reads the variables (BATTERY CHARGE, DURATION TEST RESULT, LAMP EMERGENCY TIME...) from all emergency lighting control gears in a DALI line and stores them in a structure of type `ST_DALIV2DeviceSettingsType01` [▶ 405].

Applying a positive edge to the *bStart* input starts the function block, and the *bBusy* output goes TRUE. A check is first made as to whether a control gear is present at all. If this is the case, then the *bPresent* bit is set in the corresponding structure (see `ST_DALIV2DeviceSettingsType01` [▶ 405]), after which the settings of the control gear are read out one by one and written in the associated variables in the structure. If it is found that a device is not available, the reading is skipped and work continues with the next device. The structure index here reflects the address of the device. In other words, data for the device with short address 0 is located at `arrDALIDeviceSettingsType01[0]`, and so on through to the device with short address 63 having its data at `arrDALIDeviceSettingsType01[63]`. If a read error occurs when reading from a device, the corresponding bit in *nErrors* is set for the respective structure without the function block itself switching to error mode. The following table shows which bit is set in the *nErrors* variable when an error occurs during the reading of a variable from a control gear.

Bit	Error
0	An error occurred whilst attempting to seek the control gear.
1	Error whilst reading the variable <u>BATTERY CHARGE</u> [▶ 216]
2	Error whilst reading the variable <u>DURATION TEST RESULT</u> [▶ 216]
3	Error whilst reading the variable <u>LAMP EMERGENCY TIME</u> [▶ 216]
4	Error whilst reading the variable <u>LAMP TOTAL OPERATION TIME</u> [▶ 216]
5	Error whilst reading the variable <u>EMERGENCY LEVEL</u> [▶ 216]
6	Error whilst reading the variable <u>EMERGENCY MIN LEVEL</u> [▶ 216]
7	Error whilst reading the variable <u>EMERGENCY MAX LEVEL</u> [▶ 216]
8	Error whilst reading the variable <u>RATED DURATION</u> [▶ 216]
9	Error whilst reading the variable <u>FUNCTION TEST DELAY TIME</u> [▶ 216]
10	Error whilst reading the variable <u>DURATION TEST DELAY TIME</u> [▶ 216]
11	Error whilst reading the variable <u>FUNCTION TEST INTERVAL</u> [▶ 216]
12	Error whilst reading the variable <u>DURATION TEST INTERVAL</u> [▶ 216]
13	Error whilst reading the variable <u>TEST EXECUTION TIMEOUT</u> [▶ 216]
14	Error whilst reading the variable <u>PROLONG TIME</u> [▶ 216]
15	Error whilst reading the variable <u>EMERGENCY MODE</u> [▶ 216]
16	Error whilst reading the variable <u>FEATURES</u> [▶ 216]
17	Error whilst reading the variable <u>FAILURE STATUS</u> [▶ 216]
18	Error whilst reading the variable <u>EMERGENCY STATUS</u> [▶ 216]

When the function block has been processed, the *bBusy* output changes from TRUE to FALSE. Processing this function block can take several seconds, depending on how many control gears are attached.

VAR_INPUT

```

bStart      : BOOL;
bCancel     : BOOL;
eCommandPriority : E_DALIV2CommandPriority := eDALIV2CommandPriorityHigh;
nOptions    : DWORD;
    
```

bStart: The function block is activated by a positive edge at this input.

bCancel: A positive edge at this input will deactivate the function block and hence abort the reading of the variable.

eCommandPriority: Priority (high, medium or low) with which the command is processed by the library (see [E_DALIV2CommandPriority](#) [► 401]).

nOptions: Options for reading the variables (see table). The individual constants must be linked with OR operators.

Constant	Description
DALIV2_OPTION_BATTERY_CHARGE	The variable BATTERY CHARGE [► 216] is read.
DALIV2_OPTION_DURATION_TEST_RESULT	The variable DURATION TEST RESULT [► 216] is read.
DALIV2_OPTION_LAMP_EMERGENCY_TIME	The variable LAMP EMERGENCY TIME [► 216] is read.
DALIV2_OPTION_LAMP_TOTAL_OPERATION_TIME	The variable LAMP TOTAL OPERATION TIME [► 216] is read.
DALIV2_OPTION_EMERGENCY_LEVEL	The variable EMERGENCY LEVEL [► 216] is read.
DALIV2_OPTION_EMERGENCY_MIN_LEVEL	The variable EMERGENCY MIN LEVEL [► 216] is read.
DALIV2_OPTION_EMERGENCY_MAX_LEVEL	The variable EMERGENCY MAX LEVEL [► 216] is read.
DALIV2_OPTION_RATED_DURATION	The variable RATED DURATION [► 216] is read.
DALIV2_OPTION_NEXT_FUNCTION_TEST	The variable FUNCTION TEST DELAY TIME [► 216] is read.
DALIV2_OPTION_NEXT_DURATION_TEST	The variable DURATION TEST DELAY TIME [► 216] is read.
DALIV2_OPTION_FUNCTION_TEST_INTERVAL	The variable FUNCTION TEST INTERVAL [► 216] is read.
DALIV2_OPTION_DURATION_TEST_INTERVAL	The variable DURATION TEST INTERVAL [► 216] is read.
DALIV2_OPTION_TEST_EXECUTION_TIMEOUT	The variable TEST EXECUTION TIMEOUT [► 216] is read.
DALIV2_OPTION_PROLONG_TIME	The variable PROLONG TIME [► 216] is read.
DALIV2_OPTION_EMERGENCY_MODE	The variable EMERGENCY MODE [► 216] is read.
DALIV2_OPTION_FEATURES	The variable FEATURES [► 216] is read.
DALIV2_OPTION_FAILURE_STATUS	The variable FAILURE STATUS [► 216] is read.
DALIV2_OPTION_EMERGENCY_STATUS	The variable EMERGENCY STATUS [► 216] is read.
DALIV2_OPTION_ALL	All variables are read.

VAR_OUTPUT

```
bBusy          : BOOL;
bError         : BOOL;
nErrorId      : UDINT;
nCurrentShortAddr : BYTE;
```

bBusy: When the function block is activated the output is set, and it remains active until execution of the command has been completed.

bError: This output is switched to TRUE as soon as an error occurs during the execution of a command. The command-specific error code is contained in *nErrorId*. Is reset to FALSE by the execution of a command at the inputs.

nErrorId: Contains the command-specific error code of the most recently executed command. Is reset to 0 by the execution of a command at the inputs. (See [error codes](#) [► 380])

nCurrentShortAddr: Short address of the current control gear from which variables are being read.

VAR_IN_OUT

```
stCommandBuffer : ST_DALIV2CommandBuffer;
arrDALIDeviceSettingsType01 : ARRAY [0..63] OF ST_DALIV2DeviceSettingsType01;
```

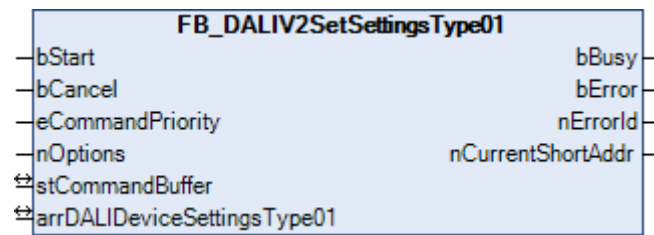
stCommandBuffer: Reference to the internal structure for communication with the function block `FB_KL6811Communication()` [▶ 70] (KL6811) or `FB_KL6821Communication()` [▶ 74] (KL6821).

arrDALIDeviceSettingsType01: Reference to an array of 64 elements (see `ST_DALIV2DeviceSettingsType01` [▶ 405]). The settings of each individual DALI control gear are stored in this variable.

Requirements

Development environment	required PLC library
TwinCAT from v3.1.4020.14	Tc2_DALI from v3.4.3.0

4.1.1.3.5 FB_DALIV2SetSettingsType01



This function block initializes the variables (EMERGENCY LEVEL, FUNCTION TEST DELAY TIME, DURATION TEST DELAY TIME...) of all emergency lighting control gears in a DALI line with the values that are stored in a structure of type `ST_DALIV2DeviceSettingsType01` [▶ 405].

Applying a positive edge to the *bStart* input starts the function block, and the *bBusy* output goes TRUE. The system first checks whether the *bPresent* bit is set in the respective structure (see `ST_DALIV2DeviceSettingsType01` [▶ 405]). If this is the case, all control gear variables that are not read-only are initialized with the respective values of the structure. The structure index here reflects the address of the control gear. In other words, data for the device with short address 0 is located at `arrDALIDeviceSettingsType01[0]`, and so on through to the control gear with short address 63 having its data at `arrDALIDeviceSettingsType01[63]`. If a write error occurs for a device, the *nErrors* element is set for the respective structure without the function block itself switching to error mode. The following table shows which bit is set in the *nErrors* variable when an error occurs during the writing of a variable to a control gear.

Bit	Error
5	Error whilst writing the variable <u>EMERGENCY LEVEL</u> [▶ 216]
9	Error whilst writing the variable <u>FUNCTION TEST DELAY TIME</u> [▶ 216]
10	Error whilst writing the variable <u>DURATION TEST DELAY TIME</u> [▶ 216]
11	Error whilst writing the variable <u>FUNCTION TEST INTERVAL</u> [▶ 216]
12	Error whilst writing the variable <u>DURATION TEST INTERVAL</u> [▶ 216]
13	Error whilst writing the variable <u>TEST EXECUTION TIMEOUT</u> [▶ 216]
14	Error whilst writing the variable <u>PROLONG TIME</u> [▶ 216]

When the function block has been processed, the *bBusy* output changes from TRUE to FALSE. Processing this function block can take several seconds, depending on how many control gears are attached.

VAR_INPUT

```

bStart          : BOOL;
bCancel         : BOOL;
eCommandPriority : E_DALIV2CommandPriority := eDALIV2CommandPriorityHigh;
nOptions        : DWORD;
    
```

bStart: The function block is activated by a positive edge at this input.

bCancel: A rising edge at this input will deactivate the function block and hence abort the reading of the variable.

eCommandPriority: Priority (high, medium or low) with which the command is processed by the library (see [E_DALIV2CommandPriority](#) [▶ 401]).

nOptions: Options for reading the variables (see table). The individual constants must be linked with OR operators.

Constant	Description
DALIV2_OPTION_EMERGENCY_LEVEL	The variable EMERGENCY LEVEL [▶ 216] is initialized.
DALIV2_OPTION_NEXT_FUNCTION_TEST	The variable FUNCTION TEST DELAY TIME [▶ 216] is initialized.
DALIV2_OPTION_NEXT_DURATION_TEST	The variable DURATION TEST DELAY TIME [▶ 216] is initialized.
DALIV2_OPTION_FUNCTION_TEST_INTERVAL	The variable FUNCTION TEST INTERVAL [▶ 216] is initialized.
DALIV2_OPTION_DURATION_TEST_INTERVAL	The variable DURATION TEST INTERVAL [▶ 216] is initialized.
DALIV2_OPTION_TEST_EXECUTION_TIMEOUT	The variable TEST EXECUTION TIMEOUT [▶ 216] is initialized.
DALIV2_OPTION_PROLONG_TIME	The variable PROLONG TIME [▶ 216] is initialized.
DALIV2_OPTION_ALL	All variables are initialized.
DALIV2_OPTION_PUSH_DALI_COMMANDS	The buffer containing the feedback messages from the ballasts is not read. Hence, writing becomes faster, but errors are not recognized.

VAR_OUTPUT

```
bBusy          : BOOL;
bError         : BOOL;
nErrorId      : UDINT;
nCurrentShortAddr : BYTE;
```

bBusy: When the function block is activated the output is set, and it remains active until execution of the command has been completed.

bError: This output is switched to TRUE as soon as an error occurs during the execution of a command. The command-specific error code is contained in *nErrorId*. Is reset to FALSE by the execution of a command at the inputs.

nErrorId: Contains the command-specific error code of the most recently executed command. Is reset to 0 by the execution of a command at the inputs. (See [error codes](#) [▶ 380])

nCurrentShortAddr: Short address of the current control gear for which variables are being initialized.

VAR_IN_OUT

```
stCommandBuffer      : ST_DALIV2CommandBuffer;
arrDALIDeviceSettingsType01 : ARRAY [0..63] OF ST_DALIV2DeviceSettingsType01;
```

stCommandBuffer: Reference to the internal structure for communication with the function block [FB_KL6811Communication\(\)](#) [▶ 70] (KL6811) or [FB_KL6821Communication\(\)](#) [▶ 74] (KL6821).

arrDALIDeviceSettingsType01: Reference to an array of 64 elements (see [ST_DALIV2DeviceSettingsType01](#) [▶ 405]). The settings of each individual DALI control gear are stored in this variable.

Requirements

Development environment	required PLC library
TwinCAT from v3.1.4020.14	Tc2_DALI from v3.4.3.0

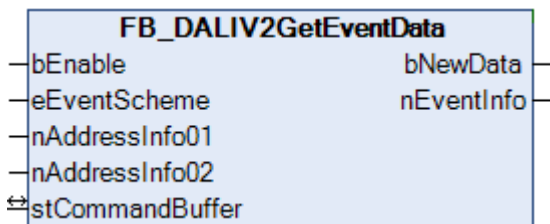
4.1.2 Low-Level commands

4.1.2.1 Base

Function blocks

Name	Description
FB_DALIV2GetEventData [▶ 67]	Filters out an event specified by the event scheme.
FB_DALIV2xSendDALICommand [▶ 68]	This function block is for the general sending of a DALI command, defined by command number and, if necessary, transfer parameter. Replaces the function block FB_DALIV2SendDALICommand.
FB_KL6811Communication [▶ 70]	Reads the DALI commands from the buffers sequentially and relays them to the KL6811.
FB_KL6811ConfigNew [▶ 72]	This function block can be used to configure the KL6811.
FB_KL6821Communication [▶ 74]	Reads the DALI commands from the buffers sequentially and relays them to the KL6821.
FB_KL6821Config [▶ 76]	This function block can be used to configure the KL6821.

4.1.2.1.1 FB_DALIV2GetEventData



Filters out an event specified by the event scheme.

Each event sent by a DALI device contains two fields that provide information about the event source. These two fields are a combination of the short address, instance number, instance type, instance group or device group. The recipient of the event must know which address scheme is used to send the data.

For each event that is to be received and processed further, an instance of FB_DALIV2GetEventData() must be created and configured with the correct event scheme.

VAR INPUT

```

bEnable      : BOOL;
eEventScheme : E_DALIV2EventScheme := eDALIV2EventSchemeDeviceInstance;
nAddressInfo01 : BYTE;
nAddressInfo02 : BYTE;
    
```

bEnable: Enables the function block. If this input is set to FALSE, no further events are output.

eEventScheme: The event scheme defines the address information required for filtering the desired result.

nAddressInfo01: (see table below)

nAddressInfo02: (see table below)

eEventScheme	nAddressInfo01	nAddressInfo02
eDALIV2EventSchemeInstance	Instance type (0-31)	Instance number (0-31)
eDALIV2EventSchemeDevice	Short address (0-63)	Instance type (0-31)
eDALIV2EventSchemeDeviceInstance	Short address (0-63)	Instance number (0-31)
eDALIV2EventSchemeDeviceGroup	Device group (0-31)	Instance type (0-31)
eDALIV2EventSchemeInstanceGroup	Instance group (0-31)	Instance type (0-31)

VAR_OUTPUT

```
bNewData      : BOOL;
nEventInfo    : WORD;
```

bNewData: If an event was received that corresponds to the event scheme and address information, this output is set to TRUE for one PLC cycle.

nEventInfo: If the output *bNewData* is TRUE, further information about the event can be found at this output. The exact meaning depends on the device type and is described in the respective Part 3xx of IEC 62386.

VAR_IN_OUT

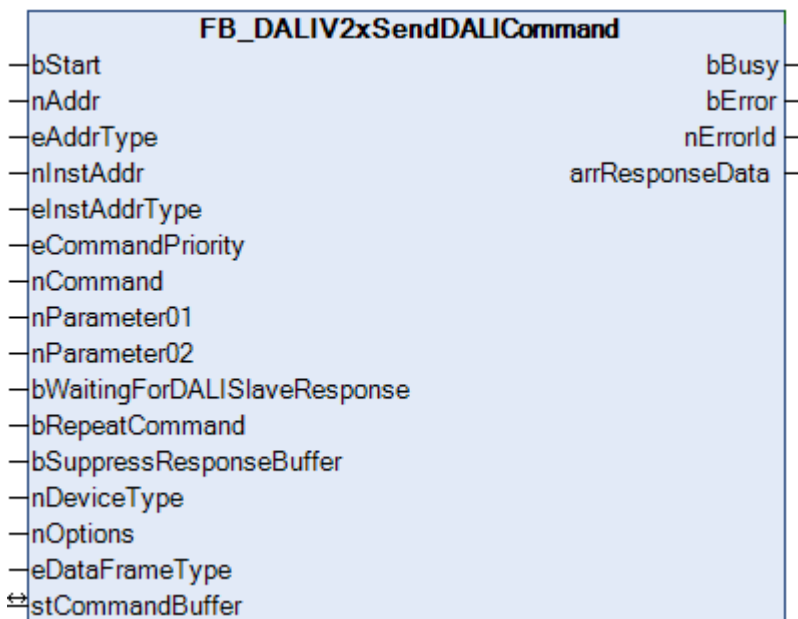
```
stCommandBuffer : ST_DALIV2CommandBuffer;
```

stCommandBuffer: Reference to the internal structure for communication with the function block `FB_KL6821Communication()` [▶ 74] (KL6821).

Requirements

Development environment	required PLC library
TwinCAT from v3.1.4020.14	Tc2_DALI from v3.4.3.0

4.1.2.1.2 FB_DALIV2xSendDALICommand



This function block is for the general sending of a DALI command, defined by command number and, if necessary, transfer parameter. Moreover, it is possible to set whether the command is sent twice in succession and whether to wait for a response. The latter can be used, for example, to realize a fast sequence of step-up commands.

Unlike the function block `FB_DALIV2SendDALICommand()` [► 389], this function block is also able to control DALI control units (sensors).

VAR_INPUT

```

bStart          : BOOL;
nAddr           : BYTE;
eAddrType       : E_DALIV2AddrType := eDALIV2AddrTypeShort;
nInstAddr       : BYTE := 0;
eInstAddrType   : E_DALIV2InstAddrType := eDALIV2InstAddrTypeNumber;
eCommandPriority : E_DALIV2CommandPriority := eDALIV2CommandPriorityMiddle;
nCommand        : INT := 0;
nParameter01    : BYTE := 0;
nParameter02    : DINT := 0;
bWaitingForDALISlaveResponse : BOOL := FALSE;
bRepeatCommand  : BOOL := FALSE;
bSuppressResponseBuffer : BOOL := FALSE;
nDeviceType     : BYTE := 0;
nOptions        : DWORD := 0;
eDataFrameType  : E_DALIV2DataFrameType := eDALIV2DataFrameType16Bit;
    
```

bStart: The function block is activated by a positive edge at this input.

nAddr: The address of a participating device or of a group.

eAddrType: Short address, group address or broadcast.

nInstAddr: Address of the instance within the device.

eInstAddrType: Defines the meaning of the variable *nInstAddr* for addressing the instance (e.g. by instance number, instance type,...)

eCommandPriority: Priority (high, medium or low) with which the command is processed by the library.

nCommand: Number of the DALI command to be sent.

nParameter01: Parameter for the value transfer.

nParameter02: Parameter for the value transfer.

bWaitingForDALISlaveResponse: If FALSE, the system does not wait for the answer from the DALI device. Its application makes no sense in connection with any kind of query command.

bRepeatCommand: Decides whether the command is to be sent twice in succession.

bSuppressResponseBuffer: If TRUE, the internal buffer is not filled with the response from the function block `FB_KL6811Communication` [► 70] (KL6811) or `FB_KL6821Communication()` [► 74] (KL6821).

nDeviceType: Identifier for the device type.

Value	Description
0	Standard device
1	Device for <u>emergency lighting</u> [► 214]
2	Device for <u>discharge lamps</u> [► 252]
3	Device for low-voltage halogen lamps
4	Device for dimming incandescent lamps
5	Device for converting digital signals into DC signals
6	Device for <u>light emitting diodes (LEDs)</u> [► 265]
7	Device for switching functions
8	Device for <u>controlling the color/color temperature</u> [► 289]
9	Sequencer

nOptions: reserved for future expansions.

eDataFrameType: Output format of the DALI command (*eDALIV2DataFrameType24Bit*, *eDALIV2DataFrameType16Bit* or *eDALIV2DataFrameTypeOsram*).

VAR_OUTPUT

```
bBusy          : BOOL;
bError         : BOOL;
nErrorId      : UDINT;
arrResponseData : ARRAY [0..3] OF BYTE;
```

bBusy: When the function block is activated the output is set, and it remains active until execution of the command has been completed.

bError: This output is switched to TRUE as soon as an error occurs during the execution of a command. The command-specific error code is contained in *nErrorId*. Is reset to FALSE by the execution of a command at the inputs.

nErrorId: Contains the command-specific error code of the most recently executed command. Is reset to 0 by the execution of a command at the inputs. (See [error codes](#) [▶ 380])

arrResponseData: The value received from the DALI device if a query command was invoked.

VAR_IN_OUT

```
stCommandBuffer : ST_DALIV2CommandBuffer;
```

stCommandBuffer: Reference to the internal structure for communication with the function block [FB_KL6811Communication\(\)](#) [▶ 70] (KL6811) or [FB_KL6821Communication\(\)](#) [▶ 74] (KL6821).

Requirements

Development environment	required PLC library
TwinCAT from v3.1.4022.4	Tc2_DALI from v3.6.2.0

4.1.2.1.3 FB_KL6811Communication



The function blocks for the DALI commands do not access the process image of the KL6811 directly, but place the individual DALI commands in three different buffers. The function block [FB_KL6821Communication\(\)](#) sequentially reads the DALI commands from these three buffers and passes the DALI commands to the KL6821. This prevents multiple function blocks accessing the KL6811 process image at the same time. Each of these three buffers is processed with a different priority (high, medium or low). The parameter [eCommandPriority](#) [▶ 401], which is available for most function blocks, can be used to specify the priority with which the respective DALI command is processed by the function block [FB_KL6811Communication\(\)](#).

All buffers in which the DALI commands are stored are associated with a variable of type `ST_DALIV2CommandBuffer`. For each KL6811 there is one instance of the function block [FB_KL6811Communication\(\)](#) and one variable of type `ST_DALIV2CommandBuffer`. If possible, the [FB_KL6811Communication\(\)](#) function block should be called in a separate, faster task.

The extent to which the buffers are utilized can be determined from the outputs of the function block. Three arrays are output for this in which each element (0, 1 or 2) represents one of the three buffers (high, middle or low). If you detect regular overflow for one of the three buffers, you should consider the following:

- How heavily are the individual PLC tasks utilized? The TwinCAT System Manager offers various appropriate utilities for the analysis.
- Try to reduce the cycle time of the task in which the function block `FB_KL6811Communication()` is called. The value should not exceed 6 ms. Ideally it should be 2 ms.
- Check the cycle time of the PLC task in which the function blocks for the individual DALI commands are called. This value should be between 10 ms and 60 ms.
- If possible avoid polling (regular reading) of values. Only read values when they are actually required.
- Distribute the individual control gears evenly over several DALI lines. Overall data throughput is increased by the fact that several DALI lines are processed simultaneously during each PLC cycle.

VAR_INPUT

```
bResetMaximumDemandCounter : BOOL;
bResetOverflowCounter       : BOOL;
```

bResetMaximumDemandCounter: a positive edge resets the stored value of the maximum command buffer utilization, *arrBufferMaximumDemandMeter* (0 - 100%, see VAR_OUTPUT).

bResetOverflowCounter: a positive edge resets the stored value of the number of command buffer overflows, *arrBufferOverflowCounter* (see VAR_OUTPUT).

VAR_OUTPUT

```
bBusy           : BOOL;
bError          : BOOL;
nErrorId        : BYTE;
arrBufferDemandMeter : ARRAY [0..2] OF BYTE;
arrBufferMaximumDemandMeter : ARRAY [0..2] OF BYTE;
arrBufferOverflowCounter : ARRAY [0..2] OF UINT;
bLineIsBusy     : BOOL;
bLineIsInitialized : BOOL;
```

bBusy: When the function block is activated the output is set, and it remains active until execution of the command has been completed.

bError: This output is switched to TRUE as soon as an error occurs during the execution of a command. The command-specific error code is contained in *nErrorId*. Is reset to FALSE by the execution of a command at the inputs.

nErrorId: Contains the command-specific error code of the most recently executed command. Is reset to 0 by the execution of a command at the inputs. (See [error codes](#) [▶ 380])

arrBufferDemandMeter: Occupancy of the respective buffer (0 - 100%).

arrBufferMaximumDemandMeter: previous maximum occupancy of the respective buffer (0 - 100%).

arrBufferOverflowCounter: Number of buffer overflows to date.

bLineIsBusy: The output is set as long as the function block `FB_KL6811Communication()` [▶ 70] is active.

bLineIsInitialized: if the function block is being called for the first time (e.g. when the controller is starting up) an initialization process is executed. No DALI commands can be processed during this time.

VAR_IN_OUT

```
stDALIInData : ST_KL6811InData;
stDALIOutData : ST_KL6811OutData;
stCommandBuffer : ST_DALIV2CommandBuffer;
```

stDALIInData: Structure in the input process image of the KL6811. It is used for communication from the KL6811 to the PLC (see [ST_KL6811InData](#) [▶ 407]).

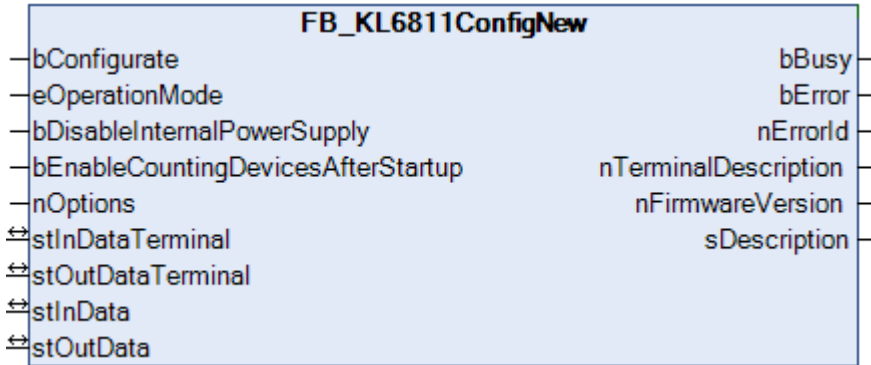
stDALIOutData: Structure in the output process image of the KL6811. It is used for communication from the PLC to the KL6811 (see [ST_KL6811OutData](#) [▶ 407]).

stCommandBuffer: A reference to the structure for communication (buffer) with the `FB_EL6811Communication()` function block.

Requirements

Development environment	required PLC library
TwinCAT from v3.1.4022.4	Tc2_DALI from v3.6.2.0

4.1.2.1.4 FB_KL6811ConfigNew



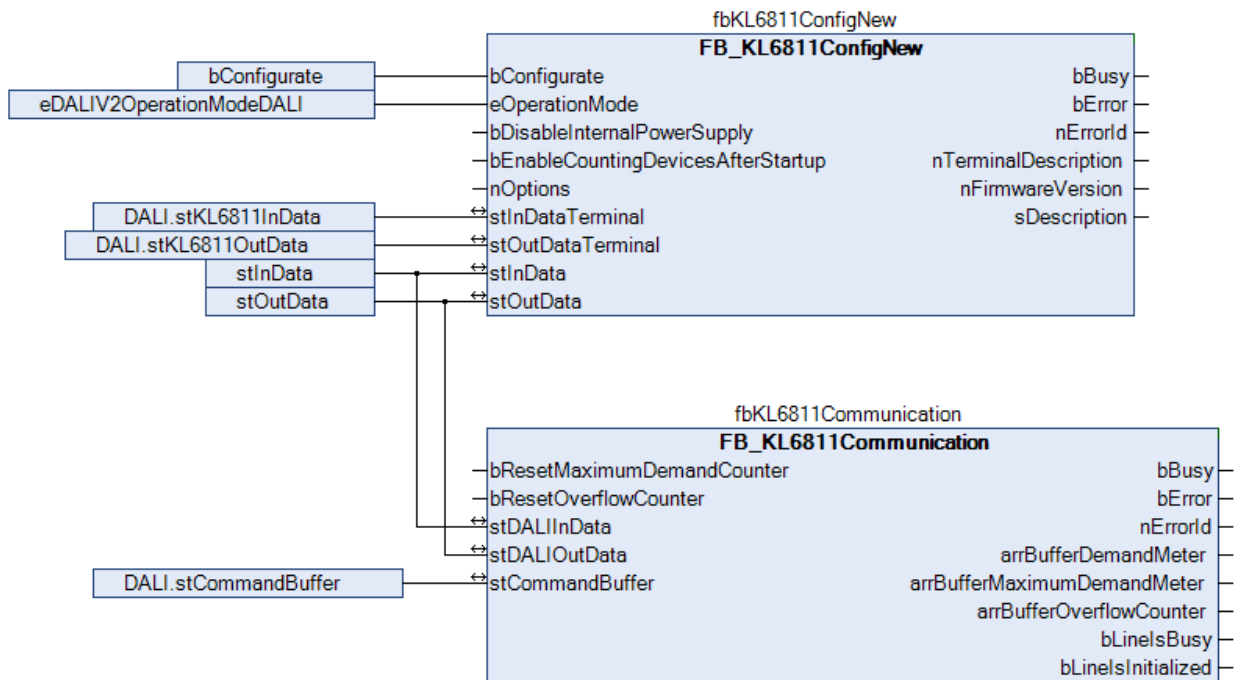
This function block is used to configure the KL6811. The configuration is executed when the PLC program starts, or it can be triggered by a positive edge at the input *bConfigure*. The parameters are stored in the respective registers of the KL6811 in a fail-safe manner. In addition, some general information, such as the firmware version, is read from the KL6811.



This function block replaces FB_KL6811Config from library version 3.6.2.0

Example:

The function block is called in the same task as the function block **FB_KL6811Communication()** [► 70].



The function block **FB_KL6811ConfigNew()** is linked to the process image of the KL6811. Once the configuration is complete, the function block **FB_KL6811CommunicationNew()** receives the process values of the KL6811. DALI commands cannot be sent during configuration.

Example: https://infosys.beckhoff.com/content/1033/tcplclib_tc2_dali/Resources/zip/4515401995.zip

VAR_INPUT

```

bConfigure          : BOOL := FALSE;
eOperationMode     : E_DALIV2OperationMode := eDALIV2OperationModeDALI;
bDisableInternalPowerSupply : BOOL := FALSE;
bEnableCountingDevicesAfterStartup : BOOL := FALSE;
nOptions           : DWORD := 0;

```

bConfigure: Configuration of the Bus Terminal is started by a positive edge at this input.

eOperationMode: Defines the operation mode of the terminal (DALI or DSI) (see [E_DALIV2OperationMode](#) [[▶ 403](#)]). Corresponds to register 32, bits 12 to 15 of the Bus Terminal.

bDisableInternalPowerSupply: If this input is TRUE, the internal DALI power supply of the terminal is disabled by the configuration. Corresponds to register 32, bit 3 of the Bus Terminal.

bEnableCountingDevicesAfterStartup: If this input is TRUE, the number of DALI devices is counted when the terminal starts. Corresponds to register 32, bit 4 of the Bus Terminal.

nOptions: Reserved for future expansions.

VAR_OUTPUT

```

bBusy              : BOOL;
bError             : BOOL;
nErrorId          : UDINT;
nTerminalDescription : WORD;
nFirmwareVersion  : WORD;
sDescription       : STRING;

```

bBusy: When the function block is activated the output is set, and it remains active until execution of the command has been completed.

bError: This output is switched to TRUE as soon as an error occurs during the execution of a command. The command-specific error code is contained in *nErrorId*. Reactivating the function block via the *bConfigure* input sets the output to FALSE again.

nErrorId: Contains the command-specific error code of the most recently executed command. It is reset to 0 by activating the function block again via the input *bConfigure*. (See [error codes](#) [[▶ 380](#)])

nTerminalDescription: Contains the terminal designation (e.g. 6811). Corresponds to register 8 of the Bus Terminal.

nFirmwareVersion: Contains the firmware version. Corresponds to register 9 of the Bus Terminal.

sDescription: Terminal designation and firmware version as string (e.g. "Terminal KL6811 / Firmware 2H").

VAR_IN_OUT

```

stInDataTerminal  : ST_KL6811InData;
stOutDataTerminal : ST_KL6811OutData;
stInData          : ST_KL6811InData;
stOutData         : ST_KL6811OutData;

```

stInDataTerminal: Reference to the structure for communication with the KL6811 (see [ST_KL6811InData](#) [[▶ 407](#)]).

stOutDataTerminal: Reference to the structure for communication with the KL6811 (see [ST_KL6811OutData](#) [[▶ 407](#)]).

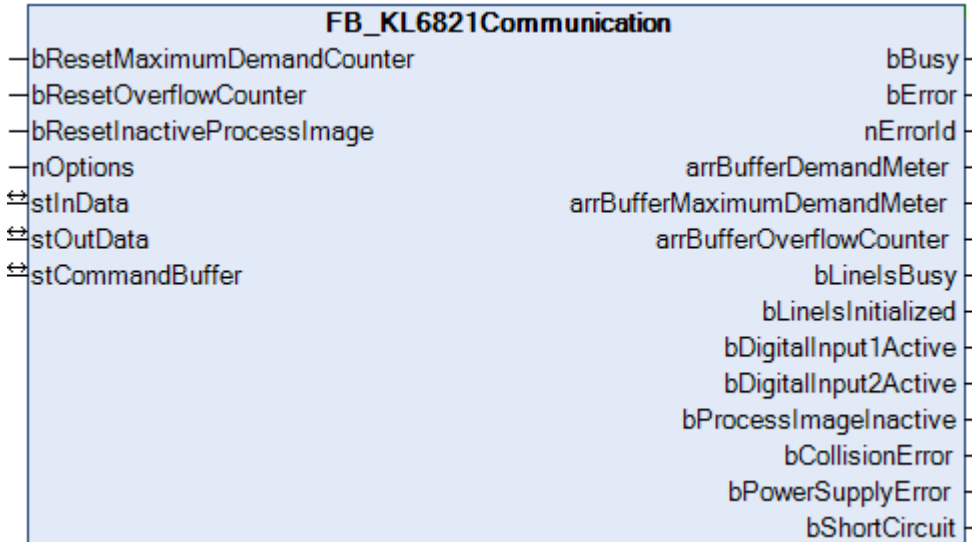
stInData: Reference to the structure for communication with the [FB_KL6811Communication](#) [[▶ 70](#)] function block (see [ST_KL6811InData](#) [[▶ 407](#)]).

stOutData: Reference to the structure for communication with the [FB_KL6811Communication](#) [[▶ 70](#)] function block (see [ST_KL6811OutData](#) [[▶ 407](#)]).

Requirements

Development environment	required PLC library
TwinCAT from v3.1.4022.4	Tc2_DALI from v3.6.2.0

4.1.2.1.5 FB_KL6821Communication



The function blocks for the DALI commands do not directly access the process image of the DALI Bus Terminal, but store the individual DALI commands in three different buffers. The function block `FB_KL6821Communication()` sequentially reads the DALI commands from these three buffers and passes the DALI commands to the KL6821. This prevents several function block accessing the process image of the Bus Terminal at the same time. Each of these three buffers is processed with a different priority (high, medium or low). The parameter *eCommandPriority*, which is available for most function blocks, can be used by the PLC library user to influence the priority with which the respective DALI command is processed by the function block `FB_KL6821Communication()`.

All buffers in which the DALI commands are stored are associated with a variable of type `ST_DALIV2CommandBuffer`. For each KL6821 there is one instance of the function block `FB_KL6821Communication()` and one variable of type `ST_DALIV2CommandBuffer`. If possible, the `FB_KL6821Communication()` function block should be called in a separate, faster task.

The extent to which the buffers are utilized can be determined from the outputs of the function block. Three arrays are output for this in which each element (0, 1 or 2) represents one of the three buffers (high, middle or low). If you find that one of the three buffers overflows on a regular basis, you should consider the following measures:

How heavily are the individual PLC tasks utilized? The TwinCAT System Manager offers various appropriate utilities for the analysis.

- Try to reduce the cycle time of the task in which the function block `FB_KL6821Communication()` is called. The value should not exceed 6 ms. Ideally it should be 2 ms.
- Check the cycle time of the PLC task in which the function blocks for the individual DALI commands are called. This value should be between 10 ms and 60 ms.
- If possible avoid polling (regular reading) of values. Only read values when they are actually required.
- Distribute the individual control gears evenly over several DALI lines. Overall data throughput is increased by the fact that several DALI lines are processed simultaneously during each PLC cycle.

VAR_INPUT

```
bResetMaximumDemandCounter : BOOL;
bResetOverflowCounter       : BOOL;
bResetInactiveProcessImage  : BOOL;
nOptions : DWORD := 0;
```


bResetMaximumDemandCounter: a positive edge resets the stored value of the maximum command buffer utilization, `arrBufferMaximumDemandMeter` (0 - 100%, see `VAR_OUTPUT`).

bResetOverflowCounter: a positive edge resets the stored value of the number of command buffer overflows, `arrBufferOverflowCounter` (see `VAR_OUTPUT`).

bResetInactiveProcessImage: a positive edge cancels the blocking of the process image of the terminal. The `bProcessImageInactive`, `bDigitalInput1Active` and `bDigitalInput2Active` outputs are again set to FALSE. The lock is activated when one of the two digital inputs on the terminal is activated.

nOptions: reserved for future expansions.

VAR_OUTPUT

```

bBusy           : BOOL;
bError          : BOOL;
nErrorId       : UDINT;
arrBufferDemandMeter      : ARRAY [0..2] OF BYTE;
arrBufferMaximumDemandMeter : ARRAY [0..2] OF BYTE;
arrBufferOverflowCounter  : ARRAY [0..2] OF UINT;
bLineIsBusy      : BOOL;
bLineIsInitialized : BOOL;
bDigitalInput1Active : BOOL;
bDigitalInput2Active : BOOL;
bProcessImageInactive : BOOL;
bCollisionError   : BOOL;
bPowerSupplyError : BOOL;
bShortCircuit     : BOOL;

```

bBusy: This output is set as soon as the function block processes a command and remains active until the command has been processed.

bError: This output is switched to TRUE if an error has occurred during execution of the function block. The command-specific error code is contained in `nErrorId`.

nErrorId: Contains the command-specific error code of the most recently executed command. (See [error codes](#) [[▶ 380](#)])

arrBufferDemandMeter: Occupancy of the respective buffer (0 - 100%).

arrBufferMaximumDemandMeter: Previous maximum occupancy of the respective buffer (0 - 100%).

arrBufferOverflowCounter: Number of buffer overflows to date.

bLineIsBusy: The output is set as long as the function block `FB_KL6821Communication()` [[▶ 74](#)] is active.

bLineIsInitialized: if the function block is being called for the first time (e.g. when the controller is starting up) an initialization process is executed. No DALI commands can be processed during this time.

bDigitalInput1Active: The digital input 1 on the terminal was or is actuated (see also terminal documentation). The `bProcessImageInactive` output is set and no further DALI commands can be processed by the controller.

bDigitalInput2Active: The digital input 2 on the terminal was or is actuated (see also terminal documentation). The `bProcessImageInactive` output is set and no further DALI commands can be processed by the controller.

bProcessImageInactive: One of the two digital inputs was actuated at the terminal. No further DALI commands can be processed by the controller. The blockage must be released again via the `bResetInactiveProcessImage` input.

bCollisionError: A data collision on the DALI bus was detected while a command was sent.

bPowerSupplyError: The KL6821 has detected an error in the internal DALI power supply.

bShortCircuit: Short circuit on the DALI bus.

VAR_IN_OUT

```
stInData          : ST_KL6821InData;
stOutData         : ST_KL6821OutData;
stCommandBuffer  : ST_DALIV2CommandBuffer;
```

stInData: Structure in the input process image of the KL6821. It is used for communication from the KL6821 to the PLC. When using [FB_KL6821Config](#) [▶ 76], this structure is linked to the parameter *stInData*.

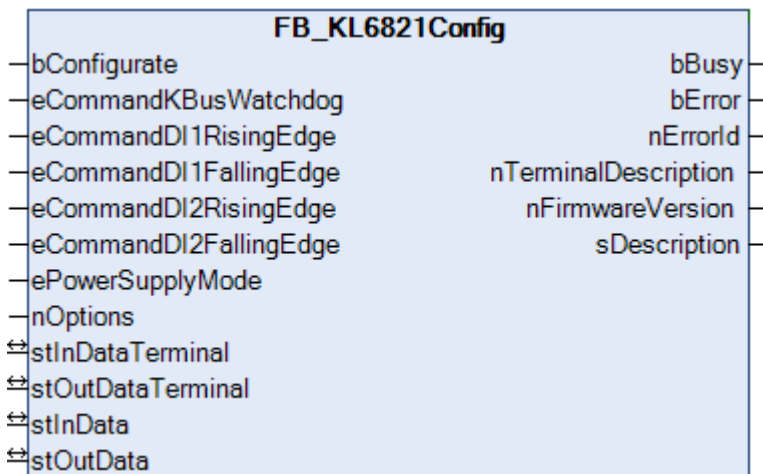
stOutData: Structure in the output process image of the KL6821. It is used for communication from the KL6821 to the PLC. When using [FB_KL6821Config](#) [▶ 76], this structure is linked to the parameter *stOutData*.

stCommandBuffer: Reference to the internal structure for communication with the DALI function blocks.

Requirements

Development environment	required PLC library
TwinCAT from v3.1.4022.4	Tc2_DALI from v3.6.2.0

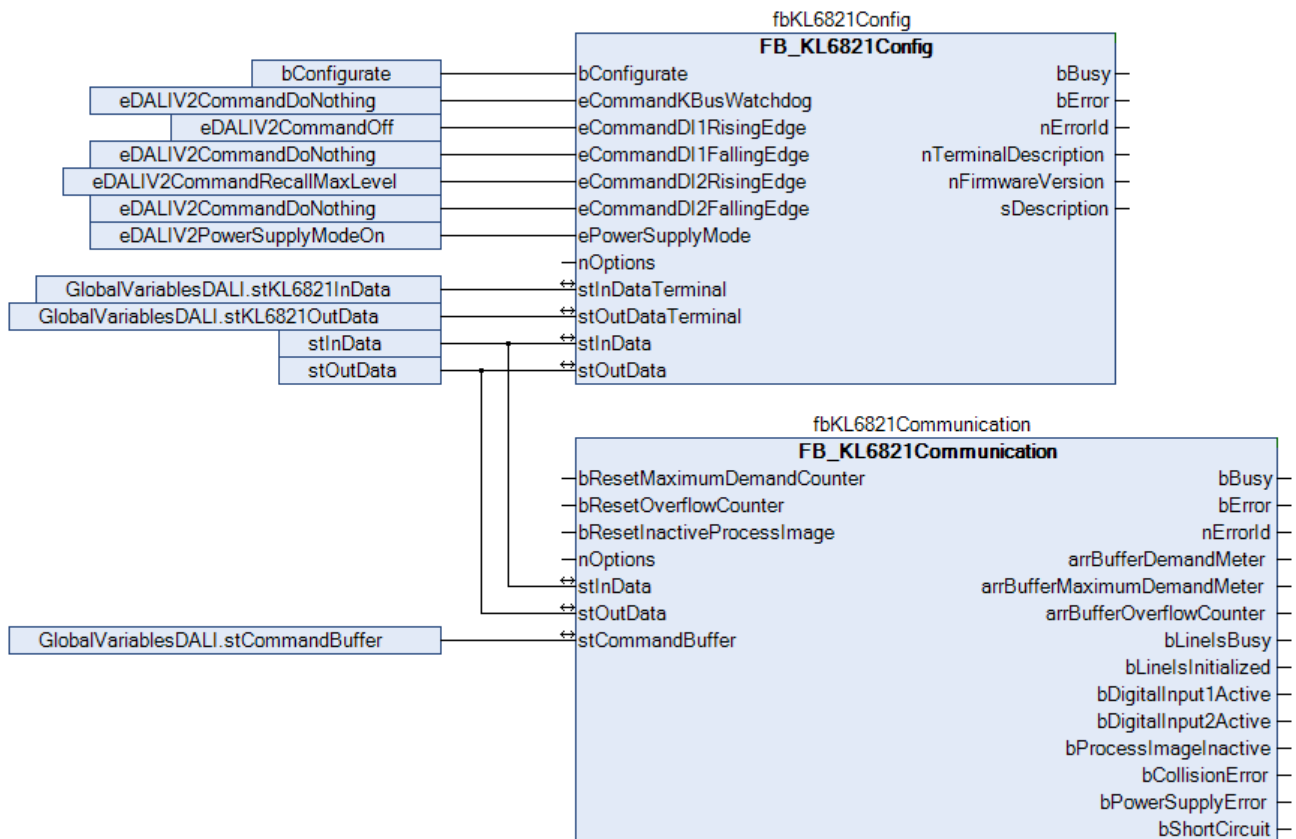
4.1.2.1.6 FB_KL6821Config



This function block is used to configure the KL6821. The configuration is executed when the PLC program starts, or it can be triggered by a positive edge at the input *bConfigure*. The parameters are stored in the respective registers of the KL6821 in a fail-safe manner. In addition, some general information, such as the firmware version, is read from the KL6821.

Example

The function block is called in the same task as the function block [FB_KL6821Communication\(\)](#) [▶ 74].



The function block FB_KL6821Config() is linked to the process image of the KL6821. Once the configuration is complete, the function block FB_KL6821Communication() receives the process values of the KL6821. DALI commands cannot be sent during configuration.

Example: https://infosys.beckhoff.com/content/1033/tcplclib_tc2_dali/Resources/zip/4420035723.zip

VAR_INPUT

```

bConfigure           : BOOL := FALSE;
eCommandKBusWatchdog : E_DALIV2ConfigurationCommands := eDALIV2CommandDoNothing;
eCommandDI1RisingEdge : E_DALIV2ConfigurationCommands := eDALIV2CommandOff;
eCommandDI1FallingEdge : E_DALIV2ConfigurationCommands := eDALIV2CommandDoNothing;
eCommandDI2RisingEdge : E_DALIV2ConfigurationCommands := eDALIV2CommandRecallMaxLevel;
eCommandDI2FallingEdge : E_DALIV2ConfigurationCommands := eDALIV2CommandDoNothing;
ePowerSupplyMode     : E_DALIV2PowerSupplyMode := eDALIV2PowerSupplyModeOn;
nOptions              : DWORD := 0;
    
```

bConfigure: Configuration of the Bus Terminal is started by a positive edge at this input.

eCommandKBusWatchdog: Defines the DALI command that is sent as soon as the Bus Terminal is no longer addressed via the K-bus. ([E_DALIV2ConfigurationCommands \[► 402\]](#))

eCommandDI1RisingEdge: Defines the DALI command that is sent as soon as a rising edge is detected at input 1 of the Bus Terminal. ([E_DALIV2ConfigurationCommands \[► 402\]](#))

eCommandDI1FallingEdge: Defines the DALI command that is sent as soon as a falling edge is detected at input 1 of the Bus Terminal. ([E_DALIV2ConfigurationCommands \[► 402\]](#))

eCommandDI2RisingEdge: Defines the DALI command that is sent as soon as a rising edge is detected at input 2 of the Bus Terminal. ([E_DALIV2ConfigurationCommands \[► 402\]](#))

eCommandDI2FallingEdge: Defines the DALI command that is sent as soon as a falling edge is detected at input 2 of the Bus Terminal. ([E_DALIV2ConfigurationCommands \[► 402\]](#))

ePowerSupplyMode: Defines the operation mode of the internal DALI power supply. ([E_DALIV2PowerSupplyMode \[► 404\]](#))

nOptions: reserved for future expansions.

VAR_OUTPUT

```
bBusy           : BOOL;
bError         : BOOL;
nErrorId       : UDINT;
nTerminalDescription : WORD;
nFirmwareVersion : WORD;
sDescription    : STRING;
```

bBusy: When the function block is activated the output is set, and it remains active until execution of the command has been completed.

bError: This output is switched to TRUE as soon as an error occurs during the execution of a command. The command-specific error code is contained in *nErrorId*. Reactivating the function block via the *bConfigure* input sets the output to FALSE again.

nErrorId: Contains the command-specific error code of the most recently executed command. It is reset to 0 by activating the function block again via the input *bConfigure*. (See [error codes](#) [▶ 380])

nTerminalDescription: Contains the terminal designation (e.g. 6821). Corresponds to register 8 of the Bus Terminal.

nFirmwareVersion: Contains the firmware version. Corresponds to register 9 of the Bus Terminal.

sDescription: Terminal designation and firmware version as string (e.g. "Terminal KL6821 / Firmware 2H").

VAR_IN_OUT

```
stInDataTerminal : ST_KL6821InData;
stOutDataTerminal : ST_KL6821OutData;
stInData         : ST_KL6821InData;
stOutData        : ST_KL6821OutData;
```

stInDataTerminal: Reference to the structure for communication with the KL6821 (see [ST_KL6821InData](#) [▶ 407]).

stOutDataTerminal: Reference to the structure for communication with the KL6821 (see [ST_KL6821InData](#) [▶ 407]).

stInData: Reference to the internal structure for communication with the function block [FB_KL6821Communication\(\)](#) [▶ 74] (KL6821) (see [ST_KL6821InData](#) [▶ 407]).

stOutData: Reference to the internal structure for communication with the function block [FB_KL6821Communication\(\)](#) [▶ 74] (KL6821) (see [ST_KL6821InData](#) [▶ 407]).

Requirements

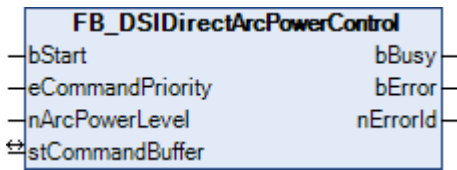
Development environment	required PLC library
TwinCAT from v3.1.4022.4	Tc2_DALI from v3.6.2.0

4.1.2.2 DSI

Function blocks

Name	Description
FB_DSIDirectArcPowerControl [▶ 79]	Sends the control value to the DSI lamps via the KL6811.

4.1.2.2.1 FB_DSIDirectArcPowerControl



The *nArcPowerLevel* parameter specifies the brightness to which the lamp is switched.

nArcPowerLevel	Comment
0	Lamp is switched off
1	Lamp is switched to the minimum brightness
255	Lamp is switched to the maximum brightness

Control gears with a DSI interface do not have a short address. All the control gears on a DSI line are given the same value.

Note that the KL6811 must be switched over to the DSI mode. Details for this can be found in the operating instructions for the KL6811.

DSI control gears and DALI control gears cannot be mixed on a line. However, it is possible to operate several KL6811s on one controller, each in different operating modes (DSI/DALI).

VAR_INPUT

```

bStart          : BOOL;
eCommandPriority : E_DALIV2CommandPriority := eDALIV2CommandPriorityMiddle;
nArcPowerLevel  : BYTE;
  
```

bStart: The function block is activated by a positive edge at this input.

eCommandPriority: Priority (high, medium or low) with which the command is processed by the library (see [E_DALIV2CommandPriority](#) [▶ 401]).

nArcPowerLevel: Lamp power value (0 to 255).

VAR_OUTPUT

```

bBusy      : BOOL;
bError     : BOOL;
nErrorId   : UDINT;
  
```

bBusy: When the function block is activated the output is set, and it remains active until execution of the command has been completed.

bError: This output is switched to TRUE as soon as an error occurs during the execution of a command. The command-specific error code is contained in *nErrorId*. Is reset to FALSE by the execution of a command at the inputs.

nErrorId: Contains the command-specific error code of the most recently executed command. Is reset to 0 by the execution of a command at the inputs. (See [error codes](#) [▶ 380])

VAR_IN_OUT

```

stCommandBuffer : ST_DALIV2CommandBuffer;
  
```

stCommandBuffer: Reference to the internal structure for communication with the function block [FB_KL6811Communication\(\)](#) [▶ 70].

Requirements

Development environment	required PLC library
TwinCAT from v3.1.4020.14	Tc2_DALI from v3.4.3.0

4.1.2.3 Part 102 (control gears)

4.1.2.3.1 Variables

Every DALI ballast has a certain number of variables (parameters) from which it is possible to read a variety of information or to modify individual parameters.

Name	Default value	Reset value	Valid range	Size	Comment
<u>ACTUAL DIM LEVEL</u> [▶ 82]	?	254	0, MIN LEVEL ... MAX LEVEL	1 Byte	
<u>POWER ON LEVEL</u> [▶ 82]	254	254	1 ... 254	1 Byte	
<u>SYSTEM FAILURE LEVEL</u> [▶ 82]	254	254	0 ... 255	1 Byte	
<u>MIN LEVEL</u> [▶ 82]	PHYSICAL MIN LEVEL	PHYSICAL MIN LEVEL	PHYSICAL MIN LEVEL ... MAX LEVEL	1 Byte	
<u>MAX LEVEL</u> [▶ 82]	254	254	MIN LEVEL ... 254	1 Byte	
<u>FADE RATE</u> [▶ 82]	7	7	1 ... 15	1 Byte	
<u>FADE TIME</u> [▶ 83]	0	0	0 ... 15	1 Byte	
<u>SHORT ADDRESS</u> [▶ 84]	255	No change	0 ... 63, 255	1 Byte	
<u>SEARCH ADDRESS</u> [▶ 84]	FF FF FF	FF FF FF	00 00 00 ... FF FF FF	3 Byte	
<u>RANDOM ADDRESS</u> [▶ 84]	FF FF FF	FF FF FF	00 00 00 ... FF FF FF	3 Byte	
<u>GROUP 0-7</u> [▶ 84]	0	0	0 ... 255	1 Byte	
<u>GROUP 8-15</u> [▶ 84]	0	0	0 ... 255	1 Byte	
<u>SCENE 0</u> [▶ 84]	255	255	0 ... 255	1 Byte	
...	
<u>SCENE 15</u> [▶ 84]	255	255	0 ... 255	1 Byte	
<u>STATUS INFORMATION</u> [▶ 84]	???? ????	0?10 0???	0 ... 255	1 Byte	read only
<u>VERSION NUMBER</u> [▶ 84]	Manufacturer-dependent	Manufacturer-dependent	0 ... 255	1 Byte	read only
<u>DEVICE TYPE</u> [▶ 85]	Manufacturer-dependent	Manufacturer-dependent	0 ... 255	1 Byte	read only
<u>PHYSICAL MIN LEVEL</u> [▶ 85]	Manufacturer-dependent	Manufacturer-dependent	1 ... 254	1 Byte	read only

?: not specified

ACTUAL DIM LEVEL

This variable contains the power currently applying to the lamp.

The value can be read with the [FB_DALIV2QueryActualLevel\(\)](#) [► 115] block.

POWER ON LEVEL

When power is supplied to the ballast the lamp is driven to the level of power specified in the variable POWER ON LEVEL. This assumes that the DALI bus has already been supplied with power and is idle. The range of values available to POWER ON LEVEL is restricted by the two variables MIN LEVEL and MAX LEVEL.

The variable can be read with the [FB_DALIV2QueryPowerOnLevel\(\)](#) [► 133] block, and written with [FB_DALIV2StoreDTRAsPowerOnLevel\(\)](#) [► 396].

SYSTEM FAILURE LEVEL

If a fault occurs on the DALI bus (the idle voltage remains below the specified level for longer than 500 ms) then the lamp is driven to the power specified by the SYSTEM FAILURE LEVEL variable. If the variable contains 255 (mask) the lamp power will not change. The possible range is limited by MIN LEVEL and MAX LEVEL.

The variable can be read with the [FB_DALIV2QuerySystemFailureLevel\(\)](#) [► 141] block, and written with [FB_DALIV2StoreDTRAsSystemFailureLevel\(\)](#) [► 399].

MIN LEVEL / MAX LEVEL

The ballast internally restricts the value of the output power to the lamp by means of the MIN LEVEL and MAX LEVEL variables. The exceptions to this are power values of 0 (off) and 255 (mask).

FADE RATE

The FADE RATE specifies the rate at which changes are made (in steps per second) in the value of the lamp's power. This variable has an effect on the [FB_DALIV2Up\(\)](#) [► 113] and [FB_DALIV2Down\(\)](#) [► 103] commands. The absolute fade rate is not entered directly, but it is calculated according to the following formula:

$$T = \frac{506}{\sqrt{2^n}}$$

T = absolute fade rate

n = value that is stored in the FADE RATE variable

The following values result:

n	absolute fade rate
0	Not permitted
1	357.796 steps/s
2	253.000 steps/s
3	178.898 steps/s
4	126.500 steps/s
5	89.449 steps/s
6	63.250 steps/s
7	44.725 steps/s
8	31.625 steps/s
9	22.362 steps/s
10	15.813 steps/s
11	11.181 steps/s
12	7.906 steps/s
13	5.591 steps/s
14	3.953 steps/s
15	2.795 steps/s

FADE TIME

The FADE TIME specifies the time allowed for the current lamp power to be changed to the requested value. In the case of a lamp that is switched off, the pre-heating and ignition time is not included in the fade time. The `FB_DALIV2DirectArcPowerControl()` [▶ 102] and `FB_DALIV2GoToScene()` [▶ 105] blocks are affected. The absolute fade time is not entered directly, but it is calculated according to the following formula:

$$T = \frac{1}{2} \sqrt{2^n}$$

T = absolute fade time
n = value that is stored in the FADE TIME variable

The following values result:

n	absolute fade time
0	< 0.707s
1	0.707s
2	1.000s
3	1.414s
4	2.000s
5	2.828s
6	4.000s
7	5.657s
8	8.000s
9	11.314s
10	16.000s
11	22.627s
12	32.000s
13	45.255s
14	64.000s
15	90.510s

SHORT ADDRESS

The short address is stored in this variable. A valid short address is within the range 0 to 63. If 255 is written to the variable, the short address is regarded as deleted. The short address can be set with the [FB_DALIV2StoreDTRAsShortAddress\(\)](#) [▶ 398] function block. Calling the [FB_DALIV2QueryMissingShortAddress\(\)](#) [▶ 130] function block queries whether a control gear still does not have a short address.

SEARCH ADDRESS

The search address is only needed when assigning short addresses.

RANDOM ADDRESS

The random address, also called the long address, is specified by the manufacturer when the ballasts are supplied. The [FB_DALIV2QueryRandomAddress\(\)](#) [▶ 134] block can be used to read out the 3 bytes of the random address.

GROUP 0-7 / GROUP 8-15

16 groups exist within a DALI network. Any ballast can belong to one group, to several, or indeed to none. Commands that are to be sent to a group have an effect on all the ballasts that belong to that particular group. The [FB_DALIV2QueryGroups\(\)](#) [▶ 122] block reads both 8-bit variables and assembles them into a single 16 bit value. Each bit indicates whether the ballast belongs to a particular group.

SCENE 0-15

Each DALI ballast can store lamp power values for 16 different scenes. There is a value of the lamp power for every scene. If the command for calling up a scene ([FB_DALIV2GoToScene\(\)](#) [▶ 105]) is sent to one device, a group, or to all the devices (broadcast), then each of the affected lamps is set to the saved value. The output is limited by the values of MAX LEVEL, MIN LEVEL and PHYSICAL MIN LEVEL.

STATUS INFORMATION

The status information contains the most important items describing the status of a ballast. The 8-bit value can be read with the [FB_DALIV2QueryStatus\(\)](#) [▶ 140] block. The significance of the individual bits is defined as follows:

Bit	Description
0	Status of the ballast. 0: OK.
1	Lamp failure. 0: OK.
2	Lamp power on. 0: OFF.
3	Limit value error. 0: the most recently requested lamp power was either between MIN LEVEL and MAX LEVEL or was OFF.
4	Fading completed: 0: fading finished. 1: fading active.
5	Reset status. 0: No.
6	Missing short address. 0: No.
7	Power supply fault. 0: No, A reset or a lamp power control command has been received since the most recent power up.

VERSION NUMBER

The version number corresponds to the version number of the IEC standard in accordance with which the ballast was developed and manufactured. The version number can only be read, and is specified by the manufacturer of the ballasts. The major version (*nMajorVersion*) and the minor version (*nMinorVersion*) can each have a value in the range from 0 to 15 (4 bits).

DEVICE TYPE

The value can be read with the `FB_DALIV2QueryDeviceType()` [▶ 120] function block. The following device types are defined according to the IEC 62386 standard:

Value	Description
0	Standard device
1	Device for emergency lighting.
2	Device for discharge lamps.
3	Device for low-voltage halogen lamps.
4	Device for dimming incandescent lamps.
5	Device for converting digital signals into DC signals.
6	Device for light emitting diodes (LEDs).

PHYSICAL MIN LEVEL

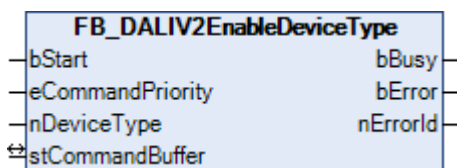
The lowest physically possible lamp power level is stored by the manufacturer in the PHYSICAL MIN LEVEL variable. The value can only be read, for which the `FB_DALIV2QueryPhysicalMinimumLevel()` [▶ 131] block is used.

4.1.2.3.2 Application-related expansion commands

Function blocks

Name	Description
<code>FB_DALIV2EnableDeviceType</code> [▶ 85]	Switching to application-related expansion command.
<code>FB_DALIV2QueryExtendedVersionNumber</code> [▶ 87]	The <code>EXTENDED VERSION NUMBER</code> [▶ 216] variable is read from the control gear.
<code>FB_DALIV2StartIdentification</code> [▶ 88]	Starts a 10-second identification procedure of the control gear.

FB_DALIV2EnableDeviceType



This command must be sent every time prior to an application-specific extension command. As a result, only those control gears that belong to the corresponding `DEVICE TYPE` [▶ 85] react. The command does not have to be used for device type 0. The following device types are defined according to the IEC 62386 standard:

Value	Description
0	Standard device
1	Device for emergency lighting [▶ 214]
2	Device for discharge lamps [▶ 252]
3	Device for low-voltage halogen lamps
4	Device for dimming incandescent lamps
5	Device for converting digital signals into DC signals
6	Device for light emitting diodes (LEDs) [▶ 265]
7	Device for switching functions
8	Device for controlling the color/color temperature [▶ 289]
9	Sequencer

VAR_INPUT

```
bStart          : BOOL;
eCommandPriority : E_DALIV2CommandPriority := eDALIV2CommandPriorityMiddle;
nDeviceType     : BYTE;
```

bStart: The function block is activated by a positive edge at this input.

eCommandPriority: Priority (high, medium or low) with which the command is processed by the library.

nDeviceType: Identifier for the device type (see table above).

VAR_OUTPUT

```
bBusy   : BOOL;
bError  : BOOL;
nErrorId : UDINT;
```

bBusy: When the function block is activated the output is set, and it remains active until execution of the command has been completed.

bError: This output is switched to TRUE as soon as an error occurs during the execution of a command. The command-specific error code is contained in *nErrorId*. Is reset to FALSE by the execution of a command at the inputs.

nErrorId: Contains the command-specific error code of the most recently executed command. Is reset to 0 by the execution of a command at the inputs. (See [error codes](#) [[▶ 380](#)])

VAR_IN_OUT

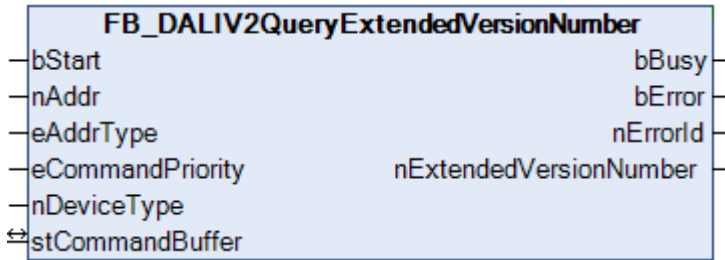
```
stCommandBuffer : ST_DALIV2CommandBuffer;
```

stCommandBuffer: Reference to the internal structure for communication with the function block [FB_KL6811Communication\(\)](#) [[▶ 70](#)] (KL6811) or [FB_KL6821Communication\(\)](#) [[▶ 74](#)] (KL6821).

Requirements

Development environment	required PLC library
TwinCAT from v3.1.4020.14	Tc2_DALI from v3.4.3.0

FB_DALIV2QueryExtendedVersionnumber



The [EXTENDED VERSION NUMBER \[▶ 221\]](#) variable is read from the control gear.

This command belongs to the application-related expansion commands. They function only if they are preceded by the *Enable Device Type* command, which can be sent with the [FB_DALIV2EnableDeviceType\(\) \[▶ 85\]](#) function block. The *Device Type* to be activated can be set at the `nDeviceType` input.

VAR_INPUT

```
bStart      : BOOL;
nAddr       : BYTE;
eAddrType   : E_DALIV2AddrType := eDALIV2AddrTypeShort;
eCommandPriority : E_DALIV2CommandPriority := eDALIV2CommandPriorityMiddle;
nDeviceType : BYTE;
```

bStart: The function block is activated by a positive edge at this input.

nAddr: The address of a participating device or of a group.

eAddrType: Short address, group address or broadcast (see [E_DALIV2AddrType \[▶ 401\]](#)).

eCommandPriority: Priority (high, medium or low) with which the command is processed by the library (see [E_DALIV2CommandPriority \[▶ 401\]](#)).

nDeviceType: Identifier for the device type (see table under [FB_DALIV2EnableDeviceType \(\) \[▶ 85\]](#)).

VAR_OUTPUT

```
bBusy      : BOOL;
bError     : BOOL;
nErrorId   : UDINT;
nExtendedVersionNumber : BYTE;
```

bBusy: When the function block is activated the output is set, and it remains active until execution of the command has been completed.

bError: This output is switched to TRUE as soon as an error occurs during the execution of a command. The command-specific error code is contained in `nErrorId`. Is reset to FALSE by the execution of a command at the inputs.

nErrorId: Contains the command-specific error code of the most recently executed command. Is reset to 0 by the execution of a command at the inputs. (See [error codes \[▶ 380\]](#)).

nExtendedVersionNumber: extended version number of the control gear.

VAR_IN_OUT

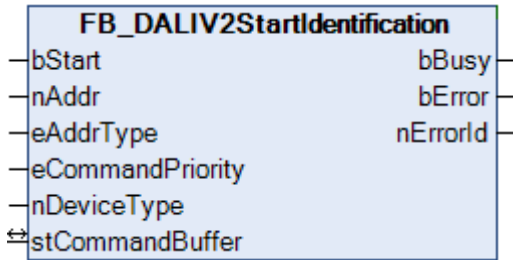
```
stCommandBuffer : ST_DALIV2CommandBuffer;
```

stCommandBuffer: Reference to the internal structure for communication with the function block [FB_KL6811Communication\(\) \[▶ 70\]](#) (KL6811) or [FB_KL6821Communication\(\) \[▶ 74\]](#) (KL6821).

Requirements

Development environment	required PLC library
TwinCAT from v3.1.4020.14	Tc2_DALI from v3.4.3.0

FB_DALIV2StartIdentification



Starts a 10-second identification procedure of the control gear. The behavior is specified by the manufacturer. The lamp usually is usually switched on and off according to a certain pattern.

This command belongs to the application-related expansion commands. They function only if they are preceded by the *Enable Device Type* command, which can be sent with the `FB_DALIV2EnableDeviceType()` [► 85] function block. The Device Type to be activated can be set at the *nDeviceType* input.

VAR_INPUT

```
bStart      : BOOL;
nAddr       : BYTE;
eAddrType   : E_DALIV2AddrType := eDALIV2AddrTypeShort;
eCommandPriority : E_DALIV2CommandPriority := eDALIV2CommandPriorityMiddle;
nDeviceType : BYTE;
```

bStart: The function block is activated by a positive edge at this input.

nAddr: The address of a participating device or of a group.

eAddrType: Short address, group address or broadcast (see `E_DALIV2AddrType` [► 401]).

eCommandPriority: Priority (high, medium or low) with which the command is processed by the library (see `E_DALIV2CommandPriority` [► 401]).

nDeviceType: Identifier for the device type (see table under `FB_DALIV2EnableDeviceType ()` [► 85]).

VAR_OUTPUT

```
bBusy      : BOOL;
bError     : BOOL;
nErrorId   : UDINT;
```

bBusy: When the function block is activated the output is set, and it remains active until execution of the command has been completed.

bError: This output is switched to TRUE as soon as an error occurs during the execution of a command. The command-specific error code is contained in *nErrorId*. Is reset to FALSE by the execution of a command at the inputs.

nErrorId: Contains the command-specific error code of the most recently executed command. Is reset to 0 by the execution of a command at the inputs. (See `error codes` [► 380])

VAR_IN_OUT

```
stCommandBuffer : ST_DALIV2CommandBuffer;
```

stCommandBuffer: Reference to the internal structure for communication with the function block `FB_KL6811Communication()` [► 70] (KL6811) or `FB_KL6821Communication()` [► 74] (KL6821).

Requirements

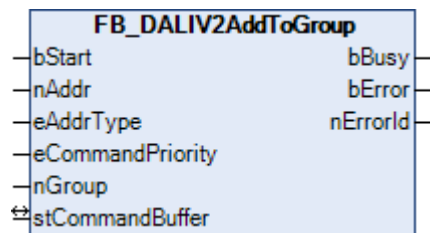
Development environment	required PLC library
TwinCAT from v3.1.4020.14	Tc2_DALI from v3.4.3.0

4.1.2.3.3 Configuration

Function blocks

Name	Description
FB_DALIV2AddToGroup [▶ 89]	Inserts one or more control gears into a group.
FB_DALIV2RemoveFromGroup [▶ 90]	Remove one or more control gears from a group.
FB_DALIV2RemoveFromScene [▶ 91]	Removes the control gear from the scene.
FB_DALIV2Reset [▶ 92]	All variables are reset to their default values.
FB_DALIV2SetFadeRate [▶ 93]	Writes a value to variable FADE RATE [▶ 80].
FB_DALIV2SetFadeTime [▶ 101]	Writes a value to variable FADE TIME [▶ 80].
FB_DALIV2SetMaxLevel [▶ 95]	Writes a value to variable MAX LEVEL [▶ 80].
FB_DALIV2SetMinLevel [▶ 96]	Writes a value to variable MIN LEVEL [▶ 80].
FB_DALIV2SetPowerOnLevel [▶ 97]	Writes a value to variable POWER ON LEVEL [▶ 80].
FB_DALIV2SetScene [▶ 98]	Writes a value as lamp power value in a scene
FB_DALIV2SetShortAddress [▶ 99]	Control gears receive a (new) short address.
FB_DALIV2SetSystemFailureLevel [▶ 100]	Writes a value to variable SYSTEM FAILURE LEVEL [▶ 80].
FB_DALIV2StoreActualLevelInDTR0 [▶ 101]	Writes the current value of the lamp power into the DTR0.

FB_DALIV2AddToGroup



The control gears addressed are inserted into the corresponding group (*nGroup*). A valid group number lies in the range between 0 and 15.

VAR_INPUT

```

bStart      : BOOL;
nAddr       : BYTE;
eAddrType   : E_DALIV2AddrType := eDALIV2AddrTypeShort;
eCommandPriority : E_DALIV2CommandPriority := eDALIV2CommandPriorityMiddle;
nGroup      : BYTE;
    
```

bStart: The function block is activated by a positive edge at this input.

nAddr: The address of a participating device or of a group.

eAddrType: Short address, group address or broadcast (see [E_DALIV2AddrType](#) [[▶ 401](#)]).

eCommandPriority: Priority (high, medium or low) with which the command is processed by the library (see [E_DALIV2CommandPriority](#) [[▶ 401](#)]).

nGroup: Group number (0 - 15).

VAR_OUTPUT

```

bBusy       : BOOL;
bError      : BOOL;
nErrorId    : UDINT;
    
```


bBusy: When the function block is activated the output is set, and it remains active until execution of the command has been completed.

bError: This output is switched to TRUE as soon as an error occurs during the execution of a command. The command-specific error code is contained in *nErrorId*. Is reset to FALSE by the execution of a command at the inputs.

nErrorId: Contains the command-specific error code of the most recently executed command. Is reset to 0 by the execution of a command at the inputs. (See [error codes](#) [► 380])

VAR_IN_OUT

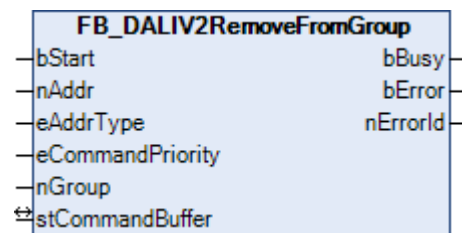
```
stCommandBuffer : ST_DALIV2CommandBuffer;
```

stCommandBuffer: Reference to the internal structure for communication with the function block `FB_KL6811Communication()` [► 70] (KL6811) or `FB_KL6821Communication()` [► 74] (KL6821).

Requirements

Development environment	required PLC library
TwinCAT from v3.1.4020.14	Tc2_DALI from v3.4.3.0

FB_DALIV2RemoveFromGroup



One or more control gears are removed from a group. A valid group number lies in the range between 0 and 15.

VAR_INPUT

```
bStart      : BOOL;
nAddr       : BYTE;
eAddrType   : E_DALIV2AddrType := eDALIV2AddrTypeShort;
eCommandPriority : E_DALIV2CommandPriority := eDALIV2CommandPriorityMiddle;
nGroup      : BYTE;
```

bStart: The function block is activated by a positive edge at this input.

nAddr: The address of a participating device or of a group (see [E_DALIV2AddrType](#) [► 401]).

eAddrType: Short address, group address or broadcast.

eCommandPriority: Priority (high, medium or low) with which the command is processed by the library (see [E_DALIV2CommandPriority](#) [► 401]).

nGroup: The group from which the ballast is to be removed.

VAR_OUTPUT

```
bBusy      : BOOL;
bError     : BOOL;
nErrorId   : UDINT;
```

bBusy: When the function block is activated the output is set, and it remains active until execution of the command has been completed.

bError: This output is switched to TRUE as soon as an error occurs during the execution of a command. The command-specific error code is contained in *nErrorId*. Is reset to FALSE by the execution of a command at the inputs.

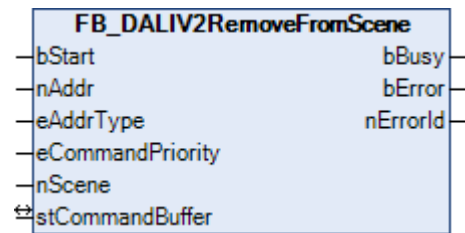
nErrorId: Contains the command-specific error code of the most recently executed command. Is reset to 0 by the execution of a command at the inputs. (See [error codes \[▶ 380\]](#))

VAR_IN_OUT

```
stCommandBuffer : ST_DALIV2CommandBuffer;
```

stCommandBuffer: Reference to the internal structure for communication with the function block [FB_KL6811Communication\(\) \[▶ 70\]](#) (KL6811) or [FB_KL6821Communication\(\) \[▶ 74\]](#) (KL6821).

FB_DALIV2RemoveFromScene



One or more control gears are removed from a scene. A valid scene number lies in the range between 0 and 15.

VAR_INPUT

```
bStart      : BOOL;
nAddr       : BYTE;
eAddrType   : E_DALIV2AddrType := eDALIV2AddrTypeShort;
eCommandPriority : E_DALIV2CommandPriority := eDALIV2CommandPriorityMiddle;
nScene      : BYTE;
```

bStart: The function block is activated by a positive edge at this input.

nAddr: The address of a participating device or of a group.

eAddrType: Short address, group address or broadcast (see [E_DALIV2AddrType \[▶ 401\]](#)).

eCommandPriority: Priority (high, medium or low) with which the command is processed by the library (see [E_DALIV2CommandPriority \[▶ 401\]](#)).

nScene: The scene from which the ballast is to be removed.

VAR_OUTPUT

```
bBusy      : BOOL;
bError     : BOOL;
nErrorId   : UDINT;
```

bBusy: When the function block is activated the output is set, and it remains active until execution of the command has been completed.

bError: This output is switched to TRUE as soon as an error occurs during the execution of a command. The command-specific error code is contained in *nErrorId*. Is reset to FALSE by the execution of a command at the inputs.

nErrorId: Contains the command-specific error code of the most recently executed command. Is reset to 0 by the execution of a command at the inputs. (See [error codes \[▶ 380\]](#))

VAR_IN_OUT

```
stCommandBuffer : ST_DALIV2CommandBuffer;
```

stCommandBuffer: Reference to the internal structure for communication with the function block `FB_KL6811Communication()` [► 70] (KL6811) or `FB_KL6821Communication()` [► 74] (KL6821).

Requirements

Development environment	required PLC library
TwinCAT from v3.1.4020.14	Tc2_DALI from v3.4.3.0

FB_DALIV2Reset



All the control gear's variables are reset to their default values with this function block.

VAR_INPUT

```
bStart      : BOOL;
nAddr       : BYTE;
eAddrType   : E_DALIV2AddrType := eDALIV2AddrTypeShort;
eCommandPriority : E_DALIV2CommandPriority := eDALIV2CommandPriorityMiddle;
```

bStart: The function block is activated by a positive edge at this input.

nAddr: The address of a participating device or of a group.

eAddrType: Short address, group address or broadcast (see [E_DALIV2AddrType](#) [► 401]).

eCommandPriority: Priority (high, medium or low) with which the command is processed by the library (see [E_DALIV2CommandPriority](#) [► 401]).

VAR_OUTPUT

```
bBusy       : BOOL;
bError      : BOOL;
nErrorId    : UDINT;
```

bBusy: When the function block is activated the output is set, and it remains active until execution of the command has been completed.

bError: This output is switched to TRUE as soon as an error occurs during the execution of a command. The command-specific error code is contained in *nErrorId*. Is reset to FALSE by the execution of a command at the inputs.

nErrorId: Contains the command-specific error code of the most recently executed command. Is reset to 0 by the execution of a command at the inputs. (See [error codes](#) [► 380])

VAR_IN_OUT

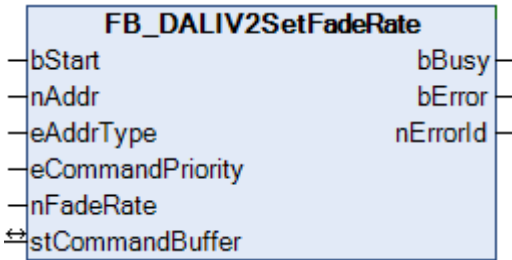
```
stCommandBuffer : ST_DALIV2CommandBuffer;
```

stCommandBuffer: Reference to the internal structure for communication with the function block `FB_KL6811Communication()` [► 70] (KL6811) or `FB_KL6821Communication()` [► 74] (KL6821).

Requirements

Development environment	required PLC library
TwinCAT from v3.1.4020.14	Tc2_DALI from v3.4.3.0

FB_DALIV2SetFadeRate



Writes a value to variable [Variables](#) [▶ 82]. The range of possible values extends from 1 to 15.

VAR_INPUT

```
bStart      : BOOL;
nAddr       : BYTE;
eAddrType   : E_DALIV2AddrType := eDALIV2AddrTypeShort;
eCommandPriority : E_DALIV2CommandPriority := eDALIV2CommandPriorityMiddle;
nFadeRate   : BYTE;
```

bStart: The function block is activated by a positive edge at this input.

nAddr: The address of a participating device or of a group.

eAddrType: Short address, group address or broadcast (see [E_DALIV2AddrType](#) [▶ 401]).

eCommandPriority: Priority (high, medium or low) with which the command is processed by the library (see [E_DALIV2CommandPriority](#) [▶ 401]).

nFadeRate: Rate of change of the lamp power value. The range of possible values extends from 1 to 15.

VAR_OUTPUT

```
bBusy       : BOOL;
bError      : BOOL;
nErrorId    : UDINT;
```

bBusy: When the function block is activated the output is set, and it remains active until execution of the command has been completed.

bError: This output is switched to TRUE as soon as an error occurs during the execution of a command. The command-specific error code is contained in *nErrorId*. Is reset to FALSE by the execution of a command at the inputs.

nErrorId: Contains the command-specific error code of the most recently executed command. Is reset to 0 by the execution of a command at the inputs. (See [error codes](#) [▶ 380])

VAR_IN_OUT

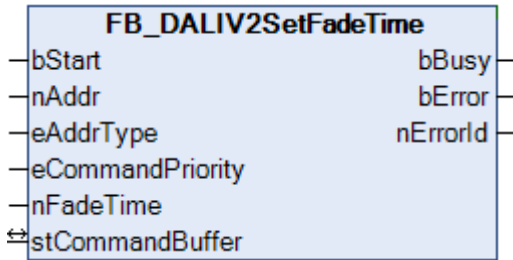
```
stCommandBuffer : ST_DALIV2CommandBuffer;
```

stCommandBuffer: Reference to the internal structure for communication with the function block [FB_KL6811Communication\(\)](#) [▶ 70] (KL6811) or [FB_KL6821Communication\(\)](#) [▶ 74] (KL6821).

Requirements

Development environment	required PLC library
TwinCAT from v3.1.4022.4	Tc2_DALI from v3.6.2.0

FB_DALIV2SetFadeTime



The function block writes a value to variable `FADE TIME` [► 80]. The range of possible values extends from 0 to 15.

VAR_INPUT

```
bStart      : BOOL;
nAddr       : BYTE;
eAddrType   : E_DALIV2AddrType := eDALIV2AddrTypeShort;
eCommandPriority : E_DALIV2CommandPriority := eDALIV2CommandPriorityMiddle;
nFadeTime   : BYTE;
```

bStart: The function block is activated by a positive edge at this input.

nAddr: The address of a participating device or of a group.

eAddrType: Short address, group address or broadcast (see [E_DALIV2AddrType](#) [► 401]).

eCommandPriority: Priority (high, medium or low) with which the command is processed by the library (see [E_DALIV2CommandPriority](#) [► 401]).

nFadeTime: Time required for changing the current lamp power value to required value. The range of possible values extends from 0 to 15.

VAR_OUTPUT

```
bBusy       : BOOL;
bError      : BOOL;
nErrorId    : UDINT;
```

bBusy: When the function block is activated the output is set, and it remains active until execution of the command has been completed.

bError: This output is switched to TRUE as soon as an error occurs during the execution of a command. The command-specific error code is contained in *nErrorId*. Is reset to FALSE by the execution of a command at the inputs.

nErrorId: Contains the command-specific error code of the most recently executed command. Is reset to 0 by the execution of a command at the inputs. (See [error codes](#) [► 380])

VAR_IN_OUT

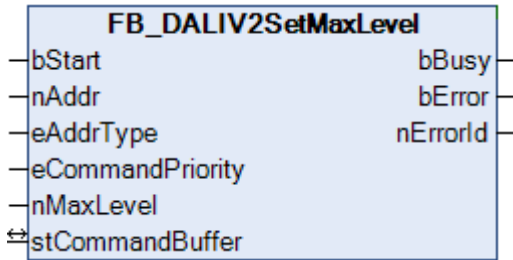
```
stCommandBuffer : ST_DALIV2CommandBuffer;
```

stCommandBuffer: Reference to the internal structure for communication with the function block `FB_KL6811Communication()` [► 70] (KL6811) or `FB_KL6821Communication()` [► 74] (KL6821).

Requirements

Development environment	required PLC library
TwinCAT from v3.1.4022.4	Tc2_DALI from v3.6.2.0

FB_DALIV2SetMaxLevel



This function block writes to variable `MAX LEVEL` [▶ 82]. If the value provided is smaller than MIN LEVEL then the value is simply set to MIN LEVEL.

VAR_INPUT

```
bStart      : BOOL;
nAddr       : BYTE;
eAddrType   : E_DALIV2AddrType := eDALIV2AddrTypeShort;
eCommandPriority : E_DALIV2CommandPriority := eDALIV2CommandPriorityMiddle;
nMaxLevel   : BYTE;
```

bStart: The function block is activated by a positive edge at this input.

nAddr: The address of a participating device or of a group.

eAddrType: Short address, group address or broadcast (see [E_DALIV2AddrType](#) [▶ 401]).

eCommandPriority: Priority (high, medium or low) with which the command is processed by the library (see [E_DALIV2CommandPriority](#) [▶ 401]).

nMaxLevel: Maximum permitted lamp power (0 - 254).

VAR_OUTPUT

```
bBusy       : BOOL;
bError      : BOOL;
nErrorId    : UDINT;
```

bBusy: When the function block is activated the output is set, and it remains active until execution of the command has been completed.

bError: This output is switched to TRUE as soon as an error occurs during the execution of a command. The command-specific error code is contained in `nErrorId`. Is reset to FALSE by the execution of a command at the inputs.

nErrorId: Contains the command-specific error code of the most recently executed command. Is reset to 0 by the execution of a command at the inputs. (See [error codes](#) [▶ 380])

VAR_IN_OUT

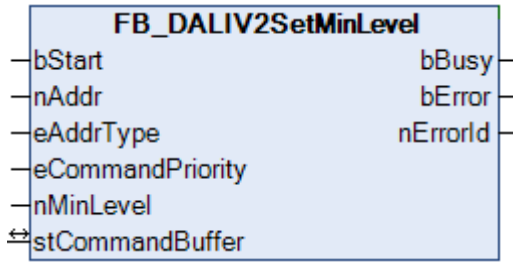
```
stCommandBuffer : ST_DALIV2CommandBuffer;
```

stCommandBuffer: Reference to the internal structure for communication with the function block `FB_KL6811Communication()` [▶ 70] (KL6811) or `FB_KL6821Communication()` [▶ 74] (KL6821).

Requirements

Development environment	required PLC library
TwinCAT from v3.1.4022.4	Tc2_DALI from v3.6.2.0

FB_DALIV2SetMinLevel



This function block writes to variable `MIN LEVEL` [► 82]. If the value provided is larger than `MAX LEVEL` then the value is simply set to `MAX LEVEL`.

VAR_INPUT

```
bStart      : BOOL;
nAddr       : BYTE;
eAddrType   : E_DALIV2AddrType := eDALIV2AddrTypeShort;
eCommandPriority : E_DALIV2CommandPriority := eDALIV2CommandPriorityMiddle;
nMinLevel   : BYTE;
```

bStart: The function block is activated by a positive edge at this input.

nAddr: The address of a participating device or of a group.

eAddrType: Short address, group address or broadcast (see [E_DALIV2AddrType](#) [► 401]).

eCommandPriority: Priority (high, medium or low) with which the command is processed by the library (see [E_DALIV2CommandPriority](#) [► 401]).

nMinLevel: Minimum permitted lamp power (0 - 254).

VAR_OUTPUT

```
bBusy      : BOOL;
bError     : BOOL;
nErrorId   : UDINT;
```

bBusy: When the function block is activated the output is set, and it remains active until execution of the command has been completed.

bError: This output is switched to TRUE as soon as an error occurs during the execution of a command. The command-specific error code is contained in `nErrorId`. Is reset to FALSE by the execution of a command at the inputs.

nErrorId: Contains the command-specific error code of the most recently executed command. Is reset to 0 by the execution of a command at the inputs. (See [error codes](#) [► 380])

VAR_IN_OUT

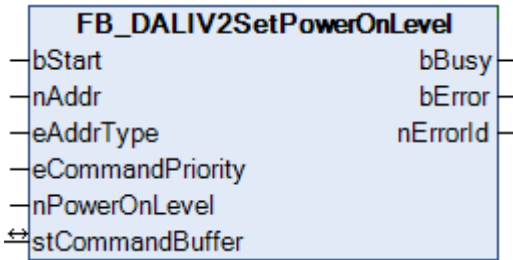
```
stCommandBuffer : ST_DALIV2CommandBuffer;
```

stCommandBuffer: Reference to the internal structure for communication with the function block `FB_KL6811Communication()` [► 70] (KL6811) or `FB_KL6821Communication()` [► 74] (KL6821).

Requirements

Development environment	required PLC library
TwinCAT from v3.1.4022.4	Tc2_DALI from v3.6.2.0

FB_DALIV2SetPowerOnLevel



The function block assigns a defined switch-on value to one or several control gears via the variable [Variables \[► 82\]](#).

VAR_INPUT

```
bStart      : BOOL;
nAddr       : BYTE;
eAddrType   : E_DALIV2AddrType := eDALIV2AddrTypeShort;
eCommandPriority : E_DALIV2CommandPriority := eDALIV2CommandPriorityMiddle;
nPowerOnLevel : BYTE;
```

bStart: The function block is activated by a positive edge at this input.

nAddr: The address of a participating device or of a group.

eAddrType: Short address, group address or broadcast (see [E_DALIV2AddrType \[► 401\]](#)).

eCommandPriority: Priority (high, medium or low) with which the command is processed by the library (see [E_DALIV2CommandPriority \[► 401\]](#)).

nPowerOnLevel: Switch-on value.

VAR_OUTPUT

```
bBusy      : BOOL;
bError     : BOOL;
nErrorId   : UDINT;
```

bBusy: When the function block is activated the output is set, and it remains active until execution of the command has been completed.

bError: This output is switched to TRUE as soon as an error occurs during the execution of a command. The command-specific error code is contained in *nErrorId*. Is reset to FALSE by the execution of a command at the inputs.

nErrorId: Contains the command-specific error code of the most recently executed command. Is reset to 0 by the execution of a command at the inputs. (See [error codes \[► 380\]](#))

VAR_IN_OUT

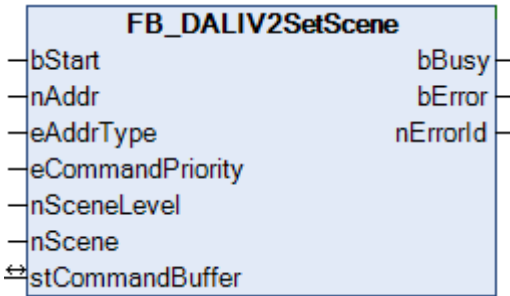
```
stCommandBuffer : ST_DALIV2CommandBuffer;
```

stCommandBuffer: Reference to the internal structure for communication with the function block [FB_KL6811Communication\(\) \[► 70\]](#) (KL6811) or [FB_KL6821Communication\(\) \[► 74\]](#) (KL6821).

Requirements

Development environment	required PLC library
TwinCAT from v3.1.4022.4	Tc2_DALI from v3.6.2.0

FB_DALIV2SetScene



The function block stores lamp power value *nSceneLevel* for a specified scene *nScene*. The range of values for the scene number extends from 0 to 15.

VAR_INPUT

```
bStart      : BOOL;
nAddr       : BYTE;
eAddrType   : E_DALIV2AddrType := eDALIV2AddrTypeShort;
eCommandPriority : E_DALIV2CommandPriority := eDALIV2CommandPriorityMiddle;
nSceneLevel : BYTE;
nScene      : BYTE;
```

bStart: The function block is activated by a positive edge at this input.

nAddr: The address of a participating device or of a group (see [E_DALIV2AddrType](#) [► 401]).

eAddrType: Short address, group address or broadcast.

eCommandPriority: Priority (high, medium or low) with which the command is processed by the library (see [E_DALIV2CommandPriority](#) [► 401]).

nSceneLevel: Lamp power value for the required scene.

nScene: The scene for which the value of the lamp power should be changed.

VAR_OUTPUT

```
bBusy      : BOOL;
bError     : BOOL;
nErrorId   : UDINT;
```

bBusy: When the function block is activated the output is set, and it remains active until execution of the command has been completed.

bError: This output is switched to TRUE as soon as an error occurs during the execution of a command. The command-specific error code is contained in *nErrorId*. Is reset to FALSE by the execution of a command at the inputs.

nErrorId: Contains the command-specific error code of the most recently executed command. Is reset to 0 by the execution of a command at the inputs. (See [error codes](#) [► 380])

VAR_IN_OUT

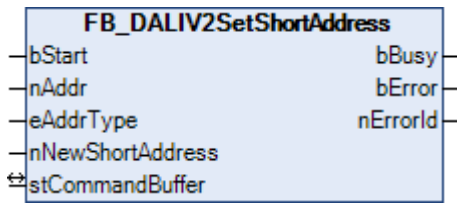
```
stCommandBuffer : ST_DALIV2CommandBuffer;
```

stCommandBuffer: Reference to the internal structure for communication with the function block [FB_KL6811Communication\(\)](#) [► 70] (KL6811) or [FB_KL6821Communication\(\)](#) [► 74] (KL6821).

Requirements

Development environment	required PLC library
TwinCAT from v3.1.4022.4	Tc2_DALI from v3.6.2.0

FB_DALIV2SetShortAddress



One or more control gears receive a (new) short address with the aid of this function block. Valid short addresses are in the range 0 to 63. If 255 is transferred as short address, the short address in the control gear is deleted.

If you want to give a short address to a device that does not yet have one, you must transmit the command as a broadcast (*eAddrType* = *eDALIV2AddrTypeBroadcast*). This gives all the control gears that are connected to the DALI terminal the short address *nNewShortAddress*. This includes the control gears that did not so far have a short address.

VAR_INPUT

```
bStart      : BOOL;
nAddr       : BYTE;
eAddrType   : E_DALIV2AddrType := eDALIV2AddrTypeShort;
nNewShortAddress : BYTE;
```

bStart: The function block is activated by a positive edge at this input.

nAddr: The address of a participating device or of a group.

eAddrType: Short address, group address or broadcast.

nNewShortAddress: New short address (0-63) or mask (255).

VAR_OUTPUT

```
bBusy      : BOOL;
bError     : BOOL;
nErrorId   : UDINT;
```

bBusy: When the function block is activated the output is set, and it remains active until execution of the command has been completed.

bError: This output is switched to TRUE as soon as an error occurs during the execution of a command. The command-specific error code is contained in *nErrorId*. Is reset to FALSE by the execution of a command at the inputs.

nErrorId: Contains the command-specific error code of the most recently executed command. Is reset to 0 by the execution of a command at the inputs. (See [error codes](#) [▶ 380])

VAR_IN_OUT

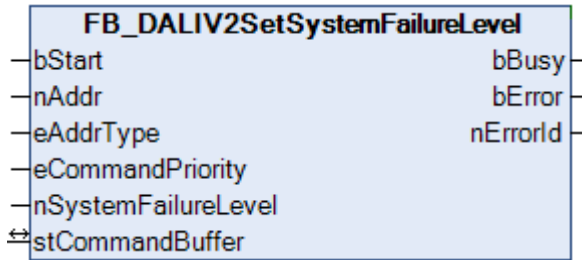
```
stCommandBuffer : ST_DALIV2CommandBuffer;
```

stCommandBuffer: Reference to the internal structure for communication with the function block [FB_KL6811Communication\(\)](#) [▶ 70] (KL6811) or [FB_KL6821Communication\(\)](#) [▶ 74] (KL6821).

Requirements

Development environment	required PLC library
TwinCAT from v3.1.4020.14	Tc2_DALI from v3.4.3.0

FB_DALIV2SetSystemFailureLevel



The variable `SYSTEM FAILURE LEVEL` [► 80] (lamp power value at system error) is written to the control gear. If a fault (such as the absence of the supply voltage) is detected on the DALI bus, the control gear switches the lamp to this power value.

VAR_INPUT

```
bStart          : BOOL;
nAddr           : BYTE;
eAddrType       : E_DALIV2AddrType := eDALIV2AddrTypeShort;
eCommandPriority : E_DALIV2CommandPriority := eDALIV2CommandPriorityMiddle;
nSystemFailureLevel : BYTE;
```

bStart: The function block is activated by a positive edge at this input.

nAddr: The address of a participating device or of a group.

eAddrType: Short address, group address or broadcast (see [E_DALIV2AddrType](#) [► 401]).

eCommandPriority: Priority (high, medium or low) with which the command is processed by the library (see [E_DALIV2CommandPriority](#) [► 401]).

nSystemFailureLevel: The value of lamp power to be adopted in the event of a system error.

VAR_OUTPUT

```
bBusy   : BOOL;
bError  : BOOL;
nErrorId : UDINT;
```

bBusy: When the function block is activated the output is set, and it remains active until execution of the command has been completed.

bError: This output is switched to TRUE as soon as an error occurs during the execution of a command. The command-specific error code is contained in `nErrorId`. Is reset to FALSE by the execution of a command at the inputs.

nErrorId: Contains the command-specific error code of the most recently executed command. Is reset to 0 by the execution of a command at the inputs. (See [error codes](#) [► 380])

VAR_IN_OUT

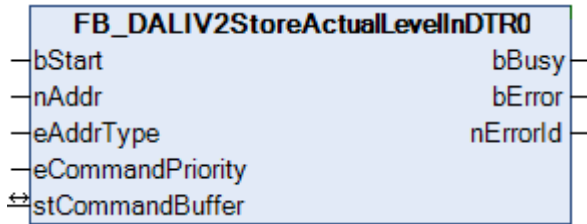
```
stCommandBuffer : ST_DALIV2CommandBuffer;
```

stCommandBuffer: Reference to the internal structure for communication with the function block [FB_KL6811Communication\(\)](#) [► 70] (KL6811) or [FB_KL6821Communication\(\)](#) [► 74] (KL6821).

Requirements

Development environment	required PLC library
TwinCAT from v3.1.4022.4	Tc2_DALI from v3.6.2.0

FB_DALIV2StoreActualLevelInDTR0



The function block writes the current value of the lamp power into the DTR0. This does not change the current value of the lamp power.

VAR_INPUT

```
bStart      : BOOL;
nAddr      : BYTE;
eAddrType  : E_DALIV2AddrType := eDALIV2AddrTypeShort;
eCommandPriority : E_DALIV2CommandPriority := eDALIV2CommandPriorityMiddle;
```

bStart: The function block is activated by a positive edge at this input.

nAddr: The address of a participating device or of a group.

eAddrType: Short address, group address or broadcast (see [E_DALIV2AddrType \[▶ 401\]](#)).

eCommandPriority: Priority (high, medium or low) with which the command is processed by the library (see [E_DALIV2CommandPriority \[▶ 401\]](#)).

VAR_OUTPUT

```
bBusy      : BOOL;
bError     : BOOL;
nErrorId   : UDINT;
```

bBusy: When the function block is activated the output is set, and it remains active until execution of the command has been completed.

bError: This output is switched to TRUE as soon as an error occurs during the execution of a command. The command-specific error code is contained in *nErrorId*. Is reset to FALSE by the execution of a command at the inputs.

nErrorId: Contains the command-specific error code of the most recently executed command. Is reset to 0 by the execution of a command at the inputs. (See [error codes \[▶ 380\]](#))

VAR_IN_OUT

```
stCommandBuffer : ST_DALIV2CommandBuffer;
```

stCommandBuffer: Reference to the internal structure for communication with the function block [FB_KL6811Communication\(\) \[▶ 70\]](#) (KL6811) or [FB_KL6821Communication\(\) \[▶ 74\]](#) (KL6821).

Requirements

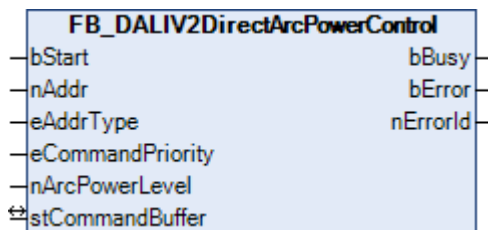
Development environment	required PLC library
TwinCAT from v3.1.4022.4	Tc2_DALI from v3.6.2.0

4.1.2.3.4 Power control

Function blocks

Name	Description
FB_DALIV2DirectArcPowerControl [► 102]	Directly specify the lamp power.
FB_DALIV2Down [► 103]	Reduce lamp power.
FB_DALIV2EnableDAPCSequence [► 104]	Start of a Direct Arc Power Control (DAPC) sequence.
FB_DALIV2GoToScene [► 105]	Call up a scene.
FB_DALIV2Off [► 106]	Switch the lamp off.
FB_DALIV2OnAndStepUp [► 107]	Switch the lamp on if necessary, and increase the lamp power by one step.
FB_DALIV2RecallMaxLevel [► 108]	Set the lamp power to MAX LEVEL [► 80] .
FB_DALIV2RecallMinLevel [► 109]	Set the lamp power to MIN LEVEL [► 80] .
FB_DALIV2StepDown [► 110]	Reduce the lamp power by one step.
FB_DALIV2StepDownAndOff [► 111]	Reduce the lamp power by one step, and switch the lamp off if appropriate.
FB_DALIV2StepUp [► 112]	Increase the lamp power by one step.
FB_DALIV2Up [► 113]	Increase lamp power.

FB_DALIV2DirectArcPowerControl



If the *nArcPowerLevel* parameter is not within the range between [MAX VALUE \[► 80\]](#) and [MIN VALUE \[► 80\]](#) the lamp is switched to the corresponding minimum or maximum value. If the lamp is switched off this command will switch it on.

The speed with which the specified value should be reached is given by the [FADE TIME \[► 80\]](#) variable.

VAR_INPUT

```

bStart      : BOOL;
nAddr       : BYTE;
eAddrType   : E_DALIV2AddrType := eDALIV2AddrTypeShort;
eCommandPriority : E_DALIV2CommandPriority := eDALIV2CommandPriorityMiddle;
nArcPowerLevel : BYTE;

```

bStart: The function block is activated by a positive edge at this input.

nAddr: The address of a participating device or of a group.

eAddrType: Short address, group address or broadcast (see [E_DALIV2AddrType \[► 401\]](#)).

eCommandPriority: Priority (high, medium or low) with which the command is processed by the library (see [E_DALIV2CommandPriority \[► 401\]](#)).

nArcPowerLevel: Lamp power level.

VAR_OUTPUT

```
bBusy      : BOOL;
bError     : BOOL;
nErrorId  : UDINT;
```

bBusy: When the function block is activated the output is set, and it remains active until execution of the command has been completed.

bError: This output is switched to TRUE as soon as an error occurs during the execution of a command. The command-specific error code is contained in *nErrorId*. Is reset to FALSE by the execution of a command at the inputs.

nErrorId: Contains the command-specific error code of the most recently executed command. Is reset to 0 by the execution of a command at the inputs. (See [error codes](#) [▶ 380])

VAR_IN_OUT

```
stCommandBuffer : ST_DALIV2CommandBuffer;
```

stCommandBuffer: Reference to the internal structure for communication with the function block [FB_KL6811Communication\(\)](#) [▶ 70] (KL6811) or [FB_KL6821Communication\(\)](#) [▶ 74] (KL6821).

Requirements

Development environment	required PLC library
TwinCAT from v3.1.4020.14	Tc2_DALI from v3.4.3.0

FB_DALIV2Down



The lamp is dimmed over a period of 200 ms. If the lamp power has already reached the [MIN LEVEL](#) [▶ 80] value the brightness is not changed. This command does not switch the lamp off.

The rate at which dimming takes place during these 200 ms is given by the [FADE RATE](#) [▶ 80] variable.

VAR_INPUT

```
bStart      : BOOL;
nAddr       : BYTE;
eAddrType   : E_DALIV2AddrType := eDALIV2AddrTypeShort;
eCommandPriority : E_DALIV2CommandPriority := eDALIV2CommandPriorityMiddle;
```

bStart: The function block is activated by a positive edge at this input.

nAddr: The address of a participating device or of a group.

eAddrType: Short address, group address or broadcast (see [E_DALIV2AddrType](#) [▶ 401]).

eCommandPriority: Priority (high, medium or low) with which the command is processed by the library (see [E_DALIV2CommandPriority](#) [▶ 401]).

VAR_OUTPUT

```
bBusy      : BOOL;
bError     : BOOL;
nErrorId  : UDINT;
```

bBusy: When the function block is activated the output is set, and it remains active until execution of the command has been completed.

bError: This output is switched to TRUE as soon as an error occurs during the execution of a command. The command-specific error code is contained in *nErrorId*. Is reset to FALSE by the execution of a command at the inputs.

nErrorId: Contains the command-specific error code of the most recently executed command. Is reset to 0 by the execution of a command at the inputs. (See [error codes](#) [► 380])

VAR_IN_OUT

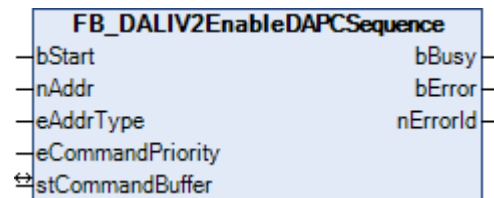
```
stCommandBuffer : ST_DALIV2CommandBuffer;
```

stCommandBuffer: Reference to the internal structure for communication with the function block [FB_KL6811Communication\(\)](#) [► 70] (KL6811) or [FB_KL6821Communication\(\)](#) [► 74] (KL6821).

Requirements

Development environment	required PLC library
TwinCAT from v3.1.4020.14	Tc2_DALI from v3.4.3.0

FB_DALIV2EnableDAPCSequence



This command starts a *Direct Arc Power Control* (DAPC) sequence. Following this command, [DirectArcPowerControl](#) commands must be sent using the [FB_DALIV2DirectArcPowerControl\(\)](#) [► 102] function block. There must not be any more than 200 ms between the individual commands; otherwise the sequence will be ended.



This command can only be executed by DALI devices that comply with the IEC 62386 standard.

VAR_INPUT

```
bStart      : BOOL;
nAddr       : BYTE;
eAddrType   : E_DALIV2AddrType := eDALIV2AddrTypeShort;
eCommandPriority : E_DALIV2CommandPriority := eDALIV2CommandPriorityMiddle;
```

bStart: The function block is activated by a positive edge at this input.

nAddr: The address of a participating device or of a group.

eAddrType: Short address, group address or broadcast (see [E_DALIV2AddrType](#) [► 401]).

eCommandPriority: Priority (high, medium or low) with which the command is processed by the library (see [E_DALIV2CommandPriority](#) [► 401]).

VAR_OUTPUT

```
bBusy      : BOOL;
bError     : BOOL;
nErrorId   : UDINT;
```

bBusy: When the function block is activated the output is set, and it remains active until execution of the command has been completed.

bError: This output is switched to TRUE as soon as an error occurs during the execution of a command. The command-specific error code is contained in *nErrorId*. Is reset to FALSE by the execution of a command at the inputs.

nErrorId: Contains the command-specific error code of the most recently executed command. Is reset to 0 by the execution of a command at the inputs. (See [error codes](#) [▶ 380])

VAR_IN_OUT

```
stCommandBuffer : ST_DALIV2CommandBuffer;
```

stCommandBuffer: Reference to the internal structure for communication with the function block [FB_KL6811Communication\(\)](#) [▶ 70] (KL6811) or [FB_KL6821Communication\(\)](#) [▶ 74] (KL6821).

Requirements

Development environment	required PLC library
TwinCAT from v3.1.4020.14	Tc2_DALI from v3.4.3.0

FB_DALIV2GoToScene



This function block sets the value of the lamp power that has been saved for the scene *nScene*. If the control gear does not belong to the scene, the value of the lamp's power is not changed. If the lamp is switched off this command will switch it on.

The speed with which the lamp power should be reached is given by the [FADE TIME](#) [▶ 80] variable.

VAR_INPUT

```
bStart      : BOOL;
nAddr       : BYTE;
eAddrType   : E_DALIV2AddrType := eDALIV2AddrTypeShort;
eCommandPriority : E_DALIV2CommandPriority := eDALIV2CommandPriorityMiddle;
nScene      : BYTE;
```

bStart: The function block is activated by a positive edge at this input.

nAddr: The address of a participating device or of a group (see [E_DALIV2AddrType](#) [▶ 401]).

eAddrType: Short address, group address or broadcast.

eCommandPriority: Priority (high, medium or low) with which the command is processed by the library (see [E_DALIV2CommandPriority](#) [▶ 401]).

nScene: The scene that is to be activated (0 - 15).

VAR_OUTPUT

```
bBusy      : BOOL;
bError     : BOOL;
nErrorId   : UDINT;
```

bBusy: When the function block is activated the output is set, and it remains active until execution of the command has been completed.

bError: This output is switched to TRUE as soon as an error occurs during the execution of a command. The command-specific error code is contained in *nErrorId*. Is reset to FALSE by the execution of a command at the inputs.

nErrorId: Contains the command-specific error code of the most recently executed command. Is reset to 0 by the execution of a command at the inputs. (See [error codes](#) [► 380])

VAR_IN_OUT

```
stCommandBuffer : ST_DALIV2CommandBuffer;
```

stCommandBuffer: Reference to the internal structure for communication with the function block [FB_KL6811Communication\(\)](#) [► 70] (KL6811) or [FB_KL6821Communication\(\)](#) [► 74] (KL6821).

Requirements

Development environment	required PLC library
TwinCAT from v3.1.4020.14	Tc2_DALI from v3.4.3.0

FB_DALIV2Off



The DALI lamps are switched off immediately.

VAR_INPUT

```
bStart      : BOOL;
nAddr       : BYTE;
eAddrType   : E_DALIV2AddrType := eDALIV2AddrTypeShort;
eCommandPriority : E_DALIV2CommandPriority := eDALIV2CommandPriorityMiddle;
```

bStart: The function block is activated by a positive edge at this input.

nAddr: The address of a participating device or of a group.

eAddrType: Short address, group address or broadcast (see [E_DALIV2AddrType](#) [► 401]).

eCommandPriority: Priority (high, medium or low) with which the command is processed by the library (see [E_DALIV2CommandPriority](#) [► 401]).

VAR_OUTPUT

```
bBusy       : BOOL;
bError      : BOOL;
nErrorId    : UDINT;
```

bBusy: When the function block is activated the output is set, and it remains active until execution of the command has been completed.

bError: This output is switched to TRUE as soon as an error occurs during the execution of a command. The command-specific error code is contained in *nErrorId*. Is reset to FALSE by the execution of a command at the inputs.

nErrorId: Contains the command-specific error code of the most recently executed command. Is reset to 0 by the execution of a command at the inputs. (See [error codes](#) [► 380])

VAR_IN_OUT

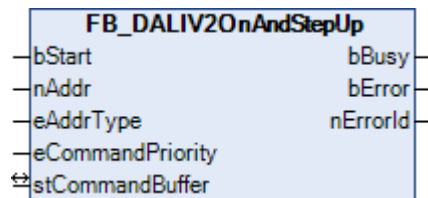
```
stCommandBuffer : ST_DALIV2CommandBuffer;
```

stCommandBuffer: Reference to the internal structure for communication with the function block `FB_KL6811Communication()` [▶ 70] (KL6811) or `FB_KL6821Communication()` [▶ 74] (KL6821).

Requirements

Development environment	required PLC library
TwinCAT from v3.1.4020.14	Tc2_DALI from v3.4.3.0

FB_DALIV2OnAndStepUp



This function block immediately sets the current lamp power value one step higher. If the lamp is switched off then it is switched on and set to MIN LEVEL [▶ 80].

VAR_INPUT

```
bStart      : BOOL;
nAddr       : BYTE;
eAddrType   : E_DALIV2AddrType := eDALIV2AddrTypeShort;
eCommandPriority : E_DALIV2CommandPriority := eDALIV2CommandPriorityMiddle;
```

bStart: The function block is activated by a positive edge at this input.

nAddr: The address of a participating device or of a group.

eAddrType: Short address, group address or broadcast (see E_DALIV2AddrType [▶ 401]).

eCommandPriority: Priority (high, medium or low) with which the command is processed by the library (see E_DALIV2CommandPriority [▶ 401]).

VAR_OUTPUT

```
bBusy      : BOOL;
bError     : BOOL;
nErrorId   : UDINT;
```

bBusy: When the function block is activated the output is set, and it remains active until execution of the command has been completed.

bError: This output is switched to TRUE as soon as an error occurs during the execution of a command. The command-specific error code is contained in *nErrorId*. Is reset to FALSE by the execution of a command at the inputs.

nErrorId: Contains the command-specific error code of the most recently executed command. Is reset to 0 by the execution of a command at the inputs. (See error codes [▶ 380])

VAR_IN_OUT

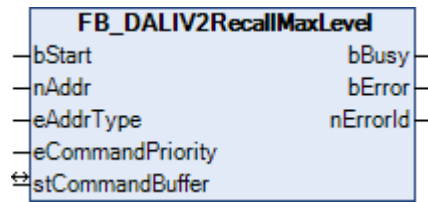
```
stCommandBuffer : ST_DALIV2CommandBuffer;
```

stCommandBuffer: Reference to the internal structure for communication with the function block `FB_KL6811Communication()` [▶ 70] (KL6811) or `FB_KL6821Communication()` [▶ 74] (KL6821).

Requirements

Development environment	required PLC library
TwinCAT from v3.1.4020.14	Tc2_DALI from v3.4.3.0

FB_DALIV2RecallMaxLevel



This function block sets the current lamp power smoothly to a MAX LEVEL [► 80]. If the lamp is switched off this command will switch it on.

VAR_INPUT

```
bStart      : BOOL;
nAddr       : BYTE;
eAddrType   : E_DALIV2AddrType := eDALIV2AddrTypeShort;
eCommandPriority : E_DALIV2CommandPriority := eDALIV2CommandPriorityMiddle;
```

bStart: The function block is activated by a positive edge at this input.

nAddr: The address of a participating device or of a group.

eAddrType: Short address, group address or broadcast (see E_DALIV2AddrType [► 401]).

eCommandPriority: Priority (high, medium or low) with which the command is processed by the library (see E_DALIV2CommandPriority [► 401]).

VAR_OUTPUT

```
bBusy       : BOOL;
bError      : BOOL;
nErrorId    : UDINT;
```

bBusy: When the function block is activated the output is set, and it remains active until execution of the command has been completed.

bError: This output is switched to TRUE as soon as an error occurs during the execution of a command. The command-specific error code is contained in *nErrorId*. Is reset to FALSE by the execution of a command at the inputs.

nErrorId: Contains the command-specific error code of the most recently executed command. Is reset to 0 by the execution of a command at the inputs. (See error codes [► 380])

VAR_IN_OUT

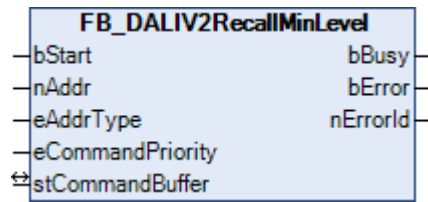
```
stCommandBuffer : ST_DALIV2CommandBuffer;
```

stCommandBuffer: Reference to the internal structure for communication with the function block FB_KL6811Communication() [► 70] (KL6811) or FB_KL6821Communication() [► 74] (KL6821).

Requirements

Development environment	required PLC library
TwinCAT from v3.1.4020.14	Tc2_DALI from v3.4.3.0

FB_DALIV2RecallMinLevel



This function block sets the current lamp power smoothly to a MIN LEVEL [▶ 80]. If the lamp is switched off this command will switch it on.

VAR_INPUT

```
bStart      : BOOL;
nAddr       : BYTE;
eAddrType   : E_DALIV2AddrType := eDALIV2AddrTypeShort;
eCommandPriority : E_DALIV2CommandPriority := eDALIV2CommandPriorityMiddle;
```

bStart: The function block is activated by a positive edge at this input.

nAddr: The address of a participating device or of a group.

eAddrType: Short address, group address or broadcast (see E_DALIV2AddrType [▶ 401]).

eCommandPriority: Priority (high, medium or low) with which the command is processed by the library (see E_DALIV2CommandPriority [▶ 401]).

VAR_OUTPUT

```
bBusy       : BOOL;
bError      : BOOL;
nErrorId    : UDINT;
```

bBusy: When the function block is activated the output is set, and it remains active until execution of the command has been completed.

bError: This output is switched to TRUE as soon as an error occurs during the execution of a command. The command-specific error code is contained in *nErrorId*. Is reset to FALSE by the execution of a command at the inputs.

nErrorId: Contains the command-specific error code of the most recently executed command. Is reset to 0 by the execution of a command at the inputs. (See error codes [▶ 380])

VAR_IN_OUT

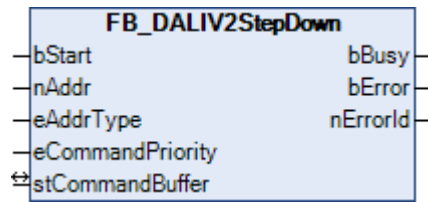
```
stCommandBuffer : ST_DALIV2CommandBuffer;
```

stCommandBuffer: Reference to the internal structure for communication with the function block FB_KL6811Communication() [▶ 70] (KL6811) or FB_KL6821Communication() [▶ 74] (KL6821).

Requirements

Development environment	required PLC library
TwinCAT from v3.1.4020.14	Tc2_DALI from v3.4.3.0

FB_DALIV2StepDown



This function block immediately sets the current lamp power value one step lower. The lamps are not switched off by this command. The power is not further reduced if the lamp power has already reached MIN LEVEL [► 80].

VAR_INPUT

```
bStart      : BOOL;
nAddr      : BYTE;
eAddrType  : E_DALIV2AddrType := eDALIV2AddrTypeShort;
eCommandPriority : E_DALIV2CommandPriority := eDALIV2CommandPriorityMiddle;
```

bStart: The function block is activated by a positive edge at this input.

nAddr: The address of a participating device or of a group.

eAddrType: Short address, group address or broadcast (see E_DALIV2AddrType [► 401]).

eCommandPriority: Priority (high, medium or low) with which the command is processed by the library (see E_DALIV2CommandPriority [► 401]).

VAR_OUTPUT

```
bBusy      : BOOL;
bError     : BOOL;
nErrorId   : UDINT;
```

bBusy: When the function block is activated the output is set, and it remains active until execution of the command has been completed.

bError: This output is switched to TRUE as soon as an error occurs during the execution of a command. The command-specific error code is contained in *nErrorId*. Is reset to FALSE by the execution of a command at the inputs.

nErrorId: Contains the command-specific error code of the most recently executed command. Is reset to 0 by the execution of a command at the inputs. (See error codes [► 380])

VAR_IN_OUT

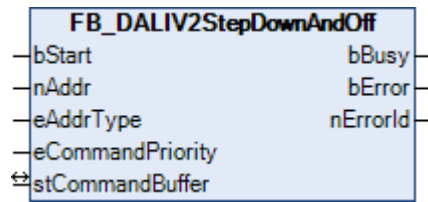
```
stCommandBuffer : ST_DALIV2CommandBuffer;
```

stCommandBuffer: Reference to the internal structure for communication with the function block FB_KL6811Communication() [► 70] (KL6811) or FB_KL6821Communication() [► 74] (KL6821).

Requirements

Development environment	required PLC library
TwinCAT from v3.1.4020.14	Tc2_DALI from v3.4.3.0

FB_DALIV2StepDownAndOff



This function block immediately sets the current lamp power value one step lower. The lamp is switched off if the power value has already reached [MIN LEVEL \[▶ 80\]](#).

VAR_INPUT

```
bStart      : BOOL;
nAddr       : BYTE;
eAddrType   : E_DALIV2AddrType := eDALIV2AddrTypeShort;
eCommandPriority : E_DALIV2CommandPriority := eDALIV2CommandPriorityMiddle;
```

bStart: The function block is activated by a positive edge at this input.

nAddr: The address of a participating device or of a group.

eAddrType: Short address, group address or broadcast (see [E_DALIV2AddrType \[▶ 401\]](#)).

eCommandPriority: Priority (high, medium or low) with which the command is processed by the library (see [E_DALIV2CommandPriority \[▶ 401\]](#)).

VAR_OUTPUT

```
bBusy       : BOOL;
bError      : BOOL;
nErrorId    : UDINT;
```

bBusy: When the function block is activated the output is set, and it remains active until execution of the command has been completed.

bError: This output is switched to TRUE as soon as an error occurs during the execution of a command. The command-specific error code is contained in *nErrorId*. Is reset to FALSE by the execution of a command at the inputs.

nErrorId: Contains the command-specific error code of the most recently executed command. Is reset to 0 by the execution of a command at the inputs. (See [error codes \[▶ 380\]](#))

VAR_IN_OUT

```
stCommandBuffer : ST_DALIV2CommandBuffer;
```

stCommandBuffer: Reference to the internal structure for communication with the function block [FB_KL6811Communication\(\) \[▶ 70\]](#) (KL6811) or [FB_KL6821Communication\(\) \[▶ 74\]](#) (KL6821).

Requirements

Development environment	required PLC library
TwinCAT from v3.1.4020.14	Tc2_DALI from v3.4.3.0

FB_DALIV2StepUp



This function block immediately sets the current lamp power value one step higher. The lamps are not switched on by this command. The power is not further increased if the lamp power has already reached [MAX LEVEL \[► 80\]](#).

VAR_INPUT

```
bStart      : BOOL;
nAddr       : BYTE;
eAddrType   : E_DALIV2AddrType := eDALIV2AddrTypeShort;
eCommandPriority : E_DALIV2CommandPriority := eDALIV2CommandPriorityMiddle;
```

bStart: The function block is activated by a positive edge at this input.

nAddr: The address of a participating device or of a group.

eAddrType: Short address, group address or broadcast (see [E_DALIV2AddrType \[► 401\]](#)).

eCommandPriority: Priority (high, medium or low) with which the command is processed by the library (see [E_DALIV2CommandPriority \[► 401\]](#)).

VAR_OUTPUT

```
bBusy       : BOOL;
bError      : BOOL;
nErrorId    : UDINT;
```

bBusy: When the function block is activated the output is set, and it remains active until execution of the command has been completed.

bError: This output is switched to TRUE as soon as an error occurs during the execution of a command. The command-specific error code is contained in *nErrorId*. Is reset to FALSE by the execution of a command at the inputs.

nErrorId: Contains the command-specific error code of the most recently executed command. Is reset to 0 by the execution of a command at the inputs. (See [error codes \[► 380\]](#))

VAR_IN_OUT

```
stCommandBuffer : ST_DALIV2CommandBuffer;
```

stCommandBuffer: Reference to the internal structure for communication with the function block [FB_KL6811Communication\(\) \[► 70\]](#) (KL6811) or [FB_KL6821Communication\(\) \[► 74\]](#) (KL6821).

Requirements

Development environment	required PLC library
TwinCAT from v3.1.4020.14	Tc2_DALI from v3.4.3.0

FB_DALIV2Up



The lamp is made brighter over a period of 200 ms. If the lamp power has already reached the MAX LEVEL [▶ 80] value the brightness is not changed. This command does not switch the lamp on. The rate at which dimming takes place during these 200 ms is given by the FADE RATE [▶ 80] variable.

VAR_INPUT

```
bStart      : BOOL;
nAddr       : BYTE;
eAddrType   : E_DALIV2AddrType := eDALIV2AddrTypeShort;
eCommandPriority : E_DALIV2CommandPriority := eDALIV2CommandPriorityMiddle;
```

bStart: The function block is activated by a positive edge at this input.

nAddr: The address of a participating device or of a group.

eAddrType: Short address, group address or broadcast (see E_DALIV2AddrType [▶ 401]).

eCommandPriority: Priority (high, medium or low) with which the command is processed by the library (see E_DALIV2CommandPriority [▶ 401]).

VAR_OUTPUT

```
bBusy      : BOOL;
bError     : BOOL;
nErrorId   : UDINT;
```

bBusy: When the function block is activated the output is set, and it remains active until execution of the command has been completed.

bError: This output is switched to TRUE as soon as an error occurs during the execution of a command. The command-specific error code is contained in *nErrorId*. Is reset to FALSE by the execution of a command at the inputs.

nErrorId: Contains the command-specific error code of the most recently executed command. Is reset to 0 by the execution of a command at the inputs. (See error codes [▶ 380])

VAR_IN_OUT

```
stCommandBuffer : ST_DALIV2CommandBuffer;
```

stCommandBuffer: Reference to the internal structure for communication with the function block FB_KL6811Communication() [▶ 70] (KL6811) or FB_KL6821Communication() [▶ 74] (KL6821).

Requirements

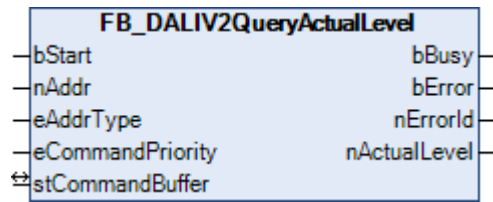
Development environment	required PLC library
TwinCAT from v3.1.4020.14	Tc2_DALI from v3.4.3.0

4.1.2.3.5 Queries

Function blocks

Name	Description
FB_DALIV2QueryActualLevel [▶ 115]	Read the ACTUAL DIM LEVEL [▶ 80] variable (current lamp power).
FB_DALIV2QueryContentDTR0 [▶ 116]	Read out the DTR0 (Data Transfer Register 0).
FB_DALIV2QueryContentDTR1 [▶ 117]	Read out the DTR1 (Data Transfer Register 1).
FB_DALIV2QueryContentDTR2 [▶ 118]	Read out the DTR2 (Data Transfer Register 2).
FB_DALIV2QueryControlGearPresent [▶ 119]	Query whether the control gear is ready to operate.
FB_DALIV2QueryDeviceType [▶ 120]	Query the device type.
FB_DALIV2QueryFadeTimeFadeRate [▶ 121]	Read out the variables FADE RATE [▶ 80] and FADE TIME [▶ 80] .
FB_DALIV2QueryGroups [▶ 122]	Query the group membership.
FB_DALIV2QueryGroups0UpTo7 [▶ 123]	Query the group membership (groups 0 to 7).
FB_DALIV2QueryGroups8UpTo15 [▶ 124]	Query the group membership (groups 8 to 15).
FB_DALIV2QueryLampFailure [▶ 125]	Query whether a lamp has failed.
FB_DALIV2QueryLampPowerOn [▶ 126]	Query as to whether the lamp is switched on.
FB_DALIV2QueryLimitError [▶ 127]	Query whether the last lamp power value could be used or not.
FB_DALIV2QueryMaxLevel [▶ 128]	Read the MAX LEVEL [▶ 80] variable (maximum permitted lamp power).
FB_DALIV2QueryMinLevel [▶ 129]	Read the MIN LEVEL [▶ 80] variable (minimum permitted lamp power).
FB_DALIV2QueryMissingShortAddress [▶ 130]	Query as to whether the control gear does not have a short address.
FB_DALIV2QueryPhysicalMinLevel [▶ 131]	Read the PHYSICAL MIN LEVEL [▶ 80] variable (lowest lamp power that is physically possible).
FB_DALIV2QueryPowerFailure [▶ 132]	Query whether the control gear has received a reset or a lamp power control command since it was switched on or not.
FB_DALIV2QueryPowerOnLevel [▶ 133]	Read the POWER ON LEVEL [▶ 80] variable (initial lamp power when switched on).
FB_DALIV2QueryRandomAddress [▶ 134]	Read the RANDOM ADDRESS [▶ 80] variable (direct address/long address).
FB_DALIV2QueryRandomAddressH [▶ 135]	Read the high byte of the variable RANDOM ADDRESS [▶ 80] (direct address/long address).
FB_DALIV2QueryRandomAddressL [▶ 136]	Read the low byte of the variable RANDOM ADDRESS [▶ 80] (direct address/long address).
FB_DALIV2QueryRandomAddressM [▶ 137]	Read the middle byte of the variable RANDOM ADDRESS [▶ 80] (direct address/long address).
FB_DALIV2QueryResetState [▶ 138]	Query whether the control gear is in the reset state.
FB_DALIV2QuerySceneLevel [▶ 139]	Query the lamp power value of a scene.
FB_DALIV2QueryStatus [▶ 140]	Read the STATUS INFORMATION [▶ 80] variable.
FB_DALIV2QuerySystemFailureLevel [▶ 141]	Read the SYSTEM FAILURE LEVEL [▶ 80] variable (the power value for the lamp in the presence of a system error).
FB_DALIV2QueryVersionNumber [▶ 142]	Read the VERSION NUMBER [▶ 80] variable.
FB_DALIV2ReadMemoryLocation [▶ 143]	Reading an 8-bit value from the control gear memory.

FB_DALIV2QueryActualLevel



The ACTUAL DIM LEVEL [▶ 80] variable (current lamp power) is read from the control gear.

VAR_INPUT

```
bStart      : BOOL;
nAddr       : BYTE;
eAddrType   : E_DALIV2AddrType := eDALIV2AddrTypeShort;
eCommandPriority : E_DALIV2CommandPriority := eDALIV2CommandPriorityMiddle;
```

bStart: The function block is activated by a positive edge at this input.

nAddr: The address of a participating device or of a group.

eAddrType: Short address, group address or broadcast (see E_DALIV2AddrType [▶ 401]).

eCommandPriority: Priority (high, medium or low) with which the command is processed by the library (see E_DALIV2CommandPriority [▶ 401]).

VAR_OUTPUT

```
bBusy       : BOOL;
bError      : BOOL;
nErrorId    : UDINT;
nActualLevel : BYTE;
```

bBusy: When the function block is activated the output is set, and it remains active until execution of the command has been completed.

bError: This output is switched to TRUE as soon as an error occurs during the execution of a command. The command-specific error code is contained in *nErrorId*. Is reset to FALSE by the execution of a command at the inputs.

nErrorId: Contains the command-specific error code of the most recently executed command. Is reset to 0 by the execution of a command at the inputs. (See error codes [▶ 380])

nActualLevel: Lamp power.

VAR_IN_OUT

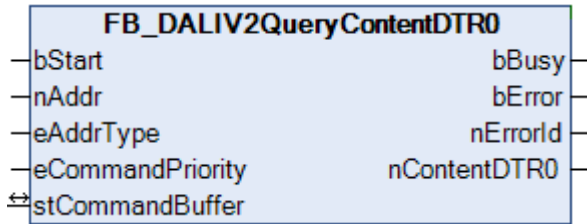
```
stCommandBuffer : ST_DALIV2CommandBuffer;
```

stCommandBuffer: Reference to the internal structure for communication with the function block FB_KL6811Communication() [▶ 70] (KL6811) or FB_KL6821Communication() [▶ 74] (KL6821).

Requirements

Development environment	required PLC library
TwinCAT from v3.1.4020.14	Tc2_DALI from v3.4.3.0

FB_DALIV2QueryContentDTR0



The contents of the DTR0 (Data Transfer Register 0) is read from the control gear.



This command can only be executed by DALI devices that comply with the IEC 62386 standard.

VAR_INPUT

```
bStart      : BOOL;
nAddr      : BYTE;
eAddrType  : E_DALIV2AddrType := eDALIV2AddrTypeShort;
eCommandPriority : E_DALIV2CommandPriority := eDALIV2CommandPriorityMiddle;
```

bStart: The function block is activated by a positive edge at this input.

nAddr: The address of a participating device or of a group.

eAddrType: Short address, group address or broadcast (see [E_DALIV2AddrType](#) [► 401]).

eCommandPriority: Priority (high, medium or low) with which the command is processed by the library (see [E_DALIV2CommandPriority](#) [► 401]).

VAR_OUTPUT

```
bBusy      : BOOL;
bError     : BOOL;
nErrorId   : UDINT;
nContentDTR0 : BYTE;
```

bBusy: When the function block is activated the output is set, and it remains active until execution of the command has been completed.

bError: This output is switched to TRUE as soon as an error occurs during the execution of a command. The command-specific error code is contained in *nErrorId*. Is reset to FALSE by the execution of a command at the inputs.

nErrorId: Contains the command-specific error code of the most recently executed command. Is reset to 0 by the execution of a command at the inputs. (See [error codes](#) [► 380])

nContentDTR0: Content of the DTR0 (Data Transfer Register 0).

VAR_IN_OUT

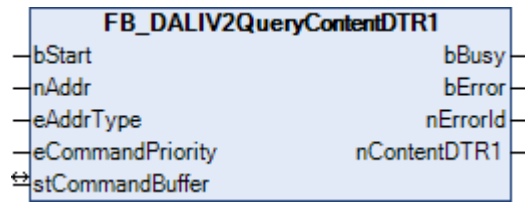
```
stCommandBuffer : ST_DALIV2CommandBuffer;
```

stCommandBuffer: Reference to the internal structure for communication with the function block [FB_KL6811Communication\(\)](#) [► 70] (KL6811) or [FB_KL6821Communication\(\)](#) [► 74] (KL6821).

Requirements

Development environment	required PLC library
TwinCAT from v3.1.4022.4	Tc2_DALI from v3.6.2.0

FB_DALIV2QueryContentDTR1



The contents of the DTR1 (Data Transfer Register 1) is read from the control gear.



This command can only be executed by DALI devices that comply with the IEC 62386 standard.

VAR_INPUT

```
bStart      : BOOL;
nAddr       : BYTE;
eAddrType   : E_DALIV2AddrType := eDALIV2AddrTypeShort;
eCommandPriority : E_DALIV2CommandPriority := eDALIV2CommandPriorityMiddle;
```

bStart: The function block is activated by a positive edge at this input.

nAddr: The address of a participating device or of a group.

eAddrType: Short address, group address or broadcast (see [E_DALIV2AddrType](#) [▶ 401]).

eCommandPriority: Priority (high, medium or low) with which the command is processed by the library (see [E_DALIV2CommandPriority](#) [▶ 401]).

VAR_OUTPUT

```
bBusy       : BOOL;
bError      : BOOL;
nErrorId    : UDINT;
nContentDTR1 : BYTE;
```

bBusy: When the function block is activated the output is set, and it remains active until execution of the command has been completed.

bError: This output is switched to TRUE as soon as an error occurs during the execution of a command. The command-specific error code is contained in *nErrorId*. Is reset to FALSE by the execution of a command at the inputs.

nErrorId: Contains the command-specific error code of the most recently executed command. Is reset to 0 by the execution of a command at the inputs. (See [error codes](#) [▶ 380])

nContentDTR1: Content of the DTR1 (Data Transfer Register 1).

VAR_IN_OUT

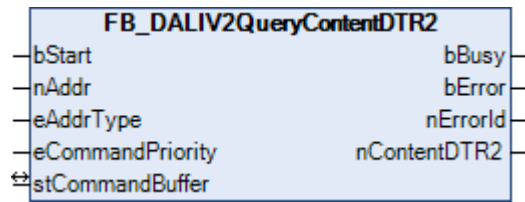
```
stCommandBuffer : ST_DALIV2CommandBuffer;
```

stCommandBuffer: Reference to the internal structure for communication with the function block [FB_KL6811Communication\(\)](#) [▶ 70] (KL6811) or [FB_KL6821Communication\(\)](#) [▶ 74] (KL6821).

Requirements

Development environment	required PLC library
TwinCAT from v3.1.4020.14	Tc2_DALI from v3.4.3.0

FB_DALIV2QueryContentDTR2



The contents of the DTR2 (Data Transfer Register 2) is read from the control gear.



This command can only be executed by DALI devices that comply with the IEC 62386 standard.

VAR_INPUT

```
bStart      : BOOL;
nAddr       : BYTE;
eAddrType   : E_DALIV2AddrType := eDALIV2AddrTypeShort;
eCommandPriority : E_DALIV2CommandPriority := eDALIV2CommandPriorityMiddle;
```

bStart: The function block is activated by a positive edge at this input.

nAddr: The address of a participating device or of a group.

eAddrType: Short address, group address or broadcast (see [E_DALIV2AddrType](#) [► 401]).

eCommandPriority: Priority (high, medium or low) with which the command is processed by the library (see [E_DALIV2CommandPriority](#) [► 401]).

VAR_OUTPUT

```
bBusy       : BOOL;
bError      : BOOL;
nErrorId    : UDINT;
nContentDTR2 : BYTE;
```

bBusy: When the function block is activated the output is set, and it remains active until execution of the command has been completed.

bError: This output is switched to TRUE as soon as an error occurs during the execution of a command. The command-specific error code is contained in *nErrorId*. Is reset to FALSE by the execution of a command at the inputs.

nErrorId: Contains the command-specific error code of the most recently executed command. Is reset to 0 by the execution of a command at the inputs. (See [error codes](#) [► 380])

nContentDTR2: Content of the DTR2 (Data Transfer Register 2).

VAR_IN_OUT

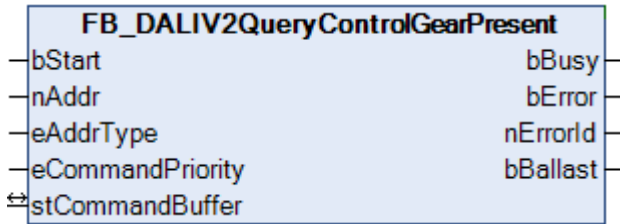
```
stCommandBuffer : ST_DALIV2CommandBuffer;
```

stCommandBuffer: Reference to the internal structure for communication with the function block [FB_KL6811Communication\(\)](#) [► 70] (KL6811) or [FB_KL6821Communication\(\)](#) [► 74] (KL6821).

Requirements

Development environment	required PLC library
TwinCAT from v3.1.4020.14	Tc2_DALI from v3.4.3.0

FB_DALIV2QueryControlGearPresent



The function block provides information as to whether a specific control gear is ready for operation.

Using this command, it can easily be determined whether or not any control gears at all are connected to a DALI line. To do this, the function block with the parameter `eAddrType = eDALIV2AddrTypeBroadcast` is called. If the output `bBallast` is FALSE and output `nError` is 0, there is no control gear connected to the DALI line. If the output `nError` is 0 and the output `bBallast` is TRUE, there is exactly one control gear connected to the DALI line. If several control gears are connected, `nError` will return 5 (several control gears have replied). In this case it is irrelevant whether or not the control gears have short addresses.

VAR_INPUT

```
bStart      : BOOL;
nAddr       : BYTE;
eAddrType   : E_DALIV2AddrType := eDALIV2AddrTypeShort;
eCommandPriority : E_DALIV2CommandPriority := eDALIV2CommandPriorityMiddle;
```

bStart: The function block is activated by a positive edge at this input.

nAddr: The address of a participating device or of a group.

eAddrType: Short address, group address or broadcast (see [E_DALIV2AddrType \[▶ 401\]](#)).

eCommandPriority: Priority (high, medium or low) with which the command is processed by the library (see [E_DALIV2CommandPriority \[▶ 401\]](#)).

VAR_OUTPUT

```
bBusy      : BOOL;
bError     : BOOL;
nErrorId   : UDINT;
bBallast   : BOOL
```

bBusy: When the function block is activated the output is set, and it remains active until execution of the command has been completed.

bError: This output is switched to TRUE as soon as an error occurs during the execution of a command. The command-specific error code is contained in `nErrorId`. Is reset to FALSE by the execution of a command at the inputs.

nErrorId: Contains the command-specific error code of the most recently executed command. Is reset to 0 by the execution of a command at the inputs. (See [error codes \[▶ 380\]](#))

bBallast: If the output is active, the corresponding control gear is ready for operation.

VAR_IN_OUT

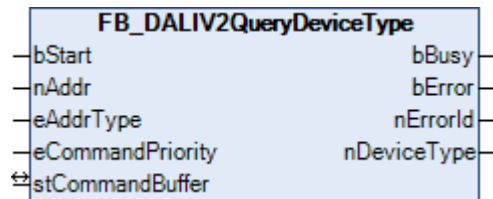
```
stCommandBuffer : ST_DALIV2CommandBuffer;
```

stCommandBuffer: Reference to the internal structure for communication with the function block [FB_KL6811Communication\(\) \[▶ 70\]](#) (KL6811) or [FB_KL6821Communication\(\) \[▶ 74\]](#) (KL6821).

Requirements

Development environment	required PLC library
TwinCAT from v3.1.4022.4	Tc2_DALI from v3.6.2.0

FB_DALIV2QueryDeviceType



Reading takes place from the control gear of the device type ([DEVICE TYPE \[► 80\]](#)). The following device types are defined according to the IEC 62386 standard:

Value	Description
0	Standard device
1	Device for emergency lighting.
2	Device for discharge lamps.
3	Device for low-voltage halogen lamps.
4	Device for dimming incandescent lamps.
5	Device for converting digital signals into DC signals.
6	Device for light emitting diodes (LEDs).

VAR_INPUT

```
bStart      : BOOL;
nAddr       : BYTE;
eAddrType   : E_DALIV2AddrType := eDALIV2AddrTypeShort;
eCommandPriority : E_DALIV2CommandPriority := eDALIV2CommandPriorityMiddle;
```

bStart: The function block is activated by a positive edge at this input.

nAddr: The address of a participating device or of a group.

eAddrType: Short address, group address or broadcast (see [E_DALIV2AddrType \[► 401\]](#)).

eCommandPriority: Priority (high, medium or low) with which the command is processed by the library (see [E_DALIV2CommandPriority \[► 401\]](#)).

VAR_OUTPUT

```
bBusy       : BOOL;
bError      : BOOL;
nErrorId    : UDINT;
nDeviceType : BYTE;
```

bBusy: When the function block is activated the output is set, and it remains active until execution of the command has been completed.

bError: This output is switched to TRUE as soon as an error occurs during the execution of a command. The command-specific error code is contained in *nErrorId*. Is reset to FALSE by the execution of a command at the inputs.

nErrorId: Contains the command-specific error code of the most recently executed command. Is reset to 0 by the execution of a command at the inputs. (See [error codes \[► 380\]](#))

nDeviceType: Identifier for the device type (see table above).

VAR_IN_OUT

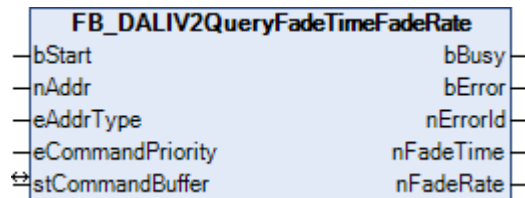
```
stCommandBuffer : ST_DALIV2CommandBuffer;
```

stCommandBuffer: Reference to the internal structure for communication with the function block [FB_KL6811Communication\(\) \[► 70\]](#) (KL6811) or [FB_KL6821Communication\(\) \[► 74\]](#) (KL6821).

Requirements

Development environment	required PLC library
TwinCAT from v3.1.4020.14	Tc2_DALI from v3.4.3.0

FB_DALIV2QueryFadeTimeFadeRate



The FADE TIME [▶ 80] and FADE RATE [▶ 80] variables are read from the control gear.

VAR_INPUT

```
bStart      : BOOL;
nAddr       : BYTE;
eAddrType   : E_DALIV2AddrType := eDALIV2AddrTypeShort;
eCommandPriority : E_DALIV2CommandPriority := eDALIV2CommandPriorityMiddle;
```

bStart: The function block is activated by a positive edge at this input.

nAddr: The address of a participating device or of a group.

eAddrType: Short address, group address or broadcast (see E_DALIV2AddrType [▶ 401]).

eCommandPriority: Priority (high, medium or low) with which the command is processed by the library (see E_DALIV2CommandPriority [▶ 401]).

VAR_OUTPUT

```
bBusy       : BOOL;
bError      : BOOL;
nErrorId    : UDINT;
nFadeTime   : BYTE;
nFadeRate   : BYTE;
```

bBusy: When the function block is activated the output is set, and it remains active until execution of the command has been completed.

bError: This output is switched to TRUE as soon as an error occurs during the execution of a command. The command-specific error code is contained in *nErrorId*. Is reset to FALSE by the execution of a command at the inputs.

nErrorId: Contains the command-specific error code of the most recently executed command. Is reset to 0 by the execution of a command at the inputs. (See error codes [▶ 380])

nFadeTime: Fade time (0 to 15).

nFadeRate: Fade rate (1 to 15).

VAR_IN_OUT

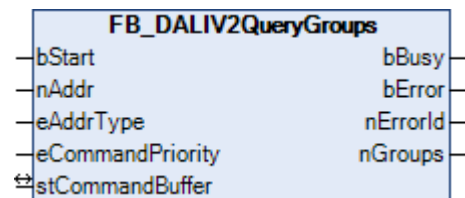
```
stCommandBuffer : ST_DALIV2CommandBuffer;
```

stCommandBuffer: Reference to the internal structure for communication with the function block FB_KL6811Communication() [▶ 70] (KL6811) or FB_KL6821Communication() [▶ 74] (KL6821).

Requirements

Development environment	required PLC library
TwinCAT from v3.1.4020.14	Tc2_DALI from v3.4.3.0

FB_DALIV2QueryGroups



The [GROUP 0-7 \[▶ 80\]](#) and [GROUP 8-15 \[▶ 80\]](#) variables are read from the control gear and combined into a 16-bit value. Each bit represents one group. Bit 0 group 0 and bit 15 group 15. If the bit is set, the control gear belongs to the corresponding group.

VAR_INPUT

```
bStart      : BOOL;
nAddr       : BYTE;
eAddrType   : E_DALIV2AddrType := eDALIV2AddrTypeShort;
eCommandPriority : E_DALIV2CommandPriority := eDALIV2CommandPriorityMiddle;
```

bStart: The function block is activated by a positive edge at this input.

nAddr: The address of a participating device or of a group.

eAddrType: Short address, group address or broadcast (see [E_DALIV2AddrType \[▶ 401\]](#)).

eCommandPriority: Priority (high, medium or low) with which the command is processed by the library (see [E_DALIV2CommandPriority \[▶ 401\]](#)).

VAR_OUTPUT

```
bBusy       : BOOL;
bError      : BOOL;
nErrorId    : UDINT;
nGroups     : WORD;
```

bBusy: When the function block is activated the output is set, and it remains active until execution of the command has been completed.

bError: This output is switched to TRUE as soon as an error occurs during the execution of a command. The command-specific error code is contained in *nErrorId*. Is reset to FALSE by the execution of a command at the inputs.

nErrorId: Contains the command-specific error code of the most recently executed command. Is reset to 0 by the execution of a command at the inputs. (See [error codes \[▶ 380\]](#))

nGroups: Group membership.

VAR_IN_OUT

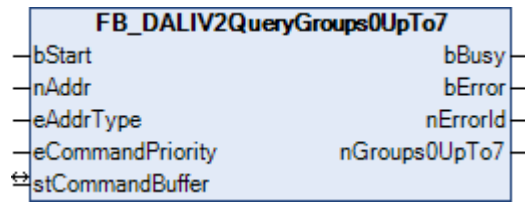
```
stCommandBuffer : ST_DALIV2CommandBuffer;
```

stCommandBuffer: Reference to the internal structure for communication with the function block [FB_KL6811Communication\(\) \[▶ 70\]](#) (KL6811) or [FB_KL6821Communication\(\) \[▶ 74\]](#) (KL6821).

Requirements

Development environment	required PLC library
TwinCAT from v3.1.4020.14	Tc2_DALI from v3.4.3.0

FB_DALIV2QueryGroups0UpTo7



The [GROUP 0-7 \[▶ 80\]](#) variable is read from the control gear and linked to an 8-bit value. Each bit represents one group. Bit 0 group 0 and bit 7 group 7. If the bit is set, the control gear belongs to the corresponding group.

VAR_INPUT

```
bStart      : BOOL;
nAddr       : BYTE;
eAddrType   : E_DALIV2AddrType := eDALIV2AddrTypeShort;
eCommandPriority : E_DALIV2CommandPriority := eDALIV2CommandPriorityMiddle;
```

bStart: The function block is activated by a positive edge at this input.

nAddr: The address of a participating device or of a group.

eAddrType: Short address, group address or broadcast (see [E_DALIV2AddrType \[▶ 401\]](#)).

eCommandPriority: Priority (high, medium or low) with which the command is processed by the library (see [E_DALIV2CommandPriority \[▶ 401\]](#)).

VAR_OUTPUT

```
bBusy       : BOOL;
bError      : BOOL;
nErrorId    : UDINT;
nGroups0UpTo7 : BYTE;
```

bBusy: When the function block is activated the output is set, and it remains active until execution of the command has been completed.

bError: This output is switched to TRUE as soon as an error occurs during the execution of a command. The command-specific error code is contained in *nErrorId*. Is reset to FALSE by the execution of a command at the inputs.

nErrorId: Contains the command-specific error code of the most recently executed command. Is reset to 0 by the execution of a command at the inputs. (See [error codes \[▶ 380\]](#))

nGroups0UpTo7: Group membership.

VAR_IN_OUT

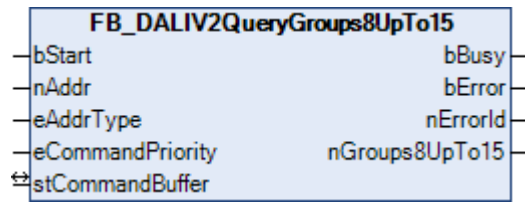
```
stCommandBuffer : ST_DALIV2CommandBuffer;
```

stCommandBuffer: Reference to the internal structure for communication with the function block [FB_KL6811Communication\(\) \[▶ 70\]](#) (KL6811) or [FB_KL6821Communication\(\) \[▶ 74\]](#) (KL6821).

Requirements

Development environment	required PLC library
TwinCAT from v3.1.4020.14	Tc2_DALI from v3.4.3.0

FB_DALIV2QueryGroups8UpTo15



The [GROUP 8-15](#) [[▶ 80](#)] variable is read from the control gear and linked to an 8-bit value. Each bit represents one group. Bit 0 group 8 and bit 7 group 15. If the bit is set, the control gear belongs to the corresponding group.

VAR_INPUT

```
bStart      : BOOL;
nAddr       : BYTE;
eAddrType   : E_DALIV2AddrType := eDALIV2AddrTypeShort;
eCommandPriority : E_DALIV2CommandPriority := eDALIV2CommandPriorityMiddle;
```

bStart: The function block is activated by a positive edge at this input.

nAddr: The address of a participating device or of a group.

eAddrType: Short address, group address or broadcast (see [E_DALIV2AddrType](#) [[▶ 401](#)]).

eCommandPriority: Priority (high, medium or low) with which the command is processed by the library (see [E_DALIV2CommandPriority](#) [[▶ 401](#)]).

VAR_OUTPUT

```
bBusy       : BOOL;
bError      : BOOL;
nErrorId    : UDINT;
nGroups8UpTo15 : BYTE;
```

bBusy: When the function block is activated the output is set, and it remains active until execution of the command has been completed.

bError: This output is switched to TRUE as soon as an error occurs during the execution of a command. The command-specific error code is contained in *nErrorId*. Is reset to FALSE by the execution of a command at the inputs.

nErrorId: Contains the command-specific error code of the most recently executed command. Is reset to 0 by the execution of a command at the inputs. (See [error codes](#) [[▶ 380](#)])

nGroups8UpTo15: Group membership.

VAR_IN_OUT

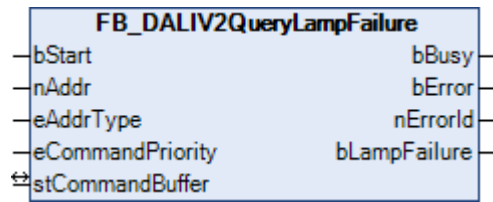
```
stCommandBuffer : ST_DALIV2CommandBuffer;
```

stCommandBuffer: Reference to the internal structure for communication with the function block [FB_KL6811Communication\(\)](#) [[▶ 70](#)] (KL6811) or [FB_KL6821Communication\(\)](#) [[▶ 74](#)] (KL6821).

Requirements

Development environment	required PLC library
TwinCAT from v3.1.4020.14	Tc2_DALI from v3.4.3.0

FB_DALIV2QueryLampFailure



The function block provides information as to whether a specific control gear has a lamp problem.

VAR_INPUT

```
bStart      : BOOL;
nAddr       : BYTE;
eAddrType   : E_DALIV2AddrType := eDALIV2AddrTypeShort;
eCommandPriority : E_DALIV2CommandPriority := eDALIV2CommandPriorityMiddle;
```

bStart: The function block is activated by a positive edge at this input.

nAddr: The address of a participating device or of a group.

eAddrType: Short address, group address or broadcast (see [E_DALIV2AddrType \[► 401\]](#)).

eCommandPriority: Priority (high, medium or low) with which the command is processed by the library (see [E_DALIV2CommandPriority \[► 401\]](#)).

VAR_OUTPUT

```
bBusy       : BOOL;
bError      : BOOL;
nErrorId    : UDINT;
bLampFailure : BOOL;
```

bBusy: When the function block is activated the output is set, and it remains active until execution of the command has been completed.

bError: This output is switched to TRUE as soon as an error occurs during the execution of a command. The command-specific error code is contained in *nErrorId*. Is reset to FALSE by the execution of a command at the inputs.

nErrorId: Contains the command-specific error code of the most recently executed command. Is reset to 0 by the execution of a command at the inputs. (See [error codes \[► 380\]](#))

bLampFailure: If the output is active there has been a lamp failure at the corresponding control gear.

VAR_IN_OUT

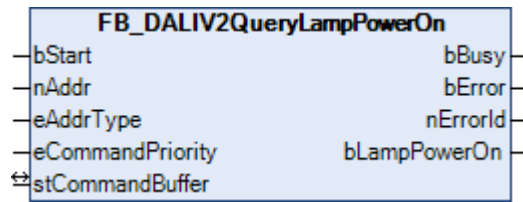
```
stCommandBuffer : ST_DALIV2CommandBuffer;
```

stCommandBuffer: Reference to the internal structure for communication with the function block [FB_KL6811Communication\(\) \[► 70\]](#) (KL6811) or [FB_KL6821Communication\(\) \[► 74\]](#) (KL6821).

Requirements

Development environment	required PLC library
TwinCAT from v3.1.4020.14	Tc2_DALI from v3.4.3.0

FB_DALIV2QueryLampPowerOn



The function block returns the information as to whether the lamp associated with a specific control gear is switched on.

VAR_INPUT

```
bStart      : BOOL;
nAddr       : BYTE;
eAddrType   : E_DALIV2AddrType := eDALIV2AddrTypeShort;
eCommandPriority : E_DALIV2CommandPriority := eDALIV2CommandPriorityMiddle;
```

bStart: The function block is activated by a positive edge at this input.

nAddr: The address of a participating device or of a group.

eAddrType: Short address, group address or broadcast (see [E_DALIV2AddrType \[► 401\]](#)).

eCommandPriority: Priority (high, medium or low) with which the command is processed by the library (see [E_DALIV2CommandPriority \[► 401\]](#)).

VAR_OUTPUT

```
bBusy       : BOOL;
bError      : BOOL;
nErrorId    : UDINT;
bLampPowerOn : BOOL;
```

bBusy: When the function block is activated the output is set, and it remains active until execution of the command has been completed.

bError: This output is switched to TRUE as soon as an error occurs during the execution of a command. The command-specific error code is contained in *nErrorId*. Is reset to FALSE by the execution of a command at the inputs.

nErrorId: Contains the command-specific error code of the most recently executed command. Is reset to 0 by the execution of a command at the inputs. (See [error codes \[► 380\]](#))

bLampPowerOn If the output is active the lamp at the corresponding control gear is switched on.

VAR_IN_OUT

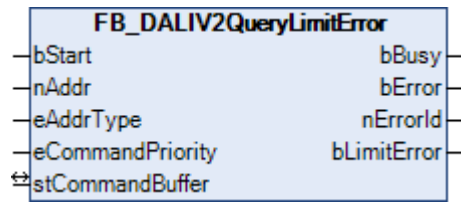
```
stCommandBuffer : ST_DALIV2CommandBuffer;
```

stCommandBuffer: Reference to the internal structure for communication with the function block [FB_KL6811Communication\(\) \[► 70\]](#) (KL6811) or [FB_KL6821Communication\(\) \[► 74\]](#) (KL6821).

Requirements

Development environment	required PLC library
TwinCAT from v3.1.4020.14	Tc2_DALI from v3.4.3.0

FB_DALIV2QueryLimitError



The function block indicates whether the most recent lamp power value at a specific control gear cannot be used on the grounds that it is either above MAX LEVEL [▶ 80] or is below MIN LEVEL [▶ 80].

VAR_INPUT

```
bStart      : BOOL;
nAddr      : BYTE;
eAddrType  : E_DALIV2AddrType := eDALIV2AddrTypeShort;
eCommandPriority : E_DALIV2CommandPriority := eDALIV2CommandPriorityMiddle;
```

bStart: The function block is activated by a positive edge at this input.

nAddr: The address of a participating device or of a group.

eAddrType: Short address, group address or broadcast (see E_DALIV2AddrType [▶ 401]).

eCommandPriority: Priority (high, medium or low) with which the command is processed by the library (see E_DALIV2CommandPriority [▶ 401]).

VAR_OUTPUT

```
bBusy      : BOOL;
bError     : BOOL;
nErrorId   : UDINT;
bLimitError : BOOL;
```

bBusy: When the function block is activated the output is set, and it remains active until execution of the command has been completed.

bError: This output is switched to TRUE as soon as an error occurs during the execution of a command. The command-specific error code is contained in *nErrorId*. Is reset to FALSE by the execution of a command at the inputs.

nErrorId: Contains the command-specific error code of the most recently executed command. Is reset to 0 by the execution of a command at the inputs. (See error codes [▶ 380])

bLimitError: If the output is active, the most recent lamp power value cannot be used.

VAR_IN_OUT

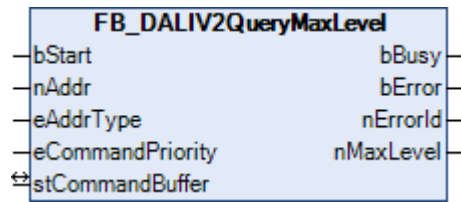
```
stCommandBuffer : ST_DALIV2CommandBuffer;
```

stCommandBuffer: Reference to the internal structure for communication with the function block FB_KL6811Communication() [▶ 70] (KL6811) or FB_KL6821Communication() [▶ 74] (KL6821).

Requirements

Development environment	required PLC library
TwinCAT from v3.1.4020.14	Tc2_DALI from v3.4.3.0

FB_DALIV2QueryMaxLevel



The [MAX LEVEL \[▶ 80\]](#) variable (maximum permissible lamp power) is read from the control gear. This value specifies the upper limit for lamp power commands.

VAR_INPUT

```
bStart      : BOOL;
nAddr       : BYTE;
eAddrType   : E_DALIV2AddrType := eDALIV2AddrTypeShort;
eCommandPriority : E_DALIV2CommandPriority := eDALIV2CommandPriorityMiddle;
```

bStart: The function block is activated by a positive edge at this input.

nAddr: The address of a participating device or of a group.

eAddrType: Short address, group address or broadcast (see [E_DALIV2AddrType \[▶ 401\]](#)).

eCommandPriority: Priority (high, medium or low) with which the command is processed by the library (see [E_DALIV2CommandPriority \[▶ 401\]](#)).

VAR_OUTPUT

```
bBusy       : BOOL;
bError      : BOOL;
nErrorId    : UDINT;
nMaxLevel   : BYTE;
```

bBusy: When the function block is activated the output is set, and it remains active until execution of the command has been completed.

bError: This output is switched to TRUE as soon as an error occurs during the execution of a command. The command-specific error code is contained in *nErrorId*. Is reset to FALSE by the execution of a command at the inputs.

nErrorId: Contains the command-specific error code of the most recently executed command. Is reset to 0 by the execution of a command at the inputs. (See [error codes \[▶ 380\]](#))

nMaxLevel: Maximum permitted lamp power (0 - 254).

VAR_IN_OUT

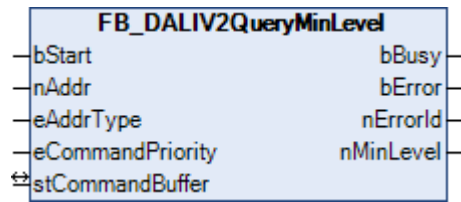
```
stCommandBuffer : ST_DALIV2CommandBuffer;
```

stCommandBuffer: Reference to the internal structure for communication with the function block [FB_KL6811Communication\(\) \[▶ 70\]](#) (KL6811) or [FB_KL6821Communication\(\) \[▶ 74\]](#) (KL6821).

Requirements

Development environment	required PLC library
TwinCAT from v3.1.4020.14	Tc2_DALI from v3.4.3.0

FB_DALIV2QueryMinLevel



The [MIN LEVEL \[► 80\]](#) variable (minimum permissible lamp power) is read from the control gear. This value specifies the lower limit for lamp power commands.

VAR_INPUT

```
bStart      : BOOL;
nAddr      : BYTE;
eAddrType  : E_DALIV2AddrType := eDALIV2AddrTypeShort;
eCommandPriority : E_DALIV2CommandPriority := eDALIV2CommandPriorityMiddle;
```

bStart: The function block is activated by a positive edge at this input.

nAddr: The address of a participating device or of a group.

eAddrType: Short address, group address or broadcast (see [E_DALIV2AddrType \[► 401\]](#)).

eCommandPriority: Priority (high, medium or low) with which the command is processed by the library (see [E_DALIV2CommandPriority \[► 401\]](#)).

VAR_OUTPUT

```
bBusy      : BOOL;
bError     : BOOL;
nErrorId   : UDINT;
nMinLevel  : BYTE;
```

bBusy: When the function block is activated the output is set, and it remains active until execution of the command has been completed.

bError: This output is switched to TRUE as soon as an error occurs during the execution of a command. The command-specific error code is contained in *nErrorId*. Is reset to FALSE by the execution of a command at the inputs.

nErrorId: Contains the command-specific error code of the most recently executed command. Is reset to 0 by the execution of a command at the inputs. (See [error codes \[► 380\]](#))

nMinLevel: minimum permitted lamp power (0 - 254).

VAR_IN_OUT

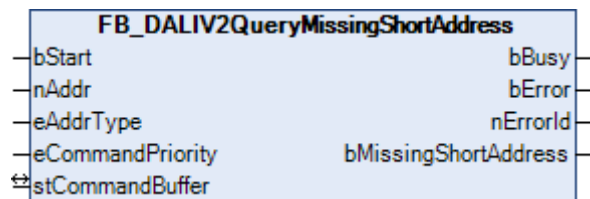
```
stCommandBuffer : ST_DALIV2CommandBuffer;
```

stCommandBuffer: Reference to the internal structure for communication with the function block [FB_KL6811Communication\(\) \[► 70\]](#) (KL6811) or [FB_KL6821Communication\(\) \[► 74\]](#) (KL6821).

Requirements

Development environment	required PLC library
TwinCAT from v3.1.4020.14	Tc2_DALI from v3.4.3.0

FB_DALIV2QueryMissingShortAddress



The function block provides information as to whether a specific control gear has a short address or not.

Using this command, it can be determined whether or not any control gears without a short address are connected to a DALI line. To do this, the function block with the parameter *eAddrType* = *eDALIV2AddrTypeBroadcast* is called. If output *bMissingShortAddress* is FALSE and output *nError* is 0, all control gears have a valid short address. If the output *nError* is 0 and the output *bMissingShortAddress* is TRUE, there is exactly one control gear that has no short address. If several control gears have no short address, *nError* will return 5 (several control gears have replied).

VAR_INPUT

```
bStart      : BOOL;
nAddr       : BYTE;
eAddrType   : E_DALIV2AddrType := eDALIV2AddrTypeShort;
eCommandPriority : E_DALIV2CommandPriority := eDALIV2CommandPriorityMiddle;
```

bStart: The function block is activated by a positive edge at this input.

nAddr: The address of a participating device or of a group.

eAddrType: Short address, group address or broadcast (see [E_DALIV2AddrType \[► 401\]](#)).

eCommandPriority: Priority (high, medium or low) with which the command is processed by the library (see [E_DALIV2CommandPriority \[► 401\]](#)).

VAR_OUTPUT

```
bBusy       : BOOL;
bError      : BOOL;
nErrorId    : UDINT;
bMissingShortAddress : BOOL;
```

bBusy: When the function block is activated the output is set, and it remains active until execution of the command has been completed.

bError: This output is switched to TRUE as soon as an error occurs during the execution of a command. The command-specific error code is contained in *nErrorId*. Is reset to FALSE by the execution of a command at the inputs.

nErrorId: Contains the command-specific error code of the most recently executed command. Is reset to 0 by the execution of a command at the inputs. (See [error codes \[► 380\]](#))

bMissingShortAddress: If the output is active the corresponding control gear does not have a short address.

VAR_IN_OUT

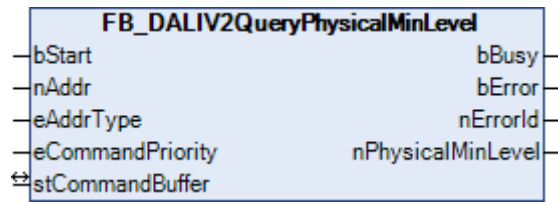
```
stCommandBuffer : ST_DALIV2CommandBuffer;
```

stCommandBuffer: Reference to the internal structure for communication with the function block [FB_KL6811Communication\(\) \[► 70\]](#) (KL6811) or [FB_KL6821Communication\(\) \[► 74\]](#) (KL6821).

Requirements

Development environment	required PLC library
TwinCAT from v3.1.4020.14	Tc2_DALI from v3.4.3.0

FB_DALIV2QueryPhysicalMinLevel



The [PHYSICAL MIN LEVEL](#) [[▶ 80](#)] variable (physically smallest possible lamp power) is read from the control gear. This value can only be read, and is specified by the manufacturer.

VAR_INPUT

```
bStart      : BOOL;
nAddr       : BYTE;
eAddrType   : E_DALIV2AddrType := eDALIV2AddrTypeShort;
eCommandPriority : E_DALIV2CommandPriority := eDALIV2CommandPriorityMiddle;
```

bStart: The function block is activated by a positive edge at this input.

nAddr: The address of a participating device or of a group.

eAddrType: Short address, group address or broadcast (see [E_DALIV2AddrType](#) [[▶ 401](#)]).

eCommandPriority: Priority (high, medium or low) with which the command is processed by the library (see [E_DALIV2CommandPriority](#) [[▶ 401](#)]).

VAR_OUTPUT

```
bBusy       : BOOL;
bError      : BOOL;
nErrorId    : UDINT;
nPhysicalMinLevel : BYTE;
```

bBusy: When the function block is activated the output is set, and it remains active until execution of the command has been completed.

bError: This output is switched to TRUE as soon as an error occurs during the execution of a command. The command-specific error code is contained in *nErrorId*. Is reset to FALSE by the execution of a command at the inputs.

nErrorId: Contains the command-specific error code of the most recently executed command. Is reset to 0 by the execution of a command at the inputs. (See [error codes](#) [[▶ 380](#)])

nPhysicalMinLevel: Lowest physically possible lamp power (0 - 254).

VAR_IN_OUT

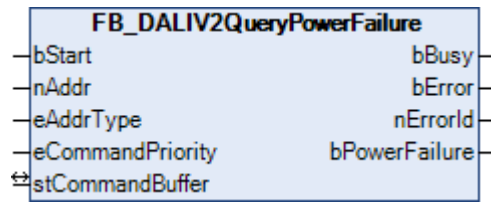
```
stCommandBuffer : ST_DALIV2CommandBuffer;
```

stCommandBuffer: Reference to the internal structure for communication with the function block [FB_KL6811Communication\(\)](#) [[▶ 70](#)] (KL6811) or [FB_KL6821Communication\(\)](#) [[▶ 74](#)] (KL6821).

Requirements

Development environment	required PLC library
TwinCAT from v3.1.4020.14	Tc2_DALI from v3.4.3.0

FB_DALIV2QueryPowerFailure



Query whether the control gear has received a reset or a lamp power control command since it was switched on or not.

VAR_INPUT

```
bStart      : BOOL;
nAddr       : BYTE;
eAddrType   : E_DALIV2AddrType := eDALIV2AddrTypeShort;
eCommandPriority : E_DALIV2CommandPriority := eDALIV2CommandPriorityMiddle;
```

bStart: The function block is activated by a positive edge at this input.

nAddr: The address of a participating device or of a group.

eAddrType: Short address, group address or broadcast (see [E_DALIV2AddrType \[► 401\]](#)).

eCommandPriority: Priority (high, medium or low) with which the command is processed by the library (see [E_DALIV2CommandPriority \[► 401\]](#)).

VAR_OUTPUT

```
bBusy       : BOOL;
bError      : BOOL;
nErrorId    : UDINT;
bPowerFailure : BOOL;
```

bBusy: When the function block is activated the output is set, and it remains active until execution of the command has been completed.

bError: This output is switched to TRUE as soon as an error occurs during the execution of a command. The command-specific error code is contained in *nErrorId*. Is reset to FALSE by the execution of a command at the inputs.

nErrorId: Contains the command-specific error code of the most recently executed command. Is reset to 0 by the execution of a command at the inputs. (See [error codes \[► 380\]](#))

bPowerFailure: If the output is active, no lamp power control command has yet been sent to the control gear.

VAR_IN_OUT

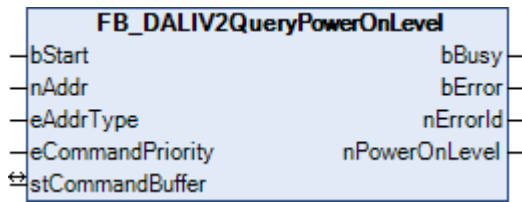
```
stCommandBuffer : ST_DALIV2CommandBuffer;
```

stCommandBuffer: Reference to the internal structure for communication with the function block [FB_KL6811Communication\(\) \[► 70\]](#) (KL6811) or [FB_KL6821Communication\(\) \[► 74\]](#) (KL6821).

Requirements

Development environment	required PLC library
TwinCAT from v3.1.4020.14	Tc2_DALI from v3.4.3.0

FB_DALIV2QueryPowerOnLevel



The POWER ON LEVEL [▶ 80] variable (lamp switch-on power) is read from the control gear. The lamp switches itself to this power value immediately after the power is connected to the control gear.

VAR_INPUT

```
bStart      : BOOL;
nAddr       : BYTE;
eAddrType   : E_DALIV2AddrType := eDALIV2AddrTypeShort;
eCommandPriority : E_DALIV2CommandPriority := eDALIV2CommandPriorityMiddle;
```

bStart: The function block is activated by a positive edge at this input.

nAddr: The address of a participating device or of a group.

eAddrType: Short address, group address or broadcast (see E_DALIV2AddrType [▶ 401]).

eCommandPriority: Priority (high, medium or low) with which the command is processed by the library (see E_DALIV2CommandPriority [▶ 401]).

VAR_OUTPUT

```
bBusy       : BOOL;
bError      : BOOL;
nErrorId    : UDINT;
nPowerOnLevel : BYTE;
```

bBusy: When the function block is activated the output is set, and it remains active until execution of the command has been completed.

bError: This output is switched to TRUE as soon as an error occurs during the execution of a command. The command-specific error code is contained in *nErrorId*. Is reset to FALSE by the execution of a command at the inputs.

nErrorId: Contains the command-specific error code of the most recently executed command. Is reset to 0 by the execution of a command at the inputs. (See error codes [▶ 380])

nPowerOnLevel: Lamp power at switch-on (0 - 254).

VAR_IN_OUT

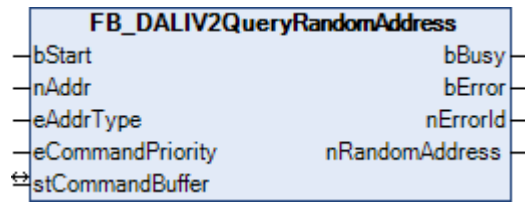
```
stCommandBuffer : ST_DALIV2CommandBuffer;
```

stCommandBuffer: Reference to the internal structure for communication with the function block FB_KL6811Communication() [▶ 70] (KL6811) or FB_KL6821Communication() [▶ 74] (KL6821).

Requirements

Development environment	required PLC library
TwinCAT from v3.1.4020.14	Tc2_DALI from v3.4.3.0

FB_DALIV2QueryRandomAddress



The RANDOM ADDRESS [▶ 80] variable is read from the control gear.

VAR_INPUT

```
bStart      : BOOL;
nAddr       : BYTE;
eAddrType   : E_DALIV2AddrType := eDALIV2AddrTypeShort;
eCommandPriority : E_DALIV2CommandPriority := eDALIV2CommandPriorityMiddle;
```

bStart: The function block is activated by a positive edge at this input.

nAddr: The address of a participating device or of a group.

eAddrType: Short address, group address or broadcast (see E_DALIV2AddrType [▶ 401]).

eCommandPriority: Priority (high, medium or low) with which the command is processed by the library (see E_DALIV2CommandPriority [▶ 401]).

VAR_OUTPUT

```
bBusy       : BOOL;
bError      : BOOL;
nErrorId    : UDINT;
nRandomAddress : UDINT;
```

bBusy: When the function block is activated the output is set, and it remains active until execution of the command has been completed.

bError: This output is switched to TRUE as soon as an error occurs during the execution of a command. The command-specific error code is contained in *nErrorId*. Is reset to FALSE by the execution of a command at the inputs.

nErrorId: Contains the command-specific error code of the most recently executed command. Is reset to 0 by the execution of a command at the inputs. (See error codes [▶ 380])

nRandomAddress: Random address/long address of the control gear.

VAR_IN_OUT

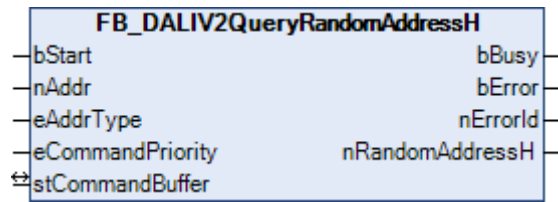
```
stCommandBuffer : ST_DALIV2CommandBuffer;
```

stCommandBuffer: Reference to the internal structure for communication with the function block FB_KL6811Communication() [▶ 70] (KL6811) or FB_KL6821Communication() [▶ 74] (KL6821).

Requirements

Development environment	required PLC library
TwinCAT from v3.1.4020.14	Tc2_DALI from v3.4.3.0

FB_DALIV2QueryRandomAddressH



The high-order byte of the RANDOM ADDRESS [▶ 80] variable is read from the control gear.

VAR_INPUT

```
bStart      : BOOL;
nAddr       : BYTE;
eAddrType   : E_DALIV2AddrType := eDALIV2AddrTypeShort;
eCommandPriority : E_DALIV2CommandPriority := eDALIV2CommandPriorityMiddle;
```

bStart: The function block is activated by a positive edge at this input.

nAddr: The address of a participating device or of a group.

eAddrType: Short address, group address or broadcast (see E_DALIV2AddrType [▶ 401]).

eCommandPriority: Priority (high, medium or low) with which the command is processed by the library (see E_DALIV2CommandPriority [▶ 401]).

VAR_OUTPUT

```
bBusy       : BOOL;
bError      : BOOL;
nErrorId    : UDINT;
nRandomAddressH : BYTE;
```

bBusy: When the function block is activated the output is set, and it remains active until execution of the command has been completed.

bError: This output is switched to TRUE as soon as an error occurs during the execution of a command. The command-specific error code is contained in *nErrorId*. Is reset to FALSE by the execution of a command at the inputs.

nErrorId: Contains the command-specific error code of the most recently executed command. Is reset to 0 by the execution of a command at the inputs. (See error codes [▶ 380])

nRandomAddressH: The high-order byte of the random address/long address.

VAR_IN_OUT

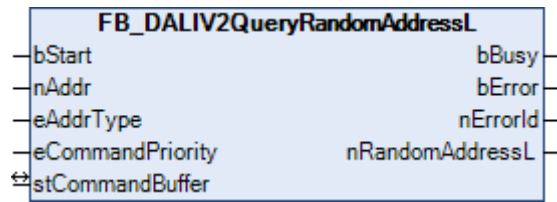
```
stCommandBuffer : ST_DALIV2CommandBuffer;
```

stCommandBuffer: Reference to the internal structure for communication with the function block FB_KL6811Communication() [▶ 70] (KL6811) or FB_KL6821Communication() [▶ 74] (KL6821).

Requirements

Development environment	required PLC library
TwinCAT from v3.1.4020.14	Tc2_DALI from v3.4.3.0

FB_DALIV2QueryRandomAddressL



The lower value byte of the [RANDOM ADDRESS](#) [[▶ 80](#)] variable is read from the control gear.

VAR_INPUT

```
bStart      : BOOL;
nAddr       : BYTE;
eAddrType   : E_DALIV2AddrType := eDALIV2AddrTypeShort;
eCommandPriority : E_DALIV2CommandPriority := eDALIV2CommandPriorityMiddle;
```

bStart: The function block is activated by a positive edge at this input.

nAddr: The address of a participating device or of a group.

eAddrType: Short address, group address or broadcast (see [E_DALIV2AddrType](#) [[▶ 401](#)]).

eCommandPriority: Priority (high, medium or low) with which the command is processed by the library (see [E_DALIV2CommandPriority](#) [[▶ 401](#)]).

VAR_OUTPUT

```
bBusy       : BOOL;
bError      : BOOL;
nErrorId    : UDINT;
nRandomAddressL : BYTE;
```

bBusy: When the function block is activated the output is set, and it remains active until execution of the command has been completed.

bError: This output is switched to TRUE as soon as an error occurs during the execution of a command. The command-specific error code is contained in *nErrorId*. Is reset to FALSE by the execution of a command at the inputs.

nErrorId: Contains the command-specific error code of the most recently executed command. Is reset to 0 by the execution of a command at the inputs. (See [error codes](#) [[▶ 380](#)])

nRandomAddressL: The low-order byte of the random address/long address.

VAR_IN_OUT

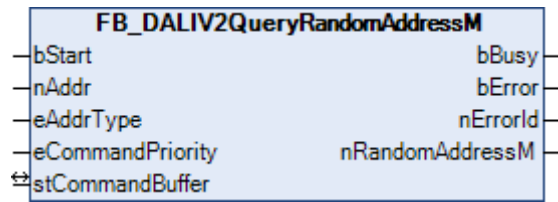
```
stCommandBuffer : ST_DALIV2CommandBuffer;
```

stCommandBuffer: Reference to the internal structure for communication with the function block [FB_KL6811Communication\(\)](#) [[▶ 70](#)] (KL6811) or [FB_KL6821Communication\(\)](#) [[▶ 74](#)] (KL6821).

Requirements

Development environment	required PLC library
TwinCAT from v3.1.4020.14	Tc2_DALI from v3.4.3.0

FB_DALIV2QueryRandomAddressM



The middle byte of the RANDOM ADDRESS [▶ 80] variable is read from the control gear.

VAR_INPUT

```
bStart      : BOOL;
nAddr       : BYTE;
eAddrType   : E_DALIV2AddrType := eDALIV2AddrTypeShort;
eCommandPriority : E_DALIV2CommandPriority := eDALIV2CommandPriorityMiddle;
```

bStart: The function block is activated by a positive edge at this input.

nAddr: The address of a participating device or of a group.

eAddrType: Short address, group address or broadcast (see E_DALIV2AddrType [▶ 401]).

eCommandPriority: Priority (high, medium or low) with which the command is processed by the library (see E_DALIV2CommandPriority [▶ 401]).

VAR_OUTPUT

```
bBusy       : BOOL;
bError      : BOOL;
nErrorId    : UDINT;
nRandomAddressM : BYTE;
```

bBusy: When the function block is activated the output is set, and it remains active until execution of the command has been completed.

bError: This output is switched to TRUE as soon as an error occurs during the execution of a command. The command-specific error code is contained in *nErrorId*. Is reset to FALSE by the execution of a command at the inputs.

nErrorId: Contains the command-specific error code of the most recently executed command. Is reset to 0 by the execution of a command at the inputs. (See error codes [▶ 380])

nRandomAddressM: The medium-order byte of the random address/long address.

VAR_IN_OUT

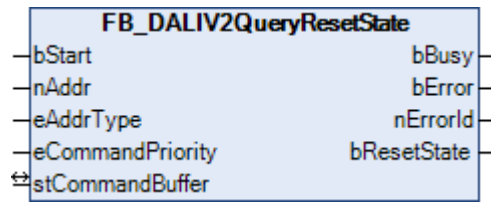
```
stCommandBuffer : ST_DALIV2CommandBuffer;
```

stCommandBuffer: Reference to the internal structure for communication with the function block FB_KL6811Communication() [▶ 70] (KL6811) or FB_KL6821Communication() [▶ 74] (KL6821).

Requirements

Development environment	required PLC library
TwinCAT from v3.1.4020.14	Tc2_DALI from v3.4.3.0

FB_DALIV2QueryResetState



The function block provides information as to whether a specific control gear is in the reset state.

VAR_INPUT

```
bStart      : BOOL;
nAddr       : BYTE;
eAddrType   : E_DALIV2AddrType := eDALIV2AddrTypeShort;
eCommandPriority : E_DALIV2CommandPriority := eDALIV2CommandPriorityMiddle;
```

bStart: The function block is activated by a positive edge at this input.

nAddr: The address of a participating device or of a group.

eAddrType: Short address, group address or broadcast (see [E_DALIV2AddrType \[► 401\]](#)).

eCommandPriority: Priority (high, medium or low) with which the command is processed by the library (see [E_DALIV2CommandPriority \[► 401\]](#)).

VAR_OUTPUT

```
bBusy       : BOOL;
bError      : BOOL;
nErrorId    : UDINT;
bResetState : BOOL;
```

bBusy: When the function block is activated the output is set, and it remains active until execution of the command has been completed.

bError: This output is switched to TRUE as soon as an error occurs during the execution of a command. The command-specific error code is contained in *nErrorId*. Is reset to FALSE by the execution of a command at the inputs.

nErrorId: Contains the command-specific error code of the most recently executed command. Is reset to 0 by the execution of a command at the inputs. (See [error codes \[► 380\]](#))

bResetState: If the output is active the corresponding control gear is in the reset state.

VAR_IN_OUT

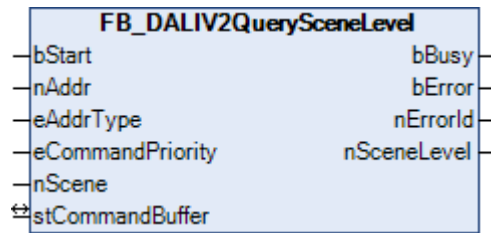
```
stCommandBuffer : ST_DALIV2CommandBuffer;
```

stCommandBuffer: Reference to the internal structure for communication with the function block [FB_KL6811Communication\(\) \[► 70\]](#) (KL6811) or [FB_KL6821Communication\(\) \[► 74\]](#) (KL6821).

Requirements

Development environment	required PLC library
TwinCAT from v3.1.4020.14	Tc2_DALI from v3.4.3.0

FB_DALIV2QuerySceneLevel



The lamp power value for the corresponding scene is read from the control gear.

VAR_INPUT

```
bStart      : BOOL;
nAddr       : BYTE;
eAddrType   : E_DALIV2AddrType := eDALIV2AddrTypeShort;
eCommandPriority : E_DALIV2CommandPriority := eDALIV2CommandPriorityMiddle;
nScene      : BYTE;
```

bStart: The function block is activated by a positive edge at this input.

nAddr: The address of a participating device or of a group.

eAddrType: Short address, group address or broadcast (see [E_DALIV2AddrType \[▶ 401\]](#)).

eCommandPriority: Priority (high, medium or low) with which the command is processed by the library (see [E_DALIV2CommandPriority \[▶ 401\]](#)).

nScene: Scene from which the lamp power value is to be read (0 - 15).

VAR_OUTPUT

```
bBusy       : BOOL;
bError      : BOOL;
nErrorId    : UDINT;
nSceneLevel : BYTE;
```

bBusy: When the function block is activated the output is set, and it remains active until execution of the command has been completed.

bError: This output is switched to TRUE as soon as an error occurs during the execution of a command. The command-specific error code is contained in *nErrorId*. Is reset to FALSE by the execution of a command at the inputs.

nErrorId: Contains the command-specific error code of the most recently executed command. Is reset to 0 by the execution of a command at the inputs. (See [error codes \[▶ 380\]](#))

nSceneLevel: The lamp power value associated with scene.

VAR_IN_OUT

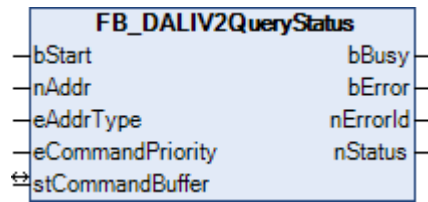
```
stCommandBuffer : ST_DALIV2CommandBuffer;
```

stCommandBuffer: Reference to the internal structure for communication with the function block [FB_KL6811Communication\(\) \[▶ 70\]](#) (KL6811) or [FB_KL6821Communication\(\) \[▶ 74\]](#) (KL6821).

Requirements

Development environment	required PLC library
TwinCAT from v3.1.4020.14	Tc2_DALI from v3.4.3.0

FB_DALIV2QueryStatus



The STATUS INFORMATION [▶ 80] variable is read from the control gear. The status information contains the eight most important items describing the status of a control gear. The significance of the individual bits is defined as follows:

Bit	Description
0	Status of the control gear. 0: OK.
1	Lamp failure. 0: OK.
2	Lamp power on. 0: OFF.
3	Limit error. 0: the last requested lamp power value is between MIN LEVEL and MAX LEVEL or OFF.
4	Fading completed: 0: fading finished. 1: fading active.
5	Reset status. 0: no.
6	Missing short address. 0: no.
7	Power supply fault. 0: No. A reset or a lamp power control command has been received since the most recent power up.

VAR_INPUT

```
bStart      : BOOL;
nAddr       : BYTE;
eAddrType   : E_DALIV2AddrType := eDALIV2AddrTypeShort;
eCommandPriority : E_DALIV2CommandPriority := eDALIV2CommandPriorityMiddle;
```

bStart: The function block is activated by a positive edge at this input.

nAddr: The address of a participating device or of a group.

eAddrType: Short address, group address or broadcast (see E_DALIV2AddrType [▶ 401]).

eCommandPriority: Priority (high, medium or low) with which the command is processed by the library (see E_DALIV2CommandPriority [▶ 401]).

VAR_OUTPUT

```
bBusy       : BOOL;
bError      : BOOL;
nErrorId    : UDINT;
nStatus     : BYTE;
```

bBusy: When the function block is activated the output is set, and it remains active until execution of the command has been completed.

bError: This output is switched to TRUE as soon as an error occurs during the execution of a command. The command-specific error code is contained in *nErrorId*. Is reset to FALSE by the execution of a command at the inputs.

nErrorId: Contains the command-specific error code of the most recently executed command. Is reset to 0 by the execution of a command at the inputs. (See error codes [▶ 380])

nStatus: Status information (see table above).

VAR_IN_OUT

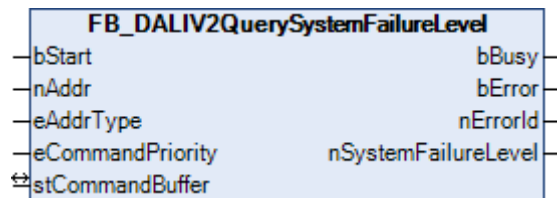
```
stCommandBuffer : ST_DALIV2CommandBuffer;
```


stCommandBuffer: Reference to the internal structure for communication with the function block `FB_KL6811Communication()` [▶ 70] (KL6811) or `FB_KL6821Communication()` [▶ 74] (KL6821).

Requirements

Development environment	required PLC library
TwinCAT from v3.1.4020.14	Tc2_DALI from v3.4.3.0

FB_DALIV2QuerySystemFailureLevel



The `SYSTEM FAILURE LEVEL` [▶ 80] variable (lamp power on system error) is read from the control gear. If a fault (such as the absence of the supply voltage) is detected on the DALI bus, the control gear switches the lamp to this power value.

VAR_INPUT

```
bStart      : BOOL;
nAddr      : BYTE;
eAddrType  : E_DALIV2AddrType := eDALIV2AddrTypeShort;
eCommandPriority : E_DALIV2CommandPriority := eDALIV2CommandPriorityMiddle;
```

bStart: The function block is activated by a positive edge at this input.

nAddr: The address of a participating device or of a group.

eAddrType: Short address, group address or broadcast (see `E_DALIV2AddrType` [▶ 401]).

eCommandPriority: Priority (high, medium or low) with which the command is processed by the library (see `E_DALIV2CommandPriority` [▶ 401]).

VAR_OUTPUT

```
bBusy      : BOOL;
bError     : BOOL;
nErrorId   : UDINT;
nSystemFailureLevel : BYTE;
```

bBusy: When the function block is activated the output is set, and it remains active until execution of the command has been completed.

bError: This output is switched to TRUE as soon as an error occurs during the execution of a command. The command-specific error code is contained in `nErrorId`. Is reset to FALSE by the execution of a command at the inputs.

nErrorId: Contains the command-specific error code of the most recently executed command. Is reset to 0 by the execution of a command at the inputs. (See `error codes` [▶ 380])

nSystemFailureLevel: The value of lamp power to be adopted in the event of a system error.

VAR_IN_OUT

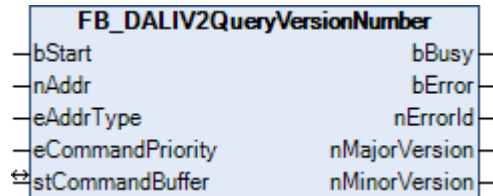
```
stCommandBuffer : ST_DALIV2CommandBuffer;
```

stCommandBuffer: Reference to the internal structure for communication with the function block `FB_KL6811Communication()` [▶ 70] (KL6811) or `FB_KL6821Communication()` [▶ 74] (KL6821).

Requirements

Development environment	required PLC library
TwinCAT from v3.1.4020.14	Tc2_DALI from v3.4.3.0

FB_DALIV2QueryVersionNumber



The `VERSION NUMBER` [► 80] variable is read from the control gear. The version number corresponds to the version number of the IEC standard in accordance with which the software and hardware of the control gear has been developed and manufactured. The version number can only be read, and is specified by the manufacturer. The major version (*nMajorVersion*) and the minor version (*nMinorVersion*) can each have a value in the range from 0 to 15 (4 bits).

VAR_INPUT

```
bStart      : BOOL;
nAddr       : BYTE;
eAddrType   : E_DALIV2AddrType := eDALIV2AddrTypeShort;
eCommandPriority : E_DALIV2CommandPriority := eDALIV2CommandPriorityMiddle;
```

bStart: The function block is activated by a positive edge at this input.

nAddr: The address of a participating device or of a group.

eAddrType: Short address, group address or broadcast (see [E_DALIV2AddrType](#) [► 401]).

eCommandPriority: Priority (high, medium or low) with which the command is processed by the library (see [E_DALIV2CommandPriority](#) [► 401]).

VAR_OUTPUT

```
bBusy       : BOOL;
bError      : BOOL;
nErrorId    : UDINT;
nMajorVersion : BYTE;
nMinorVersion : BYTE;
```

bBusy: When the function block is activated the output is set, and it remains active until execution of the command has been completed.

bError: This output is switched to TRUE as soon as an error occurs during the execution of a command. The command-specific error code is contained in *nErrorId*. Is reset to FALSE by the execution of a command at the inputs.

nErrorId: Contains the command-specific error code of the most recently executed command. Is reset to 0 by the execution of a command at the inputs. (See [error codes](#) [► 380])

nMajorVersion: Major release number.

nMinorVersion: Minor version number.

VAR_IN_OUT

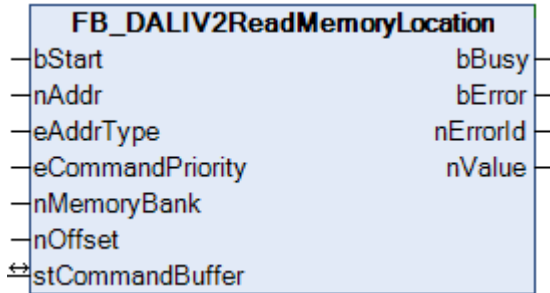
```
stCommandBuffer : ST_DALIV2CommandBuffer;
```

stCommandBuffer: Reference to the internal structure for communication with the function block `FB_KL6811Communication()` [► 70] (KL6811) or `FB_KL6821Communication()` [► 74] (KL6821).

Requirements

Development environment	required PLC library
TwinCAT from v3.1.4020.14	Tc2_DALI from v3.4.3.0

FB_DALIV2ReadMemoryLocation



One byte is read from the control gear memory. The exact memory bank is specified by the parameter *nMemoryBank* and the address within the memory bank by the parameter *nOffset*.



This command can only be executed by DALI devices that comply with the IEC 62386 standard.

VAR_INPUT

```

bStart      : BOOL;
nAddr       : BYTE;
eAddrType   : E_DALIV2AddrType := eDALIV2AddrTypeShort;
eCommandPriority : E_DALIV2CommandPriority := eDALIV2CommandPriorityMiddle;
nMemoryBank : BYTE;
nOffset     : BYTE;

```

bStart: The function block is activated by a positive edge at this input.

nAddr: The address of a participating device or of a group.

eAddrType: Short address, group address or broadcast (see [E_DALIV2AddrType \[► 401\]](#)).

eCommandPriority: Priority (high, medium or low) with which the command is processed by the library (see [E_DALIV2CommandPriority \[► 401\]](#)).

nMemoryBank: The memory bank to be accessed.

nOffset: The address within the memory bank to be accessed.

VAR_OUTPUT

```

bBusy       : BOOL;
bError      : BOOL;
nErrorId    : UDINT;
nValue      : BYTE;

```

bBusy: When the function block is activated the output is set, and it remains active until execution of the command has been completed.

bError: This output is switched to TRUE as soon as an error occurs during the execution of a command. The command-specific error code is contained in *nErrorId*. Is reset to FALSE by the execution of a command at the inputs.

nErrorId: Contains the command-specific error code of the most recently executed command. Is reset to 0 by the execution of a command at the inputs. (See [error codes \[► 380\]](#))

nValue: Byte read from the control gear memory.

VAR_IN_OUT

```
stCommandBuffer : ST_DALIV2CommandBuffer;
```

stCommandBuffer: Reference to the internal structure for communication with the function block `FB_KL6811Communication()` [▶ 70] (KL6811) or `FB_KL6821Communication()` [▶ 74] (KL6821).

Requirements

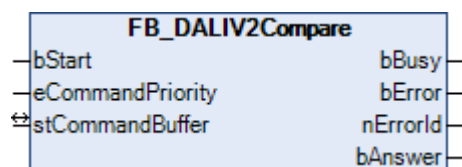
Development environment	required PLC library
TwinCAT from v3.1.4020.14	Tc2_DALI from v3.4.3.0

4.1.2.3.6 Special commands

Function blocks

Name	Description
FB_DALIV2Compare [▶ 145]	The control gear compares its RANDOM ADDRESS [▶ 80] with the SEARCH ADDRESS [▶ 80].
FB_DALIV2Initialise [▶ 146]	Starts the addressing of the control gears.
FB_DALIV2PhysicalSelection [▶ 147]	Any control gear that receives this command enters the <i>physical selection</i> mode.
FB_DALIV2ProgramShortAddress [▶ 148]	All the selected control gears save the <i>nShortAddress</i> (SHORT ADDRESS [▶ 80]) value as their short address.
FB_DALIV2QueryShortAddress [▶ 149]	If the RANDOM ADDRESS [▶ 80] is the same as the SEARCH ADDRESS [▶ 80] then the control gear sends its short address.
FB_DALIV2Randomise [▶ 150]	The control gears generate a new RANDOM ADDRESS [▶ 80].
FB_DALIV2SearchAddr [▶ 151]	This function block sets the SEARCH ADDRESS [▶ 80].
FB_DALIV2SearchAddrH [▶ 151]	This function block sets the upper 8 bits of the 24-bit SEARCH ADDRESS [▶ 80].
FB_DALIV2SearchAddrL [▶ 152]	This function block sets the lower 8 bits of the 24-bit SEARCH ADDRESS [▶ 80].
FB_DALIV2SearchAddrM [▶ 153]	This function block sets the middle 8 bits of the 24-bit SEARCH ADDRESS [▶ 80].
FB_DALIV2SetDTR0 [▶ 154]	Writes an 8-bit value into the DTR0 of all the control gears.
FB_DALIV2SetDTR1 [▶ 155]	Writes an 8 bit value into the DTR1 of all the control gears.
FB_DALIV2SetDTR2 [▶ 156]	Writes an 8-bit value into the DTR2 of all the control gears.
FB_DALIV2Terminate [▶ 156]	The addressing of all the control gears is halted.
FB_DALIV2VerifyShortAddress [▶ 157]	If the short address in the control gear is equal to the <i>nShortAddress</i> parameter, TRUE is asserted at the <i>bAnswer</i> output.
FB_DALIV2Withdraw [▶ 158]	Control gears in which the RANDOM ADDRESS [▶ 80] is the same as the SEARCH ADDRESS [▶ 80] must no longer react to the FB_DALIV2Compare() [▶ 145] command.
FB_DALIV2WriteMemoryLocation [▶ 159]	Writes an 8-bit value into the memory of a control gear. Access to the memory must first be enabled with the FB_DALIV2EnableWriteMemory() [▶ 386] command.

FB_DALIV2Compare



The control gear compares its RANDOM ADDRESS [▶ 80] with the SEARCH ADDRESS [▶ 80]. If the random address is smaller than or equal to the search address, and if the control gear is not connected, then the output *bAnswer* is set to TRUE.

VAR_INPUT

```
bStart      : BOOL;
eCommandPriority : E_DALIV2CommandPriority := eDALIV2CommandPriorityMiddle;
```

bStart: The function block is activated by a positive edge at this input.

eCommandPriority: Priority (high, medium or low) with which the command is processed by the library (see E_DALIV2CommandPriority [▶ 401]).

VAR_OUTPUT

```
bBusy      : BOOL;
bError     : BOOL;
nErrorId   : UDINT;
bAnswer    : BOOL;
```

bBusy: When the function block is activated the output is set, and it remains active until execution of the command has been completed.

bError: This output is switched to TRUE as soon as an error occurs during the execution of a command. The command-specific error code is contained in *nErrorId*. Is reset to FALSE by the execution of a command at the inputs.

nErrorId: Contains the command-specific error code of the most recently executed command. Is reset to 0 by the execution of a command at the inputs. (See error codes [▶ 380])

bAnswer: The random address is smaller than or equal to the search address.

VAR_IN_OUT

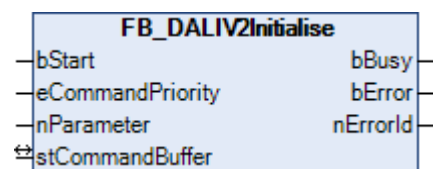
```
stCommandBuffer : ST_DALIV2CommandBuffer;
```

stCommandBuffer: Reference to the internal structure for communication with the function block FB_KL6811Communication() [▶ 70] (KL6811) or FB_KL6821Communication() [▶ 74] (KL6821).

Requirements

Development environment	required PLC library
TwinCAT from v3.1.4020.14	Tc2_DALI from v3.4.3.0

FB_DALIV2Initialise



The addressing of the control gears is started with this command. The addressing has to be halted again with the FB_DALIV2Terminate() [▶ 156] function block. The maximum duration is limited to 15 minutes. Each control gear ends the addressing automatically after 15 minutes had elapsed. The reaction of the control gears that receive this command depends on the parameter *nParameter*:

Value (binary)	Description
0000 0000	All control gears react.
0AAA AAA1	Control gears with the address AAA AAA react.
1111 1111	Control gears with no short address react.

VAR_INPUT

```
bStart      : BOOL;
eCommandPriority : E_DALIV2CommandPriority := eDALIV2CommandPriorityMiddle;
nParameter  : BYTE;
```

bStart: The function block is activated by a positive edge at this input.

eCommandPriority: Priority (high, medium or low) with which the command is processed by the library (see [E_DALIV2CommandPriority \[▶ 401\]](#)).

nParameter: Specifies which ballasts should react to this command (see table above).

VAR_OUTPUT

```
bBusy      : BOOL;
bError     : BOOL;
nErrorId   : UDINT;
```

bBusy: When the function block is activated the output is set, and it remains active until execution of the command has been completed.

bError: This output is switched to TRUE as soon as an error occurs during the execution of a command. The command-specific error code is contained in *nErrorId*. Is reset to FALSE by the execution of a command at the inputs.

nErrorId: Contains the command-specific error code of the most recently executed command. Is reset to 0 by the execution of a command at the inputs. (See [error codes \[▶ 380\]](#))

VAR_IN_OUT

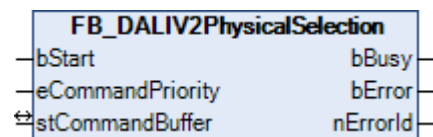
```
stCommandBuffer : ST_DALIV2CommandBuffer;
```

stCommandBuffer: Reference to the internal structure for communication with the function block [FB_KL6811Communication\(\) \[▶ 70\]](#) (KL6811) or [FB_KL6821Communication\(\) \[▶ 74\]](#) (KL6821).

Requirements

Development environment	required PLC library
TwinCAT from v3.1.4020.14	Tc2_DALI from v3.4.3.0

FB_DALIV2PhysicalSelection



Any control gear that receives this command enters the *physical selection* mode. In this mode, the comparison of the [RANDOM ADDRESS \[▶ 80\]](#) with the [SEARCH ADDRESS \[▶ 80\]](#) is blocked.

VAR_INPUT

```
bStart      : BOOL;
eCommandPriority : E_DALIV2CommandPriority := eDALIV2CommandPriorityMiddle;
```

bStart: The function block is activated by a positive edge at this input.

eCommandPriority: Priority (high, medium or low) with which the command is processed by the library (see [E_DALIV2CommandPriority \[▶ 401\]](#)).

VAR_OUTPUT

```
bBusy      : BOOL;
bError     : BOOL;
nErrorId   : UDINT;
```

bBusy: When the function block is activated the output is set, and it remains active until execution of the command has been completed.

bError: This output is switched to TRUE as soon as an error occurs during the execution of a command. The command-specific error code is contained in *nErrorId*. Is reset to FALSE by the execution of a command at the inputs.

nErrorId: Contains the command-specific error code of the most recently executed command. Is reset to 0 by the execution of a command at the inputs. (See [error codes](#) [► 380])

VAR_IN_OUT

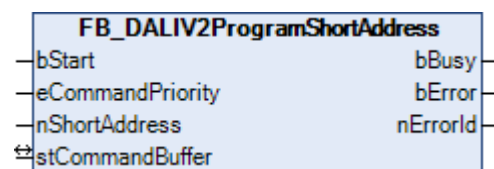
```
stCommandBuffer : ST_DALIV2CommandBuffer;
```

stCommandBuffer: Reference to the internal structure for communication with the function block `FB_KL6811Communication()` [► 70] (KL6811) or `FB_KL6821Communication()` [► 74] (KL6821).

Requirements

Development environment	required PLC library
TwinCAT from v3.1.4020.14	Tc2_DALI from v3.4.3.0

FB_DALIV2ProgramShortAddress



All the selected control gears save the *nShortAddress* ([SHORT ADDRESS](#) [► 80]) value as their short address.

Selected means:

- The [RANDOM ADDRESS](#) [► 80] of the control gear is the same as the [SEARCH ADDRESS](#) [► 80].
- Physical selection is determined by the control gear, as the lamp has been disconnected from the control gear (after receiving the `FB_DALIV2PhysicalSelection()` [► 147] command).

VAR_INPUT

```
bStart          : BOOL;
eCommandPriority : E_DALIV2CommandPriority := eDALIV2CommandPriorityMiddle;
nShortAddress   : BYTE;
```

bStart: The function block is activated by a positive edge at this input.

eCommandPriority: Priority (high, medium or low) with which the command is processed by the library (see [E_DALIV2CommandPriority](#) [► 401]).

nShortAddress: Short address to be assigned to the selected ballasts (0 - 63).

VAR_OUTPUT

```
bBusy   : BOOL;
bError  : BOOL;
nErrorId : UDINT;
```

bBusy: When the function block is activated the output is set, and it remains active until execution of the command has been completed.

bError: This output is switched to TRUE as soon as an error occurs during the execution of a command. The command-specific error code is contained in *nErrorId*. Is reset to FALSE by the execution of a command at the inputs.

nErrorId: Contains the command-specific error code of the most recently executed command. Is reset to 0 by the execution of a command at the inputs. (See [error codes](#) [▶ 380])

VAR_IN_OUT

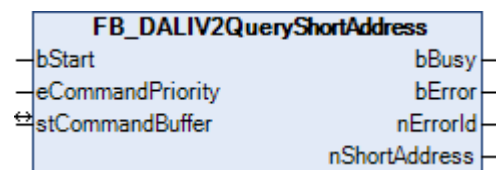
```
stCommandBuffer : ST_DALIV2CommandBuffer;
```

stCommandBuffer: Reference to the internal structure for communication with the function block [FB_KL6811Communication\(\)](#) [▶ 70] (KL6811) or [FB_KL6821Communication\(\)](#) [▶ 74] (KL6821).

Requirements

Development environment	required PLC library
TwinCAT from v3.1.4020.14	Tc2_DALI from v3.4.3.0

FB_DALIV2QueryShortAddress



Once the control gear has been selected, it sends its short address ([SHORT ADDRESS](#) [▶ 80]).

Selected means:

- The [RANDOM ADDRESS](#) [▶ 80] of the control gear is the same as the [SEARCH ADDRESS](#) [▶ 80].
- Physical selection is determined by the control gear, as the lamp has been disconnected from the control gear (after receiving the [FB_DALIV2PhysicalSelection\(\)](#) [▶ 147] command).

VAR_INPUT

```
bStart : BOOL;
eCommandPriority : E_DALIV2CommandPriority := eDALIV2CommandPriorityMiddle;
```

bStart: The function block is activated by a positive edge at this input.

eCommandPriority: Priority (high, medium or low) with which the command is processed by the library (see [E_DALIV2CommandPriority](#) [▶ 401]).

VAR_OUTPUT

```
bBusy : BOOL;
bError : BOOL;
nErrorId : UDINT;
nShortAddress : BYTE;
```

bBusy: When the function block is activated the output is set, and it remains active until execution of the command has been completed.

bError: This output is switched to TRUE as soon as an error occurs during the execution of a command. The command-specific error code is contained in *nErrorId*. Is reset to FALSE by the execution of a command at the inputs.

nErrorId: Contains the command-specific error code of the most recently executed command. Is reset to 0 by the execution of a command at the inputs. (See [error codes](#) [▶ 380])

nShortAddress: Short address of the control gear (0 - 63).

VAR_IN_OUT

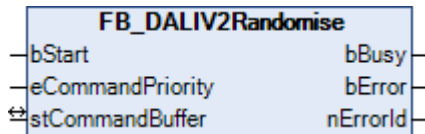
```
stCommandBuffer : ST_DALIV2CommandBuffer;
```

stCommandBuffer: Reference to the internal structure for communication with the function block `FB_KL6811Communication()` [▶ 70] (KL6811) or `FB_KL6821Communication()` [▶ 74] (KL6821).

Requirements

Development environment	required PLC library
TwinCAT from v3.1.4020.14	Tc2_DALI from v3.4.3.0

FB_DALIV2Randomise



The control gears generate a new `RANDOM ADDRESS` [▶ 80].

VAR_INPUT

```
bStart          : BOOL;
eCommandPriority : E_DALIV2CommandPriority := eDALIV2CommandPriorityMiddle;
```

bStart: The function block is activated by a positive edge at this input.

eCommandPriority: Priority (high, medium or low) with which the command is processed by the library (see `E_DALIV2CommandPriority` [▶ 401]).

VAR_OUTPUT

```
bBusy   : BOOL;
bError  : BOOL;
nErrorId : UDINT;
```

bBusy: When the function block is activated the output is set, and it remains active until execution of the command has been completed.

bError: This output is switched to TRUE as soon as an error occurs during the execution of a command. The command-specific error code is contained in `nErrorId`. Is reset to FALSE by the execution of a command at the inputs.

nErrorId: Contains the command-specific error code of the most recently executed command. Is reset to 0 by the execution of a command at the inputs. (See `error codes` [▶ 380])

VAR_IN_OUT

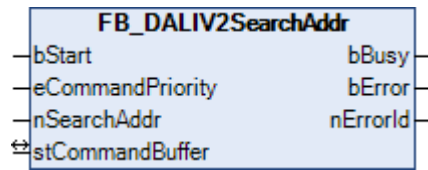
```
stCommandBuffer : ST_DALIV2CommandBuffer;
```

stCommandBuffer: Reference to the internal structure for communication with the function block `FB_KL6811Communication()` [▶ 70] (KL6811) or `FB_KL6821Communication()` [▶ 74] (KL6821).

Requirements

Development environment	required PLC library
TwinCAT from v3.1.4020.14	Tc2_DALI from v3.4.3.0

FB_DALIV2SearchAddr



This function block sets the [SEARCH ADDRESS](#) [[▶ 80](#)].

VAR_INPUT

```
bStart          : BOOL;
eCommandPriority : E_DALIV2CommandPriority := eDALIV2CommandPriorityMiddle;
nSearchAddr     : UDINT;
```

bStart: The function block is activated by a positive edge at this input.

eCommandPriority: Priority (high, medium or low) with which the command is processed by the library (see [E_DALIV2CommandPriority](#) [[▶ 401](#)]).

nSearchAddr: Search address.

VAR_OUTPUT

```
bBusy   : BOOL;
bError  : BOOL;
nErrorId : UDINT;
```

bBusy: When the function block is activated the output is set, and it remains active until execution of the command has been completed.

bError: This output is switched to TRUE as soon as an error occurs during the execution of a command. The command-specific error code is contained in *nErrorId*. Is reset to FALSE by the execution of a command at the inputs.

nErrorId: Contains the command-specific error code of the most recently executed command. Is reset to 0 by the execution of a command at the inputs. (See [error codes](#) [[▶ 380](#)])

VAR_IN_OUT

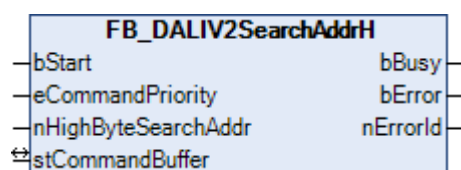
```
stCommandBuffer : ST_DALIV2CommandBuffer;
```

stCommandBuffer: Reference to the internal structure for communication with the function block [FB_KL6811Communication\(\)](#) [[▶ 70](#)] (KL6811) or [FB_KL6821Communication\(\)](#) [[▶ 74](#)] (KL6821).

Requirements

Development environment	required PLC library
TwinCAT from v3.1.4020.14	Tc2_DALI from v3.4.3.0

FB_DALIV2SearchAddrH



This function block sets the upper 8 bits of the 24-bit [SEARCH ADDRESS](#) [[▶ 80](#)].

VAR_INPUT

```
bStart          : BOOL;
eCommandPriority : E_DALIV2CommandPriority := eDALIV2CommandPriorityMiddle;
nHighByteSearchAddr : BYTE;
```

bStart: The function block is activated by a positive edge at this input.

eCommandPriority: Priority (high, medium or low) with which the command is processed by the library (see [E_DALIV2CommandPriority \[▶ 401\]](#)).

nHighByteSearchAddr: the upper 8 bits of the 24-bit search address.

VAR_OUTPUT

```
bBusy      : BOOL;
bError     : BOOL;
nErrorId   : UDINT;
```

bBusy: When the function block is activated the output is set, and it remains active until execution of the command has been completed.

bError: This output is switched to TRUE as soon as an error occurs during the execution of a command. The command-specific error code is contained in *nErrorId*. Is reset to FALSE by the execution of a command at the inputs.

nErrorId: Contains the command-specific error code of the most recently executed command. Is reset to 0 by the execution of a command at the inputs. (See [error codes \[▶ 380\]](#))

VAR_IN_OUT

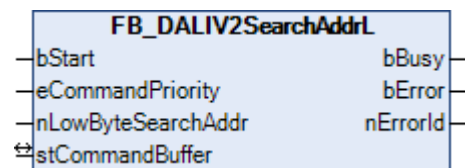
```
stCommandBuffer : ST_DALIV2CommandBuffer;
```

stCommandBuffer: Reference to the internal structure for communication with the function block [FB_KL6811Communication\(\) \[▶ 70\]](#) (KL6811) or [FB_KL6821Communication\(\) \[▶ 74\]](#) (KL6821).

Requirements

Development environment	required PLC library
TwinCAT from v3.1.4020.14	Tc2_DALI from v3.4.3.0

FB_DALIV2SearchAddrL



This function block sets the lower 8 bits of the 24-bit [SEARCH ADDRESS \[▶ 80\]](#).

VAR_INPUT

```
bStart          : BOOL;
eCommandPriority : E_DALIV2CommandPriority := eDALIV2CommandPriorityMiddle;
nLowByteSearchAddr : BYTE;
```

bStart: The function block is activated by a positive edge at this input.

eCommandPriority: Priority (high, medium or low) with which the command is processed by the library (see [E_DALIV2CommandPriority \[▶ 401\]](#)).

nLowByteSearchAddr: the lower 8 bits of the 24-bit search address.

VAR_OUTPUT

```
bBusy      : BOOL;
bError     : BOOL;
nErrorId   : UDINT;
```

bBusy: When the function block is activated the output is set, and it remains active until execution of the command has been completed.

bError: This output is switched to TRUE as soon as an error occurs during the execution of a command. The command-specific error code is contained in *nErrorId*. Is reset to FALSE by the execution of a command at the inputs.

nErrorId: Contains the command-specific error code of the most recently executed command. Is reset to 0 by the execution of a command at the inputs. (See [error codes](#) [▶ 380])

VAR_IN_OUT

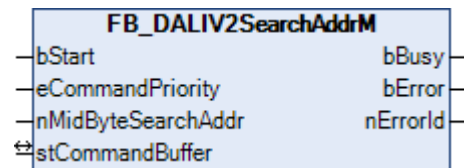
```
stCommandBuffer : ST_DALIV2CommandBuffer;
```

stCommandBuffer: Reference to the internal structure for communication with the function block [FB_KL6811Communication\(\)](#) [▶ 70] (KL6811) or [FB_KL6821Communication\(\)](#) [▶ 74] (KL6821).

Requirements

Development environment	required PLC library
TwinCAT from v3.1.4020.14	Tc2_DALI from v3.4.3.0

FB_DALIV2SearchAddrM



This function block sets the middle 8 bits of the 24-bit [SEARCH ADDRESS](#) [▶ 80].

VAR_INPUT

```
bStart      : BOOL;
eCommandPriority : E_DALIV2CommandPriority := eDALIV2CommandPriorityMiddle;
nMidByteSearchAddr : BYTE;
```

bStart: The function block is activated by a positive edge at this input.

eCommandPriority: Priority (high, medium or low) with which the command is processed by the library (see [E_DALIV2CommandPriority](#) [▶ 401]).

nMidByteSearchAddr: the middle 8 bits of the 24-bit search address.

VAR_OUTPUT

```
bBusy      : BOOL;
bError     : BOOL;
nErrorId   : UDINT;
```

bBusy: When the function block is activated the output is set, and it remains active until execution of the command has been completed.

bError: This output is switched to TRUE as soon as an error occurs during the execution of a command. The command-specific error code is contained in *nErrorId*. Is reset to FALSE by the execution of a command at the inputs.

nErrorId: Contains the command-specific error code of the most recently executed command. Is reset to 0 by the execution of a command at the inputs. (See [error codes](#) [▶ 380])

VAR_IN_OUT

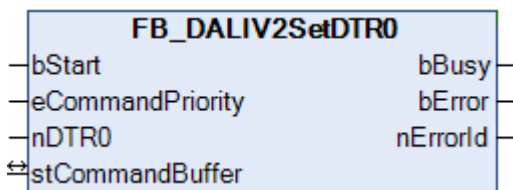
```
stCommandBuffer : ST_DALIV2CommandBuffer;
```

stCommandBuffer: Reference to the internal structure for communication with the function block [FB_KL6811Communication\(\)](#) [▶ 70] (KL6811) or [FB_KL6821Communication\(\)](#) [▶ 74] (KL6821).

Requirements

Development environment	required PLC library
TwinCAT from v3.1.4020.14	Tc2_DALI from v3.4.3.0

FB_DALIV2SetDTR0



This command is only available as a broadcast. Data is written to the DTR0 of all the control gears.



This command can only be executed by DALI devices that comply with the IEC 62386 standard.

VAR_INPUT

```
bStart      : BOOL;
eCommandPriority : E_DALIV2CommandPriority := eDALIV2CommandPriorityMiddle;
nDTR0      : BYTE;
```

bStart: The function block is activated by a positive edge at this input.

eCommandPriority: Priority (high, medium or low) with which the command is processed by the library (see [E_DALIV2CommandPriority](#) [▶ 401]).

nDTR0: The value that is to be written into the DTR0.

VAR_OUTPUT

```
bBusy      : BOOL;
bError     : BOOL;
nErrorId   : UDINT;
```

bBusy: When the function block is activated the output is set, and it remains active until execution of the command has been completed.

bError: This output is switched to TRUE as soon as an error occurs during the execution of a command. The command-specific error code is contained in *nErrorId*. Is reset to FALSE by the execution of a command at the inputs.

nErrorId: Contains the command-specific error code of the most recently executed command. Is reset to 0 by the execution of a command at the inputs. (See [error codes](#) [▶ 380])

VAR_IN_OUT

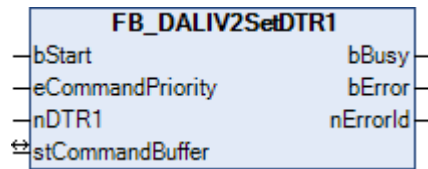
```
stCommandBuffer : ST_DALIV2CommandBuffer;
```

stCommandBuffer: Reference to the internal structure for communication with the function block [FB_KL6811Communication\(\)](#) [▶ 70] (KL6811) or [FB_KL6821Communication\(\)](#) [▶ 74] (KL6821).

Requirements

Development environment	required PLC library
TwinCAT from v3.1.4022.4	Tc2_DALI from v3.6.2.0

FB_DALIV2SetDTR1



This command is only available as a broadcast. Data is written to the DTR1 of all the control gears.



This command can only be executed by DALI devices that comply with the IEC 62386 standard.

VAR_INPUT

```
bStart          : BOOL;
eCommandPriority : E_DALIV2CommandPriority := eDALIV2CommandPriorityMiddle;
nDTR1          : BYTE;
```

bStart: The function block is activated by a positive edge at this input.

eCommandPriority: Priority (high, medium or low) with which the command is processed by the library (see [E_DALIV2CommandPriority](#) [▶ 401]).

nDTR1: The value that is to be written into the DTR1.

VAR_OUTPUT

```
bBusy      : BOOL;
bError     : BOOL;
nErrorId   : UDINT;
```

bBusy: When the function block is activated the output is set, and it remains active until execution of the command has been completed.

bError: This output is switched to TRUE as soon as an error occurs during the execution of a command. The command-specific error code is contained in *nErrorId*. Is reset to FALSE by the execution of a command at the inputs.

nErrorId: Contains the command-specific error code of the most recently executed command. Is reset to 0 by the execution of a command at the inputs. (See [error codes](#) [▶ 380])

VAR_IN_OUT

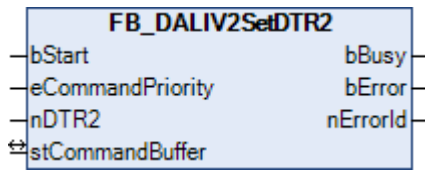
```
stCommandBuffer : ST_DALIV2CommandBuffer;
```

stCommandBuffer: Reference to the internal structure for communication with the function block [FB_KL6811Communication\(\)](#) [▶ 70] (KL6811) or [FB_KL6821Communication\(\)](#) [▶ 74] (KL6821).

Requirements

Development environment	required PLC library
TwinCAT from v3.1.4020.14	Tc2_DALI from v3.4.3.0

FB_DALIV2SetDTR2



This command is only available as a broadcast. Data is written to the DTR2 of all the control gears.



This command can only be executed by DALI devices that comply with the IEC 62386 standard.

VAR_INPUT

```

bStart      : BOOL;
eCommandPriority : E_DALIV2CommandPriority := eDALIV2CommandPriorityMiddle;
nDTR2      : BYTE;
  
```

bStart: The function block is activated by a positive edge at this input.

eCommandPriority: Priority (high, medium or low) with which the command is processed by the library (see [E_DALIV2CommandPriority \[▶ 401\]](#)).

nDTR2: The value that is to be written into the DTR2.

VAR_OUTPUT

```

bBusy      : BOOL;
bError     : BOOL;
nErrorId   : UDINT;
  
```

bBusy: When the function block is activated the output is set, and it remains active until execution of the command has been completed.

bError: This output is switched to TRUE as soon as an error occurs during the execution of a command. The command-specific error code is contained in *nErrorId*. Is reset to FALSE by the execution of a command at the inputs.

nErrorId: Contains the command-specific error code of the most recently executed command. Is reset to 0 by the execution of a command at the inputs. (See [error codes \[▶ 380\]](#))

VAR_IN_OUT

```

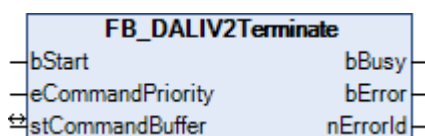
stCommandBuffer : ST_DALIV2CommandBuffer;
  
```

stCommandBuffer: Reference to the internal structure for communication with the function block [FB_KL6811Communication\(\) \[▶ 70\]](#) (KL6811) or [FB_KL6821Communication\(\) \[▶ 74\]](#) (KL6821).

Requirements

Development environment	required PLC library
TwinCAT from v3.1.4020.14	Tc2_DALI from v3.4.3.0

FB_DALIV2Terminate



The addressing of all the control gears is halted.

VAR_INPUT

```
bStart      : BOOL;
eCommandPriority : E_DALIV2CommandPriority := eDALIV2CommandPriorityMiddle;
```

bStart: The function block is activated by a positive edge at this input.

eCommandPriority: Priority (high, medium or low) with which the command is processed by the library (see [E_DALIV2CommandPriority](#) [▶ 401]).

VAR_OUTPUT

```
bBusy      : BOOL;
bError     : BOOL;
nErrorId   : UDINT;
```

bBusy: When the function block is activated the output is set, and it remains active until execution of the command has been completed.

bError: This output is switched to TRUE as soon as an error occurs during the execution of a command. The command-specific error code is contained in *nErrorId*. Is reset to FALSE by the execution of a command at the inputs.

nErrorId: Contains the command-specific error code of the most recently executed command. Is reset to 0 by the execution of a command at the inputs. (See [error codes](#) [▶ 380])

VAR_IN_OUT

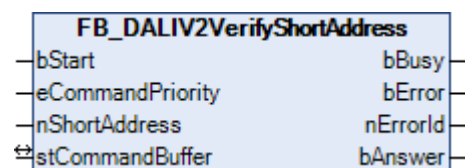
```
stCommandBuffer : ST_DALIV2CommandBuffer;
```

stCommandBuffer: Reference to the internal structure for communication with the function block [FB_KL6811Communication\(\)](#) [▶ 70] (KL6811) or [FB_KL6821Communication\(\)](#) [▶ 74] (KL6821).

Requirements

Development environment	required PLC library
TwinCAT from v3.1.4020.14	Tc2_DALI from v3.4.3.0

FB_DALIV2VerifyShortAddress



If the short address in the control gear is equal to the *nShortAddress* parameter, TRUE is asserted at the *bAnswer* output.

VAR_INPUT

```
bStart      : BOOL;
eCommandPriority : E_DALIV2CommandPriority := eDALIV2CommandPriorityMiddle;
nShortAddress : BYTE;
```

bStart: The function block is activated by a positive edge at this input.

eCommandPriority: Priority (high, medium or low) with which the command is processed by the library (see [E_DALIV2CommandPriority](#) [▶ 401]).

nShortAddress: Short address with which the ballast's short address is to be compared.

VAR_OUTPUT

```
bBusy      : BOOL;
bError     : BOOL;
nErrorId   : UDINT;
bAnswer    : BOOL;
```

bBusy: When the function block is activated the output is set, and it remains active until execution of the command has been completed.

bError: This output is switched to TRUE as soon as an error occurs during the execution of a command. The command-specific error code is contained in *nErrorId*. Is reset to FALSE by the execution of a command at the inputs.

nErrorId: Contains the command-specific error code of the most recently executed command. Is reset to 0 by the execution of a command at the inputs. (See [error codes](#) [▶ 380])

bAnswer: The *nShortAddress* parameter is the same as its own short address.

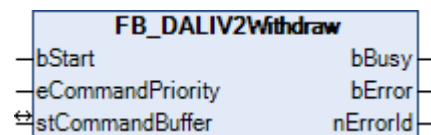
VAR_IN_OUT

```
stCommandBuffer : ST_DALIV2CommandBuffer;
```

stCommandBuffer: Reference to the internal structure for communication with the function block [FB_KL6811Communication\(\)](#) [▶ 70] (KL6811) or [FB_KL6821Communication\(\)](#) [▶ 74] (KL6821).

Requirements

Development environment	required PLC library
TwinCAT from v3.1.4020.14	Tc2_DALI from v3.4.3.0

FB_DALIV2Withdraw

Control gears in which the [RANDOM ADDRESS](#) [▶ 80] is the same as the [SEARCH ADDRESS](#) [▶ 80] must no longer react to the [FB_DALIV2Compare\(\)](#) [▶ 145] command.

VAR_INPUT

```
bStart      : BOOL;
eCommandPriority : E_DALIV2CommandPriority := eDALIV2CommandPriorityMiddle;
```

bStart: The function block is activated by a positive edge at this input.

eCommandPriority: Priority (high, medium or low) with which the command is processed by the library (see [E_DALIV2CommandPriority](#) [▶ 401]).

VAR_OUTPUT

```
bBusy      : BOOL;
bError     : BOOL;
nErrorId   : UDINT;
```

bBusy: When the function block is activated the output is set, and it remains active until execution of the command has been completed.

bError: This output is switched to TRUE as soon as an error occurs during the execution of a command. The command-specific error code is contained in *nErrorId*. Is reset to FALSE by the execution of a command at the inputs.

nErrorId: Contains the command-specific error code of the most recently executed command. Is reset to 0 by the execution of a command at the inputs. (See [error codes](#) [▶ 380])

VAR_IN_OUT

```
stCommandBuffer : ST_DALIV2CommandBuffer;
```

stCommandBuffer: Reference to the internal structure for communication with the function block [FB_KL6811Communication\(\)](#) [▶ 70] (KL6811) or [FB_KL6821Communication\(\)](#) [▶ 74] (KL6821).

Requirements

Development environment	required PLC library
TwinCAT from v3.1.4020.14	Tc2_DALI from v3.4.3.0

FB_DALIV2WriteMemoryLocation

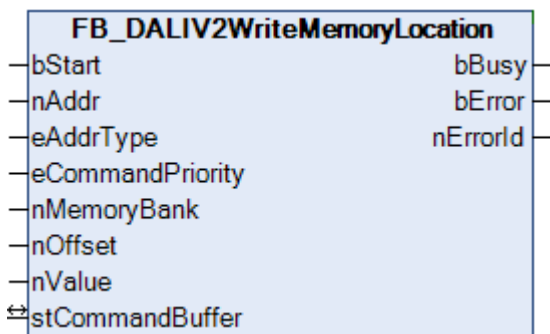


Fig. 1: The value *nValue* is written to the memory bank of the control gear. The exact memory bank is specified by *nMemoryBank* and the address within the memory bank by *nOffset*.



This command can only be executed by DALI devices that comply with the IEC 62386 standard.

VAR_INPUT

```
bStart      : BOOL;
nAddr       : BYTE;
eAddrType   : E_DALIV2AddrType := eDALIV2AddrTypeShort;
eCommandPriority : E_DALIV2CommandPriority := eDALIV2CommandPriorityMiddle;
nMemoryBank : BYTE;
nOffset     : BYTE;
nValue      : BYTE;
```

bStart: The function block is activated by a positive edge at this input.

nAddr: The address of a participating device or of a group.

eAddrType: Short address, group address or broadcast (see [E_DALIV2AddrType](#) [▶ 401]).

eCommandPriority: Priority (high, medium or low) with which the command is processed by the library (see [E_DALIV2CommandPriority](#) [▶ 401]).

nMemoryBank: The memory bank to be accessed.

nOffset: The address within the memory bank to be accessed.

nValue: Value to be written to the memory bank of the control gear.

VAR_OUTPUT

```
bBusy      : BOOL;
bError     : BOOL;
nErrorId   : UDINT;
```

bBusy: When the function block is activated the output is set, and it remains active until execution of the command has been completed.

bError: This output is switched to TRUE as soon as an error occurs during the execution of a command. The command-specific error code is contained in *nErrorId*. Is reset to FALSE by the execution of a command at the inputs.

nErrorId: Contains the command-specific error code of the most recently executed command. Is reset to 0 by the execution of a command at the inputs. (See [error codes](#) [► 380])

VAR_IN_OUT

```
stCommandBuffer : ST_DALIV2CommandBuffer;
```

stCommandBuffer: Reference to the internal structure for communication with the function block [FB_KL6811Communication\(\)](#) [► 70] (KL6811) or [FB_KL6821Communication\(\)](#) [► 74] (KL6821).

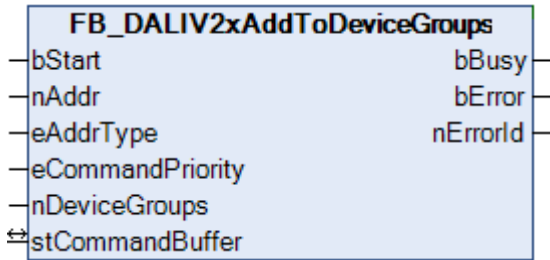
Requirements

Development environment	required PLC library
TwinCAT from v3.1.4020.14	Tc2_DALI from v3.4.3.0

4.1.2.4 Part 103 (control units)**4.1.2.4.1 Configuration****Function blocks**

Name	Description
FB_DALIV2xAddToDeviceGroups [► 161]	Assigns the control unit to one or more groups.
FB_DALIV2xDisableInstance [► 162]	The control unit instance is disabled.
FB_DALIV2xDisablePowerCycleNotification [► 163]	Disables the <i>Power Cycle Notification</i> event.
FB_DALIV2xEnableInstance [► 164]	The control unit instance is enabled.
FB_DALIV2xEnablePowerCycleNotification [► 165]	Enables the <i>Power Cycle Notification</i> event.
FB_DALIV2xIdentifyDevice [► 166]	Starts the identification routine for the control unit.
FB_DALIV2xRemoveFromDeviceGroups [► 167]	Removes the control unit from one or more groups.
FB_DALIV2xReset [► 168]	Resets all parameters to their default values.
FB_DALIV2xSetEventFilter [► 169]	This function block sets the event filter for the respective control unit instance.
FB_DALIV2xSetEventScheme [► 169]	Sets the addressing scheme for the events of the respective control unit instance.
FB_DALIV2xSetOperatingMode [► 171]	Sets the <i>Operating Mode</i> for the control unit.
FB_DALIV2xSetShortAddress [► 172]	Sets the short address of the control unit.
FB_DALIV2xStartQuiescentMode [► 173]	The <i>quiescent mode</i> of the control unit is started.
FB_DALIV2xStopQuiescentMode [► 174]	The <i>quiescent mode</i> of the control unit is stopped.

FB_DALIV2xAddToDeviceGroups



Assigns the control unit to one or more groups.

A total of 32 groups are available to which a control unit can be assigned. Each bit of the variable *nDeviceGroups* corresponds to one of these groups. If the bit is set, the control unit is assigned to the respective group. Bit 0 corresponds to group 0, bit 31 to group 31.

The function block [FB_DALIV2xRemoveFromDeviceGroups\(\) \[▶ 167\]](#) can be used to remove a control unit from a group.

VAR_INPUT

```
bStart      : BOOL;
nAddr       : BYTE;
eAddrType   : E_DALIV2AddrType := eDALIV2AddrTypeShort;
eCommandPriority : E_DALIV2CommandPriority := eDALIV2CommandPriorityMiddle;
nDeviceGroups : DWORD;
```

bStart: The function block is activated by a positive edge at this input.

nAddr: The address of a participating device or of a group.

eAddrType: Short address, group address or broadcast (see [E_DALIV2AddrType \[▶ 401\]](#)).

eCommandPriority: Priority (high, medium or low) with which the command is processed by the library (see [E_DALIV2CommandPriority \[▶ 401\]](#)).

nDeviceGroups: 32-bit variable where each bit represents the corresponding group to which the control unit is to be assigned.

VAR_OUTPUT

```
bBusy      : BOOL;
bError     : BOOL;
nErrorId   : UDINT;
```

bBusy: When the function block is activated the output is set, and it remains active until execution of the command has been completed.

bError: This output is switched to TRUE as soon as an error occurs during the execution of a command. The command-specific error code is contained in *nErrorId*. Is reset to FALSE by the execution of a command at the inputs.

nErrorId: Contains the command-specific error code of the most recently executed command. Is reset to 0 by the execution of a command at the inputs. (See [error codes \[▶ 380\]](#))

VAR_IN_OUT

```
stCommandBuffer : ST_DALIV2CommandBuffer;
```

stCommandBuffer: Reference to the internal structure for communication with the function block [FB_KL6821Communication\(\) \[▶ 74\]](#) (KL6821).

Requirements

Development environment	required PLC library
TwinCAT from v3.1.4022.4	Tc2_DALI from v3.6.2.0

FB_DALIV2xDisableInstance



The control unit instance is disabled.

The function block [FB_DALIV2xEnableInstance\(\) \[► 164\]](#) can be used to enable the instance.

VAR_INPUT

```
bStart      : BOOL;
nAddr       : BYTE;
eAddrType   : E_DALIV2AddrType := eDALIV2AddrTypeShort;
nInstAddr   : BYTE := 0;
eInstAddrType : E_DALIV2InstAddrType := eDALIV2InstAddrTypeNumber;
eCommandPriority : E_DALIV2CommandPriority := eDALIV2CommandPriorityMiddle;
```

bStart: The function block is activated by a positive edge at this input.

nAddr: The address of a participating device or of a group.

eAddrType: Short address, group address or broadcast (see [E_DALIV2AddrType \[► 401\]](#)).

nInstAddr: Address of the instance within the DALI control unit.

eInstAddrType: Defines the access mode to the desired instance within the DALI control unit (see [DALIV2InstAddrType \[► 403\]](#)).

eCommandPriority: Priority (high, medium or low) with which the command is processed by the library (see [E_DALIV2CommandPriority \[► 401\]](#)).

VAR_OUTPUT

```
bBusy      : BOOL;
bError     : BOOL;
nErrorId   : UDINT;
```

bBusy: When the function block is activated the output is set, and it remains active until execution of the command has been completed.

bError: This output is switched to TRUE as soon as an error occurs during the execution of a command. The command-specific error code is contained in *nErrorId*. Is reset to FALSE by the execution of a command at the inputs.

nErrorId: Contains the command-specific error code of the most recently executed command. Is reset to 0 by the execution of a command at the inputs. (See [error codes \[► 380\]](#))

VAR_IN_OUT

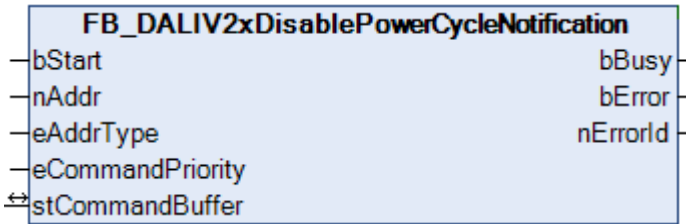
```
stCommandBuffer : ST_DALIV2CommandBuffer;
```

stCommandBuffer: Reference to the internal structure for communication with the function block [FB_KL6821Communication\(\) \[► 74\]](#) (KL6821).

Requirements

Development environment	required PLC library
TwinCAT from v3.1.4022.4	Tc2_DALI from v3.6.2.0

FB_DALIV2xDisablePowerCycleNotification



This function block blocks the *Power Cycle Notification* event.

The function block `FB_DALIV2xEnablePowerCycleNotification()` [▶ 165] can be used to enable the event.

VAR_INPUT

```
bStart      : BOOL;
nAddr       : BYTE;
eAddrType   : E_DALIV2AddrType := eDALIV2AddrTypeShort;
eCommandPriority : E_DALIV2CommandPriority := eDALIV2CommandPriorityMiddle;
```

bStart: The function block is activated by a positive edge at this input.

nAddr: The address of a participating device or of a group.

eAddrType: Short address, group address or broadcast (see [E_DALIV2AddrType](#) [▶ 401]).

eCommandPriority: Priority (high, medium or low) with which the command is processed by the library (see [E_DALIV2CommandPriority](#) [▶ 401]).

VAR_OUTPUT

```
bBusy       : BOOL;
bError      : BOOL;
nErrorId    : UDINT;
```

bBusy: When the function block is activated the output is set, and it remains active until execution of the command has been completed.

bError: This output is switched to TRUE as soon as an error occurs during the execution of a command. The command-specific error code is contained in *nErrorId*. Is reset to FALSE by the execution of a command at the inputs.

nErrorId: Contains the command-specific error code of the most recently executed command. Is reset to 0 by the execution of a command at the inputs. (See [error codes](#) [▶ 380])

VAR_IN_OUT

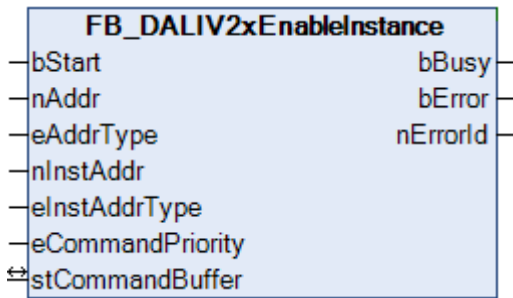
```
stCommandBuffer : ST_DALIV2CommandBuffer;
```

stCommandBuffer: Reference to the internal structure for communication with the function block `FB_KL6821Communication()` [▶ 74] (KL6821).

Requirements

Development environment	required PLC library
TwinCAT from v3.1.4022.4	Tc2_DALI from v3.6.2.0

FB_DALIV2xEnableInstance



The control unit instance is enabled.

The function block [FB_DALIV2xDisableInstance\(\)](#) [► 162] can be used to disable the instance.

VAR_INPUT

```
bStart      : BOOL;
nAddr       : BYTE;
eAddrType   : E_DALIV2AddrType := eDALIV2AddrTypeShort;
nInstAddr   : BYTE := 0;
eInstAddrType : E_DALIV2InstAddrType := eDALIV2InstAddrTypeNumber;
eCommandPriority : E_DALIV2CommandPriority := eDALIV2CommandPriorityMiddle;
```

bStart: The function block is activated by a positive edge at this input.

nAddr: The address of a participating device or of a group.

eAddrType: Short address, group address or broadcast (see [E_DALIV2AddrType](#) [► 401]).

nInstAddr: Address of the instance within the DALI control unit.

eInstAddrType: Defines the access mode to the desired instance within the DALI control unit (see [DALIV2InstAddrType](#) [► 403]).

eCommandPriority: Priority (high, medium or low) with which the command is processed by the library (see [E_DALIV2CommandPriority](#) [► 401]).

VAR_OUTPUT

```
bBusy      : BOOL;
bError     : BOOL;
nErrorId   : UDINT;
```

bBusy: When the function block is activated the output is set, and it remains active until execution of the command has been completed.

bError: This output is switched to TRUE as soon as an error occurs during the execution of a command. The command-specific error code is contained in *nErrorId*. Is reset to FALSE by the execution of a command at the inputs.

nErrorId: Contains the command-specific error code of the most recently executed command. Is reset to 0 by the execution of a command at the inputs. (See [error codes](#) [► 380])

VAR_IN_OUT

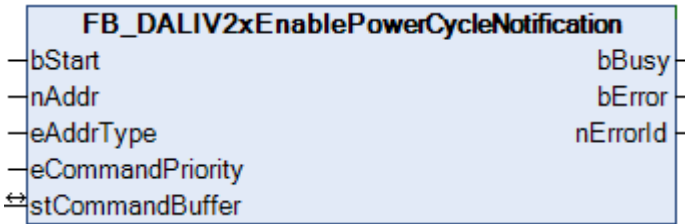
```
stCommandBuffer : ST_DALIV2CommandBuffer;
```

stCommandBuffer: Reference to the internal structure for communication with the function block [FB_KL6821Communication\(\)](#) [► 74] (KL6821).

Requirements

Development environment	required PLC library
TwinCAT from v3.1.4022.4	Tc2_DALI from v3.6.2.0

FB_DALIV2xEnablePowerCycleNotification



This function block enables the *Power Cycle Notification* event.

The function block `FB_DALIV2xDisablePowerCycleNotification()` [▶ 163] can be used to lock the event.

VAR_INPUT

```
bStart      : BOOL;
nAddr       : BYTE;
eAddrType   : E_DALIV2AddrType := eDALIV2AddrTypeShort;
eCommandPriority : E_DALIV2CommandPriority := eDALIV2CommandPriorityMiddle;
```

bStart: The function block is activated by a positive edge at this input.

nAddr: The address of a participating device or of a group.

eAddrType: Short address, group address or broadcast (see `E_DALIV2AddrType` [▶ 401]).

eCommandPriority: Priority (high, medium or low) with which the command is processed by the library (see `E_DALIV2CommandPriority` [▶ 401]).

VAR_OUTPUT

```
bBusy      : BOOL;
bError     : BOOL;
nErrorId   : UDINT;
```

bBusy: When the function block is activated the output is set, and it remains active until execution of the command has been completed.

bError: This output is switched to TRUE as soon as an error occurs during the execution of a command. The command-specific error code is contained in *nErrorId*. Is reset to FALSE by the execution of a command at the inputs.

nErrorId: Contains the command-specific error code of the most recently executed command. Is reset to 0 by the execution of a command at the inputs. (See `error codes` [▶ 380])

VAR_IN_OUT

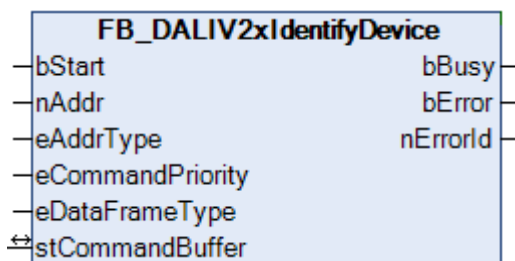
```
stCommandBuffer : ST_DALIV2CommandBuffer;
```

stCommandBuffer: Reference to the internal structure for communication with the function block `FB_KL6821Communication()` [▶ 74] (KL6821).

Requirements

Development environment	required PLC library
TwinCAT from v3.1.4022.4	Tc2_DALI from v3.6.2.0

FB_DALIV2xIdentifyDevice



Starts the identification routine for the control unit.

It takes approx. 10 seconds and ends automatically. The exact scope of the identification routine depends on the manufacturer of the control unit.

VAR_INPUT

```
bStart      : BOOL;
nAddr       : BYTE;
eAddrType   : E_DALIV2AddrType := eDALIV2AddrTypeShort;
eCommandPriority : E_DALIV2CommandPriority := eDALIV2CommandPriorityMiddle;
eDataFrameType : E_DALIV2DataFrameType := eDALIV2DataFrameType24Bit;
```

bStart: The function block is activated by a positive edge at this input.

nAddr: The address of a participating device or of a group.

eAddrType: Short address, group address or broadcast (see [E_DALIV2AddrType](#) [▶ 401]).

eCommandPriority: Priority (high, medium or low) with which the command is processed by the library. (see [E_DALIV2CommandPriority](#) [▶ 401]).

eDataFrameType: Output format of the DALI command (*eDALIV2DataFrameType24Bit* or *eDALIV2DataFrameTypeOsram*) (see [E_DataFrameType](#) [▶ 402]).

VAR_OUTPUT

```
bBusy      : BOOL;
bError     : BOOL;
nErrorId   : UDINT;
```

bBusy: When the function block is activated the output is set, and it remains active until execution of the command has been completed.

bError: This output is switched to TRUE as soon as an error occurs during the execution of a command. The command-specific error code is contained in *nErrorId*. Is reset to FALSE by the execution of a command at the inputs.

nErrorId: Contains the command-specific error code of the most recently executed command. Is reset to 0 by the execution of a command at the inputs. (See [error codes](#) [▶ 380])

VAR_IN_OUT

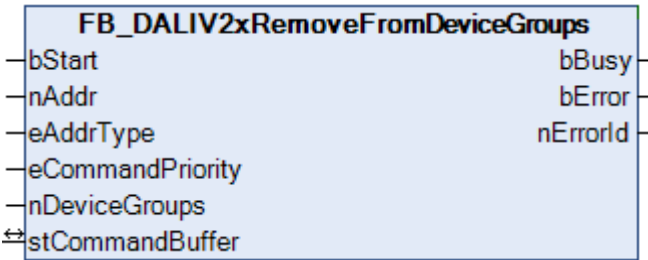
```
stCommandBuffer : ST_DALIV2CommandBuffer;
```

stCommandBuffer: Reference to the internal structure for communication with the function block [FB_KL6821Communication\(\)](#) [▶ 74] (KL6821).

Requirements

Development environment	required PLC library
TwinCAT from v3.1.4022.4	Tc2_DALI from v3.6.2.0

FB_DALIV2xRemoveFromDeviceGroups



Removes the control unit from one or more groups.

A total of 32 groups are available to which a control unit can be assigned. Each bit of the variable *nDeviceGroups* corresponds to one of these groups. If the bit is set, the control unit is removed from the respective group. Bit 0 corresponds to group 0, bit 31 to group 31.

The function block [FB_DALIV2xAddToDeviceGroups\(\)](#) [▶ 161] can be used to assign a control unit to a group.

VAR_INPUT

```
bStart      : BOOL;
nAddr       : BYTE;
eAddrType   : E_DALIV2AddrType := eDALIV2AddrTypeShort;
eCommandPriority : E_DALIV2CommandPriority := eDALIV2CommandPriorityMiddle;
nDeviceGroups : DWORD;
```

bStart: The function block is activated by a positive edge at this input.

nAddr: The address of a participating device or of a group.

eAddrType: Short address, group address or broadcast (see [E_DALIV2AddrType](#) [▶ 401]).

eCommandPriority: Priority (high, medium or low) with which the command is processed by the library (see [E_DALIV2CommandPriority](#) [▶ 401]).

nDeviceGroups: 32-bit variable where each bit represents the corresponding group from which the control unit is to be removed.

VAR_OUTPUT

```
bBusy      : BOOL;
bError     : BOOL;
nErrorId   : UDINT;
```

bBusy: When the function block is activated the output is set, and it remains active until execution of the command has been completed.

bError: This output is switched to TRUE as soon as an error occurs during the execution of a command. The command-specific error code is contained in *nErrorId*. Is reset to FALSE by the execution of a command at the inputs.

nErrorId: Contains the command-specific error code of the most recently executed command. Is reset to 0 by the execution of a command at the inputs. (See [error codes](#) [▶ 380])

VAR_IN_OUT

```
stCommandBuffer : ST_DALIV2CommandBuffer;
```

stCommandBuffer: Reference to the internal structure for communication with the function block [FB_KL6821Communication\(\)](#) [▶ 74] (KL6821).

Requirements

Development environment	required PLC library
TwinCAT from v3.1.4022.4	Tc2_DALI from v3.6.2.0

FB_DALIV2xReset



This function block resets all parameters to their default values.

VAR_INPUT

```
bStart      : BOOL;
nAddr       : BYTE;
eAddrType   : E_DALIV2AddrType := eDALIV2AddrTypeShort;
eCommandPriority : E_DALIV2CommandPriority := eDALIV2CommandPriorityMiddle;
eDataFrameType : E_DALIV2DataFrameType := eDALIV2DataFrameType24Bit;
```

bStart: The function block is activated by a positive edge at this input.

nAddr: The address of a participating device or of a group.

eAddrType: Short address, group address or broadcast (see [E_DALIV2AddrType](#) [► 401]).

eCommandPriority: Priority (high, medium or low) with which the command is processed by the library. (see [E_DALIV2CommandPriority](#) [► 401]).

eDataFrameType: Output format of the DALI command (*eDALIV2DataFrameType24Bit* or *eDALIV2DataFrameTypeOsram*) (see [E_DataFrameType](#) [► 402]).

VAR_OUTPUT

```
bBusy      : BOOL;
bError     : BOOL;
nErrorId   : UDINT;
```

bBusy: When the function block is activated the output is set, and it remains active until execution of the command has been completed.

bError: This output is switched to TRUE as soon as an error occurs during the execution of a command. The command-specific error code is contained in *nErrorId*. Is reset to FALSE by the execution of a command at the inputs.

nErrorId: Contains the command-specific error code of the most recently executed command. Is reset to 0 by the execution of a command at the inputs. (See [error codes](#) [► 380])

VAR_IN_OUT

```
stCommandBuffer : ST_DALIV2CommandBuffer;
```

stCommandBuffer: Reference to the internal structure for communication with the function block [FB_KL6821Communication\(\)](#) [► 74] (KL6821).

Requirements

Development environment	required PLC library
TwinCAT from v3.1.4022.4	Tc2_DALI from v3.6.2.0

FB_DALIV2xSetEventFilter



This function block sets the event filter for the respective instance of the control unit instance.

Each bit in *nEventFilter* represents one event. If the bit is set, the associated event is also enabled. The event is disabled if the bit is not set.

The meaning of the individual bits can be found in the documentation of the respective control unit.

VAR_INPUT

```
bStart      : BOOL;
nAddr       : BYTE;
eAddrType   : E_DALIV2AddrType := eDALIV2AddrTypeShort;
nInstAddr   : BYTE := 0;
eInstAddrType : E_DALIV2InstAddrType := eDALIV2InstAddrTypeNumber;
eCommandPriority : E_DALIV2CommandPriority := eDALIV2CommandPriorityMiddle;
nEventFilter : DWORD := 0;
```

bStart: The function block is activated by a positive edge at this input.

nAddr: The address of a participating device or of a group.

eAddrType: Short address, group address or broadcast (see [E_DALIV2AddrType \[► 401\]](#)).

nInstAddr: Address of the instance within the DALI control unit.

eInstAddrType: Defines the access mode to the desired instance within the DALI control unit (see [DALIV2InstAddrType \[► 403\]](#)).

eCommandPriority: Priority (high, medium or low) with which the command is processed by the library (see [E_DALIV2CommandPriority \[► 401\]](#)).

nEventFilter: Each bit represents an event to be enabled or disabled.

VAR_OUTPUT

```
bBusy      : BOOL;
bError     : BOOL;
nErrorId   : UDINT;
```

bBusy: When the function block is activated the output is set, and it remains active until execution of the command has been completed.

bError: This output is switched to TRUE as soon as an error occurs during the execution of a command. The command-specific error code is contained in *nErrorId*. Is reset to FALSE by the execution of a command at the inputs.

nErrorId: Contains the command-specific error code of the most recently executed command. Is reset to 0 by the execution of a command at the inputs. (See [error codes \[► 380\]](#))

VAR_IN_OUT

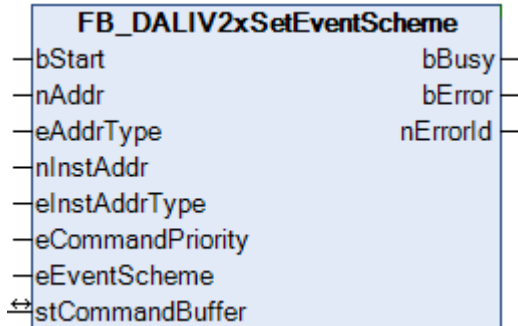
```
stCommandBuffer : ST_DALIV2CommandBuffer;
```

stCommandBuffer: Reference to the internal structure for communication with the function block [FB_KL6821Communication\(\) \[► 74\]](#) (KL6821).

Requirements

Development environment	required PLC library
TwinCAT from v3.1.4022.4	Tc2_DALI from v3.6.2.0

FB_DALIV2xSetEventScheme



With this function block the addressing scheme for the events of the respective instance of the control unit can be defined

VAR_INPUT

```

bStart      : BOOL;
nAddr       : BYTE;
eAddrType   : E_DALIV2AddrType := eDALIV2AddrTypeShort;
nInstAddr   : BYTE := 0;
eInstAddrType : E_DALIV2InstAddrType := eDALIV2InstAddrTypeNumber;
eCommandPriority : E_DALIV2CommandPriority := eDALIV2CommandPriorityMiddle;
eEventScheme : E_DALIV2EventScheme := eDALIV2EventSchemeInstance;

```

bStart: The function block is activated by a positive edge at this input.

nAddr: The address of a participating device or of a group.

eAddrType: Short address, group address or broadcast (see [E_DALIV2AddrType \[► 401\]](#)).

nInstAddr: Address of the instance within the DALI control unit.

eInstAddrType: Defines the access mode to the desired instance within the DALI control unit (see [DALIV2InstAddrType \[► 403\]](#)).

eCommandPriority: Priority (high, medium or low) with which the command is processed by the library (see [E_DALIV2CommandPriority \[► 401\]](#)).

eEventScheme: Addressing scheme for the events (see [E_DALIV2EventScheme \[► 403\]](#)).

VAR_OUTPUT

```

bBusy      : BOOL;
bError     : BOOL;
nErrorId   : UDINT;

```

bBusy: When the function block is activated the output is set, and it remains active until execution of the command has been completed.

bError: This output is switched to TRUE as soon as an error occurs during the execution of a command. The command-specific error code is contained in *nErrorId*. Is reset to FALSE by the execution of a command at the inputs.

nErrorId: Contains the command-specific error code of the most recently executed command. Is reset to 0 by the execution of a command at the inputs. (See [error codes \[► 380\]](#))

VAR_IN_OUT

```

stCommandBuffer : ST_DALIV2CommandBuffer;

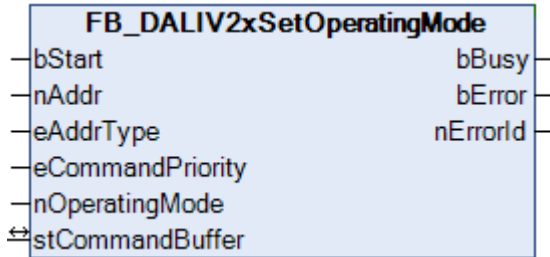
```

stCommandBuffer: Reference to the internal structure for communication with the function block `FB_KL6821Communication()` [► 74] (KL6821).

Requirements

Development environment	required PLC library
TwinCAT from v3.1.4022.4	Tc2_DALI from v3.6.2.0

FB_DALIV2xSetOperatingMode



Sets the *Operating Mode* for the control unit.

VAR_INPUT

```
bStart      : BOOL;
nAddr       : BYTE;
eAddrType   : E_DALIV2AddrType := eDALIV2AddrTypeShort;
eCommandPriority : E_DALIV2CommandPriority := eDALIV2CommandPriorityMiddle;
nOperatingMode : BYTE := 0;
```

bStart: The function block is activated by a positive edge at this input.

nAddr: The address of a participating device or of a group.

eAddrType: Short address, group address or broadcast (see `E_DALIV2AddrType` [► 401]).

eCommandPriority: Priority (high, medium or low) with which the command is processed by the library (see `E_DALIV2CommandPriority` [► 401]).

nOperatingMode: New operating mode.

VAR_OUTPUT

```
bBusy      : BOOL;
bError     : BOOL;
nErrorId   : UDINT;
```

bBusy: When the function block is activated the output is set, and it remains active until execution of the command has been completed.

bError: This output is switched to TRUE as soon as an error occurs during the execution of a command. The command-specific error code is contained in *nErrorId*. Is reset to FALSE by the execution of a command at the inputs.

nErrorId: Contains the command-specific error code of the most recently executed command. Is reset to 0 by the execution of a command at the inputs. (See `error codes` [► 380])

VAR_IN_OUT

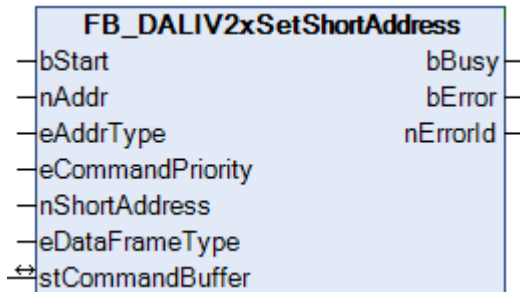
```
stCommandBuffer : ST_DALIV2CommandBuffer;
```

stCommandBuffer: Reference to the internal structure for communication with the function block `FB_KL6821Communication()` [► 74] (KL6821).

Requirements

Development environment	required PLC library
TwinCAT from v3.1.4022.4	Tc2_DALI from v3.6.2.0

FB_DALIV2xSetShortAddress



Sets the short address of the control unit.

VAR_INPUT

```

bStart      : BOOL;
nAddr       : BYTE;
eAddrType   : E_DALIV2AddrType := eDALIV2AddrTypeShort;
eCommandPriority : E_DALIV2CommandPriority := eDALIV2CommandPriorityMiddle;
nShortAddress : BYTE;
eDataFrameType : E_DALIV2DataFrameType := eDALIV2DataFrameType24Bit;

```

bStart: The function block is activated by a positive edge at this input.

nAddr: The address of a participating device or of a group.

eAddrType: Short address, group address or broadcast (see [E_DALIV2AddrType](#) [► 401]).

eCommandPriority: Priority (high, medium or low) with which the command is processed by the library (see [E_DALIV2CommandPriority](#) [► 401]).

nShortAddress: New short address (0...63, 255)

eDataFrameType: Output format of the DALI command (eDALIV2DataFrameType24Bit or eDALIV2DataFrameTypeOsram) (see [E_DALIV2DataFrameType](#) [► 402]).

VAR_OUTPUT

```

bBusy       : BOOL;
bError      : BOOL;
nErrorId    : UDINT;

```

bBusy: When the function block is activated the output is set, and it remains active until execution of the command has been completed.

bError: This output is switched to TRUE as soon as an error occurs during the execution of a command. The command-specific error code is contained in *nErrorId*. Is reset to FALSE by the execution of a command at the inputs.

nErrorId: Contains the command-specific error code of the most recently executed command. Is reset to 0 by the execution of a command at the inputs. (See [error codes](#) [► 380])

VAR_IN_OUT

```

stCommandBuffer : ST_DALIV2CommandBuffer;

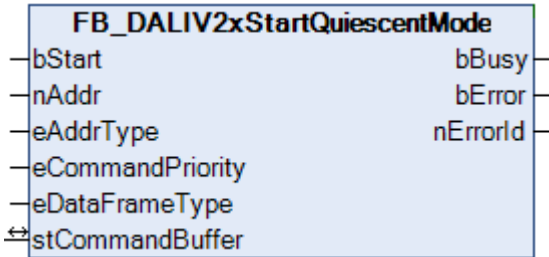
```

stCommandBuffer: Reference to the internal structure for communication with the function block [FB_KL6821Communication\(\)](#) [► 74] (KL6821).

Requirements

Development environment	required PLC library
TwinCAT from v3.1.4022.4	Tc2_DALI from v3.6.2.0

FB_DALIV2xStartQuiescentMode



The Quiescent mode of the control unit is started.

The mode is limited to 15 min +/- 1.5 min after the last reception.

The function block [FB_DALIV2xStopQuiescentMode \[► 174\]](#) can be used to stop the Quiescent mode prematurely.

VAR_INPUT

```

bStart      : BOOL;
nAddr       : BYTE;
eAddrType   : E_DALIV2AddrType := eDALIV2AddrTypeShort;
eCommandPriority : E_DALIV2CommandPriority := eDALIV2CommandPriorityMiddle;
eDataFrameType : E_DALIV2DataFrameType := eDALIV2DataFrameType24Bit;
    
```

bStart: The function block is activated by a positive edge at this input.

nAddr: The address of a participating device or of a group.

eAddrType: Short address, group address or broadcast (see [E_DALIV2AddrType \[► 401\]](#)).

eCommandPriority: Priority (high, medium or low) with which the command is processed by the library. (see [E_DALIV2CommandPriority \[► 401\]](#)).

eDataFrameType: Output format of the DALI command (*eDALIV2DataFrameType24Bit* or *eDALIV2DataFrameTypeOsram*) (see [E_DataFrameType \[► 402\]](#)).

VAR_OUTPUT

```

bBusy      : BOOL;
bError     : BOOL;
nErrorId   : UDINT;
    
```

bBusy: When the function block is activated the output is set, and it remains active until execution of the command has been completed.

bError: This output is switched to TRUE as soon as an error occurs during the execution of a command. The command-specific error code is contained in *nErrorId*. Is reset to FALSE by the execution of a command at the inputs.

nErrorId: Contains the command-specific error code of the most recently executed command. Is reset to 0 by the execution of a command at the inputs. (See [error codes \[► 380\]](#))

VAR_IN_OUT

```

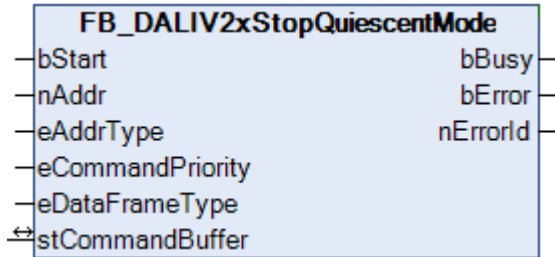
stCommandBuffer : ST_DALIV2CommandBuffer;
    
```

stCommandBuffer: Reference to the internal structure for communication with the function block [FB_KL6821Communication\(\) \[► 74\]](#) (KL6821).

Requirements

Development environment	required PLC library
TwinCAT from v3.1.4022.4	Tc2_DALI from v3.6.2.0

FB_DALIV2xStopQuiescentMode



The *quiescent mode* of the control unit is stopped.

In *Quiescent mode* the control unit does not send commands or events. *Quiescent mode* is started with `FB_DALIV2xStartQuiescentMode()` [► 173].

VAR_INPUT

```
bStart      : BOOL;
nAddr       : BYTE;
eAddrType   : E_DALIV2AddrType := eDALIV2AddrTypeShort;
eCommandPriority : E_DALIV2CommandPriority := eDALIV2CommandPriorityMiddle;
eDataFrameType : E_DALIV2DataFrameType := eDALIV2DataFrameType24Bit;
```

bStart: The function block is activated by a positive edge at this input.

nAddr: The address of a participating device or of a group.

eAddrType: Short address, group address or broadcast (see [E_DALIV2AddrType](#) [► 401]).

eCommandPriority: Priority (high, medium or low) with which the command is processed by the library. (see [E_DALIV2CommandPriority](#) [► 401]).

eDataFrameType: Output format of the DALI command (*eDALIV2DataFrameType24Bit* or *eDALIV2DataFrameTypeOsram*) (see [E_DataFrameType](#) [► 402]).

VAR_OUTPUT

```
bBusy      : BOOL;
bError     : BOOL;
nErrorId   : UDINT;
```

bBusy: When the function block is activated the output is set, and it remains active until execution of the command has been completed.

bError: This output is switched to TRUE as soon as an error occurs during the execution of a command. The command-specific error code is contained in *nErrorId*. Is reset to FALSE by the execution of a command at the inputs.

nErrorId: Contains the command-specific error code of the most recently executed command. Is reset to 0 by the execution of a command at the inputs. (See [error codes](#) [► 380])

VAR_IN_OUT

```
stCommandBuffer : ST_DALIV2CommandBuffer;
```

stCommandBuffer: Reference to the internal structure for communication with the function block `FB_KL6821Communication()` [► 74] (KL6821).

Requirements

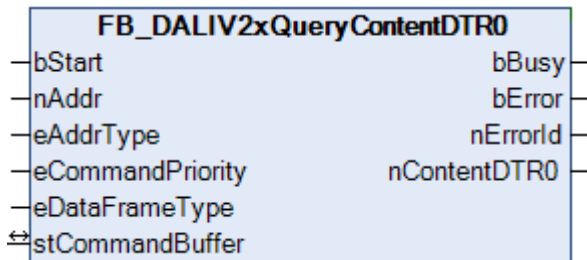
Development environment	required PLC library
TwinCAT from v3.1.4022.4	Tc2_DALI from v3.6.2.0

4.1.2.4.2 Query

Function blocks

Name	Description
FB_DALIV2xQueryContentDTR0 [▶ 176]	Read out the DTR0 (Data Transfer Register).
FB_DALIVx2QueryContentDTR1 [▶ 177]	Read out the DTR1 (Data Transfer Register 1).
FB_DALIV2xQueryContentDTR2 [▶ 178]	Read out the DTR2 (Data Transfer Register 2).
FB_DALIV2xQueryDeviceGroups [▶ 179]	Queries the group allocations of the control unit.
FB_DALIV2xQueryDeviceStatus [▶ 180]	The function block reads the <i>Device Status</i> of the control unit.
FB_DALIV2xQueryEventFilter [▶ 181]	Queries the event filter for the respective control unit instance.
FB_DALIV2xQueryEventScheme [▶ 182]	Queries the addressing scheme for the events of the respective control unit instance
FB_DALIV2xQueryInputDeviceError [▶ 183]	Queries the <i>Input Device Error</i> of the control unit.
FB_DALIV2xQueryInputValue [▶ 184]	Queries the first byte of the input value of the control unit instance.
FB_DALIV2xQueryInputValueLatch [▶ 185]	Queries the following byte of the input value of the control unit instance.
FB_DALIV2xQueryInstanceEnabled [▶ 186]	Queries whether the control unit instance is enabled.
FB_DALIV2xQueryInstanceError [▶ 187]	Queries the <i>Instance Error</i> of the control unit.
FB_DALIV2xQueryInstanceStatus [▶ 188]	Queries the <i>Instance Status</i> of the control unit.
FB_DALIV2xQueryMissingShortAddress [▶ 189]	Queries whether the control unit does not have a valid short address.
FB_DALIV2xQueryNumberOfInstances [▶ 190]	Queries the number of instances that the control unit has.
FB_DALIV2xQueryOperatingMode [▶ 191]	Queries the <i>Operating Mode</i> of the control unit.
FB_DALIV2xQueryPowerCycleNotification [▶ 192]	Queries whether the <i>Power Cycle Notification</i> event is enabled.
FB_DALIV2xQueryRandomAddressH [▶ 193]	The higher-order byte of the random address is read from the control unit.
FB_DALIV2xQueryRandomAddressL [▶ 194]	The lower-order byte of the random address is read from the control unit.
FB_DALIV2xQueryRandomAddressM [▶ 195]	The mean byte of the random address is read from the control unit.
FB_DALIV2xQueryResetState [▶ 196]	Queries whether the control gear parameters have their default values.
FB_DALIV2xQueryResolution [▶ 197]	Queries the resolution of the input values of the control unit.
FB_DALIV2xQueryVersionNumber [▶ 198]	Queries the version number of the control unit.
FB_DALIV2xReadMemoryLocation [▶ 199]	A byte is read from the memory of the control unit.

FB_DALIV2xQueryContentDTR0



The content of DTR0 (Data Transfer Register) is read from the control unit.

VAR_INPUT

```
bStart      : BOOL;
nAddr       : BYTE;
eAddrType   : E_DALIV2AddrType := eDALIV2AddrTypeShort;
eCommandPriority : E_DALIV2CommandPriority := eDALIV2CommandPriorityMiddle;
eDataFrameType : E_DALIV2DataFrameType := eDALIV2DataFrameType24Bit;
```

bStart: The function block is activated by a positive edge at this input.

nAddr: The address of a participating device or of a group.

eAddrType: Short address, group address or broadcast (see [E_DALIV2AddrType](#) [► 401]).

eCommandPriority: Priority (high, medium or low) with which the command is processed by the library. (see [E_DALIV2CommandPriority](#) [► 401]).

eDataFrameType: Output format of the DALI command (*eDALIV2DataFrameType24Bit* or *eDALIV2DataFrameTypeOsram*) (see [E_DataFrameType](#) [► 402]).

VAR_OUTPUT

```
bBusy       : BOOL;
bError      : BOOL;
nErrorId    : UDINT;
nContentDTR0 : BYTE;
```

bBusy: When the function block is activated the output is set, and it remains active until execution of the command has been completed.

bError: This output is switched to TRUE as soon as an error occurs during the execution of a command. The command-specific error code is contained in *nErrorId*. Is reset to FALSE by the execution of a command at the inputs.

nErrorId: Contains the command-specific error code of the most recently executed command. Is reset to 0 by the execution of a command at the inputs. (See [error codes](#) [► 380])

nContentDTR0: Contents of the DTR0 (Data Transfer Register)

VAR_IN_OUT

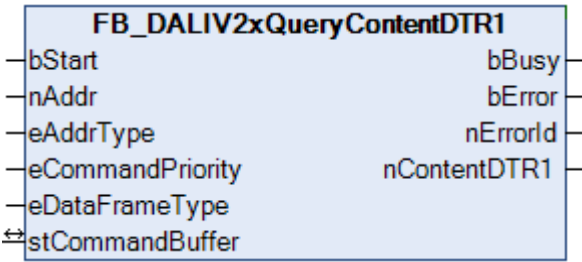
```
stCommandBuffer : ST_DALIV2CommandBuffer;
```

stCommandBuffer: Reference to the internal structure for communication with the function block `FB_KL6821Communication()` [► 74] (KL6821).

Requirements

Development environment	required PLC library
TwinCAT from v3.1.4022.4	Tc2_DALI from v3.6.2.0

FB_DALIV2xQueryContentDTR1



The content of DTR1 (Data Transfer Register) is read from the control unit.

VAR_INPUT

```
bStart      : BOOL;
nAddr       : BYTE;
eAddrType   : E_DALIV2AddrType := eDALIV2AddrTypeShort;
eCommandPriority : E_DALIV2CommandPriority := eDALIV2CommandPriorityMiddle;
eDataFrameType : E_DALIV2DataFrameType := eDALIV2DataFrameType24Bit;
```

bStart: The function block is activated by a positive edge at this input.

nAddr: The address of a participating device or of a group.

eAddrType: Short address, group address or broadcast (see [E_DALIV2AddrType](#) [▶ 401]).

eCommandPriority: Priority (high, medium or low) with which the command is processed by the library. (see [E_DALIV2CommandPriority](#) [▶ 401]).

eDataFrameType: Output format of the DALI command (*eDALIV2DataFrameType24Bit* or *eDALIV2DataFrameTypeOsram*) (see [E_DataFrameType](#) [▶ 402]).

VAR_OUTPUT

```
bBusy      : BOOL;
bError     : BOOL;
nErrorId   : UDINT;
nContentDTR1 : BYTE;
```

bBusy: When the function block is activated the output is set, and it remains active until execution of the command has been completed.

bError: This output is switched to TRUE as soon as an error occurs during the execution of a command. The command-specific error code is contained in *nErrorId*. Is reset to FALSE by the execution of a command at the inputs.

nErrorId: Contains the command-specific error code of the most recently executed command. Is reset to 0 by the execution of a command at the inputs. (See [error codes](#) [▶ 380])

nContentDTR1: Contents of the DTR1 (Data Transfer Register)

VAR_IN_OUT

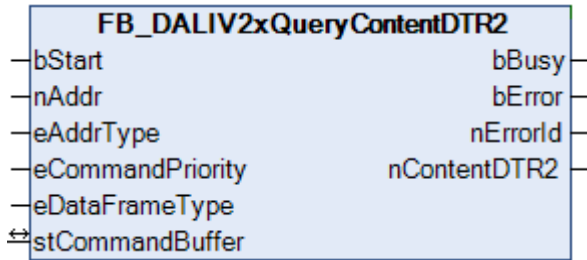
```
stCommandBuffer : ST_DALIV2CommandBuffer;
```

stCommandBuffer: Reference to the internal structure for communication with the function block [FB_KL6821Communication\(\)](#) [▶ 74] (KL6821).

Requirements

Development environment	required PLC library
TwinCAT from v3.1.4022.4	Tc2_DALI from v3.6.2.0

FB_DALIV2xQueryContentDTR2



The content of DTR2 (Data Transfer Register) is read from the control unit.

VAR_INPUT

```
bStart      : BOOL;
nAddr       : BYTE;
eAddrType   : E_DALIV2AddrType := eDALIV2AddrTypeShort;
eCommandPriority : E_DALIV2CommandPriority := eDALIV2CommandPriorityMiddle;
eDataFrameType : E_DALIV2DataFrameType := eDALIV2DataFrameType24Bit;
```

bStart: The function block is activated by a positive edge at this input.

nAddr: The address of a participating device or of a group.

eAddrType: Short address, group address or broadcast (see [E_DALIV2AddrType](#) [► 401]).

eCommandPriority: Priority (high, medium or low) with which the command is processed by the library. (see [E_DALIV2CommandPriority](#) [► 401]).

eDataFrameType: Output format of the DALI command (*eDALIV2DataFrameType24Bit* or *eDALIV2DataFrameTypeOsram*) (see [E_DataFrameType](#) [► 402]).

VAR_OUTPUT

```
bBusy      : BOOL;
bError     : BOOL;
nErrorId   : UDINT;
nContentDTR2 : BYTE;
```

bBusy: When the function block is activated the output is set, and it remains active until execution of the command has been completed.

bError: This output is switched to TRUE as soon as an error occurs during the execution of a command. The command-specific error code is contained in *nErrorId*. Is reset to FALSE by the execution of a command at the inputs.

nErrorId: Contains the command-specific error code of the most recently executed command. Is reset to 0 by the execution of a command at the inputs. (See [error codes](#) [► 380])

nContentDTR2: Contents of the DTR2 (Data Transfer Register)

VAR_IN_OUT

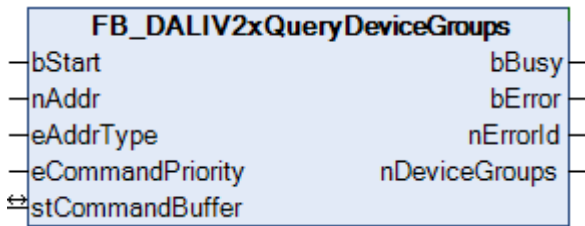
```
stCommandBuffer : ST_DALIV2CommandBuffer;
```

stCommandBuffer: Reference to the internal structure for communication with the function block `FB_KL6821Communication()` [► 74] (KL6821).

Requirements

Development environment	required PLC library
TwinCAT from v3.1.4022.4	Tc2_DALI from v3.6.2.0

FB_DALIV2xQueryDeviceGroups



Queries the group allocations of the control unit.

A total of 32 groups are available to which a control unit can be assigned. Each bit of the variable *nDeviceGroups* corresponds to one of these groups. If the bit is set, the control unit is assigned to the respective group. Bit 0 corresponds to group 0, bit 31 to group 31.

The function block [FB_DALIV2xAddToDeviceGroups\(\)](#) [► 161] can be used to assign a control unit to a group.

The function block [FB_DALIV2xRemoveFromDeviceGroups\(\)](#) [► 167] can be used to remove a control unit from a group.

VAR_INPUT

```
bStart      : BOOL;
nAddr       : BYTE;
eAddrType   : E_DALIV2AddrType := eDALIV2AddrTypeShort;
eCommandPriority : E_DALIV2CommandPriority := eDALIV2CommandPriorityMiddle;
```

bStart: The function block is activated by a positive edge at this input.

nAddr: The address of a participating device or of a group.

eAddrType: Short address, group address or broadcast (see [E_DALIV2AddrType](#) [► 401]).

eCommandPriority: Priority (high, medium or low) with which the command is processed by the library (see [E_DALIV2CommandPriority](#) [► 401]).

VAR_OUTPUT

```
bBusy       : BOOL;
bError      : BOOL;
nErrorId    : UDINT;
nDeviceGroups : DWORD;
```

bBusy: When the function block is activated the output is set, and it remains active until execution of the command has been completed.

bError: This output is switched to TRUE as soon as an error occurs during the execution of a command. The command-specific error code is contained in *nErrorId*. Is reset to FALSE by the execution of a command at the inputs.

nErrorId: Contains the command-specific error code of the most recently executed command. Is reset to 0 by the execution of a command at the inputs. (See [error codes](#) [► 380])

nDeviceGroups: 32-bit variable where each bit represents the corresponding group to which the control unit has been assigned.

VAR_IN_OUT

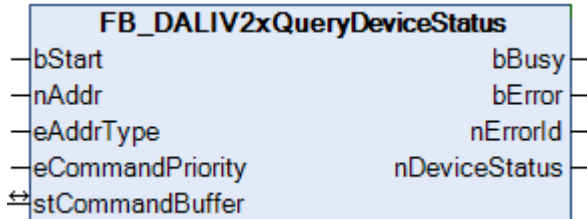
```
stCommandBuffer : ST_DALIV2CommandBuffer;
```

stCommandBuffer: Reference to the internal structure for communication with the function block [FB_KL6821Communication\(\)](#) [► 74] (KL6821).

Requirements

Development environment	required PLC library
TwinCAT from v3.1.4022.4	Tc2_DALI from v3.6.2.0

FB_DALIV2xQueryDeviceStatus



The function block reads the *Device Status* of the control unit.

VAR_INPUT

```
bStart      : BOOL;
nAddr       : BYTE;
eAddrType   : E_DALIV2AddrType := eDALIV2AddrTypeShort;
eCommandPriority : E_DALIV2CommandPriority := eDALIV2CommandPriorityMiddle;
```

bStart: The function block is activated by a positive edge at this input.

nAddr: The address of a participating device or of a group.

eAddrType: Short address, group address or broadcast (see [E_DALIV2AddrType \[► 401\]](#)).

eCommandPriority: Priority (high, medium or low) with which the command is processed by the library (see [E_DALIV2CommandPriority \[► 401\]](#)).

VAR_OUTPUT

```
bBusy       : BOOL;
bError      : BOOL;
nErrorId    : UDINT;
nDeviceStatus : BYTE;
```

bBusy: When the function block is activated the output is set, and it remains active until execution of the command has been completed.

bError: This output is switched to TRUE as soon as an error occurs during the execution of a command. The command-specific error code is contained in *nErrorId*. Is reset to FALSE by the execution of a command at the inputs.

nErrorId: Contains the command-specific error code of the most recently executed command. Is reset to 0 by the execution of a command at the inputs. (See [error codes \[► 380\]](#))

nDeviceStatus: The *Device Status* of the control unit.

VAR_IN_OUT

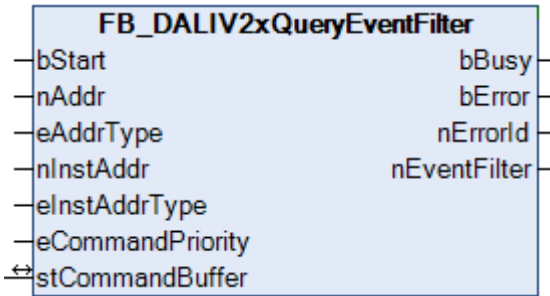
```
stCommandBuffer : ST_DALIV2CommandBuffer;
```

stCommandBuffer: Reference to the internal structure for communication with the function block [FB_KL6821Communication\(\) \[► 74\]](#) (KL6821).

Requirements

Development environment	required PLC library
TwinCAT from v3.1.4022.4	Tc2_DALI from v3.6.2.0

FB_DALIV2xQueryEventFilter



This function block queries the event filter for the respective control unit instance.

Each bit in *nEventFilter* represents an event. If the bit is set, the associated event is enabled. The event is locked if the bit is not set.

The meaning of the individual bits can be found in the documentation of the respective control unit.

VAR_INPUT

```
bStart          : BOOL;
nAddr           : BYTE;
eAddrType       : E_DALIV2AddrType := eDALIV2AddrTypeShort;
nInstAddr       : BYTE := 0;
eInstAddrType   : E_DALIV2InstAddrType := eDALIV2InstAddrTypeNumber;
eCommandPriority : E_DALIV2CommandPriority := eDALIV2CommandPriorityMiddle;
```

bStart: The function block is activated by a positive edge at this input.

nAddr: The address of a participating device or of a group.

eAddrType: Short address, group address or broadcast (see [E_DALIV2AddrType \[► 401\]](#)).

nInstAddr: Address of the instance within the DALI control unit.

eInstAddrType: Defines the access mode to the desired instance within the DALI control unit (see [DALIV2InstAddrType \[► 403\]](#)).

eCommandPriority: Priority (high, medium or low) with which the command is processed by the library (see [E_DALIV2CommandPriority \[► 401\]](#)).

VAR_OUTPUT

```
bBusy          : BOOL;
bError         : BOOL;
nErrorId       : UDINT;
nEventFilter    : DWORD;
```

bBusy: When the function block is activated the output is set, and it remains active until execution of the command has been completed.

bError: This output is switched to TRUE as soon as an error occurs during the execution of a command. The command-specific error code is contained in *nErrorId*. Is reset to FALSE by the execution of a command at the inputs.

nErrorId: Contains the command-specific error code of the most recently executed command. Is reset to 0 by the execution of a command at the inputs. (See [error codes \[► 380\]](#))

nEventFilter: Each bit represents an event that has been enabled or disabled.

VAR_IN_OUT

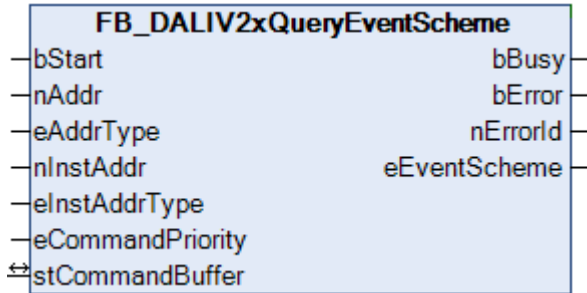
```
stCommandBuffer : ST_DALIV2CommandBuffer;
```

stCommandBuffer: Reference to the internal structure for communication with the function block [FB_KL6821Communication\(\) \[► 74\]](#) (KL6821).

Requirements

Development environment	required PLC library
TwinCAT from v3.1.4022.4	Tc2_DALI from v3.6.2.0

FB_DALIV2xQueryEventScheme



This function block can be used to query the addressing scheme for the events of the respective control unit instance.

VAR_INPUT

```

bStart          : BOOL;
nAddr           : BYTE;
eAddrType       : E_DALIV2AddrType := eDALIV2AddrTypeShort;
nInstAddr       : BYTE := 0;
eInstAddrType   : E_DALIV2InstAddrType := eDALIV2InstAddrTypeNumber;
eCommandPriority : E_DALIV2CommandPriority := eDALIV2CommandPriorityMiddle;

```

bStart: The function block is activated by a positive edge at this input.

nAddr: The address of a participating device or of a group.

eAddrType: Short address, group address or broadcast (see [E_DALIV2AddrType \[► 401\]](#)).

nInstAddr: Address of the instance within the DALI control unit.

eInstAddrType: Defines the access mode to the desired instance within the DALI control unit (see [DALIV2InstAddrType \[► 403\]](#)).

eCommandPriority: Priority (high, medium or low) with which the command is processed by the library (see [E_DALIV2CommandPriority \[► 401\]](#)).

VAR_OUTPUT

```

bBusy          : BOOL;
bError         : BOOL;
nErrorId       : UDINT;
eEventScheme   : E_DALIV2EventScheme;

```

bBusy: When the function block is activated the output is set, and it remains active until execution of the command has been completed.

bError: This output is switched to TRUE as soon as an error occurs during the execution of a command. The command-specific error code is contained in *nErrorId*. Is reset to FALSE by the execution of a command at the inputs.

nErrorId: Contains the command-specific error code of the most recently executed command. Is reset to 0 by the execution of a command at the inputs. (See [error codes \[► 380\]](#))

eEventScheme: Addressing scheme for the events (see [E_DALIV2EventScheme \[► 403\]](#)).

VAR_IN_OUT

```

stCommandBuffer : ST_DALIV2CommandBuffer;

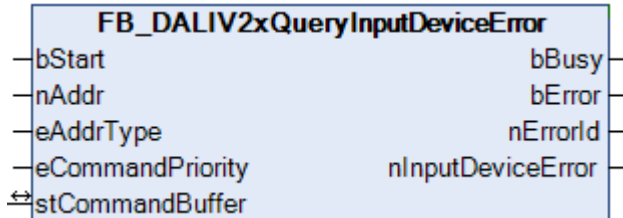
```

stCommandBuffer: Reference to the internal structure for communication with the function block FB_KL6821Communication() [▶ 74] (KL6821).

Requirements

Development environment	required PLC library
TwinCAT from v3.1.4022.4	Tc2_DALI from v3.6.2.0

FB_DALIV2xQueryInputDeviceError



The function block reads the *Input Device Error* of the control unit.

The meaning of the *Input Device Error* depends on the manufacturer of the control unit.

VAR_INPUT

```
bStart      : BOOL;
nAddr       : BYTE;
eAddrType   : E_DALIV2AddrType := eDALIV2AddrTypeShort;
eCommandPriority : E_DALIV2CommandPriority := eDALIV2CommandPriorityMiddle;
```

bStart: The function block is activated by a positive edge at this input.

nAddr: The address of a participating device or of a group.

eAddrType: Short address, group address or broadcast (see [E_DALIV2AddrType \[▶ 401\]](#)).

eCommandPriority: Priority (high, medium or low) with which the command is processed by the library (see [E_DALIV2CommandPriority \[▶ 401\]](#)).

VAR_OUTPUT

```
bBusy       : BOOL;
bError      : BOOL;
nErrorId    : UDINT;
nInputDeviceError : BYTE;
```

bBusy: When the function block is activated the output is set, and it remains active until execution of the command has been completed.

bError: This output is switched to TRUE as soon as an error occurs during the execution of a command. The command-specific error code is contained in *nErrorId*. Is reset to FALSE by the execution of a command at the inputs.

nErrorId: Contains the command-specific error code of the most recently executed command. Is reset to 0 by the execution of a command at the inputs. (See [error codes \[▶ 380\]](#))

nInputDeviceError: The *Input Device Error* of the control unit.

VAR_IN_OUT

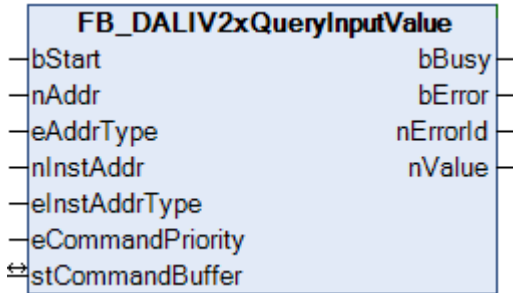
```
stCommandBuffer : ST_DALIV2CommandBuffer;
```

stCommandBuffer: Reference to the internal structure for communication with the function block FB_KL6821Communication() [▶ 74] (KL6821).

Requirements

Development environment	required PLC library
TwinCAT from v3.1.4022.4	Tc2_DALI from v3.6.2.0

FB_DALIV2xQueryInputValue



Queries the first byte of the input value of the control unit instance.

The current input value is stored in memory, and the most significant byte (MSB) is returned.

All other bytes can be read with the function block [FB_DALIV2xQueryInputValueLatch\(\)](#) [► 185].

VAR_INPUT

```

bStart      : BOOL;
nAddr       : BYTE;
eAddrType   : E_DALIV2AddrType := eDALIV2AddrTypeShort;
nInstAddr   : BYTE := 0;
eInstAddrType : E_DALIV2InstAddrType := eDALIV2InstAddrTypeNumber;
eCommandPriority : E_DALIV2CommandPriority := eDALIV2CommandPriorityMiddle;

```

bStart: The function block is activated by a positive edge at this input.

nAddr: The address of a participating device or of a group.

eAddrType: Short address, group address or broadcast (see [E_DALIV2AddrType](#) [► 401]).

nInstAddr: Address of the instance within the DALI control unit.

eInstAddrType: Defines the access mode to the desired instance within the DALI control unit (see [DALIV2InstAddrType](#) [► 403]).

eCommandPriority: Priority (high, medium or low) with which the command is processed by the library (see [E_DALIV2CommandPriority](#) [► 401]).

VAR_OUTPUT

```

bBusy       : BOOL;
bError      : BOOL;
nErrorId    : UDINT;
nValue      : BYTE;

```

bBusy: When the function block is activated the output is set, and it remains active until execution of the command has been completed.

bError: This output is switched to TRUE as soon as an error occurs during the execution of a command. The command-specific error code is contained in *nErrorId*. Is reset to FALSE by the execution of a command at the inputs.

nErrorId: Contains the command-specific error code of the most recently executed command. Is reset to 0 by the execution of a command at the inputs. (See [error codes](#) [► 380])

nValue: The most significant byte (MSB) of the input value.

VAR_IN_OUT

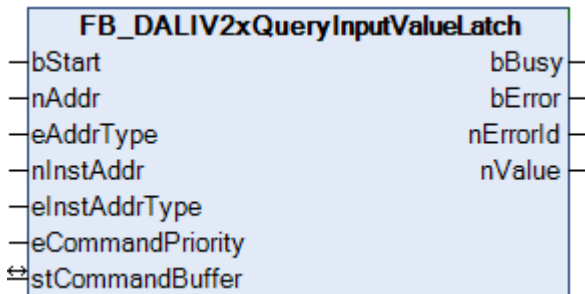
```
stCommandBuffer : ST_DALIV2CommandBuffer;
```

stCommandBuffer: Reference to the internal structure for communication with the function block FB_KL6821Communication() [▶ 74] (KL6821).

Requirements

Development environment	required PLC library
TwinCAT from v3.1.4022.4	Tc2_DALI from v3.6.2.0

FB_DALIV2xQueryInputValueLatch



Queries the following byte of the input value of the control unit instance.

The first byte is read with the function block FB_DALIV2xQueryInputValue() [▶ 184].

VAR_INPUT

```
bStart : BOOL;
nAddr : BYTE;
eAddrType : E_DALIV2AddrType := eDALIV2AddrTypeShort;
nInstAddr : BYTE := 0;
eInstAddrType : E_DALIV2InstAddrType := eDALIV2InstAddrTypeNumber;
eCommandPriority : E_DALIV2CommandPriority := eDALIV2CommandPriorityMiddle;
```

bStart: The function block is activated by a positive edge at this input.

nAddr: The address of a participating device or of a group.

eAddrType: Short address, group address or broadcast (see E_DALIV2AddrType [▶ 401]).

nInstAddr: Address of the instance within the DALI control unit.

eInstAddrType: Defines the access mode to the desired instance within the DALI control unit (see DALIV2InstAddrType [▶ 403]).

eCommandPriority: Priority (high, medium or low) with which the command is processed by the library (see E_DALIV2CommandPriority [▶ 401]).

VAR_OUTPUT

```
bBusy : BOOL;
bError : BOOL;
nErrorId : UDINT;
nValue : BYTE;
```

bBusy: When the function block is activated the output is set, and it remains active until execution of the command has been completed.

bError: This output is switched to TRUE as soon as an error occurs during the execution of a command. The command-specific error code is contained in nErrorId. Is reset to FALSE by the execution of a command at the inputs.

nErrorId: Contains the command-specific error code of the most recently executed command. Is reset to 0 by the execution of a command at the inputs. (See [error codes](#) [► 380])

nValue: The most significant byte (MSB) of the input value.

VAR_IN_OUT

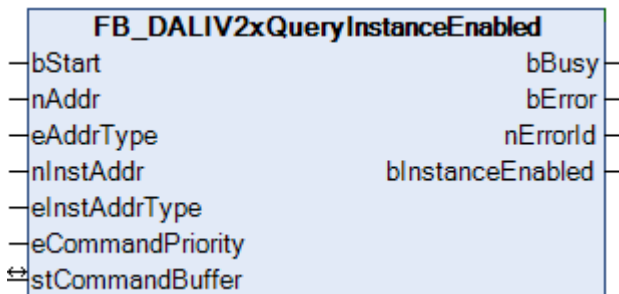
```
stCommandBuffer : ST_DALIV2CommandBuffer;
```

stCommandBuffer: Reference to the internal structure for communication with the function block [FB_KL6821Communication](#) [► 74] (KL6821).

Requirements

Development environment	required PLC library
TwinCAT from v3.1.4022.4	Tc2_DALI from v3.6.2.0

FB_DALIV2xQueryInstanceEnabled



Queries whether the control unit instance is enabled.

The function block [FB_DALIV2xDisableInstance](#) [► 162] can be used to disable the instance.

The function block [FB_DALIV2xEnableInstance](#) [► 164] can be used to enable the instance.

VAR_INPUT

```
bStart      : BOOL;
nAddr       : BYTE;
eAddrType   : E_DALIV2AddrType := eDALIV2AddrTypeShort;
nInstAddr   : BYTE := 0;
eInstAddrType : E_DALIV2InstAddrType := eDALIV2InstAddrTypeNumber;
eCommandPriority : E_DALIV2CommandPriority := eDALIV2CommandPriorityMiddle;
```

bStart: The function block is activated by a positive edge at this input.

nAddr: The address of a participating device or of a group.

eAddrType: Short address, group address or broadcast (see [E_DALIV2AddrType](#) [► 401]).

nInstAddr: Address of the instance within the DALI control unit.

eInstAddrType: Defines the access mode to the desired instance within the DALI control unit (see [DALIV2InstAddrType](#) [► 403]).

eCommandPriority: Priority (high, medium or low) with which the command is processed by the library (see [E_DALIV2CommandPriority](#) [► 401]).

VAR_OUTPUT

```
bBusy       : BOOL;
bError      : BOOL;
nErrorId    : UDINT;
bInstanceEnabled : BOOL;
```

bBusy: When the function block is activated the output is set, and it remains active until execution of the command has been completed.

bError: This output is switched to TRUE as soon as an error occurs during the execution of a command. The command-specific error code is contained in *nErrorId*. Is reset to FALSE by the execution of a command at the inputs.

nErrorId: Contains the command-specific error code of the most recently executed command. Is reset to 0 by the execution of a command at the inputs. (See [error codes](#) [▶ 380])

bInstanceEnabled: Is TRUE if the instance has been enabled.

VAR_IN_OUT

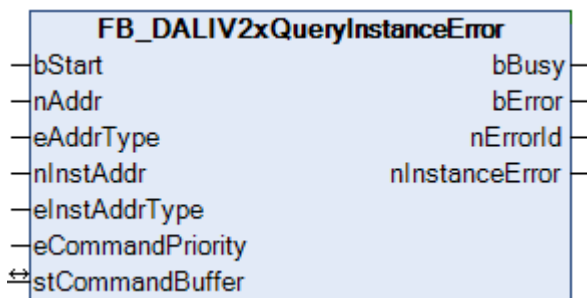
```
stCommandBuffer : ST_DALIV2CommandBuffer;
```

stCommandBuffer: Reference to the internal structure for communication with the function block FB_KL6821Communication() [▶ 74] (KL6821).

Requirements

Development environment	required PLC library
TwinCAT from v3.1.4022.4	Tc2_DALI from v3.6.2.0

FB_DALIV2xQueryInstanceError



The function block reads the *Instance Error* of the control unit.

VAR_INPUT

```
bStart : BOOL;
nAddr : BYTE;
eAddrType : E_DALIV2AddrType := eDALIV2AddrTypeShort;
nInstAddr : BYTE := 0;
eInstAddrType : E_DALIV2InstAddrType := eDALIV2InstAddrTypeNumber;
eCommandPriority : E_DALIV2CommandPriority := eDALIV2CommandPriorityMiddle;
```

bStart: The function block is activated by a positive edge at this input.

nAddr: The address of a participating device or of a group.

eAddrType: Short address, group address or broadcast (see [E_DALIV2AddrType](#) [▶ 401]).

nInstAddr: Address of the instance within the DALI control unit.

eInstAddrType: Defines the access mode to the desired instance within the DALI control unit (see [DALIV2InstAddrType](#) [▶ 403]).

eCommandPriority: Priority (high, medium or low) with which the command is processed by the library (see [E_DALIV2CommandPriority](#) [▶ 401]).

VAR_OUTPUT

```
bBusy      : BOOL;
bError     : BOOL;
nErrorId   : UDINT;
nInstanceError : BYTE;
```

bBusy: When the function block is activated the output is set, and it remains active until execution of the command has been completed.

bError: This output is switched to TRUE as soon as an error occurs during the execution of a command. The command-specific error code is contained in *nErrorId*. Is reset to FALSE by the execution of a command at the inputs.

nErrorId: Contains the command-specific error code of the most recently executed command. Is reset to 0 by the execution of a command at the inputs. (See [error codes](#) [▶ 380])

nInstanceError: The *Instance Error* of the control unit.

VAR_IN_OUT

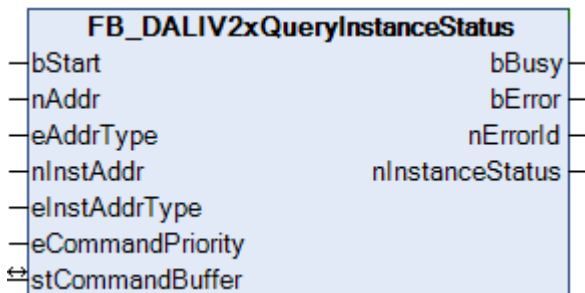
```
stCommandBuffer : ST_DALIV2CommandBuffer;
```

stCommandBuffer: Reference to the internal structure for communication with the function block `FB_KL6821Communication()` [▶ 74] (KL6821).

Requirements

Development environment	required PLC library
TwinCAT from v3.1.4022.4	Tc2_DALI from v3.6.2.0

FB_DALIV2xQueryInstanceStatus



The function block reads the *Instance Status* of the control unit.

VAR_INPUT

```
bStart      : BOOL;
nAddr       : BYTE;
eAddrType   : E_DALIV2AddrType := eDALIV2AddrTypeShort;
nInstAddr   : BYTE := 0;
eInstAddrType : E_DALIV2InstAddrType := eDALIV2InstAddrTypeNumber;
eCommandPriority : E_DALIV2CommandPriority := eDALIV2CommandPriorityMiddle;
```

bStart: The function block is activated by a positive edge at this input.

nAddr: The address of a participating device or of a group.

eAddrType: Short address, group address or broadcast (see [E_DALIV2AddrType](#) [▶ 401]).

nInstAddr: Address of the instance within the DALI control unit.

eInstAddrType: Defines the access mode to the desired instance within the DALI control unit (see [DALIV2InstAddrType](#) [▶ 403]).

eCommandPriority: Priority (high, medium or low) with which the command is processed by the library (see [E_DALIV2CommandPriority](#) [▶ 401]).

VAR_OUTPUT

```
bBusy      : BOOL;
bError     : BOOL;
nErrorId   : UDINT;
nInstanceStatus : BYTE;
```

bBusy: When the function block is activated the output is set, and it remains active until execution of the command has been completed.

bError: This output is switched to TRUE as soon as an error occurs during the execution of a command. The command-specific error code is contained in *nErrorId*. Is reset to FALSE by the execution of a command at the inputs.

nErrorId: Contains the command-specific error code of the most recently executed command. Is reset to 0 by the execution of a command at the inputs. (See [error codes](#) [▶ 380])

nInstanceStatus: The *Instance Status* of the control unit.

VAR_IN_OUT

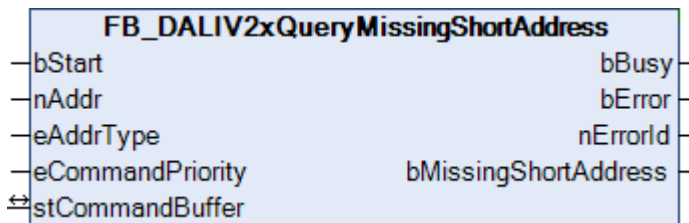
```
stCommandBuffer : ST_DALIV2CommandBuffer;
```

stCommandBuffer: Reference to the internal structure for communication with the function block [FB_KL6821Communication\(\)](#) [▶ 74] (KL6821).

Requirements

Development environment	required PLC library
TwinCAT from v3.1.4022.4	Tc2_DALI from v3.6.2.0

FB_DALIV2xQueryMissingShortAddress



Queries whether the control unit does not have a valid short address.

VAR_INPUT

```
bStart      : BOOL;
nAddr       : BYTE;
eAddrType   : E_DALIV2AddrType := eDALIV2AddrTypeShort;
eCommandPriority : E_DALIV2CommandPriority := eDALIV2CommandPriorityMiddle;
```

bStart: The function block is activated by a positive edge at this input.

nAddr: The address of a participating device or of a group.

eAddrType: Short address, group address or broadcast (see [E_DALIV2AddrType](#) [▶ 401]).

eCommandPriority: Priority (high, medium or low) with which the command is processed by the library (see [E_DALIV2CommandPriority](#) [▶ 401]).

VAR_OUTPUT

```
bBusy          : BOOL;
bError         : BOOL;
nErrorId      : UDINT;
bMissingShortAddress : BOOL;
```

bBusy: When the function block is activated the output is set, and it remains active until execution of the command has been completed.

bError: This output is switched to TRUE as soon as an error occurs during the execution of a command. The command-specific error code is contained in *nErrorId*. Is reset to FALSE by the execution of a command at the inputs.

nErrorId: Contains the command-specific error code of the most recently executed command. Is reset to 0 by the execution of a command at the inputs. (See [error codes](#) [► 380])

bMissingShortAddress: Is TRUE if the control unit does not have a valid short address.

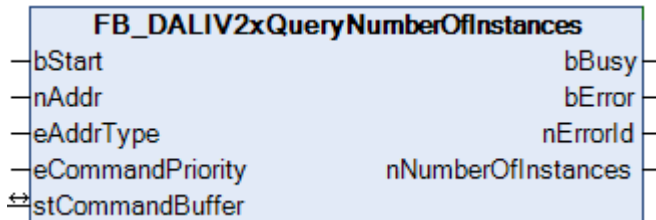
VAR_IN_OUT

```
stCommandBuffer : ST_DALIV2CommandBuffer;
```

stCommandBuffer: Reference to the internal structure for communication with the function block [FB_KL6821Communication\(\)](#) [► 74] (KL6821).

Requirements

Development environment	required PLC library
TwinCAT from v3.1.4022.4	Tc2_DALI from v3.6.2.0

FB_DALIV2xQueryNumberOfInstances

Queries the number of instances that the control unit has.

VAR_INPUT

```
bStart        : BOOL;
nAddr         : BYTE;
eAddrType     : E_DALIV2AddrType := eDALIV2AddrTypeShort;
eCommandPriority : E_DALIV2CommandPriority := eDALIV2CommandPriorityMiddle;
```

bStart: The function block is activated by a positive edge at this input.

nAddr: The address of a participating device or of a group.

eAddrType: Short address, group address or broadcast (see [E_DALIV2AddrType](#) [► 401]).

eCommandPriority: Priority (high, medium or low) with which the command is processed by the library (see [E_DALIV2CommandPriority](#) [► 401]).

VAR_OUTPUT

```
bBusy          : BOOL;
bError         : BOOL;
nErrorId      : UDINT;
nNumberOfInstances : BYTE;
```

bBusy: When the function block is activated the output is set, and it remains active until execution of the command has been completed.

bError: This output is switched to TRUE as soon as an error occurs during the execution of a command. The command-specific error code is contained in *nErrorId*. Is reset to FALSE by the execution of a command at the inputs.

nErrorId: Contains the command-specific error code of the most recently executed command. Is reset to 0 by the execution of a command at the inputs. (See [error codes](#) [▶ 380])

nNumberOfInstances: Number of instances of the control unit.

VAR_IN_OUT

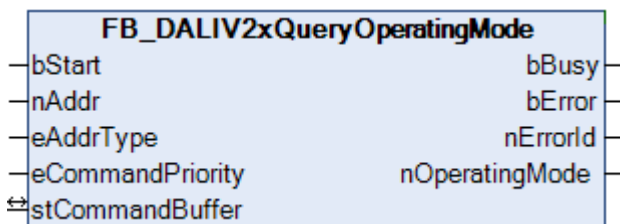
```
stCommandBuffer : ST_DALIV2CommandBuffer;
```

stCommandBuffer: Reference to the internal structure for communication with the function block `FB_KL6821Communication()` [▶ 74] (KL6821).

Requirements

Development environment	required PLC library
TwinCAT from v3.1.4022.4	Tc2_DALI from v3.6.2.0

FB_DALIV2xQueryOperatingMode



Queries the *Operating Mode* of the control unit.

VAR_INPUT

```
bStart : BOOL;
nAddr : BYTE;
eAddrType : E_DALIV2AddrType := eDALIV2AddrTypeShort;
eCommandPriority : E_DALIV2CommandPriority := eDALIV2CommandPriorityMiddle;
```

bStart: The function block is activated by a positive edge at this input.

nAddr: The address of a participating device or of a group.

eAddrType: Short address, group address or broadcast (see [E_DALIV2AddrType](#) [▶ 401]).

eCommandPriority: Priority (high, medium or low) with which the command is processed by the library (see [E_DALIV2CommandPriority](#) [▶ 401]).

VAR_OUTPUT

```
bBusy : BOOL;
bError : BOOL;
nErrorId : UDINT;
nOperatingMode : BYTE;
```

bBusy: When the function block is activated the output is set, and it remains active until execution of the command has been completed.

bError: This output is switched to TRUE as soon as an error occurs during the execution of a command. The command-specific error code is contained in *nErrorId*. Is reset to FALSE by the execution of a command at the inputs.

nErrorId: Contains the command-specific error code of the most recently executed command. Is reset to 0 by the execution of a command at the inputs. (See [error codes](#) [▶ 380])

nOperatingMode: Value of OPERATING MODE.

VAR_IN_OUT

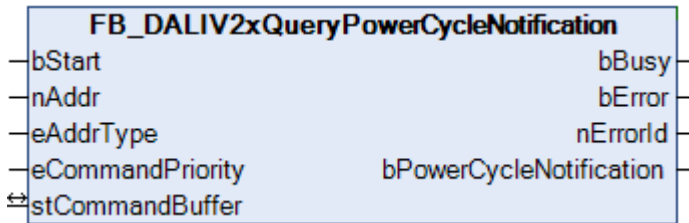
```
stCommandBuffer : ST_DALIV2CommandBuffer;
```

stCommandBuffer: Reference to the internal structure for communication with the function block [FB_KL6821Communication](#) [▶ 74] (KL6821).

Requirements

Development environment	required PLC library
TwinCAT from v3.1.4022.4	Tc2_DALI from v3.6.2.0

FB_DALIV2xQueryPowerCycleNotification



Queries whether the *Power Cycle Notification* event is enabled.

The function block [FB_DALIV2xDisablePowerCycleNotification](#) [▶ 163] can be used to lock the event.

The function block [FB_DALIV2xEnablePowerCycleNotification](#) [▶ 165] can be used to enable the event.

VAR_INPUT

```
bStart : BOOL;
nAddr : BYTE;
eAddrType : E_DALIV2AddrType := eDALIV2AddrTypeShort;
eCommandPriority : E_DALIV2CommandPriority := eDALIV2CommandPriorityMiddle;
```

bStart: The function block is activated by a positive edge at this input.

nAddr: The address of a participating device or of a group.

eAddrType: Short address, group address or broadcast (see [E_DALIV2AddrType](#) [▶ 401]).

eCommandPriority: Priority (high, medium or low) with which the command is processed by the library (see [E_DALIV2CommandPriority](#) [▶ 401]).

VAR_OUTPUT

```
bBusy : BOOL;
bError : BOOL;
nErrorId : UDINT;
bPowerCycleNotification : BOOL;
```

bBusy: When the function block is activated the output is set, and it remains active until execution of the command has been completed.

bError: This output is switched to TRUE as soon as an error occurs during the execution of a command. The command-specific error code is contained in *nErrorId*. Is reset to FALSE by the execution of a command at the inputs.

nErrorId: Contains the command-specific error code of the most recently executed command. Is reset to 0 by the execution of a command at the inputs. (See [error codes](#) [▶ 380])

bPowerCycleNotification: Is TRUE if the *Power Cycle Notification* event is enabled.

VAR_IN_OUT

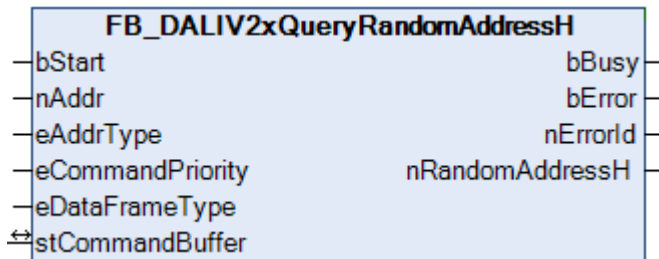
```
stCommandBuffer : ST_DALIV2CommandBuffer;
```

stCommandBuffer: Reference to the internal structure for communication with the function block `FB_KL6821Communication()` [▶ 74] (KL6821).

Requirements

Development environment	required PLC library
TwinCAT from v3.1.4022.4	Tc2_DALI from v3.6.2.0

FB_DALIV2xQueryRandomAddressH



The higher-order byte of the random address is read from the control unit.

VAR_INPUT

```
bStart : BOOL;
nAddr : BYTE;
eAddrType : E_DALIV2AddrType := eDALIV2AddrTypeShort;
eCommandPriority : E_DALIV2CommandPriority := eDALIV2CommandPriorityMiddle;
eDataFrameType : E_DALIV2DataFrameType := eDALIV2DataFrameType24Bit;
```

bStart: The function block is activated by a positive edge at this input.

nAddr: The address of a participating device or of a group.

eAddrType: Short address, group address or broadcast (see `E_DALIV2AddrType` [▶ 401]).

eCommandPriority: Priority (high, medium or low) with which the command is processed by the library. (see `E_DALIV2CommandPriority` [▶ 401]).

eDataFrameType: Output format of the DALI command (`eDALIV2DataFrameType24Bit` or `eDALIV2DataFrameTypeOsram`) (see `E_DataFrameType` [▶ 402]).

VAR_OUTPUT

```
bBusy : BOOL;
bError : BOOL;
nErrorId : UDINT;
nRandomAddressH : BYTE;
```

bBusy: When the function block is activated the output is set, and it remains active until execution of the command has been completed.

bError: This output is switched to TRUE as soon as an error occurs during the execution of a command. The command-specific error code is contained in `nErrorId`. Is reset to FALSE by the execution of a command at the inputs.

nErrorId: Contains the command-specific error code of the most recently executed command. Is reset to 0 by the execution of a command at the inputs. (See `error codes` [▶ 380])

nRandomAddressH: The high-order byte of the random address/long address.

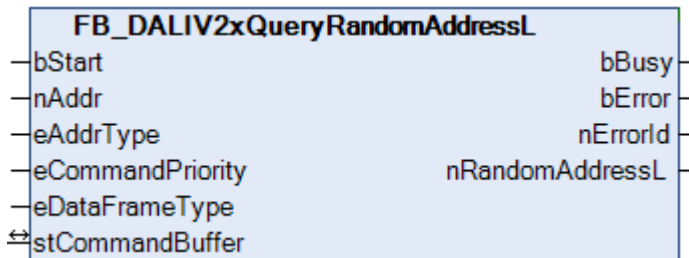
VAR_IN_OUT

```
stCommandBuffer : ST_DALIV2CommandBuffer;
```

stCommandBuffer: Reference to the internal structure for communication with the function block FB_KL6821Communication() [► 74] (KL6821).

Requirements

Development environment	required PLC library
TwinCAT from v3.1.4022.4	Tc2_DALI from v3.6.2.0

FB_DALIV2xQueryRandomAddressL

The lower-order byte of the random address is read from the control unit.

VAR_INPUT

```
bStart      : BOOL;
nAddr       : BYTE;
eAddrType   : E_DALIV2AddrType := eDALIV2AddrTypeShort;
eCommandPriority : E_DALIV2CommandPriority := eDALIV2CommandPriorityMiddle;
eDataFrameType : E_DALIV2DataFrameType := eDALIV2DataFrameType24Bit;
```

bStart: The function block is activated by a positive edge at this input.

nAddr: The address of a participating device or of a group.

eAddrType: Short address, group address or broadcast (see [E_DALIV2AddrType](#) [► 401]).

eCommandPriority: Priority (high, medium or low) with which the command is processed by the library. (see [E_DALIV2CommandPriority](#) [► 401]).

eDataFrameType: Output format of the DALI command (*eDALIV2DataFrameType24Bit* or *eDALIV2DataFrameTypeOsram*) (see [E_DataFrameType](#) [► 402]).

VAR_OUTPUT

```
bBusy       : BOOL;
bError      : BOOL;
nErrorId    : UDINT;
nRandomAddressL : BYTE;
```

bBusy: When the function block is activated the output is set, and it remains active until execution of the command has been completed.

bError: This output is switched to TRUE as soon as an error occurs during the execution of a command. The command-specific error code is contained in *nErrorId*. Is reset to FALSE by the execution of a command at the inputs.

nErrorId: Contains the command-specific error code of the most recently executed command. Is reset to 0 by the execution of a command at the inputs. (See [error codes](#) [► 380])

nRandomAddressL: The low-order byte of the random address/long address.

VAR_IN_OUT

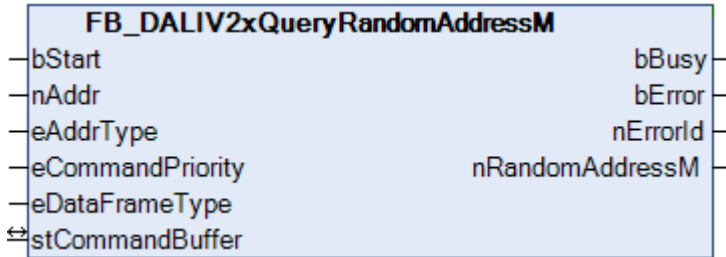
```
stCommandBuffer : ST_DALIV2CommandBuffer;
```

stCommandBuffer: Reference to the internal structure for communication with the function block `FB_KL6821Communication()` [▶ 74] (KL6821).

Requirements

Development environment	required PLC library
TwinCAT from v3.1.4022.4	Tc2_DALI from v3.6.2.0

FB_DALIV2xQueryRandomAddressM



The mean byte of the random address is read from the control unit.

VAR_INPUT

```
bStart      : BOOL;
nAddr      : BYTE;
eAddrType  : E_DALIV2AddrType := eDALIV2AddrTypeShort;
eCommandPriority : E_DALIV2CommandPriority := eDALIV2CommandPriorityMiddle;
eDataFrameType : E_DALIV2DataFrameType := eDALIV2DataFrameType24Bit;
```

bStart: The function block is activated by a positive edge at this input.

nAddr: The address of a participating device or of a group.

eAddrType: Short address, group address or broadcast (see [E_DALIV2AddrType](#) [▶ 401]).

eCommandPriority: Priority (high, medium or low) with which the command is processed by the library. (see [E_DALIV2CommandPriority](#) [▶ 401]).

eDataFrameType: Output format of the DALI command (`eDALIV2DataFrameType24Bit` or `eDALIV2DataFrameTypeOsram`) (see [E_DataFrameType](#) [▶ 402]).

VAR_OUTPUT

```
bBusy      : BOOL;
bError     : BOOL;
nErrorId   : UDINT;
nRandomAddressM : BYTE;
```

bBusy: When the function block is activated the output is set, and it remains active until execution of the command has been completed.

bError: This output is switched to TRUE as soon as an error occurs during the execution of a command. The command-specific error code is contained in `nErrorId`. Is reset to FALSE by the execution of a command at the inputs.

nErrorId: Contains the command-specific error code of the most recently executed command. Is reset to 0 by the execution of a command at the inputs. (See [error codes](#) [▶ 380])

nRandomAddressM: The medium-order byte of the random address/long address.

VAR_IN_OUT

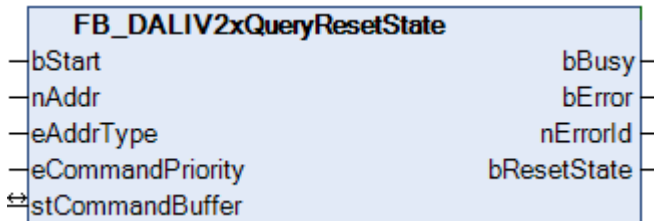
```
stCommandBuffer : ST_DALIV2CommandBuffer;
```

stCommandBuffer: Reference to the internal structure for communication with the function block `FB_KL6821Communication()` [▶ 74] (KL6821).

Requirements

Development environment	required PLC library
TwinCAT from v3.1.4022.4	Tc2_DALI from v3.6.2.0

FB_DALIV2xQueryResetState



Queries whether the parameters of the control unit have their default values.

VAR_INPUT

```
bStart      : BOOL;
nAddr      : BYTE;
eAddrType  : E_DALIV2AddrType := eDALIV2AddrTypeShort;
eCommandPriority : E_DALIV2CommandPriority := eDALIV2CommandPriorityMiddle;
```

bStart: The function block is activated by a positive edge at this input.

nAddr: The address of a participating device or of a group.

eAddrType: Short address, group address or broadcast (see [E_DALIV2AddrType \[► 401\]](#)).

eCommandPriority: Priority (high, medium or low) with which the command is processed by the library (see [E_DALIV2CommandPriority \[► 401\]](#)).

VAR_OUTPUT

```
bBusy      : BOOL;
bError     : BOOL;
nErrorId   : UDINT;
bResetState : BOOL;
```

bBusy: When the function block is activated the output is set, and it remains active until execution of the command has been completed.

bError: This output is switched to TRUE as soon as an error occurs during the execution of a command. The command-specific error code is contained in *nErrorId*. Is reset to FALSE by the execution of a command at the inputs.

nErrorId: Contains the command-specific error code of the most recently executed command. Is reset to 0 by the execution of a command at the inputs. (See [error codes \[► 380\]](#))

bResetState: Is TRUE if the control unit parameters have the default values.

VAR_IN_OUT

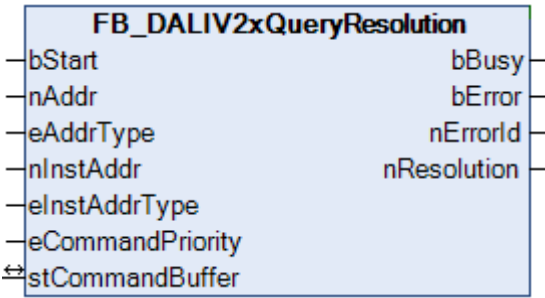
```
stCommandBuffer : ST_DALIV2CommandBuffer;
```

stCommandBuffer: Reference to the internal structure for communication with the function block [FB_KL6821Communication\(\) \[► 74\]](#) (KL6821).

Requirements

Development environment	required PLC library
TwinCAT from v3.1.4022.4	Tc2_DALI from v3.6.2.0

FB_DALIV2xQueryResolution



Queries the resolution of the input values of the control unit.

VAR_INPUT

```
bStart      : BOOL;
nAddr       : BYTE;
eAddrType   : E_DALIV2AddrType := eDALIV2AddrTypeShort;
nInstAddr   : BYTE := 0;
eInstAddrType : E_DALIV2InstAddrType := eDALIV2InstAddrTypeNumber;
eCommandPriority : E_DALIV2CommandPriority := eDALIV2CommandPriorityMiddle;
```

bStart: The function block is activated by a positive edge at this input.

nAddr: The address of a participating device or of a group.

eAddrType: Short address, group address or broadcast (see [E_DALIV2AddrType](#) [▶ 401]).

nInstAddr: Address of the instance within the DALI control unit.

eInstAddrType: Defines the access mode to the desired instance within the DALI control unit (see [DALIV2InstAddrType](#) [▶ 403]).

eCommandPriority: Priority (high, medium or low) with which the command is processed by the library (see [E_DALIV2CommandPriority](#) [▶ 401]).

VAR_OUTPUT

```
bBusy       : BOOL;
bError      : BOOL;
nErrorId    : UDINT;
nResolution : BYTE;
```

bBusy: When the function block is activated the output is set, and it remains active until execution of the command has been completed.

bError: This output is switched to TRUE as soon as an error occurs during the execution of a command. The command-specific error code is contained in *nErrorId*. Is reset to FALSE by the execution of a command at the inputs.

nErrorId: Contains the command-specific error code of the most recently executed command. Is reset to 0 by the execution of a command at the inputs. (See [error codes](#) [▶ 380])

nResolution: Resolution of the input values.

VAR_IN_OUT

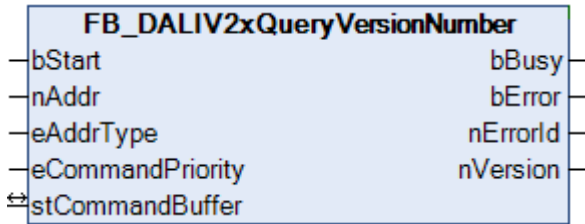
```
stCommandBuffer : ST_DALIV2CommandBuffer;
```

stCommandBuffer: Reference to the internal structure for communication with the function block [FB_KL6821Communication](#) [▶ 74] (KL6821).

Requirements

Development environment	required PLC library
TwinCAT from v3.1.4022.4	Tc2_DALI from v3.6.2.0

FB_DALIV2xQueryVersionNumber



Queries the version number of the control unit.

VAR_INPUT

```
bStart      : BOOL;
nAddr       : BYTE;
eAddrType   : E_DALIV2AddrType := eDALIV2AddrTypeShort;
eCommandPriority : E_DALIV2CommandPriority := eDALIV2CommandPriorityMiddle;
```

bStart: The function block is activated by a positive edge at this input.

nAddr: The address of a participating device or of a group.

eAddrType: Short address, group address or broadcast (see [E_DALIV2AddrType \[► 401\]](#)).

eCommandPriority: Priority (high, medium or low) with which the command is processed by the library (see [E_DALIV2CommandPriority \[► 401\]](#)).

VAR_OUTPUT

```
bBusy       : BOOL;
bError      : BOOL;
nErrorId    : UDINT;
nVersion    : BYTE;
```

bBusy: When the function block is activated the output is set, and it remains active until execution of the command has been completed.

bError: This output is switched to TRUE as soon as an error occurs during the execution of a command. The command-specific error code is contained in *nErrorId*. Is reset to FALSE by the execution of a command at the inputs.

nErrorId: Contains the command-specific error code of the most recently executed command. Is reset to 0 by the execution of a command at the inputs. (See [error codes \[► 380\]](#))

nVersion: The version number of the control unit.

VAR_IN_OUT

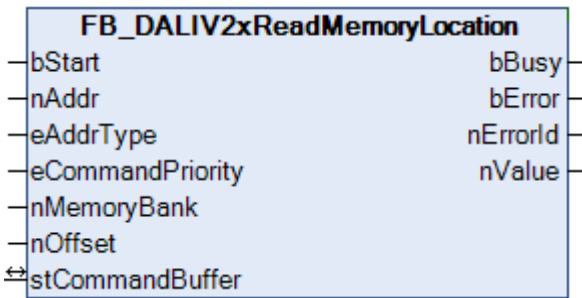
```
stCommandBuffer : ST_DALIV2CommandBuffer;
```

stCommandBuffer: Reference to the internal structure for communication with the function block [FB_KL6821Communication\(\) \[► 74\]](#) (KL6821).

Requirements

Development environment	required PLC library
TwinCAT from v3.1.4022.4	Tc2_DALI from v3.6.2.0

FB_DALIV2xReadMemoryLocation



A byte is read from the memory of the control unit. The exact memory bank is specified by the parameter *nMemoryBank* and the address within the memory bank by the parameter *nOffset*.

VAR_INPUT

```
bStart      : BOOL;
nAddr       : BYTE;
eAddrType   : E_DALIV2AddrType := eDALIV2AddrTypeShort;
eCommandPriority : E_DALIV2CommandPriority := eDALIV2CommandPriorityMiddle;
nMemoryBank : BYTE := 0;
nOffset     : BYTE := 0;
```

bStart: The function block is activated by a positive edge at this input.

nAddr: The address of a participating device or of a group.

eAddrType: Short address, group address or broadcast (see [E_DALIV2AddrType \[► 401\]](#)).

eCommandPriority: Priority (high, medium or low) with which the command is processed by the library (see [E_DALIV2CommandPriority \[► 401\]](#)).

nMemoryBank: The memory bank to be accessed.

nOffset: The address within the memory bank to be accessed.

VAR_OUTPUT

```
bBusy      : BOOL;
bError     : BOOL;
nErrorId   : UDINT;
nValue     : BYTE;
```

bBusy: When the function block is activated the output is set, and it remains active until execution of the command has been completed.

bError: This output is switched to TRUE as soon as an error occurs during the execution of a command. The command-specific error code is contained in *nErrorId*. Is reset to FALSE by the execution of a command at the inputs.

nErrorId: Contains the command-specific error code of the most recently executed command. Is reset to 0 by the execution of a command at the inputs. (See [error codes \[► 380\]](#))

nValue: Byte read from the memory bank of the control unit.

VAR_IN_OUT

```
stCommandBuffer : ST_DALIV2CommandBuffer;
```

stCommandBuffer: Reference to the internal structure for communication with the function block [FB_KL6821Communication\(\) \[► 74\]](#) (KL6821).

Requirements

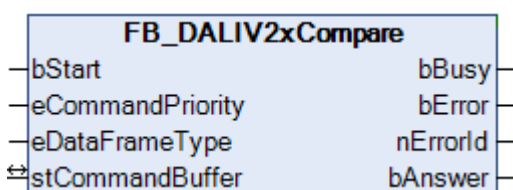
Development environment	required PLC library
TwinCAT from v3.1.4022.4	Tc2_DALI from v3.6.2.0

4.1.2.4.3 Special commands

Function blocks

Name	Description
FB_DALIV2xCompare [▶ 200]	The control unit compares its random address with the search address.
FB_DALIV2xDTR0 [▶ 201]	Writes an 8-bit value to the DTR0 of all control units.
FB_DALIV2xDTR1 [▶ 202]	Writes an 8-bit value to the DTR1 of all control units.
FB_DALIV2xDTR2 [▶ 203]	Writes an 8-bit value to the DTR2 of all control units.
FB_DALIV2xInitialise [▶ 204]	Starts the addressing of the control units.
FB_DALIV2xProgramShortAddress [▶ 205]	All selected control units save the short address.
FB_DALIV2xQueryShortAddress [▶ 206]	If the random address is the same as the search address, the control unit sends its short address.
FB_DALIV2xRandomise [▶ 207]	The control units generate a new random address.
FB_DALIV2xSearchAddrH [▶ 208]	This function block sets the upper 8 bits of the 24-bit search address.
FB_DALIV2xSearchAddrL [▶ 208]	This function block sets the lower 8 bits of the 24-bit search address.
FB_DALIV2xSearchAddrM [▶ 209]	This function block sets the middle 8 bits of the 24-bit search address.
FB_DALIV2xTerminate [▶ 210]	Addressing is terminated for all control units.
FB_DALIV2xVerifyShortAddress [▶ 211]	If the short address of the control unit is equal to the parameter <i>nShortAddress</i> , the output <i>bAnswer</i> is set to TRUE.
FB_DALIV2xWithdraw [▶ 212]	Control units whose random address is the same as the search address may no longer respond to the <code>FB_DALIV2xCompare()</code> command.
FB_DALIV2xWriteMemoryLocation [▶ 213]	Writes an 8-bit value into the memory of a control gear.

FB_DALIV2xCompare



The control gear compares its random address with the search address. If the random address is less than or equal to the search address and the control unit is not excluded, then the output *bAnswer* is set to TRUE.

VAR_INPUT

```
bStart          : BOOL;
eCommandPriority : E_DALIV2CommandPriority := eDALIV2CommandPriorityMiddle;
eDataFrameType  : E_DALIV2DataFrameType := eDALIV2DataFrameType24Bit;
```

bStart: The function block is activated by a positive edge at this input.

eCommandPriority: Priority (high, medium or low) with which the command is processed by the library (see [E_DALIV2CommandPriority](#) [▶ 401]).

eDataFrameType: Output format of the DALI command (*eDALIV2DataFrameType24Bit* or *eDALIV2DataFrameTypeOsram*) (see [E_DALIV2DataFrameType](#) [▶ 402]).

VAR_OUTPUT

```
bBusy      : BOOL;
bError     : BOOL;
nErrorId   : UDINT;
bAnswer    : BOOL;
```

bBusy: When the function block is activated the output is set, and it remains active until execution of the command has been completed.

bError: This output is switched to TRUE as soon as an error occurs during the execution of a command. The command-specific error code is contained in *nErrorId*. Is reset to FALSE by the execution of a command at the inputs.

nErrorId: Contains the command-specific error code of the most recently executed command. Is reset to 0 by the execution of a command at the inputs. (See [error codes](#) [▶ 380])

bAnswer: The random address is smaller than or equal to the search address.

VAR_IN_OUT

```
stCommandBuffer : ST_DALIV2CommandBuffer;
```

stCommandBuffer: Reference to the internal structure for communication with the function block `FB_KL6821Communication()` [▶ 74] (KL6821).

Requirements

Development environment	required PLC library
TwinCAT from v3.1.4022.4	Tc2_DALI from v3.6.2.0

FB_DALIV2xDTR0



This command is only available as a broadcast. The DTR0 of all control units is described.

VAR_INPUT

```
bStart      : BOOL;
eCommandPriority : E_DALIV2CommandPriority := eDALIV2CommandPriorityMiddle;
nDTR0       : BYTE;
eDataFrameType : E_DALIV2DataFrameType := eDALIV2DataFrameType24Bit;
```

bStart: The function block is activated by a positive edge at this input.

eCommandPriority: Priority (high, medium or low) with which the command is processed by the library (see [E_DALIV2CommandPriority](#) [▶ 401]).

nDTR0: The value that is to be written into the DTR0.

eDataFrameType: Output format of the DALI command (*eDALIV2DataFrameType24Bit* or *eDALIV2DataFrameTypeOsram*) (see [E_DALIV2DataFrameType](#) [▶ 402]).

VAR_OUTPUT

```
bBusy      : BOOL;
bError     : BOOL;
nErrorId   : UDINT;
```

bBusy: When the function block is activated the output is set, and it remains active until execution of the command has been completed.

bError: This output is switched to TRUE as soon as an error occurs during the execution of a command. The command-specific error code is contained in *nErrorId*. Is reset to FALSE by the execution of a command at the inputs.

nErrorId: Contains the command-specific error code of the most recently executed command. Is reset to 0 by the execution of a command at the inputs. (See [error codes](#) [► 380])

VAR_IN_OUT

```
stCommandBuffer : ST_DALIV2CommandBuffer;
```

stCommandBuffer: Reference to the internal structure for communication with the function block `FB_KL6821Communication()` [► 74] (KL6821).

Requirements

Development environment	required PLC library
TwinCAT from v3.1.4022.4	Tc2_DALI from v3.6.2.0

FB_DALIV2xDTR1



This command is only available as a broadcast. The DTR1 of all control units is described.

VAR_INPUT

```
bStart          : BOOL;
eCommandPriority : E_DALIV2CommandPriority := eDALIV2CommandPriorityMiddle;
nDTR1           : BYTE;
eDataFrameType  : E_DALIV2DataFrameType := eDALIV2DataFrameType24Bit;
```

bStart: The function block is activated by a positive edge at this input.

eCommandPriority: Priority (high, medium or low) with which the command is processed by the library (see [E_DALIV2CommandPriority](#) [► 401]).

nDTR1: The value that is to be written into the DTR1.

eDataFrameType: Output format of the DALI command (*eDALIV2DataFrameType24Bit* or *eDALIV2DataFrameTypeOsram*) (see [E_DALIV2DataFrameType](#) [► 402]).

VAR_OUTPUT

```
bBusy   : BOOL;
bError  : BOOL;
nErrorId : UDINT;
```

bBusy: When the function block is activated the output is set, and it remains active until execution of the command has been completed.

bError: This output is switched to TRUE as soon as an error occurs during the execution of a command. The command-specific error code is contained in *nErrorId*. Is reset to FALSE by the execution of a command at the inputs.

nErrorId: Contains the command-specific error code of the most recently executed command. Is reset to 0 by the execution of a command at the inputs. (See [error codes](#) [► 380])

VAR_IN_OUT

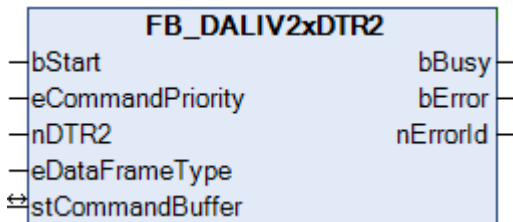
```
stCommandBuffer : ST_DALIV2CommandBuffer;
```

stCommandBuffer: Reference to the internal structure for communication with the function block FB_KL6821Communication() [▶ 74] (KL6821).

Requirements

Development environment	required PLC library
TwinCAT from v3.1.4022.4	Tc2_DALI from v3.6.2.0

FB_DALIV2xDTR2



This command is only available as a broadcast. The DTR2 of all control units is described.

VAR_INPUT

```
bStart : BOOL;
eCommandPriority : E_DALIV2CommandPriority := eDALIV2CommandPriorityMiddle;
nDTR2 : BYTE;
eDataFrameType : E_DALIV2DataFrameType := eDALIV2DataFrameType24Bit;
```

bStart: The function block is activated by a positive edge at this input.

eCommandPriority: Priority (high, medium or low) with which the command is processed by the library (see [E_DALIV2CommandPriority](#) [▶ 401]).

nDTR2: The value that is to be written into the DTR2.

eDataFrameType: Output format of the DALI command (*eDALIV2DataFrameType24Bit* or *eDALIV2DataFrameTypeOsram*) (see [E_DALIV2DataFrameType](#) [▶ 402]).

VAR_OUTPUT

```
bBusy : BOOL;
bError : BOOL;
nErrorId : UDINT;
```

bBusy: When the function block is activated the output is set, and it remains active until execution of the command has been completed.

bError: This output is switched to TRUE as soon as an error occurs during the execution of a command. The command-specific error code is contained in *nErrorId*. Is reset to FALSE by the execution of a command at the inputs.

nErrorId: Contains the command-specific error code of the most recently executed command. Is reset to 0 by the execution of a command at the inputs. (See [error codes](#) [▶ 380])

VAR_IN_OUT

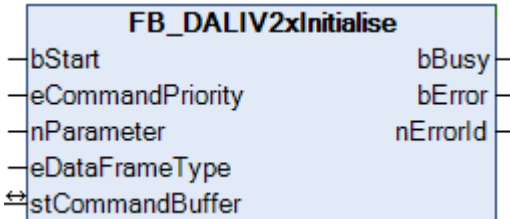
```
stCommandBuffer : ST_DALIV2CommandBuffer;
```

stCommandBuffer: Reference to the internal structure for communication with the function block FB_KL6821Communication() [▶ 74] (KL6821).

Requirements

Development environment	required PLC library
TwinCAT from v3.1.4022.4	Tc2_DALI from v3.6.2.0

FB_DALIV2xInitialise



This command starts the addressing procedure for the control units. The addressing has to be halted again with the `FB_DALIV2xTerminate()` [► 210] function block. The maximum duration is limited to 15 minutes. Each control unit stops the addressing independently after 15 minutes. The response of the control units receiving this command depends on the parameter *nParameter*:

`eDataFrameType = eDataFrameTypeOsram`:

Value (binary)	Description
0000 0000	All control units respond.
0AAA AAA1	Control units with the address AAA AAA respond.
1111 1111	Control units without a short address respond.

`eDataFrameType = eDataFrameType24Bit`:

Value (binary)	Description
0111 1111	Control units without a short address respond.
00AA AAAA	Control units with the address AAA AAA respond.
1111 1111	All control units respond.

VAR_INPUT

```
bStart          : BOOL;
eCommandPriority : E_DALIV2CommandPriority := eDALIV2CommandPriorityMiddle;
nParameter      : BYTE;
eDataFrameType  : E_DALIV2DataFrameType := eDALIV2DataFrameType24Bit;
```

bStart: The function block is activated by a positive edge at this input.

eCommandPriority: Priority (high, medium or low) with which the command is processed by the library (see `E_DALIV2CommandPriority` [► 401]).

nParameter: Specifies which control units are to respond to this command (see table above).

eDataFrameType: Output format of the DALI command (`eDALIV2DataFrameType24Bit` or `eDALIV2DataFrameTypeOsram`) (see `E_DALIV2DataFrameType` [► 402]).

VAR_OUTPUT

```
bBusy   : BOOL;
bError  : BOOL;
nErrorId : UDINT;
```

bBusy: When the function block is activated the output is set, and it remains active until execution of the command has been completed.

bError: This output is switched to TRUE as soon as an error occurs during the execution of a command. The command-specific error code is contained in *nErrorId*. Is reset to FALSE by the execution of a command at the inputs.

nErrorId: Contains the command-specific error code of the most recently executed command. Is reset to 0 by the execution of a command at the inputs. (See [error codes](#) [▶ 380])

VAR_IN_OUT

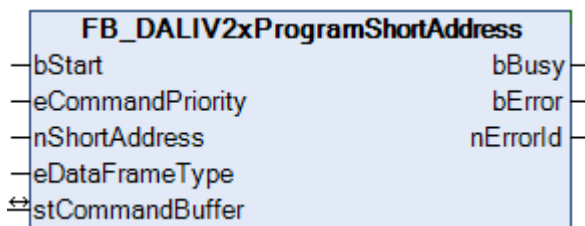
```
stCommandBuffer : ST_DALIV2CommandBuffer;
```

stCommandBuffer: Reference to the internal structure for communication with the function block `FB_KL6821Communication()` [▶ 74] (KL6821).

Requirements

Development environment	required PLC library
TwinCAT from v3.1.4022.4	Tc2_DALI from v3.6.2.0

FB_DALIV2xProgramShortAddress



All selected control units save the value *nShortAddress* as a short address.

Selected means:

- The random address of the control unit matches the search address

VAR_INPUT

```

bStart          : BOOL;
eCommandPriority : E_DALIV2CommandPriority := eDALIV2CommandPriorityMiddle;
nShortAddress   : BYTE;
eDataFrameType  : E_DALIV2DataFrameType := eDALIV2DataFrameType24Bit;
  
```

bStart: The function block is activated by a positive edge at this input.

eCommandPriority: Priority (high, medium or low) with which the command is processed by the library (see [E_DALIV2CommandPriority](#) [▶ 401]).

nShortAddress: Short address to be assigned to the selected control units (0 - 63).

eDataFrameType: Output format of the DALI command (*eDALIV2DataFrameType24Bit* or *eDALIV2DataFrameTypeOsram*) (see [E_DALIV2DataFrameType](#) [▶ 402]).

VAR_OUTPUT

```

bBusy   : BOOL;
bError  : BOOL;
nErrorId : UDINT;
  
```

bBusy: When the function block is activated the output is set, and it remains active until execution of the command has been completed.

bError: This output is switched to TRUE as soon as an error occurs during the execution of a command. The command-specific error code is contained in *nErrorId*. Is reset to FALSE by the execution of a command at the inputs.

nErrorId: Contains the command-specific error code of the most recently executed command. Is reset to 0 by the execution of a command at the inputs. (See [error codes](#) [▶ 380])

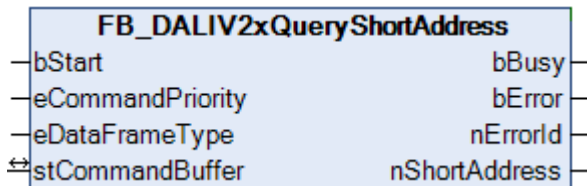
VAR_IN_OUT

```
stCommandBuffer : ST_DALIV2CommandBuffer;
```

stCommandBuffer: Reference to the internal structure for communication with the function block `FB_KL6821Communication()` [[▶ 74](#)] (KL6821).

Requirements

Development environment	required PLC library
TwinCAT from v3.1.4022.4	Tc2_DALI from v3.6.2.0

FB_DALIV2xQueryShortAddress

If the control unit is selected, it sends its short address.

Selected means:

- The random address of the control unit matches the search address.

VAR_INPUT

```
bStart : BOOL;
eCommandPriority : E_DALIV2CommandPriority := eDALIV2CommandPriorityMiddle;
eDataFrameType : E_DALIV2DataFrameType := eDALIV2DataFrameType24Bit;
```

bStart: The function block is activated by a positive edge at this input.

eCommandPriority: Priority (high, medium or low) with which the command is processed by the library (see `E_DALIV2CommandPriority` [[▶ 401](#)]).

eDataFrameType: Output format of the DALI command (`eDALIV2DataFrameType24Bit` or `eDALIV2DataFrameTypeOsram`) (see `E_DALIV2DataFrameType` [[▶ 402](#)]).

VAR_OUTPUT

```
bBusy : BOOL;
bError : BOOL;
nErrorId : UDINT;
nShortAddress : BYTE;
```

bBusy: When the function block is activated the output is set, and it remains active until execution of the command has been completed.

bError: This output is switched to TRUE as soon as an error occurs during the execution of a command. The command-specific error code is contained in `nErrorId`. Is reset to FALSE by the execution of a command at the inputs.

nErrorId: Contains the command-specific error code of the most recently executed command. Is reset to 0 by the execution of a command at the inputs. (See `error codes` [[▶ 380](#)])

nShortAddress: Short address of the control unit (0 - 63).

VAR_IN_OUT

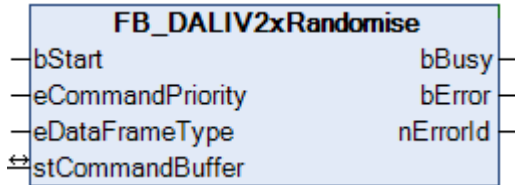
```
stCommandBuffer : ST_DALIV2CommandBuffer;
```

stCommandBuffer: Reference to the internal structure for communication with the function block `FB_KL6821Communication()` [[▶ 74](#)] (KL6821).

Requirements

Development environment	required PLC library
TwinCAT from v3.1.4022.4	Tc2_DALI from v3.6.2.0

FB_DALIV2xRandomise



The control units generate a new random address.

VAR_INPUT

```
bStart : BOOL;
eCommandPriority : E_DALIV2CommandPriority := eDALIV2CommandPriorityMiddle;
eDataFrameType : E_DALIV2DataFrameType := eDALIV2DataFrameType24Bit;
```

bStart: The function block is activated by a positive edge at this input.

eCommandPriority: Priority (high, medium or low) with which the command is processed by the library (see [E_DALIV2CommandPriority](#) [▶ 401]).

eDataFrameType: Output format of the DALI command (*eDALIV2DataFrameType24Bit* or *eDALIV2DataFrameTypeOsram*) (see [E_DALIV2DataFrameType](#) [▶ 402]).

VAR_OUTPUT

```
bBusy : BOOL;
bError : BOOL;
nErrorId : UDINT;
```

bBusy: When the function block is activated the output is set, and it remains active until execution of the command has been completed.

bError: This output is switched to TRUE as soon as an error occurs during the execution of a command. The command-specific error code is contained in *nErrorId*. Is reset to FALSE by the execution of a command at the inputs.

nErrorId: Contains the command-specific error code of the most recently executed command. Is reset to 0 by the execution of a command at the inputs. (See [error codes](#) [▶ 380])

VAR_IN_OUT

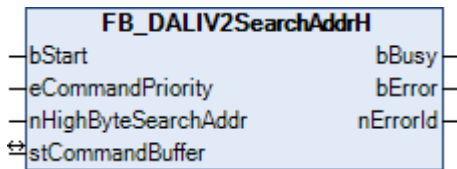
```
stCommandBuffer : ST_DALIV2CommandBuffer;
```

stCommandBuffer: Reference to the internal structure for communication with the function block [FB_KL6821Communication\(\)](#) [▶ 74] (KL6821).

Requirements

Development environment	required PLC library
TwinCAT from v3.1.4022.4	Tc2_DALI from v3.6.2.0

FB_DALIV2xSearchAddressH



This function block sets the upper 8 bits of the 24-bit search address.

VAR_INPUT

```
bStart          : BOOL;
eCommandPriority : E_DALIV2CommandPriority := eDALIV2CommandPriorityMiddle;
nHighByteSearchAddr : BYTE;
eDataframeType  : E_DALIV2DataframeType := eDALIV2DataframeType24Bit;
```

bStart: The function block is activated by a positive edge at this input.

eCommandPriority: Priority (high, medium or low) with which the command is processed by the library (see [E_DALIV2CommandPriority](#) [▶ 401]).

nHighByteSearchAddr: the upper 8 bits of the 24-bit search address.

eDataframeType: Output format of the DALI command ([eDALIV2DataframeType24Bit](#) or [eDALIV2DataframeTypeOsram](#)) (see [E_DALIV2DataframeType](#) [▶ 402]).

VAR_OUTPUT

```
bBusy      : BOOL;
bError     : BOOL;
nErrorId   : UDINT;
```

bBusy: When the function block is activated the output is set, and it remains active until execution of the command has been completed.

bError: This output is switched to TRUE as soon as an error occurs during the execution of a command. The command-specific error code is contained in *nErrorId*. Is reset to FALSE by the execution of a command at the inputs.

nErrorId: Contains the command-specific error code of the most recently executed command. Is reset to 0 by the execution of a command at the inputs. (See [error codes](#) [▶ 380])

VAR_IN_OUT

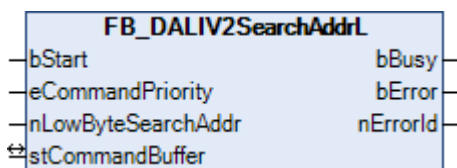
```
stCommandBuffer : ST_DALIV2CommandBuffer;
```

stCommandBuffer: Reference to the internal structure for communication with the function block [FB_KL6821Communication\(\)](#) [▶ 74] (KL6821).

Requirements

Development environment	required PLC library
TwinCAT from v3.1.4022.4	Tc2_DALI from v3.6.2.0

FB_DALIV2xSearchAddressL



This function block sets the lower 8 bits of the 24-bit search address.

VAR_INPUT

```
bStart          : BOOL;
eCommandPriority : E_DALIV2CommandPriority := eDALIV2CommandPriorityMiddle;
nLowByteSearchAddr : BYTE;
eDataFrameType  : E_DALIV2DataFrameType := eDALIV2DataFrameType24Bit;
```

bStart: The function block is activated by a positive edge at this input.

eCommandPriority: Priority (high, medium or low) with which the command is processed by the library (see [E_DALIV2CommandPriority \[▶ 401\]](#)).

nLowByteSearchAddr:the lower 8 bits of the 24-bit search address.

eDataFrameType: Output format of the DALI command (*eDALIV2DataFrameType24Bit* or *eDALIV2DataFrameTypeOsram*) (see [E_DALIV2DataFrameType \[▶ 402\]](#)).

VAR_OUTPUT

```
bBusy   : BOOL;
bError  : BOOL;
nErrorId : UDINT;
```

bBusy: When the function block is activated the output is set, and it remains active until execution of the command has been completed.

bError: This output is switched to TRUE as soon as an error occurs during the execution of a command. The command-specific error code is contained in *nErrorId*. Is reset to FALSE by the execution of a command at the inputs.

nErrorId: Contains the command-specific error code of the most recently executed command. Is reset to 0 by the execution of a command at the inputs. (See [error codes \[▶ 380\]](#))

VAR_IN_OUT

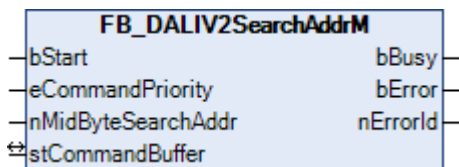
```
stCommandBuffer : ST_DALIV2CommandBuffer;
```

stCommandBuffer: Reference to the internal structure for communication with the function block [FB_KL6821Communication\(\) \[▶ 74\]](#) (KL6821).

Requirements

Development environment	required PLC library
TwinCAT from v3.1.4022.4	Tc2_DALI from v3.6.2.0

FB_DALIV2xSearchAddressM



This function block sets the middle 8 bits of the 24-bit search address.

VAR_INPUT

```
bStart          : BOOL;
eCommandPriority : E_DALIV2CommandPriority := eDALIV2CommandPriorityMiddle;
nMidByteSearchAddr : BYTE;
eDataFrameType  : E_DALIV2DataFrameType := eDALIV2DataFrameType24Bit;
```

bStart: The function block is activated by a positive edge at this input.

eCommandPriority: Priority (high, medium or low) with which the command is processed by the library (see [E_DALIV2CommandPriority \[▶ 401\]](#)).

nMidByteSearchAddr: the middle 8 bits of the 24-bit search address.

eDataFrameType: Output format of the DALI command (*eDALIV2DataFrameType24Bit* or *eDALIV2DataFrameTypeOsram*) (see [E_DALIV2DataFrameType](#) [[▶ 402](#)]).

VAR_OUTPUT

```
bBusy      : BOOL;
bError     : BOOL;
nErrorId   : UDINT;
```

bBusy: When the function block is activated the output is set, and it remains active until execution of the command has been completed.

bError: This output is switched to TRUE as soon as an error occurs during the execution of a command. The command-specific error code is contained in *nErrorId*. Is reset to FALSE by the execution of a command at the inputs.

nErrorId: Contains the command-specific error code of the most recently executed command. Is reset to 0 by the execution of a command at the inputs. (See [error codes](#) [[▶ 380](#)])

VAR_IN_OUT

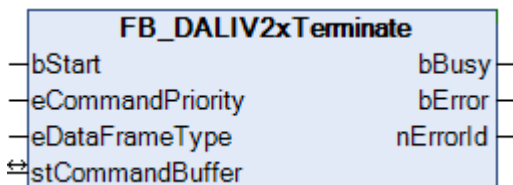
```
stCommandBuffer : ST_DALIV2CommandBuffer;
```

stCommandBuffer: Reference to the internal structure for communication with the function block [FB_KL6821Communication](#) [[▶ 74](#)] (KL6821).

Requirements

Development environment	required PLC library
TwinCAT from v3.1.4022.4	Tc2_DALI from v3.6.2.0

FB_DALIV2xTerminate



Addressing is terminated for all control units.

VAR_INPUT

```
bStart      : BOOL;
eCommandPriority : E_DALIV2CommandPriority := eDALIV2CommandPriorityMiddle;
eDataFrameType : E_DALIV2DataFrameType := eDALIV2DataFrameType24Bit;
```

bStart: The function block is activated by a positive edge at this input.

eCommandPriority: Priority (high, medium or low) with which the command is processed by the library (see [E_DALIV2CommandPriority](#) [[▶ 401](#)]).

eDataFrameType: Output format of the DALI command (*eDALIV2DataFrameType24Bit* or *eDALIV2DataFrameTypeOsram*) (see [E_DALIV2DataFrameType](#) [[▶ 402](#)]).

VAR_OUTPUT

```
bBusy      : BOOL;
bError     : BOOL;
nErrorId   : UDINT;
```

bBusy: When the function block is activated the output is set, and it remains active until execution of the command has been completed.

bError: This output is switched to TRUE as soon as an error occurs during the execution of a command. The command-specific error code is contained in *nErrorId*. Is reset to FALSE by the execution of a command at the inputs.

nErrorId: Contains the command-specific error code of the most recently executed command. Is reset to 0 by the execution of a command at the inputs. (See [error codes](#) [▶ 380])

VAR_IN_OUT

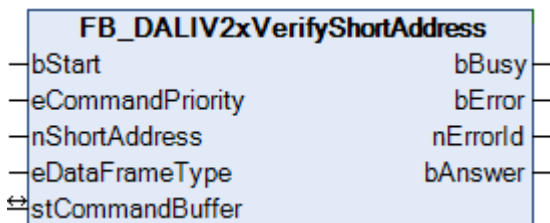
```
stCommandBuffer : ST_DALIV2CommandBuffer;
```

stCommandBuffer: Reference to the internal structure for communication with the function block [FB_KL6821Communication\(\)](#) [▶ 74] (KL6821).

Requirements

Development environment	required PLC library
TwinCAT from v3.1.4022.4	Tc2_DALI from v3.6.2.0

FB_DALIV2xVerifyShortAddress



If the short address of the control unit is equal to the parameter *nShortAddress*, the output *bAnswer* is set to TRUE.

VAR_INPUT

```
bStart : BOOL;
eCommandPriority : E_DALIV2CommandPriority := eDALIV2CommandPriorityMiddle;
nShortAddress : BYTE;
eDataFrameType : E_DALIV2DataFrameType := eDALIV2DataFrameType24Bit;
```

bStart: The function block is activated by a positive edge at this input.

eCommandPriority: Priority (high, medium or low) with which the command is processed by the library (see [E_DALIV2CommandPriority](#) [▶ 401]).

nShortAddress: Short address with which the own address is to be compared.

eDataFrameType: Output format of the DALI command (*eDALIV2DataFrameType24Bit* or *eDALIV2DataFrameTypeOsram*) (see [E_DALIV2DataFrameType](#) [▶ 402]).

VAR_OUTPUT

```
bBusy : BOOL;
bError : BOOL;
nErrorId : UDINT;
bAnswer : BOOL;
```

bBusy: When the function block is activated the output is set, and it remains active until execution of the command has been completed.

bError: This output is switched to TRUE as soon as an error occurs during the execution of a command. The command-specific error code is contained in *nErrorId*. Is reset to FALSE by the execution of a command at the inputs.

nErrorId: Contains the command-specific error code of the most recently executed command. Is reset to 0 by the execution of a command at the inputs. (See [Error codes](#) [▶ 380])

bAnswer: The *nShortAddress* parameter is the same as its own short address.

VAR_IN_OUT

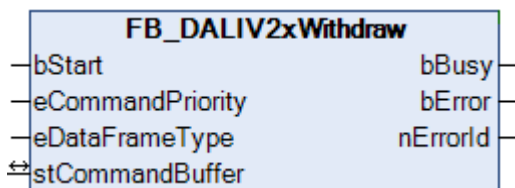
```
stCommandBuffer : ST_DALIV2CommandBuffer;
```

stCommandBuffer: Reference to the internal structure for communication with the function block `FB_KL6821Communication()` [[▶ 74](#)] (KL6821).

Requirements

Development environment	required PLC library
TwinCAT from v3.1.4022.4	Tc2_DALI from v3.6.2.0

FB_DALIV2xWithdraw



Control units whose random address is the same as the search address may no longer respond to the `FB_DALIV2xCompare()` [[▶ 200](#)] command.

VAR_INPUT

```
bStart : BOOL;
eCommandPriority : E_DALIV2CommandPriority := eDALIV2CommandPriorityMiddle;
eDataFrameType : E_DALIV2DataFrameType := eDALIV2DataFrameType24Bit;
```

bStart: The function block is activated by a positive edge at this input.

eCommandPriority: Priority (high, medium or low) with which the command is processed by the library (see `E_DALIV2CommandPriority` [[▶ 401](#)]).

eDataFrameType: Output format of the DALI command (`eDALIV2DataFrameType24Bit` or `eDALIV2DataFrameTypeOsram`) (see `E_DALIV2DataFrameType` [[▶ 402](#)]).

VAR_OUTPUT

```
bBusy : BOOL;
bError : BOOL;
nErrorId : UDINT;
```

bBusy: When the function block is activated the output is set, and it remains active until execution of the command has been completed.

bError: This output is switched to TRUE as soon as an error occurs during the execution of a command. The command-specific error code is contained in *nErrorId*. Is reset to FALSE by the execution of a command at the inputs.

nErrorId: Contains the command-specific error code of the most recently executed command. Is reset to 0 by the execution of a command at the inputs. (See [error codes](#) [[▶ 380](#)])

VAR_IN_OUT

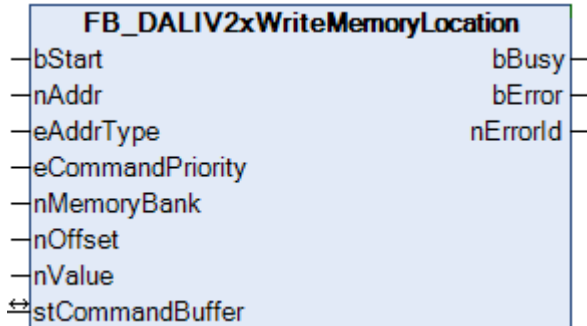
```
stCommandBuffer : ST_DALIV2CommandBuffer;
```

stCommandBuffer: Reference to the internal structure for communication with the function block `FB_KL6821Communication()` [[▶ 74](#)] (KL6821).

Requirements

Development environment	required PLC library
TwinCAT from v3.1.4022.4	Tc2_DALI from v3.6.2.0

FB_DALIV2xWriteMemoryLocation



The value *nValue* is written to the memory bank of the control unit. The exact memory bank is specified by *nMemoryBank* and the address within the memory bank by *nOffset*.

VAR_INPUT

```
bStart      : BOOL;
nAddr       : BYTE;
eAddrType   : E_DALIV2AddrType := eDALIV2AddrTypeShort;
eCommandPriority : E_DALIV2CommandPriority := eDALIV2CommandPriorityMiddle;
nMemoryBank : BYTE;
nOffset     : BYTE;
nValue      : BYTE;
```

bStart: The function block is activated by a positive edge at this input.

nAddr: The address of a participating device or of a group.

eAddrType: Short address, group address or broadcast (see [E_DALIV2AddrType \[▶ 401\]](#)).

eCommandPriority: Priority (high, medium or low) with which the command is processed by the library (see [E_DALIV2CommandPriority \[▶ 401\]](#)).

nMemoryBank: The memory bank to be accessed.

nOffset: The address within the memory bank to be accessed.

nValue: Value to be written to the memory bank of the control unit.

VAR_OUTPUT

```
bBusy      : BOOL;
bError     : BOOL;
nErrorId   : UDINT;
```

bBusy: When the function block is activated the output is set, and it remains active until execution of the command has been completed.

bError: This output is switched to TRUE as soon as an error occurs during the execution of a command. The command-specific error code is contained in *nErrorId*. Is reset to FALSE by the execution of a command at the inputs.

nErrorId: Contains the command-specific error code of the most recently executed command. Is reset to 0 by the execution of a command at the inputs. (See [error codes \[▶ 380\]](#))

VAR_IN_OUT

```
stCommandBuffer : ST_DALIV2CommandBuffer;
```

stCommandBuffer: Reference to the internal structure for communication with the function block `FB_KL6821Communication()` [▶ 74] (KL6821).

Requirements

Development environment	required PLC library
TwinCAT from v3.1.4022.4	Tc2_DALI from v3.6.2.0

4.1.2.5 Part 202 (emergency lighting)

The function blocks and variables for emergency lighting supply units with DALI interface are described below. All below function blocks described below call 'application-related expansion commands'. According to the DALI standard (IEC 62386) these commands are within the range 224 to 255. Because of the existence of a variety of application-related expansion commands, it is necessary to use the `FB_DALIV2EnableDeviceType()` [▶ 85] function block to specify which type of control gears (emergency lighting, discharge lamps, ...) should react to the extension commands. A detailed description of the individual DALI commands and the variables for emergency lighting supply units can be found in Part 202 of the IEC 62386 standard.



Name	Description
FB_DALIV2Inhibit [▶ 221]	Prevents the control gear from switching to emergency mode for 15 minutes.
FB_DALIV2QueryBatteryCharge [▶ 222]	The <u>BATTERY CHARGE</u> [▶ 216] variable (state of battery charge) is read from the control gear.
FB_DALIV2QueryDurationTestResult [▶ 223]	The <u>DURATION TEST RESULT</u> [▶ 216] variable (result of duration test) is read from the control gear.
FB_DALIV2QueryEmergencyLevel [▶ 224]	The <u>EMERGENCY LEVEL</u> [▶ 216] variable (emergency illuminance) is read from the control gear.
FB_DALIV2QueryEmergencyMaxLevel [▶ 225]	The <u>EMERGENCY MAX LEVEL</u> [▶ 216] variable (maximum emergency illuminance) is read from the control gear.
FB_DALIV2QueryEmergencyMinLevel [▶ 226]	The <u>EMERGENCY MIN LEVEL</u> [▶ 216] variable (minimum emergency illuminance) is read from the control gear.
FB_DALIV2QueryEmergencyMode [▶ 227]	The <u>EMERGENCY MODE</u> [▶ 216] variable (emergency mode) is read from the control gear.
FB_DALIV2QueryEmergencyStatus [▶ 229]	The <u>EMERGENCY STATUS</u> [▶ 216] variable (status of emergency mode) is read from the control gear.
FB_DALIV2QueryFailureStatus [▶ 230]	The <u>FAILURE STATUS</u> [▶ 216] variable is read from the control gear.
FB_DALIV2QueryFeatures [▶ 231]	The <u>FEATURES</u> [▶ 216] variable (performance characteristics) is read from the control gear.
FB_DALIV2QueryLampEmergencyTime [▶ 232]	The <u>LAMP EMERGENCY TIME</u> [▶ 216] variable (emergency operation period of the lamp) is read from the control gear.
FB_DALIV2QueryLampTotalOperationTime [▶ 233]	The <u>LAMP TOTAL OPERATION TIME</u> [▶ 216] variable (total operation period of the lamp) is read from the control gear.
FB_DALIV2QueryRatedDuration [▶ 234]	The <u>RATED DURATION</u> [▶ 216] variable (rated operating period) is read from the control gear.
FB_DALIV2QueryTestTiming [▶ 235]	Depending on the content of the DTR (data transfer register) the variables <u>FUNCTION TEST DELAY TIME</u> [▶ 216], <u>DURATION TEST DELAY TIME</u> [▶ 216], <u>FUNCTION TEST INTERVAL</u> [▶ 216], <u>DURATION TEST INTERVAL</u> [▶ 216], <u>TEST EXECUTION TIMEOUT</u> [▶ 216] or <u>PROLONG TIME</u> [▶ 216] are read from the control gear.
FB_DALIV2RelightResetInhibit [▶ 237]	The control gear is switched back to emergency mode (in the absence of mains voltage).
FB_DALIV2ResetDurationTestDoneFlag [▶ 238]	The 'Duration test completed and result is valid' flag is reset.
FB_DALIV2ResetFunctionTestDoneFlag [▶ 239]	The 'Function test completed and result is valid' flag is reset.
FB_DALIV2ResetLampTime [▶ 240]	The <u>LAMP EMERGENCY TIME</u> [▶ 216] and <u>LAMP TOTAL OPERATION TIME</u> [▶ 216] variables are reset.
FB_DALIV2Rest [▶ 241]	Switches the lamp off when emergency mode is active.
FB_DALIV2StartDurationTest [▶ 242]	Starts the duration test.
FB_DALIV2StartFunctionTest [▶ 243]	Starts the function test.
FB_DALIV2StopTest [▶ 244]	Stops any type of function test or duration test.
FB_DALIV2StoreDTRAsDurationTestInterval [▶ 245]	Writes the value of the DTR (data transfer register) into the <u>DURATION TEST INTERVAL</u> [▶ 216] variable.

Name	Description
FB_DALIV2StoreDTRAsEmergencyLevel [▶ 246]	Writes the value of the DTR (data transfer register) into the variable <code>EMERGENCY LEVEL</code> [▶ 216].
FB_DALIV2StoreDTRAsFunctionTestInterval [▶ 247]	Writes the value of the DTR (data transfer register) into the <code>FUNCTION TEST INTERVAL</code> [▶ 216] variable.
FB_DALIV2StoreDTRAsProlongTime [▶ 248]	Writes the value of the DTR (data transfer register) into the variable <code>PROLONG TIME</code> [▶ 216].
FB_DALIV2StoreDTRAsTestDelayTimeHighByte [▶ 249]	Writes the value of the DTR (data transfer register) into the high-order byte of the <code>TEST DELAY TIME</code> [▶ 216] variable.
FB_DALIV2StoreDTRAsTestDelayTimeLowByte [▶ 250]	Writes the value of the DTR (data transfer register) into the low-order byte of the <code>TEST DELAY TIME</code> [▶ 216] variable.
FB_DALIV2StoreDTRAsTestExecutionTimeout [▶ 251]	Writes the value of the DTR (data transfer register) into the <code>TEST EXECUTION TIMEOUT</code> [▶ 216] variable.



These commands belong to the application-related expansion commands for DALI emergency lighting. They function only if they are preceded by the *Enable Device Type 1* command, which can be sent with the `FB_DALIV2EnableDeviceType()` [▶ 85] function block. The *Enable Device Type 1* command is internally placed automatically before all application-related expansion commands for DALI emergency lighting.

4.1.2.5.1 Variables

Each DALI emergency lighting supply unit has a certain number of variables (parameters) from which different information is read, or through which individual parameters can be modified.

Name	Default value	Reset value	Valid range	Size	Comment
EMERGENCY LEVEL [▶ 218]	EMERGENCY MAX LEVEL	No change	EMERGENCY MIN LEVEL ... EMERGENCY MAX LEVEL or MASK	1 byte	
EMERGENCY MIN LEVEL [▶ 218]	Manufacturer-dependent	No change	1 ... EMERGENCY MAX LEVEL or MASK	1 byte	read only
EMERGENCY MAX LEVEL [▶ 218]	Manufacturer-dependent	No change	EMERGENCY MIN LEVEL ... 254 or MASK	1 byte	read only
PROLONG TIME [▶ 218]	4	No change	0 ... 255	1 byte	
TEST DELAY TIME [▶ 218]	0	0	00 00 ... FF FF	2 bytes	
FUNCTION TEST DELAY TIME [▶ 219]	0	No change	00 00 ... FF FF	2 bytes	
DURATION TEST DELAY TIME [▶ 219]	0	No change	00 00 ... FF FF	2 bytes	
FUNCTION TEST INTERVAL [▶ 219]	7	No change	0, 1 ... 255	1 byte	
DURATION TEST INTERVAL [▶ 219]	13	No change	0, 1 ... 97	1 byte	
TEST EXECUTION TIMEOUT [▶ 219]	7	No change	0 ... 255	1 byte	
BATTERY CHARGE [▶ 219]	???? ????	No change	0 ... 255	1 byte	
DURATION TEST RESULT [▶ 219]	0	No change	0 ... 255	1 byte	
LAMP EMERGENCY TIME [▶ 220]	0	No change	0 ... 255	1 byte	
LAMP TOTAL OPERATION TIME [▶ 220]	0	No change	0 ... 255	1 byte	
RATED DURATION [▶ 220]	Manufacturer-dependent	No change	0 ... 255	1 byte	read only
EMERGENCY MODE [▶ 220]	???? ????	No change	0 ... 255	1 byte	
FEATURES [▶ 220]	Manufacturer-dependent	No change	0 ... 255	1 byte	read only

Name	Default value	Reset value	Valid range	Size	Comment
FAILURE STATUS [▶ 221]	???? ????	No change	0 ... 255	1 byte	
EMERGENCY STATUS [▶ 221]	???? ????	No change	0 ... 255	1 byte	
EXTENDED VERSION NUMBER [▶ 221]	1	No change	0 ... 255	1 byte	read only

?: not specified

EMERGENCY LEVEL

This variable contains the emergency illuminance of the lamp. This value is limited via the variables EMERGENCY MAX LEVEL and EMERGENCY MIN LEVEL. The value can be read via the `FB_DALIV2QueryEmergencyLevel()` [▶ 224] block.

EMERGENCY MIN LEVEL / EMERGENCY MAX LEVEL

The emergency illuminance is limited via the variables EMERGENCY MIN LEVEL and EMERGENCY MAX LEVEL within the ballast. The exceptions to this are power values of 0 (off) and 255 (mask). The EMERGENCY MIN LEVEL and EMERGENCY MAX LEVEL values are specified by the manufacturer of the ballast. The `FB_DALIV2QueryEmergencyMinLevel()` [▶ 226] and `FB_DALIV2QueryEmergencyMaxLevel()` [▶ 225] blocks can be used to read the two variables from the ballast.

PROLONG TIME

The prolong time defines how long emergency mode is extended after mains voltage is available again. The unit is 30 seconds per step. The value can be read from the ballast via the `FB_DALIV2QueryTestTiming()` [▶ 235] block. The `FB_DALIV2StoreDTRAsProlongTime()` [▶ 248] block is used to write to this variable.

TEST DELAY TIME

The variables FUNCTION TEST DELAY TIME, DURATION TEST DELAY TIME FUNCTION TEST INTERVAL and DURATION TEST INTERVAL are set by means of the TEST DELAY TIME variable. This specifies the time behaviour associated with the functional test and the duration test as follows:

Function test:

Use `FB_DALIV2SetDTR()` [▶ 390] to write the high-order byte for the variable FUNCTION TEST DELAY TIME into the DTR (data transfer register).

Use `FB_DALIV2StoreDTRAsTestDelayTimeHighByte()` [▶ 249] to write the content of the DTR into the high-order byte of the 16-bit variable TEST DELAY TIME.

Use `FB_DALIV2SetDTR()` [▶ 390] to write the low-order byte for the variable FUNCTION TEST DELAY TIME into the DTR (data transfer register).

Use `FB_DALIV2StoreDTRAsTestDelayTimeLowByte()` [▶ 250] to write the content the DTR into the low-order byte of the 16-bit-variable TEST DELAY TIME.

Use `FB_DALIV2SetDTR()` [▶ 390] to write the value for the variable FUNCTION TEST INTERVAL into the DTR (data transfer register).

Use `FB_DALIV2StoreDTRAsFunctionTestInterval()` [▶ 247] to write the content of the DTR into the variable FUNCTION TEST INTERVAL. The content of the variable TEST DELAY TIME is copied into the variable FUNCTION TEST DELAY TIME.

Duration test:

Use `FB_DALIV2SetDTR()` [▶ 390] to write the high-order byte for the variable DURATION TEST DELAY TIME into the DTR (data transfer register).

Use `FB_DALIV2StoreDTRAsTestDelayTimeHighByte()` [▶ 249] to write the content of the DTR into the high-order byte of the 16-bit variable TEST DELAY TIME.

Use [FB_DALIV2SetDTR\(\)](#) [▶ 390] to write the low-order byte for the variable DURATION TEST DELAY TIME into the DTR (data transfer register).

Use [FB_DALIV2StoreDTRAsTestDelayTimeLowByte\(\)](#) [▶ 250] to write the content the DTR into the low-order byte of the 16-bit-variable TEST DELAY TIME.

Use [FB_DALIV2SetDTR\(\)](#) [▶ 390] to write the value for the variable FUNCTION TEST INTERVAL into the DTR (data transfer register).

Use [FB_DALIV2StoreDTRAsDurationTestInterval\(\)](#) [▶ 245] to write the content of the DTR into the variable DURATION TEST INTERVAL. The content of the variable TEST DELAY TIME is copied into the variable DURATION TEST DELAY TIME.

FUNCTION TEST DELAY TIME

This variable is used to specify the delay time for the function test. Once this time has elapsed, the function test is executed for the first time. The unit of this variable is 15 minutes per step. This variable can be queried via the [FB_DALIV2QueryTestTiming\(\)](#) [▶ 235] block. TEST DELAY TIME is used to write to this variable (see above).

DURATION TEST DELAY TIME

This variable is used to specify the delay time for the duration test. Once this time has elapsed, the duration test is executed for the first time. The unit of this variable is 15 minutes per step. This variable can be queried via the [FB_DALIV2QueryTestTiming\(\)](#) [▶ 235] block. TEST DELAY TIME is used to write to this variable (see above).

FUNCTION TEST INTERVAL

This variable is used to specify the interval time for the function test. The function test is executed periodically at these intervals. The unit of this variable is 1 day per step. This variable can be queried via the [FB_DALIV2QueryTestTiming\(\)](#) [▶ 235] block. TEST DELAY TIME is used to write to this variable (see above).

DURATION TEST INTERVAL

This variable is used to specify the interval time for the duration test. The duration test is executed periodically at these intervals. The unit of this variable is 1 week per step. This variable can be queried via the [FB_DALIV2QueryTestTiming\(\)](#) [▶ 235] block. TEST DELAY TIME is used to write to this variable (see above).

TEST EXECUTION TIMEOUT

The function test or duration test can be interrupted through various events. The variable TEST EXECUTION TIMEOUT can be used to specify the maximum execution time within which the respective test must be completed. The unit of this variable is 1 day per step. This variable can be queried via the [FB_DALIV2QueryTestTiming\(\)](#) [▶ 235] block. The [FB_DALIV2StoreDTRAsTestExecutionTimeout\(\)](#) [▶ 251] block is used to write to this variable.

BATTERY CHARGE

The current state of battery charge can be retrieved via this variable. 0 means minimum load, 254 means maximum load. If the ballast is unable to determine the state of charge, this variable contains the value 255. The [FB_DALIV2QueryBatteryCharge\(\)](#) [▶ 222] block can be used to read this variable.

DURATION TEST RESULT

The result of a duration test is stored in this variable. The unit is 2 minutes per step. The value is only valid if bit 2 is set in the variable EMERGENCY STATUS (see below). The variable DURATION TEST RESULT can be queried with the function [FB_DALIV2QueryDurationTestResult\(\)](#) [▶ 223].

LAMP EMERGENCY TIME

The emergency mode operating period of the lamp (supply via rechargeable batteries) is stored in this variable. The unit is 1 hour per step. This variable can be queried with the [FB_DALIV2QueryLampEmergencyTime\(\)](#) [► 232] block and reset with the [FB_DALIV2ResetLampTime\(\)](#) block [► 240].

LAMP TOTAL OPERATION TIME

The total lamp operating period is stored in this variable. The unit is 4 hours per step. This variable can be queried with the [FB_DALIV2QueryLampTotalOperationTime\(\)](#) [► 233] block and reset with the [FB_DALIV2ResetLampTime\(\)](#) [► 240] block.

RATED DURATION

The rated service time of the rechargeable battery is stored in this variable. The unit is 2 minutes per step. The value is specified by the manufacturer of the ballast and can be read with the [FB_DALIV2QueryRatedDuration\(\)](#) [► 234] block.

EMERGENCY MODE

In EMERGENCY MODE the ballast stores the current mode. The [FB_DALIV2QueryEmergencyMode\(\)](#) [► 227] block can be used to read the variable.

Bit	Description
0	Reset mode. 0: No.
1	Emergency mode readiness (normal operation). 0: No.
2	Emergency mode. 0: No.
3	Extended emergency mode once mains voltage is available again. 0: No.
4	Function test active. 0: No.
5	Duration test active. 0: No.
6	Connected suppress push button is active. 0: Not active or not available.
7	Connected mains voltage is active. 0: Off.

FEATURES

The performance characteristics supported by the ballast can be read from this variable via the [FB_DALIV2QueryFeatures\(\)](#) [► 231] block. The content of this variable is specified by the manufacturer of the ballast and cannot be modified.

Bit	Description
0	Integrated emergency lighting supply unit. 0: No.
1	Emergency lighting supply unit in continuous mode. 0: No.
2	Switchable emergency lighting supply unit in continuous mode. 0: No.
3	Auto test capability. 0: No.
4	Adjustable emergency lighting illuminance. 0: No.
5	Connected suppress push button is supported. 0: No.
6	Physical selection is supported. 0: No.
7	Reserved

FAILURE STATUS

Possible fault states are displayed in this variable and can be read with the `FB_DALIV2QueryFailureStatus()` [► 230] block.

Bit	Description
0	Fault in the ballast circuit. 0: No.
1	Battery operation time fault. 0: No.
2	Battery fault. 0: No.
3	Emergency lamp fault. 0: No.
4	Timeout during function test. 0: No.
5	Timeout during duration test. 0: No.
6	Function test failed. 0: No.
7	Duration test failed. 0: No

EMERGENCY STATUS

The current state is displayed by the ballast. The `FB_DALIV2QueryEmergencyStatus()` [► 229] block can be used to read the content of the variable.

Bit	Description
0	Suppress mode. 0: No.
1	Function test is completed and result is valid. 0: No.
2	Duration test is completed and result is valid. 0: No.
3	Battery charger ready for operation. 0: running.
4	Start of function test delayed. 0: No.
5	Start of duration test delayed. 0: No.
6	Identification active. 0: No.
7	Selected. 0: No

EXTENDED VERSION NUMBER

The extended version number can be read with the `FB_DALIV2QueryExtendedVersionNumber()` block. The version number can only be read, and is specified by the manufacturer of the ballasts.

4.1.2.5.2 FB_DALIV2Inhibit



Prevents the control gear from switching to emergency mode for 15 minutes. The `FB_DALIRelightResetInhibit()` [► 237] function block can be used to deactivate suppression of emergency mode.



This command belongs to the application-related expansion commands for DALI emergency lighting. They function only if they are preceded by the *Enable Device Type 1* command, which can be sent with the `FB_DALIV2EnableDeviceType()` [► 85] function block. The *Enable Device Type 1* command is internally placed automatically before all application-related expansion commands for DALI emergency lighting.

VAR_INPUT

```
bStart      : BOOL;
nAddr      : BYTE;
eAddrType  : E_DALIV2AddrType := eDALIV2AddrTypeShort;
eCommandPriority : E_DALIV2CommandPriority := eDALIV2CommandPriorityMiddle;
```

bStart: The function block is activated by a positive edge at this input.

nAddr: The address of a participating device or of a group.

eAddrType: Short address, group address or broadcast (see [E_DALIV2AddrType](#) [▶ 401]).

eCommandPriority: Priority (high, medium or low) with which the command is processed by the library (see [E_DALIV2CommandPriority](#) [▶ 401]).

VAR_OUTPUT

```
bBusy      : BOOL;
bError     : BOOL;
nErrorId   : UDINT;
```

bBusy: When the function block is activated the output is set, and it remains active until execution of the command has been completed.

bError: This output is switched to TRUE as soon as an error occurs during the execution of a command. The command-specific error code is contained in *nErrorId*. Is reset to FALSE by the execution of a command at the inputs.

nErrorId: Contains the command-specific error code of the most recently executed command. Is reset to 0 by the execution of a command at the inputs. (See [error codes](#) [▶ 380])

VAR_IN_OUT

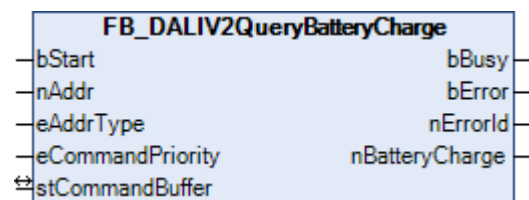
```
stCommandBuffer : ST_DALIV2CommandBuffer;
```

stCommandBuffer: Reference to the internal structure for communication with the function block [FB_KL6811Communication\(\)](#) [▶ 70] (KL6811) or [FB_KL6821Communication\(\)](#) [▶ 74] (KL6821).

Requirements

Development environment	required PLC library
TwinCAT from v3.1.4020.14	Tc2_DALI from v3.4.3.0

4.1.2.5.3 FB_DALIV2QueryBatteryCharge



The [BATTERY CHARGE](#) [▶ 216] variable (state of battery charge) is read from the control gear. 255 is returned if the control gear is unable to determine the value.

i This command belongs to the application-related expansion commands for DALI emergency lighting. They function only if they are preceded by the *Enable Device Type 1* command, which can be sent with the [FB_DALIV2EnableDeviceType\(\)](#) [▶ 85] function block. The *Enable Device Type 1* command is internally placed automatically before all application-related expansion commands for DALI emergency lighting.

VAR_INPUT

```
bStart      : BOOL;
nAddr      : BYTE;
eAddrType  : E_DALIV2AddrType := eDALIV2AddrTypeShort;
eCommandPriority : E_DALIV2CommandPriority := eDALIV2CommandPriorityMiddle;
```

bStart: The function block is activated by a positive edge at this input.

nAddr: The address of a participating device or of a group.

eAddrType: Short address, group address or broadcast (see [E_DALIV2AddrType \[▶ 401\]](#)).

eCommandPriority: Priority (high, medium or low) with which the command is processed by the library (see [E_DALIV2CommandPriority \[▶ 401\]](#)).

VAR_OUTPUT

```
bBusy      : BOOL;
bError     : BOOL;
nErrorId   : UDINT;
nBatteryCharge : BYTE;
```

bBusy: When the function block is activated the output is set, and it remains active until execution of the command has been completed.

bError: This output is switched to TRUE as soon as an error occurs during the execution of a command. The command-specific error code is contained in *nErrorId*. Is reset to FALSE by the execution of a command at the inputs.

nErrorId: Contains the command-specific error code of the most recently executed command. Is reset to 0 by the execution of a command at the inputs. (See [error codes \[▶ 380\]](#))

nBatteryCharge: Battery charge status. 0: empty / 254: full.

VAR_IN_OUT

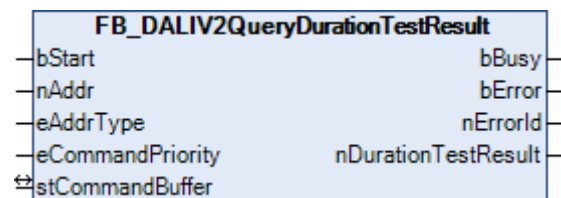
```
stCommandBuffer : ST_DALIV2CommandBuffer;
```

stCommandBuffer: Reference to the internal structure for communication with the function block [FB_KL6811Communication\(\) \[▶ 70\]](#) (KL6811) or [FB_KL6821Communication\(\) \[▶ 74\]](#) (KL6821).

Requirements

Development environment	required PLC library
TwinCAT from v3.1.4020.14	Tc2_DALI from v3.4.3.0

4.1.2.5.4 FB_DALIV2QueryDurationTestResult



The [DURATION TEST RESULT \[▶ 216\]](#) variable (result of duration test) is read from the control gear. The unit is 2 minutes per step. 255 means a maximum value of 8.5 hours or more. The value is only valid if bit 2 is set in the [EMERGENCY STATUS \[▶ 216\]](#) variable.



This command belongs to the application-related expansion commands for DALI emergency lighting. They function only if they are preceded by the *Enable Device Type 1* command, which can be sent with the [FB_DALIV2EnableDeviceType\(\)](#) [► 85] function block. The *Enable Device Type 1* command is internally placed automatically before all application-related expansion commands for DALI emergency lighting.

VAR_INPUT

```
bStart      : BOOL;
nAddr       : BYTE;
eAddrType   : E_DALIV2AddrType := eDALIV2AddrTypeShort;
eCommandPriority : E_DALIV2CommandPriority := eDALIV2CommandPriorityMiddle;
```

bStart: The function block is activated by a positive edge at this input.

nAddr: The address of a participating device or of a group.

eAddrType: Short address, group address or broadcast (see [E_DALIV2AddrType](#) [► 401]).

eCommandPriority: Priority (high, medium or low) with which the command is processed by the library (see [E_DALIV2CommandPriority](#) [► 401]).

VAR_OUTPUT

```
bBusy       : BOOL;
bError      : BOOL;
nErrorId    : UDINT;
nDurationTestResult : BYTE;
```

bBusy: When the function block is activated the output is set, and it remains active until execution of the command has been completed.

bError: This output is switched to TRUE as soon as an error occurs during the execution of a command. The command-specific error code is contained in *nErrorId*. Is reset to FALSE by the execution of a command at the inputs.

nErrorId: Contains the command-specific error code of the most recently executed command. Is reset to 0 by the execution of a command at the inputs. (See [error codes](#) [► 380])

nDurationTestResult: The result of the duration test in steps of 2 minutes.

VAR_IN_OUT

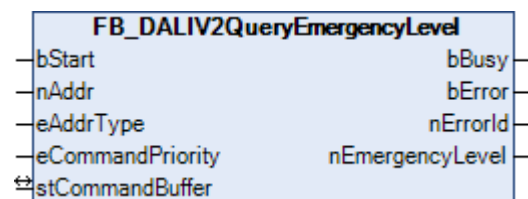
```
stCommandBuffer : ST_DALIV2CommandBuffer;
```

stCommandBuffer: Reference to the internal structure for communication with the function block [FB_KL6811Communication\(\)](#) [► 70] (KL6811) or [FB_KL6821Communication\(\)](#) [► 74] (KL6821).

Requirements

Development environment	required PLC library
TwinCAT from v3.1.4020.14	Tc2_DALI from v3.4.3.0

4.1.2.5.5 FB_DALIV2QueryEmergencyLevel



The [EMERGENCY LEVEL](#) [► 216] variable (emergency illuminance) is read from the control gear. 255 is returned if the control gear is unable to determine the value.



This command belongs to the application-related expansion commands for DALI emergency lighting. They function only if they are preceded by the *Enable Device Type 1* command, which can be sent with the `FB_DALIV2EnableDeviceType()` [▶ 85] function block. The *Enable Device Type 1* command is internally placed automatically before all application-related expansion commands for DALI emergency lighting.

VAR_INPUT

```
bStart      : BOOL;
nAddr       : BYTE;
eAddrType   : E_DALIV2AddrType := eDALIV2AddrTypeShort;
eCommandPriority : E_DALIV2CommandPriority := eDALIV2CommandPriorityMiddle;
```

bStart: The function block is activated by a positive edge at this input.

nAddr: The address of a participating device or of a group.

eAddrType: Short address, group address or broadcast (see `E_DALIV2AddrType` [▶ 401]).

eCommandPriority: Priority (high, medium or low) with which the command is processed by the library (see `E_DALIV2CommandPriority` [▶ 401]).

VAR_OUTPUT

```
bBusy       : BOOL;
bError      : BOOL;
nErrorId    : UDINT;
nEmergencyLevel : BYTE;
```

bBusy: When the function block is activated the output is set, and it remains active until execution of the command has been completed.

bError: This output is switched to TRUE as soon as an error occurs during the execution of a command. The command-specific error code is contained in `nErrorId`. Is reset to FALSE by the execution of a command at the inputs.

nErrorId: Contains the command-specific error code of the most recently executed command. Is reset to 0 by the execution of a command at the inputs. (See `error codes` [▶ 380])

nEmergencyLevel: Emergency illuminance of the control unit.

VAR_IN_OUT

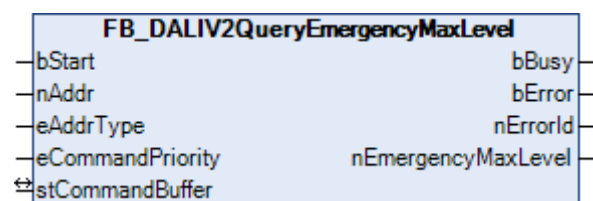
```
stCommandBuffer : ST_DALIV2CommandBuffer;
```

stCommandBuffer: Reference to the internal structure for communication with the function block `FB_KL6811Communication()` [▶ 70] (KL6811) or `FB_KL6821Communication()` [▶ 74] (KL6821).

Requirements

Development environment	required PLC library
TwinCAT from v3.1.4020.14	Tc2_DALI from v3.4.3.0

4.1.2.5.6 FB_DALIV2QueryEmergencyMaxLevel



The `EMERGENCY MAX LEVEL` [▶ 216] variable (maximum emergency illuminance) is read from the control gear. 255 is returned if the control gear is unable to determine the value.



This command belongs to the application-related expansion commands for DALI emergency lighting. They function only if they are preceded by the *Enable Device Type 1* command, which can be sent with the `FB_DALIV2EnableDeviceType()` [▶ 85] function block. The *Enable Device Type 1* command is internally placed automatically before all application-related expansion commands for DALI emergency lighting.

VAR_INPUT

```
bStart      : BOOL;
nAddr       : BYTE;
eAddrType   : E_DALIV2AddrType := eDALIV2AddrTypeShort;
eCommandPriority : E_DALIV2CommandPriority := eDALIV2CommandPriorityMiddle;
```

bStart: The function block is activated by a positive edge at this input.

nAddr: The address of a participating device or of a group.

eAddrType: Short address, group address or broadcast (see `E_DALIV2AddrType` [▶ 401]).

eCommandPriority: Priority (high, medium or low) with which the command is processed by the library (see `E_DALIV2CommandPriority` [▶ 401]).

VAR_OUTPUT

```
bBusy       : BOOL;
bError      : BOOL;
nErrorId    : UDINT;
nEmergencyMaxLevel : BYTE;
```

bBusy: When the function block is activated the output is set, and it remains active until execution of the command has been completed.

bError: This output is switched to TRUE as soon as an error occurs during the execution of a command. The command-specific error code is contained in `nErrorId`. Is reset to FALSE by the execution of a command at the inputs.

nErrorId: Contains the command-specific error code of the most recently executed command. Is reset to 0 by the execution of a command at the inputs. (See `error codes` [▶ 380])

nEmergencyMaxLevel: Emergency illuminance of the control unit.

VAR_IN_OUT

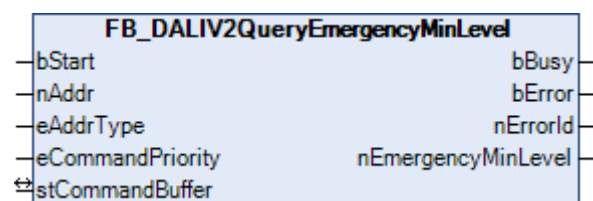
```
stCommandBuffer : ST_DALIV2CommandBuffer;
```

stCommandBuffer: Reference to the internal structure for communication with the function block `FB_KL6811Communication()` [▶ 70] (KL6811) or `FB_KL6821Communication()` [▶ 74] (KL6821).

Requirements

Development environment	required PLC library
TwinCAT from v3.1.4020.14	Tc2_DALI from v3.4.3.0

4.1.2.5.7 FB_DALIV2QueryEmergencyMinLevel



The `EMERGENCY MIN LEVEL` [▶ 216] variable (minimum emergency illuminance) is read from the control gear. 255 is returned if the control gear is unable to determine the value.



This command belongs to the application-related expansion commands for DALI emergency lighting. They function only if they are preceded by the *Enable Device Type 1* command, which can be sent with the `FB_DALIV2EnableDeviceType()` [► 85] function block. The *Enable Device Type 1* command is internally placed automatically before all application-related expansion commands for DALI emergency lighting.

VAR_INPUT

```
bStart      : BOOL;
nAddr       : BYTE;
eAddrType   : E_DALIV2AddrType := eDALIV2AddrTypeShort;
eCommandPriority : E_DALIV2CommandPriority := eDALIV2CommandPriorityMiddle;
```

bStart: The function block is activated by a positive edge at this input.

nAddr: The address of a participating device or of a group.

eAddrType: Short address, group address or broadcast (see `E_DALIV2AddrType` [► 401]).

eCommandPriority: Priority (high, medium or low) with which the command is processed by the library (see `E_DALIV2CommandPriority` [► 401]).

VAR_OUTPUT

```
bBusy       : BOOL;
bError      : BOOL;
nErrorId    : UDINT;
nEmergencyMinLevel : BYTE;
```

bBusy: When the function block is activated the output is set, and it remains active until execution of the command has been completed.

bError: This output is switched to TRUE as soon as an error occurs during the execution of a command. The command-specific error code is contained in `nErrorId`. Is reset to FALSE by the execution of a command at the inputs.

nErrorId: Contains the command-specific error code of the most recently executed command. Is reset to 0 by the execution of a command at the inputs. (See `error codes` [► 380])

nEmergencyMinLevel: Minimum emergency illuminance of the control unit.

VAR_IN_OUT

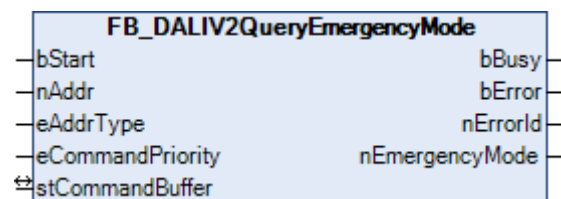
```
stCommandBuffer : ST_DALIV2CommandBuffer;
```

stCommandBuffer: Reference to the internal structure for communication with the function block `FB_KL6811Communication()` [► 70] (KL6811) or `FB_KL6821Communication()` [► 74] (KL6821).

Requirements

Development environment	required PLC library
TwinCAT from v3.1.4020.14	Tc2_DALI from v3.4.3.0

4.1.2.5.8 FB_DALIV2QueryEmergencyMode



The `EMERGENCY MODE` [► 216] variable is read from the control gear.

Bit	Description
0	Reset mode. 0: no.
1	Standby emergency mode (normal mode). 0: no.
2	Emergency mode. 0: no.
3	Extended emergency mode once mains voltage is available again. 0: no.
4	Function test active. 0: no.
5	Duration test active. 0: no.
6	Connected suppress push button is active. 0: not active or not available.
7	connected mains voltage active. 0: off.



This command belongs to the application-related expansion commands for DALI emergency lighting. They function only if they are preceded by the *Enable Device Type 1* command, which can be sent with the `FB_DALIV2EnableDeviceType()` [► 85] function block. The *Enable Device Type 1* command is internally placed automatically before all application-related expansion commands for DALI emergency lighting.

VAR_INPUT

```
bStart      : BOOL;
nAddr       : BYTE;
eAddrType   : E_DALIV2AddrType := eDALIV2AddrTypeShort;
eCommandPriority : E_DALIV2CommandPriority := eDALIV2CommandPriorityMiddle;
```

bStart: The function block is activated by a positive edge at this input.

nAddr: The address of a participating device or of a group.

eAddrType: Short address, group address or broadcast (see `E_DALIV2AddrType` [► 401]).

eCommandPriority: Priority (high, medium or low) with which the command is processed by the library (see `E_DALIV2CommandPriority` [► 401]).

VAR_OUTPUT

```
bBusy       : BOOL;
bError      : BOOL;
nErrorId    : UDINT;
nEmergencyMode : BYTE;
```

bBusy: When the function block is activated the output is set, and it remains active until execution of the command has been completed.

bError: This output is switched to TRUE as soon as an error occurs during the execution of a command. The command-specific error code is contained in `nErrorId`. Is reset to FALSE by the execution of a command at the inputs.

nErrorId: Contains the command-specific error code of the most recently executed command. Is reset to 0 by the execution of a command at the inputs. (See `error codes` [► 380])

nEmergencyMode: Emergency mode (see table above).

VAR_IN_OUT

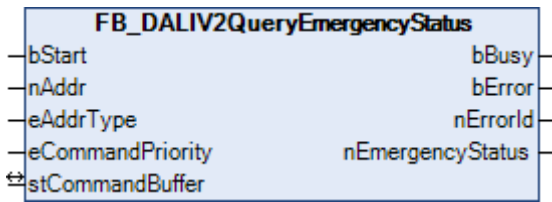
```
stCommandBuffer : ST_DALIV2CommandBuffer;
```

stCommandBuffer: Reference to the internal structure for communication with the function block `FB_KL6811Communication()` [► 70] (KL6811) or `FB_KL6821Communication()` [► 74] (KL6821).

Requirements

Development environment	required PLC library
TwinCAT from v3.1.4020.14	Tc2_DALI from v3.4.3.0

4.1.2.5.9 FB_DALIV2QueryEmergencyStatus



The `EMERGENCY STATUS` [▶ 216] variable (status of emergency mode) is read from the control gear.

Bit	Description
0	Suppress mode. 0: no.
1	Function test is completed and result is valid. 0: no.
2	Operating period test is completed and result is valid. 0: no.
3	Battery charger ready for operation. 0: running.
4	Start of function test delayed. 0: no.
5	Start of duration test delayed. 0: no.
6	Identification active. 0: no.
7	selected. 0: no



This command belongs to the application-related expansion commands for DALI emergency lighting. They function only if they are preceded by the *Enable Device Type 1* command, which can be sent with the `FB_DALIV2EnableDeviceType0` [▶ 85] function block. The *Enable Device Type 1* command is internally placed automatically before all application-related expansion commands for DALI emergency lighting.

VAR_INPUT

```
bStart      : BOOL;
nAddr       : BYTE;
eAddrType   : E_DALIV2AddrType := eDALIV2AddrTypeShort;
eCommandPriority : E_DALIV2CommandPriority := eDALIV2CommandPriorityMiddle;
```

bStart: The function block is activated by a positive edge at this input.

nAddr: The address of a participating device or of a group.

eAddrType: Short address, group address or broadcast (see `E_DALIV2AddrType` [▶ 401]).

eCommandPriority: Priority (high, medium or low) with which the command is processed by the library (see `E_DALIV2CommandPriority` [▶ 401]).

VAR_OUTPUT

```
bBusy       : BOOL;
bError      : BOOL;
nErrorId    : UDINT;
nEmergencyStatus : BYTE;
```

bBusy: When the function block is activated the output is set, and it remains active until execution of the command has been completed.

bError: This output is switched to TRUE as soon as an error occurs during the execution of a command. The command-specific error code is contained in `nErrorId`. Is reset to FALSE by the execution of a command at the inputs.

nErrorId: Contains the command-specific error code of the most recently executed command. Is reset to 0 by the execution of a command at the inputs. (See `error codes` [▶ 380])

nEmergencyStatus: Status of emergency operation (see table above).

VAR_IN_OUT

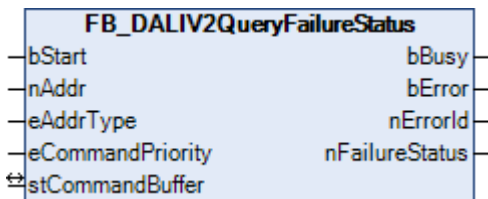
```
stCommandBuffer : ST_DALIV2CommandBuffer;
```

stCommandBuffer: Reference to the internal structure for communication with the function block `FB_KL6811Communication()` [▶ 70] (KL6811) or `FB_KL6821Communication()` [▶ 74] (KL6821).

Requirements

Development environment	required PLC library
TwinCAT from v3.1.4020.14	Tc2_DALI from v3.4.3.0

4.1.2.5.10 FB_DALIV2QueryFailureStatus



The `FAILURE STATUS` [▶ 216] variable is read from the control gear.

Bit	Description
0	Error in the control gear circuit. 0: no.
1	Battery operation time fault. 0: no.
2	Battery fault. 0: no.
3	Emergency lamp fault. 0: no.
4	Timeout during function test. 0: no.
5	Timeout during duration test. 0: no.
6	Function test failed. 0: no.
7	Operating period test failed. 0: no

i This command belongs to the application-related expansion commands for DALI emergency lighting. They function only if they are preceded by the *Enable Device Type 1* command, which can be sent with the `FB_DALIV2EnableDeviceType()` [▶ 85] function block. The *Enable Device Type 1* command is internally placed automatically before all application-related expansion commands for DALI emergency lighting.

VAR_INPUT

```
bStart : BOOL;
nAddr : BYTE;
eAddrType : E_DALIV2AddrType := eDALIV2AddrTypeShort;
eCommandPriority : E_DALIV2CommandPriority := eDALIV2CommandPriorityMiddle;
```

bStart: The function block is activated by a positive edge at this input.

nAddr: The address of a participating device or of a group.

eAddrType: Short address, group address or broadcast (see `E_DALIV2AddrType` [▶ 401]).

eCommandPriority: Priority (high, medium or low) with which the command is processed by the library (see `E_DALIV2CommandPriority` [▶ 401]).

VAR_OUTPUT

```
bBusy : BOOL;
bError : BOOL;
nErrorId : UDINT;
nFailureStatus : BYTE;
```

bBusy: When the function block is activated the output is set, and it remains active until execution of the command has been completed.

bError: This output is switched to TRUE as soon as an error occurs during the execution of a command. The command-specific error code is contained in *nErrorId*. Is reset to FALSE by the execution of a command at the inputs.

nErrorId: Contains the command-specific error code of the most recently executed command. Is reset to 0 by the execution of a command at the inputs. (See [error codes](#) [▶ 380])

nFailureStatus: Control gear failure status (see table above).

VAR_IN_OUT

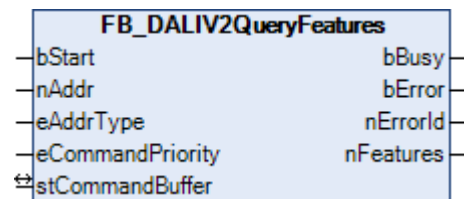
```
stCommandBuffer : ST_DALIV2CommandBuffer;
```

stCommandBuffer: Reference to the internal structure for communication with the function block `FB_KL6811Communication()` [▶ 70] (KL6811) or `FB_KL6821Communication()` [▶ 74] (KL6821).

Requirements

Development environment	required PLC library
TwinCAT from v3.1.4020.14	Tc2_DALI from v3.4.3.0

4.1.2.5.11 FB_DALIV2QueryFeatures



The `FEATURES` [▶ 216] variable (performance characteristics) is read from the control gear.

Bit	Description
0	Integrated emergency lighting supply unit. 0: no.
1	Emergency lighting supply unit in continuous mode. 0: No.
2	Switchable emergency lighting supply unit in continuous mode. 0: no.
3	Auto-test capability. 0: no.
4	Adjustable emergency lighting illuminance. 0: no.
5	Connected suppress push button is supported. 0: no.
6	Physical selection is supported. 0: no.
7	Reserve

i This command belongs to the application-related expansion commands for DALI emergency lighting. They function only if they are preceded by the *Enable Device Type 1* command, which can be sent with the `FB_DALIV2EnableDeviceType()` [▶ 85] function block. The *Enable Device Type 1* command is internally placed automatically before all application-related expansion commands for DALI emergency lighting.

VAR_INPUT

```
bStart : BOOL;
nAddr : BYTE;
eAddrType : E_DALIV2AddrType := eDALIV2AddrTypeShort;
eCommandPriority : E_DALIV2CommandPriority := eDALIV2CommandPriorityMiddle;
```

bStart: The function block is activated by a positive edge at this input.

nAddr: The address of a participating device or of a group.

eAddrType: Short address, group address or broadcast (see [E_DALIV2AddrType](#) [[▶ 401](#)]).

eCommandPriority: Priority (high, medium or low) with which the command is processed by the library (see [E_DALIV2CommandPriority](#) [[▶ 401](#)]).

VAR_OUTPUT

```
bBusy      : BOOL;
bError     : BOOL;
nErrorId   : UDINT;
nFeatures  : BYTE;
```

bBusy: When the function block is activated the output is set, and it remains active until execution of the command has been completed.

bError: This output is switched to TRUE as soon as an error occurs during the execution of a command. The command-specific error code is contained in *nErrorId*. Is reset to FALSE by the execution of a command at the inputs.

nErrorId: Contains the command-specific error code of the most recently executed command. Is reset to 0 by the execution of a command at the inputs. (See [error codes](#) [[▶ 380](#)])

nFeatures: Features of the control gear (see table above).

VAR_IN_OUT

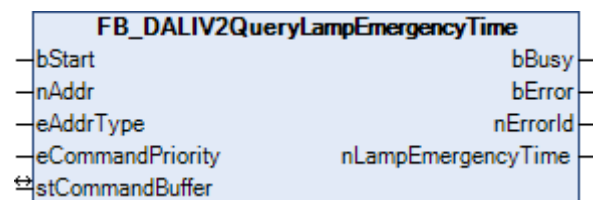
```
stCommandBuffer : ST_DALIV2CommandBuffer;
```

stCommandBuffer: Reference to the internal structure for communication with the function block [FB_KL6811Communication\(\)](#) [[▶ 70](#)] (KL6811) or [FB_KL6821Communication\(\)](#) [[▶ 74](#)] (KL6821).

Requirements

Development environment	required PLC library
TwinCAT from v3.1.4020.14	Tc2_DALI from v3.4.3.0

4.1.2.5.12 FB_DALIV2QueryLampEmergencyTime



The [LAMP EMERGENCY TIME](#) [[▶ 216](#)] variable (emergency operation period of the lamp) is read from the control gear. The unit is 1 hour per step. 255 means a maximum value of 254 hours or more. The variable is always incremented at the start of the 1-hour interval. Once the maximum value of 255 is reached, it is not increased further. The variable is reset via the command [FB_DALIV2ResetLampTime\(\)](#) [[▶ 240](#)].



This command belongs to the application-related expansion commands for DALI emergency lighting. They function only if they are preceded by the *Enable Device Type 1* command, which can be sent with the [FB_DALIV2EnableDeviceType\(\)](#) [[▶ 85](#)] function block. The *Enable Device Type 1* command is internally placed automatically before all application-related expansion commands for DALI emergency lighting.

VAR_INPUT

```
bStart      : BOOL;
nAddr      : BYTE;
eAddrType  : E_DALIV2AddrType := eDALIV2AddrTypeShort;
eCommandPriority : E_DALIV2CommandPriority := eDALIV2CommandPriorityMiddle;
```

bStart: The function block is activated by a positive edge at this input.

nAddr: The address of a participating device or of a group.

eAddrType: Short address, group address or broadcast (see [E_DALIV2AddrType](#) [[▶ 401](#)]).

eCommandPriority: Priority (high, medium or low) with which the command is processed by the library (see [E_DALIV2CommandPriority](#) [[▶ 401](#)]).

VAR_OUTPUT

```
bBusy      : BOOL;
bError     : BOOL;
nErrorId   : UDINT;
nLampEmergencyTime : BYTE;
```

bBusy: When the function block is activated the output is set, and it remains active until execution of the command has been completed.

bError: This output is switched to TRUE as soon as an error occurs during the execution of a command. The command-specific error code is contained in *nErrorId*. Is reset to FALSE by the execution of a command at the inputs.

nErrorId: Contains the command-specific error code of the most recently executed command. Is reset to 0 by the execution of a command at the inputs. (See [error codes](#) [[▶ 380](#)])

nLampEmergencyTime: Emergency operation time of the lamp from the control gear.

VAR_IN_OUT

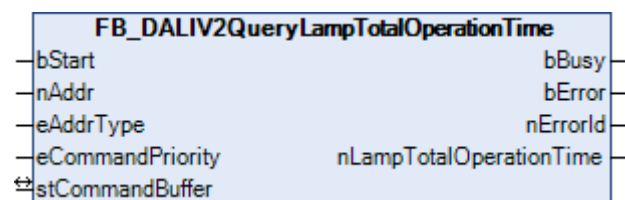
```
stCommandBuffer : ST_DALIV2CommandBuffer;
```

stCommandBuffer: Reference to the internal structure for communication with the function block [FB_KL6811Communication\(\)](#) [[▶ 70](#)] (KL6811) or [FB_KL6821Communication\(\)](#) [[▶ 74](#)] (KL6821).

Requirements

Development environment	required PLC library
TwinCAT from v3.1.4020.14	Tc2_DALI from v3.4.3.0

4.1.2.5.13 FB_DALIV2QueryLampTotalOperationTime



The [LAMP TOTAL OPERATION TIME](#) [[▶ 216](#)] variable is read from the control gear. The unit is 4 hours per step. 255 means a maximum value of 1016 hours or more. The variable is always incremented at the start of the 4-hour interval. Once the maximum value of 255 is reached, it is not increased further. The variable is reset via the command [FB_DALIV2ResetLampTime\(\)](#) [[▶ 240](#)].



This command belongs to the application-related expansion commands for DALI emergency lighting. They function only if they are preceded by the *Enable Device Type 1* command, which can be sent with the `FB_DALIV2EnableDeviceType()` [► 85] function block. The *Enable Device Type 1* command is internally placed automatically before all application-related expansion commands for DALI emergency lighting.

VAR_INPUT

```
bStart      : BOOL;
nAddr       : BYTE;
eAddrType   : E_DALIV2AddrType := eDALIV2AddrTypeShort;
eCommandPriority : E_DALIV2CommandPriority := eDALIV2CommandPriorityMiddle;
```

bStart: The function block is activated by a positive edge at this input.

nAddr: The address of a participating device or of a group.

eAddrType: Short address, group address or broadcast (see `E_DALIV2AddrType` [► 401]).

eCommandPriority: Priority (high, medium or low) with which the command is processed by the library (see `E_DALIV2CommandPriority` [► 401]).

VAR_OUTPUT

```
bBusy      : BOOL;
bError     : BOOL;
nErrorId   : UDINT;
nLampTotalOperationTime : BYTE;
```

bBusy: When the function block is activated the output is set, and it remains active until execution of the command has been completed.

bError: This output is switched to TRUE as soon as an error occurs during the execution of a command. The command-specific error code is contained in `nErrorId`. Is reset to FALSE by the execution of a command at the inputs.

nErrorId: Contains the command-specific error code of the most recently executed command. Is reset to 0 by the execution of a command at the inputs. (See `error codes` [► 380])

nLampTotalOperationTime: Total operating time of the lamp from the control gear.

VAR_IN_OUT

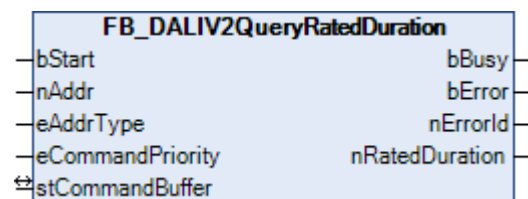
```
stCommandBuffer : ST_DALIV2CommandBuffer;
```

stCommandBuffer: Reference to the internal structure for communication with the function block `FB_KL6811Communication()` [► 70] (KL6811) or `FB_KL6821Communication()` [► 74] (KL6821).

Requirements

Development environment	required PLC library
TwinCAT from v3.1.4020.14	Tc2_DALI from v3.4.3.0

4.1.2.5.14 FB_DALIV2QueryRatedDuration



The `RATED_DURATION` [► 216] variable (rated operating period) is read from the control gear. The unit is 2 minutes per step.



This command belongs to the application-related expansion commands for DALI emergency lighting. They function only if they are preceded by the *Enable Device Type 1* command, which can be sent with the `FB_DALIV2EnableDeviceType()` [▶ 85] function block. The *Enable Device Type 1* command is internally placed automatically before all application-related expansion commands for DALI emergency lighting.

VAR_INPUT

```
bStart      : BOOL;
nAddr       : BYTE;
eAddrType   : E_DALIV2AddrType := eDALIV2AddrTypeShort;
eCommandPriority : E_DALIV2CommandPriority := eDALIV2CommandPriorityMiddle;
```

bStart: The function block is activated by a positive edge at this input.

nAddr: The address of a participating device or of a group.

eAddrType: Short address, group address or broadcast (see `E_DALIV2AddrType` [▶ 401]).

eCommandPriority: Priority (high, medium or low) with which the command is processed by the library (see `E_DALIV2CommandPriority` [▶ 401]).

VAR_OUTPUT

```
bBusy       : BOOL;
bError      : BOOL;
nErrorId    : UDINT;
nRatedDuration : BYTE;
```

bBusy: When the function block is activated the output is set, and it remains active until execution of the command has been completed.

bError: This output is switched to TRUE as soon as an error occurs during the execution of a command. The command-specific error code is contained in *nErrorId*. Is reset to FALSE by the execution of a command at the inputs.

nErrorId: Contains the command-specific error code of the most recently executed command. Is reset to 0 by the execution of a command at the inputs. (See `error codes` [▶ 380])

nRatedDuration: Rated operating time of the control gear.

VAR_IN_OUT

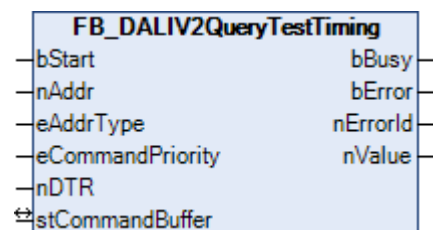
```
stCommandBuffer : ST_DALIV2CommandBuffer;
```

stCommandBuffer: Reference to the internal structure for communication with the function block `FB_KL6811Communication()` [▶ 70] (KL6811) or `FB_KL6821Communication()` [▶ 74] (KL6821).

Requirements

Development environment	required PLC library
TwinCAT from v3.1.4020.14	Tc2_DALI from v3.4.3.0

4.1.2.5.15 FB_DALIV2QueryTestTiming



This function block reads the test times (intervals, time until next event, etc.) from the control gear. This takes place depending on the value applied at the *nDTR* input. The background to this is that the DALI basic command 242 "Query test timing" works together with the contents of the Data Transfer Register (DTR), which must be written to accordingly beforehand. The *FB_DALIV2QueryTestTiming* function block combines these two actions. The following data are read from the device, depending on the *nDTR* value:

nDTR	read value
0 (2#0000 0000)	If automatic test is activated: Time to the next function test (high byte) in 15-minute intervals If automatic test is not enabled: MASK (255)
1 (2#0000 0001)	If automatic test is activated: Time to the next function test (low byte) in 15-minute intervals If automatic test is not enabled: MASK (255)
2 (2#0000 0010)	If automatic test is activated: Time to the next duration test (high byte) in 15-minute intervals If automatic test is not enabled: MASK (255)
3 (2#0000 0011)	If automatic test is activated: Time to the next duration test (low byte) in 15-minute intervals If automatic test is not enabled: MASK (255)
4 (2#0000 0100)	If automatic test is activated: Test interval of the function test in days If automatic test is not enabled: MASK (255)
5 (2#0000 0101)	If automatic test is activated: Test interval of the duration test in weeks If automatic test is not enabled: MASK (255)
6 (2#0000 0110)	Test execution timeout in days (maximum execution period for one test). Applies only to the automatic test!
7 (2#0000 0111)	Lamp-on extension time after exiting from emergency operating mode, measured in 0.5-min steps



This command belongs to the application-related expansion commands for DALI emergency lighting. They function only if they are preceded by the *Enable Device Type 1* command, which can be sent with the *FB_DALIV2EnableDeviceType()* [► 85] function block. The *Enable Device Type 1* command is internally placed automatically before all application-related expansion commands for DALI emergency lighting.

VAR_INPUT

```
bStart      : BOOL;
nAddr       : BYTE;
eAddrType   : E_DALIV2AddrType;
eCommandPriority : E_DALIV2CommandPriority;
nDTR        : BYTE;
```

bStart: The function block is activated by a positive edge at this input.

nAddr: The address of a participating device or of a group.

eAddrType: Short address, group address or broadcast (see *E_DALIV2AddrType* [► 401]).

eCommandPriority: Priority (high, medium or low) with which the command is processed by the library (see *E_DALIV2CommandPriority* [► 401]).

nDTR: The corresponding values are read in accordance to this input, see above.

VAR_OUTPUT

```
bBusy       : BOOL;
bError      : BOOL;
nErrorId    : UDINT;
nValue      : BYTE;
```


bBusy: When the function block is activated the output is set, and it remains active until execution of the command has been completed.

bError: This output is switched to TRUE as soon as an error occurs during the execution of a command. The command-specific error code is contained in *nErrorId*. Is reset to FALSE by the execution of a command at the inputs.

nErrorId: Contains the command-specific error code of the most recently executed command. Is reset to 0 by the execution of a command at the inputs. (See [error codes](#) [▶ 380])

nValue: Result.

VAR_IN_OUT

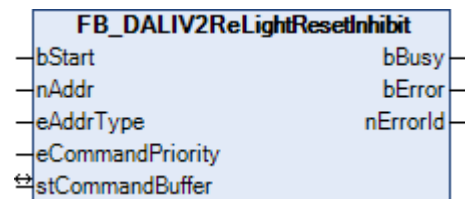
```
stCommandBuffer : ST_DALIV2CommandBuffer;
```

stCommandBuffer: Reference to the internal structure for communication with the function block `FB_KL6811Communication()` [▶ 70] (KL6811) or `FB_KL6821Communication()` [▶ 74] (KL6821).

Requirements

Development environment	required PLC library
TwinCAT from v3.1.4020.14	Tc2_DALI from v3.4.3.0

4.1.2.5.16 FB_DALIV2ReLightResetInhibit



The control gear is switched back to emergency mode (in the absence of mains voltage). This deactivates the function of the `FB_DALIV2Inhibit()` [▶ 221] function block.



This command belongs to the application-related expansion commands for DALI emergency lighting. They function only if they are preceded by the *Enable Device Type 1* command, which can be sent with the `FB_DALIV2EnableDeviceType()` [▶ 85] function block. The *Enable Device Type 1* command is internally placed automatically before all application-related expansion commands for DALI emergency lighting.

VAR_INPUT

```
bStart : BOOL;
nAddr : BYTE;
eAddrType : E_DALIV2AddrType := eDALIV2AddrTypeShort;
eCommandPriority : E_DALIV2CommandPriority := eDALIV2CommandPriorityMiddle;
```

bStart: The function block is activated by a positive edge at this input.

nAddr: The address of a participating device or of a group.

eAddrType: Short address, group address or broadcast (see [E_DALIV2AddrType](#) [▶ 401]).

eCommandPriority: Priority (high, medium or low) with which the command is processed by the library (see [E_DALIV2CommandPriority](#) [▶ 401]).

VAR_OUTPUT

```
bBusy : BOOL;
bError : BOOL;
nErrorId : UDINT;
```

bBusy: When the function block is activated the output is set, and it remains active until execution of the command has been completed.

bError: This output is switched to TRUE as soon as an error occurs during the execution of a command. The command-specific error code is contained in *nErrorId*. Is reset to FALSE by the execution of a command at the inputs.

nErrorId: Contains the command-specific error code of the most recently executed command. Is reset to 0 by the execution of a command at the inputs. (See [error codes](#) [▶ 380])

VAR_IN_OUT

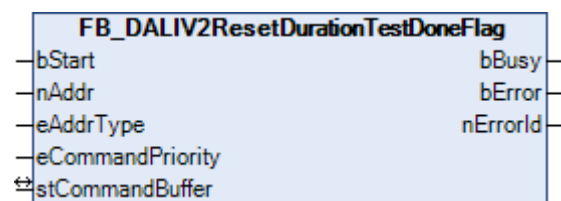
```
stCommandBuffer : ST_DALIV2CommandBuffer;
```

stCommandBuffer: Reference to the internal structure for communication with the function block [FB_KL6811Communication\(\)](#) [▶ 70] (KL6811) or [FB_KL6821Communication\(\)](#) [▶ 74] (KL6821).

Requirements

Development environment	required PLC library
TwinCAT from v3.1.4020.14	Tc2_DALI from v3.4.3.0

4.1.2.5.17 FB_DALIV2ResetDurationTestDoneFlag



The 'Duration test completed and result is valid' flag is reset. The flag is bit 2 of the variable [EMERGENCY STATUS](#) [▶ 216] and can be queried with the [FB_DALIQueryEmergencyStatus\(\)](#) [▶ 229] function block.



This command belongs to the application-related expansion commands for DALI emergency lighting. They function only if they are preceded by the *Enable Device Type 1* command, which can be sent with the [FB_DALIV2EnableDeviceType\(\)](#) [▶ 85] function block. The *Enable Device Type 1* command is internally placed automatically before all application-related expansion commands for DALI emergency lighting.

VAR_INPUT

```
bStart      : BOOL;
nAddr       : BYTE;
eAddrType   : E_DALIV2AddrType := eDALIV2AddrTypeShort;
eCommandPriority : E_DALIV2CommandPriority := eDALIV2CommandPriorityMiddle;
```

bStart: The function block is activated by a positive edge at this input.

nAddr: The address of a participating device or of a group.

eAddrType: Short address, group address or broadcast (see [E_DALIV2AddrType](#) [▶ 401]).

eCommandPriority: Priority (high, medium or low) with which the command is processed by the library (see [E_DALIV2CommandPriority](#) [▶ 401]).

VAR_OUTPUT

```
bBusy      : BOOL;
bError     : BOOL;
nErrorId   : UDINT;
```

bBusy: When the function block is activated the output is set, and it remains active until execution of the command has been completed.

bError: This output is switched to TRUE as soon as an error occurs during the execution of a command. The command-specific error code is contained in *nErrorId*. Is reset to FALSE by the execution of a command at the inputs.

nErrorId: Contains the command-specific error code of the most recently executed command. Is reset to 0 by the execution of a command at the inputs. (See [error codes](#) [▶ 380])

VAR_IN_OUT

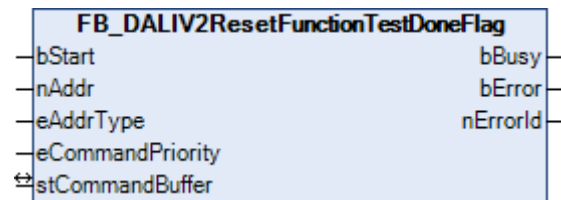
```
stCommandBuffer : ST_DALIV2CommandBuffer;
```

stCommandBuffer: Reference to the internal structure for communication with the function block [FB_KL6811Communication\(\)](#) [▶ 70] (KL6811) or [FB_KL6821Communication\(\)](#) [▶ 74] (KL6821).

Requirements

Development environment	required PLC library
TwinCAT from v3.1.4020.14	Tc2_DALI from v3.4.3.0

4.1.2.5.18 FB_DALIV2ResetFunctionTestDoneFlag



The 'Function test completed and result is valid' flag is reset. The flag is bit 1 of the variable [EMERGENCY STATUS](#) [▶ 216] and can be queried with the [FB_DALIQueryEmergencyStatus\(\)](#) [▶ 229] function block.



This command belongs to the application-related expansion commands for DALI emergency lighting. They function only if they are preceded by the *Enable Device Type 1* command, which can be sent with the [FB_DALIV2EnableDeviceType\(\)](#) [▶ 85] function block. The *Enable Device Type 1* command is internally placed automatically before all application-related expansion commands for DALI emergency lighting.

VAR_INPUT

```
bStart : BOOL;
nAddr : BYTE;
eAddrType : E_DALIV2AddrType := eDALIV2AddrTypeShort;
eCommandPriority : E_DALIV2CommandPriority := eDALIV2CommandPriorityMiddle;
```

bStart: The function block is activated by a positive edge at this input.

nAddr: The address of a participating device or of a group.

eAddrType: Short address, group address or broadcast (see [E_DALIV2AddrType](#) [▶ 401]).

eCommandPriority: Priority (high, medium or low) with which the command is processed by the library (see [E_DALIV2CommandPriority](#) [▶ 401]).

VAR_OUTPUT

```
bBusy : BOOL;
bError : BOOL;
nErrorId : UDINT;
```

bBusy: When the function block is activated the output is set, and it remains active until execution of the command has been completed.

bError: This output is switched to TRUE as soon as an error occurs during the execution of a command. The command-specific error code is contained in *nErrorId*. Is reset to FALSE by the execution of a command at the inputs.

nErrorId: Contains the command-specific error code of the most recently executed command. Is reset to 0 by the execution of a command at the inputs. (See [error codes](#) [► 380])

VAR_IN_OUT

```
stCommandBuffer : ST_DALIV2CommandBuffer;
```

stCommandBuffer: Reference to the internal structure for communication with the function block [FB_KL6811Communication\(\)](#) [► 70] (KL6811) or [FB_KL6821Communication\(\)](#) [► 74] (KL6821).

Requirements

Development environment	required PLC library
TwinCAT from v3.1.4020.14	Tc2_DALI from v3.4.3.0

4.1.2.5.19 FB_DALIV2ResetLampTime



Die [LAMP EMERGENCY TIME](#) [► 216] and [LAMP TOTAL OPERATION](#) [► 216] variables are reset.



This command belongs to the application-related expansion commands for DALI emergency lighting. They function only if they are preceded by the *Enable Device Type 1* command, which can be sent with the [FB_DALIV2EnableDeviceType\(\)](#) [► 85] function block. The *Enable Device Type 1* command is internally placed automatically before all application-related expansion commands for DALI emergency lighting.

VAR_INPUT

```
bStart      : BOOL;
nAddr       : BYTE;
eAddrType   : E_DALIV2AddrType := eDALIV2AddrTypeShort;
eCommandPriority : E_DALIV2CommandPriority := eDALIV2CommandPriorityMiddle;
```

bStart: The function block is activated by a positive edge at this input.

nAddr: The address of a participating device or of a group.

eAddrType: Short address, group address or broadcast (see [E_DALIV2AddrType](#) [► 401]).

eCommandPriority: Priority (high, medium or low) with which the command is processed by the library (see [E_DALIV2CommandPriority](#) [► 401]).

VAR_OUTPUT

```
bBusy       : BOOL;
bError      : BOOL;
nErrorId    : UDINT;
```

bBusy: When the function block is activated the output is set, and it remains active until execution of the command has been completed.

bError: This output is switched to TRUE as soon as an error occurs during the execution of a command. The command-specific error code is contained in *nErrorId*. Is reset to FALSE by the execution of a command at the inputs.

nErrorId: Contains the command-specific error code of the most recently executed command. Is reset to 0 by the execution of a command at the inputs. (See [error codes](#) [▶ 380])

VAR_IN_OUT

```
stCommandBuffer : ST_DALIV2CommandBuffer;
```

stCommandBuffer: Reference to the internal structure for communication with the function block [FB_KL6811Communication\(\)](#) [▶ 70] (KL6811) or [FB_KL6821Communication\(\)](#) [▶ 74] (KL6821).

Requirements

Development environment	required PLC library
TwinCAT from v3.1.4020.14	Tc2_DALI from v3.4.3.0

4.1.2.5.20 FB_DALIV2Rest



This function block switches the lamp off if emergency mode is active. Otherwise the system switches to normal operation if mains voltage is available again, or if the [FB_DALIV2ReLightResetInhibit\(\)](#) [▶ 237] function block was called.



This command belongs to the application-related expansion commands for DALI emergency lighting. They function only if they are preceded by the *Enable Device Type 1* command, which can be sent with the [FB_DALIV2EnableDeviceType\(\)](#) [▶ 85] function block. The *Enable Device Type 1* command is internally placed automatically before all application-related expansion commands for DALI emergency lighting.

VAR_INPUT

```
bStart : BOOL;
nAddr : BYTE;
eAddrType : E_DALIV2AddrType := eDALIV2AddrTypeShort;
eCommandPriority : E_DALIV2CommandPriority := eDALIV2CommandPriorityMiddle;
```

bStart: The function block is activated by a positive edge at this input.

nAddr: The address of a participating device or of a group.

eAddrType: Short address, group address or broadcast (see [E_DALIV2AddrType](#) [▶ 401]).

eCommandPriority: Priority (high, medium or low) with which the command is processed by the library (see [E_DALIV2CommandPriority](#) [▶ 401]).

VAR_OUTPUT

```
bBusy : BOOL;
bError : BOOL;
nErrorId : UDINT;
```

bBusy: When the function block is activated the output is set, and it remains active until execution of the command has been completed.

bError: This output is switched to TRUE as soon as an error occurs during the execution of a command. The command-specific error code is contained in *nErrorId*. Is reset to FALSE by the execution of a command at the inputs.

nErrorId: Contains the command-specific error code of the most recently executed command. Is reset to 0 by the execution of a command at the inputs. (See [error codes](#) [► 380])

VAR_IN_OUT

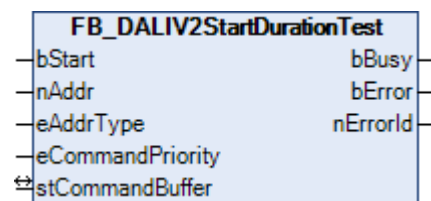
```
stCommandBuffer : ST_DALIV2CommandBuffer;
```

stCommandBuffer: Reference to the internal structure for communication with the function block [FB_KL6811Communication\(\)](#) [► 70] (KL6811) or [FB_KL6821Communication\(\)](#) [► 74] (KL6821).

Requirements

Development environment	required PLC library
TwinCAT from v3.1.4020.14	Tc2_DALI from v3.4.3.0

4.1.2.5.21 FB_DALIV2StartDurationTest



Starts the duration test. If the duration test is started with a delay, this is indicated in bit 5 of the [EMERGENCY STATUS](#) [► 216] variable.



This command belongs to the application-related expansion commands for DALI emergency lighting. They function only if they are preceded by the *Enable Device Type 1* command, which can be sent with the [FB_DALIV2EnableDeviceType\(\)](#) [► 85] function block. The *Enable Device Type 1* command is internally placed automatically before all application-related expansion commands for DALI emergency lighting.

VAR_INPUT

```
bStart      : BOOL;
nAddr       : BYTE;
eAddrType   : E_DALIV2AddrType := eDALIV2AddrTypeShort;
eCommandPriority : E_DALIV2CommandPriority := eDALIV2CommandPriorityMiddle;
```

bStart: The function block is activated by a positive edge at this input.

nAddr: The address of a participating device or of a group.

eAddrType: Short address, group address or broadcast (see [E_DALIV2AddrType](#) [► 401]).

eCommandPriority: Priority (high, medium or low) with which the command is processed by the library (see [E_DALIV2CommandPriority](#) [► 401]).

VAR_OUTPUT

```
bBusy      : BOOL;
bError     : BOOL;
nErrorId   : UDINT;
```

bBusy: When the function block is activated the output is set, and it remains active until execution of the command has been completed.

bError: This output is switched to TRUE as soon as an error occurs during the execution of a command. The command-specific error code is contained in *nErrorId*. Is reset to FALSE by the execution of a command at the inputs.

nErrorId: Contains the command-specific error code of the most recently executed command. Is reset to 0 by the execution of a command at the inputs. (See [error codes](#) [▶ 380])

VAR_IN_OUT

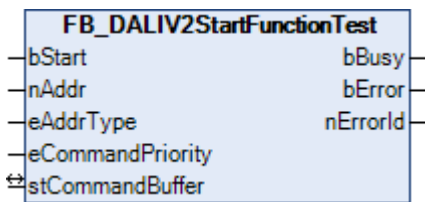
```
stCommandBuffer : ST_DALIV2CommandBuffer;
```

stCommandBuffer: Reference to the internal structure for communication with the function block [FB_KL6811Communication\(\)](#) [▶ 70] (KL6811) or [FB_KL6821Communication\(\)](#) [▶ 74] (KL6821).

Requirements

Development environment	required PLC library
TwinCAT from v3.1.4020.14	Tc2_DALI from v3.4.3.0

4.1.2.5.22 FB_DALIV2StartFunctionTest



Starts the function test. If the function test is started with a delay, this is indicated in bit 4 of the [EMERGENCY STATUS](#) [▶ 216] variable.

i This command belongs to the application-related expansion commands for DALI emergency lighting. They function only if they are preceded by the *Enable Device Type 1* command, which can be sent with the [FB_DALIV2EnableDeviceType\(\)](#) [▶ 85] function block. The *Enable Device Type 1* command is internally placed automatically before all application-related expansion commands for DALI emergency lighting.

VAR_INPUT

```
bStart : BOOL;
nAddr : BYTE;
eAddrType : E_DALIV2AddrType := eDALIV2AddrTypeShort;
eCommandPriority : E_DALIV2CommandPriority := eDALIV2CommandPriorityMiddle;
```

bStart: The function block is activated by a positive edge at this input.

nAddr: The address of a participating device or of a group.

eAddrType: Short address, group address or broadcast (see [E_DALIV2AddrType](#) [▶ 401]).

eCommandPriority: Priority (high, medium or low) with which the command is processed by the library (see [E_DALIV2CommandPriority](#) [▶ 401]).

VAR_OUTPUT

```
bBusy : BOOL;
bError : BOOL;
nErrorId : UDINT;
```

bBusy: When the function block is activated the output is set, and it remains active until execution of the command has been completed.

bError: This output is switched to TRUE as soon as an error occurs during the execution of a command. The command-specific error code is contained in *nErrorId*. Is reset to FALSE by the execution of a command at the inputs.

nErrorId: Contains the command-specific error code of the most recently executed command. Is reset to 0 by the execution of a command at the inputs. (See [error codes](#) [► 380])

VAR_IN_OUT

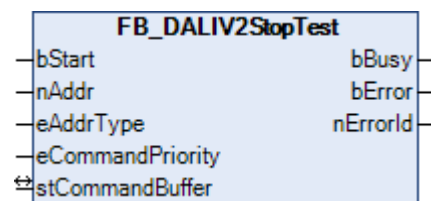
```
stCommandBuffer : ST_DALIV2CommandBuffer;
```

stCommandBuffer: Reference to the internal structure for communication with the function block `FB_KL6811Communication()` [► 70] (KL6811) or `FB_KL6821Communication()` [► 74] (KL6821).

Requirements

Development environment	required PLC library
TwinCAT from v3.1.4020.14	Tc2_DALI from v3.4.3.0

4.1.2.5.23 FB_DALIV2StopTest



Stops any type of function test or duration test.



This command belongs to the application-related expansion commands for DALI emergency lighting. They function only if they are preceded by the *Enable Device Type 1* command, which can be sent with the `FB_DALIV2EnableDeviceType()` [► 85] function block. The *Enable Device Type 1* command is internally placed automatically before all application-related expansion commands for DALI emergency lighting.

VAR_INPUT

```
bStart      : BOOL;
nAddr       : BYTE;
eAddrType   : E_DALIV2AddrType := eDALIV2AddrTypeShort;
eCommandPriority : E_DALIV2CommandPriority := eDALIV2CommandPriorityMiddle;
```

bStart: The function block is activated by a positive edge at this input.

nAddr: The address of a participating device or of a group.

eAddrType: Short address, group address or broadcast (see [E_DALIV2AddrType](#) [► 401]).

eCommandPriority: Priority (high, medium or low) with which the command is processed by the library (see [E_DALIV2CommandPriority](#) [► 401]).

VAR_OUTPUT

```
bBusy      : BOOL;
bError     : BOOL;
nErrorId   : UDINT;
```

bBusy: When the function block is activated the output is set, and it remains active until execution of the command has been completed.

bError: This output is switched to TRUE as soon as an error occurs during the execution of a command. The command-specific error code is contained in *nErrorId*. Is reset to FALSE by the execution of a command at the inputs.

nErrorId: Contains the command-specific error code of the most recently executed command. Is reset to 0 by the execution of a command at the inputs. (See [error codes](#) [► 380])

VAR_IN_OUT

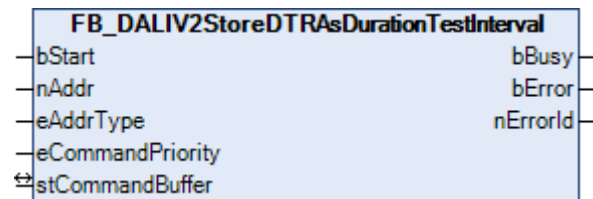
```
stCommandBuffer : ST_DALIV2CommandBuffer;
```

stCommandBuffer: Reference to the internal structure for communication with the function block `FB_KL6811Communication()` [▶ 70] (KL6811) or `FB_KL6821Communication()` [▶ 74] (KL6821).

Requirements

Development environment	required PLC library
TwinCAT from v3.1.4020.14	Tc2_DALI from v3.4.3.0

4.1.2.5.24 FB_DALIV2StoreDTRAsDurationTestInterval



Writes the value of the DTR (data transfer register) into the DURATION TEST INTERVAL [▶ 216] variable.



This command belongs to the application-related expansion commands for DALI emergency lighting. They function only if they are preceded by the *Enable Device Type 1* command, which can be sent with the `FB_DALIV2EnableDeviceType()` [▶ 85] function block. The *Enable Device Type 1* command is internally placed automatically before all application-related expansion commands for DALI emergency lighting.

VAR_INPUT

```
bStart : BOOL;
nAddr : BYTE;
eAddrType : E_DALIV2AddrType := eDALIV2AddrTypeShort;
eCommandPriority : E_DALIV2CommandPriority := eDALIV2CommandPriorityMiddle;
```

bStart: The function block is activated by a positive edge at this input.

nAddr: The address of a participating device or of a group.

eAddrType: Short address, group address or broadcast (see E_DALIV2AddrType [▶ 401]).

eCommandPriority: Priority (high, medium or low) with which the command is processed by the library (see E_DALIV2CommandPriority [▶ 401]).

VAR_OUTPUT

```
bBusy : BOOL;
bError : BOOL;
nErrorId : UDINT;
```

bBusy: When the function block is activated the output is set, and it remains active until execution of the command has been completed.

bError: This output is switched to TRUE as soon as an error occurs during the execution of a command. The command-specific error code is contained in *nErrorId*. Is reset to FALSE by the execution of a command at the inputs.

nErrorId: Contains the command-specific error code of the most recently executed command. Is reset to 0 by the execution of a command at the inputs. (See error codes [▶ 380])

VAR_IN_OUT

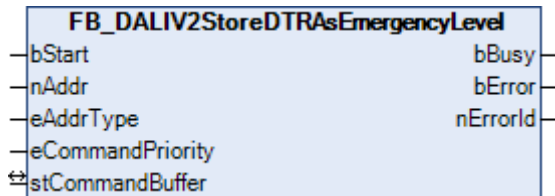
```
stCommandBuffer : ST_DALIV2CommandBuffer;
```

stCommandBuffer: Reference to the internal structure for communication with the function block `FB_KL6811Communication()` [► 70] (KL6811) or `FB_KL6821Communication()` [► 74] (KL6821).

Requirements

Development environment	required PLC library
TwinCAT from v3.1.4020.14	Tc2_DALI from v3.4.3.0

4.1.2.5.25 FB_DALIV2StoreDTRAsEmergencyLevel



Writes the value of the DTR (data transfer register) into the variable `EMERGENCY LEVEL` [► 216] (emergency illuminance).



This command belongs to the application-related expansion commands for DALI emergency lighting. They function only if they are preceded by the *Enable Device Type 1* command, which can be sent with the `FB_DALIV2EnableDeviceType()` [► 85] function block. The *Enable Device Type 1* command is internally placed automatically before all application-related expansion commands for DALI emergency lighting.

VAR_INPUT

```
bStart      : BOOL;
nAddr       : BYTE;
eAddrType   : E_DALIV2AddrType := eDALIV2AddrTypeShort;
eCommandPriority : E_DALIV2CommandPriority := eDALIV2CommandPriorityMiddle;
```

bStart: The function block is activated by a positive edge at this input.

nAddr: The address of a participating device or of a group.

eAddrType: Short address, group address or broadcast (see `E_DALIV2AddrType` [► 401]).

eCommandPriority: Priority (high, medium or low) with which the command is processed by the library (see `E_DALIV2CommandPriority` [► 401]).

VAR_OUTPUT

```
bBusy      : BOOL;
bError     : BOOL;
nErrorId   : UDINT;
```

bBusy: When the function block is activated the output is set, and it remains active until execution of the command has been completed.

bError: This output is switched to TRUE as soon as an error occurs during the execution of a command. The command-specific error code is contained in `nErrorId`. Is reset to FALSE by the execution of a command at the inputs.

nErrorId: Contains the command-specific error code of the most recently executed command. Is reset to 0 by the execution of a command at the inputs. (See [error codes](#) [► 380])

VAR_IN_OUT

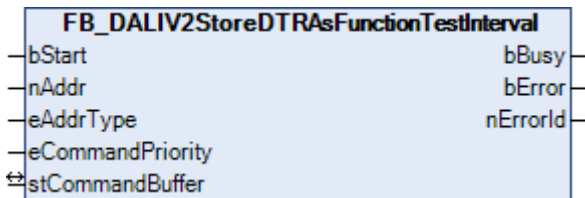
```
stCommandBuffer : ST_DALIV2CommandBuffer;
```

stCommandBuffer: Reference to the internal structure for communication with the function block `FB_KL6811Communication()` [► 70] (KL6811) or `FB_KL6821Communication()` [► 74] (KL6821).

Requirements

Development environment	required PLC library
TwinCAT from v3.1.4020.14	Tc2_DALI from v3.4.3.0

4.1.2.5.26 FB_DALIV2StoreDTRAsFunctionTestInterval



Writes the value of the DTR (data transfer register) into the FUNCTION TEST INTERVAL [▶ 216] variable.

i This command belongs to the application-related expansion commands for DALI emergency lighting. They function only if they are preceded by the *Enable Device Type 1* command, which can be sent with the FB_DALIV2EnableDeviceType() [▶ 85] function block. The *Enable Device Type 1* command is internally placed automatically before all application-related expansion commands for DALI emergency lighting.

VAR_INPUT

```
bStart      : BOOL;
nAddr       : BYTE;
eAddrType   : E_DALIV2AddrType := eDALIV2AddrTypeShort;
eCommandPriority : E_DALIV2CommandPriority := eDALIV2CommandPriorityMiddle;
```

bStart: The function block is activated by a positive edge at this input.

nAddr: The address of a participating device or of a group.

eAddrType: Short address, group address or broadcast (see E_DALIV2AddrType [▶ 401]).

eCommandPriority: Priority (high, medium or low) with which the command is processed by the library (see E_DALIV2CommandPriority [▶ 401]).

VAR_OUTPUT

```
bBusy      : BOOL;
bError     : BOOL;
nErrorId   : UDINT;
```

bBusy: When the function block is activated the output is set, and it remains active until execution of the command has been completed.

bError: This output is switched to TRUE as soon as an error occurs during the execution of a command. The command-specific error code is contained in *nErrorId*. Is reset to FALSE by the execution of a command at the inputs.

nErrorId: Contains the command-specific error code of the most recently executed command. Is reset to 0 by the execution of a command at the inputs. (See error codes [▶ 380])

VAR_IN_OUT

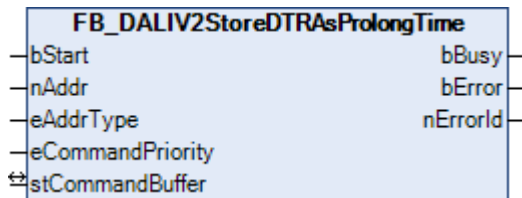
```
stCommandBuffer : ST_DALIV2CommandBuffer;
```

stCommandBuffer: Reference to the internal structure for communication with the function block FB_KL6811Communication() [▶ 70] (KL6811) or FB_KL6821Communication() [▶ 74] (KL6821).

Requirements

Development environment	required PLC library
TwinCAT from v3.1.4020.14	Tc2_DALI from v3.4.3.0

4.1.2.5.27 FB_DALIV2StoreDTRAsProlongTime



Writes the value of the DTR (data transfer register) into the variable PROLONG TIME [► 216].

i This command belongs to the application-related expansion commands for DALI emergency lighting. They function only if they are preceded by the *Enable Device Type 1* command, which can be sent with the FB_DALIV2EnableDeviceType() [► 85] function block. The *Enable Device Type 1* command is internally placed automatically before all application-related expansion commands for DALI emergency lighting.

VAR_INPUT

```
bStart      : BOOL;
nAddr       : BYTE;
eAddrType   : E_DALIV2AddrType := eDALIV2AddrTypeShort;
eCommandPriority : E_DALIV2CommandPriority := eDALIV2CommandPriorityMiddle;
```

bStart: The function block is activated by a positive edge at this input.

nAddr: The address of a participating device or of a group.

eAddrType: Short address, group address or broadcast (see E_DALIV2AddrType [► 401]).

eCommandPriority: Priority (high, medium or low) with which the command is processed by the library (see E_DALIV2CommandPriority [► 401]).

VAR_OUTPUT

```
bBusy       : BOOL;
bError      : BOOL;
nErrorId    : UDINT;
```

bBusy: When the function block is activated the output is set, and it remains active until execution of the command has been completed.

bError: This output is switched to TRUE as soon as an error occurs during the execution of a command. The command-specific error code is contained in *nErrorId*. Is reset to FALSE by the execution of a command at the inputs.

nErrorId: Contains the command-specific error code of the most recently executed command. Is reset to 0 by the execution of a command at the inputs. (See error codes [► 380])

VAR_IN_OUT

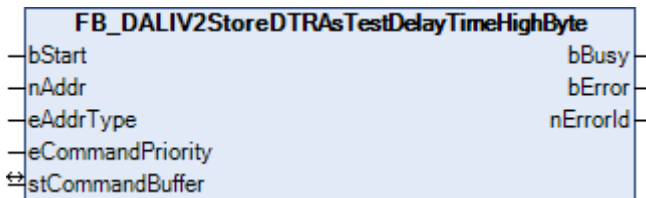
```
stCommandBuffer : ST_DALIV2CommandBuffer;
```

stCommandBuffer: Reference to the internal structure for communication with the function block FB_KL6811Communication() [► 70] (KL6811) or FB_KL6821Communication() [► 74] (KL6821).

Requirements

Development environment	required PLC library
TwinCAT from v3.1.4020.14	Tc2_DALI from v3.4.3.0

4.1.2.5.28 FB_DALIV2StoreDTRAsTestDelayTimeHighByte



Writes the value of the DTR (data transfer register) into the high-order byte of TEST DELAY TIME [▶ 216] variable.

i This command belongs to the application-related expansion commands for DALI emergency lighting. They function only if they are preceded by the *Enable Device Type 1* command, which can be sent with the FB_DALIV2EnableDeviceType() [▶ 85] function block. The *Enable Device Type 1* command is internally placed automatically before all application-related expansion commands for DALI emergency lighting.

VAR_INPUT

```
bStart      : BOOL;
nAddr       : BYTE;
eAddrType   : E_DALIV2AddrType := eDALIV2AddrTypeShort;
eCommandPriority : E_DALIV2CommandPriority := eDALIV2CommandPriorityMiddle;
```

- bStart:** The function block is activated by a positive edge at this input.
- nAddr:** The address of a participating device or of a group.
- eAddrType:** Short address, group address or broadcast (see E_DALIV2AddrType [▶ 401]).
- eCommandPriority:** Priority (high, medium or low) with which the command is processed by the library (see E_DALIV2CommandPriority [▶ 401]).

VAR_OUTPUT

```
bBusy       : BOOL;
bError      : BOOL;
nErrorId    : UDINT;
```

- bBusy:** When the function block is activated the output is set, and it remains active until execution of the command has been completed.
- bError:** This output is switched to TRUE as soon as an error occurs during the execution of a command. The command-specific error code is contained in *nErrorId*. Is reset to FALSE by the execution of a command at the inputs.
- nErrorId:** Contains the command-specific error code of the most recently executed command. Is reset to 0 by the execution of a command at the inputs. (See error codes [▶ 380])

VAR_IN_OUT

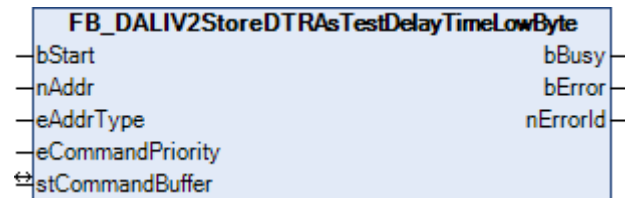
```
stCommandBuffer : ST_DALIV2CommandBuffer;
```

stCommandBuffer: Reference to the internal structure for communication with the function block FB_KL6811Communication() [▶ 70] (KL6811) or FB_KL6821Communication() [▶ 74] (KL6821).

Requirements

Development environment	required PLC library
TwinCAT from v3.1.4020.14	Tc2_DALI from v3.4.3.0

4.1.2.5.29 FB_DALIV2StoreDTRAsTestDelayTimeLowByte



Writes the value of the DTR (data transfer register) into the low-order byte of the TEST DELAY TIME [▶ 216] variable.



This command belongs to the application-related expansion commands for DALI emergency lighting. They function only if they are preceded by the *Enable Device Type 1* command, which can be sent with the FB_DALIV2EnableDeviceType() [▶ 85] function block. The *Enable Device Type 1* command is internally placed automatically before all application-related expansion commands for DALI emergency lighting.

VAR_INPUT

```
bStart      : BOOL;
nAddr       : BYTE;
eAddrType   : E_DALIV2AddrType := eDALIV2AddrTypeShort;
eCommandPriority : E_DALIV2CommandPriority := eDALIV2CommandPriorityMiddle;
```

bStart: The function block is activated by a positive edge at this input.

nAddr: The address of a participating device or of a group.

eAddrType: Short address, group address or broadcast (see E_DALIV2AddrType [▶ 401]).

eCommandPriority: Priority (high, medium or low) with which the command is processed by the library (see E_DALIV2CommandPriority [▶ 401]).

VAR_OUTPUT

```
bBusy       : BOOL;
bError      : BOOL;
nErrorId    : UDINT;
```

bBusy: When the function block is activated the output is set, and it remains active until execution of the command has been completed.

bError: This output is switched to TRUE as soon as an error occurs during the execution of a command. The command-specific error code is contained in *nErrorId*. Is reset to FALSE by the execution of a command at the inputs.

nErrorId: Contains the command-specific error code of the most recently executed command. Is reset to 0 by the execution of a command at the inputs. (See error codes [▶ 380])

VAR_IN_OUT

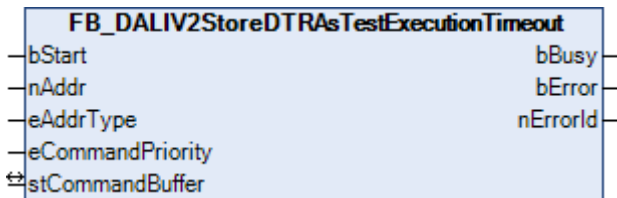
```
stCommandBuffer : ST_DALIV2CommandBuffer;
```

stCommandBuffer: Reference to the internal structure for communication with the function block FB_KL6811Communication() [▶ 70] (KL6811) or FB_KL6821Communication() [▶ 74] (KL6821).

Requirements

Development environment	required PLC library
TwinCAT from v3.1.4020.14	Tc2_DALI from v3.4.3.0

4.1.2.5.30 FB_DALIV2StoreDTRAsTestExecutionTimeout



Writes the value of the DTR (data transfer register) into the variable TEST EXECUTION TIMEOUT [▶ 216] (maximum execution time for a test).

i This command belongs to the application-related expansion commands for DALI emergency lighting. They function only if they are preceded by the *Enable Device Type 1* command, which can be sent with the FB_DALIV2EnableDeviceType() [▶ 85] function block. The *Enable Device Type 1* command is internally placed automatically before all application-related expansion commands for DALI emergency lighting.

VAR_INPUT

```
bStart      : BOOL;
nAddr      : BYTE;
eAddrType  : E_DALIV2AddrType := eDALIV2AddrTypeShort;
eCommandPriority : E_DALIV2CommandPriority := eDALIV2CommandPriorityMiddle;
```

- bStart:** The function block is activated by a positive edge at this input.
- nAddr:** The address of a participating device or of a group.
- eAddrType:** Short address, group address or broadcast (see E_DALIV2AddrType [▶ 401]).
- eCommandPriority:** Priority (high, medium or low) with which the command is processed by the library (see E_DALIV2CommandPriority [▶ 401]).

VAR_OUTPUT

```
bBusy      : BOOL;
bError     : BOOL;
nErrorId   : UDINT;
```

- bBusy:** When the function block is activated the output is set, and it remains active until execution of the command has been completed.
- bError:** This output is switched to TRUE as soon as an error occurs during the execution of a command. The command-specific error code is contained in *nErrorId*. Is reset to FALSE by the execution of a command at the inputs.
- nErrorId:** Contains the command-specific error code of the most recently executed command. Is reset to 0 by the execution of a command at the inputs. (See error codes [▶ 380])

VAR_IN_OUT


```
stCommandBuffer : ST_DALIV2CommandBuffer;
```

stCommandBuffer: Reference to the internal structure for communication with the function block FB_KL6811Communication() [▶ 70] (KL6811) or FB_KL6821Communication() [▶ 74] (KL6821).

Requirements

Development environment	required PLC library
TwinCAT from v3.1.4020.14	Tc2_DALI from v3.4.3.0

4.1.2.6 Part 203 (discharge lamps)

<p>The function blocks and variables for discharge lamps with DALI interface are described below. All below function blocks described below call 'application-related expansion commands'. According to the DALI standard (IEC 62386) these commands are within the range 224 to 255. Because of the existence of a variety of application-related expansion commands, it is necessary to use the FB_DALIV2EnableDeviceType() [▶ 85] function block to specify which type of control gears (emergency lighting, discharge lamps, ...) should react to the extension commands. A precise description of the individual DALI commands and the variables for discharge lamps with DALI interface will be found in Part 203 of the IEC 62386 standard.</p>	
--	--

Function blocks

Name	Description
FB_DALIV2QueryActualHIDFailure [▶ 255]	The ACTUAL HID FAILURE [▶ 252] variable (current failure status) is read from the control gear.
FB_DALIV2QueryHIDFeatures [▶ 256]	The HID FEATURES [▶ 252] variable (performance characteristics) is read from the control gear.
FB_DALIV2QueryHIDStatus [▶ 257]	The HID STATUS [▶ 252] variable is read from the control gear.
FB_DALIV2QueryStoredHIDFailure [▶ 258]	The STORED HID FAILURE [▶ 252] variable (stored failure status) is read from the control gear.
FB_DALIV2QueryThermalLoad [▶ 260]	The THERMAL LOAD [▶ 252] variable is read.
FB_DALIV2QueryThermalOverloadTime [▶ 261]	The 16-bit variable THERMAL OVERLOAD TIME [▶ 252] is read.
FB_DALIV2QueryThermalOverloadTimeHB [▶ 262]	The high-order byte of the 16-bit variable THERMAL OVERLOAD TIME [▶ 252] is read.
FB_DALIV2QueryThermalOverloadTimeLB [▶ 263]	The low-order byte of the 16-bit variable THERMAL OVERLOAD TIME [▶ 252] is read.
FB_DALIV2ResetStoredHIDFailure [▶ 264]	The STORED HID FAILURE [▶ 252] variable (stored lamp faults) is reset.



These commands belong to the application-related expansion commands for DALI discharge lamps. They function only if they are preceded by the *Enable Device Type 2* command, which can be sent with the [FB_DALIV2EnableDeviceType\(\) \[▶ 85\]](#) function block. The *Enable Device Type 2* command is internally placed automatically before all application-related expansion commands for DALI discharge lamps.

4.1.2.6.1 Variables

Every DALI ballast for discharge lamps has a certain number of variables (parameters) from which it is possible to read a variety of information or to modify individual parameters.

Name	Default value	Reset value	Valid range	Size	Comment
<u>HID STATUS</u> [▶ 253]	0	0	0 ... 255	1 byte	
<u>ACTUAL HID FAILURE</u> [▶ 253]	???? ????	No change	0 ... 255	1 byte	
<u>STORED HID FAILURE</u> [▶ 254]	???? ????	No change	0 ... 255	1 byte	
<u>HID FEATURES</u> [▶ 254]	Manufacturer-dependent	No change	0 ... 255	1 byte	read only
<u>THERMAL OVERLOAD TIME</u> [▶ 254]	0	No change	00 00 ... FF FF	2 bytes	
<u>THERMAL LOAD</u> [▶ 255]	???? ????	No change	0 ... 255	1 byte	
<u>EXTENDED VERSION NUMBER</u> [▶ 255]	1	No change	0 ... 255	1 byte	read only

?: not specified

HID STATUS

The current status of the ballast is stored in HID STATUS. The value can be read with the `FB_DALIV2QueryHIDStatus()` [▶ 257] block.

Bit	Description
0	Start-up time, ready for operation. 0: No.
1	The lamp power has reached its required set value. 0: No.
2	Ballast is waiting for the lamp to ignite. 0: No.
3	Reserved
4	Reserved
5	Reserved
6	Identification active. 0: No.
7	Reserved

ACTUAL HID FAILURE

This variable contains all the information about the fault status of the ballast. The variable is read with the `FB_DALIV2QueryActualHIDFailure()` [▶ 255] block. Each of the relevant bits is set as soon as a fault occurs, and is automatically reset again as soon as the fault is rectified.

As long as either bit 4 or bit 7 is set, bit 1 in the `STATUS INFORMATION` [▶ 80] variable will also be set. In that case, the `FB_DALIV2QueryLampeFailure()` [▶ 125] block will return TRUE at the `bLampFailure` output.

Bit	Description
0	Supply voltage too low. 0: No.
1	Supply voltage too high. 0: No.
2	Converter too hot. 0: No.
3	Reserved
4	Time for lamp ignition exceeded. 0: No.
5	Reserved
6	The lamp voltage outside specification. 0: No.
7	Lamp cycle error. 0: No.

STORED HID FAILURE

This variable contains all the information about the fault status of the ballast. The variable is read with the [FB_DALIV2QueryStoredHIDFailure\(\)](#) [▸ 258] block. The error messages are reset by switching off the ballast, or by the [FB_DALIV2ResetStoredHIDFailure\(\)](#) [▸ 264] block.

Bit	Description
0	Supply voltage too low. 0: No.
1	Supply voltage too high. 0: No.
2	Converter too hot. 0: No.
3	Reserved
4	Time for lamp ignition exceeded. 0: No.
5	Reserved
6	The lamp voltage outside specification. 0: No.
7	Lamp cycle error. 0: No.

HID FEATURES

The performance characteristics supported by the ballast can be read from this variable via the [FB_DALIV2QueryHIDFeatures\(\)](#) [▸ 256] block. The content of this variable is specified by the manufacturer of the ballast and cannot be modified.

Bit	Description
0	"Supply voltage too low" can be queried. 0: No.
1	"Supply voltage too high" can be queried. 0: No.
2	"Transformer too hot" can be queried. 0: No.
3	Reserved
4	Reserved
5	Reserved
6	"Lamp voltage outside specification" can be queried. 0: No.
7	Physical selection is supported. 0: No.

THERMAL OVERLOAD TIME

As soon as excess temperature is detected, the variable THERMAL OVERLOAD TIME is incremented in steps of 15 minutes. This variable cannot be reset. Reaching 65535 (0xFFFF) here corresponds to a time of 16,383 hours and 45 minutes or more. The THERMAL OVERLOAD TIME variable can be read by the [FB_DALIV2QueryThermalOverloadTimeHB\(\)](#) [▸ 262] and [FB_DALIV2QueryThermalOverloadTimeLB\(\)](#) [▸ 263] blocks.

The threshold value for detecting excess temperature is specified by the THERMAL LOAD variable (see below).

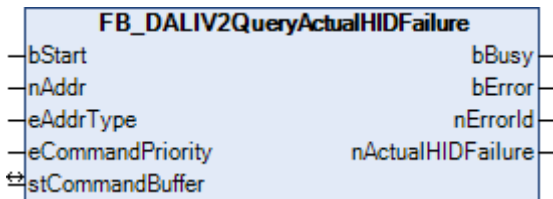
THERMAL LOAD

A percentage value in the range between 0% and 127.5% is specified in steps of 0.5% in the THERMAL LOAD variable. 255 corresponds here to a value of 127.5%. The variable can be read with the `FB_DALIV2QueryThermalLoad()` [▶ 260] block.

EXTENDED VERSION NUMBER

The extended version number can be read with the `FB_QueryV2ExtendedVersionNumber()` block. The version number can only be read, and is specified by the manufacturer of the ballasts.

4.1.2.6.2 FB_DALIV2QueryActualHIDFailure



The `ACTUAL HID FAILURE` [▶ 252] variable (current failure status) is read from the control gear.

Bit	Description
0	Supply voltage too low. 0: no.
1	Supply voltage too high. 0: no.
2	Converter too hot. 0: no.
3	Reserve
4	Time for lamp ignition exceeded. 0: no.
5	Reserve
6	The lamp voltage outside specification. 0: No.
7	Lamp cycle error. 0: no.



This command belongs to the application-related expansion commands for DALI discharge lamps. They function only if they are preceded by the *Enable Device Type 2* command, which can be sent with the `FB_DALIV2EnableDeviceType()` [▶ 85] function block. The *Enable Device Type 2* command is internally placed automatically before all application-related expansion commands for DALI discharge lamps.

VAR_INPUT

```
bStart      : BOOL;
nAddr       : BYTE;
eAddrType   : E_DALIV2AddrType := eDALIV2AddrTypeShort;
eCommandPriority : E_DALIV2CommandPriority := eDALIV2CommandPriorityMiddle;
```

bStart: The function block is activated by a positive edge at this input.

nAddr: The address of a participating device or of a group.

eAddrType: Short address, group address or broadcast (see `E_DALIV2AddrType` [▶ 401]).

eCommandPriority: Priority (high, medium or low) with which the command is processed by the library (see `E_DALIV2CommandPriority` [▶ 401]).

VAR_OUTPUT

```
bBusy       : BOOL;
bError      : BOOL;
nErrorId    : UDINT;
nActualHIDFailure : BYTE;
```

bBusy: When the function block is activated the output is set, and it remains active until execution of the command has been completed.

bError: This output is switched to TRUE as soon as an error occurs during the execution of a command. The command-specific error code is contained in *nErrorId*. Is reset to FALSE by the execution of a command at the inputs.

nErrorId: Contains the command-specific error code of the most recently executed command. Is reset to 0 by the execution of a command at the inputs. (See [error codes](#) [▶ 380])

nActualHIDFailure: Content of the variables (see [ACTUAL HID FAILURE](#) [▶ 252]).

VAR_IN_OUT

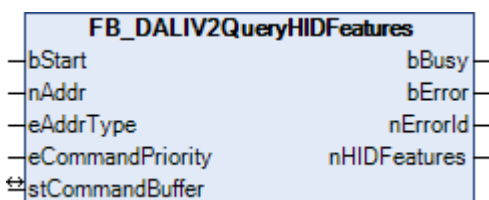
```
stCommandBuffer : ST_DALIV2CommandBuffer;
```

stCommandBuffer: Reference to the internal structure for communication with the function block [FB_KL6811Communication\(\)](#) [▶ 70] (KL6811) or [FB_KL6821Communication\(\)](#) [▶ 74] (KL6821).

Requirements

Development environment	required PLC library
TwinCAT from v3.1.4020.14	Tc2_DALI from v3.4.3.0

4.1.2.6.3 FB_DALIV2QueryHIDFeatures



The [HID FEATURES](#) [▶ 252] variable (performance characteristics) is read from the control gear.

Bit	Description
0	"Supply voltage too low" can be queried. 0: no.
1	"Supply voltage too high" can be queried. 0: no.
2	"Transformer too hot" can be queried. 0: no.
3	Reserve
4	Reserve
5	Reserve
6	"Lamp voltage outside specification" can be queried. 0: no.
7	Physical selection is supported. 0: no.

i This command belongs to the application-related expansion commands for DALI discharge lamps. They function only if they are preceded by the *Enable Device Type 2* command, which can be sent with the [FB_DALIV2EnableDeviceType\(\)](#) [▶ 85] function block. The *Enable Device Type 2* command is internally placed automatically before all application-related expansion commands for DALI discharge lamps.

VAR_INPUT

```
bStart : BOOL;
nAddr : BYTE;
eAddrType : E_DALIV2AddrType := eDALIV2AddrTypeShort;
eCommandPriority : E_DALIV2CommandPriority := eDALIV2CommandPriorityMiddle;
```

bStart: The function block is activated by a positive edge at this input.

nAddr: The address of a participating device or of a group.

eAddrType: Short address, group address or broadcast (see [E_DALIV2AddrType](#) [[▶ 401](#)]).

eCommandPriority: Priority (high, medium or low) with which the command is processed by the library (see [E_DALIV2CommandPriority](#) [[▶ 401](#)]).

VAR_OUTPUT

```
bBusy      : BOOL;
bError     : BOOL;
nErrorId   : UDINT;
nHIDFeatures : BYTE;
```

bBusy: When the function block is activated the output is set, and it remains active until execution of the command has been completed.

bError: This output is switched to TRUE as soon as an error occurs during the execution of a command. The command-specific error code is contained in *nErrorId*. Is reset to FALSE by the execution of a command at the inputs.

nErrorId: Contains the command-specific error code of the most recently executed command. Is reset to 0 by the execution of a command at the inputs. (See [error codes](#) [[▶ 380](#)])

nHIDFeatures: Content of the variable (see [HID FEATURES](#) [[▶ 252](#)]).

VAR_IN_OUT

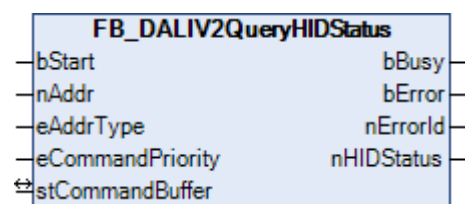
```
stCommandBuffer : ST_DALIV2CommandBuffer;
```

stCommandBuffer: Reference to the internal structure for communication with the function block [FB_KL6811Communication\(\)](#) [[▶ 70](#)] (KL6811) or [FB_KL6821Communication\(\)](#) [[▶ 74](#)] (KL6821).

Requirements

Development environment	required PLC library
TwinCAT from v3.1.4020.14	Tc2_DALI from v3.4.3.0

4.1.2.6.4 FB_DALIV2QueryHIDStatus



The [HID STATUS](#) [[▶ 252](#)] variable is read from the control gear.

Bit	Description
0	Start-up time ready for operation. 0: no.
1	The lamp power has reached its required set value. 0: no.
2	Control gear is waiting for the lamp to ignite. 0: no.
3	Reserve
4	Reserve
5	Reserve
6	Identification active. 0: no.
7	Reserve



This command belongs to the application-related expansion commands for DALI discharge lamps. They function only if they are preceded by the *Enable Device Type 2* command, which can be sent with the `FB_DALIV2EnableDeviceType()` [▶ 85] function block. The *Enable Device Type 2* command is internally placed automatically before all application-related expansion commands for DALI discharge lamps.

VAR_INPUT

```
bStart      : BOOL;
nAddr       : BYTE;
eAddrType   : E_DALIV2AddrType := eDALIV2AddrTypeShort;
eCommandPriority : E_DALIV2CommandPriority := eDALIV2CommandPriorityMiddle;
```

bStart: The function block is activated by a positive edge at this input.

nAddr: The address of a participating device or of a group.

eAddrType: Short address, group address or broadcast (see `E_DALIV2AddrType` [▶ 401]).

eCommandPriority: Priority (high, medium or low) with which the command is processed by the library (see `E_DALIV2CommandPriority` [▶ 401]).

VAR_OUTPUT

```
bBusy       : BOOL;
bError      : BOOL;
nErrorId    : UDINT;
nHIDStatus  : BYTE;
```

bBusy: When the function block is activated the output is set, and it remains active until execution of the command has been completed.

bError: This output is switched to TRUE as soon as an error occurs during the execution of a command. The command-specific error code is contained in *nErrorId*. Is reset to FALSE by the execution of a command at the inputs.

nErrorId: Contains the command-specific error code of the most recently executed command. Is reset to 0 by the execution of a command at the inputs. (See `error codes` [▶ 380])

nHIDStatus: Content of the variable (see `HID FEATURES` [▶ 252]).

VAR_IN_OUT

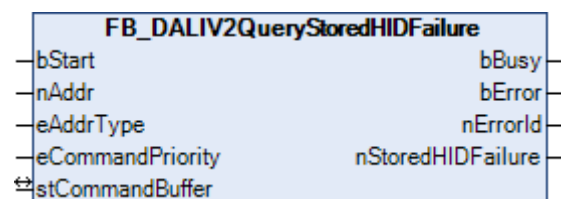
```
stCommandBuffer : ST_DALIV2CommandBuffer;
```

stCommandBuffer: Reference to the internal structure for communication with the function block `FB_KL6811Communication()` [▶ 70] (KL6811) or `FB_KL6821Communication()` [▶ 74] (KL6821).

Requirements

Development environment	required PLC library
TwinCAT from v3.1.4020.14	Tc2_DALI from v3.4.3.0

4.1.2.6.5 FB_DALIV2QueryStoredHIDFailure



The `STORED HID FAILURE` [▶ 252] variable (stored failure status) is read from the control gear.

Bit	Description
0	Supply voltage too low. 0: no.
1	Supply voltage too high. 0: no.
2	Converter too hot. 0: no.
3	Reserve
4	Time for lamp ignition exceeded. 0: no.
5	Reserve
6	The lamp voltage outside specification. 0: No.
7	Lamp cycle error. 0: no.



This command belongs to the application-related expansion commands for DALI discharge lamps. They function only if they are preceded by the *Enable Device Type 2* command, which can be sent with the `FB_DALIV2EnableDeviceType()` [▶ 85] function block. The *Enable Device Type 2* command is internally placed automatically before all application-related expansion commands for DALI discharge lamps.

VAR_INPUT

```
bStart      : BOOL;
nAddr       : BYTE;
eAddrType   : E_DALIV2AddrType := eDALIV2AddrTypeShort;
eCommandPriority : E_DALIV2CommandPriority := eDALIV2CommandPriorityMiddle;
```

bStart: The function block is activated by a positive edge at this input.

nAddr: The address of a participating device or of a group.

eAddrType: Short address, group address or broadcast (see `E_DALIV2AddrType` [▶ 401]).

eCommandPriority: Priority (high, medium or low) with which the command is processed by the library (see `E_DALIV2CommandPriority` [▶ 401]).

VAR_OUTPUT

```
bBusy       : BOOL;
bError      : BOOL;
nErrorId    : UDINT;
nStoredHIDFailure : BYTE;
```

bBusy: When the function block is activated the output is set, and it remains active until execution of the command has been completed.

bError: This output is switched to TRUE as soon as an error occurs during the execution of a command. The command-specific error code is contained in `nErrorId`. Is reset to FALSE by the execution of a command at the inputs.

nErrorId: Contains the command-specific error code of the most recently executed command. Is reset to 0 by the execution of a command at the inputs. (See `error codes` [▶ 380])

nStoredHIDFailure: Content of the variable (see `STORED HID FAILURE` [▶ 252]).

VAR_IN_OUT

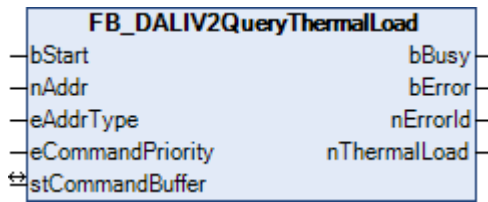
```
stCommandBuffer : ST_DALIV2CommandBuffer;
```

stCommandBuffer: Reference to the internal structure for communication with the function block `FB_KL6811Communication()` [▶ 70] (KL6811) or `FB_KL6821Communication()` [▶ 74] (KL6821).

Requirements

Development environment	required PLC library
TwinCAT from v3.1.4020.14	Tc2_DALI from v3.4.3.0

4.1.2.6.6 FB_DALIV2QueryThermalLoad



The THERMAL LOAD [▶ 252] variable is read. This contains a percentage figure in the range from 0% to 127.5% in steps of 0.5%.



This command belongs to the application-related expansion commands for DALI discharge lamps. They function only if they are preceded by the *Enable Device Type 2* command, which can be sent with the `FB_DALIV2EnableDeviceType()` [▶ 85] function block. The *Enable Device Type 2* command is internally placed automatically before all application-related expansion commands for DALI discharge lamps.

VAR_INPUT

```
bStart      : BOOL;
nAddr       : BYTE;
eAddrType   : E_DALIV2AddrType := eDALIV2AddrTypeShort;
eCommandPriority : E_DALIV2CommandPriority := eDALIV2CommandPriorityMiddle;
```

bStart: The function block is activated by a positive edge at this input.

nAddr: The address of a participating device or of a group.

eAddrType: Short address, group address or broadcast (see E_DALIV2AddrType [▶ 401]).

eCommandPriority: Priority (high, medium or low) with which the command is processed by the library (see E_DALIV2CommandPriority [▶ 401]).

VAR_OUTPUT

```
bBusy       : BOOL;
bError      : BOOL;
nErrorId    : UDINT;
nThermalLoad : BYTE;
```

bBusy: When the function block is activated the output is set, and it remains active until execution of the command has been completed.

bError: This output is switched to TRUE as soon as an error occurs during the execution of a command. The command-specific error code is contained in *nErrorId*. Is reset to FALSE by the execution of a command at the inputs.

nErrorId: Contains the command-specific error code of the most recently executed command. Is reset to 0 by the execution of a command at the inputs. (See error codes [▶ 380])

nThermalLoad: Content of the variable (see THERMAL LOAD [▶ 252]).

VAR_IN_OUT

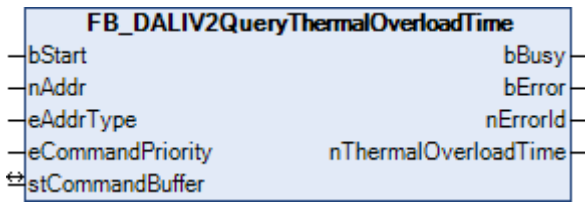
```
stCommandBuffer : ST_DALIV2CommandBuffer;
```

stCommandBuffer: Reference to the internal structure for communication with the function block `FB_KL6811Communication()` [▶ 70] (KL6811) or `FB_KL6821Communication()` [▶ 74] (KL6821).

Requirements

Development environment	required PLC library
TwinCAT from v3.1.4020.14	Tc2_DALI from v3.4.3.0

4.1.2.6.7 FB_DALIV2QueryThermalOverloadTime



The 16-bit variable THERMAL OVERLOAD TIME [▶ 252] is read.

i This command belongs to the application-related expansion commands for DALI discharge lamps. They function only if they are preceded by the *Enable Device Type 2* command, which can be sent with the FB_DALIV2EnableDeviceType() [▶ 85] function block. The *Enable Device Type 2* command is internally placed automatically before all application-related expansion commands for DALI discharge lamps.

VAR_INPUT

```
bStart      : BOOL;
nAddr       : BYTE;
eAddrType   : E_DALIV2AddrType := eDALIV2AddrTypeShort;
eCommandPriority : E_DALIV2CommandPriority := eDALIV2CommandPriorityMiddle;
```

bStart: The function block is activated by a positive edge at this input.

nAddr: The address of a participating device or of a group.

eAddrType: Short address, group address or broadcast (see E_DALIV2AddrType [▶ 401]).

eCommandPriority: Priority (high, medium or low) with which the command is processed by the library (see E_DALIV2CommandPriority [▶ 401]).

VAR_OUTPUT

```
bBusy       : BOOL;
bError      : BOOL;
nErrorId    : UDINT;
nThermalOverloadTime : WORD;
```

bBusy: When the function block is activated the output is set, and it remains active until execution of the command has been completed.

bError: This output is switched to TRUE as soon as an error occurs during the execution of a command. The command-specific error code is contained in *nErrorId*. Is reset to FALSE by the execution of a command at the inputs.

nErrorId: Contains the command-specific error code of the most recently executed command. Is reset to 0 by the execution of a command at the inputs. (See error codes [▶ 380]).

nThermalOverloadTime: The value of the 16-bit variable (see THERMAL OVERLOAD TIME [▶ 252]).

VAR_IN_OUT

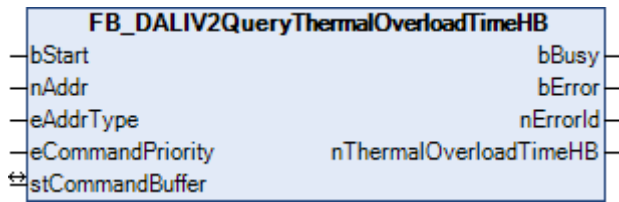
```
stCommandBuffer : ST_DALIV2CommandBuffer;
```

stCommandBuffer: Reference to the internal structure for communication with the function block FB_KL6811Communication() [▶ 70] (KL6811) or FB_KL6821Communication() [▶ 74] (KL6821).

Requirements

Development environment	required PLC library
TwinCAT from v3.1.4020.14	Tc2_DALI from v3.4.3.0

4.1.2.6.8 FB_DALIV2QueryThermalOverloadTimeHB



The high-order byte of the 16-bit variable [THERMAL OVERLOAD TIME \[► 252\]](#) is read.



This command belongs to the application-related expansion commands for DALI discharge lamps. They function only if they are preceded by the *Enable Device Type 2* command, which can be sent with the [FB_DALIV2EnableDeviceType\(\) \[► 85\]](#) function block. The *Enable Device Type 2* command is internally placed automatically before all application-related expansion commands for DALI discharge lamps.

VAR_INPUT

```
bStart      : BOOL;
nAddr      : BYTE;
eAddrType  : E_DALIV2AddrType := eDALIV2AddrTypeShort;
eCommandPriority : E_DALIV2CommandPriority := eDALIV2CommandPriorityMiddle;
```

bStart: The function block is activated by a positive edge at this input.

nAddr: The address of a participating device or of a group.

eAddrType: Short address, group address or broadcast (see [E_DALIV2AddrType \[► 401\]](#)).

eCommandPriority: Priority (high, medium or low) with which the command is processed by the library (see [E_DALIV2CommandPriority \[► 401\]](#)).

VAR_OUTPUT

```
bBusy      : BOOL;
bError     : BOOL;
nErrorId   : UDINT;
nThermalOverloadTimeHB : BYTE;
```

bBusy: When the function block is activated the output is set, and it remains active until execution of the command has been completed.

bError: This output is switched to TRUE as soon as an error occurs during the execution of a command. The command-specific error code is contained in *nErrorId*. Is reset to FALSE by the execution of a command at the inputs.

nErrorId: Contains the command-specific error code of the most recently executed command. Is reset to 0 by the execution of a command at the inputs. (See [error codes \[► 380\]](#))

nThermalOverloadTimeHB: The high-order byte of the variable (see [THERMAL OVERLOAD TIME \[► 252\]](#)).

VAR_IN_OUT

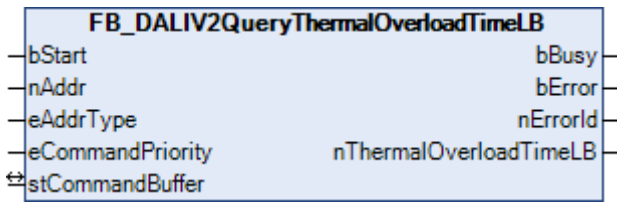
```
stCommandBuffer : ST_DALIV2CommandBuffer;
```

stCommandBuffer: Reference to the internal structure for communication with the function block [FB_KL6811Communication\(\) \[► 70\]](#) (KL6811) or [FB_KL6821Communication\(\) \[► 74\]](#) (KL6821).

Requirements

Development environment	required PLC library
TwinCAT from v3.1.4020.14	Tc2_DALI from v3.4.3.0

4.1.2.6.9 FB_DALIV2QueryThermalOverloadTimeLB



The low-order byte of the 16-bit variable THERMAL OVERLOAD TIME [▶ 252] is read.



This command belongs to the application-related expansion commands for DALI discharge lamps. They function only if they are preceded by the *Enable Device Type 2* command, which can be sent with the FB_DALIV2EnableDeviceType() [▶ 85] function block. The *Enable Device Type 2* command is internally placed automatically before all application-related expansion commands for DALI discharge lamps.

VAR_INPUT

```
bStart      : BOOL;
nAddr       : BYTE;
eAddrType   : E_DALIV2AddrType := eDALIV2AddrTypeShort;
eCommandPriority : E_DALIV2CommandPriority := eDALIV2CommandPriorityMiddle;
```

bStart: The function block is activated by a positive edge at this input.

nAddr: The address of a participating device or of a group.

eAddrType: Short address, group address or broadcast (see E_DALIV2AddrType [▶ 401]).

eCommandPriority: Priority (high, medium or low) with which the command is processed by the library (see E_DALIV2CommandPriority [▶ 401]).

VAR_OUTPUT

```
bBusy       : BOOL;
bError      : BOOL;
nErrorId    : UDINT;
nThermalOverloadTimeLB : BYTE;
```

bBusy: When the function block is activated the output is set, and it remains active until execution of the command has been completed.

bError: This output is switched to TRUE as soon as an error occurs during the execution of a command. The command-specific error code is contained in *nErrorId*. Is reset to FALSE by the execution of a command at the inputs.

nErrorId: Contains the command-specific error code of the most recently executed command. Is reset to 0 by the execution of a command at the inputs. (See error codes [▶ 380]).

nThermalOverloadTimeLB: The low-order byte of the variable (see THERMAL OVERLOAD TIME [▶ 252]).

VAR_IN_OUT

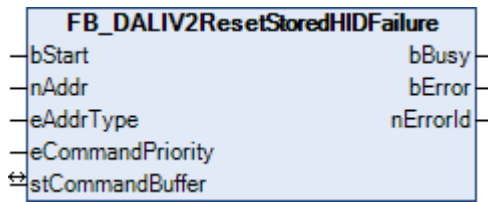
```
stCommandBuffer : ST_DALIV2CommandBuffer;
```

stCommandBuffer: Reference to the internal structure for communication with the function block FB_KL6811Communication() [▶ 70] (KL6811) or FB_KL6821Communication() [▶ 74] (KL6821).

Requirements

Development environment	required PLC library
TwinCAT from v3.1.4020.14	Tc2_DALI from v3.4.3.0

4.1.2.6.10 FB_DALIV2ResetStoredHIDFailure



The [STORED HID FAILURE](#) [[▶ 252](#)] variable (stored lamp faults) is reset.



This command belongs to the application-related expansion commands for DALI discharge lamps. They function only if they are preceded by the *Enable Device Type 2* command, which can be sent with the [FB_DALIV2EnableDeviceType\(\)](#) [[▶ 85](#)] function block. The *Enable Device Type 2* command is internally placed automatically before all application-related expansion commands for DALI discharge lamps.

VAR_INPUT

```
bStart      : BOOL;
nAddr       : BYTE;
eAddrType   : E_DALIV2AddrType := eDALIV2AddrTypeShort;
eCommandPriority : E_DALIV2CommandPriority := eDALIV2CommandPriorityMiddle;
```

bStart: The function block is activated by a positive edge at this input.

nAddr: The address of a participating device or of a group.

eAddrType: Short address, group address or broadcast (see [E_DALIV2AddrType](#) [[▶ 401](#)]).

eCommandPriority: Priority (high, medium or low) with which the command is processed by the library (see [E_DALIV2CommandPriority](#) [[▶ 401](#)]).

VAR_OUTPUT

```
bBusy       : BOOL;
bError      : BOOL;
nErrorId    : UDINT;
```

bBusy: When the function block is activated the output is set, and it remains active until execution of the command has been completed.

bError: This output is switched to TRUE as soon as an error occurs during the execution of a command. The command-specific error code is contained in *nErrorId*. Is reset to FALSE by the execution of a command at the inputs.

nErrorId: Contains the command-specific error code of the most recently executed command. Is reset to 0 by the execution of a command at the inputs. (See [error codes](#) [[▶ 380](#)])

VAR_IN_OUT

```
stCommandBuffer : ST_DALIV2CommandBuffer;
```

stCommandBuffer: Reference to the internal structure for communication with the function block [FB_KL6811Communication\(\)](#) [[▶ 70](#)] (KL6811) or [FB_KL6821Communication\(\)](#) [[▶ 74](#)] (KL6821).

Requirements

Development environment	required PLC library
TwinCAT from v3.1.4020.14	Tc2_DALI from v3.4.3.0

4.1.2.7 Part 207 (LED modules)

Function blocks

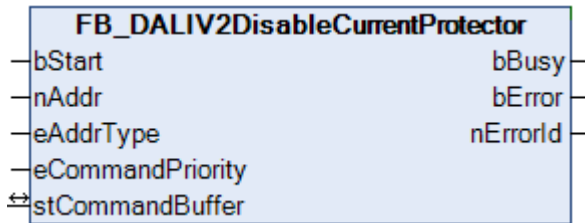
The function blocks and variables for LED modules with DALI interface are described below. All below function blocks described below call 'application-related expansion commands'. According to the DALI standard (IEC 62386) these commands are within the range 224 to 255. Because of the existence of a variety of application-related expansion commands, it is necessary to use the FB `DALIV2EnableDeviceType()` [▶ 85] function block to specify which type of control gears (emergency lighting, discharge lamps, ...) should react to the extension commands. A detailed description of the individual DALI commands and the variables for LED modules with DALI interface can be found in standard IEC 62386 Part 207.

Name	Description
FB_DALIV2DisableCurrentProtector [▶ 266]	The command disables the current protection device of the control gear.
FB_DALIV2EnableCurrentProtector [▶ 267]	The command enables the current protection device of the control gear.
FB_DALIV2QueryCurrentProtectorActive [▶ 268]	The system checks whether the current protection device is active.
FB_DALIV2QueryCurrentProtectorEnabled [▶ 269]	The system queries whether the current protection device is enabled.
FB_DALIV2QueryDimmingCurve [▶ 270]	The dimming curve of the control gear is read out.
FB_DALIV2QueryFastFadeTime [▶ 271]	Queries the value of FAST FADE TIME.
FB_DALIV2QueryGearType [▶ 272]	Queries the value of GEAR TYPE.
FB_DALIV2QueryLedFailureStatus [▶ 273]	Queries the value of FAILURE STATUS.
FB_DALIV2QueryLedFeatures [▶ 274]	Queries the value of FEATURES.
FB_DALIV2QueryLoadDecrease [▶ 275]	The system queries whether a significant decrease in load (compared to the reference power of the system) has been detected.
FB_DALIV2QueryLoadIncrease [▶ 276]	The system queries whether a significant increase in load (compared to the reference power of the system) has been detected.
FB_DALIV2QueryMinFastFadeTime [▶ 277]	Queries the value of MIN FAST FADE TIME.
FB_DALIV2QueryOpenCircuit [▶ 278]	The system queries whether an idle mode has been detected.
FB_DALIV2QueryOperatingMode [▶ 279]	Queries the value of OPERATING MODE.
FB_DALIV2QueryPossibleOperatingModes [▶ 280]	Queries the value of POSSIBLE OPERATING MODE.
FB_DALIV2QueryReferenceMeasurementFailed [▶ 281]	The system queries whether a started reference measurement has failed.
FB_DALIV2QueryReferenceRunning [▶ 282]	The system queries whether a reference measurement of the system performance is active.
FB_DALIV2QueryShortCircuit [▶ 283]	The system queries whether a short circuit has been detected.
FB_DALIV2QueryThermalOverload [▶ 284]	The system queries whether there is a thermal overload with reduction of the luminous flux.
FB_DALIV2QueryThermalShutDown [▶ 285]	The system queries whether a thermal shutdown occurred.
FB_DALIV2ReferenceSystemPower [▶ 286]	The control gear measures and stores the performance level of the system, in order to detect load increase and decrease.
FB_DALIV2SelectDimmingCurve [▶ 287]	The dimming curve of the control gear is selected.
FB_DALIV2SetFastFadeTime [▶ 288]	Sets the FAST FADE TIME in the control gear.



These commands belong to the application-specific expansion commands for LED modules with DALI interface. They function only if they are preceded by the *Enable Device Type 6* command, which can be sent with the `FB_DALIV2EnableDeviceType()` [▶ 85] function block. The command *Enable Device Type 6* is already automatically internally prefixed to all application-related expansion commands for LED modules with DALI interface.

4.1.2.7.1 FB_DALIV2DisableCurrentProtector



The command disables the current protection device of the control gear.



This command is one of the application-specific expansion commands for LED modules with DALI interface. They function only if they are preceded by the *Enable Device Type 6* command, which can be sent with the `FB_DALIV2EnableDeviceType()` [▶ 85] function block. The command *Enable Device Type 6* is automatically internally prefixed to all application-related expansion commands for DALI LED modules.

VAR_INPUT

```
bStart      : BOOL;
nAddr       : BYTE;
eAddrType   : E_DALIV2AddrType := eDALIV2AddrTypeShort;
eCommandPriority : E_DALIV2CommandPriority := eDALIV2CommandPriorityMiddle;
```

bStart: The function block is activated by a positive edge at this input.

nAddr: The address of a participating device or of a group.

eAddrType: Short address, group address or broadcast (see `E_DALIV2AddrType` [▶ 401]).

eCommandPriority: Priority (high, medium or low) with which the command is processed by the library (see `E_DALIV2CommandPriority` [▶ 401]).

VAR_OUTPUT

```
bBusy      : BOOL;
bError     : BOOL;
nErrorId   : UDINT;
```

bBusy: When the function block is activated the output is set, and it remains active until execution of the command has been completed.

bError: This output is switched to TRUE as soon as an error occurs during the execution of a command. The command-specific error code is contained in `nErrorId`. Is reset to FALSE by the execution of a command at the inputs.

nErrorId: Contains the command-specific error code of the most recently executed command. Is reset to 0 by the execution of a command at the inputs. (See `error codes` [▶ 380])

VAR_IN_OUT

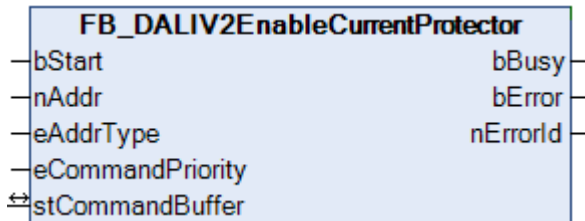
```
stCommandBuffer : ST_DALIV2CommandBuffer;
```

stCommandBuffer: Reference to the internal structure for communication with the function block `FB_KL6811Communication()` [▶ 70] (KL6811) or `FB_KL6821Communication()` [▶ 74] (KL6821).

Requirements

Development environment	required PLC library
TwinCAT from v3.1.4022.4	Tc2_DALI from v3.6.2.0

4.1.2.7.2 FB_DALIV2EnableCurrentProtector



The command enables the current protection device of the control gear.

i This command is one of the application-specific expansion commands for LED modules with DALI interface. They function only if they are preceded by the *Enable Device Type 6* command, which can be sent with the [FB_DALIV2EnableDeviceType\(\)](#) [▶ 85] function block. The command *Enable Device Type 6* is automatically internally prefixed to all application-related expansion commands for DALI LED modules.

VAR_INPUT

```
bStart      : BOOL;
nAddr       : BYTE;
eAddrType   : E_DALIV2AddrType := eDALIV2AddrTypeShort;
eCommandPriority : E_DALIV2CommandPriority := eDALIV2CommandPriorityMiddle;
```

bStart: The function block is activated by a positive edge at this input.

nAddr: The address of a participating device or of a group.

eAddrType: Short address, group address or broadcast (see [E_DALIV2AddrType](#) [▶ 401]).

eCommandPriority: Priority (high, medium or low) with which the command is processed by the library (see [E_DALIV2CommandPriority](#) [▶ 401]).

VAR_OUTPUT

```
bBusy       : BOOL;
bError      : BOOL;
nErrorId    : UDINT;
```

bBusy: When the function block is activated the output is set, and it remains active until execution of the command has been completed.

bError: This output is switched to TRUE as soon as an error occurs during the execution of a command. The command-specific error code is contained in *nErrorId*. Is reset to FALSE by the execution of a command at the inputs.

nErrorId: Contains the command-specific error code of the most recently executed command. Is reset to 0 by the execution of a command at the inputs. (See [error codes](#) [▶ 380])

VAR_IN_OUT

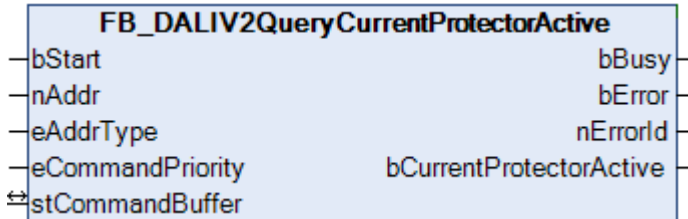
```
stCommandBuffer : ST_DALIV2CommandBuffer;
```

stCommandBuffer: Reference to the internal structure for communication with the function block [FB_KL6811Communication\(\)](#) [▶ 70] (KL6811) or [FB_KL6821Communication\(\)](#) [▶ 74] (KL6821).

Requirements

Development environment	required PLC library
TwinCAT from v3.1.4022.4	Tc2_DALI from v3.6.2.0

4.1.2.7.3 FB_DALIV2QueryCurrentProtectorActive



The system checks whether the current protection device is active.



This command is one of the application-specific expansion commands for LED modules with DALI interface. They function only if they are preceded by the *Enable Device Type 6* command, which can be sent with the [FB_DALIV2EnableDeviceType0](#) [▶ 85] function block. The command *Enable Device Type 6* is automatically internally prefixed to all application-related expansion commands for DALI LED modules.

VAR_INPUT

```
bStart      : BOOL;
nAddr       : BYTE;
eAddrType   : E_DALIV2AddrType := eDALIV2AddrTypeShort;
eCommandPriority : E_DALIV2CommandPriority := eDALIV2CommandPriorityMiddle;
```

bStart: The function block is activated by a positive edge at this input.

nAddr: The address of a participating device or of a group.

eAddrType: Short address, group address or broadcast (see [E_DALIV2AddrType](#) [▶ 401]).

eCommandPriority: Priority (high, medium or low) with which the command is processed by the library (see [E_DALIV2CommandPriority](#) [▶ 401]).

VAR_OUTPUT

```
bBusy       : BOOL;
bError      : BOOL;
nErrorId    : UDINT;
bCurrentProtectorActive : BOOL;
```

bBusy: When the function block is activated the output is set, and it remains active until execution of the command has been completed.

bError: This output is switched to TRUE as soon as an error occurs during the execution of a command. The command-specific error code is contained in *nErrorId*. Is reset to FALSE by the execution of a command at the inputs.

nErrorId: Contains the command-specific error code of the most recently executed command. Is reset to 0 by the execution of a command at the inputs. (See [error codes](#) [▶ 380])

bCurrentProtectorActive: Current protection device active.

VAR_IN_OUT

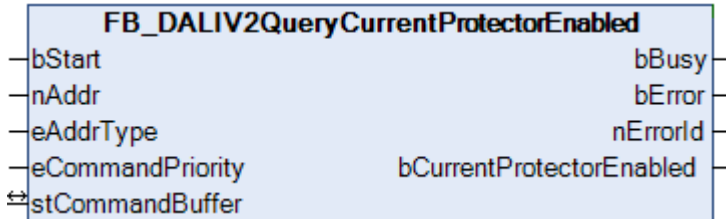
```
stCommandBuffer : ST_DALIV2CommandBuffer;
```

stCommandBuffer: Reference to the internal structure for communication with the function block [FB_KL6811Communication](#) [▶ 70] (KL6811) or [FB_KL6821Communication](#) [▶ 74] (KL6821).

Requirements

Development environment	required PLC library
TwinCAT from v3.1.4022.4	Tc2_DALI from v3.6.2.0

4.1.2.7.4 FB_DALIV2QueryCurrentProtectorEnabled



The system queries whether the current protection device is enabled.

i This command is one of the application-specific expansion commands for LED modules with DALI interface. They function only if they are preceded by the *Enable Device Type 6* command, which can be sent with the [FB_DALIV2EnableDeviceType0](#) [▶ 85] function block. The command *Enable Device Type 6* is automatically internally prefixed to all application-related expansion commands for DALI LED modules.

VAR_INPUT

```

bStart          : BOOL;
nAddr           : BYTE;
eAddrType       : E_DALIV2AddrType := eDALIV2AddrTypeShort;
eCommandPriority : E_DALIV2CommandPriority := eDALIV2CommandPriorityMiddle;

```

bStart: The function block is activated by a positive edge at this input.

nAddr: The address of a participating device or of a group.

eAddrType: Short address, group address or broadcast (see [E_DALIV2AddrType](#) [▶ 401]).

eCommandPriority: Priority (high, medium or low) with which the command is processed by the library (see [E_DALIV2CommandPriority](#) [▶ 401]).

VAR_OUTPUT

```

bBusy           : BOOL;
bError          : BOOL;
nErrorId        : UDINT;
bCurrentProtectorEnabled : BOOL;

```

bBusy: When the function block is activated the output is set, and it remains active until execution of the command has been completed.

bError: This output is switched to TRUE as soon as an error occurs during the execution of a command. The command-specific error code is contained in *nErrorId*. Is reset to FALSE by the execution of a command at the inputs.

nErrorId: Contains the command-specific error code of the most recently executed command. Is reset to 0 by the execution of a command at the inputs. (See [error codes](#) [▶ 380])

bCurrentProtectorEnabled: Current protection device enabled.

VAR_IN_OUT

```

stCommandBuffer : ST_DALIV2CommandBuffer;

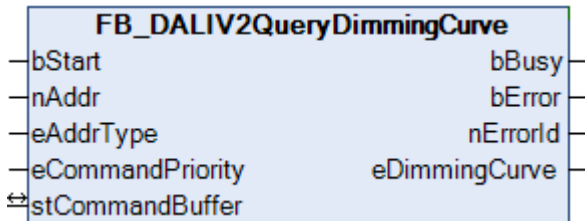
```

stCommandBuffer: Reference to the internal structure for communication with the function block [FB_KL6811Communication](#) [▶ 70] (KL6811) or [FB_KL6821Communication](#) [▶ 74] (KL6821).

Requirements

Development environment	required PLC library
TwinCAT from v3.1.4022.4	Tc2_DALI from v3.6.2.0

4.1.2.7.5 FB_DALIV2QueryDimmingCurve



The dimming curve of the control gear is read out.



This command is one of the application-specific expansion commands for LED modules with DALI interface. They function only if they are preceded by the *Enable Device Type 6* command, which can be sent with the `FB_DALIV2EnableDeviceType()` [► 85] function block. The command *Enable Device Type 6* is automatically internally prefixed to all application-related expansion commands for DALI LED modules.

VAR_INPUT

```
bStart      : BOOL;
nAddr       : BYTE;
eAddrType   : E_DALIV2AddrType := eDALIV2AddrTypeShort;
eCommandPriority : E_DALIV2CommandPriority := eDALIV2CommandPriorityMiddle;
```

bStart: The function block is activated by a positive edge at this input.

nAddr: The address of a participating device or of a group.

eAddrType: Short address, group address or broadcast (see `E_DALIV2AddrType` [► 401]).

eCommandPriority: Priority (high, medium or low) with which the command is processed by the library (see `E_DALIV2CommandPriority` [► 401]).

VAR_OUTPUT

```
bBusy       : BOOL;
bError      : BOOL;
nErrorId    : UDINT;
eDimmingCurve : E_DALIV2DimmingCurve;
```

bBusy: When the function block is activated the output is set, and it remains active until execution of the command has been completed.

bError: This output is switched to TRUE as soon as an error occurs during the execution of a command. The command-specific error code is contained in `nErrorId`. Is reset to FALSE by the execution of a command at the inputs.

nErrorId: Contains the command-specific error code of the most recently executed command. Is reset to 0 by the execution of a command at the inputs. (See `error codes` [► 380])

eDimmingCurve: Dimming curve (linear or logarithmic) (see `E_DALIV2DimmingCurve` [► 402]).

VAR_IN_OUT

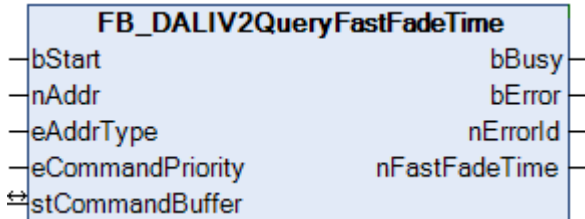
```
stCommandBuffer : ST_DALIV2CommandBuffer;
```

stCommandBuffer: Reference to the internal structure for communication with the function block `FB_KL6811Communication()` [► 70] (KL6811) or `FB_KL6821Communication()` [► 74] (KL6821).

Requirements

Development environment	required PLC library
TwinCAT from v3.1.4022.4	Tc2_DALI from v3.6.2.0

4.1.2.7.6 FB_DALIV2QueryFastFadeTime



Queries the value of FAST FADE TIME.

i This command is one of the application-specific expansion commands for LED modules with DALI interface. They function only if they are preceded by the *Enable Device Type 6* command, which can be sent with the [FB_DALIV2EnableDeviceType\(\)](#) [▶ 85] function block. The command *Enable Device Type 6* is automatically internally prefixed to all application-related expansion commands for DALI LED modules.

VAR_INPUT

```
bStart      : BOOL;
nAddr       : BYTE;
eAddrType   : E_DALIV2AddrType := eDALIV2AddrTypeShort;
eCommandPriority : E_DALIV2CommandPriority := eDALIV2CommandPriorityMiddle;
```

bStart: The function block is activated by a positive edge at this input.

nAddr: The address of a participating device or of a group.

eAddrType: Short address, group address or broadcast (see [E_DALIV2AddrType](#) [▶ 401]).

eCommandPriority: Priority (high, medium or low) with which the command is processed by the library (see [E_DALIV2CommandPriority](#) [▶ 401]).

VAR_OUTPUT

```
bBusy       : BOOL;
bError      : BOOL;
nErrorId    : UDINT;
nFastFadeTime : BYTE;
```

bBusy: When the function block is activated the output is set, and it remains active until execution of the command has been completed.

bError: This output is switched to TRUE as soon as an error occurs during the execution of a command. The command-specific error code is contained in *nErrorId*. Is reset to FALSE by the execution of a command at the inputs.

nErrorId: Contains the command-specific error code of the most recently executed command. Is reset to 0 by the execution of a command at the inputs. (See [error codes](#) [▶ 380])

nFastFadeTime: Value of FAST FADE TIME.

VAR_IN_OUT

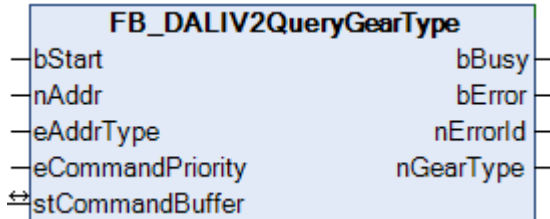
```
stCommandBuffer : ST_DALIV2CommandBuffer;
```

stCommandBuffer: Reference to the internal structure for communication with the function block [FB_KL6811Communication\(\)](#) [▶ 70] (KL6811) or [FB_KL6821Communication\(\)](#) [▶ 74] (KL6821).

Requirements

Development environment	required PLC library
TwinCAT from v3.1.4022.4	Tc2_DALI from v3.6.2.0

4.1.2.7.7 FB_DALIV2QueryGearType



Queries the value of GEAR TYPE.



This command is one of the application-specific expansion commands for LED modules with DALI interface. They function only if they are preceded by the *Enable Device Type 6* command, which can be sent with the [FB_DALIV2EnableDeviceType\(\)](#) [▶ 85] function block. The command *Enable Device Type 6* is automatically internally prefixed to all application-related expansion commands for DALI LED modules.

VAR_INPUT

```
bStart      : BOOL;
nAddr       : BYTE;
eAddrType   : E_DALIV2AddrType := eDALIV2AddrTypeShort;
eCommandPriority : E_DALIV2CommandPriority := eDALIV2CommandPriorityMiddle;
```

bStart: The function block is activated by a positive edge at this input.

nAddr: The address of a participating device or of a group.

eAddrType: Short address, group address or broadcast (see [E_DALIV2AddrType](#) [▶ 401]).

eCommandPriority: Priority (high, medium or low) with which the command is processed by the library (see [E_DALIV2CommandPriority](#) [▶ 401]).

VAR_OUTPUT

```
bBusy       : BOOL;
bError      : BOOL;
nErrorId    : UDINT;
nGearType   : BYTE;
```

bBusy: When the function block is activated the output is set, and it remains active until execution of the command has been completed.

bError: This output is switched to TRUE as soon as an error occurs during the execution of a command. The command-specific error code is contained in *nErrorId*. Is reset to FALSE by the execution of a command at the inputs.

nErrorId: Contains the command-specific error code of the most recently executed command. Is reset to 0 by the execution of a command at the inputs. (See [error codes](#) [▶ 380])

nGearType: Value of GEAR TYPE.

VAR_IN_OUT

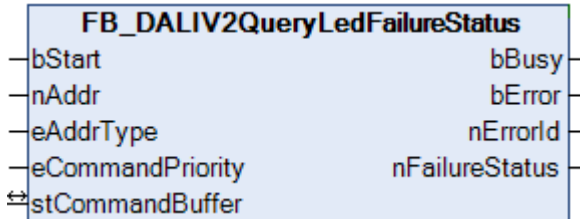
```
stCommandBuffer : ST_DALIV2CommandBuffer;
```

stCommandBuffer: Reference to the internal structure for communication with the function block [FB_KL6811Communication\(\)](#) [▶ 70] (KL6811) or [FB_KL6821Communication\(\)](#) [▶ 74] (KL6821).

Requirements

Development environment	required PLC library
TwinCAT from v3.1.4022.4	Tc2_DALI from v3.6.2.0

4.1.2.7.8 FB_DALIV2QueryLedFailureStatus



Queries the value of FAILURE STATUS.

i This command is one of the application-specific expansion commands for LED modules with DALI interface. They function only if they are preceded by the *Enable Device Type 6* command, which can be sent with the [FB_DALIV2EnableDeviceType\(\)](#) [▶ 85] function block. The command *Enable Device Type 6* is automatically internally prefixed to all application-related expansion commands for DALI LED modules.

VAR_INPUT

```
bStart      : BOOL;
nAddr       : BYTE;
eAddrType   : E_DALIV2AddrType := eDALIV2AddrTypeShort;
eCommandPriority : E_DALIV2CommandPriority := eDALIV2CommandPriorityMiddle;
```

bStart: The function block is activated by a positive edge at this input.

nAddr: The address of a participating device or of a group.

eAddrType: Short address, group address or broadcast (see [E_DALIV2AddrType](#) [▶ 401]).

eCommandPriority: Priority (high, medium or low) with which the command is processed by the library (see [E_DALIV2CommandPriority](#) [▶ 401]).

VAR_OUTPUT

```
bBusy       : BOOL;
bError      : BOOL;
nErrorId    : UDINT;
nFailureStatus : BYTE;
```

bBusy: When the function block is activated the output is set, and it remains active until execution of the command has been completed.

bError: This output is switched to TRUE as soon as an error occurs during the execution of a command. The command-specific error code is contained in *nErrorId*. Is reset to FALSE by the execution of a command at the inputs.

nErrorId: Contains the command-specific error code of the most recently executed command. Is reset to 0 by the execution of a command at the inputs. (See [error codes](#) [▶ 380])

nFailureStatus: Value of FAILURE STATUS.

VAR_IN_OUT

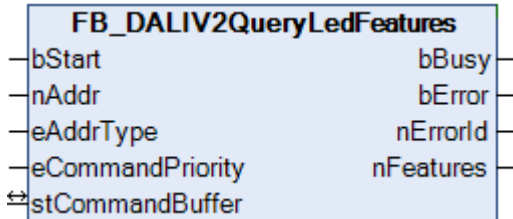
```
stCommandBuffer : ST_DALIV2CommandBuffer;
```

stCommandBuffer: Reference to the internal structure for communication with the function block [FB_KL6811Communication\(\)](#) [▶ 70] (KL6811) or [FB_KL6821Communication\(\)](#) [▶ 74] (KL6821).

Requirements

Development environment	required PLC library
TwinCAT from v3.1.4022.4	Tc2_DALI from v3.6.2.0

4.1.2.7.9 FB_DALIV2QueryLedFeatures



Queries the value of FEATURES.

i This command is one of the application-specific expansion commands for LED modules with DALI interface. They function only if they are preceded by the *Enable Device Type 6* command, which can be sent with the [FB_DALIV2EnableDeviceType\(\)](#) [▶ 85] function block. The command *Enable Device Type 6* is automatically internally prefixed to all application-related expansion commands for DALI LED modules.

VAR_INPUT

```
bStart      : BOOL;
nAddr       : BYTE;
eAddrType   : E_DALIV2AddrType := eDALIV2AddrTypeShort;
eCommandPriority : E_DALIV2CommandPriority := eDALIV2CommandPriorityMiddle;
```

bStart: The function block is activated by a positive edge at this input.

nAddr: The address of a participating device or of a group.

eAddrType: Short address, group address or broadcast (see [E_DALIV2AddrType](#) [▶ 401]).

eCommandPriority: Priority (high, medium or low) with which the command is processed by the library (see [E_DALIV2CommandPriority](#) [▶ 401]).

VAR_OUTPUT

```
bBusy      : BOOL;
bError     : BOOL;
nErrorId   : UDINT;
nFeatures  : BYTE;
```

bBusy: When the function block is activated the output is set, and it remains active until execution of the command has been completed.

bError: This output is switched to TRUE as soon as an error occurs during the execution of a command. The command-specific error code is contained in *nErrorId*. Is reset to FALSE by the execution of a command at the inputs.

nErrorId: Contains the command-specific error code of the most recently executed command. Is reset to 0 by the execution of a command at the inputs. (See [error codes](#) [▶ 380])

nFeatures: Value of FEATURES.

VAR_IN_OUT

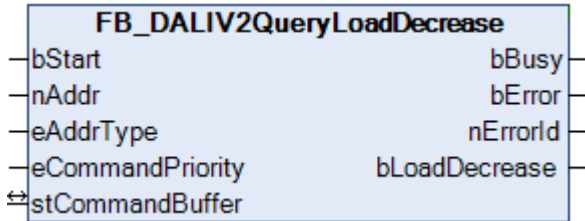
```
stCommandBuffer : ST_DALIV2CommandBuffer;
```

stCommandBuffer: Reference to the internal structure for communication with the function block [FB_KL6811Communication\(\)](#) [▶ 70] (KL6811) or [FB_KL6821Communication\(\)](#) [▶ 74] (KL6821).

Requirements

Development environment	required PLC library
TwinCAT from v3.1.4022.4	Tc2_DALI from v3.6.2.0

4.1.2.7.10 FB_DALIV2QueryLoadDecrease



The system queries whether a significant decrease in load (compared to the reference power of the system) has been detected.

i This command is one of the application-specific expansion commands for LED modules with DALI interface. They function only if they are preceded by the *Enable Device Type 6* command, which can be sent with the [FB_DALIV2EnableDeviceType0](#) [▶ 85] function block. The command *Enable Device Type 6* is automatically internally prefixed to all application-related expansion commands for DALI LED modules.

VAR_INPUT

```
bStart      : BOOL;
nAddr       : BYTE;
eAddrType   : E_DALIV2AddrType := eDALIV2AddrTypeShort;
eCommandPriority : E_DALIV2CommandPriority := eDALIV2CommandPriorityMiddle;
```

bStart: The function block is activated by a positive edge at this input.

nAddr: The address of a participating device or of a group.

eAddrType: Short address, group address or broadcast (see [E_DALIV2AddrType](#) [▶ 401]).

eCommandPriority: Priority (high, medium or low) with which the command is processed by the library (see [E_DALIV2CommandPriority](#) [▶ 401]).

VAR_OUTPUT

```
bBusy       : BOOL;
bError      : BOOL;
nErrorId    : UDINT;
bLoadDecrease : BOOL;
```

bBusy: When the function block is activated the output is set, and it remains active until execution of the command has been completed.

bError: This output is switched to TRUE as soon as an error occurs during the execution of a command. The command-specific error code is contained in *nErrorId*. Is reset to FALSE by the execution of a command at the inputs.

nErrorId: Contains the command-specific error code of the most recently executed command. Is reset to 0 by the execution of a command at the inputs. (See [error codes](#) [▶ 380])

bLoadDecrease: Load decrease.

VAR_IN_OUT

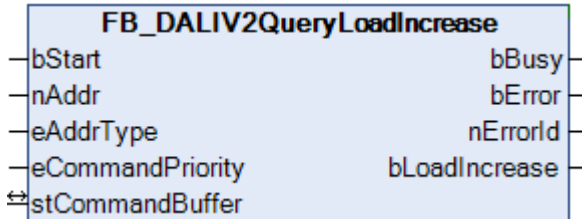
```
stCommandBuffer : ST_DALIV2CommandBuffer;
```

stCommandBuffer: Reference to the internal structure for communication with the function block [FB_KL6811Communication](#)() [▶ 70] (KL6811) or [FB_KL6821Communication](#)() [▶ 74] (KL6821).

Requirements

Development environment	required PLC library
TwinCAT from v3.1.4022.4	Tc2_DALI from v3.6.2.0

4.1.2.7.11 FB_DALIV2QueryLoadIncrease



The system queries whether a significant increase in load (compared to the reference power of the system) has been detected.



This command is one of the application-specific expansion commands for LED modules with DALI interface. They function only if they are preceded by the *Enable Device Type 6* command, which can be sent with the [FB_DALIV2EnableDeviceType0](#) [▶ 85] function block. The command *Enable Device Type 6* is automatically internally prefixed to all application-related expansion commands for DALI LED modules.

VAR_INPUT

```
bStart          : BOOL;
nAddr           : BYTE;
eAddrType       : E_DALIV2AddrType := eDALIV2AddrTypeShort;
eCommandPriority : E_DALIV2CommandPriority := eDALIV2CommandPriorityMiddle;
```

bStart: The function block is activated by a positive edge at this input.

nAddr: The address of a participating device or of a group.

eAddrType: Short address, group address or broadcast (see [E_DALIV2AddrType](#) [▶ 401]).

eCommandPriority: Priority (high, medium or low) with which the command is processed by the library (see [E_DALIV2CommandPriority](#) [▶ 401]).

VAR_OUTPUT

```
bBusy           : BOOL;
bError          : BOOL;
nErrorId        : UDINT;
bLoadIncrease   : BOOL;
```

bBusy: When the function block is activated the output is set, and it remains active until execution of the command has been completed.

bError: This output is switched to TRUE as soon as an error occurs during the execution of a command. The command-specific error code is contained in *nErrorId*. Is reset to FALSE by the execution of a command at the inputs.

nErrorId: Contains the command-specific error code of the most recently executed command. Is reset to 0 by the execution of a command at the inputs. (See [error codes](#) [▶ 380])

bLoadIncrease: Load increase.

VAR_IN_OUT

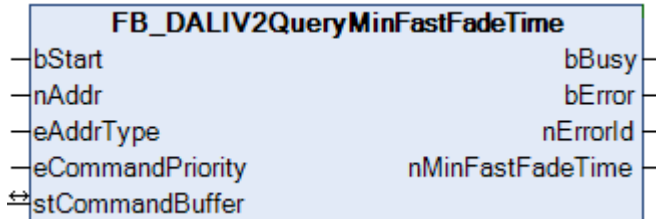
```
stCommandBuffer : ST_DALIV2CommandBuffer;
```

stCommandBuffer: Reference to the internal structure for communication with the function block [FB_KL6811Communication](#)() [▶ 70] (KL6811) or [FB_KL6821Communication](#)() [▶ 74] (KL6821).

Requirements

Development environment	required PLC library
TwinCAT from v3.1.4022.4	Tc2_DALI from v3.6.2.0

4.1.2.7.12 FB_DALIV2QueryMinFastFadeTime



Queries the value of MIN FAST FADE TIME.



This command is one of the application-specific expansion commands for LED modules with DALI interface. They function only if they are preceded by the *Enable Device Type 6* command, which can be sent with the [FB_DALIV2EnableDeviceType\(\)](#) [▶ 85] function block. The command *Enable Device Type 6* is automatically internally prefixed to all application-related expansion commands for DALI LED modules.

VAR_INPUT

```
bStart      : BOOL;
nAddr       : BYTE;
eAddrType   : E_DALIV2AddrType := eDALIV2AddrTypeShort;
eCommandPriority : E_DALIV2CommandPriority := eDALIV2CommandPriorityMiddle;
```

bStart: The function block is activated by a positive edge at this input.

nAddr: The address of a participating device or of a group.

eAddrType: Short address, group address or broadcast (see [E_DALIV2AddrType](#) [▶ 401]).

eCommandPriority: Priority (high, medium or low) with which the command is processed by the library (see [E_DALIV2CommandPriority](#) [▶ 401]).

VAR_OUTPUT

```
bBusy       : BOOL;
bError      : BOOL;
nErrorId    : UDINT;
nMinFastFadeTime : BYTE;
```

bBusy: When the function block is activated the output is set, and it remains active until execution of the command has been completed.

bError: This output is switched to TRUE as soon as an error occurs during the execution of a command. The command-specific error code is contained in *nErrorId*. Is reset to FALSE by the execution of a command at the inputs.

nErrorId: Contains the command-specific error code of the most recently executed command. Is reset to 0 by the execution of a command at the inputs. (See [error codes](#) [▶ 380])

nMinFastFadeTime: Value of MIN FAST FADE TIME.

VAR_IN_OUT

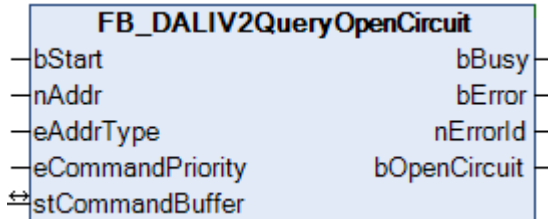
```
stCommandBuffer : ST_DALIV2CommandBuffer;
```

stCommandBuffer: Reference to the internal structure for communication with the function block [FB_KL6811Communication\(\)](#) [▶ 70] (KL6811) or [FB_KL6821Communication\(\)](#) [▶ 74] (KL6821).

Requirements

Development environment	required PLC library
TwinCAT from v3.1.4022.4	Tc2_DALI from v3.6.2.0

4.1.2.7.13 FB_DALIV2QueryOpenCircuit



The system queries whether an idle mode has been detected.



This command is one of the application-specific expansion commands for LED modules with DALI interface. They function only if they are preceded by the *Enable Device Type 6* command, which can be sent with the `FB_DALIV2EnableDeviceType()` [▶ 85] function block. The command *Enable Device Type 6* is automatically internally prefixed to all application-related expansion commands for DALI LED modules.

VAR_INPUT

```
bStart      : BOOL;
nAddr       : BYTE;
eAddrType   : E_DALIV2AddrType := eDALIV2AddrTypeShort;
eCommandPriority : E_DALIV2CommandPriority := eDALIV2CommandPriorityMiddle;
```

bStart: The function block is activated by a positive edge at this input.

nAddr: The address of a participating device or of a group.

eAddrType: Short address, group address or broadcast (see `E_DALIV2AddrType` [▶ 401]).

eCommandPriority: Priority (high, medium or low) with which the command is processed by the library (see `E_DALIV2CommandPriority` [▶ 401]).

VAR_OUTPUT

```
bBusy       : BOOL;
bError      : BOOL;
nErrorId    : UDINT;
bOpenCircuit : BOOL;
```

bBusy: When the function block is activated the output is set, and it remains active until execution of the command has been completed.

bError: This output is switched to TRUE as soon as an error occurs during the execution of a command. The command-specific error code is contained in `nErrorId`. Is reset to FALSE by the execution of a command at the inputs.

nErrorId: Contains the command-specific error code of the most recently executed command. Is reset to 0 by the execution of a command at the inputs. (See `error codes` [▶ 380])

bOpenCircuit: Idle mode.

VAR_IN_OUT

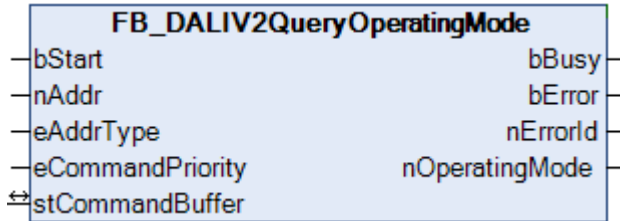
```
stCommandBuffer : ST_DALIV2CommandBuffer;
```

stCommandBuffer: Reference to the internal structure for communication with the function block `FB_KL6811Communication()` [▶ 70] (KL6811) or `FB_KL6821Communication()` [▶ 74] (KL6821).

Requirements

Development environment	required PLC library
TwinCAT from v3.1.4022.4	Tc2_DALI from v3.6.2.0

4.1.2.7.14 FB_DALIV2QueryOperatingMode



Queries the value of OPERATING MODE.

i This command is one of the application-specific expansion commands for LED modules with DALI interface. They function only if they are preceded by the *Enable Device Type 6* command, which can be sent with the [FB_DALIV2EnableDeviceType\(\)](#) [▶ 85] function block. The command *Enable Device Type 6* is automatically internally prefixed to all application-related expansion commands for DALI LED modules.

VAR_INPUT

```
bStart      : BOOL;
nAddr       : BYTE;
eAddrType   : E_DALIV2AddrType := eDALIV2AddrTypeShort;
eCommandPriority : E_DALIV2CommandPriority := eDALIV2CommandPriorityMiddle;
```

bStart: The function block is activated by a positive edge at this input.

nAddr: The address of a participating device or of a group.

eAddrType: Short address, group address or broadcast (see [E_DALIV2AddrType](#) [▶ 401]).

eCommandPriority: Priority (high, medium or low) with which the command is processed by the library (see [E_DALIV2CommandPriority](#) [▶ 401]).

VAR_OUTPUT

```
bBusy       : BOOL;
bError      : BOOL;
nErrorId    : UDINT;
nOperatingMode : BYTE;
```

bBusy: When the function block is activated the output is set, and it remains active until execution of the command has been completed.

bError: This output is switched to TRUE as soon as an error occurs during the execution of a command. The command-specific error code is contained in *nErrorId*. Is reset to FALSE by the execution of a command at the inputs.

nErrorId: Contains the command-specific error code of the most recently executed command. Is reset to 0 by the execution of a command at the inputs. (See [error codes](#) [▶ 380])

nOperatingMode: Value of OPERATING MODE.

VAR_IN_OUT

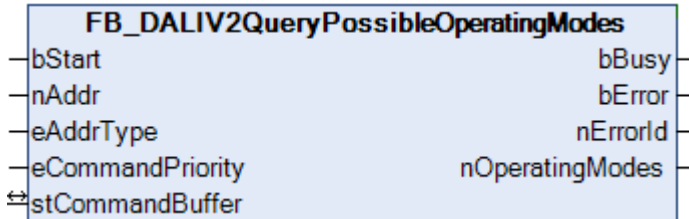
```
stCommandBuffer : ST_DALIV2CommandBuffer;
```

stCommandBuffer: Reference to the internal structure for communication with the function block [FB_KL6811Communication\(\)](#) [▶ 70] (KL6811) or [FB_KL6821Communication\(\)](#) [▶ 74] (KL6821).

Requirements

Development environment	required PLC library
TwinCAT from v3.1.4022.4	Tc2_DALI from v3.6.2.0

4.1.2.7.15 FB_DALIV2QueryPossibleOperatingModes



Queries the value of OPERATING MODE.



This command is one of the application-specific expansion commands for LED modules with DALI interface. They function only if they are preceded by the *Enable Device Type 6* command, which can be sent with the [FB_DALIV2EnableDeviceType\(\)](#) [▶ 85] function block. The command *Enable Device Type 6* is automatically internally prefixed to all application-related expansion commands for DALI LED modules.

VAR_INPUT

```
bStart      : BOOL;
nAddr       : BYTE;
eAddrType   : E_DALIV2AddrType := eDALIV2AddrTypeShort;
eCommandPriority : E_DALIV2CommandPriority := eDALIV2CommandPriorityMiddle;
```

bStart: The function block is activated by a positive edge at this input.

nAddr: The address of a participating device or of a group.

eAddrType: Short address, group address or broadcast (see [E_DALIV2AddrType](#) [▶ 401]).

eCommandPriority: Priority (high, medium or low) with which the command is processed by the library (see [E_DALIV2CommandPriority](#) [▶ 401]).

VAR_OUTPUT

```
bBusy       : BOOL;
bError      : BOOL;
nErrorId    : UDINT;
nOperatingModes : BYTE;
```

bBusy: When the function block is activated the output is set, and it remains active until execution of the command has been completed.

bError: This output is switched to TRUE as soon as an error occurs during the execution of a command. The command-specific error code is contained in *nErrorId*. Is reset to FALSE by the execution of a command at the inputs.

nErrorId: Contains the command-specific error code of the most recently executed command. Is reset to 0 by the execution of a command at the inputs. (See [error codes](#) [▶ 380])

nOperatingModes: Value of OPERATING MODE.

VAR_IN_OUT

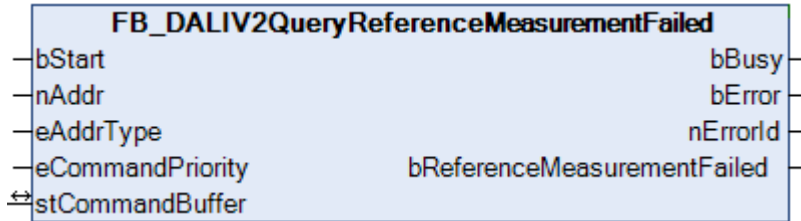
```
stCommandBuffer : ST_DALIV2CommandBuffer;
```

stCommandBuffer: Reference to the internal structure for communication with the function block [FB_KL6811Communication\(\)](#) [▶ 70] (KL6811) or [FB_KL6821Communication\(\)](#) [▶ 74] (KL6821).

Requirements

Development environment	required PLC library
TwinCAT from v3.1.4022.4	Tc2_DALI from v3.6.2.0

4.1.2.7.16 FB_DALIV2QueryReferenceMeasurementFailed



The system queries whether a started reference measurement has failed.

i This command is one of the application-specific expansion commands for LED modules with DALI interface. They function only if they are preceded by the *Enable Device Type 6* command, which can be sent with the [FB_DALIV2EnableDeviceType\(\)](#) [▶ 85] function block. The command *Enable Device Type 6* is automatically internally prefixed to all application-related expansion commands for DALI LED modules.

VAR_INPUT

```
bStart          : BOOL;
nAddr           : BYTE;
eAddrType       : E_DALIV2AddrType := eDALIV2AddrTypeShort;
eCommandPriority : E_DALIV2CommandPriority := eDALIV2CommandPriorityMiddle;
```

bStart: The function block is activated by a positive edge at this input.

nAddr: The address of a participating device or of a group.

eAddrType: Short address, group address or broadcast (see [E_DALIV2AddrType](#) [▶ 401]).

eCommandPriority: Priority (high, medium or low) with which the command is processed by the library (see [E_DALIV2CommandPriority](#) [▶ 401]).

VAR_OUTPUT

```
bBusy           : BOOL;
bError          : BOOL;
nErrorId        : UDINT;
bReferenceMeasurementFailed : BOOL;
```

bBusy: When the function block is activated the output is set, and it remains active until execution of the command has been completed.

bError: This output is switched to TRUE as soon as an error occurs during the execution of a command. The command-specific error code is contained in *nErrorId*. Is reset to FALSE by the execution of a command at the inputs.

nErrorId: Contains the command-specific error code of the most recently executed command. Is reset to 0 by the execution of a command at the inputs. (See [error codes](#) [▶ 380])

bReferenceMeasurementFailed: Reference measurement failed.

VAR_IN_OUT

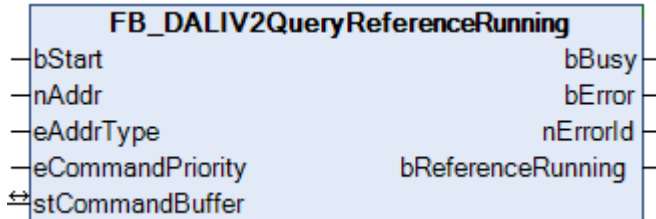
```
stCommandBuffer : ST_DALIV2CommandBuffer;
```

stCommandBuffer: Reference to the internal structure for communication with the function block [FB_KL6811Communication\(\)](#) [▶ 70] (KL6811) or [FB_KL6821Communication\(\)](#) [▶ 74] (KL6821).

Requirements

Development environment	required PLC library
TwinCAT from v3.1.4022.4	Tc2_DALI from v3.6.2.0

4.1.2.7.17 FB_DALIV2QueryReferenceRunning



The system queries whether a reference measurement of the system performance is active.



This command is one of the application-specific expansion commands for LED modules with DALI interface. They function only if they are preceded by the *Enable Device Type 6* command, which can be sent with the `FB_DALIV2EnableDeviceType()` [► 85] function block. The command *Enable Device Type 6* is automatically internally prefixed to all application-related expansion commands for DALI LED modules.

VAR_INPUT

```
bStart      : BOOL;
nAddr       : BYTE;
eAddrType   : E_DALIV2AddrType := eDALIV2AddrTypeShort;
eCommandPriority : E_DALIV2CommandPriority := eDALIV2CommandPriorityMiddle;
```

bStart: The function block is activated by a positive edge at this input.

nAddr: The address of a participating device or of a group.

eAddrType: Short address, group address or broadcast (see `E_DALIV2AddrType` [► 401]).

eCommandPriority: Priority (high, medium or low) with which the command is processed by the library (see `E_DALIV2CommandPriority` [► 401]).

VAR_OUTPUT

```
bBusy       : BOOL;
bError      : BOOL;
nErrorId    : UDINT;
bReferenceRunning : BOOL;
```

bBusy: When the function block is activated the output is set, and it remains active until execution of the command has been completed.

bError: This output is switched to TRUE as soon as an error occurs during the execution of a command. The command-specific error code is contained in `nErrorId`. Is reset to FALSE by the execution of a command at the inputs.

nErrorId: Contains the command-specific error code of the most recently executed command. Is reset to 0 by the execution of a command at the inputs. (See `error codes` [► 380])

bReferenceRunning: Reference measurement of system performance is active.

VAR_IN_OUT

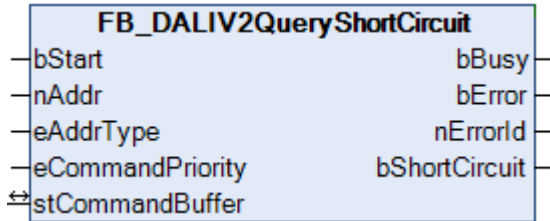
```
stCommandBuffer : ST_DALIV2CommandBuffer;
```

stCommandBuffer: Reference to the internal structure for communication with the function block `FB_KL6811Communication()` [► 70] (KL6811) or `FB_KL6821Communication()` [► 74] (KL6821).

Requirements

Development environment	required PLC library
TwinCAT from v3.1.4022.4	Tc2_DALI from v3.6.2.0

4.1.2.7.18 FB_DALIV2QueryShortCircuit



The system queries whether a short circuit has been detected.

i This command is one of the application-specific expansion commands for LED modules with DALI interface. They function only if they are preceded by the *Enable Device Type 6* command, which can be sent with the [FB_DALIV2EnableDeviceType\(\)](#) [▶ 85] function block. The command *Enable Device Type 6* is automatically internally prefixed to all application-related expansion commands for DALI LED modules.

VAR_INPUT

```
bStart          : BOOL;
nAddr           : BYTE;
eAddrType       : E_DALIV2AddrType := eDALIV2AddrTypeShort;
eCommandPriority : E_DALIV2CommandPriority := eDALIV2CommandPriorityMiddle;
```

bStart: The function block is activated by a positive edge at this input.

nAddr: The address of a participating device or of a group.

eAddrType: Short address, group address or broadcast (see [E_DALIV2AddrType](#) [▶ 401]).

eCommandPriority: Priority (high, medium or low) with which the command is processed by the library (see [E_DALIV2CommandPriority](#) [▶ 401]).

VAR_OUTPUT

```
bBusy           : BOOL;
bError          : BOOL;
nErrorId        : UDINT;
bShortCircuit   : BOOL;
```

bBusy: When the function block is activated the output is set, and it remains active until execution of the command has been completed.

bError: This output is switched to TRUE as soon as an error occurs during the execution of a command. The command-specific error code is contained in *nErrorId*. Is reset to FALSE by the execution of a command at the inputs.

nErrorId: Contains the command-specific error code of the most recently executed command. Is reset to 0 by the execution of a command at the inputs. (See [error codes](#) [▶ 380])

bShortCircuit: Short circuit.

VAR_IN_OUT

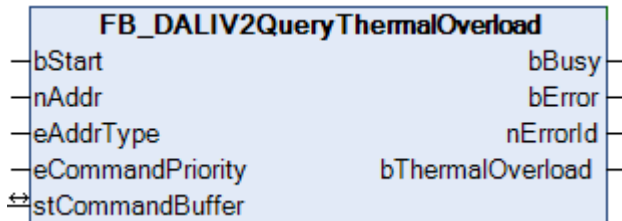
```
stCommandBuffer : ST_DALIV2CommandBuffer;
```

stCommandBuffer: Reference to the internal structure for communication with the function block [FB_KL6811Communication\(\)](#) [▶ 70] (KL6811) or [FB_KL6821Communication\(\)](#) [▶ 74] (KL6821).

Requirements

Development environment	required PLC library
TwinCAT from v3.1.4022.4	Tc2_DALI from v3.6.2.0

4.1.2.7.19 FB_DALIV2QueryThermalOverload



The system queries whether there is a thermal overload with reduction of the luminous flux.



This command is one of the application-specific expansion commands for LED modules with DALI interface. They function only if they are preceded by the *Enable Device Type 6* command, which can be sent with the [FB_DALIV2EnableDeviceType\(\)](#) [▶ 85] function block. The command *Enable Device Type 6* is automatically internally prefixed to all application-related expansion commands for DALI LED modules.

VAR_INPUT

```
bStart      : BOOL;
nAddr       : BYTE;
eAddrType   : E_DALIV2AddrType := eDALIV2AddrTypeShort;
eCommandPriority : E_DALIV2CommandPriority := eDALIV2CommandPriorityMiddle;
```

bStart: The function block is activated by a positive edge at this input.

nAddr: The address of a participating device or of a group.

eAddrType: Short address, group address or broadcast (see [E_DALIV2AddrType](#) [▶ 401]).

eCommandPriority: Priority (high, medium or low) with which the command is processed by the library (see [E_DALIV2CommandPriority](#) [▶ 401]).

VAR_OUTPUT

```
bBusy       : BOOL;
bError      : BOOL;
nErrorId    : UDINT;
bThermalOverload : BOOL;
```

bBusy: When the function block is activated the output is set, and it remains active until execution of the command has been completed.

bError: This output is switched to TRUE as soon as an error occurs during the execution of a command. The command-specific error code is contained in *nErrorId*. Is reset to FALSE by the execution of a command at the inputs.

nErrorId: Contains the command-specific error code of the most recently executed command. Is reset to 0 by the execution of a command at the inputs. (See [error codes](#) [▶ 380])

bThermalOverload: Thermal overload.

VAR_IN_OUT

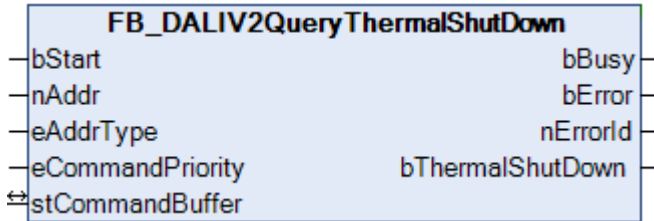
```
stCommandBuffer : ST_DALIV2CommandBuffer;
```

stCommandBuffer: Reference to the internal structure for communication with the function block [FB_KL6811Communication\(\)](#) [▶ 70] (KL6811) or [FB_KL6821Communication\(\)](#) [▶ 74] (KL6821).

Requirements

Development environment	required PLC library
TwinCAT from v3.1.4022.4	Tc2_DALI from v3.6.2.0

4.1.2.7.20 FB_DALIV2QueryThermalShutDown



The system queries whether a thermal shutdown occurred.

i This command is one of the application-specific expansion commands for LED modules with DALI interface. They function only if they are preceded by the *Enable Device Type 6* command, which can be sent with the `FB_DALIV2EnableDeviceType()` [▶ 85] function block. The command *Enable Device Type 6* is automatically internally prefixed to all application-related expansion commands for DALI LED modules.

VAR_INPUT

```
bStart      : BOOL;
nAddr       : BYTE;
eAddrType   : E_DALIV2AddrType := eDALIV2AddrTypeShort;
eCommandPriority : E_DALIV2CommandPriority := eDALIV2CommandPriorityMiddle;
```

bStart: The function block is activated by a positive edge at this input.

nAddr: The address of a participating device or of a group.

eAddrType: Short address, group address or broadcast (see `E_DALIV2AddrType` [▶ 401]).

eCommandPriority: Priority (high, medium or low) with which the command is processed by the library (see `E_DALIV2CommandPriority` [▶ 401]).

VAR_OUTPUT

```
bBusy       : BOOL;
bError      : BOOL;
nErrorId    : UDINT;
bThermalShutdown : BOOL;
```

bBusy: When the function block is activated the output is set, and it remains active until execution of the command has been completed.

bError: This output is switched to TRUE as soon as an error occurs during the execution of a command. The command-specific error code is contained in `nErrorId`. Is reset to FALSE by the execution of a command at the inputs.

nErrorId: Contains the command-specific error code of the most recently executed command. Is reset to 0 by the execution of a command at the inputs. (See `error codes` [▶ 380])

bThermalShutdown: Thermal shutdown.

VAR_IN_OUT

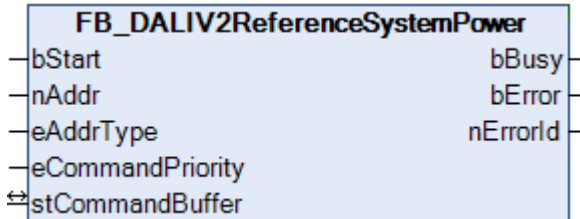
```
stCommandBuffer : ST_DALIV2CommandBuffer;
```

stCommandBuffer: Reference to the internal structure for communication with the function block `FB_KL6811Communication()` [▶ 70] (KL6811) or `FB_KL6821Communication()` [▶ 74] (KL6821).

Requirements

Development environment	required PLC library
TwinCAT from v3.1.4022.4	Tc2_DALI from v3.6.2.0

4.1.2.7.21 FB_DALIV2ReferenceSystemPower



The control gear measures and stores the performance level of the system, in order to detect load increase and decrease.



This command is one of the application-specific expansion commands for LED modules with DALI interface. They function only if they are preceded by the *Enable Device Type 6* command, which can be sent with the [FB_DALIV2EnableDeviceType\(\) \[▶ 85\]](#) function block. The command *Enable Device Type 6* is automatically internally prefixed to all application-related expansion commands for DALI LED modules.

VAR_INPUT

```
bStart      : BOOL;
nAddr       : BYTE;
eAddrType   : E_DALIV2AddrType := eDALIV2AddrTypeShort;
eCommandPriority : E_DALIV2CommandPriority := eDALIV2CommandPriorityMiddle;
```

bStart: The function block is activated by a positive edge at this input.

nAddr: The address of a participating device or of a group.

eAddrType: Short address, group address or broadcast (see [E_DALIV2AddrType \[▶ 401\]](#)).

eCommandPriority: Priority (high, medium or low) with which the command is processed by the library (see [E_DALIV2CommandPriority \[▶ 401\]](#)).

VAR_OUTPUT

```
bBusy       : BOOL;
bError      : BOOL;
nErrorId    : UDINT;
```

bBusy: When the function block is activated the output is set, and it remains active until execution of the command has been completed.

bError: This output is switched to TRUE as soon as an error occurs during the execution of a command. The command-specific error code is contained in *nErrorId*. Is reset to FALSE by the execution of a command at the inputs.

nErrorId: Contains the command-specific error code of the most recently executed command. Is reset to 0 by the execution of a command at the inputs. (See [error codes \[▶ 380\]](#))

VAR_IN_OUT

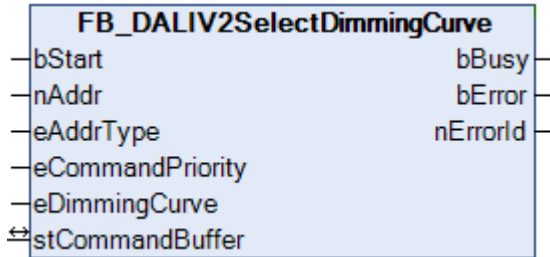
```
stCommandBuffer : ST_DALIV2CommandBuffer;
```

stCommandBuffer: Reference to the internal structure for communication with the function block [FB_KL6811Communication\(\) \[▶ 70\]](#) (KL6811) or [FB_KL6821Communication\(\) \[▶ 74\]](#) (KL6821).

Requirements

Development environment	required PLC library
TwinCAT from v3.1.4022.4	Tc2_DALI from v3.6.2.0

4.1.2.7.22 FB_DALIV2SelectDimmingCurve



The dimming curve of the control gear is selected.

VAR_IN_OUT

```
stCommandBuffer : ST_DALIV2CommandBuffer;
```

stCommandBuffer: Reference to the internal structure for communication with the function block [FB_KL6811Communication\(\) \[▶ 70\]](#) (KL6811) or [FB_KL6821Communication\(\) \[▶ 74\]](#) (KL6821).

VAR_INPUT

```
bStart          : BOOL;
nAddr           : BYTE;
eAddrType       : E_DALIV2AddrType := eDALIV2AddrTypeShort;
eCommandPriority : E_DALIV2CommandPriority := eDALIV2CommandPriorityMiddle;
eDimmingCurve   : E_DALIV2DimmingCurve := eDALIV2DimmingCurveLogarithmic;
```

bStart: The function block is activated by a positive edge at this input.

nAddr: The address of a participating device or of a group.

eAddrType: Short address, group address or broadcast (see [E_DALIV2AddrType \[▶ 401\]](#)).

eCommandPriority: Priority (high, medium or low) with which the command is processed by the library (see [E_DALIV2CommandPriority \[▶ 401\]](#)).

eDimmingCurve: linear or logarithmic dimming curve (see [E_DALIV2DimmingCurve \[▶ 402\]](#)).

VAR_OUTPUT

```
bBusy   : BOOL;
bError  : BOOL;
nErrorId : UDINT;
```

bBusy: When the function block is activated the output is set, and it remains active until execution of the command has been completed.

bError: This output is switched to TRUE as soon as an error occurs during the execution of a command. The command-specific error code is contained in *nErrorId*. Is reset to FALSE by the execution of a command at the inputs.

nErrorId: Contains the command-specific error code of the most recently executed command. Is reset to 0 by the execution of a command at the inputs. (See [error codes \[▶ 380\]](#))

VAR_IN_OUT

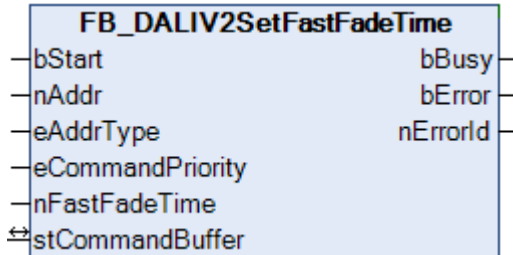
```
stCommandBuffer : ST_DALIV2CommandBuffer;
```

stCommandBuffer: Reference to the internal structure for communication with the function block [FB_KL6811Communication\(\) \[▶ 70\]](#) (KL6811) or [FB_KL6821Communication\(\) \[▶ 74\]](#) (KL6821).

Requirements

Development environment	required PLC library
TwinCAT from v3.1.4022.4	Tc2_DALI from v3.6.2.0

4.1.2.7.23 FB_DALIV2SetFastFadeTime



Sets the FAST FADE TIME in the control gear.



This command is one of the application-specific expansion commands for LED modules with DALI interface. They function only if they are preceded by the *Enable Device Type 6* command, which can be sent with the `FB_DALIV2EnableDeviceType()` [▶ 85] function block. The command *Enable Device Type 6* is automatically internally prefixed to all application-related expansion commands for DALI LED modules.

VAR_INPUT

```
bStart      : BOOL;
nAddr       : BYTE;
eAddrType   : E_DALIV2AddrType := eDALIV2AddrTypeShort;
eCommandPriority : E_DALIV2CommandPriority := eDALIV2CommandPriorityMiddle;
nFastFadeTime : BYTE;
```

bStart: The function block is activated by a positive edge at this input.

nAddr: The address of a participating device or of a group.

eAddrType: Short address, group address or broadcast (see [E_DALIV2AddrType](#) [▶ 401]).

eCommandPriority: Priority (high, medium or low) with which the command is processed by the library (see [E_DALIV2CommandPriority](#) [▶ 401]).

nFastFadeTime: The new value for the FAST FADE TIME (0 - 27).

VAR_OUTPUT

```
bBusy      : BOOL;
bError     : BOOL;
nErrorId   : UDINT;
```

bBusy: When the function block is activated the output is set, and it remains active until execution of the command has been completed.

bError: This output is switched to TRUE as soon as an error occurs during the execution of a command. The command-specific error code is contained in *nErrorId*. Is reset to FALSE by the execution of a command at the inputs.

nErrorId: Contains the command-specific error code of the most recently executed command. Is reset to 0 by the execution of a command at the inputs. (See [error codes](#) [▶ 380])

VAR_IN_OUT

```
stCommandBuffer : ST_DALIV2CommandBuffer;
```

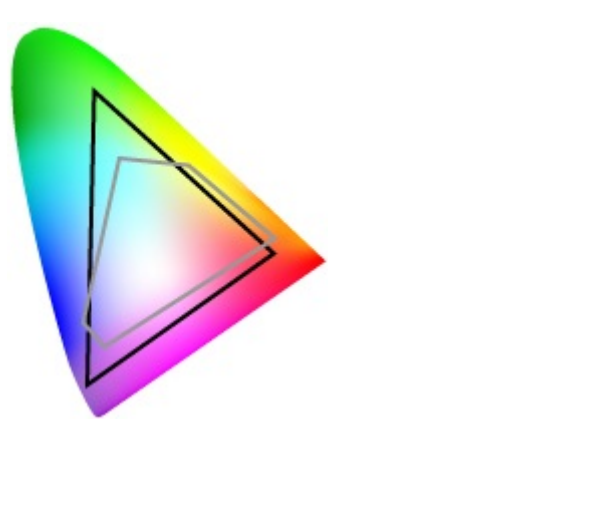
stCommandBuffer: Reference to the internal structure for communication with the function block `FB_KL6811Communication()` [▶ 70] (KL6811) or `FB_KL6821Communication()` [▶ 74] (KL6821).

Requirements

Development environment	required PLC library
TwinCAT from v3.1.4022.4	Tc2_DALI from v3.6.2.0

4.1.2.8 Part 209 (color/color temperature control)

The function blocks and variables for lamps for color/color temperature control with DALI interface are described below. All below function blocks described below call 'application-related expansion commands'. According to the DALI standard (IEC 62386) these commands are within the range 224 to 255. Because of the existence of a variety of application-related expansion commands, it is necessary to use the [FB_DALIV2EnableDeviceType\(\)](#) [▶ 85] function block to specify which type of control gears (emergency lighting, discharge lamps, ...) should react to the extension commands. A precise description of the individual DALI commands and the variables for lamps for color/color temperature control with DALI interface can be found in IEC 62386 part 209.



Function blocks

Name	Description
FB_DALIV2Activate [▶ 297]	Starts a new cross-fade. A running cross-fade will be ended beforehand.
FB_DALIV2AssignColourToLinkedChannel [▶ 298]	Linked output channels are assigned to the defined color.
FB_DALIV2ColourTemperatureTcStepCooler [▶ 300]	The value <u>COLOR TEMPERATURE Tc</u> [▶ 292] is decremented by 1 Mirek.
FB_DALIV2ColourTemperatureTcStepWarmer [▶ 301]	The value <u>COLOR TEMPERATURE Tc</u> [▶ 292] is incremented by 1 Mirek.
FB_DALIV2CopyReportToTemporary [▶ 302]	The color settings report is copied to the temporary color settings.
FB_DALIV2QueryAssignedColour [▶ 303]	Reads the assigned color of the specified output channel.
FB_DALIV2QueryColourStatus [▶ 304]	The <u>COLOR STATUS</u> [▶ 296] variable is read from the control gear.
FB_DALIV2QueryColourTypeFeatures [▶ 306]	The color representations supported by the control gear are read out.
FB_DALIV2QueryColourValue [▶ 307]	The specified color value is read from the control gear.
FB_DALIV2QueryGearFeaturesStatus [▶ 310]	The <u>GEAR FEATURES/STATUS</u> [▶ 296] variable is read from the control gear.
FB_DALIV2QueryRGBWAFControl [▶ 312]	The <u>RGBWAF CONTROL</u> [▶ 296] variable is read from the control gear.
FB_DALIV2SetTemporaryColourTemperatureTc [▶ 313]	Saves the value in the <u>TEMPORARY COLOR TEMPERATURE Tc</u> [▶ 292] variable of the control gear.
FB_DALIV2SetTemporaryPrimaryNDimlevel [▶ 314]	Saves the value in the <u>TEMPORARY PRIMARY N DIMLEVEL</u> [▶ 292] variable of the control gear.
FB_DALIV2SetTemporaryRGBDimlevel [▶ 315]	Saves the values in the <u>TEMPORARY RED DIMLEVEL</u> [▶ 292], <u>TEMPORARY GREEN DIMLEVEL</u> [▶ 292] and <u>TEMPORARY BLUE DIMLEVEL</u> [▶ 292] variables of the control gear.
FB_DALIV2SetTemporaryRGBWAFControl [▶ 317]	Saves the value in the <u>TEMPORARY RGBWAF CONTROL</u> [▶ 292] variable of the control gear.
FB_DALIV2SetTemporaryWAFDimlevel [▶ 318]	Saves the values in the <u>TEMPORARY WHITE DIMLEVEL</u> [▶ 292], <u>TEMPORARY AMBER DIMLEVEL</u> [▶ 292] and <u>TEMPORARY FREECOLOR DIMLEVEL</u> [▶ 292] variables of the control gear.
FB_DALIV2SetTemporaryXCoordinate [▶ 319]	Saves the value in the <u>TEMPORARY x-COORDINATE</u> [▶ 292] variable of the control gear.
FB_DALIV2SetTemporaryYCoordinate [▶ 320]	Saves the value in the <u>TEMPORARY y-COORDINATE</u> [▶ 292] variable of the control gear.
FB_DALIV2StartAutoCalibration [▶ 322]	The calibration procedure is started in order to measure the x-coordinate, the y-coordinate and the TY value of all supported primary colors.
FB_DALIV2StoreColourTemperatureTcLimit [▶ 323]	Saves the value in the <u>COLOR TEMPERATURE Tc COOLEST</u> [▶ 292], <u>COLOR TEMPERATURE Tc WARMEST</u> [▶ 292], <u>COLOR TEMPERATURE Tc PHYSICAL COOLEST</u> [▶ 292] or <u>COLOR TEMPERATURE Tc PHYSICAL WARMEST</u> [▶ 292] variable of the control gear.
FB_DALIV2StoreGearFeaturesStatus [▶ 325]	Saves the value in the <u>GEAR FEATURES/STATUS</u> [▶ 296] variable of the control gear.
FB_DALIV2StoreTYPrimaryN [▶ 326]	Saves the value in the <u>TY PRIMARY N</u> [▶ 292] variable of the control gear.

Name	Description
FB_DALIV2StoreXyCoordinatePrimaryN [▶ 327]	Copies the value from the <u>TEMPORARY x-COORDINATE</u> [▶ 292] and <u>TEMPORARY y-COORDINATE</u> [▶ 292] variables to the <u>x-COORDINATE PRIMARY N</u> [▶ 292] and <u>y-COORDINATE PRIMARY N</u> [▶ 292] variables.
FB_DALIV2XCoordinateStepDown [▶ 328]	The x-COORDINATE variable is reduced by 256 steps (256 / 65536) without cross-fading.
FB_DALIV2XCoordinateStepUp [▶ 330]	The x-COORDINATE variable is increased by 256 steps (256 / 65536) without cross-fading.
FB_DALIV2YCoordinateStepDown [▶ 331]	The y-COORDINATE variable is reduced by 256 steps (256 / 65536) without cross-fading.
FB_DALIV2YCoordinateStepUp [▶ 332]	The y-COORDINATE variable is increased by 256 steps (256 / 65536) without cross-fading.



These commands belongs to the application-related expansion commands for lamps for the color/color temperature control with DALI interface. They function only if they are preceded by the *Enable Device Type 8* command, which can be sent with the FB_DALIV2EnableDeviceType() [▶ 85] function block. The *Enable Device Type 8* command is internally placed automatically before all application-related expansion commands for lamps for the color/color temperature control with DALI interface.

4.1.2.8.1 Variables

Every DALI control gear for color/color temperature control has a certain number of variables (parameters) from which it is possible to read a variety of information or to modify individual parameters.

Certain variables can be read out directly via DALI commands (e.g. FB_DALIV2QueryColourStatus() [▶ 304] or FB_DALIV2QueryRGBWAFControl () [▶ 312]). The FB_DALIV2QueryColourValue() [▶ 307] function block can be used to read out further variables.

Name	Default value	Reset value	Scope	Size	necessary color representation (1) [▶ 295]	Comment
TEMPORARY x-COORDINATE	65535	65535	0 ...65535	2 Bytes	0, 2	
REPORT x-COORDINATE	65535	65535	0 ...65535	2 Bytes	0	
x-COORDINATE	?	No change	0 ...65535	2 Bytes	0	
TEMPORARY y-COORDINATE	65535	65535	0 ...65535	2 Bytes	0.2	
REPORT y-COORDINATE	65535	65535	0 ...65535	2 Bytes	0	
y-COORDINATE	?	No change	0 ...65535	2 Bytes	0	
TEMPORARY COLOR TEMPERATURE T _c	65535	65535	1 ... 65535	2 Bytes	1	
REPORT COLOR TEMPERATURE T _c	65535	65535	1 ... 65535	2 Bytes	1	
COLOUR TEMPERATURE T _c	?	No change	1 ... 65535	2 Bytes	1	
COLOR TEMPERATURE T _c COOLEST	?	COLOR TEMPERATURE T _c PHYSICAL COOLEST	COLOR TEMPERATURE T _c PHYSICAL COOLEST ... COLOR TEMPERATURE T _c WARMEST, 65535	2 Bytes	1	read only
COLOR TEMPERATURE T _c WARMEST	?	COLOR TEMPERATURE T _c PHYSICAL WARMEST	COLOR TEMPERATURE T _c COOLEST ... COLOR TEMPERATURE T _c PHYSICAL WARMEST, 65535	2 Bytes	1	read only
COLOR TEMPERATURE T _c PHYSICAL COOLEST	?	No change	1 - COLOR TEMPERATURE T _c PHYSICAL WARMEST, 65535	2 Bytes	1	read only
COLOR TEMPERATURE T _c PHYSICAL WARMEST	?	No change	COLOR TEMPERATURE T _c PHYSICAL COOLEST – 65534, 65535	2 Bytes	1	read only
TEMPORARY PRIMARY N DIMLEVEL	65535	65535	0 ...65535	up to 12 bytes	2	
REPORT PRIMARY N DIMLEVEL	65535	65535	0 ...65535	up to 12 bytes	2	
PRIMARY N DIMLEVEL	?	No change	0 ...65535	up to 12 bytes	2	
x-COORDINATE PRIMARY N	?	No change	0 ...65535	up to 12 bytes	0.2	read only
y-COORDINATE PRIMARY N	?	No change	0 ...65535	up to 12 bytes	0.2	read only

Name	Default value	Reset value	Scope	Size	necessary color representation (1) [▶ 295]	Comment
TY PRIMARY N	?	No change	0 ...65535	up to 12 bytes	0.2	read only
TEMPORARY RED DIMLEVEL	255	255	0 ... 255	1 Byte	3	
REPORT RED DIMLEVEL	255	255	0 ... 255	1 Byte	3	
RED DIMLEVEL	?	No change	0 ... 255	1 Byte	3	
TEMPORARY GREEN DIMLEVEL	255	255	0 ... 255	1 Byte	3	
REPORT GREEN DIMLEVEL	255	255	0 ... 255	1 Byte	3	
GREEN DIMLEVEL	?	No change	0 ... 255	1 Byte	3	
TEMPORARY BLUE DIMLEVEL	255	255	0 ... 255	1 Byte	3	
REPORT BLUE DIMLEVEL	255	255	0 ... 255	1 Byte	3	
BLUE DIMLEVEL	?	No change	0 ... 255	1 Byte	3	
TEMPORARY WHITE DIMLEVEL	255	255	0 ... 255	1 Byte	3	
REPORT WHITE DIMLEVEL	255	255	0 ... 255	1 Byte	3	
WHITE DIMLEVEL	?	No change	0 ... 255	1 Byte	3	
TEMPORARY AMBER DIMLEVEL	255	255	0 ... 255	1 Byte	3	
REPORT AMBER DIMLEVEL	255	255	0 ... 255	1 Byte	3	
AMBER DIMLEVEL	?	No change	0 ... 255	1 Byte	3	
TEMPORARY FREECOLOR DIMLEVEL	255	255	0 ... 255	1 Byte	3	
REPORT FREECOLOR DIMLEVEL	255	255	0 ... 255	1 Byte	3	
FREECOLOR DIMLEVEL	?	No change	0 ... 255	1 Byte	3	
TEMPORARY RGBWAF CONTROL	255	255	0 ... 255	1 Byte	3	
REPORT RGBWAF CONTROL	255	255	0 ... 255	1 Byte	3	
<u>RGBWAF CONTROL</u> [▶ 296]	63	No change	0 ... 255	1 Byte	3	
<u>ASSIGNED COLOR</u> [▶ 295]	0x0102 0304 0506	0x0102 0304 0506	0x0000 0000 0000 ... 0x0606 0606 0606	6 bytes	3	read only MSB: Channel 0 LSB: Channel 5
<u>TEMPORARY COLOR TYPE</u> [▶ 296]	255	255	0x10, 0x20, 0x40, 0x80, 0xFF	1 Byte	0, 1, 2, 3	
<u>REPORT COLOR TYPE</u> [▶ 296]	255	255	0x10, 0x20, 0x40, 0x80, 0xFF	1 Byte	0, 1, 2, 3	
<u>SCENE 0–15 COLOR TYPE</u> [▶ 296]	65535	65535	0x10, 0x20, 0x40, 0x80, 0xFF	16 bytes	0, 1, 2, 3	read only

Name	Default value	Reset value	Scope	Size	necessary color representation (1) [▶ 295]	Comment
SCENE 0–15 COLOR VALUE	65535	65535	0 ... 65535	32 Bytes ... 192 Bytes	0, 1, 2, 3	read only
POWER ON COLOR TYPE [▶ 296]	Manufacturer-dependent	Manufacturer-dependent	0x10, 0x20, 0x40, 0x80, 0xFF	1 Byte	0, 1, 2, 3	read only
POWER ON COLOR VALUE	Manufacturer-dependent	Manufacturer-dependent	0 ...65535	2 Bytes ... 12 Bytes	0, 1, 2, 3	read only
SYSTEM FAILURE COLOR TYPE [▶ 296]	Manufacturer-dependent	Manufacturer-dependent	0x10, 0x20, 0x40, 0x80, 0xFF	1 Byte	0, 1, 2, 3	read only
SYSTEM FAILURE COLOR VALUE	Manufacturer-dependent	Manufacturer-dependent	0 ...65535	2 Bytes ... 12 Bytes	0, 1, 2, 3	read only
GEAR FEATURES/STATUS [▶ 296]	??00 0001b	??00 0001b	??00 0000b, ??00 0001b	1 Byte	0, 1, 2, 3	
COLOR STATUS [▶ 296]	?	No change	0 ... 255	1 Byte	0, 1, 2, 3	
COLOR TYPE FEATURES [▶ 297]	?	No change	0 ... 255	1 Byte	0, 1, 2, 3	read only

?: undetermined

In the case of 1-byte values the value 255 is also called MASK.

In the case of 2-byte values the value 65535 is also called MASK.

(1): Specifies the color representation that the DALI ballast must support so that it contains the appropriate variable:

Value	Description
0	xy coordinates
1	Color temperature Tc
2	Primary (color) N
3	RGBWAF

ASSIGNED COLOUR

The assignment between output channel and color is defined in ASSIGNED COLOUR. Each byte contains the color of the corresponding channel.

The value can be read with the `FB_DALIV2QueryAssignedColour()` [▶ 303] block.

Value	Description
0	No color assigned
1	Red
2	Green
3	Blue
4	White
5	Amber
6	Freely selectable color

COLOUR TYPE

COLOUR TYPE defines the color representations supported by the DALI ballast.

The values can be read out using the [FB_DALIV2QueryColourValue\(\)](#) [▶ 307] function block.

Values	Description
0x10	xy coordinates
0x20	Color temperature Tc
0x40	Primary (color) N
0x80	RGBWAF
0xFF	no color change

COLOR STATUS

COLOUR STATUS contains information about the current status of the DALI control gear.

The values can be read out using the [FB_DALIV2QueryColorStatus\(\)](#) [▶ 304] function block.

Bit	Description
0	xy-coordinate color point lies outside the valid range.
1	Color temperature Tc lies outside the valid range.
2	Automatic calibration is active.
3	Automatic calibration was successful.
4	Color representation xy-coordinate active.
5	Color representation color temperature Tc active.
6	Color representation primary N active.
7	Color representation RGBWAF active.

GEAR FEATURES/STATUS

GEAR FEATURES/STATUS contains information about the current status of the DALI ballast.

The values can be read out using the [FB_DALIV2QueryGearFeaturesStatus\(\)](#) [▶ 310] function block and written using the [FB_DALIV2StoreGearFeaturesStatus\(\)](#) [▶ 325] function block.

Bit	Description
0	Automatic activation.
1 - 5	Reserved.
6	Automatic calibration is supported.
7	Restoration of the automatic calibration is supported.

RGBWAF CONTROL

RGBWAF CONTROL contains further information about the assignment between output channel and color.

The values can be read out using the [FB_DALIV2QueryColourValue\(\)](#) [▶ 307] function block.

Bit	Description
0	Output channel 0 / red
1	Output channel 1 / green
2	Output channel 2 / blue
3	Output channel 3 / white
4	Output channel 4 / amber
5	Output channel 5 / free selectable color
6 - 7	00 = channel control 01 = color control 10 = standardized color control 11 = reserved

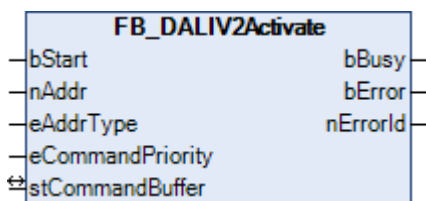
COLOUR TYPE FEATURES

COLOUR TYPE FEATURES defines the color representations supported by the DALI ballast.

The values can be read out using the `FB_DALIV2QueryColourTypeFeatures()` [▶ 306] function block.

Bit	Description
0	The ballast supports the color representation by xy coordinates.
1	The ballast supports the color representation by color temperature Tc.
2 - 4	The number of primary colors supported by the ballast. A value of 0 means that this color representation by primary colors is not supported.
5 - 7	The number of RGBWAF channels supported by the ballast. A value of 0 means that this color representation by RGBWAF is not supported.

4.1.2.8.2 FB_DALIV2Activate



A current cross-fade is ended and a new cross-fade is started. Only the color is changed here.

The function block supports the following color representations:

- xy coordinates
- Color temperature Tc
- Primary (color) N
- RGBWAF



This command belongs to the application-related expansion commands for lamps for the color/color temperature control with DALI interface. They function only if they are preceded by the *Enable Device Type 8* command, which can be sent with the `FB_DALIV2EnableDeviceType()` [▶ 85] function block. The *Enable Device Type 8* command is internally placed automatically before all application-related expansion commands for lamps for the color/color temperature control with DALI interface.

VAR_INPUT

```
bStart      : BOOL;
nAddr       : BYTE;
eAddrType   : E_DALIV2AddrType := eDALIV2AddrTypeShort;
eCommandPriority : E_DALIV2CommandPriority := eDALIV2CommandPriorityMiddle;
```

bStart: The function block is activated by a positive edge at this input.

nAddr: The address of a participating device or of a group.

eAddrType: Short address, group address or broadcast (see [E_DALIV2AddrType \[▶ 401\]](#)).

eCommandPriority: Priority (high, medium or low) with which the command is processed by the library (see [E_DALIV2CommandPriority \[▶ 401\]](#)).

VAR_OUTPUT

```
bBusy      : BOOL;
bError     : BOOL;
nErrorId   : UDINT;
```

bBusy: When the function block is activated the output is set, and it remains active until execution of the command has been completed.

bError: This output is switched to TRUE as soon as an error occurs during the execution of a command. The command-specific error code is contained in *nErrorId*. Is reset to FALSE by the execution of a command at the inputs.

nErrorId: Contains the command-specific error code of the most recently executed command. Is reset to 0 by the execution of a command at the inputs. (See [error codes \[▶ 380\]](#))

VAR_IN_OUT

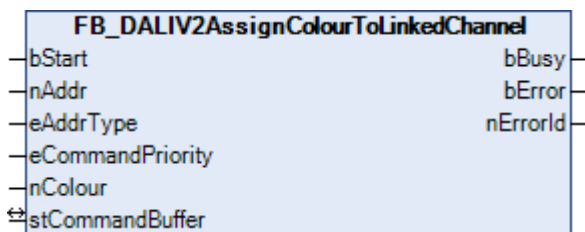
```
stCommandBuffer : ST_DALIV2CommandBuffer;
```

stCommandBuffer: Reference to the internal structure for communication with the function block [FB_KL6811Communication\(\) \[▶ 70\]](#) (KL6811) or [FB_KL6821Communication\(\) \[▶ 74\]](#) (KL6821).

Requirements

Development environment	required PLC library
TwinCAT from v3.1.4020.14	Tc2_DALI from v3.4.3.0

4.1.2.8.3 FB_DALIV2AssignColourToLinkedChannel



Linked output channels are assigned to the defined color (see table). The linked channels are specified by bit 0 to bit 5 of the [TEMPORARY RGBWAF CONTROL \[▶ 292\]](#) variable. The channel assignment is not changed if TEMPORARY RGBWAF CONTROL contains the value 255 (MASK). All TEMPORARY COLOR SETTINGS are set to MASK after the use of this command.

Value	Description
0	No color assigned
1	Red
2	Green
3	Blue
4	White
5	Amber
6	Freely selectable color

The function block changes the DTR (data transfer registers) for all DALI control gears of the DALI line.

The function block supports the following color representations:

- RGBWAF



This command belongs to the application-related expansion commands for lamps for the color/color temperature control with DALI interface. They function only if they are preceded by the *Enable Device Type 8* command, which can be sent with the [FB_DALIV2EnableDeviceType\(\)](#) [▶ 85] function block. The *Enable Device Type 8* command is internally placed automatically before all application-related expansion commands for lamps for the color/color temperature control with DALI interface.

VAR_INPUT

```
bStart      : BOOL;
nAddr       : BYTE;
eAddrType   : E_DALIV2AddrType := eDALIV2AddrTypeShort;
eCommandPriority : E_DALIV2CommandPriority := eDALIV2CommandPriorityMiddle;
nColour     : BYTE;
```

bStart: The function block is activated by a positive edge at this input.

nAddr: The address of a participating device or of a group.

eAddrType: Short address, group address or broadcast (see [E_DALIV2AddrType](#) [▶ 401]).

eCommandPriority: Priority (high, medium or low) with which the command is processed by the library (see [E_DALIV2CommandPriority](#) [▶ 401]).

nColour: Color that is assigned to the output channels (see table).

VAR_OUTPUT

```
bBusy      : BOOL;
bError     : BOOL;
nErrorId   : UDINT;
```

bBusy: When the function block is activated the output is set, and it remains active until execution of the command has been completed.

bError: This output is switched to TRUE as soon as an error occurs during the execution of a command. The command-specific error code is contained in *nErrorId*. Is reset to FALSE by the execution of a command at the inputs.

nErrorId: Contains the command-specific error code of the most recently executed command. Is reset to 0 by the execution of a command at the inputs. (See [error codes](#) [▶ 380])

VAR_IN_OUT

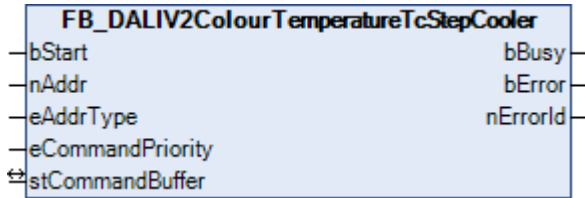
```
stCommandBuffer : ST_DALIV2CommandBuffer;
```

stCommandBuffer: Reference to the internal structure for communication with the function block [FB_KL6811Communication\(\)](#) [▶ 70] (KL6811) or [FB_KL6821Communication\(\)](#) [▶ 74] (KL6821).

Requirements

Development environment	required PLC library
TwinCAT from v3.1.4020.14	Tc2_DALI from v3.4.3.0

4.1.2.8.4 FB_DALIV2ColourTemperatureTcStepCooler



The COLOR TEMPERATURE Tc [► 292] value is decremented by 1 Mirek without cross-fading. If the COLOR TEMPERATURE Tc [► 292] value already has the same value as COLOR TEMPERATURE Tc COOLEST [► 292], no change takes place.

Bit 1 (Color temperature Tc out of range) is set in COLOR STATUS [► 292] if the color temperature cannot be reached by the DALI control gear. This command is executed by the DALI control gear only if bit 5 (Color type color temperature Tc active) is set in the COLOR STATUS [► 292] variable.

The functions KELVIN TO MIREK [► 333] and MIREK TO KELVIN [► 333] are available for converting from or to Kelvin.

The function block supports the following color representations:

- Color temperature Tc



This command belongs to the application-related expansion commands for lamps for the color/color temperature control with DALI interface. They function only if they are preceded by the *Enable Device Type 8* command, which can be sent with the FB_DALIV2EnableDeviceType() [► 85] function block. The *Enable Device Type 8* command is internally placed automatically before all application-related expansion commands for lamps for the color/color temperature control with DALI interface.

VAR_INPUT

```
bStart      : BOOL;
nAddr       : BYTE;
eAddrType   : E_DALIV2AddrType := eDALIV2AddrTypeShort;
eCommandPriority : E_DALIV2CommandPriority := eDALIV2CommandPriorityMiddle;
```

bStart: The function block is activated by a positive edge at this input.

nAddr: The address of a participating device or of a group.

eAddrType: Short address, group address or broadcast (see E_DALIV2AddrType [► 401]).

eCommandPriority: Priority (high, medium or low) with which the command is processed by the library (see E_DALIV2CommandPriority [► 401]).

VAR_OUTPUT

```
bBusy       : BOOL;
bError      : BOOL;
nErrorId    : UDINT;
```

bBusy: When the function block is activated the output is set, and it remains active until execution of the command has been completed.

bError: This output is switched to TRUE as soon as an error occurs during the execution of a command. The command-specific error code is contained in *nErrorId*. Is reset to FALSE by the execution of a command at the inputs.

nErrorId: Contains the command-specific error code of the most recently executed command. Is reset to 0 by the execution of a command at the inputs. (See [error codes](#) [▶ 380])

VAR_IN_OUT

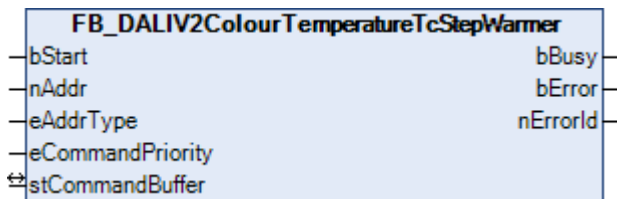
```
stCommandBuffer : ST_DALIV2CommandBuffer;
```

stCommandBuffer: Reference to the internal structure for communication with the function block [FB_KL6811Communication\(\)](#) [▶ 70] (KL6811) or [FB_KL6821Communication\(\)](#) [▶ 74] (KL6821).

Requirements

Development environment	required PLC library
TwinCAT from v3.1.4020.14	Tc2_DALI from v3.4.3.0

4.1.2.8.5 FB_DALIV2ColourTemperatureTcStepWarmer



The [COLOR TEMPERATURE Tc](#) [▶ 292] value is incremented by 1 Mirek without cross-fading. If the [COLOR TEMPERATURE Tc](#) [▶ 292] value already has the same value as [COLOR TEMPERATURE Tc WARMEST](#) [▶ 292], no change takes place.

Bit 1 (Color temperature Tc out of range) is set in [COLOR STATUS](#) [▶ 292] if the color temperature cannot be reached by the DALI control gear. This command is executed by the DALI control gear only if bit 5 (Color type color temperature Tc active) is set in the [COLOR STATUS](#) [▶ 292] variable.

The functions [KELVIN TO MIREK](#) [▶ 333] and [MIREK TO KELVIN](#) [▶ 333] are available for converting from or to Kelvin.

The function block supports the following color representations:

- Color temperature Tc

i This command belongs to the application-related expansion commands for lamps for the color/color temperature control with DALI interface. They function only if they are preceded by the *Enable Device Type 8* command, which can be sent with the [FB_DALIV2EnableDeviceType\(\)](#) [▶ 85] function block. The *Enable Device Type 8* command is internally placed automatically before all application-related expansion commands for lamps for the color/color temperature control with DALI interface.

VAR_INPUT

```
bStart : BOOL;
nAddr : BYTE;
eAddrType : E_DALIV2AddrType := eDALIV2AddrTypeShort;
eCommandPriority : E_DALIV2CommandPriority := eDALIV2CommandPriorityMiddle;
```

bStart: The function block is activated by a positive edge at this input.

nAddr: The address of a participating device or of a group.

eAddrType: Short address, group address or broadcast (see [E_DALIV2AddrType](#) [▶ 401]).

eCommandPriority: Priority (high, medium or low) with which the command is processed by the library (see [E_DALIV2CommandPriority](#) [▶ 401]).

VAR_OUTPUT

```
bBusy      : BOOL;
bError     : BOOL;
nErrorId  : UDINT;
```

bBusy: When the function block is activated the output is set, and it remains active until execution of the command has been completed.

bError: This output is switched to TRUE as soon as an error occurs during the execution of a command. The command-specific error code is contained in *nErrorId*. Is reset to FALSE by the execution of a command at the inputs.

nErrorId: Contains the command-specific error code of the most recently executed command. Is reset to 0 by the execution of a command at the inputs. (See [error codes](#) [► 380])

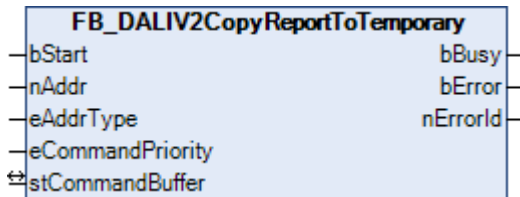
VAR_IN_OUT

```
stCommandBuffer : ST_DALIV2CommandBuffer;
```

stCommandBuffer: Reference to the internal structure for communication with the function block [FB_KL6811Communication\(\)](#) [► 70] (KL6811) or [FB_KL6821Communication\(\)](#) [► 74] (KL6821).

Requirements

Development environment	required PLC library
TwinCAT from v3.1.4020.14	Tc2_DALI from v3.4.3.0

4.1.2.8.6 FB_DALIV2CopyReportToTemporary

The color settings report is copied to the temporary color settings.

The function block supports the following color representations:

- xy coordinates
- Color temperature Tc
- Primary (color) N
- RGBWAF



This command belongs to the application-related expansion commands for lamps for the color/color temperature control with DALI interface. They function only if they are preceded by the *Enable Device Type 8* command, which can be sent with the [FB_DALIV2EnableDeviceType\(\)](#) [► 85] function block. The *Enable Device Type 8* command is internally placed automatically before all application-related expansion commands for lamps for the color/color temperature control with DALI interface.

VAR_INPUT

```
bStart      : BOOL;
nAddr       : BYTE;
eAddrType   : E_DALIV2AddrType := eDALIV2AddrTypeShort;
eCommandPriority : E_DALIV2CommandPriority := eDALIV2CommandPriorityMiddle;
```

bStart: The function block is activated by a positive edge at this input.

nAddr: The address of a participating device or of a group.

eAddrType: Short address, group address or broadcast (see [E_DALIV2AddrType](#) [► 401]).

eCommandPriority: Priority (high, medium or low) with which the command is processed by the library (see [E_DALIV2CommandPriority](#) [[▶ 401](#)]).

VAR_OUTPUT

```
bBusy      : BOOL;
bError     : BOOL;
nErrorId  : UDINT;
```

bBusy: When the function block is activated the output is set, and it remains active until execution of the command has been completed.

bError: This output is switched to TRUE as soon as an error occurs during the execution of a command. The command-specific error code is contained in *nErrorId*. Is reset to FALSE by the execution of a command at the inputs.

nErrorId: Contains the command-specific error code of the most recently executed command. Is reset to 0 by the execution of a command at the inputs. (See [error codes](#) [[▶ 380](#)])

VAR_IN_OUT

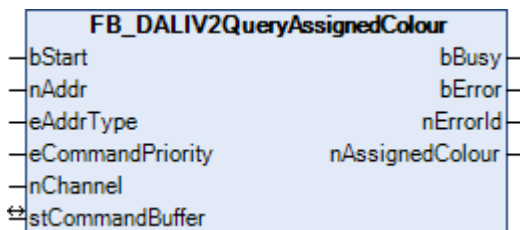
```
stCommandBuffer : ST_DALIV2CommandBuffer;
```

stCommandBuffer: Reference to the internal structure for communication with the function block [FB_KL6811Communication\(\)](#) [[▶ 70](#)] (KL6811) or [FB_KL6821Communication\(\)](#) [[▶ 74](#)] (KL6821).

Requirements

Development environment	required PLC library
TwinCAT from v3.1.4020.14	Tc2_DALI from v3.4.3.0

4.1.2.8.7 FB_DALIV2QueryAssignedColour



The **ASSIGNED COLOR** [[▶ 292](#)] variable is read from the DALI control gear. This contains the color (see table) assigned to the specified output channel (0 - 5). 255 (MASK) is returned if a non-existent channel number is specified.

Value	Description
0	No color assigned
1	Red
2	Green
3	Blue
4	White
5	Amber
6	Freely selectable color

The function block changes the DTR (data transfer registers) for all DALI control gears of the DALI line.

The function block supports the following color representations:

- RGBWAF



This command belongs to the application-related expansion commands for lamps for the color/color temperature control with DALI interface. They function only if they are preceded by the *Enable Device Type 8* command, which can be sent with the [FB_DALIV2EnableDeviceType\(\)](#) [▶ 85] function block. The *Enable Device Type 8* command is internally placed automatically before all application-related expansion commands for lamps for the color/color temperature control with DALI interface.

VAR_INPUT

```
bStart      : BOOL;
nAddr       : BYTE;
eAddrType   : E_DALIV2AddrType := eDALIV2AddrTypeShort;
eCommandPriority : E_DALIV2CommandPriority := eDALIV2CommandPriorityMiddle;
nChannel    : BYTE;
```

bStart: The function block is activated by a positive edge at this input.

nAddr: The address of a participating device or of a group.

eAddrType: Short address, group address or broadcast (see [E_DALIV2AddrType](#) [▶ 401]).

eCommandPriority: Priority (high, medium or low) with which the command is processed by the library (see [E_DALIV2CommandPriority](#) [▶ 401]).

nChannel: Channel number (0 - 5).

VAR_OUTPUT

```
bBusy       : BOOL;
bError      : BOOL;
nErrorId    : UDINT;
nAssignedColour : BYTE;
```

bBusy: When the function block is activated the output is set, and it remains active until execution of the command has been completed.

bError: This output is switched to TRUE as soon as an error occurs during the execution of a command. The command-specific error code is contained in *nErrorId*. Is reset to FALSE by the execution of a command at the inputs.

nErrorId: Contains the command-specific error code of the most recently executed command. Is reset to 0 by the execution of a command at the inputs. (See [error codes](#) [▶ 380])

nAssignedColor: Assigned color of the channel (see table).

VAR_IN_OUT

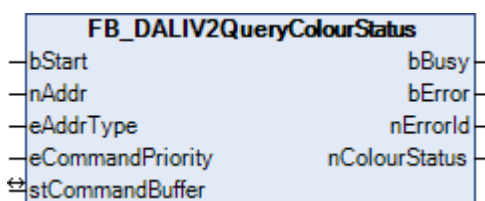
```
stCommandBuffer : ST_DALIV2CommandBuffer;
```

stCommandBuffer: Reference to the internal structure for communication with the function block [FB_KL6811Communication\(\)](#) [▶ 70] (KL6811) or [FB_KL6821Communication\(\)](#) [▶ 74] (KL6821).

Requirements

Development environment	required PLC library
TwinCAT from v3.1.4020.14	Tc2_DALI from v3.4.3.0

4.1.2.8.8 FB_DALIV2QueryColourStatus



The `COLOR STATUS` [▶ 292] variable is read from the DALI control gear.

Bit	Description
0	xy-coordinate color point lies outside the valid range.
1	Color temperature Tc lies outside the valid range.
2	Automatic calibration is active.
3	Automatic calibration was successful.
4	Color representation xy-coordinate active.
5	Color representation color temperature Tc active.
6	Color representation primary N active.
7	Color representation RGBWAF active.

The function block supports the following color representations:

- xy coordinates
- Color temperature Tc
- Primary (color) N
- RGBWAF



This command belongs to the application-related expansion commands for lamps for the color/color temperature control with DALI interface. They function only if they are preceded by the *Enable Device Type 8* command, which can be sent with the `FB_DALIV2EnableDeviceType()` [▶ 85] function block. The *Enable Device Type 8* command is internally placed automatically before all application-related expansion commands for lamps for the color/color temperature control with DALI interface.

VAR_INPUT

```
bStart      : BOOL;
nAddr       : BYTE;
eAddrType   : E_DALIV2AddrType := eDALIV2AddrTypeShort;
eCommandPriority : E_DALIV2CommandPriority := eDALIV2CommandPriorityMiddle;
```

bStart: The function block is activated by a positive edge at this input.

nAddr: The address of a participating device or of a group.

eAddrType: Short address, group address or broadcast (see `E_DALIV2AddrType` [▶ 401]).

eCommandPriority: Priority (high, medium or low) with which the command is processed by the library (see `E_DALIV2CommandPriority` [▶ 401]).

VAR_OUTPUT

```
bBusy       : BOOL;
bError      : BOOL;
nErrorId    : UDINT;
nColourStatus : BYTE;
```

bBusy: When the function block is activated the output is set, and it remains active until execution of the command has been completed.

bError: This output is switched to TRUE as soon as an error occurs during the execution of a command. The command-specific error code is contained in `nErrorId`. Is reset to FALSE by the execution of a command at the inputs.

nErrorId: Contains the command-specific error code of the most recently executed command. Is reset to 0 by the execution of a command at the inputs. (See `error codes` [▶ 380])

nColourStatus: Color status (see table above).

VAR_IN_OUT

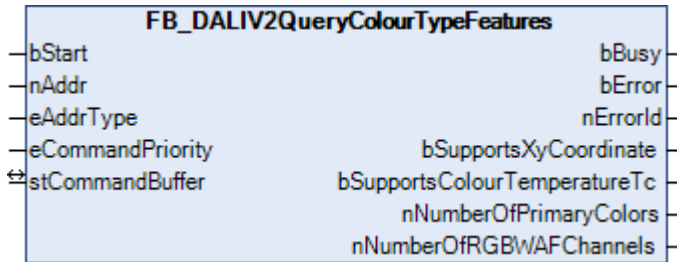
```
stCommandBuffer : ST_DALIV2CommandBuffer;
```

stCommandBuffer: Reference to the internal structure for communication with the function block `FB_KL6811Communication()` [▶ 70] (KL6811) or `FB_KL6821Communication()` [▶ 74] (KL6821).

Requirements

Development environment	required PLC library
TwinCAT from v3.1.4020.14	Tc2_DALI from v3.4.3.0

4.1.2.8.9 FB_DALIV2QueryColourTypeFeatures



The `COLOR TYPE FEATURES` [▶ 292] variable is read from the DALI control gear. This contains the color representations supported by the DALI control gear.

The function block supports the following color representations:

- xy coordinates
- Color temperature Tc
- Primary (color) N
- RGBWAF

i This command belongs to the application-related expansion commands for lamps for the color/color temperature control with DALI interface. They function only if they are preceded by the *Enable Device Type 8* command, which can be sent with the `FB_DALIV2EnableDeviceType()` [▶ 85] function block. The *Enable Device Type 8* command is internally placed automatically before all application-related expansion commands for lamps for the color/color temperature control with DALI interface.

VAR_INPUT

```
bStart      : BOOL;
nAddr       : BYTE;
eAddrType   : E_DALIV2AddrType := eDALIV2AddrTypeShort;
eCommandPriority : E_DALIV2CommandPriority := eDALIV2CommandPriorityMiddle;
```

bStart: The function block is activated by a positive edge at this input.

nAddr: The address of a participating device or of a group.

eAddrType: Short address, group address or broadcast (see `E_DALIV2AddrType` [▶ 401]).

eCommandPriority: Priority (high, medium or low) with which the command is processed by the library (see `E_DALIV2CommandPriority` [▶ 401]).

VAR_OUTPUT

```
bBusy      : BOOL;
bError     : BOOL;
nErrorId   : UDINT;
bSupportsXyCoordinate : BOOL;
bSupportsColourTemperatureTc : BOOL;
nNumberOfPrimaryColors : BYTE;
nNumberOfRGBWAFChannels : BYTE;
```

bBusy: When the function block is activated the output is set, and it remains active until execution of the command has been completed.

bError: This output is switched to TRUE as soon as an error occurs during the execution of a command. The command-specific error code is contained in *nErrorId*. Is reset to FALSE by the execution of a command at the inputs.

nErrorId: Contains the command-specific error code of the most recently executed command. Is reset to 0 by the execution of a command at the inputs. (See [error codes](#) [▶ 380])

bSupportsXyCoordinate: The control gear is xy-coordinate-capable.

bSupportsColorTemperatureTc: The control gear is Color temperature Tc-capable.

nNumberOfPrimaryColors: The number of primary colors supported by the control gear. A value of 0 means that this color representation is not supported.

nNumberOfRGBWAFChannels: The number of RGBWAF channels supported by the control gear. A value of 0 means that this color representation is not supported.

VAR_IN_OUT

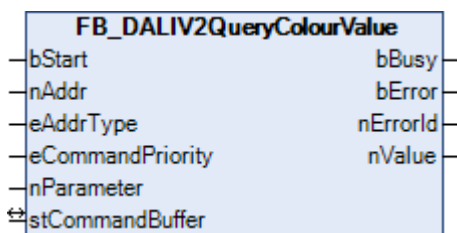
```
stCommandBuffer : ST_DALIV2CommandBuffer;
```

stCommandBuffer: Reference to the internal structure for communication with the function block [FB_KL6811Communication\(\)](#) [▶ 70] (KL6811) or [FB_KL6821Communication\(\)](#) [▶ 74] (KL6821).

Requirements

Development environment	required PLC library
TwinCAT from v3.1.4020.14	Tc2_DALI from v3.4.3.0

4.1.2.8.10 FB_DALIV2QueryColourValue



The specified variable (color value) is read from the DALI control gear. The value to be read is defined by *nParameter* (see table below).

Certain variables can be read out directly via DALI commands (e.g. [FB_QueryColorStatus\(\)](#) [▶ 304] or [FB_QueryRGBWAFControl\(\)](#) [▶ 312]). Further details on the variables can be found in section [Variables](#) [▶ 292].

Value	Description
0	x-COORDINATE
1	y-COORDINATE
2	COLOR TEMPERATURE T _c
3	PRIMARY N DIMLEVEL 0
4	PRIMARY N DIMLEVEL 1
5	PRIMARY N DIMLEVEL 2
6	PRIMARY N DIMLEVEL 3
7	PRIMARY N DIMLEVEL 4
8	PRIMARY N DIMLEVEL 5
9	RED DIMLEVEL
10	GREEN DIMLEVEL
11	BLUE DIMLEVEL
12	WHITE DIMLEVEL
13	AMBER DIMLEVEL
14	FREECOLOR DIMLEVEL
15	RGBWAF CONTROL
64	x-COORDINATE PRIMARY N 0
65	y-COORDINATE PRIMARY N 0
66	TY PRIMARY N 0
67	x-COORDINATE PRIMARY N 1
68	y-COORDINATE PRIMARY N 1
69	TY PRIMARY N 1
70	x-COORDINATE PRIMARY N 2
71	y-COORDINATE PRIMARY N 2
72	TY PRIMARY N 2
73	x-COORDINATE PRIMARY N 3
74	y-COORDINATE PRIMARY N 3
75	TY PRIMARY N 3
76	x-COORDINATE PRIMARY N 4
77	y-COORDINATE PRIMARY N 4
78	TY PRIMARY N 4
79	x-COORDINATE PRIMARY N 5
80	y-COORDINATE PRIMARY N 5
81	TY PRIMARY N 5
82	NUMBER OF PRIMARIES
128	COLOR TEMPERATURE T _c COOLEST
129	COLOR TEMPERATURE T _c PHYSICAL COOLEST
130	COLOR TEMPERATURE T _c WARMEST
131	COLOR TEMPERATURE T _c PHYSICAL WARMEST
192	TEMPORARY x-COORDINATE
193	TEMPORARY y-COORDINATE
194	TEMPORARY COLOR TEMPERATURE T _c
195	TEMPORARY PRIMARY N DIMLEVEL 0
196	TEMPORARY PRIMARY N DIMLEVEL 1
197	TEMPORARY PRIMARY N DIMLEVEL 2
198	TEMPORARY PRIMARY N DIMLEVEL 3
199	TEMPORARY PRIMARY N DIMLEVEL 4
200	TEMPORARY PRIMARY N DIMLEVEL 5

Value	Description
201	TEMPORARY RED DIMLEVEL
202	TEMPORARY GREEN DIMLEVEL
203	TEMPORARY BLUE DIMLEVEL
204	TEMPORARY WHITE DIMLEVEL
205	TEMPORARY AMBER DIMLEVEL
206	TEMPORARY FREECOLOR DIMLEVEL
207	TEMPORARY RGBWAF CONTROL
208	TEMPORARY COLOR TYPE
224	REPORT x-COORDINATE
225	REPORT y-COORDINATE
226	REPORT COLOR TEMPERATURE T _c
227	REPORT PRIMARY N DIMLEVEL 0
228	REPORT PRIMARY N DIMLEVEL 1
229	REPORT PRIMARY N DIMLEVEL 2
230	REPORT PRIMARY N DIMLEVEL 3
231	REPORT PRIMARY N DIMLEVEL 4
232	REPORT PRIMARY N DIMLEVEL 5
233	REPORT RED DIMLEVEL
234	REPORT GREEN DIMLEVEL
235	REPORT BLUE DIMLEVEL
236	REPORT WHITE DIMLEVEL
237	REPORT AMBER DIMLEVEL
238	REPORT FREECOLOR DIMLEVEL
239	REPORT RGBWAF CONTROL
240	REPORT COLOR TYPE

Responses that concern an active color representation are valid only if the color representation of the requested color value is active (see [FB DALIV2QueryColorStatus\(\)](#) [▶ 304]) or if the control gear is capable or reconverting the demanded color value from the active color representation to a color value of another color representation.

The reply must be 255 (MASK) if the control gear does not know the coordinates or if the primary color is not present.

The function block changes the DTR (data transfer registers) and DTR1 for all DALI control gears of the DALI line.

The function block supports the following color representations:

- xy coordinates
- Color temperature T_c
- Primary (color) N
- RGBWAF



This command belongs to the application-related expansion commands for lamps for the color/color temperature control with DALI interface. They function only if they are preceded by the *Enable Device Type 8* command, which can be sent with the [FB DALIV2EnableDeviceType\(\)](#) [▶ 85] function block. The *Enable Device Type 8* command is internally placed automatically before all application-related expansion commands for lamps for the color/color temperature control with DALI interface.

VAR_INPUT

```
bStart      : BOOL;
nAddr       : BYTE;
eAddrType   : E_DALIV2AddrType := eDALIV2AddrTypeShort;
eCommandPriority : E_DALIV2CommandPriority := eDALIV2CommandPriorityMiddle;
nParameter  : BYTE;
```

bStart: The function block is activated by a positive edge at this input.

nAddr: The address of a participating device or of a group.

eAddrType: Short address, group address or broadcast (see [E_DALIV2AddrType \[▶ 401\]](#)).

eCommandPriority: Priority (high, medium or low) with which the command is processed by the library (see [E_DALIV2CommandPriority \[▶ 401\]](#)).

nParameter: color value to be read out (see table above).

VAR_OUTPUT

```
bBusy      : BOOL;
bError     : BOOL;
nErrorId   : UDINT;
nValue     : UINT;
```

bBusy: When the function block is activated the output is set, and it remains active until execution of the command has been completed.

bError: This output is switched to TRUE as soon as an error occurs during the execution of a command. The command-specific error code is contained in *nErrorId*. Is reset to FALSE by the execution of a command at the inputs.

nErrorId: Contains the command-specific error code of the most recently executed command. Is reset to 0 by the execution of a command at the inputs. (See [error codes \[▶ 380\]](#))

nValue: contains the value read out.

VAR_IN_OUT

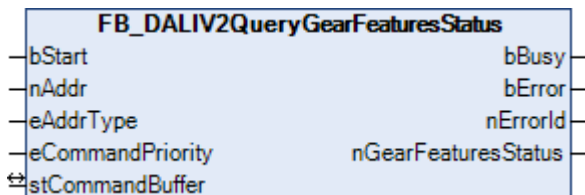
```
stCommandBuffer : ST_DALIV2CommandBuffer;
```

stCommandBuffer: Reference to the internal structure for communication with the function block [FB_KL6811Communication\(\) \[▶ 70\]](#) (KL6811) or [FB_KL6821Communication\(\) \[▶ 74\]](#) (KL6821).

Requirements

Development environment	required PLC library
TwinCAT from v3.1.4020.14	Tc2_DALI from v3.4.3.0

4.1.2.8.11 FB_DALIV2QueryGearFeaturesStatus



The [GEAR FEATURES/STATUS \[▶ 310\]](#) variable is read from the DALI control gear.

Bit	Description
0	Automatic activation.
1 - 5	reserved.
6	Automatic calibration is supported.
7	Restoration of the automatic calibration is supported.

The function block supports the following color representations:

- xy coordinates
- Color temperature Tc
- Primary (color) N
- RGBWAF



This command belongs to the application-related expansion commands for lamps for the color/color temperature control with DALI interface. They function only if they are preceded by the *Enable Device Type 8* command, which can be sent with the [FB_DALIV2EnableDeviceType\(\)](#) [▶ 85] function block. The *Enable Device Type 8* command is internally placed automatically before all application-related expansion commands for lamps for the color/color temperature control with DALI interface.

VAR_INPUT

```
bStart      : BOOL;
nAddr       : BYTE;
eAddrType   : E_DALIV2AddrType := eDALIV2AddrTypeShort;
eCommandPriority : E_DALIV2CommandPriority := eDALIV2CommandPriorityMiddle;
```

bStart: The function block is activated by a positive edge at this input.

nAddr: The address of a participating device or of a group.

eAddrType: Short address, group address or broadcast (see [E_DALIV2AddrType](#) [▶ 401]).

eCommandPriority: Priority (high, medium or low) with which the command is processed by the library (see [E_DALIV2CommandPriority](#) [▶ 401]).

VAR_OUTPUT

```
bBusy      : BOOL;
bError     : BOOL;
nErrorId   : UDINT;
nGearFeaturesStatus : BYTE;
```

bBusy: When the function block is activated the output is set, and it remains active until execution of the command has been completed.

bError: This output is switched to TRUE as soon as an error occurs during the execution of a command. The command-specific error code is contained in *nErrorId*. Is reset to FALSE by the execution of a command at the inputs.

nErrorId: Contains the command-specific error code of the most recently executed command. Is reset to 0 by the execution of a command at the inputs. (See [error codes](#) [▶ 380])

nGearFeaturesStatus: Status information (see table above).

VAR_IN_OUT

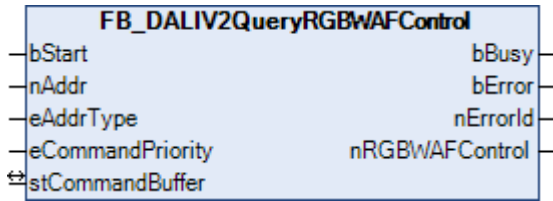
```
stCommandBuffer : ST_DALIV2CommandBuffer;
```

stCommandBuffer: Reference to the internal structure for communication with the function block [FB_KL6811Communication\(\)](#) [▶ 70] (KL6811) or [FB_KL6821Communication\(\)](#) [▶ 74] (KL6821).

Requirements

Development environment	required PLC library
TwinCAT from v3.1.4020.14	Tc2_DALI from v3.4.3.0

4.1.2.8.12 FB_DALIV2QueryRGBWAFControl



The `RGBWAF CONTROL` [► 292] variable is read from the DALI control gear.

Bit	Description
0	Output channel 0 / red
1	Output channel 1 / green
2	Output channel 2 / blue
3	Output channel 3 / white
4	Output channel 4 / amber
5	Output channel 5 / free selectable color
6 - 7	00 = channel control 01 = color control 10 = standardized color control 11 = reserved

If an output channel or a color is not supported, then the corresponding bit is FALSE.

The function block supports the following color representations:

- RGBWAF



This command belongs to the application-related expansion commands for lamps for the color/color temperature control with DALI interface. They function only if they are preceded by the *Enable Device Type 8* command, which can be sent with the `FB_DALIV2EnableDeviceType()` [► 85] function block. The *Enable Device Type 8* command is internally placed automatically before all application-related expansion commands for lamps for the color/color temperature control with DALI interface.

VAR_INPUT

```
bStart      : BOOL;
nAddr       : BYTE;
eAddrType   : E_DALIV2AddrType := eDALIV2AddrTypeShort;
eCommandPriority : E_DALIV2CommandPriority := eDALIV2CommandPriorityMiddle;
```

bStart: The function block is activated by a positive edge at this input.

nAddr: The address of a participating device or of a group.

eAddrType: Short address, group address or broadcast (see `E_DALIV2AddrType` [► 401]).

eCommandPriority: Priority (high, medium or low) with which the command is processed by the library (see `E_DALIV2CommandPriority` [► 401]).

VAR_OUTPUT

```
bBusy       : BOOL;
bError      : BOOL;
nErrorId    : UDINT;
nRGBWAFControl : BYTE;
```

bBusy: When the function block is activated the output is set, and it remains active until execution of the command has been completed.

bError: This output is switched to TRUE as soon as an error occurs during the execution of a command. The command-specific error code is contained in `nErrorId`. Is reset to FALSE by the execution of a command at the inputs.

nErrorId: Contains the command-specific error code of the most recently executed command. Is reset to 0 by the execution of a command at the inputs. (See [error codes](#) [▶ 380])

nRGBWAFControl: information about the channel assignment (see table above).

VAR_IN_OUT

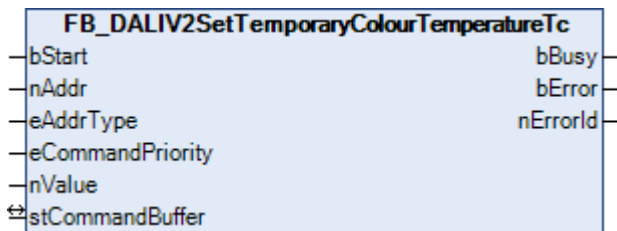
```
stCommandBuffer : ST_DALIV2CommandBuffer;
```

stCommandBuffer: Reference to the internal structure for communication with the function block [FB_KL6811Communication\(\)](#) [▶ 70] (KL6811) or [FB_KL6821Communication\(\)](#) [▶ 74] (KL6821).

Requirements

Development environment	required PLC library
TwinCAT from v3.1.4020.14	Tc2_DALI from v3.4.3.0

4.1.2.8.13 FB_DALIV2SetTemporaryColourTemperatureTc



Saves the value in the [TEMPORARY COLOR TEMPERATURE Tc](#) [▶ 292] variable of the DALI control gear. The value can be read with the function block [FB_DALIV2QueryColourValue\(\)](#) [▶ 307].

The value is expressed in units of 1 Mirek. A value of 0 is ignored and therefore not saved. The color temperature Tc can vary from 1 Mirek (1000000 K) to 65534 Mirek (15.26 K).

The functions [KELVIN TO MIREK](#) [▶ 333] and [MIREK TO KELVIN](#) [▶ 333] are available for converting from or to Kelvin.

The function block changes the DTR (data transfer registers) and DTR1 for all DALI control gears of the DALI line.

The function block supports the following color representations:

- Color temperature Tc

i This command belongs to the application-related expansion commands for lamps for the color/color temperature control with DALI interface. They function only if they are preceded by the *Enable Device Type 8* command, which can be sent with the [FB_DALIV2EnableDeviceType\(\)](#) [▶ 85] function block. The *Enable Device Type 8* command is internally placed automatically before all application-related expansion commands for lamps for the color/color temperature control with DALI interface.

VAR_INPUT

```
bStart : BOOL;
nAddr : BYTE;
eAddrType : E_DALIV2AddrType := eDALIV2AddrTypeShort;
eCommandPriority : E_DALIV2CommandPriority := eDALIV2CommandPriorityMiddle;
nValue : UINT;
```

bStart: The function block is activated by a positive edge at this input.

nAddr: The address of a participating device or of a group.

eAddrType: Short address, group address or broadcast (see [E_DALIV2AddrType](#) [▶ 401]).

eCommandPriority: Priority (high, medium or low) with which the command is processed by the library (see [E_DALIV2CommandPriority](#) [▶ 401]).

nValue : The value that is written into the TEMPORARY COLOUR TEMPERATURE Tc variable.

VAR_OUTPUT

```
bBusy      : BOOL;
bError     : BOOL;
nErrorId   : UDINT;
```

bBusy: When the function block is activated the output is set, and it remains active until execution of the command has been completed.

bError: This output is switched to TRUE as soon as an error occurs during the execution of a command. The command-specific error code is contained in *nErrorId*. Is reset to FALSE by the execution of a command at the inputs.

nErrorId: Contains the command-specific error code of the most recently executed command. Is reset to 0 by the execution of a command at the inputs. (See [error codes](#) [▶ 380])

VAR_IN_OUT

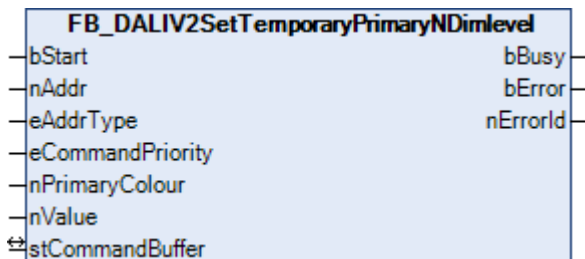
```
stCommandBuffer : ST_DALIV2CommandBuffer;
```

stCommandBuffer: Reference to the internal structure for communication with the function block [FB_KL6811Communication\(\)](#) [▶ 70] (KL6811) or [FB_KL6821Communication\(\)](#) [▶ 74] (KL6821).

Requirements

Development environment	required PLC library
TwinCAT from v3.1.4020.14	Tc2_DALI from v3.4.3.0

4.1.2.8.14 FB_DALIV2SetTemporaryPrimaryNDimlevel



Saves the value in the [TEMPORARY PRIMARY N DIMLEVEL](#) [▶ 292] variable of the control gear. The value can be read with the function block [FB_DALIV2QueryColourValue\(\)](#) [▶ 307].

The value is expressed in units of 1 / 65536. The maximum value of the PRIMARY N DIMLEVEL is 0.99997 and is interpreted on a linear scale.

The function block changes the DTR (data transfer registers), DTR1 and DTR2 for all DALI control gears of the DALI line.

The function block supports the following color representations:

- Primary (color) N



This command belongs to the application-related expansion commands for lamps for the color/color temperature control with DALI interface. They function only if they are preceded by the *Enable Device Type 8* command, which can be sent with the [FB_DALIV2EnableDeviceType\(\)](#) [▶ 85] function block. The *Enable Device Type 8* command is internally placed automatically before all application-related expansion commands for lamps for the color/color temperature control with DALI interface.

VAR_INPUT

```
bStart      : BOOL;
nAddr       : BYTE;
eAddrType   : E_DALIV2AddrType := eDALIV2AddrTypeShort;
```

```
eCommandPriority : E_DALIV2CommandPriority := eDALIV2CommandPriorityMiddle;
nPrimaryColour   : BYTE;
nValue           : UINT;
```

bStart: The function block is activated by a positive edge at this input.

nAddr: The address of a participating device or of a group.

eAddrType: Short address, group address or broadcast (see [E_DALIV2AddrType](#) [▶ 401]).

eCommandPriority: Priority (high, medium or low) with which the command is processed by the library (see [E_DALIV2CommandPriority](#) [▶ 401]).

nPrimaryColour: Primary color (0 - 5).

nValue : The value that is written into the TEMPORARY PRIMARY N DIMLEVEL variable.

VAR_OUTPUT

```
bBusy   : BOOL;
bError  : BOOL;
nErrorId : UDINT;
```

bBusy: When the function block is activated the output is set, and it remains active until execution of the command has been completed.

bError: This output is switched to TRUE as soon as an error occurs during the execution of a command. The command-specific error code is contained in *nErrorId*. Is reset to FALSE by the execution of a command at the inputs.

nErrorId: Contains the command-specific error code of the most recently executed command. Is reset to 0 by the execution of a command at the inputs. (See [error codes](#) [▶ 380])

VAR_IN_OUT

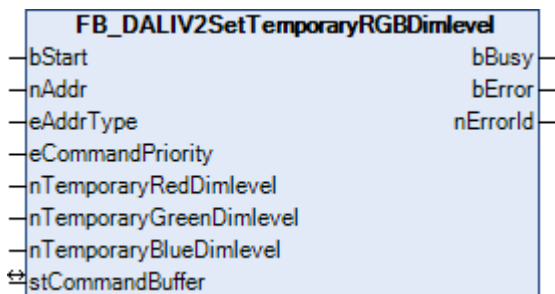
```
stCommandBuffer : ST_DALIV2CommandBuffer;
```

stCommandBuffer: Reference to the internal structure for communication with the function block [FB_KL6811Communication\(\)](#) [▶ 70] (KL6811) or [FB_KL6821Communication\(\)](#) [▶ 74] (KL6821).

Requirements

Development environment	required PLC library
TwinCAT from v3.1.4020.14	Tc2_DALI from v3.4.3.0

4.1.2.8.15 FB_DALIV2SetTemporaryRGBDimlevel



Saves the values in the [TEMPORARY RED DIMLEVEL](#) [▶ 292], [TEMPORARY GREEN DIMLEVEL](#) [▶ 292] and [TEMPORARY BLUE DIMLEVEL](#) [▶ 292] variables of the DALI control gear. The values can be read with function block [FB_DALIV2QueryColourValue\(\)](#) [▶ 307].

The function block changes the DTR (data transfer registers), DTR1 and DTR2 for all DALI control gears of the DALI line.

The function block supports the following color representations:

- RGBWAF



This command belongs to the application-related expansion commands for lamps for the color/color temperature control with DALI interface. They function only if they are preceded by the *Enable Device Type 8* command, which can be sent with the [FB_DALIV2EnableDeviceType\(\)](#) [▶ 85] function block. The *Enable Device Type 8* command is internally placed automatically before all application-related expansion commands for lamps for the color/color temperature control with DALI interface.

VAR_INPUT

```
bStart      : BOOL;
nAddr       : BYTE;
eAddrType   : E_DALIV2AddrType := eDALIV2AddrTypeShort;
eCommandPriority : E_DALIV2CommandPriority := eDALIV2CommandPriorityMiddle;
nTemporaryRedDimlevel : BYTE;
nTemporaryGreenDimlevel : BYTE;
nTemporaryBlueDimlevel : BYTE;
```

bStart: The function block is activated by a positive edge at this input.

nAddr: The address of a participating device or of a group.

eAddrType: Short address, group address or broadcast (see [E_DALIV2AddrType](#) [▶ 401]).

eCommandPriority: Priority (high, medium or low) with which the command is processed by the library (see [E_DALIV2CommandPriority](#) [▶ 401]).

nTemporaryRedDimlevel: The new value for TEMPORARY RED DIMLEVEL.

nTemporaryGreenDimlevel: The new value for TEMPORARY GREEN DIMLEVEL.

nTemporaryBlueDimlevel: The new value for TEMPORARY BLUE DIMLEVEL.

VAR_OUTPUT

```
bBusy      : BOOL;
bError     : BOOL;
nErrorId   : UDINT;
```

bBusy: When the function block is activated the output is set, and it remains active until execution of the command has been completed.

bError: This output is switched to TRUE as soon as an error occurs during the execution of a command. The command-specific error code is contained in *nErrorId*. Is reset to FALSE by the execution of a command at the inputs.

nErrorId: Contains the command-specific error code of the most recently executed command. Is reset to 0 by the execution of a command at the inputs. (See [error codes](#) [▶ 380])

VAR_IN_OUT

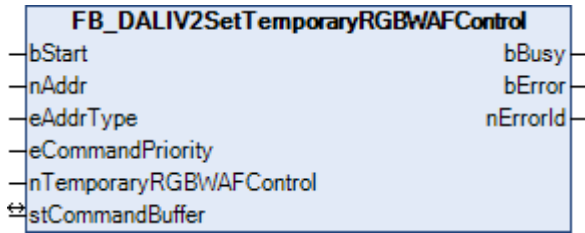
```
stCommandBuffer : ST_DALIV2CommandBuffer;
```

stCommandBuffer: Reference to the internal structure for communication with the function block [FB_KL6811Communication\(\)](#) [▶ 70] (KL6811) or [FB_KL6821Communication\(\)](#) [▶ 74] (KL6821).

Requirements

Development environment	required PLC library
TwinCAT from v3.1.4020.14	Tc2_DALI from v3.4.3.0

4.1.2.8.16 FB_DALIV2SetTemporaryRGBWAFControl



Saves the value in the TEMPORARY RGBWAF CONTROL [▶ 292] variable of the DALI control gear. The value can be read with the function block FB_DALIV2QueryColourValue() [▶ 307]. The *nTemporaryRGBWAFControl* input thereby contains the new assignment (see table).

Bit	Description
0	Output channel 0 / red
1	Output channel 1 / green
2	Output channel 2 / blue
3	Output channel 3 / white
4	Output channel 4 / amber
5	Output channel 5 / free selectable color
6 - 7	00 = channel control 01 = color control 10 = standardized color control 11 = reserved

The function block changes the DTR (data transfer registers) for all DALI control gears of the DALI line.

The function block supports the following color representations:

- RGBWAF



This command belongs to the application-related expansion commands for lamps for the color/color temperature control with DALI interface. They function only if they are preceded by the *Enable Device Type 8* command, which can be sent with the FB_DALIV2EnableDeviceType() [▶ 85] function block. The *Enable Device Type 8* command is internally placed automatically before all application-related expansion commands for lamps for the color/color temperature control with DALI interface.

VAR_INPUT

```
bStart          : BOOL;
nAddr           : BYTE;
eAddrType       : E_DALIV2AddrType := eDALIV2AddrTypeShort;
eCommandPriority : E_DALIV2CommandPriority := eDALIV2CommandPriorityMiddle;
nTemporaryRGBWAFControl : BYTE;
```

bStart: The function block is activated by a positive edge at this input.

nAddr: The address of a participating device or of a group.

eAddrType: Short address, group address or broadcast (see E_DALIV2AddrType [▶ 401]).

eCommandPriority: Priority (high, medium or low) with which the command is processed by the library (see E_DALIV2CommandPriority [▶ 401]).

nTemporaryRGBWAFControl: Contains the assignment (see table above).

VAR_OUTPUT

```
bBusy   : BOOL;
bError  : BOOL;
nErrorId : UDINT;
```

bBusy: When the function block is activated the output is set, and it remains active until execution of the command has been completed.

bError: This output is switched to TRUE as soon as an error occurs during the execution of a command. The command-specific error code is contained in *nErrorId*. Is reset to FALSE by the execution of a command at the inputs.

nErrorId: Contains the command-specific error code of the most recently executed command. Is reset to 0 by the execution of a command at the inputs. (See [error codes](#) [▶ 380])

VAR_IN_OUT

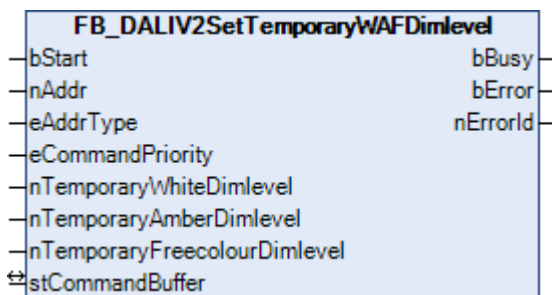
```
stCommandBuffer : ST_DALIV2CommandBuffer;
```

stCommandBuffer: Reference to the internal structure for communication with the function block [FB_KL6811Communication\(\)](#) [▶ 70] (KL6811) or [FB_KL6821Communication\(\)](#) [▶ 74] (KL6821).

Requirements

Development environment	required PLC library
TwinCAT from v3.1.4020.14	Tc2_DALI from v3.4.3.0

4.1.2.8.17 FB_DALIV2SetTemporaryWAFDimlevel



Saves the values in the [TEMPORARY WHITE DIMLEVEL](#) [▶ 292], [TEMPORARY AMBER DIMLEVEL](#) [▶ 292] and [TEMPORARY FREECOLOR DIMLEVEL](#) [▶ 292] variables of the DALI control gear. The values can be read with function block [FB_DALIV2QueryColourValue\(\)](#) [▶ 307].

The function block changes the DTR (data transfer registers), DTR1 and DTR2 for all DALI control gears of the DALI line.

The function block supports the following color representations:

- RGBWAF



This command belongs to the application-related expansion commands for lamps for the color/color temperature control with DALI interface. They function only if they are preceded by the *Enable Device Type 8* command, which can be sent with the [FB_DALIV2EnableDeviceType\(\)](#) [▶ 85] function block. The *Enable Device Type 8* command is internally placed automatically before all application-related expansion commands for lamps for the color/color temperature control with DALI interface.

VAR_INPUT

```
bStart : BOOL;
nAddr : BYTE;
eAddrType : E_DALIV2AddrType := eDALIV2AddrTypeShort;
eCommandPriority : E_DALIV2CommandPriority := eDALIV2CommandPriorityMiddle;
nTemporaryWhiteDimlevel : BYTE;
nTemporaryAmberDimlevel : BYTE;
nTemporaryFreecolourDimlevel : BYTE;
```

bStart: The function block is activated by a positive edge at this input.

nAddr: The address of a participating device or of a group.

eAddrType: Short address, group address or broadcast (see [E_DALIV2AddrType](#) [[▶ 401](#)]).

eCommandPriority: Priority (high, medium or low) with which the command is processed by the library (see [E_DALIV2CommandPriority](#) [[▶ 401](#)]).

nTemporaryWhiteDimlevel: The new value for TEMPORARY WHITE DIMLEVEL.

nTemporaryAmberDimlevel: The new value for TEMPORARY AMBER DIMLEVEL.

nTemporaryFreecolourDimlevel: The new value for TEMPORARY FREECOLOUR DIMLEVEL.

VAR_OUTPUT

```
bBusy      : BOOL;
bError     : BOOL;
nErrorId   : UDINT;
```

bBusy: When the function block is activated the output is set, and it remains active until execution of the command has been completed.

bError: This output is switched to TRUE as soon as an error occurs during the execution of a command. The command-specific error code is contained in *nErrorId*. Is reset to FALSE by the execution of a command at the inputs.

nErrorId: Contains the command-specific error code of the most recently executed command. Is reset to 0 by the execution of a command at the inputs. (See [error codes](#) [[▶ 380](#)])

VAR_IN_OUT

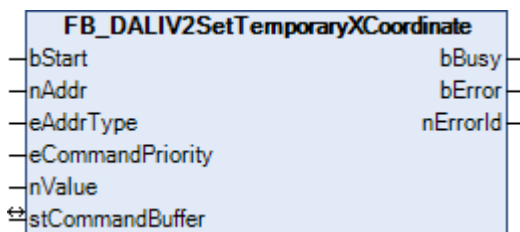
```
stCommandBuffer : ST_DALIV2CommandBuffer;
```

stCommandBuffer: Reference to the internal structure for communication with the function block [FB_KL6811Communication\(\)](#) [[▶ 70](#)] (KL6811) or [FB_KL6821Communication\(\)](#) [[▶ 74](#)] (KL6821).

Requirements

Development environment	required PLC library
TwinCAT from v3.1.4020.14	Tc2_DALI from v3.4.3.0

4.1.2.8.18 FB_DALIV2SetTemporaryXCoordinate



Saves the value in the [TEMPORARY x-COORDINATE](#) [[▶ 292](#)] variable of the DALI control gear. The value can be read with the function block [FB_DALIV2QueryColourValue\(\)](#) [[▶ 307](#)].

The function block changes the DTR (data transfer registers) and DTR1 for all DALI control gears of the DALI line.

The function block supports the following color representations:

- xy coordinates
- Primary (color) N



This command belongs to the application-related expansion commands for lamps for the color/color temperature control with DALI interface. They function only if they are preceded by the *Enable Device Type 8* command, which can be sent with the [FB_DALIV2EnableDeviceType\(\)](#) [▶ 85] function block. The *Enable Device Type 8* command is internally placed automatically before all application-related expansion commands for lamps for the color/color temperature control with DALI interface.

VAR_INPUT

```
bStart      : BOOL;
nAddr       : BYTE;
eAddrType   : E_DALIV2AddrType := eDALIV2AddrTypeShort;
eCommandPriority : E_DALIV2CommandPriority := eDALIV2CommandPriorityMiddle;
nValue      : U_INT;
```

bStart: The function block is activated by a positive edge at this input.

nAddr: The address of a participating device or of a group.

eAddrType: Short address, group address or broadcast (see [E_DALIV2AddrType](#) [▶ 401]).

eCommandPriority: Priority (high, medium or low) with which the command is processed by the library (see [E_DALIV2CommandPriority](#) [▶ 401]).

nValue : The value that is written into the TEMPORARY x-COORDINATE variable.

VAR_OUTPUT

```
bBusy      : BOOL;
bError     : BOOL;
nErrorId   : UDINT;
```

bBusy: When the function block is activated the output is set, and it remains active until execution of the command has been completed.

bError: This output is switched to TRUE as soon as an error occurs during the execution of a command. The command-specific error code is contained in *nErrorId*. Is reset to FALSE by the execution of a command at the inputs.

nErrorId: Contains the command-specific error code of the most recently executed command. Is reset to 0 by the execution of a command at the inputs. (See [error codes](#) [▶ 380])

VAR_IN_OUT

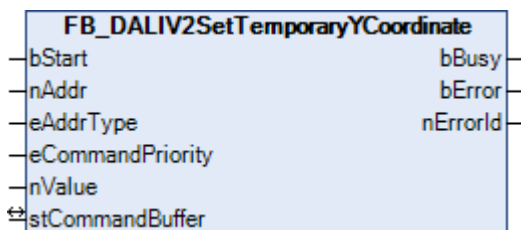
```
stCommandBuffer : ST_DALIV2CommandBuffer;
```

stCommandBuffer: Reference to the internal structure for communication with the function block [FB_KL6811Communication\(\)](#) [▶ 70] (KL6811) or [FB_KL6821Communication\(\)](#) [▶ 74] (KL6821).

Requirements

Development environment	required PLC library
TwinCAT from v3.1.4020.14	Tc2_DALI from v3.4.3.0

4.1.2.8.19 FB_DALIV2SetTemporaryYCoordinate



Saves the value in the [TEMPORARY y-COORDINATE](#) [▶ 292] variable of the DALI control gear. The value can be read with the function block [FB_DALIV2QueryColourValue\(\)](#) [▶ 307].

The function block changes the DTR (data transfer registers) and DTR1 for all DALI control gears of the DALI line.

The function block supports the following color representations:

- xy coordinates
- Primary (color) N



This command belongs to the application-related expansion commands for lamps for the color/color temperature control with DALI interface. They function only if they are preceded by the *Enable Device Type 8* command, which can be sent with the [FB_DALIV2EnableDeviceType\(\)](#) [▶ 85] function block. The *Enable Device Type 8* command is internally placed automatically before all application-related expansion commands for lamps for the color/color temperature control with DALI interface.

VAR_INPUT

```
bStart      : BOOL;
nAddr       : BYTE;
eAddrType   : E_DALIV2AddrType := eDALIV2AddrTypeShort;
eCommandPriority : E_DALIV2CommandPriority := eDALIV2CommandPriorityMiddle;
nValue      : UINT;
```

bStart: The function block is activated by a positive edge at this input.

nAddr: The address of a participating device or of a group.

eAddrType: Short address, group address or broadcast (see [E_DALIV2AddrType](#) [▶ 401]).

eCommandPriority: Priority (high, medium or low) with which the command is processed by the library (see [E_DALIV2CommandPriority](#) [▶ 401]).

nValue : The value that is written into the TEMPORARY y-COORDINATE variable.

VAR_OUTPUT

```
bBusy      : BOOL;
bError     : BOOL;
nErrorId   : UDINT;
```

bBusy: When the function block is activated the output is set, and it remains active until execution of the command has been completed.

bError: This output is switched to TRUE as soon as an error occurs during the execution of a command. The command-specific error code is contained in *nErrorId*. Is reset to FALSE by the execution of a command at the inputs.

nErrorId: Contains the command-specific error code of the most recently executed command. Is reset to 0 by the execution of a command at the inputs. (See [error codes](#) [▶ 380])

VAR_IN_OUT

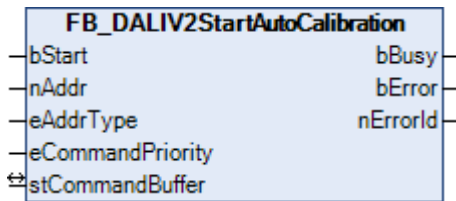
```
stCommandBuffer : ST_DALIV2CommandBuffer;
```

stCommandBuffer: Reference to the internal structure for communication with the function block [FB_KL6811Communication\(\)](#) [▶ 70] (KL6811) or [FB_KL6821Communication\(\)](#) [▶ 74] (KL6821).

Requirements

Development environment	required PLC library
TwinCAT from v3.1.4020.14	Tc2_DALI from v3.4.3.0

4.1.2.8.20 FB_DALIV2StartAutoCalibration



The calibration procedure is started in order to measure the x-coordinate, the y-coordinate and the TY value of all supported primary colors.

The command starts a 15-minute timer or initiates it again. Bit 2 of the [COLOR STATUS](#) [▶ 292] variable is 1 as long as the timer is active (see [FB_DALIV2QueryColorStatus\(\)](#) [▶ 304]). On expiry of the timer the last color representation, the last color value and the last lamp power level are directly saved again.

During the timer period the DALI control gear carries out a calibration procedure in order to measure the x-coordinate, the y-coordinate and the TY value of all supported primary colors. Whilst the calibration procedure is running, the DALI control gear does not react to any commands apart from [TERMINATE](#) [▶ 156], [QUERY COLOR STATUS](#) [▶ 304] and [START AUTO CALIBRATION](#). In addition, bit 3 in the [COLOR STATUS](#) [▶ 292] variable is set to 0 at the start of the calibration. The [TERMINATE](#) [▶ 156] command ends the procedure and stops the timer.

If the calibration was successful, bit 3 in [COLOR STATUS](#) [▶ 292] is set to 1 and the timer is stopped. If the calibration was not successful, then the last successful calibration data are restored if the DALI control gear is able to do so. Subsequently, bit 3 of [COLOR STATUS](#) is set to 1. The ability to restore the last successful calibration data is a feature of the operating device (see [QUERY GEAR FEATURES/STATUS](#) [▶ 310] command).

Due to the fact that the calibration can take longer than 15 minutes, the status of the automatic calibration should be checked periodically using the [QUERY COLOR STATUS](#) [▶ 304] command and the calibration timer restarted with the [START AUTO CALIBRATION](#) command (if necessary).

The function block supports the following color representations:

- xy coordinates
- Color temperature Tc
- Primary (color) N
- RGBWAF



This command belongs to the application-related expansion commands for lamps for the color/color temperature control with DALI interface. They function only if they are preceded by the *Enable Device Type 8* command, which can be sent with the [FB_DALIV2EnableDeviceType\(\)](#) [▶ 85] function block. The *Enable Device Type 8* command is internally placed automatically before all application-related expansion commands for lamps for the color/color temperature control with DALI interface.

VAR_INPUT

```
bStart      : BOOL;
nAddr       : BYTE;
eAddrType   : E_DALIV2AddrType := eDALIV2AddrTypeShort;
eCommandPriority : E_DALIV2CommandPriority := eDALIV2CommandPriorityMiddle;
```

bStart: The function block is activated by a positive edge at this input.

nAddr: The address of a participating device or of a group.

eAddrType: Short address, group address or broadcast (see [E_DALIV2AddrType](#) [▶ 401]).

eCommandPriority: Priority (high, medium or low) with which the command is processed by the library (see [E_DALIV2CommandPriority](#) [▶ 401]).

VAR_OUTPUT

```
bBusy      : BOOL;
bError     : BOOL;
nErrorId  : UDINT;
```

bBusy: When the function block is activated the output is set, and it remains active until execution of the command has been completed.

bError: This output is switched to TRUE as soon as an error occurs during the execution of a command. The command-specific error code is contained in *nErrorId*. Is reset to FALSE by the execution of a command at the inputs.

nErrorId: Contains the command-specific error code of the most recently executed command. Is reset to 0 by the execution of a command at the inputs. (See [error codes](#) [▶ 380])

VAR_IN_OUT

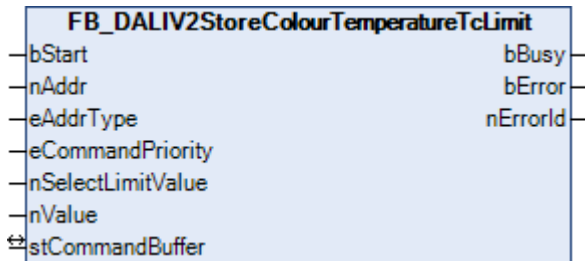
```
stCommandBuffer : ST_DALIV2CommandBuffer;
```

stCommandBuffer: Reference to the internal structure for communication with the function block [FB_KL6811Communication\(\)](#) [▶ 70] (KL6811) or [FB_KL6821Communication\(\)](#) [▶ 74] (KL6821).

Requirements

Development environment	required PLC library
TwinCAT from v3.1.4020.14	Tc2_DALI from v3.4.3.0

4.1.2.8.21 FB_DALIV2StoreColourTemperatureTcLimit



Saves the value in the [COLOR TEMPERATURE Tc COOLEST](#) [▶ 292], [COLOR TEMPERATURE Tc WARMEST](#) [▶ 292], [COLOR TEMPERATURE Tc PHYSICAL COOLEST](#) [▶ 292] or [COLOR TEMPERATURE Tc PHYSICAL WARMEST](#) [▶ 292] variable of the DALI control gear. The values can be read with function block [FB_DALIV2QueryColourValue\(\)](#) [▶ 307]. The *nSelectLimitValue* input defines the new limit value to be set:

Value	Limit value	Description
0	COLOR TEMPERATURE Tc COOLEST	lowest possible value, but always equal to or warmer than the lowest possible physical value.
1	COLOR TEMPERATURE Tc WARMEST	highest possible value, but always equal to or cooler than the highest possible physical value.
2	COLOR TEMPERATURE Tc PHYSICAL COOLEST	lowest possible physical value.
3	COLOR TEMPERATURE Tc PHYSICAL WARMEST	highest possible physical value.

The functions [KELVIN_TO_MIREK](#) [▶ 333] and [MIREK_TO_KELVIN](#) [▶ 333] are available for converting from or to Kelvin.

The function block changes the DTR (data transfer registers), DTR1 and DTR2 for all DALI control gears of the DALI line.

The function block supports the following color representations:

- Color temperature Tc



This command belongs to the application-related expansion commands for lamps for the color/color temperature control with DALI interface. They function only if they are preceded by the *Enable Device Type 8* command, which can be sent with the [FB_DALIV2EnableDeviceType\(\)](#) [► 85] function block. The *Enable Device Type 8* command is internally placed automatically before all application-related expansion commands for lamps for the color/color temperature control with DALI interface.

VAR_INPUT

```
bStart      : BOOL;
nAddr       : BYTE;
eAddrType   : E_DALIV2AddrType := eDALIV2AddrTypeShort;
eCommandPriority : E_DALIV2CommandPriority := eDALIV2CommandPriorityMiddle;
nSelectLimitValue : BYTE;
nValue      : UINT;
```

bStart: The function block is activated by a positive edge at this input.

nAddr: The address of a participating device or of a group.

eAddrType: Short address, group address or broadcast (see [E_DALIV2AddrType](#) [► 401]).

eCommandPriority: Priority (high, medium or low) with which the command is processed by the library (see [E_DALIV2CommandPriority](#) [► 401]).

nSelectLimitValue: Specifies the new limit value to be set (see table above).

nValue : The value that is written into the selected variable.

VAR_OUTPUT

```
bBusy      : BOOL;
bError     : BOOL;
nErrorId   : UDINT;
```

bBusy: When the function block is activated the output is set, and it remains active until execution of the command has been completed.

bError: This output is switched to TRUE as soon as an error occurs during the execution of a command. The command-specific error code is contained in *nErrorId*. Is reset to FALSE by the execution of a command at the inputs.

nErrorId: Contains the command-specific error code of the most recently executed command. Is reset to 0 by the execution of a command at the inputs. (See [error codes](#) [► 380])

VAR_IN_OUT

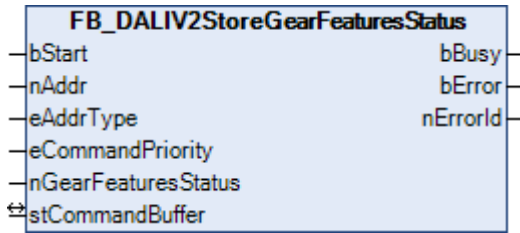
```
stCommandBuffer : ST_DALIV2CommandBuffer;
```

stCommandBuffer: Reference to the internal structure for communication with the function block [FB_KL6811Communication\(\)](#) [► 70] (KL6811) or [FB_KL6821Communication\(\)](#) [► 74] (KL6821).

Requirements

Development environment	required PLC library
TwinCAT from v3.1.4020.14	Tc2_DALI from v3.4.3.0

4.1.2.8.22 FB_DALIV2StoreGearFeaturesStatus



Saves the value in the GEAR FEATURES/STATUS [▶ 292] variable of the DALI control gear. The values can be read out using the FB_DALIV2QueryGearFeaturesStatus() [▶ 310] function block.

If bit 0 is set to 1, all commands for the control of the lamp power, with the exception of ENABLE DAPC SEQUENCE [▶ 104], must automatically trigger a color transition.

Bit	Description
0	Automatic activation.
1 - 7	Reserved.

The function block changes the DTR (data transfer registers) for all DALI control gears of the DALI line.

The function block supports the following color representations:

- xy coordinates
- Color temperature Tc
- Primary (color) N
- RGBWAF



This command belongs to the application-related expansion commands for lamps for the color/color temperature control with DALI interface. They function only if they are preceded by the *Enable Device Type 8* command, which can be sent with the FB_DALIV2EnableDeviceType() [▶ 85] function block. The *Enable Device Type 8* command is internally placed automatically before all application-related expansion commands for lamps for the color/color temperature control with DALI interface.

VAR_INPUT

```
bStart          : BOOL;
nAddr           : BYTE;
eAddrType       : E_DALIV2AddrType := eDALIV2AddrTypeShort;
eCommandPriority : E_DALIV2CommandPriority := eDALIV2CommandPriorityMiddle;
nGearFeaturesStatus : BYTE;
```

bStart: The function block is activated by a positive edge at this input.

nAddr: The address of a participating device or of a group.

eAddrType: Short address, group address or broadcast (see E_DALIV2AddrType [▶ 401]).

eCommandPriority: Priority (high, medium or low) with which the command is processed by the library (see E_DALIV2CommandPriority [▶ 401]).

nGearFeaturesStatus: Value that is written into the GEAR FEATURES/STATUS variable.

VAR_OUTPUT

```
bBusy   : BOOL;
bError  : BOOL;
nErrorId : UDINT;
```

bBusy: When the function block is activated the output is set, and it remains active until execution of the command has been completed.

bError: This output is switched to TRUE as soon as an error occurs during the execution of a command. The command-specific error code is contained in *nErrorId*. Is reset to FALSE by the execution of a command at the inputs.

nErrorId: Contains the command-specific error code of the most recently executed command. Is reset to 0 by the execution of a command at the inputs. (See [error codes](#) [► 380])

VAR_IN_OUT

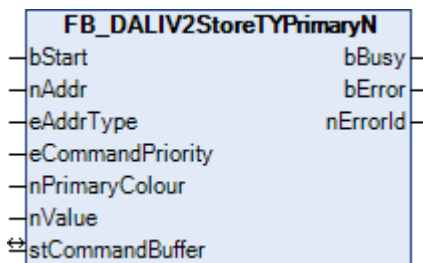
```
stCommandBuffer : ST_DALIV2CommandBuffer;
```

stCommandBuffer: Reference to the internal structure for communication with the function block [FB_KL6811Communication\(\)](#) [► 70] (KL6811) or [FB_KL6821Communication\(\)](#) [► 74] (KL6821).

Requirements

Development environment	required PLC library
TwinCAT from v3.1.4020.14	Tc2_DALI from v3.4.3.0

4.1.2.8.23 FB_DALIV2StoreTYPrimaryN



Saves the value in the [TY PRIMARY N](#) [► 292] variable of the DALI control gear.

The value is expressed in units of 0.5 lm, which results in a possible range of $TY_{min} = 0 \text{ lm}$ to $TY_{max} = 32767 \text{ lm}$. A value of 65535 (MASK) means "unknown". The *nPrimaryColor* parameter specifies the primary color and must be within the range of 0 to 5, depending on the available number of primary colors. The command is ignored for every other value.

The function block changes the DTR (data transfer registers), DTR1 and DTR2 for all DALI control gears of the DALI line.

The function block supports the following color representations:

- Primary (color) N



This command belongs to the application-related expansion commands for lamps for the color/color temperature control with DALI interface. They function only if they are preceded by the *Enable Device Type 8* command, which can be sent with the [FB_DALIV2EnableDeviceType\(\)](#) [► 85] function block. The *Enable Device Type 8* command is internally placed automatically before all application-related expansion commands for lamps for the color/color temperature control with DALI interface.

VAR_INPUT

```
bStart      : BOOL;
nAddr       : BYTE;
eAddrType   : E_DALIV2AddrType := eDALIV2AddrTypeShort;
eCommandPriority : E_DALIV2CommandPriority := eDALIV2CommandPriorityMiddle;
nPrimaryColour : BYTE;
nValue      : UINT;
```

bStart: The function block is activated by a positive edge at this input.

nAddr: The address of a participating device or of a group.

eAddrType: Short address, group address or broadcast (see [E_DALIV2AddrType](#) [► 401]).

eCommandPriority: Priority (high, medium or low) with which the command is processed by the library (see [E_DALIV2CommandPriority](#) [▶ 401]).

nPrimaryColour: Primary color (0 - 5).

nValue : The value that is written into the TY PRIMARY N variable.

VAR_OUTPUT

```
bBusy      : BOOL;
bError     : BOOL;
nErrorId   : UDINT;
```

bBusy: When the function block is activated the output is set, and it remains active until execution of the command has been completed.

bError: This output is switched to TRUE as soon as an error occurs during the execution of a command. The command-specific error code is contained in *nErrorId*. Is reset to FALSE by the execution of a command at the inputs.

nErrorId: Contains the command-specific error code of the most recently executed command. Is reset to 0 by the execution of a command at the inputs. (See [error codes](#) [▶ 380])

VAR_IN_OUT

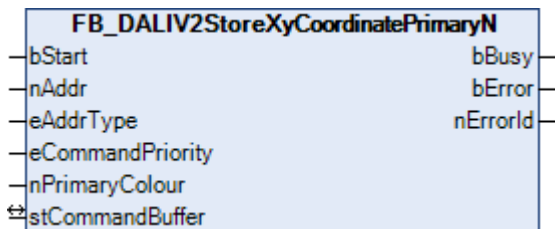
```
stCommandBuffer : ST_DALIV2CommandBuffer;
```

stCommandBuffer: Reference to the internal structure for communication with the function block [FB_KL6811Communication\(\)](#) [▶ 70] (KL6811) or [FB_KL6821Communication\(\)](#) [▶ 74] (KL6821).

Requirements

Development environment	required PLC library
TwinCAT from v3.1.4020.14	Tc2_DALI from v3.4.3.0

4.1.2.8.24 FB_DALIV2StoreXyCoordinatePrimaryN



Copies the value from the [TEMPORARY x-COORDINATE](#) [▶ 292] and [TEMPORARY y-COORDINATE](#) [▶ 292] variables to the [x-COORDINATE PRIMARY N](#) [▶ 292] and [y-COORDINATE PRIMARY N](#) [▶ 292] variables.

The *nPrimaryColor* parameter specifies the primary color and must be within the range of 0 to 5, depending on the available number of primary colors. The command is ignored for every other value.

This command can be used to store the current xy coordinates associated with the primary color. xy coordinates outside the color space chromaticity diagram are not meaningful and should therefore be avoided.

The function block changes the DTR2 (data transfer registers) for all DALI control gears of the DALI line.

The function block supports the following color representations:

- Primary (color) N



This command belongs to the application-related expansion commands for lamps for the color/color temperature control with DALI interface. They function only if they are preceded by the *Enable Device Type 8* command, which can be sent with the `FB_DALIV2EnableDeviceType()` [▶ 85] function block. The *Enable Device Type 8* command is internally placed automatically before all application-related expansion commands for lamps for the color/color temperature control with DALI interface.

VAR_INPUT

```
bStart      : BOOL;
nAddr       : BYTE;
eAddrType   : E_DALIV2AddrType := eDALIV2AddrTypeShort;
eCommandPriority : E_DALIV2CommandPriority := eDALIV2CommandPriorityMiddle;
nPrimaryColour : BYTE;
```

bStart: The function block is activated by a positive edge at this input.

nAddr: The address of a participating device or of a group.

eAddrType: Short address, group address or broadcast (see `E_DALIV2AddrType` [▶ 401]).

eCommandPriority: Priority (high, medium or low) with which the command is processed by the library (see `E_DALIV2CommandPriority` [▶ 401]).

nPrimaryColour: Primary color (0 - 5).

VAR_OUTPUT

```
bBusy      : BOOL;
bError     : BOOL;
nErrorId   : UDINT;
```

bBusy: When the function block is activated the output is set, and it remains active until execution of the command has been completed.

bError: This output is switched to TRUE as soon as an error occurs during the execution of a command. The command-specific error code is contained in *nErrorId*. Is reset to FALSE by the execution of a command at the inputs.

nErrorId: Contains the command-specific error code of the most recently executed command. Is reset to 0 by the execution of a command at the inputs. (See `error codes` [▶ 380])

VAR_IN_OUT

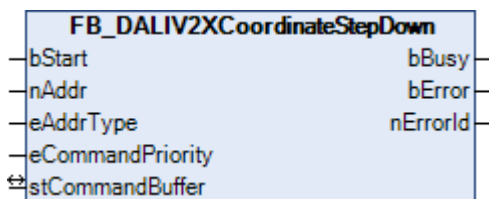
```
stCommandBuffer : ST_DALIV2CommandBuffer;
```

stCommandBuffer: Reference to the internal structure for communication with the function block `FB_KL6811Communication()` [▶ 70] (KL6811) or `FB_KL6821Communication()` [▶ 74] (KL6821).

Requirements

Development environment	required PLC library
TwinCAT from v3.1.4020.14	Tc2_DALI from v3.4.3.0

4.1.2.8.25 FB_DALIV2XCoordinateStepDown



The x-COORDINATE variable is reduced by 256 steps (256 / 65536) without cross-fading.

If the new color value does not correspond to a color that can be achieved by the DALI ballast, this must be indicated by bit 0 of [COLOUR STATUS \[► 292\]](#) (xy-coordinate color point lies outside the valid range). The command is executed only if bit 4 of [COLOUR STATUS \[► 292\]](#) (color representation xy-coordinate active) is set.

The block supports the following color representations:

- xy coordinates



This command belongs to the application-related expansion commands for lamps for the color/color temperature control with DALI interface. They function only if they are preceded by the *Enable Device Type 8* command, which can be sent with the FB [DALIV2EnableDeviceType\(\) \[► 85\]](#) function block. The *Enable Device Type 8* command is internally placed automatically before all application-related expansion commands for lamps for the color/color temperature control with DALI interface.

VAR_INPUT

```
bStart      : BOOL;
nAddr       : BYTE;
eAddrType   : E_DALIV2AddrType := eDALIV2AddrTypeShort;
eCommandPriority : E_DALIV2CommandPriority := eDALIV2CommandPriorityMiddle;
```

bStart: The function block is activated by a positive edge at this input.

nAddr: The address of a participating device or of a group.

eAddrType: Short address, group address or broadcast (see [E_DALIV2AddrType \[► 401\]](#)).

eCommandPriority: Priority (high, medium or low) with which the command is processed by the library (see [E_DALIV2CommandPriority \[► 401\]](#)).

VAR_OUTPUT

```
bBusy      : BOOL;
bError     : BOOL;
nErrorId   : UDINT;
```

bBusy: When the function block is activated the output is set, and it remains active until execution of the command has been completed.

bError: This output is switched to TRUE as soon as an error occurs during the execution of a command. The command-specific error code is contained in *nErrorId*. Is reset to FALSE by the execution of a command at the inputs.

nErrorId: Contains the command-specific error code of the most recently executed command. Is reset to 0 by the execution of a command at the inputs. (See [error codes \[► 380\]](#))

VAR_IN_OUT

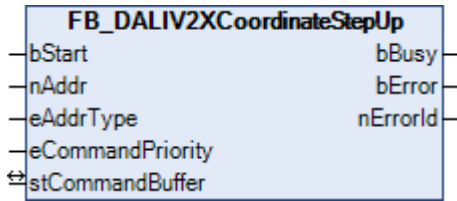
```
stCommandBuffer : ST_DALIV2CommandBuffer;
```

stCommandBuffer: Reference to the internal structure for communication with the function block [FB_KL6811Communication\(\) \[► 70\]](#) (KL6811) or [FB_KL6821Communication\(\) \[► 74\]](#) (KL6821).

Requirements

Development environment	required PLC library
TwinCAT from v3.1.4020.14	Tc2_DALI from v3.4.3.0

4.1.2.8.26 FB_DALIV2XCoordinateStepUp



The x-COORDINATE variable is increased by 256 steps (256 / 65536) without cross-fading.

If the new color value does not correspond to a color that can be achieved by the DALI ballast, this must be indicated by bit 0 of [COLOUR STATUS \[▶ 292\]](#) (xy-coordinate color point lies outside the valid range). The command is executed only if bit 4 of [COLOUR STATUS \[▶ 292\]](#) (color representation xy-coordinate active) is set.

The block supports the following color representations:

- xy coordinates



This command belongs to the application-related expansion commands for lamps for the color/color temperature control with DALI interface. They function only if they are preceded by the *Enable Device Type 8* command, which can be sent with the [FB_DALIV2EnableDeviceType\(\) \[▶ 85\]](#) function block. The *Enable Device Type 8* command is internally placed automatically before all application-related expansion commands for lamps for the color/color temperature control with DALI interface.

VAR_INPUT

```
bStart      : BOOL;
nAddr       : BYTE;
eAddrType   : E_DALIV2AddrType := eDALIV2AddrTypeShort;
eCommandPriority : E_DALIV2CommandPriority := eDALIV2CommandPriorityMiddle;
```

bStart: The function block is activated by a positive edge at this input.

nAddr: The address of a participating device or of a group.

eAddrType: Short address, group address or broadcast (see [E_DALIV2AddrType \[▶ 401\]](#)).

eCommandPriority: Priority (high, medium or low) with which the command is processed by the library (see [E_DALIV2CommandPriority \[▶ 401\]](#)).

VAR_OUTPUT

```
bBusy       : BOOL;
bError      : BOOL;
nErrorId    : UDINT;
```

bBusy: When the function block is activated the output is set, and it remains active until execution of the command has been completed.

bError: This output is switched to TRUE as soon as an error occurs during the execution of a command. The command-specific error code is contained in *nErrorId*. Is reset to FALSE by the execution of a command at the inputs.

nErrorId: Contains the command-specific error code of the most recently executed command. Is reset to 0 by the execution of a command at the inputs. (See [error codes \[▶ 380\]](#))

VAR_IN_OUT

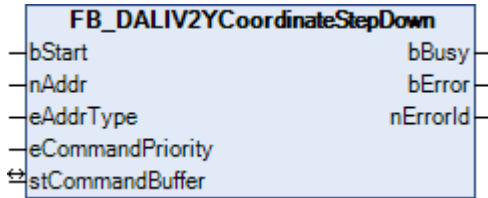
```
stCommandBuffer : ST_DALIV2CommandBuffer;
```

stCommandBuffer: Reference to the internal structure for communication with the function block [FB_KL6811Communication\(\) \[▶ 70\]](#) (KL6811) or [FB_KL6821Communication\(\) \[▶ 74\]](#) (KL6821).

Requirements

Development environment	required PLC library
TwinCAT from v3.1.4020.14	Tc2_DALI from v3.4.3.0

4.1.2.8.27 FB_DALIV2YCoordinateStepDown



The y-COORDINATE variable is reduced by 256 steps (256 / 65536) without cross-fading.

If the new color value does not correspond to a color that can be achieved by the DALI ballast, this must be indicated by bit 0 of [COLOUR STATUS \[▶ 292\]](#) (xy-coordinate color point lies outside the valid range). The command is executed only if bit 4 of [COLOUR STATUS \[▶ 292\]](#) (color representation xy-coordinate active) is set.

The block supports the following color representations:

- xy coordinates



This command belongs to the application-related expansion commands for lamps for the color/color temperature control with DALI interface. They function only if they are preceded by the *Enable Device Type 8* command, which can be sent with the [FB_DALIV2EnableDeviceType\(\) \[▶ 85\]](#) function block. The *Enable Device Type 8* command is internally placed automatically before all application-related expansion commands for lamps for the color/color temperature control with DALI interface.

VAR_INPUT

```
bStart      : BOOL;
nAddr       : BYTE;
eAddrType   : E_DALIV2AddrType := eDALIV2AddrTypeShort;
eCommandPriority : E_DALIV2CommandPriority := eDALIV2CommandPriorityMiddle;
```

bStart: The function block is activated by a positive edge at this input.

nAddr: The address of a participating device or of a group.

eAddrType: Short address, group address or broadcast (see [E_DALIV2AddrType \[▶ 401\]](#)).

eCommandPriority: Priority (high, medium or low) with which the command is processed by the library (see [E_DALIV2CommandPriority \[▶ 401\]](#)).

VAR_OUTPUT

```
bBusy       : BOOL;
bError      : BOOL;
nErrorId    : UDINT;
```

bBusy: When the function block is activated the output is set, and it remains active until execution of the command has been completed.

bError: This output is switched to TRUE as soon as an error occurs during the execution of a command. The command-specific error code is contained in *nErrorId*. Is reset to FALSE by the execution of a command at the inputs.

nErrorId: Contains the command-specific error code of the most recently executed command. Is reset to 0 by the execution of a command at the inputs. (See [error codes \[▶ 380\]](#))

VAR_IN_OUT

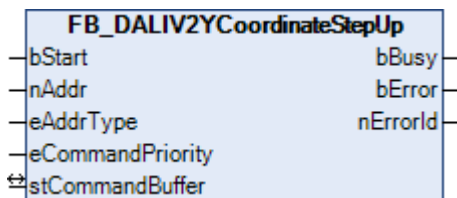
```
stCommandBuffer : ST_DALIV2CommandBuffer;
```


stCommandBuffer: Reference to the internal structure for communication with the function block `FB_KL6811Communication()` [► 70] (KL6811) or `FB_KL6821Communication()` [► 74] (KL6821).

Requirements

Development environment	required PLC library
TwinCAT from v3.1.4020.14	Tc2_DALI from v3.4.3.0

4.1.2.8.28 FB_DALIV2YCoordinateStepUp



The y-COORDINATE variable is increased by 256 steps (256 / 65536) without cross-fading.

If the new color value does not correspond to a color that can be achieved by the DALI ballast, this must be indicated by bit 0 of `COLOUR STATUS` [► 292] (xy-coordinate color point lies outside the valid range). The command is executed only if bit 4 of `COLOUR STATUS` [► 292] (color representation xy-coordinate active) is set.

The block supports the following color representations:

- xy coordinates



This command belongs to the application-related expansion commands for lamps for the color/color temperature control with DALI interface. They function only if they are preceded by the *Enable Device Type 8* command, which can be sent with the `FB_DALIV2EnableDeviceType()` [► 85] function block. The *Enable Device Type 8* command is internally placed automatically before all application-related expansion commands for lamps for the color/color temperature control with DALI interface.

VAR_INPUT

```
bStart      : BOOL;
nAddr       : BYTE;
eAddrType   : E_DALIV2AddrType := eDALIV2AddrTypeShort;
eCommandPriority : E_DALIV2CommandPriority := eDALIV2CommandPriorityMiddle;
```

bStart: The function block is activated by a positive edge at this input.

nAddr: The address of a participating device or of a group.

eAddrType: Short address, group address or broadcast (see `E_DALIV2AddrType` [► 401]).

eCommandPriority: Priority (high, medium or low) with which the command is processed by the library (see `E_DALIV2CommandPriority` [► 401]).

VAR_OUTPUT

```
bBusy       : BOOL;
bError      : BOOL;
nErrorId    : UDINT;
```

bBusy: When the function block is activated the output is set, and it remains active until execution of the command has been completed.

bError: This output is switched to TRUE as soon as an error occurs during the execution of a command. The command-specific error code is contained in `nErrorId`. Is reset to FALSE by the execution of a command at the inputs.

nErrorId: Contains the command-specific error code of the most recently executed command. Is reset to 0 by the execution of a command at the inputs. (See `error codes` [► 380])

VAR_IN_OUT

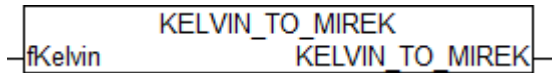
```
stCommandBuffer : ST_DALIV2CommandBuffer;
```

stCommandBuffer: Reference to the internal structure for communication with the function block FB_KL6811Communication() [▶ 70] (KL6811) or FB_KL6821Communication() [▶ 74] (KL6821).

Requirements

Development environment	required PLC library
TwinCAT from v3.1.4020.14	Tc2_DALI from v3.4.3.0

4.1.2.8.29 KELVIN_TO_MIREK



Conversion of the color temperature from Kelvin to Mirek.

Mirek is the unit that is used with most DALI commands. The return value is limited and lies within the range from 0 to 65535 (see table).

$$\text{Mirek} = 1,000,000 / (\text{color temperature in Kelvin}).$$

Kelvin	Mirek
0	65535
15	65535
16	62500
1000	1000
10000	100
1000000	1
1000001	0

VAR_INPUT

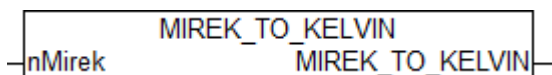
```
fKelvin : LREAL;
```

fKelvin: Color temperature in Kelvin.

Requirements

Development environment	required PLC library
TwinCAT from v3.1.4020.14	Tc2_DALI from v3.4.3.0

4.1.2.8.30 MIREK_TO_KELVIN



Conversion of the color temperature from Mirek to Kelvin.

Mirek is the unit that is used with most DALI commands. The return value is limited and lies within the range from approx. 15.259 ... 1000001 (see table).

$$\text{Mirek} = 1,000,000 / (\text{color temperature in Kelvin}).$$

Mirek	Kelvin
0	1000001
1	1000000
100	10000
1000	1000
10000	100
65534	15.259
65535	15.259

VAR_INPUT

nMirek : UINT;

nMirek: Color temperature in Mirek.

Requirements

Development environment	required PLC library
TwinCAT from v3.1.4020.14	Tc2_DALI from v3.4.3.0

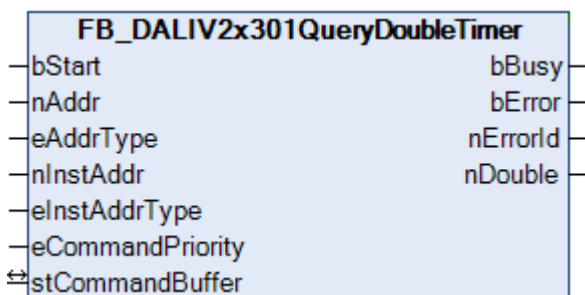
4.1.2.9 Part 301 (button)

Function blocks

A detailed description of the individual DALI commands and the variables can be found in standard IEC 62386 Part 301.

Name	Description
FB_DALIV2x301QueryDoubleTimer [▶ 334]	Queries the value of the DOUBLE TIMER.
FB_DALIV2x301QueryDoubleTimerMin [▶ 336]	Queries the minimum value of the DOUBLE TIMER.
FB_DALIV2x301QueryRepeatTimer [▶ 337]	Queries the value of the REPEAT TIMER.
FB_DALIV2x301QueryShortTimer [▶ 338]	Queries the value of the SHORT TIMER.
FB_DALIV2x301QueryShortTimerMin [▶ 339]	Queries the minimum value of the SHORT TIMER.
FB_DALIV2x301QueryStuckTimer [▶ 340]	Queries the value of the STUCK TIMER.
FB_DALIV2x301SetDoubleTimer [▶ 341]	Sets the value of the DOUBLE TIMER.
FB_DALIV2x301SetRepeatTimer [▶ 342]	Sets the value of the REPEAT TIMER.
FB_DALIV2x301SetShortTimer [▶ 343]	Sets the value of the SHORT TIMER.
FB_DALIV2x301SetStuckTimer [▶ 344]	Sets the value of the STUCK TIMER.

4.1.2.9.1 FB_DALIV2x301QueryDoubleTimer



Queries the value of the DOUBLE TIMER.

The unit is 20 ms. The maximum permissible value is 2000 ms. The value 0 disables the timer. The smallest permitted value can be queried with the function block [FB_DALIV2x301QueryDoubleTimerMin\(\)](#) [▶ 336].

VAR_INPUT

```
bStart      : BOOL;
nAddr       : BYTE;
eAddrType   : E_DALIV2AddrType := eDALIV2AddrTypeShort;
nInstAddr   : BYTE := 0;
eInstAddrType : E_DALIV2InstAddrType := eDALIV2InstAddrTypeNumber;
eCommandPriority : E_DALIV2CommandPriority := eDALIV2CommandPriorityMiddle;
```

bStart: The function block is activated by a positive edge at this input.

nAddr: The address of a participating device or of a group.

eAddrType: Short address, group address or broadcast (see [E_DALIV2AddrType](#) [▶ 401]).

nInstAddr: Address of the instance within the DALI control unit.

eInstAddrType: Defines the access mode to the desired instance within the DALI control unit (see [DALIV2InstAddrType](#) [▶ 403]).

eCommandPriority: Priority (high, medium or low) with which the command is processed by the library (see [E_DALIV2CommandPriority](#) [▶ 401]).

VAR_OUTPUT

```
bBusy      : BOOL;
bError     : BOOL;
nErrorId   : UDINT;
nDouble    : BYTE;
```

bBusy: When the function block is activated the output is set, and it remains active until execution of the command has been completed.

bError: This output is switched to TRUE as soon as an error occurs during the execution of a command. The command-specific error code is contained in *nErrorId*. Is reset to FALSE by the execution of a command at the inputs.

nErrorId: Contains the command-specific error code of the most recently executed command. Is reset to 0 by the execution of a command at the inputs. (See [error codes](#) [▶ 380])

nDouble: Value of the DOUBLE TIMER [20 ms].

VAR_IN_OUT

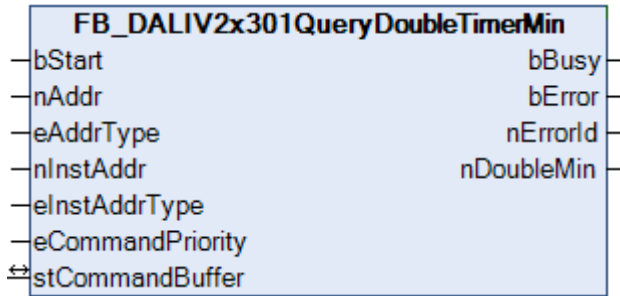
```
stCommandBuffer : ST_DALIV2CommandBuffer;
```

stCommandBuffer: Reference to the internal structure for communication with the function block [FB_KL6821Communication\(\)](#) [▶ 74] (KL6821).

Requirements

Development environment	required PLC library
TwinCAT from v3.1.4022.4	Tc2_DALI from v3.6.2.0

4.1.2.9.2 FB_DALIV2x301QueryDoubleTimerMin



Queries the minimum value of the DOUBLE TIMER.

The unit is 20 ms.

VAR_INPUT

```

bStart      : BOOL;
nAddr       : BYTE;
eAddrType   : E_DALIV2AddrType := eDALIV2AddrTypeShort;
nInstAddr   : BYTE := 0;
eInstAddrType : E_DALIV2InstAddrType := eDALIV2InstAddrTypeNumber;
eCommandPriority : E_DALIV2CommandPriority := eDALIV2CommandPriorityMiddle;

```

bStart: The function block is activated by a positive edge at this input.

nAddr: The address of a participating device or of a group.

eAddrType: Short address, group address or broadcast (see [E_DALIV2AddrType \[▶ 401\]](#)).

nInstAddr: Address of the instance within the DALI control unit.

eInstAddrType: Defines the access mode to the desired instance within the DALI control unit (see [DALIV2InstAddrType \[▶ 403\]](#)).

eCommandPriority: Priority (high, medium or low) with which the command is processed by the library (see [E_DALIV2CommandPriority \[▶ 401\]](#)).

VAR_OUTPUT

```

bBusy       : BOOL;
bError      : BOOL;
nErrorId    : UDINT;
nDoubleMin  : BYTE;

```

bBusy: When the function block is activated the output is set, and it remains active until execution of the command has been completed.

bError: This output is switched to TRUE as soon as an error occurs during the execution of a command. The command-specific error code is contained in *nErrorId*. Is reset to FALSE by the execution of a command at the inputs.

nErrorId: Contains the command-specific error code of the most recently executed command. Is reset to 0 by the execution of a command at the inputs. (See [error codes \[▶ 380\]](#))

nDoubleMin: Value of the DOUBLE TIMER [20 ms].

VAR_IN_OUT

```

stCommandBuffer : ST_DALIV2CommandBuffer;

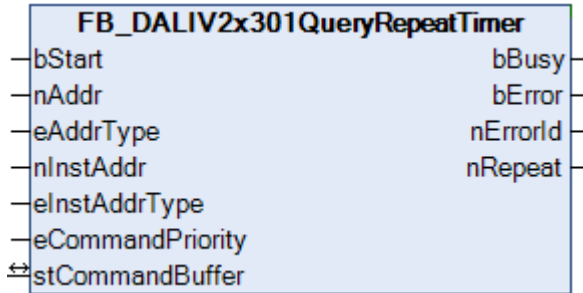
```

stCommandBuffer: Reference to the internal structure for communication with the function block [FB_KL6821Communication\(\) \[▶ 74\]](#) (KL6821).

Requirements

Development environment	required PLC library
TwinCAT from v3.1.4022.4	Tc2_DALI from v3.6.2.0

4.1.2.9.3 FB_DALIV2x301QueryRepeatTimer



Queries the value of the REPEAT TIMER.

The unit is 20 ms. The permissible value range is 100 ms to 2000 ms, i.e. from 5 to 100.

VAR_INPUT

```

bStart      : BOOL;
nAddr       : BYTE;
eAddrType   : E_DALIV2AddrType := eDALIV2AddrTypeShort;
nInstAddr   : BYTE := 0;
eInstAddrType : E_DALIV2InstAddrType := eDALIV2InstAddrTypeNumber;
eCommandPriority : E_DALIV2CommandPriority := eDALIV2CommandPriorityMiddle;
    
```

bStart: The function block is activated by a positive edge at this input.

nAddr: The address of a participating device or of a group.

eAddrType: Short address, group address or broadcast (see [E_DALIV2AddrType \[▶ 401\]](#)).

nInstAddr: Address of the instance within the DALI control unit.

eInstAddrType: Defines the access mode to the desired instance within the DALI control unit (see [DALIV2InstAddrType \[▶ 403\]](#)).

eCommandPriority: Priority (high, medium or low) with which the command is processed by the library (see [E_DALIV2CommandPriority \[▶ 401\]](#)).

VAR_OUTPUT

```

bBusy      : BOOL;
bError     : BOOL;
nErrorId   : UDINT;
nRepeat    : BYTE;
    
```

bBusy: When the function block is activated the output is set, and it remains active until execution of the command has been completed.

bError: This output is switched to TRUE as soon as an error occurs during the execution of a command. The command-specific error code is contained in *nErrorId*. Is reset to FALSE by the execution of a command at the inputs.

nErrorId: Contains the command-specific error code of the most recently executed command. Is reset to 0 by the execution of a command at the inputs. (See [error codes \[▶ 380\]](#))

nRepeat: Value of the REPEAT TIMER [20 ms].

VAR_IN_OUT

```

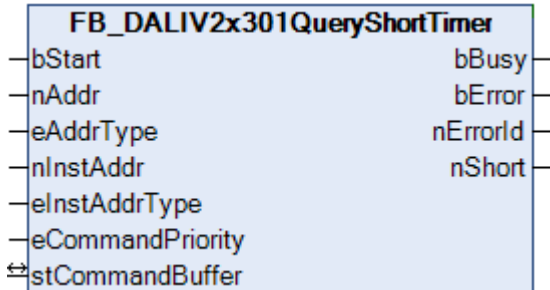
stCommandBuffer : ST_DALIV2CommandBuffer;
    
```

stCommandBuffer: Reference to the internal structure for communication with the function block `FB_KL6821Communication()` [▶ 74] (KL6821).

Requirements

Development environment	required PLC library
TwinCAT from v3.1.4022.4	Tc2_DALI from v3.6.2.0

4.1.2.9.4 FB_DALIV2x301QueryShortTimer



Queries the value of the SHORT TIMER.

The unit is 20 ms. The maximum permissible value is 5100 ms. The smallest permitted value can be queried with the function block `FB_DALIV2x301QueryShortTimerMin()` [▶ 339].

VAR_INPUT

```

bStart      : BOOL;
nAddr       : BYTE;
eAddrType   : E_DALIV2AddrType := eDALIV2AddrTypeShort;
nInstAddr   : BYTE := 0;
eInstAddrType : E_DALIV2InstAddrType := eDALIV2InstAddrTypeNumber;
eCommandPriority : E_DALIV2CommandPriority := eDALIV2CommandPriorityMiddle;

```

bStart: The function block is activated by a positive edge at this input.

nAddr: The address of a participating device or of a group.

eAddrType: Short address, group address or broadcast (see [E_DALIV2AddrType](#) [▶ 401]).

nInstAddr: Address of the instance within the DALI control unit.

eInstAddrType: Defines the access mode to the desired instance within the DALI control unit (see [DALIV2InstAddrType](#) [▶ 403]).

eCommandPriority: Priority (high, medium or low) with which the command is processed by the library (see [E_DALIV2CommandPriority](#) [▶ 401]).

VAR_OUTPUT

```

bBusy       : BOOL;
bError      : BOOL;
nErrorId    : UDINT;
nShort      : BYTE;

```

bBusy: When the function block is activated the output is set, and it remains active until execution of the command has been completed.

bError: This output is switched to TRUE as soon as an error occurs during the execution of a command. The command-specific error code is contained in `nErrorId`. Is reset to FALSE by the execution of a command at the inputs.

nErrorId: Contains the command-specific error code of the most recently executed command. Is reset to 0 by the execution of a command at the inputs. (See [error codes](#) [▶ 380])

nShort: Value of the SHORT TIMER [20 ms].

VAR_IN_OUT

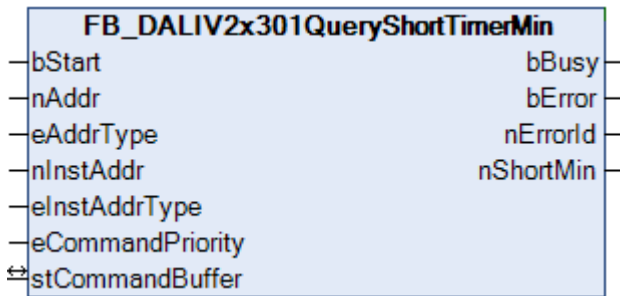
```
stCommandBuffer : ST_DALIV2CommandBuffer;
```

stCommandBuffer: Reference to the internal structure for communication with the function block FB_KL6821Communication() [▶ 74] (KL6821).

Requirements

Development environment	required PLC library
TwinCAT from v3.1.4022.4	Tc2_DALI from v3.6.2.0

4.1.2.9.5 FB_DALIV2x301QueryShortTimerMin



Queries the minimum value of the SHORT TIMER.

The unit is 20 ms.

VAR_INPUT

```
bStart : BOOL;
nAddr : BYTE;
eAddrType : E_DALIV2AddrType := eDALIV2AddrTypeShort;
nInstAddr : BYTE := 0;
eInstAddrType : E_DALIV2InstAddrType := eDALIV2InstAddrTypeNumber;
eCommandPriority : E_DALIV2CommandPriority := eDALIV2CommandPriorityMiddle;
```

bStart: The function block is activated by a positive edge at this input.

nAddr: The address of a participating device or of a group.

eAddrType: Short address, group address or broadcast (see [E_DALIV2AddrType \[▶ 401\]](#)).

nInstAddr: Address of the instance within the DALI control unit.

eInstAddrType: Defines the access mode to the desired instance within the DALI control unit (see [DALIV2InstAddrType \[▶ 403\]](#)).

eCommandPriority: Priority (high, medium or low) with which the command is processed by the library (see [E_DALIV2CommandPriority \[▶ 401\]](#)).

VAR_OUTPUT

```
bBusy : BOOL;
bError : BOOL;
nErrorId : UDINT;
nShortMin : BYTE;
```

bBusy: When the function block is activated the output is set, and it remains active until execution of the command has been completed.

bError: This output is switched to TRUE as soon as an error occurs during the execution of a command. The command-specific error code is contained in *nErrorId*. Is reset to FALSE by the execution of a command at the inputs.

nErrorId: Contains the command-specific error code of the most recently executed command. Is reset to 0 by the execution of a command at the inputs. (See [error codes](#) [► 380])

nShortMin: Value of the SHORT TIMER [20 ms].

VAR_IN_OUT

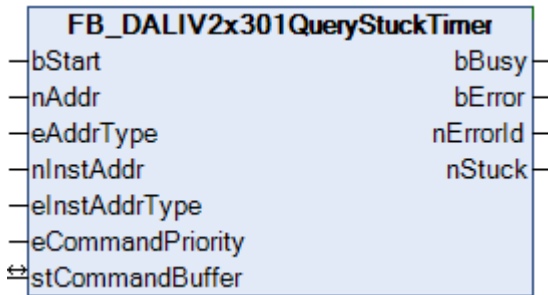
```
stCommandBuffer : ST_DALIV2CommandBuffer;
```

stCommandBuffer: Reference to the internal structure for communication with the function block [FB_KL6821Communication](#) [► 74] (KL6821).

Requirements

Development environment	required PLC library
TwinCAT from v3.1.4022.4	Tc2_DALI from v3.6.2.0

4.1.2.9.6 FB_DALIV2x301QueryStuckTimer



Queries the value of the STUCK TIMER.

The unit is 1 s. The permissible value range is 5 s to 255 s.

VAR_INPUT

```
bStart      : BOOL;
nAddr       : BYTE;
eAddrType   : E_DALIV2AddrType := eDALIV2AddrTypeShort;
nInstAddr   : BYTE := 0;
eInstAddrType : E_DALIV2InstAddrType := eDALIV2InstAddrTypeNumber;
eCommandPriority : E_DALIV2CommandPriority := eDALIV2CommandPriorityMiddle;
```

bStart: The function block is activated by a positive edge at this input.

nAddr: The address of a participating device or of a group.

eAddrType: Short address, group address or broadcast (see [E_DALIV2AddrType](#) [► 401]).

nInstAddr: Address of the instance within the DALI control unit.

eInstAddrType: Defines the access mode to the desired instance within the DALI control unit (see [DALIV2InstAddrType](#) [► 403]).

eCommandPriority: Priority (high, medium or low) with which the command is processed by the library (see [E_DALIV2CommandPriority](#) [► 401]).

VAR_OUTPUT

```
bBusy      : BOOL;
bError     : BOOL;
nErrorId   : UDINT;
nStuck     : BYTE;
```

bBusy: When the function block is activated the output is set, and it remains active until execution of the command has been completed.

bError: This output is switched to TRUE as soon as an error occurs during the execution of a command. The command-specific error code is contained in *nErrorId*. Is reset to FALSE by the execution of a command at the inputs.

nErrorId: Contains the command-specific error code of the most recently executed command. Is reset to 0 by the execution of a command at the inputs. (See [error codes](#) [▶ 380])

nStuck: Value of the STUCK TIMER [s].

VAR_IN_OUT

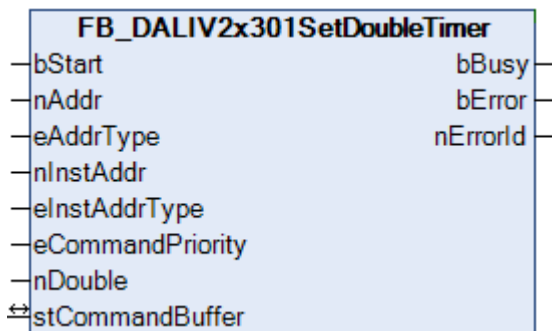
```
stCommandBuffer : ST_DALIV2CommandBuffer;
```

stCommandBuffer: Reference to the internal structure for communication with the function block FB_KL6821Communication() [▶ 74] (KL6821).

Requirements

Development environment	required PLC library
TwinCAT from v3.1.4022.4	Tc2_DALI from v3.6.2.0

4.1.2.9.7 FB_DALIV2x301SetDoubleTimer



Sets the value of the DOUBLE TIMER.

The unit is 20 ms. The maximum permissible value is 2000 ms. The value 0 disables the timer. The minimum allowed value can be queried with [FB_DALIV2x301QueryDoubleTimerMin\(\)](#) [▶ 336].

VAR_INPUT

```
bStart : BOOL;
nAddr : BYTE;
eAddrType : E_DALIV2AddrType := eDALIV2AddrTypeShort;
nInstAddr : BYTE := 0;
eInstAddrType : E_DALIV2InstAddrType := eDALIV2InstAddrTypeNumber;
eCommandPriority : E_DALIV2CommandPriority := eDALIV2CommandPriorityMiddle;
nDouble : BYTE := 0;
```

bStart: The function block is activated by a positive edge at this input.

nAddr: The address of a participating device or of a group.

eAddrType: Short address, group address or broadcast (see [E_DALIV2AddrType](#) [▶ 401]).

nInstAddr: Address of the instance within the DALI control unit.

eInstAddrType: Defines the access mode to the desired instance within the DALI control unit (see [DALIV2InstAddrType](#) [▶ 403]).

eCommandPriority: Priority (high, medium or low) with which the command is processed by the library (see [E_DALIV2CommandPriority](#) [▶ 401]).

nDouble: Value of the DOUBLE TIMER [20 ms].

VAR_OUTPUT

```
bBusy      : BOOL;
bError     : BOOL;
nErrorId  : UDINT;
```

bBusy: When the function block is activated the output is set, and it remains active until execution of the command has been completed.

bError: This output is switched to TRUE as soon as an error occurs during the execution of a command. The command-specific error code is contained in *nErrorId*. Is reset to FALSE by the execution of a command at the inputs.

nErrorId: Contains the command-specific error code of the most recently executed command. Is reset to 0 by the execution of a command at the inputs. (See [error codes](#) [► 380])

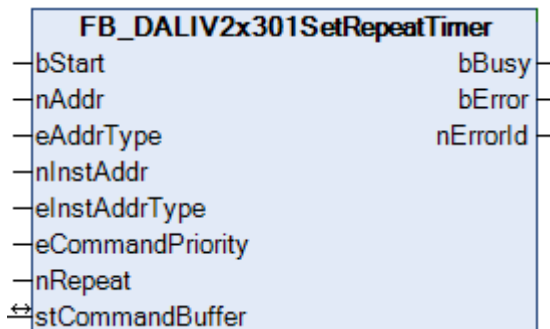
VAR_IN_OUT

```
stCommandBuffer : ST_DALIV2CommandBuffer;
```

stCommandBuffer: Reference to the internal structure for communication with the function block [FB_KL6821Communication\(\)](#) [► 74] (KL6821).

Requirements

Development environment	required PLC library
TwinCAT from v3.1.4022.4	Tc2_DALI from v3.6.2.0

4.1.2.9.8 FB_DALIV2x301SetRepeatTimer

Sets the value of the REPEAT TIMER.

The unit is 20 ms. The permissible value range is 100 ms to 2000 ms, i.e. from 5 to 100.

VAR_INPUT

```
bStart      : BOOL;
nAddr       : BYTE;
eAddrType   : E_DALIV2AddrType := eDALIV2AddrTypeShort;
nInstAddr   : BYTE := 0;
eInstAddrType : E_DALIV2InstAddrType := eDALIV2InstAddrTypeNumber;
eCommandPriority : E_DALIV2CommandPriority := eDALIV2CommandPriorityMiddle;
nRepeat     : BYTE := 8;
```

bStart: The function block is activated by a positive edge at this input.

nAddr: The address of a participating device or of a group.

eAddrType: Short address, group address or broadcast (see [E_DALIV2AddrType](#) [► 401]).

nInstAddr: Address of the instance within the DALI control unit.

eInstAddrType: Defines the access mode to the desired instance within the DALI control unit (see [DALIV2InstAddrType](#) [► 403]).

eCommandPriority: Priority (high, medium or low) with which the command is processed by the library (see [E_DALIV2CommandPriority](#) [▶ 401]).

nRepeat: Value of the REPEAT TIMER [20 ms].

VAR_OUTPUT

```
bBusy      : BOOL;
bError     : BOOL;
nErrorId   : UDINT;
```

bBusy: When the function block is activated the output is set, and it remains active until execution of the command has been completed.

bError: This output is switched to TRUE as soon as an error occurs during the execution of a command. The command-specific error code is contained in *nErrorId*. Is reset to FALSE by the execution of a command at the inputs.

nErrorId: Contains the command-specific error code of the most recently executed command. Is reset to 0 by the execution of a command at the inputs. (See [error codes](#) [▶ 380])

VAR_IN_OUT

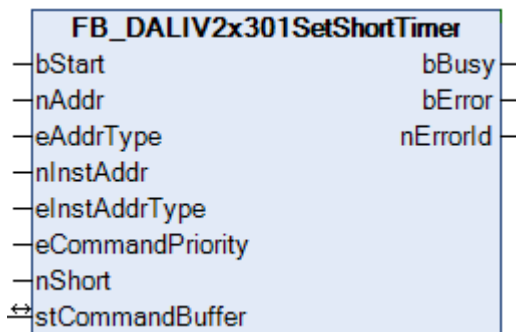
```
stCommandBuffer : ST_DALIV2CommandBuffer;
```

stCommandBuffer: Reference to the internal structure for communication with the function block [FB_KL6821Communication\(\)](#) [▶ 74] (KL6821).

Requirements

Development environment	required PLC library
TwinCAT from v3.1.4022.4	Tc2_DALI from v3.6.2.0

4.1.2.9.9 FB_DALIV2x301SetShortTimer



Sets the value of the SHORT TIMER.

The unit is 20 ms. The maximum permissible value is 5100 ms. The smallest permitted value can be queried with the function block [FB_DALIV2x301QueryShortTimerMin\(\)](#) [▶ 339].

VAR_INPUT

```
bStart      : BOOL;
nAddr       : BYTE;
eAddrType   : E_DALIV2AddrType := eDALIV2AddrTypeShort;
nInstAddr   : BYTE := 0;
eInstAddrType : E_DALIV2InstAddrType := eDALIV2InstAddrTypeNumber;
eCommandPriority : E_DALIV2CommandPriority := eDALIV2CommandPriorityMiddle;
nShort      : BYTE := 25;
```

bStart: The function block is activated by a positive edge at this input.

nAddr: The address of a participating device or of a group.

eAddrType: Short address, group address or broadcast (see [E_DALIV2AddrType](#) [► 401]).

nInstAddr: Address of the instance within the DALI control unit.

eInstAddrType: Defines the access mode to the desired instance within the DALI control unit (see [DALIV2InstAddrType](#) [► 403]).

eCommandPriority: Priority (high, medium or low) with which the command is processed by the library (see [E_DALIV2CommandPriority](#) [► 401]).

nShort: Value of the SHORT TIMER [20 ms].

VAR_OUTPUT

```
bBusy      : BOOL;
bError     : BOOL;
nErrorId   : UDINT;
```

bBusy: When the function block is activated the output is set, and it remains active until execution of the command has been completed.

bError: This output is switched to TRUE as soon as an error occurs during the execution of a command. The command-specific error code is contained in *nErrorId*. Is reset to FALSE by the execution of a command at the inputs.

nErrorId: Contains the command-specific error code of the most recently executed command. Is reset to 0 by the execution of a command at the inputs. (See [error codes](#) [► 380])

VAR_IN_OUT

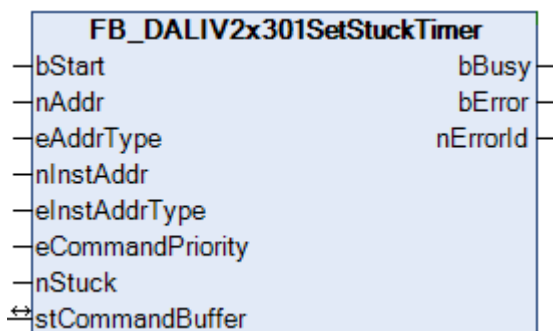
```
stCommandBuffer : ST_DALIV2CommandBuffer;
```

stCommandBuffer: Reference to the internal structure for communication with the function block [FB_KL6821Communication\(\)](#) [► 74] (KL6821).

Requirements

Development environment	required PLC library
TwinCAT from v3.1.4022.4	Tc2_DALI from v3.6.2.0

4.1.2.9.10 FB_DALIV2x301SetStuckTimer



Sets the value of the STUCK TIMER.

The unit is 1 s. The permissible value range is 5 s to 255 s.

VAR_INPUT

```
bStart      : BOOL;
nAddr       : BYTE;
eAddrType   : E_DALIV2AddrType := eDALIV2AddrTypeShort;
nInstAddr   : BYTE := 0;
eInstAddrType : E_DALIV2InstAddrType := eDALIV2InstAddrTypeNumber;
eCommandPriority : E_DALIV2CommandPriority := eDALIV2CommandPriorityMiddle;
nStuck      : BYTE := 20;
```

bStart: The function block is activated by a positive edge at this input.

nAddr: The address of a participating device or of a group.

eAddrType: Short address, group address or broadcast (see [E_DALIV2AddrType](#) [▶ 401]).

nInstAddr: Address of the instance within the DALI control unit.

eInstAddrType: Defines the access mode to the desired instance within the DALI control unit (see [DALIV2InstAddrType](#) [▶ 403]).

eCommandPriority: Priority (high, medium or low) with which the command is processed by the library (see [E_DALIV2CommandPriority](#) [▶ 401]).

nStuck: Value of the STUCK TIMER [s].

VAR_OUTPUT

```
bBusy      : BOOL;
bError     : BOOL;
nErrorId   : UDINT;
```

bBusy: When the function block is activated the output is set, and it remains active until execution of the command has been completed.

bError: This output is switched to TRUE as soon as an error occurs during the execution of a command. The command-specific error code is contained in *nErrorId*. Is reset to FALSE by the execution of a command at the inputs.

nErrorId: Contains the command-specific error code of the most recently executed command. Is reset to 0 by the execution of a command at the inputs. (See [error codes](#) [▶ 380])

VAR_IN_OUT

```
stCommandBuffer : ST_DALIV2CommandBuffer;
```

stCommandBuffer: Reference to the internal structure for communication with the function block [FB_KL6821Communication\(\)](#) [▶ 74] (KL6821).

Requirements

Development environment	required PLC library
TwinCAT from v3.1.4022.4	Tc2_DALI from v3.6.2.0

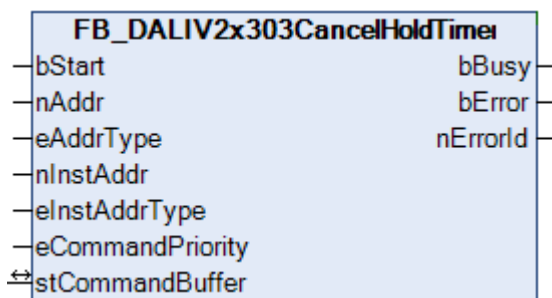
4.1.2.10 Part 303 (occupancy sensor)

Function blocks

A detailed description of the individual DALI commands and the variables can be found in standard IEC 62386 Part 303.

Name	Description
FB_DALIV2x303CancelHoldTimer [▶ 346]	Terminates the HOLD TIMER prematurely.
FB_DALIV2x303CatchMovement [▶ 347]	After calling this command, an event is only sent once if a movement is detected.
FB_DALIV2x303QueryCatching [▶ 348]	Queries whether the system is waiting for the detection of movement.
FB_DALIV2x303QueryDeadtimeTimer [▶ 349]	Queries the value of the DEADTIME TIMER.
FB_DALIV2x303QueryHoldTimer [▶ 350]	Queries the value of the HOLD TIMER.
FB_DALIV2x303QueryReportTimer [▶ 351]	Queries the value of the REPORT TIMER.
FB_DALIV2x303SetDeadtimeTimer [▶ 352]	Sets the value of the DEADTIME TIMER.
FB_DALIV2x303SetHoldTimer [▶ 353]	Sets the value of the HOLD TIMER.
FB_DALIV2x303SetReportTimer [▶ 354]	Sets the value of the REPORT TIMER.

4.1.2.10.1 FB_DALIV2x303CancelHoldTimer



Terminates the HOLD TIMER prematurely.

VAR_INPUT

```

bStart      : BOOL;
nAddr       : BYTE;
eAddrType   : E_DALIV2AddrType := eDALIV2AddrTypeShort;
nInstAddr   : BYTE := 0;
eInstAddrType : E_DALIV2InstAddrType := eDALIV2InstAddrTypeNumber;
eCommandPriority : E_DALIV2CommandPriority := eDALIV2CommandPriorityMiddle;

```

bStart: The function block is activated by a positive edge at this input.

nAddr: The address of a participating device or of a group.

eAddrType: Short address, group address or broadcast (see [E_DALIV2AddrType](#) [[▶ 401](#)]).

nInstAddr: Address of the instance within the DALI control unit.

eInstAddrType: Defines the access mode to the desired instance within the DALI control unit (see [DALIV2InstAddrType](#) [[▶ 403](#)]).

eCommandPriority: Priority (high, medium or low) with which the command is processed by the library (see [E_DALIV2CommandPriority](#) [[▶ 401](#)]).

VAR_OUTPUT

```

bBusy      : BOOL;
bError     : BOOL;
nErrorId   : UDINT;

```

bBusy: When the function block is activated the output is set, and it remains active until execution of the command has been completed.

bError: This output is switched to TRUE as soon as an error occurs during the execution of a command. The command-specific error code is contained in *nErrorId*. Is reset to FALSE by the execution of a command at the inputs.

nErrorId: Contains the command-specific error code of the most recently executed command. Is reset to 0 by the execution of a command at the inputs. (See [error codes](#) [▶ 380])

VAR_IN_OUT

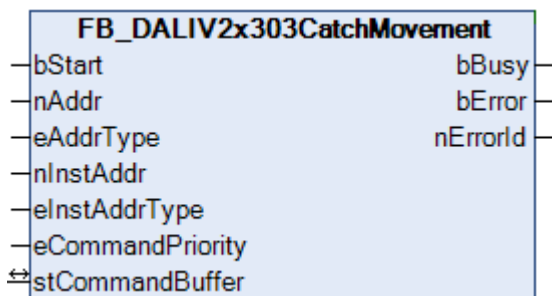
```
stCommandBuffer : ST_DALIV2CommandBuffer;
```

stCommandBuffer: Reference to the internal structure for communication with the function block `FB_KL6821Communication()` [▶ 74] (KL6821).

Requirements

Development environment	required PLC library
TwinCAT from v3.1.4022.4	Tc2_DALI from v3.6.2.0

4.1.2.10.2 FB_DALIV2x303CatchMovement



After calling this command, an event is sent once if a movement is detected.

For this function the event filter must be configured accordingly.

VAR_INPUT

```
bStart : BOOL;
nAddr : BYTE;
eAddrType : E_DALIV2AddrType := eDALIV2AddrTypeShort;
nInstAddr : BYTE := 0;
eInstAddrType : E_DALIV2InstAddrType := eDALIV2InstAddrTypeNumber;
eCommandPriority : E_DALIV2CommandPriority := eDALIV2CommandPriorityMiddle;
```

bStart: The function block is activated by a positive edge at this input.

nAddr: The address of a participating device or of a group.

eAddrType: Short address, group address or broadcast (see [E_DALIV2AddrType](#) [▶ 401]).

nInstAddr: Address of the instance within the DALI control unit.

eInstAddrType: Defines the access mode to the desired instance within the DALI control unit (see [DALIV2InstAddrType](#) [▶ 403]).

eCommandPriority: Priority (high, medium or low) with which the command is processed by the library (see [E_DALIV2CommandPriority](#) [▶ 401]).

VAR_OUTPUT

```
bBusy : BOOL;
bError : BOOL;
nErrorId : UDINT;
```

bBusy: When the function block is activated the output is set, and it remains active until execution of the command has been completed.

bError: This output is switched to TRUE as soon as an error occurs during the execution of a command. The command-specific error code is contained in *nErrorId*. Is reset to FALSE by the execution of a command at the inputs.

nErrorId: Contains the command-specific error code of the most recently executed command. Is reset to 0 by the execution of a command at the inputs. (See [error codes](#) [► 380])

VAR_IN_OUT

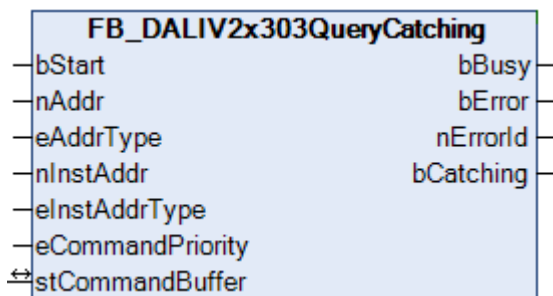
```
stCommandBuffer : ST_DALIV2CommandBuffer;
```

stCommandBuffer: Reference to the internal structure for communication with the function block `FB_KL6821Communication()` [► 74] (KL6821).

Requirements

Development environment	required PLC library
TwinCAT from v3.1.4022.4	Tc2_DALI from v3.6.2.0

4.1.2.10.3 FB_DALIV2x303QueryCatching



Queries whether the system is waiting for the detection of movement. This function can be activated with `FB_DALIV2x303CatchMovement()` [► 347].

VAR_INPUT

```
bStart      : BOOL;
nAddr       : BYTE;
eAddrType   : E_DALIV2AddrType := eDALIV2AddrTypeShort;
nInstAddr   : BYTE := 0;
eInstAddrType : E_DALIV2InstAddrType := eDALIV2InstAddrTypeNumber;
eCommandPriority : E_DALIV2CommandPriority := eDALIV2CommandPriorityMiddle;
```

bStart: The function block is activated by a positive edge at this input.

nAddr: The address of a participating device or of a group.

eAddrType: Short address, group address or broadcast (see [E_DALIV2AddrType](#) [► 401]).

nInstAddr: Address of the instance within the DALI control unit.

eInstAddrType: Defines the access mode to the desired instance within the DALI control unit (see [DALIV2InstAddrType](#) [► 403]).

eCommandPriority: Priority (high, medium or low) with which the command is processed by the library (see [E_DALIV2CommandPriority](#) [► 401]).

VAR_OUTPUT

```
bBusy      : BOOL;
bError     : BOOL;
nErrorId   : UDINT;
bCatching  : BOOL;
```

bBusy: When the function block is activated the output is set, and it remains active until execution of the command has been completed.

bError: This output is switched to TRUE as soon as an error occurs during the execution of a command. The command-specific error code is contained in *nErrorId*. Is reset to FALSE by the execution of a command at the inputs.

nErrorId: Contains the command-specific error code of the most recently executed command. Is reset to 0 by the execution of a command at the inputs. (See [error codes](#) [▶ 380])

bCatching: Catching active.

VAR_IN_OUT

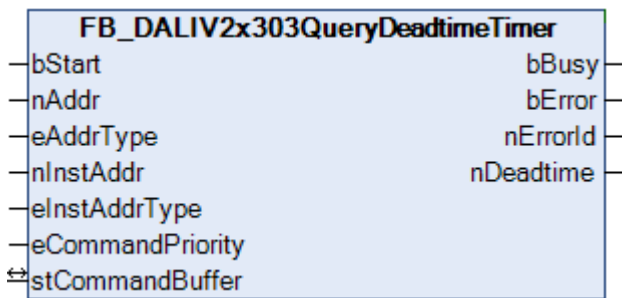
```
stCommandBuffer : ST_DALIV2CommandBuffer;
```

stCommandBuffer: Reference to the internal structure for communication with the function block FB_KL6821Communication() [▶ 74] (KL6821).

Requirements

Development environment	required PLC library
TwinCAT from v3.1.4022.4	Tc2_DALI from v3.6.2.0

4.1.2.10.4 FB_DALIV2x303QueryDeadtimeTimer



Queries the value of the DEADTIME TIMER.

The unit is 50 ms. The permissible value range is 0 s to 12.75 s.

VAR_INPUT

```
bStart : BOOL;
nAddr : BYTE;
eAddrType : E_DALIV2AddrType := eDALIV2AddrTypeShort;
nInstAddr : BYTE := 0;
eInstAddrType : E_DALIV2InstAddrType := eDALIV2InstAddrTypeNumber;
eCommandPriority : E_DALIV2CommandPriority := eDALIV2CommandPriorityMiddle;
```

bStart: The function block is activated by a positive edge at this input.

nAddr: The address of a participating device or of a group.

eAddrType: Short address, group address or broadcast (see [E_DALIV2AddrType](#) [▶ 401]).

nInstAddr: Address of the instance within the DALI control unit.

eInstAddrType: Defines the access mode to the desired instance within the DALI control unit (see [DALIV2InstAddrType](#) [▶ 403]).

eCommandPriority: Priority (high, medium or low) with which the command is processed by the library (see [E_DALIV2CommandPriority](#) [▶ 401]).

VAR_OUTPUT

```
bBusy : BOOL;
bError : BOOL;
nErrorId : UDINT;
nDeadtime : BYTE;
```

bBusy: When the function block is activated the output is set, and it remains active until execution of the command has been completed.

bError: This output is switched to TRUE as soon as an error occurs during the execution of a command. The command-specific error code is contained in *nErrorId*. Is reset to FALSE by the execution of a command at the inputs.

nErrorId: Contains the command-specific error code of the most recently executed command. Is reset to 0 by the execution of a command at the inputs. (See [error codes](#) [► 380])

nDeadtime: Value of the DEADTIME TIMER [50 ms].

VAR_IN_OUT

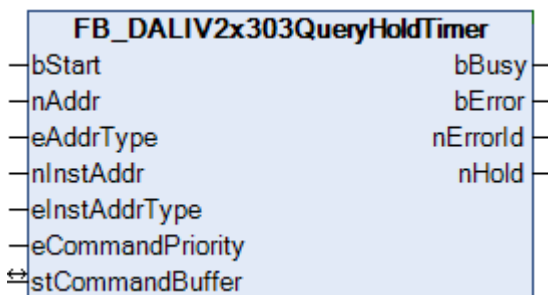
```
stCommandBuffer : ST_DALIV2CommandBuffer;
```

stCommandBuffer: Reference to the internal structure for communication with the function block FB_KL6821Communication() [► 74] (KL6821).

Requirements

Development environment	required PLC library
TwinCAT from v3.1.4022.4	Tc2_DALI from v3.6.2.0

4.1.2.10.5 FB_DALIV2x303QueryHoldTimer



Queries the value of the HOLD TIMER.

The unit is 10 s. The permissible value range is 1 s to 42.3 min.

VAR_INPUT

```
bStart : BOOL;
nAddr : BYTE;
eAddrType : E_DALIV2AddrType := eDALIV2AddrTypeShort;
nInstAddr : BYTE := 0;
eInstAddrType : E_DALIV2InstAddrType := eDALIV2InstAddrTypeNumber;
eCommandPriority : E_DALIV2CommandPriority := eDALIV2CommandPriorityMiddle;
```

bStart: The function block is activated by a positive edge at this input.

nAddr: The address of a participating device or of a group.

eAddrType: Short address, group address or broadcast (see [E_DALIV2AddrType](#) [► 401]).

nInstAddr: Address of the instance within the DALI control unit.

eInstAddrType: Defines the access mode to the desired instance within the DALI control unit (see [DALIV2InstAddrType](#) [► 403]).

eCommandPriority: Priority (high, medium or low) with which the command is processed by the library (see [E_DALIV2CommandPriority](#) [► 401]).

VAR_OUTPUT

```
bBusy      : BOOL;
bError     : BOOL;
nErrorId   : UDINT;
nHold      : BYTE;
```

bBusy: When the function block is activated the output is set, and it remains active until execution of the command has been completed.

bError: This output is switched to TRUE as soon as an error occurs during the execution of a command. The command-specific error code is contained in *nErrorId*. Is reset to FALSE by the execution of a command at the inputs.

nErrorId: Contains the command-specific error code of the most recently executed command. Is reset to 0 by the execution of a command at the inputs. (See [error codes](#) [▶ 380])

nHold: Value of the HOLD TIMER [10 s].

VAR_IN_OUT

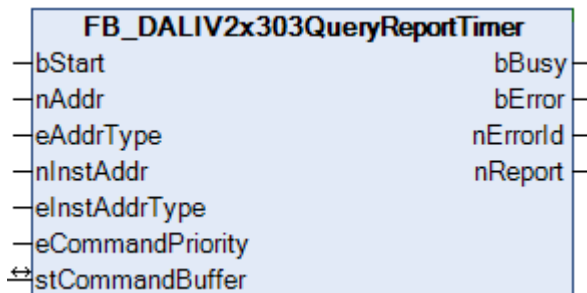
```
stCommandBuffer : ST_DALIV2CommandBuffer;
```

stCommandBuffer: Reference to the internal structure for communication with the function block [FB_KL6821Communication\(\)](#) [▶ 74] (KL6821).

Requirements

Development environment	required PLC library
TwinCAT from v3.1.4022.4	Tc2_DALI from v3.6.2.0

4.1.2.10.6 FB_DALIV2x303QueryReportTimer



Queries the value of the REPORT TIMER.

The unit is 1 s. The permissible value range is 1 s to 4 min 15 s.

VAR_INPUT

```
bStart      : BOOL;
nAddr       : BYTE;
eAddrType   : E_DALIV2AddrType := eDALIV2AddrTypeShort;
nInstAddr   : BYTE := 0;
eInstAddrType : E_DALIV2InstAddrType := eDALIV2InstAddrTypeNumber;
eCommandPriority : E_DALIV2CommandPriority := eDALIV2CommandPriorityMiddle;
```

bStart: The function block is activated by a positive edge at this input.

nAddr: The address of a participating device or of a group.

eAddrType: Short address, group address or broadcast (see [E_DALIV2AddrType](#) [▶ 401]).

nInstAddr: Address of the instance within the DALI control unit.

eInstAddrType: Defines the access mode to the desired instance within the DALI control unit (see [DALIV2InstAddrType](#) [▶ 403]).

eCommandPriority: Priority (high, medium or low) with which the command is processed by the library (see [E_DALIV2CommandPriority](#) [▶ 401]).

VAR_OUTPUT

```
bBusy      : BOOL;
bError     : BOOL;
nErrorId   : UDINT;
nHold      : BYTE;
```

bBusy: When the function block is activated the output is set, and it remains active until execution of the command has been completed.

bError: This output is switched to TRUE as soon as an error occurs during the execution of a command. The command-specific error code is contained in *nErrorId*. Is reset to FALSE by the execution of a command at the inputs.

nErrorId: Contains the command-specific error code of the most recently executed command. Is reset to 0 by the execution of a command at the inputs. (See [error codes](#) [▶ 380])

nReport: Value of the REPORT TIMER [s].

VAR_IN_OUT

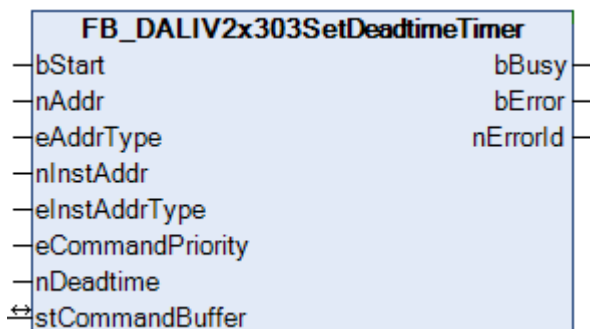
```
stCommandBuffer : ST_DALIV2CommandBuffer;
```

stCommandBuffer: Reference to the internal structure for communication with the function block [FB_KL6821Communication\(\)](#) [▶ 74] (KL6821).

Requirements

Development environment	required PLC library
TwinCAT from v3.1.4022.4	Tc2_DALI from v3.6.2.0

4.1.2.10.7 FB_DALIV2x303SetDeadtimeTimer



Sets the value of the DEADTIME TIMER.

The unit is 50 ms. The permissible value range is 0 s to 12.75 s.

VAR_INPUT

```
bStart      : BOOL;
nAddr       : BYTE;
eAddrType   : E_DALIV2AddrType := eDALIV2AddrTypeShort;
nInstAddr   : BYTE := 0;
eInstAddrType : E_DALIV2InstAddrType := eDALIV2InstAddrTypeNumber;
eCommandPriority : E_DALIV2CommandPriority := eDALIV2CommandPriorityMiddle;
nDeadtime   : BYTE := 2;
```

bStart: The function block is activated by a positive edge at this input.

nAddr: The address of a participating device or of a group.

eAddrType: Short address, group address or broadcast (see [E_DALIV2AddrType](#) [▶ 401]).

nInstAddr: Address of the instance within the DALI control unit.

eInstAddrType: Defines the access mode to the desired instance within the DALI control unit (see [DALIV2InstAddrType](#) [[▶ 403](#)]).

eCommandPriority: Priority (high, medium or low) with which the command is processed by the library (see [E_DALIV2CommandPriority](#) [[▶ 401](#)]).

nDeadtime: Value of the DEADTIME TIMER [50 ms].

VAR_OUTPUT

```
bBusy      : BOOL;
bError     : BOOL;
nErrorId  : UDINT;
```

bBusy: When the function block is activated the output is set, and it remains active until execution of the command has been completed.

bError: This output is switched to TRUE as soon as an error occurs during the execution of a command. The command-specific error code is contained in *nErrorId*. Is reset to FALSE by the execution of a command at the inputs.

nErrorId: Contains the command-specific error code of the most recently executed command. Is reset to 0 by the execution of a command at the inputs. (See [error codes](#) [[▶ 380](#)])

VAR_IN_OUT

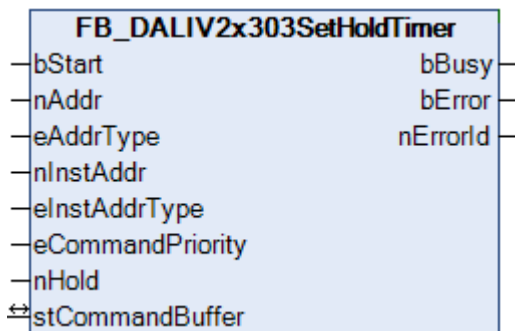
```
stCommandBuffer : ST_DALIV2CommandBuffer;
```

stCommandBuffer: Reference to the internal structure for communication with the function block [FB_KL6821Communication](#)() [[▶ 74](#)] (KL6821).

Requirements

Development environment	required PLC library
TwinCAT from v3.1.4022.4	Tc2_DALI from v3.6.2.0

4.1.2.10.8 FB_DALIV2x303SetHoldTimer



Sets the value of the HOLD TIMER.

If the value 0 is transferred, the HOLD TIME is set to 1 s. Incrementing takes place in 10 s steps. The permissible value range is 1 s to 42.3 min.

VAR_INPUT

```
bStart      : BOOL;
nAddr       : BYTE;
eAddrType   : E_DALIV2AddrType := eDALIV2AddrTypeShort;
nInstAddr   : BYTE := 0;
eInstAddrType : E_DALIV2InstAddrType := eDALIV2InstAddrTypeNumber;
eCommandPriority : E_DALIV2CommandPriority := eDALIV2CommandPriorityMiddle;
nHold       : BYTE := 90;
```

bStart: The function block is activated by a positive edge at this input.

nAddr: The address of a participating device or of a group.

eAddrType: Short address, group address or broadcast (see [E_DALIV2AddrType](#) [▶ 401]).

nInstAddr: Address of the instance within the DALI control unit.

eInstAddrType: Defines the access mode to the desired instance within the DALI control unit (see [DALIV2InstAddrType](#) [▶ 403]).

eCommandPriority: Priority (high, medium or low) with which the command is processed by the library (see [E_DALIV2CommandPriority](#) [▶ 401]).

nHold: Value of the HOLD TIMER [10 s]. The value 0 corresponds to 1 s

VAR_OUTPUT

```
bBusy      : BOOL;
bError     : BOOL;
nErrorId   : UDINT;
```

bBusy: When the function block is activated the output is set, and it remains active until execution of the command has been completed.

bError: This output is switched to TRUE as soon as an error occurs during the execution of a command. The command-specific error code is contained in *nErrorId*. Is reset to FALSE by the execution of a command at the inputs.

nErrorId: Contains the command-specific error code of the most recently executed command. Is reset to 0 by the execution of a command at the inputs. (See [error codes](#) [▶ 380])

VAR_IN_OUT

```
stCommandBuffer : ST_DALIV2CommandBuffer;
```

stCommandBuffer: Reference to the internal structure for communication with the function block [FB_KL6821Communication\(\)](#) [▶ 74] (KL6821).

Requirements

Development environment	required PLC library
TwinCAT from v3.1.4022.4	Tc2_DALI from v3.6.2.0

4.1.2.10.9 FB_DALIV2x303SetReportTimer



Sets the value of the REPORT TIMER.

The unit is 1 s. The permissible value range is 1 s to 4 min 15 s.

VAR_INPUT

```
bStart      : BOOL;
nAddr      : BYTE;
eAddrType  : E_DALIV2AddrType := eDALIV2AddrTypeShort;
nInstAddr  : BYTE := 0;
eInstAddrType : E_DALIV2InstAddrType := eDALIV2InstAddrTypeNumber;
eCommandPriority : E_DALIV2CommandPriority := eDALIV2CommandPriorityMiddle;
nReport    : BYTE := 20;
```

bStart: The function block is activated by a positive edge at this input.

nAddr: The address of a participating device or of a group.

eAddrType: Short address, group address or broadcast (see [E_DALIV2AddrType \[▶ 401\]](#)).

nInstAddr: Address of the instance within the DALI control unit.

eInstAddrType: Defines the access mode to the desired instance within the DALI control unit (see [DALIV2InstAddrType \[▶ 403\]](#)).

eCommandPriority: Priority (high, medium or low) with which the command is processed by the library (see [E_DALIV2CommandPriority \[▶ 401\]](#)).

nReport: Value of the REPORT TIMER [s].

VAR_OUTPUT

```
bBusy      : BOOL;
bError     : BOOL;
nErrorId   : UDINT;
```

bBusy: When the function block is activated the output is set, and it remains active until execution of the command has been completed.

bError: This output is switched to TRUE as soon as an error occurs during the execution of a command. The command-specific error code is contained in *nErrorId*. Is reset to FALSE by the execution of a command at the inputs.

nErrorId: Contains the command-specific error code of the most recently executed command. Is reset to 0 by the execution of a command at the inputs. (See [error codes \[▶ 380\]](#))

VAR_IN_OUT

```
stCommandBuffer : ST_DALIV2CommandBuffer;
```

stCommandBuffer: Reference to the internal structure for communication with the function block [FB_KL6821Communication\(\) \[▶ 74\]](#) (KL6821).

Requirements

Development environment	required PLC library
TwinCAT from v3.1.4022.4	Tc2_DALI from v3.6.2.0

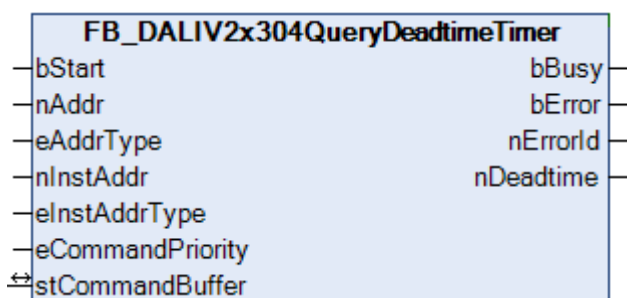
4.1.2.11 Part 304 (brightness sensors)

Function blocks

A detailed description of the individual DALI commands and the variables can be found in standard IEC 62386 Part 304.

Name	Description
FB_DALIV2x304QueryDeadtimeTimer [▶ 356]	Queries the value of the DEADTIME TIMER.
FB_DALIV2x304QueryHysteresis [▶ 357]	Queries the hysteresis value.
FB_DALIV2x304QueryHysteresisMin [▶ 358]	Queries the value for the minimum possible hysteresis.
FB_DALIV2x304QueryReportTimer [▶ 359]	Queries the value of the REPORT TIMER.
FB_DALIV2x304SetDeadtimeTimer [▶ 360]	Sets the value of the DEADTIME TIMER.
FB_DALIV2x304SetHysteresis [▶ 361]	Sets the hysteresis value.
FB_DALIV2x304SetHysteresisMin [▶ 362]	Sets the value for the minimum possible hysteresis.
FB_DALIV2x304SetReportTimer [▶ 363]	FB_DALIV2x304SetReportTimer

4.1.2.11.1 FB_DALIV2x304QueryDeadtimeTimer



Queries the value of the DEADTIME TIMER.

The unit is 50 ms. The permissible value range is 0 s to 12.75 s.

VAR_INPUT

```

bStart      : BOOL;
nAddr       : BYTE;
eAddrType   : E_DALIV2AddrType := eDALIV2AddrTypeShort;
nInstAddr   : BYTE := 0;
eInstAddrType : E_DALIV2InstAddrType := eDALIV2InstAddrTypeNumber;
eCommandPriority : E_DALIV2CommandPriority := eDALIV2CommandPriorityMiddle;

```

bStart: The function block is activated by a positive edge at this input.

nAddr: The address of a participating device or of a group.

eAddrType: Short address, group address or broadcast (see [E_DALIV2AddrType \[▶ 401\]](#)).

nInstAddr: Address of the instance within the DALI control unit.

eInstAddrType: Defines the access mode to the desired instance within the DALI control unit (see [DALIV2InstAddrType \[▶ 403\]](#)).

eCommandPriority: Priority (high, medium or low) with which the command is processed by the library (see [E_DALIV2CommandPriority \[▶ 401\]](#)).

VAR_OUTPUT

```

bBusy       : BOOL;
bError      : BOOL;
nErrorId    : UDINT;
nDeadtime   : BYTE;

```

bBusy: When the function block is activated the output is set, and it remains active until execution of the command has been completed.

bError: This output is switched to TRUE as soon as an error occurs during the execution of a command. The command-specific error code is contained in *nErrorId*. Is reset to FALSE by the execution of a command at the inputs.

nErrorId: Contains the command-specific error code of the most recently executed command. Is reset to 0 by the execution of a command at the inputs. (See [error codes](#) [▶ 380])

nDeadtime: Value of the DEADTIME TIMER [50 ms].

VAR_IN_OUT

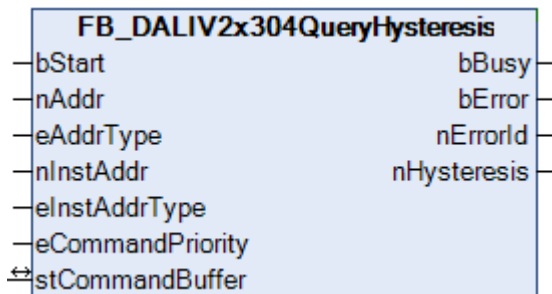
```
stCommandBuffer : ST_DALIV2CommandBuffer;
```

stCommandBuffer: Reference to the internal structure for communication with the function block [FB_KL6821Communication\(\)](#) [▶ 74] (KL6821).

Requirements

Development environment	required PLC library
TwinCAT from v3.1.4022.4	Tc2_DALI from v3.6.2.0

4.1.2.11.2 FB_DALIV2x304QueryHysteresis



Queries the hysteresis value.

The hysteresis is given in % and is within the range 0% to 25%.

VAR_INPUT

```
bStart : BOOL;
nAddr : BYTE;
eAddrType : E_DALIV2AddrType := eDALIV2AddrTypeShort;
nInstAddr : BYTE := 0;
eInstAddrType : E_DALIV2InstAddrType := eDALIV2InstAddrTypeNumber;
eCommandPriority : E_DALIV2CommandPriority := eDALIV2CommandPriorityMiddle;
```

bStart: The function block is activated by a positive edge at this input.

nAddr: The address of a participating device or of a group.

eAddrType: Short address, group address or broadcast (see [E_DALIV2AddrType](#) [▶ 401]).

nInstAddr: Address of the instance within the DALI control unit.

eInstAddrType: Defines the access mode to the desired instance within the DALI control unit (see [DALIV2InstAddrType](#) [▶ 403]).

eCommandPriority: Priority (high, medium or low) with which the command is processed by the library (see [E_DALIV2CommandPriority](#) [▶ 401]).

VAR_OUTPUT

```
bBusy : BOOL;
bError : BOOL;
nErrorId : UDINT;
nHysteresis : BYTE;
```

bBusy: When the function block is activated the output is set, and it remains active until execution of the command has been completed.

bError: This output is switched to TRUE as soon as an error occurs during the execution of a command. The command-specific error code is contained in *nErrorId*. Is reset to FALSE by the execution of a command at the inputs.

nErrorId: Contains the command-specific error code of the most recently executed command. Is reset to 0 by the execution of a command at the inputs. (See [error codes](#) [► 380])

nHysteresis: Hysteresis in %.

VAR_IN_OUT

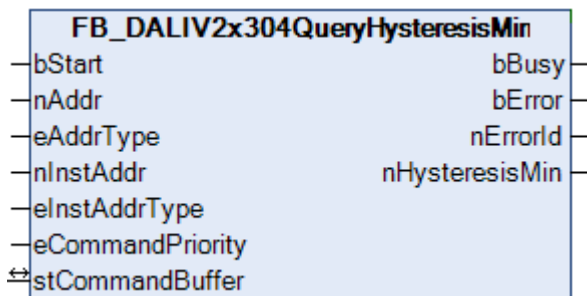
```
stCommandBuffer : ST_DALIV2CommandBuffer;
```

stCommandBuffer: Reference to the internal structure for communication with the function block FB_KL6821Communication() [► 74] (KL6821).

Requirements

Development environment	required PLC library
TwinCAT from v3.1.4022.4	Tc2_DALI from v3.6.2.0

4.1.2.11.3 FB_DALIV2x304QueryHysteresisMin



Queries the value for the minimum possible hysteresis.

VAR_INPUT

```
bStart      : BOOL;
nAddr       : BYTE;
eAddrType   : E_DALIV2AddrType := eDALIV2AddrTypeShort;
nInstAddr   : BYTE := 0;
eInstAddrType : E_DALIV2InstAddrType := eDALIV2InstAddrTypeNumber;
eCommandPriority : E_DALIV2CommandPriority := eDALIV2CommandPriorityMiddle;
```

bStart: The function block is activated by a positive edge at this input.

nAddr: The address of a participating device or of a group.

eAddrType: Short address, group address or broadcast (see [E_DALIV2AddrType](#) [► 401]).

nInstAddr: Address of the instance within the DALI control unit.

eInstAddrType: Defines the access mode to the desired instance within the DALI control unit (see [DALIV2InstAddrType](#) [► 403]).

eCommandPriority: Priority (high, medium or low) with which the command is processed by the library (see [E_DALIV2CommandPriority](#) [► 401]).

VAR_OUTPUT

```
bBusy      : BOOL;
bError     : BOOL;
nErrorId   : UDINT;
nHysteresisMin : BYTE;
```

bBusy: When the function block is activated the output is set, and it remains active until execution of the command has been completed.

bError: This output is switched to TRUE as soon as an error occurs during the execution of a command. The command-specific error code is contained in *nErrorId*. Is reset to FALSE by the execution of a command at the inputs.

nErrorId: Contains the command-specific error code of the most recently executed command. Is reset to 0 by the execution of a command at the inputs. (See [error codes](#) [▶ 380])

nHysteresisMin: Minimum possible hysteresis.

VAR_IN_OUT

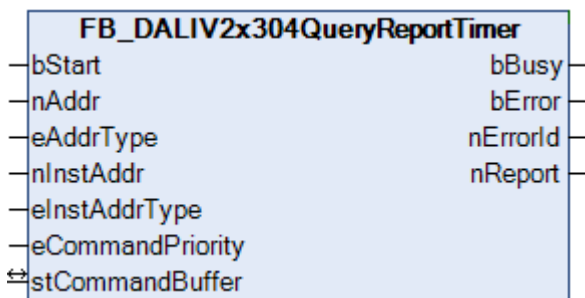
```
stCommandBuffer : ST_DALIV2CommandBuffer;
```

stCommandBuffer: Reference to the internal structure for communication with the function block FB_KL6821Communication() [▶ 74] (KL6821).

Requirements

Development environment	required PLC library
TwinCAT from v3.1.4022.4	Tc2_DALI from v3.6.2.0

4.1.2.11.4 FB_DALIV2x304QueryReportTimer



Queries the value of the REPORT TIMER.

The unit is 1 s. The permissible value range is 1 s to 4 min 15 s.

VAR_INPUT

```
bStart : BOOL;
nAddr : BYTE;
eAddrType : E_DALIV2AddrType := eDALIV2AddrTypeShort;
nInstAddr : BYTE := 0;
eInstAddrType : E_DALIV2InstAddrType := eDALIV2InstAddrTypeNumber;
eCommandPriority : E_DALIV2CommandPriority := eDALIV2CommandPriorityMiddle;
```

bStart: The function block is activated by a positive edge at this input.

nAddr: The address of a participating device or of a group.

eAddrType: Short address, group address or broadcast (see [E_DALIV2AddrType](#) [▶ 401]).

nInstAddr: Address of the instance within the DALI control unit.

eInstAddrType: Defines the access mode to the desired instance within the DALI control unit (see [DALIV2InstAddrType](#) [▶ 403]).

eCommandPriority: Priority (high, medium or low) with which the command is processed by the library (see [E_DALIV2CommandPriority](#) [▶ 401]).

VAR_OUTPUT

```
bBusy      : BOOL;
bError     : BOOL;
nErrorId   : UDINT;
nHold      : BYTE;
```

bBusy: When the function block is activated the output is set, and it remains active until execution of the command has been completed.

bError: This output is switched to TRUE as soon as an error occurs during the execution of a command. The command-specific error code is contained in *nErrorId*. Is reset to FALSE by the execution of a command at the inputs.

nErrorId: Contains the command-specific error code of the most recently executed command. Is reset to 0 by the execution of a command at the inputs. (See [error codes](#) [▶ 380])

nReport: Value of the REPORT TIMER [s].

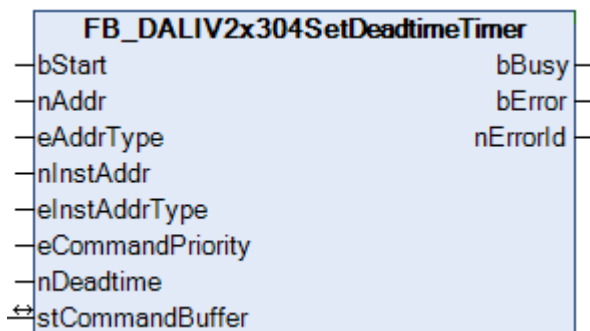
VAR_IN_OUT

```
stCommandBuffer : ST_DALIV2CommandBuffer;
```

stCommandBuffer: Reference to the internal structure for communication with the function block [FB_KL6821Communication\(\)](#) [▶ 74] (KL6821).

Requirements

Development environment	required PLC library
TwinCAT from v3.1.4022.4	Tc2_DALI from v3.6.2.0

4.1.2.11.5 FB_DALIV2x304SetDeadtimeTimer

Sets the value of the DEADTIME TIMER.

The unit is 50 ms. The permissible value range is 0 s to 12.75 s.

VAR_INPUT

```
bStart      : BOOL;
nAddr       : BYTE;
eAddrType   : E_DALIV2AddrType := eDALIV2AddrTypeShort;
nInstAddr   : BYTE := 0;
eInstAddrType : E_DALIV2InstAddrType := eDALIV2InstAddrTypeNumber;
eCommandPriority : E_DALIV2CommandPriority := eDALIV2CommandPriorityMiddle;
nDeadtime   : BYTE := 2;
```

bStart: The function block is activated by a positive edge at this input.

nAddr: The address of a participating device or of a group.

eAddrType: Short address, group address or broadcast (see [E_DALIV2AddrType](#) [▶ 401]).

nInstAddr: Address of the instance within the DALI control unit.

eInstAddrType: Defines the access mode to the desired instance within the DALI control unit (see [DALIV2InstAddrType \[► 403\]](#)).

eCommandPriority: Priority (high, medium or low) with which the command is processed by the library (see [E_DALIV2CommandPriority \[► 401\]](#)).

nDeadtime: Value of the DEADTIME TIMER [50 ms].

VAR_OUTPUT

```
bBusy      : BOOL;
bError     : BOOL;
nErrorId   : UDINT;
```

bBusy: When the function block is activated the output is set, and it remains active until execution of the command has been completed.

bError: This output is switched to TRUE as soon as an error occurs during the execution of a command. The command-specific error code is contained in *nErrorId*. Is reset to FALSE by the execution of a command at the inputs.

nErrorId: Contains the command-specific error code of the most recently executed command. Is reset to 0 by the execution of a command at the inputs. (See [error codes \[► 380\]](#))

VAR_IN_OUT

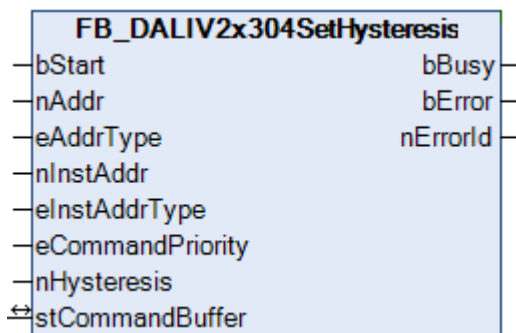
```
stCommandBuffer : ST_DALIV2CommandBuffer;
```

stCommandBuffer: Reference to the internal structure for communication with the function block [FB_KL6821Communication\(\) \[► 74\]](#) (KL6821).

Requirements

Development environment	required PLC library
TwinCAT from v3.1.4022.4	Tc2_DALI from v3.6.2.0

4.1.2.11.6 FB_DALIV2x304SetHysteresis



Sets the hysteresis value.

The hysteresis is given in % and is within the range 0% to 25%.

VAR_INPUT

```
bStart      : BOOL;
nAddr       : BYTE;
eAddrType   : E_DALIV2AddrType := eDALIV2AddrTypeShort;
nInstAddr   : BYTE := 0;
eInstAddrType : E_DALIV2InstAddrType := eDALIV2InstAddrTypeNumber;
eCommandPriority : E_DALIV2CommandPriority := eDALIV2CommandPriorityMiddle;
nHysteresis : BYTE := 5;
```

bStart: The function block is activated by a positive edge at this input.

nAddr: The address of a participating device or of a group.

eAddrType: Short address, group address or broadcast (see [E_DALIV2AddrType](#) [► 401]).

nInstAddr: Address of the instance within the DALI control unit.

eInstAddrType: Defines the access mode to the desired instance within the DALI control unit (see [DALIV2InstAddrType](#) [► 403]).

eCommandPriority: Priority (high, medium or low) with which the command is processed by the library (see [E_DALIV2CommandPriority](#) [► 401]).

nHysteresis: Hysteresis in %.

VAR_OUTPUT

```
bBusy      : BOOL;
bError     : BOOL;
nErrorId  : UDINT;
```

bBusy: When the function block is activated the output is set, and it remains active until execution of the command has been completed.

bError: This output is switched to TRUE as soon as an error occurs during the execution of a command. The command-specific error code is contained in *nErrorId*. Is reset to FALSE by the execution of a command at the inputs.

nErrorId: Contains the command-specific error code of the most recently executed command. Is reset to 0 by the execution of a command at the inputs. (See [error codes](#) [► 380])

VAR_IN_OUT

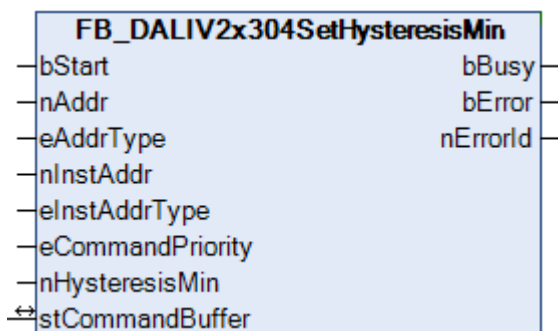
```
stCommandBuffer : ST_DALIV2CommandBuffer;
```

stCommandBuffer: Reference to the internal structure for communication with the function block [FB_KL6821Communication\(\)](#) [► 74] (KL6821).

Requirements

Development environment	required PLC library
TwinCAT from v3.1.4022.4	Tc2_DALI from v3.6.2.0

4.1.2.11.7 FB_DALIV2x304SetHysteresisMin



Sets the value for the minimum possible hysteresis.

Since the hysteresis is given as a percentage, the absolute value of the hysteresis depends on the actual measured value. For very small measured values, the hysteresis is therefore also very small. This causes unnecessary events to be sent. For this reason, a minimum possible hysteresis can be set.

VAR_INPUT

```
bStart      : BOOL;
nAddr       : BYTE;
eAddrType   : E_DALIV2AddrType := eDALIV2AddrTypeShort;
nInstAddr   : BYTE := 0;
```

```
eInstAddrType : E_DALIV2InstAddrType := eDALIV2InstAddrTypeNumber;
eCommandPriority : E_DALIV2CommandPriority := eDALIV2CommandPriorityMiddle;
nHysteresisMin : BYTE := 0;
```

bStart: The function block is activated by a positive edge at this input.

nAddr: The address of a participating device or of a group.

eAddrType: Short address, group address or broadcast (see [E_DALIV2AddrType \[▶ 401\]](#)).

nInstAddr: Address of the instance within the DALI control unit.

eInstAddrType: Defines the access mode to the desired instance within the DALI control unit (see [DALIV2InstAddrType \[▶ 403\]](#)).

eCommandPriority: Priority (high, medium or low) with which the command is processed by the library (see [E_DALIV2CommandPriority \[▶ 401\]](#)).

nHysteresisMin: Minimum possible hysteresis.

VAR_OUTPUT

```
bBusy : BOOL;
bError : BOOL;
nErrorId : UDINT;
```

bBusy: When the function block is activated the output is set, and it remains active until execution of the command has been completed.

bError: This output is switched to TRUE as soon as an error occurs during the execution of a command. The command-specific error code is contained in *nErrorId*. Is reset to FALSE by the execution of a command at the inputs.

nErrorId: Contains the command-specific error code of the most recently executed command. Is reset to 0 by the execution of a command at the inputs. (See [error codes \[▶ 380\]](#))

VAR_IN_OUT

```
stCommandBuffer : ST_DALIV2CommandBuffer;
```

stCommandBuffer: Reference to the internal structure for communication with the function block [FB_KL6821Communication\(\) \[▶ 74\]](#) (KL6821).

Requirements

Development environment	required PLC library
TwinCAT from v3.1.4022.4	Tc2_DALI from v3.6.2.0

4.1.2.11.8 FB_DALIV2x304SetReportTimer



Sets the value of the REPORT TIMER.

The unit is 1 s. The permissible value range is 1 s to 4 min 15 s.

VAR_INPUT

```

bStart      : BOOL;
nAddr       : BYTE;
eAddrType   : E_DALIV2AddrType := eDALIV2AddrTypeShort;
nInstAddr   : BYTE := 0;
eInstAddrType : E_DALIV2InstAddrType := eDALIV2InstAddrTypeNumber;
eCommandPriority : E_DALIV2CommandPriority := eDALIV2CommandPriorityMiddle;
nReport     : BYTE := 30;

```

bStart: The function block is activated by a positive edge at this input.

nAddr: The address of a participating device or of a group.

eAddrType: Short address, group address or broadcast (see [E_DALIV2AddrType \[► 401\]](#)).

nInstAddr: Address of the instance within the DALI control unit.

eInstAddrType: Defines the access mode to the desired instance within the DALI control unit (see [DALIV2InstAddrType \[► 403\]](#)).

eCommandPriority: Priority (high, medium or low) with which the command is processed by the library (see [E_DALIV2CommandPriority \[► 401\]](#)).

nReport: Value of the REPORT TIMER [s].

VAR_OUTPUT

```

bBusy      : BOOL;
bError     : BOOL;
nErrorId   : UDINT;

```

bBusy: When the function block is activated the output is set, and it remains active until execution of the command has been completed.

bError: This output is switched to TRUE as soon as an error occurs during the execution of a command. The command-specific error code is contained in *nErrorId*. Is reset to FALSE by the execution of a command at the inputs.

nErrorId: Contains the command-specific error code of the most recently executed command. Is reset to 0 by the execution of a command at the inputs. (See [error codes \[► 380\]](#))

VAR_IN_OUT

```

stCommandBuffer : ST_DALIV2CommandBuffer;

```

stCommandBuffer: Reference to the internal structure for communication with the function block [FB_KL6821Communication\(\) \[► 74\]](#) (KL6821).

Requirements

Development environment	required PLC library
TwinCAT from v3.1.4022.4	Tc2_DALI from v3.6.2.0

4.1.3 Third-party function blocks**4.1.3.1 Interior Automation**

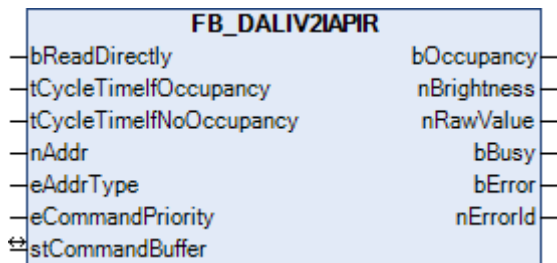
The Interior Automation company has defined its own DALI commands for PIR sensors. These commands extend beyond the possible DALI commands in accordance with the IEC 62386 standard. Please contact Interior Automation for a more detailed description of the commands.

Function blocks

	Description
FB_DALIV2IAPIR [▶ 365]	This function block cyclically reads the status of an IA PIR sensor and scales the measured brightness and detected presence based on the received value.
FB_DALIV2IAPIRPhysicalIndicatorOff	Deactivates the red LED.
FB_DALIV2IAPIRPhysicalIndicatorOn	Activates the red LED.
FB_DALIV2IAPIRQueryExtendedVersion	Reads the software version number.
FB_DALIV2IAPIRQueryFlags	Reads the properties.
FB_DALIV2IAPIRQuerySensitivity	Reads the sensor sensitivity.
FB_DALIV2IAPIRQueryTimeout	Reads the time-out.
FB_DALIV2IAPIRStartIdentification	Makes the green LED flash for 10 seconds.
FB_DALIV2IAPIRStoreDTRAsFlags	Saves the data in the Data Transfer Register (DTR) as properties.
FB_DALIV2IAPIRStoreDTRAsSensitivity	Saves the data in the Data Transfer Register (DTR) as sensor sensitivity.
FB_DALIV2IAPIRStoreDTRAsTimeout	Saves the data in the Data Transfer Register (DTR) as Time-out.

i These commands belong to the application-related expansion commands for DALI devices. They function only if they are preceded by the *Enable Device Type 128* command, which can be sent with the `FB_DALIV2EnableDeviceType()` [▶ 85] function block. The *Enable Device Type 128* command is internally placed automatically before all application-related expansion commands for DALI devices.

4.1.3.1.1 FB_DALIV2IAPIR



This function block cyclically reads the status of an IA PIR sensor and scales the measured brightness and detected presence based on the received value.

Two different cycle times can be specified. One cycle time that is used if no presence is detected and one that is used in case of active presence. In this way access to the DALI bus can be minimized. If presence is detected a slower cycle time (e.g. 20 s) can usually be selected, because lighting control and switching off the lighting is not time-critical. If there is no presence, then a shorter cycle time (e.g. 2 s) should be selected. As a result, the lighting is switched on with the shortest possible reaction time when the room is entered.

Further information and a description of the electrical and physical properties can be found in the product description for the IA PIR sensor.

VAR_INPUT

```

bReadDirectly      : BOOL := FALSE;
tCycleTimeIfOccupancy : TIME := t#20s;
tCycleTimeIfNoOccupancy : TIME := t#2s;
nAddr              : BYTE := 0;
eAddrType          : E_DALIV2AddrType := eDALIV2AddrTypeShort;
eCommandPriority    : E_DALIV2CommandPriority := eDALIV2CommandPriorityMiddle;
  
```

bReadDirectly: The function block is activated by a positive edge at this input.

tCycleTimeIfOccupancy: Cycle time with active presence.

tCycleTimeIfNoOccupancy: Cycle time without active presence.

nAddr: The address of a participating device or of a group.

eAddrType: Short address, group address or broadcast (see [E_DALIV2AddrType](#) [[▶ 401](#)]).

eCommandPriority: Priority (high, medium or low) with which the command is processed by the library (see [E_DALIV2CommandPriority](#) [[▶ 401](#)]).

VAR_OUTPUT

```
bOccupancy : BOOL;
nBrightness : INT;
nRawValue : BYTE;
bBusy : BOOL;
bError : BOOL;
nErrorId : UDINT;
```

bOccupancy: The output is set if the sensor detects presence.

nBrightness: Measured brightness in lux.

nRawValue: The value of the sensor read before the conversion.

bBusy: When the function block is activated the output is set, and it remains active until execution of the command has been completed.

bError: This output is switched to TRUE as soon as an error occurs during the execution of a command.

nErrorId: Contains the command-specific error code of the most recently executed command. Is reset to 0 by the execution of a command at the inputs. (See [error codes](#) [[▶ 380](#)])

VAR_IN_OUT

```
stCommandBuffer : ST_DALIV2CommandBuffer;
```

stCommandBuffer: Reference to the internal structure for communication with the function block [FB_KL6811Communication\(\)](#) [[▶ 70](#)] (KL6811) or [FB_KL6821Communication\(\)](#) [[▶ 74](#)] (KL6821).

Requirements

Development environment	required PLC library
TwinCAT from v3.1.4020.14	Tc2_DALI from v3.4.3.0

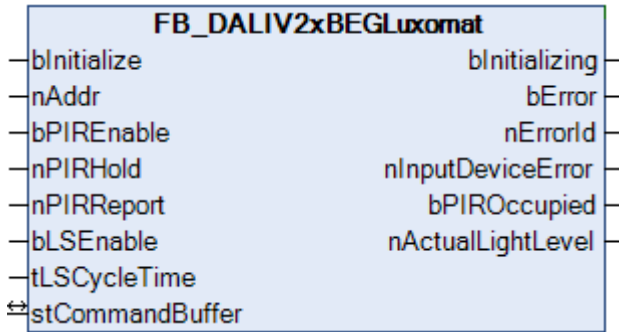
4.1.3.2 B.E.G.

Function blocks

The company B.E.G. has defined its own special DALI commands. These commands extend beyond the possible DALI commands in accordance with the IEC 62386 standard. However, these commands can only be used for certain B.E.G. devices. Please contact B.E.G. for a more detailed description of the commands.

Name	Description
FB_DALIV2xBEGLuxomat [▶ 367]	This function block evaluates the measured brightness and presence of the B.E.G. Luxomat DALI control unit. This function block can also be used to initialize the DALI control units.

4.1.3.2.1 FB_DALIV2xBEGLuxomat



This function block is used as an example and is not included in the library. The function block can be downloaded as an export file and imported into the desired project. Adjustments can be made as required.

This function block evaluates the measured brightness and presence of the B.E.G. Luxomat DALI control unit. This function block can also be used to initialize the DALI control units.

The DALI control unit occupies a short address and contains two instances. Instance 0 is the motion sensor and complies with the IEC 62386-303 standard. The brightness sensor is stored in Instance 1 and complies with the IEC 62386-304 standard.

A detected movement is sent as an event while the brightness is read out cyclically. Each instance can be decoded individually as required.

TwinCAT 3 PLCopenXML file download: https://infosys.beckhoff.com/content/1033/tcplclib_tc2_dali/Resources/zip/9007203783124747.zip

VAR_INPUT

```
bInitialize      : BOOL := FALSE;
nAddr            : BYTE;
(* Occupancy Sensor Parameters *)
bPIREnable      : BOOL := TRUE;
nPIRHold        : BYTE := 1;   (* 10 s *)
nPIRReport      : BYTE := 30;  (* 30 s *)
(* Light Sensor Parameters *)
bLSEnable       : BOOL := TRUE;
tLSCycleTime    : TIME := t#1m;
```

bInitialize: The DALI controller is initialized via a positive edge at this input. The parameters are written to the DALI control unit, which must be accessible via the short address `nAddr`. The output `bInitializing` is TRUE during initialization.

nAddr: Short address of the DALI control unit.

bPIREnable: Parameter: If this input is TRUE, the motion sensor (instance 0) is enabled. The occupancy sensor is disabled by FALSE.

nPIRHold: Parameter: Sets the *Hold Timer* value. If no movement is detected, the status of the motion sensor is only changed after the *Hold Timer* has expired. The unit is 10 s. This means that times of up to 42 min 20 s (value 254) are possible. The value 0 corresponds to 1 s while the value 255 is ignored.

nPIRReport: Parameter: Sets the value for the *Report Timer*. The motion sensor status is retransmitted after the *Report Timer* has expired, even if the status has not changed. The unit is 1 s. The value 0 disables the Report Timer. This means that times of up to 4 min 15 s (value 255) are possible.

bLSEnable: Parameter: If this input is TRUE, the brightness sensor (instance 1) is enabled. The brightness sensor is disabled by FALSE.

tLSCycleTime: Cycle time in which the current actual value of the brightness sensor is read out.

Further details on the parameters can be found in the IEC 62386 standard and the manufacturer's documentation.

VAR_OUTPUT

```

bInitializing      : BOOL;
bError            : BOOL;
nErrorId          : UDINT;
nInputDeviceError : BYTE;
(* Occupancy Sensor *)
bPIROccupied     : BOOL;
(* Light Sensor *)
nActualLightLevel : UINT;

```

bInitializing: This output is TRUE during initialization.

bError: This output is switched to TRUE as soon as an error occurs during the execution of a command. The command-specific error code is contained in *nErrorId*.

nErrorId: Contains the command-specific error code of the most recently executed command. (See [error codes \[► 380\]](#))

nInputDeviceError: The status of the DALI control unit (INPUT DEVICE ERROR) is queried before the initialization. 0 means no error. The individual error numbers are vendor-specific.

bPIROccupied: This output indicates the status of the motion sensor.

nActualLightLevel: This output indicates the status of the brightness sensor.

VAR_IN_OUT

```
stCommandBuffer : ST_DALIV2CommandBuffer;
```

stCommandBuffer: Reference to the internal structure for communication with the function block [FB_KL6821Communication\(\) \[► 74\]](#) (KL6821).

Requirements

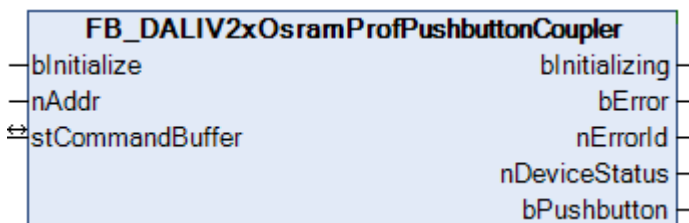
Development environment	required PLC library
TwinCAT from v3.1.4022.4	Tc2_DALI from v3.6.2.0

4.1.3.3 Osram**Function blocks**

Osram has defined its own special DALI commands. These commands extend beyond the possible DALI commands in accordance with the IEC 62386 standard. However, these commands are only applicable to certain Osram devices. Please contact Osram for a more detailed description of the commands.

Name	Description
FB_DALIV2xOsramProfSensorCoupler [▶ 370]	This function block evaluates the measured brightness and presence of the Osram DALI Professional Sensor Coupler. This function block can also be used to initialize the DALI control units.
FB_DALIV2xOsramProfPushbuttonCoupler [▶ 369]	This function block evaluates the status of the digital input of the Osram DALI Professional Pushbutton Coupler. This function block can also be used to initialize the DALI control units.
FB_DALIV2xOsramDisableSignalMode	Disables the <i>Input Signal Mode</i> for a channel.
FB_DALIV2xOsramEnableSignalMode	Enables the <i>Input Signal Mode</i> for a channel.
FB_DALIV2xOsramQueryConfigurationId	Reading the configuration for a channel.
FB_DALIV2xOsramQueryInputDeviceType	Reading the device type.
FB_DALIV2xOsramQueryInputValue	Reading the input value of a channel.
FB_DALIV2xOsramQueryResolution	Queries the resolution of the input values of the control unit.
FB_DALIV2xOsramStoreConfigurationId	Writes the configuration for a channel.
FB_DALIV2xOsramIdentifySelectedDevice	Starts the identification routine for the selected control unit (random address and search address are the same).
FB_DALIV2xOsramQueryChannelSize	Reads the number of channels supported by the control unit.
FB_DALIV2xOsramQueryConfigurationFeature	Reads the possible configuration values for a channel.
FB_DALIV2xOsramQueryDeviceError	Queries whether the control unit has detected an error.
FB_DALIV2xOsramQueryStatus	Reads the device status.
FB_DALIV2xOsramReadMemoryLocation	A byte is read from the memory of the control unit.

4.1.3.3.1 FB_DALIV2xOsramProfPushbuttonCoupler



i This function block is used as an example and is not included in the library. The function block can be downloaded as an export file and imported into the desired project. Adjustments can be made as required.

This function block evaluates the status of the digital input of the Osram DALI Professional Pushbutton Coupler. This function block can also be used to initialize the DALI control units.

The DALI control unit has a short address. The device does not fully comply with the IEC 62386 standard and uses a company-specific protocol instead.

TwinCAT 3 PLCopenXML file download: https://infosys.beckhoff.com/content/1033/tcplclib_tc2_dali/Resources/zip/9007203783126923.zip

VAR_INPUT

```
bInitialize      : BOOL := FALSE;
nAddr            : BYTE;
```

bInitialize: The DALI controller is initialized via a positive edge at this input. The parameters are written to the DALI control unit, which must be accessible via the short addresses *nPIRAddr* and *nLSAddr*. The output *bInitializing* is TRUE during initialization.

nAddr: Short address of the DALI control unit.

Further details about the parameters can be found in the manufacturer's documentation.

VAR_OUTPUT

```
bInitializing      : BOOL;
bError            : BOOL;
nErrorId         : UDINT;
nDeviceStatus    : BYTE;
bPushbutton      : BOOL;
```

bInitializing: This output is TRUE during initialization.

bError: This output is switched to TRUE as soon as an error occurs during the execution of a command. The command-specific error code is contained in *nErrorId*.

nErrorId: Contains the command-specific error code of the most recently executed command. (See [error codes](#) [▶ 380])

nDeviceStatus: Before the initialization, the status of the DALI control unit is queried and output to this output.

bPushbutton: This output indicates the actual value of the digital input.

VAR_IN_OUT

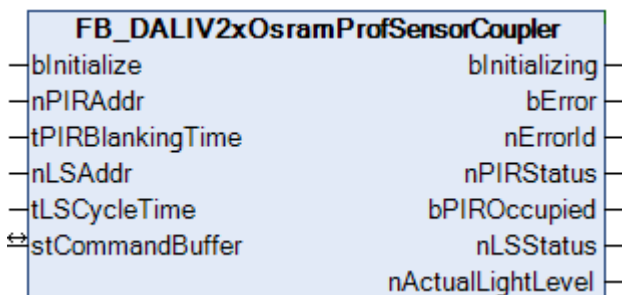
```
stCommandBuffer  : ST_DALIV2CommandBuffer;
```

stCommandBuffer: Reference to the internal structure for communication with the function block `FB_KL6821Communication()` [▶ 74] (KL6821).

Requirements

Development environment	required PLC library
TwinCAT from v3.1.4022.4	Tc2_DALI from v3.6.2.0

4.1.3.3.2 FB_DALIV2xOsramProfSensorCoupler



i This function block is used as an example and is not included in the library. The function block can be downloaded as an export file and imported into the desired project. Adjustments can be made as required.

This function block evaluates the measured brightness and presence of the Osram DALI Professional Sensor Coupler. This function block can also be used to initialize the DALI control units.

The motion sensor and the brightness sensor have separate short addresses. The DALI control unit thus occupies two short addresses. The device does not fully comply with the IEC 62386 standard and uses a company-specific protocol instead.

A detected movement is sent as an event while the brightness is read out cyclically.

TwinCAT 3 PLCopenXML file download: https://infosys.beckhoff.com/content/1033/tcplclib_tc2_dali/Resources/zip/9007203783154699.zip

VAR_INPUT

```
bInitialize      : BOOL := FALSE;
(* Occupancy Sensor Parameters *)
nPIRAddr        : BYTE;
tPIRBlankingTime : TIME := T#1M;
(* Light Sensor Parameters *)
nLSAddr         : BYTE;
tLSCycleTime    : TIME := T#1M;
```

bInitialize: The DALI controller is initialized via a positive edge at this input. The parameters are written to the DALI control unit, which must be accessible via the short addresses *nPIRAddr* and *nLSAddr*. The output *binitializing* is TRUE during initialization.

nPIRAddr: Short address of the DALI control unit for the motion sensor.

tPIRBlankingTime: Parameter: Once the status of the motion sensor was sent, no further changes are sent for this time. The unit is 1 s. This means that times of up to 4 min 15 s (value 255) are possible.

nLSAddr: Short address of the DALI control unit for the brightness sensor.

tLSCycleTime: Cycle time in which the current actual value of the brightness sensor is read out.

Further details about the parameters can be found in the manufacturer's documentation.

VAR_OUTPUT

```
bInitializing    : BOOL;
bError           : BOOL;
nErrorId        : UDINT;
(* Occupancy Sensor *)
nPIRStatus      : BYTE;
bPIROccupied    : BOOL;
(* Light Level *)
nLSStatus       : BYTE;
nActualLightLevel : WORD;
```

binitializing: This output is TRUE during initialization.

bError: This output is switched to TRUE as soon as an **error** occurs during the execution of a command. The command-specific error code is contained in *nErrorId*.

nErrorId: Contains the command-specific error code of the most recently executed command. (See [error codes](#) [► 380])

nPIRStatus: Before the initialization, the status of the DALI control unit for the motion sensor is queried and output at this output.

bPIROccupied: This output indicates the actual value of the motion sensor.

nLSStatus: Before the initialization, the status of the DALI controller for the brightness sensor is queried and output at this output.

nActualLightLevel: This output indicates the actual value of the brightness sensor.

VAR_IN_OUT

```
stCommandBuffer : ST_DALIV2CommandBuffer;
```

stCommandBuffer: Reference to the internal structure for communication with the function block [FB_KL6821Communication\(\)](#) [► 74] (KL6821).

Requirements

Development environment	required PLC library
TwinCAT from v3.1.4022.4	Tc2_DALI from v3.6.2.0

4.1.3.4 Philips discharge lamps

Function blocks

The Philips company has defined its own DALI commands for special discharge lamps. These commands extend beyond the possible DALI commands in accordance with the standard IEC 62386 Part 203. However, these commands are only usable for certain Philips control gears. Please contact Philips for a more detailed description of the commands.

Name	Description
FB_DALIV2PhilipsChangePAEC	Activates or deactivates the "Application Extended Command Set".
FB_DALIV2PhilipsQueryCtrlGearOperationTime	Reads the execution time of the control gear.
FB_DALIV2PhilipsQueryCtrlGearOvertempLevel	Reads the overtemperature threshold value of the control gear.
FB_DALIV2PhilipsQueryCtrlGearOvertempTime	Reads the overtemperature time of the control gear.
FB_DALIV2PhilipsQueryCtrlGearTemperature	Reads the temperature of the control gear.
FB_DALIV2PhilipsQueryFailureStatus	Reads the error state.
FB_DALIV2PhilipsQueryHIDLampLevel	Reads the lamp status.
FB_DALIV2PhilipsQueryHIDMaxFadeDownRate	Reads the maximum fade down rate.
FB_DALIV2PhilipsQueryHIDMaxFadeUpRate	Reads the maximum fade up rate.
FB_DALIV2PhilipsQueryLampType	Reads the lamp type.
FB_DALIV2PhilipsQueryLampVoltage	Reads the lamp voltage.
FB_DALIV2PhilipsQueryMainsVoltage	Reads the mains voltage.
FB_DALIV2PhilipsQueryTimeout	Reads the time-out.
FB_DALIV2PhilipsQueryUICByte	Reads a byte of the UIC.
FB_DALIV2PhilipsSetDTRAsSegmentAddress	Saves the data contained in the Data Transfer Register (DTR) to the Segment Address Register.
FB_DALIV2PhilipsSetTestMode	Sets the control gear to test mode.
FB_DALIV2PhilipsStoreDTRAsLampType	Saves the data in the Data Transfer Register (DTR) as lamp type.
FB_DALIV2PhilipsStoreDTRAsOvertempLevel	Saves the data in the Data Transfer Register (DTR) as overtemperature threshold value.
FB_DALIV2PhilipsStoreDTRAsSegmentAddress	Saves the data in the Data Transfer Register (DTR) as Segment Address Register.
FB_DALIV2PhilipsStoreDTRAsTimeout	Saves the data in the Data Transfer Register (DTR) as Time-out.



These commands belong to the application-related expansion commands for DALI discharge lamps. They function only if they are preceded by the *Enable Device Type 2* command, which can be sent with the `FB_DALIV2EnableDeviceType()` [► 85] function block. The command *Enable Device Type 2* is automatically internally prefixed to all application-related expansion commands for DALI discharge lamps.

4.1.3.4.1 Variables

Name	Default value	Reset value	Valid range	Size	Comment
PAEC_ENABLE D	0	No change	0 ... 1	1 byte	
CONTROL GEAR SEGMENT ADDRESS	0	No change	0 ... 255	1 byte	
SEGMENT ADDRESS	0	0	0 ... 255	1 byte	
UIC	Manufacturer- dependent	No change	00 00 00 00 00 00 00 00 ... FF FF FF FF FF FF FF FF	8 bytes	read only
LAMP TYPE	0	No change	0 ... 255	1 byte	
HID LAMP LEVEL	???? ????	0	0 ... 255	1 byte	
FADE UP	0	No change	0 ... 255	1 byte	
FADE DOWN	0	No change	0 ... 255	1 byte	
FAILURE STATUS	0	0	0 ... 255	1 byte	
OPERATION TIME	0	No change	0 ... 255	1 byte	
OVERTEMPER ATURE TIME	0	No change	0 ... 255	1 byte	
CONTROL GEAR TEMPERATUR E	0	0	0 ... 255	1 byte	
OVERTEMPER ATURE LEVEL	255	No change	0 ... 255	1 byte	
TIMEOUT	0	No change	0 ... 255	1 byte	
MAINS VOLTAGE	0	0	0 ... 255	1 byte	
LAMP VOLTAGE	0	0	0 ... 255	1 byte	

?: not specified

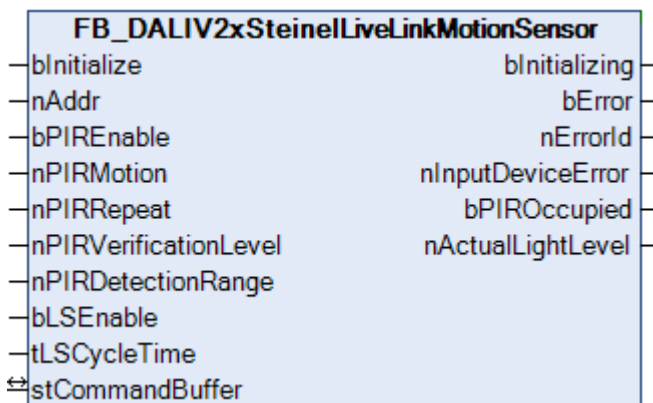
4.1.3.5 Steinel

Function blocks

The company Steinel has defined its own DALI commands. These commands extend beyond the possible DALI commands in accordance with the IEC 62386 standard. However, these commands are only applicable to certain Steinel devices. Please contact Steinel for a more detailed description of the commands.

Name	Description
FB_DALIV2xSteinelLiveLinkMotionSensor [► 374]	This function block evaluates the measured brightness and presence of the Steinel LiveLink DALI control unit. This function block can also be used to initialize the DALI control units.
FB_DALIV2xSteinelSetBrightnessChangeLevel	Sets the <i>Brightness Change Level</i> value.
FB_DALIV2xSteinelSetBrightnessChangeTimer	Sets the time for the <i>Brightness Change Timer</i> .
FB_DALIV2xSteinelSetEventFilter	This function block sets the event filter for the respective control unit instance.
FB_DALIV2xSteinelSetMotionDetectionRange	Sets the size of the detection area.
FB_DALIV2xSteinelSetMotionTimer	Sets the time for the <i>Motion Timer</i> .
FB_DALIV2xSteinelSetMotionTimerRepeat	Sets the time for <i>Motion Timer Repeat</i> .
FB_DALIV2xSteinelSetMotionVerificationLevel	Sets the sensitivity for the motion sensor.
FB_DALIV2xSteinelSetSignalLedStatus	Switches the LEDs in the control unit.
FB_DALIV2xSteinelQueryBrightnessChangeLevel	Queries the <i>Brightness Change Level</i> value.
FB_DALIV2xSteinelQueryBrightnessChangeTimer	Queries the time for the <i>Brightness Change Timer</i> .
FB_DALIV2xSteinelQueryEventFilter	Queries the event filter for the respective control unit instance.
FB_DALIV2xSteinelQueryMotionDetectionRange	Queries the size of the detection area.
FB_DALIV2xSteinelQueryMotionTimer	Queries the time of the <i>Motion Timer</i> .
FB_DALIV2xSteinelQueryMotionTimerRepeat	Queries the time of the <i>Motion Timer Repeat</i> .
FB_DALIV2xSteinelQueryMotionVerificationLevel	Queries the sensitivity of the motion sensor.
FB_DALIV2xSteinelQuerySensorType	Queries the sensor type.
FB_DALIV2xSteinelQuerySignalLedStatus	Queries the LEDs in the control unit.

4.1.3.5.1 FB_DALIV2xSteinelLiveLinkMotionSensor



This function block is used as an example and is not included in the library. The function block can be downloaded as an export file and imported into the desired project. Adjustments can be made as required.

This function block evaluates the measured brightness and presence of the Steinel LiveLink DALI control unit. This function block can also be used to initialize the DALI control units.

The DALI control unit occupies a short address and contains 2 instances. Instance 1 contains the motion sensor, instance 0 the brightness sensor. The device does not fully comply with the IEC 62386 standard and uses a company-specific protocol instead.

A detected movement is sent as an event while the brightness is read out cyclically. Each instance can be decoded individually as required.

TwinCAT 3 PLCOpenXML file download: https://infosys.beckhoff.com/content/1033/tcplcplib_tc2_dali/Resources/zip/18014403037897867.zip

VAR_INPUT

```

bInitialize      : BOOL := FALSE;
nAddr           : BYTE;
(* Occupancy Sensor Parameters *)
bPIREnable      : BOOL := TRUE;
nPIRMotion      : BYTE := 4;      (* 5 s + (nPIRMotion 5 s) *)
nPIRRepeat      : BYTE := 6;      (* 5 s + (nPIRRepeat 5 s) *)
nPIRVerificationLevel : BYTE := 1; (* standard *)
nPIRDetectionRange : BYTE := 255; (* (only for HF sensors) 100 % *)
(* Light Sensor Parameters *)
bLSEnable       : BOOL := TRUE;
tLSCycleTime    : TIME := T#1M;

```

bInitialize: The DALI controller is initialized via a positive edge at this input. The parameters are written to the DALI control unit, which must be accessible via the short address *nAddr*. The output *bInitializing* is TRUE during initialization.

nAddr: Short address of the DALI control unit.

bPIREnable: Parameter: If this input is TRUE, the motion sensor (instance 1) is enabled. The occupancy sensor is disabled by FALSE.

nPIRMotion: Parameter: Sets the value for the *Motion Timer*. If no movement is detected, the status of the motion sensor is not changed until after the *Motion Timer* has expired. The time is calculated based on the formula $5\text{ s} + \text{nPIRMotion} * 5\text{ s}$. This means that times of 5 s to 21 min 20 s are possible.

nPIRRepeat: Parameter: Sets the value for the *Repeat Timer*. The motion sensor status is retransmitted after the *Report Timer* has expired, even if the status has not changed. The time is calculated based on the formula $5\text{ s} + \text{nPIRRepeat} * 5\text{ s}$. This means that times of 5 s to 21 min 20 s are possible.

nPIRVerificationLevel: Parameter: The detection sensitivity can be adjusted (0: motion detection disabled, 1: very sensitive to 15: very insensitive).

nPIRDetectionRange: Parameter: If an HF sensor is used, the detection range can be set (0: 0% to 255: 100%).

bLSEnable: Parameter: If this input is TRUE, the brightness sensor (instance 0) is enabled. The brightness sensor is disabled by FALSE.

tLSCycleTime: Cycle time in which the current actual value of the brightness sensor is read out.

Further details on the parameters can be found in the IEC 62386 standard and the manufacturer's documentation.

VAR_OUTPUT

```

bInitializing    : BOOL;
bError           : BOOL;
nErrorId        : UDINT;
nInputDeviceError : BYTE;
(* Occupancy Sensor *)
bPIROccupied    : BOOL;
(* Light Sensor *)
nActualLightLevel : UINT;

```

bInitializing: This output is TRUE during initialization.

bError: This output is switched to TRUE as soon as an **error** occurs during the execution of a command. The command-specific error code is contained in *nErrorId*.

nErrorId: Contains the command-specific error code of the most recently executed command. (See [error codes](#) [► 380])

nInputDeviceError: The status of the DALI control unit (INPUT DEVICE ERROR) is queried before the initialization. 0 means no error. The individual error numbers are vendor-specific.

bPIROccupied: This output indicates the status of the motion sensor.

nActualLightLevel: This output indicates the actual value of the brightness sensor.

VAR_IN_OUT

```
stCommandBuffer : ST_DALIV2CommandBuffer;
```

stCommandBuffer: Reference to the internal structure for communication with the function block FB_KL6821Communication() [▶ 74] (KL6821).

Requirements

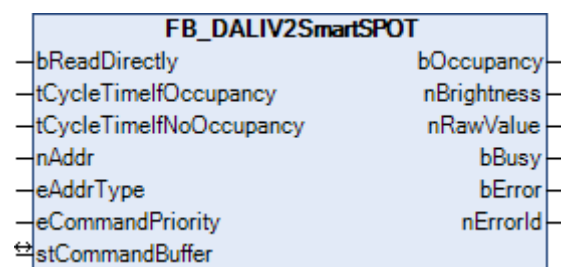
Development environment	required PLC library
TwinCAT from v3.1.4022.4	Tc2_DALI from v3.6.2.0

4.1.3.6 Tridonic

Function blocks

Name	Description
FB_DALIV2SmartSPOT [▶ 376]	This function block cyclically reads the status of a smartSPOT sensor or MSensor 02 and scales the measured brightness and detected presence based on the received value.

4.1.3.6.1 FB_DALIV2SmartSPOT



This function block cyclically reads the status of a smartSPOT sensor or MSensor 02 and scales the measured brightness and detected presence based on the received value.

Two different cycle times can be specified. One cycle time that is used if no presence is detected and one that is used in case of active presence. In this way access to the DALI bus can be minimized. If presence is detected a slower cycle time (e.g. 20 s) can usually be selected, because lighting control and switching off the lighting is not time-critical. If there is no presence, then a shorter cycle time (e.g. 2 s) should be selected. As a result, the lighting is switched on with the shortest possible reaction time when the room is entered.

The measured brightness of the sensor depends on the reflection of the furniture in the room. The measured value is only 20% to 40% of the actual brightness of the respective surface. Example: 500 lux on the table with a reflectivity of 30% results in a brightness value of 150 lux. The measuring range of the sensor is designed in such a way that the usual brightness at the workplace can be controlled from 200 lux to 1000 lux.

If the function block with MSensor 02 is to be used, it must be in slave mode.

Further information and a description of the electrical and physical properties can be found in the product description of the smartSPOT sensor or the MSensor 02.

VAR_INPUT

```

bReadDirectly      : BOOL := FALSE;
tCycleTimeIfOccupancy : TIME := t#20s;
tCycleTimeIfNoOccupancy : TIME := t#2s;
nAddr              : BYTE := 0;
eAddrType          : E_DALIV2AddrType := eDALIV2AddrTypeShort;
eCommandPriority    : E_DALIV2CommandPriority := eDALIV2CommandPriorityMiddle;
  
```

bReadDirectly: The function block is activated by a positive edge at this input.

tCycleTimeIfOccupancy: Cycle time with active presence.

tCycleTimeIfNoOccupancy: Cycle time without active presence.

nAddr: The address of a participating device or of a group.

eAddrType: Short address, group address or broadcast (see [E_DALIV2AddrType](#) [▶ 401]).

eCommandPriority: Priority (high, medium or low) with which the command is processed by the library (see [E_DALIV2CommandPriority](#) [▶ 401]).

VAR_OUTPUT

```
bOccupancy : BOOL;
nBrightness : INT;
nRawValue : BYTE;
bBusy : BOOL;
bError : BOOL;
nErrorId : UDINT;
```

bOccupancy: The output is set if the sensor detects presence.

nBrightness: Measured brightness in lux.

nRawValue: The value of the sensor read before the conversion.

bBusy: When the function block is activated the output is set, and it remains active until execution of the command has been completed.

bError: This output is switched to TRUE as soon as an error occurs during the execution of a command. The command-specific error code is contained in *nErrorId*. Is reset to FALSE by the execution of a command at the inputs.

nErrorId: Contains the command-specific error code of the most recently executed command. Is reset to 0 by the execution of a command at the inputs. (See [error codes](#) [▶ 380])

VAR_IN_OUT

```
stCommandBuffer : ST_DALIV2CommandBuffer;
```

stCommandBuffer: Reference to the internal structure for communication with the function block [FB_KL6811Communication\(\)](#) [▶ 70] (KL6811) or [FB_KL6821Communication\(\)](#) [▶ 74] (KL6821).

Requirements

Development environment	required PLC library
TwinCAT from v3.1.4020.14	Tc2_DALI from v3.4.3.0

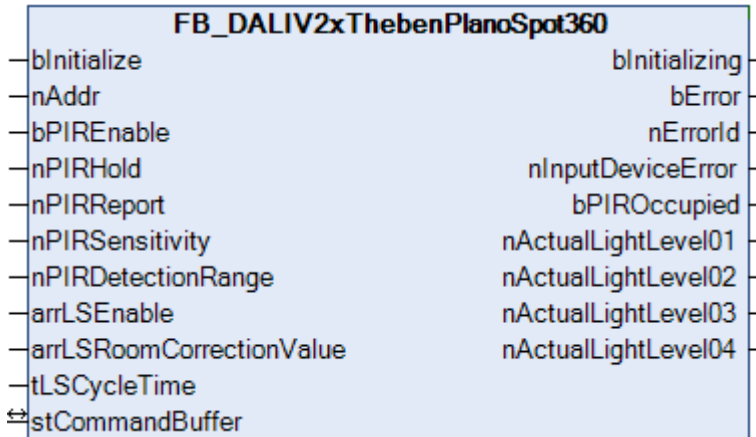
4.1.3.7 Theben HTS

Function blocks

The company Theben has defined its own DALI commands. These commands extend beyond the possible DALI commands in accordance with the IEC 62386 standard. However, these commands can only be used for certain Theben devices. Please contact Theben for a more detailed description of the commands.

Name	Description
FB_DALIV2xThebenPlanoSpot360 [▶ 378]	This function block evaluates the 3 measured brightness values and the presence of the ThebenHTS PlanoSpot DALI control unit. This function block can also be used to initialize the DALI control units.

4.1.3.7.1 FB_DALIV2xThebenPlanoSpot360



This function block is used as an example and is not included in the library. The function block can be downloaded as an export file and imported into the desired project. Adjustments can be made as required.

This function block evaluates the measured brightness values and the presence of the ThebenHTS PlanoSpot DALI control unit. This function block can also be used to initialize the DALI control units.

The DALI control unit occupies a short address and contains 5 instances. Instance 0 is the motion sensor and complies with the IEC 62386-303 standard. The brightness sensors are stored in instances 1 to 4 and comply with the IEC 62386-304 standard.

A detected movement is sent as an event, while the brightness values are read out cyclically. Each instance can be decoded individually as required.

TwinCAT 3 PLCopenXML file download: https://infosys.beckhoff.com/content/1033/tcplclib_tc2_dali/Resources/zip/9007203783159051.zip

VAR_INPUT

```

bInitialize          : BOOL := FALSE;
nAddr                : BYTE;
(* Occupancy Sensor Parameters *)
bPIREnable           : BOOL := TRUE;
nPIRHold             : BYTE := 1;    (* 10 s *)
nPIRReport           : BYTE := 30;   (* 30 s *)
nPIRSensitivity      : BYTE := 3;    (* standard *)
nPIRDetectionRange   : BYTE := 0;    (* standard *)
(* Light Sensor Parameters *)
arrLSEnable          : ARRAY [1..4] OF BYTE := TRUE, TRUE, TRUE, TRUE;
arrLSRoomCorrectionValue : ARRAY [1..4] OF BYTE := 30, 30, 30, 30; (* 0.3 *)
tLSCycleTime         : TIME := T#1M;

```

bInitialize: The DALI controller is initialized via a positive edge at this input. The parameters are written to the DALI control unit, which must be accessible via the short address *nAddr*. The output *bInitializing* is TRUE during initialization.

nAddr: Short address of the DALI control unit.

bPIREnable: Parameter: If this input is TRUE, the motion sensor (instance 0) is enabled. The occupancy sensor is disabled by FALSE.

nPIRHold: Parameter: Sets the *Hold Timer* value. If no movement is detected, the status of the motion sensor is only changed after the *Hold Timer* has expired. The unit is 10 s. This means that times of up to 42 min 20 s (value 254) are possible. The value 0 corresponds to 1 s while the value 255 is ignored.

nPIRReport: Parameter: Sets the value for the *Report Timer*. The motion sensor status is retransmitted after the *Report Timer* has expired, even if the status has not changed. The unit is 1 s. The value 0 disables the *Report Timer*. This means that times of up to 4 min 15 s (value 255) are possible.

nPIRSensitivity: Parameter: The detection sensitivity can be adjusted in five steps (1: very insensitive to 5: very sensitive).

nPIRDetectionRange: Parameter: The sensor supports two different values for the detection range(0: standard and 1: reduced).

arrLSEnable: Parameter: If this input is TRUE, the brightness sensor (instance 1) is enabled. The brightness sensor is disabled by FALSE.

arrLSRoomCorrectionValue: Parameter: The room correction factor can be used to calibrate the value measured by the detector with the value measured with a reference device (luxmeter).

tLSCycleTime: Cycle time in which the current actual value of the brightness sensor is read out.

Further details on the parameters can be found in the IEC 62386 standard and the manufacturer's documentation.

VAR_OUTPUT

```
bInitializing      : BOOL;
bError            : BOOL;
nErrorId         : UDINT;
nInputDeviceError : BYTE;
(* Occupancy Sensor *)
bPIROccupied     : BOOL;
(* Light Sensor *)
nActualLightLevel01 : UINT; (* Light sensor 1 (integral) *)
nActualLightLevel02 : UINT; (* Light sensor 2 (inner) *)
nActualLightLevel03 : UINT; (* Light sensor 3 (middle) *)
nActualLightLevel04 : UINT; (* Light sensor 4 (window) *)
```

bInitializing: This output is TRUE during initialization.

bError: This output is switched to TRUE as soon as an error occurs during the execution of a command. The command-specific error code is contained in *nErrorId*.

nErrorId: Contains the command-specific error code of the most recently executed command. (See [error codes \[▶ 380\]](#))

nInputDeviceError: The status of the DALI control unit (INPUT DEVICE ERROR) is queried before the initialization. 0 means no error. The individual error numbers are vendor-specific.

bPIROccupied: This output indicates the status of the motion sensor.

nActualLightLevel01 ... nActualLightLevel04: This output indicates the actual value of the brightness sensors.

VAR_IN_OUT

```
stCommandBuffer : ST_DALIV2CommandBuffer;
```

stCommandBuffer: Reference to the internal structure for communication with the function block [FB_KL6821Communication\(\) \[▶ 74\]](#) (KL6821).

Requirements

Development environment	required PLC library
TwinCAT from v3.1.4022.4	Tc2_DALI from v3.6.2.0

4.1.4 Error codes

Value (hex)	Value (dec)	Description
0x0000	0	No error.
0x0001	1	No response from the DALI terminal.
0x0002	2	No response from the DALI control gear.
0x0003	3	Communication buffer overflow.
0x0004	4	No response from the communication block.
0x0005	5	DALI collision detected on the backward channel: during the transfer of a DALI telegram, a collision with the transmit data of another DALI slave was detected.
0x0006	6	DALI collision detected on the forward channel: during the transfer of a DALI telegram, a collision with the send data of another DALI master was detected. The error also occurs if the 24 V supply is missing at the power contacts of the KL6811.
0x0007	7	When using the internal DALI power supply unit of the KL6811: overload of the internal DALI power supply unit of the KL6811 (bus under-voltage).
0x0008	8	Parameter <i>eCommandPriority</i> lies outside of the valid range.
0x0009	9	Parameter <i>eAddrType</i> lies outside of the valid range.
0x000A	10	Parameter <i>nAddr</i> is a short address and lies outside of the valid range.
0x000B	11	Parameter <i>nAddr</i> is a group address and lies outside of the valid range.
0x000C	12	Parameter <i>nGroup</i> lies outside of the valid range.
0x000D	13	Parameter <i>nScene</i> lies outside of the valid range.
0x000E	14	Parameter <i>nStartWithShortAddress</i> lies outside of the valid range.
0x000F	15	No further free short addresses.
0x0010	16	Parameter <i>nNewShortAddress</i> lies outside of the valid range.
0x0011	17	Parameter <i>nNewShortAddress01</i> lies outside of the valid range.
0x0012	18	Parameter <i>nShortAddress02</i> lies outside of the valid range.
0x0013	19	Parameter <i>nFreeShortAddress</i> lies outside of the valid range.
0x0014	20	The short address in parameter <i>nFreeShortAddress</i> is occupied within the DALI line.
0x0015	21	Parameter <i>arrSwapShortAddressList</i> contains invalid values.
0x0016	22	Parameter <i>nHysteresis</i> lies outside of the valid range.
0x0017	23	Parameter <i>nProlongValue</i> is outside of the valid range.
0x0018	24	Lamp value of the master device is too long 255 -> possible fault.
0x0019	25	Parameter <i>nEndLevel</i> is outside of the valid range.
0x001A	26	Target value <i>nEndLevel</i> has not yet been reached after double the ramp time.
0x001B	27	<i>FB_DALIV2LightControl</i> : There are setpoints (<i>nSetpoint</i>) in the value table <i>arrControlTable</i> that lie outside of the valid DALI range (0..254).
0x001C	28	<i>FB_DALIV2LightControl</i> : The switch range (<i>nSwitchRange</i>) in the first or second element of the value table <i>arrControlTable</i> is 0, assuming that the table has no or only one value set.
0x001D	29	<i>FB_DALIV2LightControl</i> : 2 neighboring input values <i>nActualValue</i> in the value table <i>arrControlTable</i> lie too close together i.e. each in the switching range of the other.
0x001E	30	<i>FB_DALIV2LightControl</i> : A setpoint (<i>nSetpoint</i>) in the value table <i>arrControlTable</i> lies outside of the valid range. Only queried after <i>bStart</i> .
0x001F	31	Internal status query of the master device returns "fading active" for too long after the dimming time. See STATUS INFORMATION [▶ 80] (bit4).
0x0020	32	Parameter <i>nPresenceValue</i> is outside of the valid range.
0x0021	33	Timeout during internal addressing (see also <i>FB_DALIV2AddressingIntRandomAddressing()</i> [▶ 10]). The terminal has not sent a response following the start of internal addressing.

Value (hex)	Value (dec)	Description
0x0022	34	The terminal has returned an error during internal addressing (see also <code>FB_DALIV2AddressingIntRandomAddressing()</code> [► 10]).
0x0023	35	At least one test is currently running or is automatically pending.
0x0024	36	The device is in automatic test mode.
0x0025	37	The batteries of the emergency light device are not fully charged for a duration test.
0x0026	38	Test interrupted - no valid emergency mode / emergency status.
0x0027	39	Test interrupted: Test mode was not attained.
0x0028	40	Test interrupted because timeout was exceeded.
0x0029	41	Error while processing a DALI command.
0x002A	42	Error while writing into the log file.
0x002B	43	Device is not in "normal mode"
0x002C	44	FB_DALIV2Sequencer: The start index <i>nStartIndex</i> is outside of the valid range [1..50].
0x002D	45	FB_DALIV2Sequencer: The start index <i>nStartIndex</i> refers to a point that, for its part, marks the end of a sequence (zero entries).
0x002E	46	FB_DALIV2ChangeAddressList: The change list <i>arrChangeAddressList</i> is empty.
0x002F	47	FB_DALIV2ChangeAddressList: The change list <i>arrChangeAddressList</i> contains an invalid short address entry (>63).
0x0030	48	FB_DALIV2ChangeAddressList: The change list <i>arrChangeAddressList</i> contains a double list item in the short addresses.
0x0031	49	FB_DALIV2ChangeAddressList: The change list <i>arrChangeAddressList</i> contains an entry for a new short address which, however, is already assigned to a device that is not affected by the changes. The addresses were changed back.
0x0032	50	FB_KL6811Config(): An error occurred during configuration of the terminal.
0x0033	51	FB_KL6811Config(): Parameter <i>eOperationMode</i> is outside the valid range.
0x0034	52	The constant DALI_MESSAGE_QUEUE_ENTRIES is outside the valid range (2-250).
0x0035	53	The constant DALI_RESPONSE_TABLE_ENTRIES is outside the valid range (2-250).
0x0036	54	The constant DALI_EVENT_TABLE_ENTRIES is outside the valid range (2-250).
0x0037	55	When using the internal DALI power supply unit: Power supply unit fault detected.
0x0038	56	The process image was disabled by the DI1 or DI2 inputs of the terminal.
0x0039	57	Parameter <i>eInstAddrType</i> is outside the valid range.
0x003A	58	Parameter <i>eDataFrameType</i> is outside the valid range.
0x003B	59	DSI is not supported by the Bus Terminal.
0x003C	60	Parameter <i>nEventPriority</i> is outside the valid range.
0x003D	61	Parameter <i>nGroup</i> lies outside of the valid range.
0x003E	62	Parameter <i>nInstanceGroup</i> is outside the valid range.
0x003F	63	Parameter <i>eEventScheme</i> is outside the valid range.
0x0040	64	Parameter <i>eEventFilter</i> is outside the valid range.
0x0041	65	Parameter <i>nInstAddr</i> is outside the valid range.
0x0042	66	Parameter <i>ePowerSupplyMode</i> is outside the valid range.
0x0043	67	Parameter <i>eCommandKBusWatchdog</i> is outside the valid range.
0x0044	68	Parameter <i>eCommandDI1RisingEdge</i> is outside the valid range.
0x0045	69	Parameter <i>eCommandDI1FallingEdge</i> is outside the valid range.
0x0046	70	Parameter <i>eCommandDI2RisingEdge</i> is outside the valid range.

Value (hex)	Value (dec)	Description
0x0047	71	Parameter <i>eCommandDI2FallingEdge</i> is outside the valid range.
0x0048	72	During internal addressing (see also FB_DALIV2AddressingIntRandomAddressing() [▶_10]) the terminal has detected that there is no further short address available.
0x0049	73	During internal addressing (see also FB_DALIV2AddressingIntRandomAddressing [▶_10]()) the terminal has detected that several devices have the same long address.
0x004A	74	Internal addressing (see also FB_DALIV2AddressingIntRandomAddressing [▶_10]()) has failed 3 times.
0x004B	75	The communication buffer for sending the DALI commands has been blocked for longer than permitted.
0x004C	76	The constant <code>DALIV2_TIMEOUT_LOCK_MESSAGE_QUEUE</code> is outside the valid range (0-2 min).
0x004D	77	During internal addressing (see also FB_DALIV2AddressingIntRandomAddressing() [▶_10]) the terminal has detected a short circuit on the bus.
0x004E	78	Short circuit detected on the DALI bus. Possible causes: - No 24 V supply at the KL6821. - There is a short circuit on the DALI bus.
0x004F	79	Undervoltage on the DALI bus. Possible causes: - Collision during telegram transmission (possibly several DALI devices have the same short address). - The internal power supply unit has been deactivated and there is no external bus supply.
0x0050	80	The received data is flawed.

4.1.5 [obsolete]

Function blocks

Name	Description
FB_DALIV2Communication [▶ 384]	Reads the DALI commands from the buffers sequentially and relays them to the KL6811.
FB_DALIV2EnableWriteMemory [▶ 386]	Enables write access via FB_DALIV2WriteMemoryLocation() [▶ 159] to the internal memory of the control gear.
FB_DALIV2QueryBallast [▶ 387]	Query whether the control gear is ready to operate.
FB_DALIV2QueryContentDTR [▶ 388]	Read out the DTR (Data Transfer Register).
FB_DALIV2SendDALICommand [▶ 389]	This function block is for the general sending of a DALI command, defined by command number and, if necessary, transfer parameter.
FB_DALIV2SetDTR [▶ 390]	Writes an 8-bit value into the DTR of all the control gears.
FB_DALIV2StoreActualLevelInDTR [▶ 391]	Writes the current value of the lamp power into the DTR.
FB_DALIV2StoreDTRAsFadeRate [▶ 392]	Writes the value in the DTR into the FADE RATE [▶ 80] variable.
FB_DALIV2StoreDTRAsFadeTime [▶ 393]	Writes the value in the DTR into the FADE TIME [▶ 80] variable.
FB_DALIV2StoreDTRAsMaxLevel [▶ 394]	Writes the value in the DTR into the MAX LEVEL [▶ 80] variable.
FB_DALIV2StoreDTRAsMinLevel [▶ 395]	Writes the value in the DTR into the MIN LEVEL [▶ 80] variable.
FB_DALIV2StoreDTRAsPowerOnLevel [▶ 396]	Writes the value in the DTR into the POWER ON LEVEL [▶ 80] variable.
FB_DALIV2StoreDTRAsScene [▶ 397]	Saves the contents of the DTR as the lamp power value for a scene.
FB_DALIV2StoreDTRAsShortAddress [▶ 398]	Saves the contents of the DTR as a short address, or deletes the short address.
FB_DALIV2StoreDTRAsSystemFailureLevel [▶ 399]	Writes the value in the DTR into the SYSTEM FAILURE LEVEL [▶ 80] variable.
FB_KL6811Config [▶ 400]	This function block can be used to configure the KL6821.

4.1.5.1 FB_DALIV2Communication



The function blocks for the DALI commands do not access the process image of the KL6811 directly, but place the individual DALI commands in three different buffers. The `FB_DALIV2Communication()` function block sequentially reads the DALI commands from these three buffers and passes the DALI commands to the KL6811. This prevents several function blocks accessing the process image of the KL6811 at the same

time. Each of these three buffers is processed with a different priority (high, medium or low). The parameter `eCommandPriority` [► 401], which is available for most function blocks, can be used to specify the priority with which the respective DALI command is processed by the function block `FB_DALIV2Communication()`.

All buffers in which the DALI commands are stored are associated with a variable of type `ST_DALIV2CommandBuffer`. There is one instance of the `FB_DALIV2Communication()` function block and a variable of type `ST_DALIV2CommandBuffer` for each KL6811. If possible, the `FB_DALIV2Communication()` function block should be called in a separate, faster task.

The extent to which the buffers are utilized can be determined from the outputs of the function block. Three arrays are output for this in which each element (0, 1 or 2) represents one of the three buffers (high, middle or low). If you detect regular overflow for one of the three buffers, you should consider the following:

- How heavily are the individual PLC tasks utilized? The TwinCAT System Manager offers various appropriate utilities for the analysis.
- Try reducing the cycle time of the task in which the `FB_DALIV2Communication()` function block is called. The value should not exceed 6 ms. Ideally it should be 2 ms.
- Check the cycle time of the PLC task in which the function blocks for the individual DALI commands are called. This value should be between 10 ms and 60 ms.
- If possible avoid polling (regular reading) of values. Only read values when they are actually required.
- Distribute the individual control gears evenly over several DALI lines. Overall data throughput is increased by the fact that several DALI lines are processed simultaneously during each PLC cycle.

VAR_INPUT

```
bResetMaximumDemandCounter : BOOL;
bResetOverflowCounter       : BOOL;
```

bResetMaximumDemandCounter: a positive edge resets the stored value of the maximum command buffer utilization, `arrBufferMaximumDemandMeter` (0 - 100%, see `VAR_OUTPUT`).

bResetOverflowCounter: a positive edge resets the stored value of the number of command buffer overflows, `arrBufferOverflowCounter` (see `VAR_OUTPUT`).

VAR_OUTPUT

```
arrBufferDemandMeter        : ARRAY [0..2] OF BYTE;
arrBufferMaximumDemandMeter : ARRAY [0..2] OF BYTE;
arrBufferOverflowCounter    : ARRAY [0..2] OF UINT;
bLineIsBusy                 : BOOL;
bLineIsInitialized          : BOOL;
```

arrBufferDemandMeter: Occupancy of the respective buffer (0 - 100%).

arrBufferMaximumDemandMeter: previous maximum occupancy of the respective buffer (0 - 100%).

arrBufferOverflowCounter: Number of buffer overflows to date.

bLineIsBusy: This output is set as long as the `FB_DALIV2Communication()` function block is active.

bLineIsInitialized: if the function block is being called for the first time (e.g. when the controller is starting up) an initialization process is executed. No DALI commands can be processed during this time.

VAR_IN_OUT

```
stDALIInData      : ST_DALIV2InData;
stDALIOutData     : ST_DALIV2OutData;
stCommandBuffer   : ST_DALIV2CommandBuffer;
```

stDALIInData: Structure in the input process image of the KL6811. It is used for communication from the KL6811 to the PLC (see `ST_DALIV2InData` [► 408]).

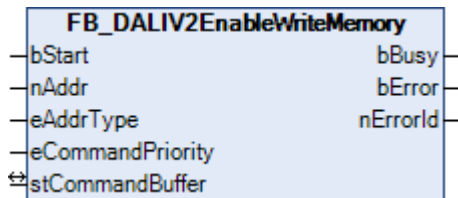
stDALIOutData: Structure in the output process image of the KL6811. It is used for communication from the PLC to the KL6811 (see `ST_DALIV2OutData` [► 408]).

stCommandBuffer: Reference to the structure for communication (buffer) with the `FB_DALIV2Communication()` function block.

Requirements

Development environment	required PLC library
TwinCAT from v3.1.4020.14	Tc2_DALI from v3.4.3.0

4.1.5.2 FB_DALIV2EnableWriteMemory



Enables write access via [FB_DALIV2WriteMemoryLocation\(\)](#) [► 159] to the internal memory of the control gear.



This command can only be executed by DALI devices that comply with the IEC 62386 standard.

VAR_INPUT

```
bStart      : BOOL;
nAddr       : BYTE;
eAddrType   : E_DALIV2AddrType := eDALIV2AddrTypeShort;
eCommandPriority : E_DALIV2CommandPriority := eDALIV2CommandPriorityMiddle;
```

bStart: The function block is activated by a positive edge at this input.

nAddr: The address of a participating device or of a group.

eAddrType: Short address, group address or broadcast (see [E_DALIV2AddrType](#) [► 401]).

eCommandPriority: Priority (high, medium or low) with which the command is processed by the library (see [E_DALIV2CommandPriority](#) [► 401]).

VAR_OUTPUT

```
bBusy      : BOOL;
bError     : BOOL;
nErrorId   : UDINT;
```

bBusy: When the function block is activated the output is set, and it remains active until execution of the command has been completed.

bError: This output is switched to TRUE as soon as an error occurs during the execution of a command. The command-specific error code is contained in *nErrorId*. Is reset to FALSE by the execution of a command at the inputs.

nErrorId: Contains the command-specific error code of the most recently executed command. Is reset to 0 by the execution of a command at the inputs. (See [error codes](#) [► 380])

VAR_IN_OUT

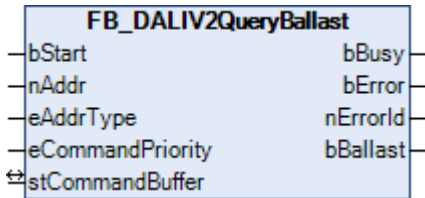
```
stCommandBuffer : ST_DALIV2CommandBuffer;
```

stCommandBuffer: Reference to the internal structure for communication with the function block [FB_KL6811Communication\(\)](#) [► 70] (KL6811) or [FB_KL6821Communication\(\)](#) [► 74] (KL6821).

Requirements

Development environment	required PLC library
TwinCAT from v3.1.4020.14	Tc2_DALI from v3.4.3.0

4.1.5.3 FB_DALIV2QueryBallast



The function block provides information as to whether a specific control gear is ready for operation.

Using this command, it can easily be determined whether or not any control gears at all are connected to a DALI line. To do this, the function block with the parameter *eAddrType* = *eDALIV2AddrTypeBroadcast* is called. If the output *bBallast* is FALSE and output *nError* is 0, there is no control gear connected to the DALI line. If the output *nError* is 0 and the output *bBallast* is TRUE, there is exactly one control gear connected to the DALI line. If several control gears are connected, *nError* will return 5 (several control gears have replied). In this case it is irrelevant whether or not the control gears have short addresses.

VAR_INPUT

```
bStart      : BOOL;
nAddr       : BYTE;
eAddrType   : E_DALIV2AddrType := eDALIV2AddrTypeShort;
eCommandPriority : E_DALIV2CommandPriority := eDALIV2CommandPriorityMiddle;
```

bStart: The function block is activated by a positive edge at this input.

nAddr: The address of a participating device or of a group.

eAddrType: Short address, group address or broadcast (see [E_DALIV2AddrType](#) [▶ 401]).

eCommandPriority: Priority (high, medium or low) with which the command is processed by the library (see [E_DALIV2CommandPriority](#) [▶ 401]).

VAR_OUTPUT

```
bBusy      : BOOL;
bError     : BOOL;
nErrorId   : UDINT;
bBallast   : BOOL;
```

bBusy: When the function block is activated the output is set, and it remains active until execution of the command has been completed.

bError: This output is switched to TRUE as soon as an error occurs during the execution of a command. The command-specific error code is contained in *nErrorId*. Is reset to FALSE by the execution of a command at the inputs.

nErrorId: Contains the command-specific error code of the most recently executed command. Is reset to 0 by the execution of a command at the inputs. (See [error codes](#) [▶ 380])

bBallast: If the output is active, the corresponding control gear is ready for operation.

VAR_IN_OUT

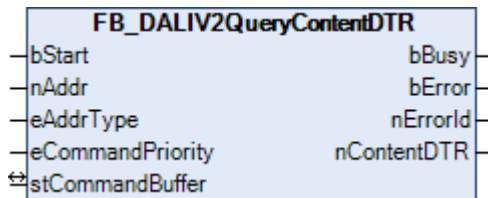
```
stCommandBuffer : ST_DALIV2CommandBuffer;
```

stCommandBuffer: Reference to the internal structure for communication with the function block [FB_KL6811Communication\(\)](#) [▶ 70] (KL6811) or [FB_KL6821Communication\(\)](#) [▶ 74] (KL6821).

Requirements

Development environment	required PLC library
TwinCAT from v3.1.4020.14	Tc2_DALI from v3.4.3.0

4.1.5.4 FB_DALIV2QueryContentDTR



The contents of the DTR (Data Transfer Register) is read from the control gear.

VAR_INPUT

```
bStart      : BOOL;
nAddr       : BYTE;
eAddrType   : E_DALIV2AddrType := eDALIV2AddrTypeShort;
eCommandPriority : E_DALIV2CommandPriority := eDALIV2CommandPriorityMiddle;
```

bStart: The function block is activated by a positive edge at this input.

nAddr: The address of a participating device or of a group.

eAddrType: Short address, group address or broadcast (see [E_DALIV2AddrType](#) [► 401]).

eCommandPriority: Priority (high, medium or low) with which the command is processed by the library (see [E_DALIV2CommandPriority](#) [► 401]).

VAR_OUTPUT

```
bBusy       : BOOL;
bError      : BOOL;
nErrorId    : UDINT;
nContentDTR : BYTE;
```

bBusy: When the function block is activated the output is set, and it remains active until execution of the command has been completed.

bError: This output is switched to TRUE as soon as an error occurs during the execution of a command. The command-specific error code is contained in *nErrorId*. Is reset to FALSE by the execution of a command at the inputs.

nErrorId: Contains the command-specific error code of the most recently executed command. Is reset to 0 by the execution of a command at the inputs. (See [error codes](#) [► 380])

nContentDTR: Contents of the DTR (Data Transfer Register).

VAR_IN_OUT

```
stCommandBuffer : ST_DALIV2CommandBuffer;
```

stCommandBuffer: Reference to the internal structure for communication with the function block [FB_KL6811Communication\(\)](#) [► 70] (KL6811) or [FB_KL6821Communication\(\)](#) [► 74] (KL6821).

Requirements

Development environment	required PLC library
TwinCAT from v3.1.4020.14	Tc2_DALI from v3.4.3.0

4.1.5.5 FB_DALIV2SendDALICommand



This function block is for the general sending of a DALI command, defined by command number and, if necessary, transfer parameter. Moreover, it is possible to set whether the command is sent twice in succession and whether to wait for a response. The latter can be used, for example, to realize a fast sequence of step-up commands.

VAR_INPUT

```

bStart          : BOOL;
nAddr           : BYTE;
eAddrType       : E_DALIV2AddrType := eDALIV2AddrTypeShort;
eCommandPriority : E_DALIV2CommandPriority := eDALIV2CommandPriorityMiddle;
nCommand        : INT := 0;
nParameter      : BYTE := 0;
bWaitingForDALISlaveResponse : BOOL := FALSE;
bRepeatCommand  : BOOL := FALSE;
bSuppressResponseBuffer : BOOL := FALSE;
nDeviceType     : BYTE := 0;
    
```

bStart: The function block is activated by a positive edge at this input.

nAddr: The address of a participating device or of a group.

eAddrType: Short address, group address or broadcast (see [E_DALIV2AddrType \[► 401\]](#)).

eCommandPriority: Priority (high, medium or low) with which the command is processed by the library (see [E_DALIV2CommandPriority \[► 401\]](#)).

nCommand: Number of the DALI command to be sent.

nParameter: Parameter for the value transfer.

bWaitingForDALISlaveResponse: If FALSE there is **no** waiting for the response of the DALI control gear. Its application makes no sense in connection with any kind of query command.

bRepeatCommand: Decides whether the command is to be sent twice in succession.

bSuppressResponseBuffer: If TRUE, the internal software buffer is **not** filled with the response from function block [FB_DALIV2Communication\(\) \[► 384\]](#).

nDeviceType: Identifier for the device type.

Value	Description
0	Standard device
1	Device for emergency lighting.
2	Device for discharge lamps.
3	Device for low-voltage halogen lamps.
4	Device for dimming incandescent lamps.
5	Device for converting digital signals into DC signals.
6	Device for light emitting diodes (LEDs).

VAR_OUTPUT

```
bBusy      : BOOL;
bError     : BOOL;
nErrorId   : UDINT;
nResponseData : BYTE;
```

bBusy: When the function block is activated the output is set, and it remains active until execution of the command has been completed.

bError: This output is switched to TRUE as soon as an error occurs during the execution of a command. The command-specific error code is contained in *nErrorId*. Is reset to FALSE by the execution of a command at the inputs.

nErrorId: Contains the command-specific error code of the most recently executed command. Is reset to 0 by the execution of a command at the inputs. (See [error codes](#) [▶ 380])

nResponseData: The value received from the DALI control gear, if a query command has been called.

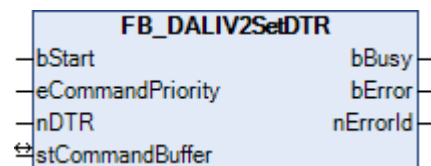
VAR_IN_OUT

```
stCommandBuffer : ST_DALIV2CommandBuffer;
```

stCommandBuffer: Reference to the internal structure for communication with the function block [FB_KL6811Communication\(\)](#) [▶ 70] (KL6811) or [FB_KL6821Communication\(\)](#) [▶ 74] (KL6821).

Requirements

Development environment	required PLC library
TwinCAT from v3.1.4020.14	Tc2_DALI from v3.4.3.0

4.1.5.6 FB_DALIV2SetDTR

This command is only available as a broadcast. Data is written to the DTR of all the control gears.

VAR_INPUT

```
bStart      : BOOL;
eCommandPriority : E_DALIV2CommandPriority := eDALIV2CommandPriorityMiddle;
nDTR       : BYTE;
```

bStart: The function block is activated by a positive edge at this input.

eCommandPriority: Priority (high, medium or low) with which the command is processed by the library (see [E_DALIV2CommandPriority](#) [▶ 401]).

nDTR: The value that is to be written into the DTR.

VAR_OUTPUT

```
bBusy      : BOOL;
bError     : BOOL;
nErrorId   : UDINT;
```

bBusy: When the function block is activated the output is set, and it remains active until execution of the command has been completed.

bError: This output is switched to TRUE as soon as an error occurs during the execution of a command. The command-specific error code is contained in *nErrorId*. Is reset to FALSE by the execution of a command at the inputs.

nErrorId: Contains the command-specific error code of the most recently executed command. Is reset to 0 by the execution of a command at the inputs. (See [error codes \[▶ 380\]](#))

VAR_IN_OUT

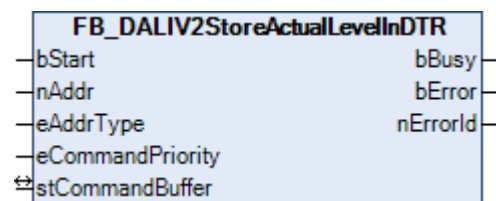
```
stCommandBuffer : ST_DALIV2CommandBuffer;
```

stCommandBuffer: Reference to the internal structure for communication with the function block [FB_KL6811Communication\(\) \[▶ 70\]](#) (KL6811) or [FB_KL6821Communication\(\) \[▶ 74\]](#) (KL6821).

Requirements

Development environment	required PLC library
TwinCAT from v3.1.4020.14	Tc2_DALI from v3.4.3.0

4.1.5.7 FB_DALIV2StoreActualLevelInDTR



The function block writes the current value of the lamp power into the DTR. This does not change the current value of the lamp power.

VAR_INPUT

```
bStart      : BOOL;
nAddr       : BYTE;
eAddrType   : E_DALIV2AddrType := eDALIV2AddrTypeShort;
eCommandPriority : E_DALIV2CommandPriority := eDALIV2CommandPriorityMiddle;
```

bStart: The function block is activated by a positive edge at this input.

nAddr: The address of a participating device or of a group.

eAddrType: Short address, group address or broadcast (see [E_DALIV2AddrType \[▶ 401\]](#)).

eCommandPriority: Priority (high, medium or low) with which the command is processed by the library (see [E_DALIV2CommandPriority \[▶ 401\]](#)).

VAR_OUTPUT

```
bBusy      : BOOL;
bError     : BOOL;
nErrorId   : UDINT;
```

bBusy: When the function block is activated the output is set, and it remains active until execution of the command has been completed.

bError: This output is switched to TRUE as soon as an error occurs during the execution of a command. The command-specific error code is contained in *nErrorId*. Is reset to FALSE by the execution of a command at the inputs.

nErrorId: Contains the command-specific error code of the most recently executed command. Is reset to 0 by the execution of a command at the inputs. (See [error codes \[▶ 380\]](#))

VAR_IN_OUT

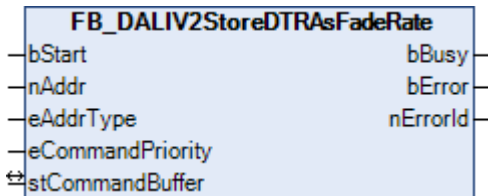
```
stCommandBuffer : ST_DALIV2CommandBuffer;
```

stCommandBuffer: Reference to the internal structure for communication with the function block `FB_KL6811Communication()` [▶ 70] (KL6811) or `FB_KL6821Communication()` [▶ 74] (KL6821).

Requirements

Development environment	required PLC library
TwinCAT from v3.1.4020.14	Tc2_DALI from v3.4.3.0

4.1.5.8 FB_DALIV2StoreDTRAsFadeRate



Writes the value in the DTR into the `FADE RATE` [▶ 80] variable. The range of possible values extends from 1 to 15.

VAR_INPUT

```

bStart      : BOOL;
nAddr       : BYTE;
eAddrType   : E_DALIV2AddrType := eDALIV2AddrTypeShort;
eCommandPriority : E_DALIV2CommandPriority := eDALIV2CommandPriorityMiddle;
  
```

bStart: The function block is activated by a positive edge at this input.

nAddr: The address of a participating device or of a group.

eAddrType: Short address, group address or broadcast (see `E_DALIV2AddrType` [▶ 401]).

eCommandPriority: Priority (high, medium or low) with which the command is processed by the library (see `E_DALIV2CommandPriority` [▶ 401]).

VAR_OUTPUT

```

bBusy       : BOOL;
bError      : BOOL;
nErrorId    : UDINT;
  
```

bBusy: When the function block is activated the output is set, and it remains active until execution of the command has been completed.

bError: This output is switched to TRUE as soon as an error occurs during the execution of a command. The command-specific error code is contained in `nErrorId`. Is reset to FALSE by the execution of a command at the inputs.

nErrorId: Contains the command-specific error code of the most recently executed command. Is reset to 0 by the execution of a command at the inputs. (See `error codes` [▶ 380])

VAR_IN_OUT

```

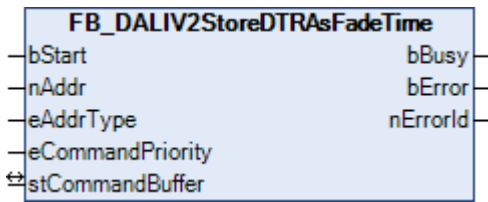
stCommandBuffer : ST_DALIV2CommandBuffer;
  
```

stCommandBuffer: Reference to the internal structure for communication with the function block `FB_KL6811Communication()` [▶ 70] (KL6811) or `FB_KL6821Communication()` [▶ 74] (KL6821).

Requirements

Development environment	required PLC library
TwinCAT from v3.1.4020.14	Tc2_DALI from v3.4.3.0

4.1.5.9 FB_DALIV2StoreDTRAsFadeTime



The function block writes the value of the DTR into the FADE TIME [▶ 80] variable. The range of possible values extends from 0 to 15.

VAR_INPUT

```
bStart      : BOOL;
nAddr       : BYTE;
eAddrType   : E_DALIV2AddrType := eDALIV2AddrTypeShort;
eCommandPriority : E_DALIV2CommandPriority := eDALIV2CommandPriorityMiddle;
```

bStart: The function block is activated by a positive edge at this input.

nAddr: The address of a participating device or of a group.

eAddrType: Short address, group address or broadcast (see E_DALIV2AddrType [▶ 401]).

eCommandPriority: Priority (high, medium or low) with which the command is processed by the library (see E_DALIV2CommandPriority [▶ 401]).

VAR_OUTPUT

```
bBusy       : BOOL;
bError      : BOOL;
nErrorId    : UDINT;
```

bBusy: When the function block is activated the output is set, and it remains active until execution of the command has been completed.

bError: This output is switched to TRUE as soon as an error occurs during the execution of a command. The command-specific error code is contained in *nErrorId*. Is reset to FALSE by the execution of a command at the inputs.

nErrorId: Contains the command-specific error code of the most recently executed command. Is reset to 0 by the execution of a command at the inputs. (See error codes [▶ 380])

VAR_IN_OUT

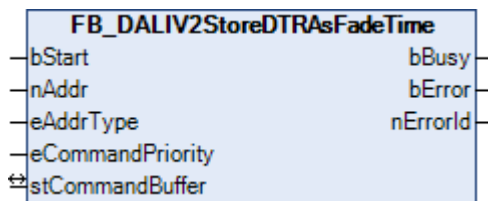
```
stCommandBuffer : ST_DALIV2CommandBuffer;
```

stCommandBuffer: Reference to the internal structure for communication with the function block FB_KL6811Communication() [▶ 70] (KL6811) or FB_KL6821Communication() [▶ 74] (KL6821).

Requirements

Development environment	required PLC library
TwinCAT from v3.1.4020.14	Tc2_DALI from v3.4.3.0

4.1.5.10 FB_DALIV2StoreDTRAsMaxLevel



This function block writes the value of the DTR into the [MAX LEVEL \[► 80\]](#) variable. If the value provided is smaller than MIN LEVEL then the value is simply set to MIN LEVEL.

VAR_INPUT

```
bStart      : BOOL;
nAddr       : BYTE;
eAddrType   : E_DALIV2AddrType := eDALIV2AddrTypeShort;
eCommandPriority : E_DALIV2CommandPriority := eDALIV2CommandPriorityMiddle;
```

bStart: The function block is activated by a positive edge at this input.

nAddr: The address of a participating device or of a group.

eAddrType: Short address, group address or broadcast (see [E_DALIV2AddrType \[► 401\]](#)).

eCommandPriority: Priority (high, medium or low) with which the command is processed by the library (see [E_DALIV2CommandPriority \[► 401\]](#)).

VAR_OUTPUT

```
bBusy       : BOOL;
bError      : BOOL;
nErrorId    : UDINT;
```

bBusy: When the function block is activated the output is set, and it remains active until execution of the command has been completed.

bError: This output is switched to TRUE as soon as an error occurs during the execution of a command. The command-specific error code is contained in *nErrorId*. Is reset to FALSE by the execution of a command at the inputs.

nErrorId: Contains the command-specific error code of the most recently executed command. Is reset to 0 by the execution of a command at the inputs. (See [error codes \[► 380\]](#))

VAR_IN_OUT

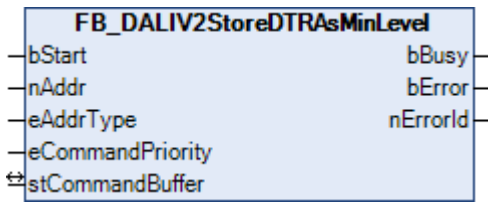
```
stCommandBuffer : ST_DALIV2CommandBuffer;
```

stCommandBuffer: Reference to the internal structure for communication with the function block [FB_KL6811Communication\(\) \[► 70\]](#) (KL6811) or [FB_KL6821Communication\(\) \[► 74\]](#) (KL6821).

Requirements

Development environment	required PLC library
TwinCAT from v3.1.4020.14	Tc2_DALI from v3.4.3.0

4.1.5.11 FB_DALIV2StoreDTRAsMinLevel



This function block writes the value of the DTR into the MIN LEVEL [▶ 80] variable (the minimum permitted lamp power). If the value provided is larger than MAX LEVEL [▶ 80] then the value is simply set to MAX LEVEL. If the value provided is smaller than the PHYSICAL MIN LEVEL [▶ 80] then MIN LEVEL will be set to PHYSICAL MIN LEVEL.

VAR_INPUT

```
bStart      : BOOL;
nAddr       : BYTE;
eAddrType   : E_DALIV2AddrType := eDALIV2AddrTypeShort;
eCommandPriority : E_DALIV2CommandPriority := eDALIV2CommandPriorityMiddle;
```

bStart: The function block is activated by a positive edge at this input.

nAddr: The address of a participating device or of a group.

eAddrType: Short address, group address or broadcast (see E_DALIV2AddrType [▶ 401]).

eCommandPriority: Priority (high, medium or low) with which the command is processed by the library (see E_DALIV2CommandPriority [▶ 401]).

VAR_OUTPUT

```
bBusy      : BOOL;
bError     : BOOL;
nErrorId   : UDINT;
```

bBusy: When the function block is activated the output is set, and it remains active until execution of the command has been completed.

bError: This output is switched to TRUE as soon as an error occurs during the execution of a command. The command-specific error code is contained in *nErrorId*. Is reset to FALSE by the execution of a command at the inputs.

nErrorId: Contains the command-specific error code of the most recently executed command. Is reset to 0 by the execution of a command at the inputs. (See error codes [▶ 380])

VAR_IN_OUT

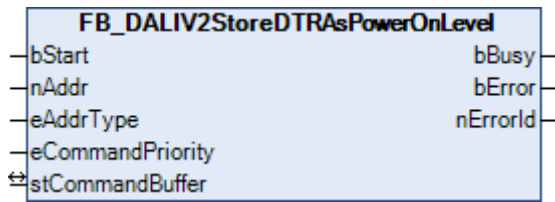
```
stCommandBuffer : ST_DALIV2CommandBuffer;
```

stCommandBuffer: Reference to the internal structure for communication with the function block FB_KL6811Communication() [▶ 70] (KL6811) or FB_KL6821Communication() [▶ 74] (KL6821).

Requirements

Development environment	required PLC library
TwinCAT from v3.1.4020.14	Tc2_DALI from v3.4.3.0

4.1.5.12 FB_DALIV2StoreDTRAsPowerOnLevel



This function block writes the value of the DTR into the POWER ON LEVEL [► 80] variable.

VAR_INPUT

```
bStart      : BOOL;
nAddr       : BYTE;
eAddrType   : E_DALIV2AddrType := eDALIV2AddrTypeShort;
eCommandPriority : E_DALIV2CommandPriority := eDALIV2CommandPriorityMiddle;
```

bStart: The function block is activated by a positive edge at this input.

nAddr: The address of a participating device or of a group.

eAddrType: Short address, group address or broadcast (see E_DALIV2AddrType [► 401]).

eCommandPriority: Priority (high, medium or low) with which the command is processed by the library (see E_DALIV2CommandPriority [► 401]).

VAR_OUTPUT

```
bBusy       : BOOL;
bError      : BOOL;
nErrorId    : UDINT;
```

bBusy: When the function block is activated the output is set, and it remains active until execution of the command has been completed.

bError: This output is switched to TRUE as soon as an error occurs during the execution of a command. The command-specific error code is contained in *nErrorId*. Is reset to FALSE by the execution of a command at the inputs.

nErrorId: Contains the command-specific error code of the most recently executed command. Is reset to 0 by the execution of a command at the inputs. (See error codes [► 380])

VAR_IN_OUT

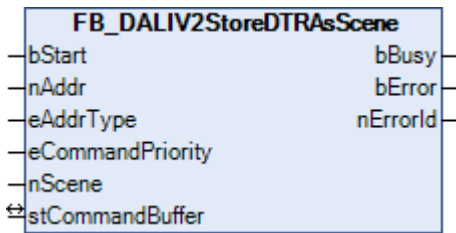
```
stCommandBuffer : ST_DALIV2CommandBuffer;
```

stCommandBuffer: Reference to the internal structure for communication with the function block FB_KL6811Communication() [► 70] (KL6811) or FB_KL6821Communication() [► 74] (KL6821).

Requirements

Development environment	required PLC library
TwinCAT from v3.1.4020.14	Tc2_DALI from v3.4.3.0

4.1.5.13 FB_DALIV2StoreDTRAsScene



The content of the DTR is saved as the value of the lamp power for the given scene. The range of values for the scene number extends from 0 to 15.

VAR_INPUT

```
bStart      : BOOL;
nAddr       : BYTE;
eAddrType   : E_DALIV2AddrType := eDALIV2AddrTypeShort;
eCommandPriority : E_DALIV2CommandPriority := eDALIV2CommandPriorityMiddle;
nScene      : BYTE;
```

bStart: The function block is activated by a positive edge at this input.

nAddr: The address of a participating device or of a group (see [E_DALIV2AddrType](#) [▶ 401]).

eAddrType: Short address, group address or broadcast.

eCommandPriority: Priority (high, medium or low) with which the command is processed by the library (see [E_DALIV2CommandPriority](#) [▶ 401]).

nScene: The scene for which the value of the lamp power should be changed.

VAR_OUTPUT

```
bBusy      : BOOL;
bError     : BOOL;
nErrorId   : UDINT;
```

bBusy: When the function block is activated the output is set, and it remains active until execution of the command has been completed.

bError: This output is switched to TRUE as soon as an error occurs during the execution of a command. The command-specific error code is contained in *nErrorId*. Is reset to FALSE by the execution of a command at the inputs.

nErrorId: Contains the command-specific error code of the most recently executed command. Is reset to 0 by the execution of a command at the inputs. (See [error codes](#) [▶ 380])

VAR_IN_OUT

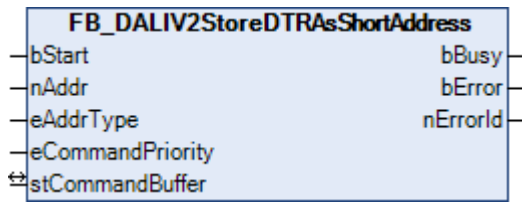
```
stCommandBuffer : ST_DALIV2CommandBuffer;
```

stCommandBuffer: Reference to the internal structure for communication with the function block [FB_KL6811Communication\(\)](#) [▶ 70] (KL6811) or [FB_KL6821Communication\(\)](#) [▶ 74] (KL6821).

Requirements

Development environment	required PLC library
TwinCAT from v3.1.4020.14	Tc2_DALI from v3.4.3.0

4.1.5.14 FB_DALIV2StoreDTRAsShortAddress



The content of the DTR (Data Transfer Register) is saved as the short address at the corresponding control gear. The structure of the DTR is 0AAA AAA1 (A: significant address bit) or 1111 1111 (mask). If the DTR contains 1111 1111 the short address is deleted from the control gear.

VAR_INPUT

```
bStart      : BOOL;
nAddr       : BYTE;
eAddrType   : E_DALIV2AddrType := eDALIV2AddrTypeShort;
eCommandPriority : E_DALIV2CommandPriority := eDALIV2CommandPriorityMiddle;
```

bStart: The function block is activated by a positive edge at this input.

nAddr: The address of a participating device or of a group.

eAddrType: Short address, group address or broadcast (see [E_DALIV2AddrType](#) [► 401]).

eCommandPriority: Priority (high, medium or low) with which the command is processed by the library (see [E_DALIV2CommandPriority](#) [► 401]).

VAR_OUTPUT

```
bBusy      : BOOL;
bError     : BOOL;
nErrorId   : UDINT;
```

bBusy: When the function block is activated the output is set, and it remains active until execution of the command has been completed.

bError: This output is switched to TRUE as soon as an error occurs during the execution of a command. The command-specific error code is contained in *nErrorId*. Is reset to FALSE by the execution of a command at the inputs.

nErrorId: Contains the command-specific error code of the most recently executed command. Is reset to 0 by the execution of a command at the inputs. (See [error codes](#) [► 380])

VAR_IN_OUT

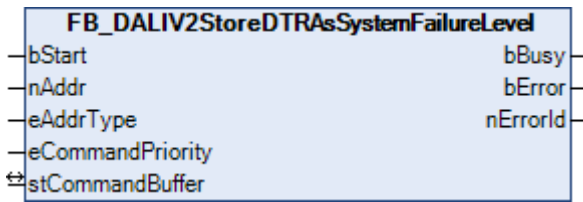
```
stCommandBuffer : ST_DALIV2CommandBuffer;
```

stCommandBuffer: Reference to the internal structure for communication with the function block [FB_KL6811Communication\(\)](#) [► 70] (KL6811) or [FB_KL6821Communication\(\)](#) [► 74] (KL6821).

Requirements

Development environment	required PLC library
TwinCAT from v3.1.4020.14	Tc2_DALI from v3.4.3.0

4.1.5.15 FB_DALIV2StoreDTRAsSystemFailureLevel



This function block writes the value of the DTR into the SYSTEM FAILURE LEVEL [▶ 80] variable.

VAR_INPUT

```
bStart      : BOOL;
nAddr       : BYTE;
eAddrType   : E_DALIV2AddrType := eDALIV2AddrTypeShort;
eCommandPriority : E_DALIV2CommandPriority := eDALIV2CommandPriorityMiddle;
```

bStart: The function block is activated by a positive edge at this input.

nAddr: The address of a participating device or of a group.

eAddrType: Short address, group address or broadcast (see E_DALIV2AddrType [▶ 401]).

eCommandPriority: Priority (high, medium or low) with which the command is processed by the library (see E_DALIV2CommandPriority [▶ 401]).

VAR_OUTPUT

```
bBusy       : BOOL;
bError      : BOOL;
nErrorId    : UDINT;
```

bBusy: When the function block is activated the output is set, and it remains active until execution of the command has been completed.

bError: This output is switched to TRUE as soon as an error occurs during the execution of a command. The command-specific error code is contained in *nErrorId*. Is reset to FALSE by the execution of a command at the inputs.

nErrorId: Contains the command-specific error code of the most recently executed command. Is reset to 0 by the execution of a command at the inputs. (See error codes [▶ 380])

VAR_IN_OUT

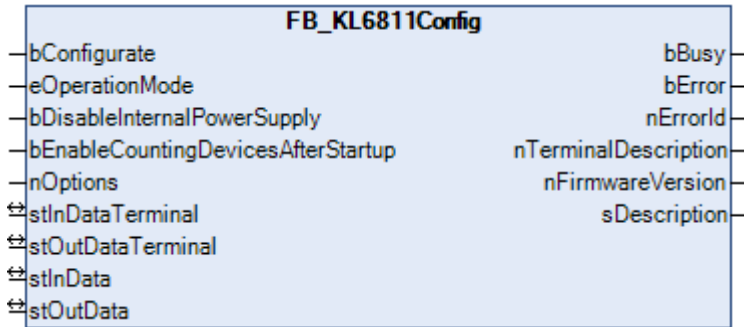
```
stCommandBuffer : ST_DALIV2CommandBuffer;
```

stCommandBuffer: Reference to the internal structure for communication with the function block FB_KL6811Communication() [▶ 70] (KL6811) or FB_KL6821Communication() [▶ 74] (KL6821).

Requirements

Development environment	required PLC library
TwinCAT from v3.1.4020.14	Tc2_DALI from v3.4.3.0

4.1.5.16 FB_KL6811Config



This function block is used to configure the KL6811. The configuration is executed when the PLC program starts, or it can be triggered by a positive edge at the input *bConfigure*. The parameters are stored in the respective registers of the KL6811 in a fail-safe manner. In addition, some general information, such as the firmware version, is read from the KL6811.

VAR_INPUT

```
bConfigure           : BOOL := FALSE;
eOperationMode       : E_DALIV2OperationMode := eDALIV2OperationModeDALI;
bDisableInternalPowerSupply : BOOL := FALSE;
bEnableCountingDevicesAfterStartup : BOOL := FALSE;
nOptions             : DWORD := 0;
```

bConfigure: Configuration of the Bus Terminal is started by a positive edge at this input.

eOperationMode: Defines the operation mode of the terminal (DALI or DSI) (see [E_DALIV2OperationMode](#) [► 403]). Corresponds to register 32, bits 12 to 15 of the Bus Terminal.

bDisableInternalPowerSupply: If this input is TRUE, the internal DALI power supply of the terminal is disabled by the configuration. Corresponds to register 32, bit 3 of the Bus Terminal.

bEnableCountingDevicesAfterStartup: If this input is TRUE, the number of DALI devices is counted when the terminal starts. Corresponds to register 32, bit 4 of the Bus Terminal.

nOptions: Reserved for future extensions.

VAR_OUTPUT

```
bBusy                : BOOL;
bError               : BOOL;
nErrorId             : UDINT;
nTerminalDescription : WORD;
nFirmwareVersion     : WORD;
sDescription         : STRING;
```

bBusy: When the function block is activated the output is set, and it remains active until execution of the command has been completed.

bError: This output is switched to TRUE as soon as an error occurs during the execution of a command. The command-specific error code is contained in *nErrorId*. Reactivating the function block via the *bConfigure* input sets the output to FALSE again.

nErrorId: Contains the command-specific error code of the most recently executed command. It is reset to 0 by activating the function block again via the input *bConfigure* (see [error codes](#) [► 380]).

nTerminalDescription: Contains the terminal designation (e.g. 6811). Corresponds to register 8 of the Bus Terminal.

nFirmwareVersion: Contains the firmware version. Corresponds to register 9 of the Bus Terminal.

sDescription: Terminal designation and firmware version as string (e.g. 'Terminal KL6811 / Firmware 2H').

VAR_IN_OUT

```
stInDataTerminal : ST_DALIV2InData;
stOutDataTerminal : ST_DALIV2OutData;
stInData : ST_DALIV2InData;
stOutData : ST_DALIV2OutData;
```

stInDataTerminal: Reference to the structure for communication with the KL6811 (see [ST_DALIV2InData](#) [[▶ 408](#)]).

stOutDataTerminal: Reference to the structure for communication with the KL6811 (see [ST_DALIV2OutData](#) [[▶ 408](#)]).

stInData: Reference to the structure for communication with the [FB_DALIV2Communication\(\)](#) [[▶ 384](#)] function block (see [ST_DALIV2InData](#) [[▶ 408](#)]).

stOutData: Reference to the structure for communication with the [FB_DALIV2Communication\(\)](#) [[▶ 384](#)] function block.

Requirements

Development environment	required PLC library
TwinCAT from v3.1.4020.14	Tc2_DALI from v3.4.3.0

4.2 DUTs

4.2.1 Enums

4.2.1.1 E_DALIV2AddrType

```
TYPE E_DALIV2AddrType :
(
  eDALIV2AddrTypeShort := 0,
  eDALIV2AddrTypeGroup := 1,
  eDALIV2AddrTypeBroadcast := 2
);
END_TYPE
```

Requirements

Development environment	required PLC library
TwinCAT from v3.1.4020.14	Tc2_DALI from v3.4.3.0

4.2.1.2 E_DALIV2CommandPriority

```
TYPE E_DALIV2CommandPriority :
(
  eDALIV2CommandPriorityHigh := 0,
  eDALIV2CommandPriorityMiddle := 1,
  eDALIV2CommandPriorityLow := 2
);
END_TYPE
```

Requirements

Development environment	required PLC library
TwinCAT from v3.1.4020.14	Tc2_DALI from v3.4.3.0

4.2.1.3 E_DALIV2ConfigurationCommands

```

TYPE E_DALIV2ConfigurationCommands :
(
  eDALIV2CommandDoNothing      := 0,
  eDALIV2CommandOff           := 1,
  eDALIV2CommandRecallMaxLevel := 2,
  eDALIV2CommandRecallMinLevel := 3,
  eDALIV2CommandGoToScene0    := 4,
  eDALIV2CommandGoToScene1    := 5,
  eDALIV2CommandGoToScene2    := 6,
  eDALIV2CommandGoToScene3    := 7,
  eDALIV2CommandGoToScene4    := 8,
  eDALIV2CommandGoToScene5    := 9,
  eDALIV2CommandGoToScene6    := 10,
  eDALIV2CommandGoToScene7    := 11,
  eDALIV2CommandGoToScene8    := 12,
  eDALIV2CommandGoToScene9    := 13,
  eDALIV2CommandGoToScene10   := 14,
  eDALIV2CommandGoToScene11   := 15,
  eDALIV2CommandGoToScene12   := 16,
  eDALIV2CommandGoToScene13   := 17,
  eDALIV2CommandGoToScene14   := 18,
  eDALIV2CommandGoToScene15   := 19
);
END_TYPE

```

Requirements

Development environment	required PLC library
TwinCAT from v3.1.4022.4	Tc2_DALI from v3.6.2.0

4.2.1.4 E_DALIV2CurrentAddressingState

```

TYPE E_DALIV2CurrentAddressingState :
(
  eDALIV2AddrStateIdle        := 0,
  eDALIV2AddrStateRemoveLamp  := 1,
  eDALIV2AddrStateReinsertLamp := 2,
  eDALIV2AddrStateAddressingLamp := 3
);
END_TYPE

```

Requirements

Development environment	required PLC library
TwinCAT from v3.1.4020.14	Tc2_DALI from v3.4.3.0

4.2.1.5 E_DALIV2DataFrameType

```

TYPE E_DALIV2DataFrameType:
(
  eDALIV2DataFrameType16Bit    := 0,
  eDALIV2DataFrameType24Bit    := 3,
  eDALIV2DataFrameTypeOsram    := 6
);
END_TYPE

```

Requirements

Development environment	required PLC library
TwinCAT from v3.1.4020.14	Tc2_DALI from v3.4.3.0

4.2.1.6 E_DALIV2DimmingCurve

```

TYPE E_DALIV2DimmingCurve :
(
  eDALIV2DimmingCurveLogarithmic := 0,

```

```
eDALIV2DimmingCurveLinear := 1
);
END_TYPE
```

Requirements

Development environment	required PLC library
TwinCAT from v3.1.4022.4	Tc2_DALI from v3.6.2.0

4.2.1.7 E_DALIV2EventScheme

```
TYPE E_DALIV2EventScheme:
(
  eDALIV2EventSchemeUnkown := -1,
  eDALIV2EventSchemeInstance := 0, (* (default) Instance addressing, using instance type and
number. *)
  eDALIV2EventSchemeDevice := 1, (* Device addressing, using short address and instance
type. *)
  eDALIV2EventSchemeDeviceInstance := 2, (* Device/instance addressing, using short address and
instance number. *)
  eDALIV2EventSchemeDeviceGroup := 3, (* Device group addressing, using device group and
instance type. *)
  eDALIV2EventSchemeInstanceGroup := 4 (* Instance group addressing, using instance group and
type. *)
);
END_TYPE
```

Requirements

Development environment	required PLC library
TwinCAT from v3.1.4022.4	Tc2_DALI from v3.6.2.0

4.2.1.8 E_DALIV2InstAddrType

```
TYPE E_DALIV2InstAddrType:
(
  eDALIV2InstAddrTypeNumber := 0, (* Instance number (0-31) *)
  eDALIV2InstAddrTypeGroup := 1, (* Instance group (0-31) *)
  eDALIV2InstAddrTypeType := 2, (* Instance type (0-31) *)
  eDALIV2InstAddrTypeFeatureNumber := 3, (* Feature on instance number level (0-31) *)
  eDALIV2InstAddrTypeFeatureGroup := 4, (* Feature on instance group level (0-31) *)
  eDALIV2InstAddrTypeFeatureType := 5, (* Feature on instance type level (0-31) *)
  eDALIV2InstAddrTypeFeatureBroadcast := 6, (* Feature on instance broadcast level *)
  eDALIV2InstAddrTypeBroadcast := 7, (* Instance broadcast *)
  eDALIV2InstAddrTypeFeatureDevice := 8, (* Feature on device level *)
  eDALIV2InstAddrTypeDevice := 9 (* Device *)
);
END_TYPE
```

Requirements

Development environment	required PLC library
TwinCAT from v3.1.4020.14	Tc2_DALI from v3.4.3.0

4.2.1.9 E_DALIV2OperationMode

```
TYPE E_DALIV2OperationMode :
(
  eDALIV2OperationModeDALI := 0,
  eDALIV2OperationModeDSI := 1
);
END_TYPE
```

Requirements

Development environment	required PLC library
TwinCAT from v3.1.4020.14	Tc2_DALI from v3.4.3.0

4.2.1.10 E_DALIV2PowerSupplyMode

```

TYPE E_DALIV2PowerSupplyMode:
(
  eDALIV2PowerSypplyModeOn    := 0,
  eDALIV2PowerSypplyModeOff   := 1,
  eDALIV2PowerSypplyModeAuto  := 2
);
END_TYPE

```

Requirements

Development environment	required PLC library
TwinCAT from v3.1.4022.4	Tc2_DALI from v3.6.2.0

4.2.2 Structures**4.2.2.1 ST_DALIV2ChangeAddressList**

```

TYPE ST_DALIV2ChangeAddressList :
STRUCT
  nOldAddress      : BYTE;
  nNewAddress      : BYTE;
  nRandomAddressHigh : BYTE;
  nRandomAddressMiddle : BYTE;
  nRandomAddressLow  : BYTE;
  nErrors          : DWORD;
END_STRUCT
END_TYPE

```

Requirements

Development environment	required PLC library
TwinCAT from v3.1.4020.14	Tc2_DALI from v3.4.3.0

4.2.2.2 ST_DALIV2ControlTable

```

TYPE ST_DALIV2ControlTable :
STRUCT
  nActualValue : UINT;
  nControlValue : BYTE;
  nSwitchRange : UINT;
END_STRUCT
END_TYPE

```

nActualValue: Measured brightness value.

nControlValue: Associated switch point/interpolation point for the control value. Valid value range: 0 or nMinLevelMasterDev ... nMaxLevelMasterDev.

nSwitchRange: Threshold value around the interpolation point at which switching takes place. The entry "0" marks the beginning of the unused area of the table.

Requirements

Development environment	required PLC library
TwinCAT from v3.1.4020.14	Tc2_DALI from v3.4.3.0

4.2.2.3 ST_DALIV2DeviceSettings

```

TYPE ST_DALIV2DeviceSettings :
STRUCT
  nErrors          : DWORD;
  bPresent         : BOOL;
  nActualLevel     : BYTE;
  nPowerOnLevel    : BYTE;
  nSystemFailureLevel : BYTE;
  nMinLevel        : BYTE;
  nMaxLevel        : BYTE;
  nFadeRate        : BYTE;
  nFadeTime        : BYTE;
  nRandomAddress   : DWORD;
  nGroups          : WORD;
  nSceneLevels     : ARRAY [0..15] OF BYTE;
  nStatus          : BYTE;
  nMajorVersion    : BYTE;
  nMinorVersion    : BYTE;
  nDeviceType      : BYTE;
  nPhysicalMinLevel : BYTE;
END_STRUCT
END_TYPE

```

Requirements

Development environment	required PLC library
TwinCAT from v3.1.4020.14	Tc2_DALI from v3.4.3.0

4.2.2.4 ST_DALIV2DeviceSettingsType01

```

TYPE ST_DALIV2DeviceSettingsType01 :
STRUCT
  nErrors          : DWORD;
  bPresent         : BOOL;
  nBatteryCharge    : UINT; (*0..254, 255->Error*)
  tDurationTestResult : TIME; (*0..510 min*)
  tLampEmergencyTime : TIME; (*0..255 h*)
  tLampTotalOperationTime : TIME; (*0..1024 h*)
  nEmergencyLevel   : BYTE; (*0..254*)
  nEmergencyMinLevel : BYTE; (*0..254*)
  nEmergencyMaxLevel : BYTE; (*0..254*)
  tRatedDuration    : TIME; (*0..510 min*)
  nNextFunctionTest : UINT; (*0..255*)
  nNextDurationTest : UINT; (*0..255*)
  nFunctionTestInterval : UINT; (*0..255*)
  nDurationTestInterval : UINT; (*0..255*)
  nTestExecutionTimeout : UINT; (*0..255*)
  nProlongTime      : UINT; (*0..255*)
  nEmergencyMode    : BYTE;
  nFeatures         : BYTE;
  nFailureStatus    : BYTE;
  nEmergencyStatus  : BYTE;
END_STRUCT
END_TYPE

```

Note:

The following variables are adapted to their target display range when they are read out. They therefore differ from the read representation of the DALI device:

```

tDurationTestResult : TIME; (*0..510 min*)
tLampEmergencyTime : TIME; (*0..255 h*)
tLampTotalOperationTime : TIME; (*0..1024 h*)
tRatedDuration : TIME; (*0..510 min*)

```

For the other variables the conversion either makes no sense (e.g. *nEmergencyLevel*), or a display is not possible (e.g. *nNextDurationTest*), since the range of the variable type TIME is insufficient.

Requirements

Development environment	required PLC library
TwinCAT from v3.1.4020.14	Tc2_DALI from v3.4.3.0

4.2.2.5 ST_DALIV2FileLogging

```

TYPE ST_DALIV2FileLogging :
STRUCT
  sTimestamp      : STRING(30);
  sController     : STRING(20);
  sLineName       : STRING(10);
  sAddress         : STRING(2);
  sDescription     : STRING(20);
  sLocation        : STRING(20);
  sTestDuration   : STRING(8);
  sResult          : STRING(240);
END_STRUCT
END_TYPE

```

Requirements

Development environment	required PLC library
TwinCAT from v3.1.4020.14	Tc2_DALI from v3.4.3.0

4.2.2.6 ST_DALIV2SequenceTable

```

TYPE ST_DALIV2SequenceTable :
STRUCT
  nTargetValue : BYTE;
  tRampTime    : TIME;
  tProlongTime : TIME;
END_STRUCT
END_TYPE

```

nTargetValue: Target value.

tRampTime: Time to reach the target value.

tProlongTime: Dwell time at the target value.

Requirements

Development environment	required PLC library
TwinCAT from v3.1.4020.14	Tc2_DALI from v3.4.3.0

4.2.2.7 ST_DALIV2SwapShortAddressList

```

TYPE ST_DALIV2SwapShortAddressList :
STRUCT
  bShortAddressValid : BOOL;
  nNewShortAddress   : BYTE;
END_STRUCT
END_TYPE

```

Requirements

Development environment	required PLC library
TwinCAT from v3.1.4020.14	Tc2_DALI from v3.4.3.0

4.2.2.8 ST_KL6821InData

```

TYPE ST_KL6821InData :
STRUCT
  nStatus      : WORD;
  arrData      : ARRAY [0..3] OF BYTE;
END_STRUCT
END_TYPE
    
```

Requirements

Development environment	required PLC library
TwinCAT from v3.1.4022.4	Tc2_DALI from v3.6.2.0

4.2.2.9 ST_KL6821OutData

```

TYPE ST_KL6821OutData :
STRUCT
  nCtrl       : WORD;
  arrData     : ARRAY [0..3] OF BYTE;
END_STRUCT
END_TYPE
    
```

Requirements

Development environment	required PLC library
TwinCAT from v3.1.4022.4	Tc2_DALI from v3.6.2.0

4.2.2.10 ST_KL6811InData

```

TYPE ST_KL6811InData:
STRUCT
  nStatus : BYTE;
  nDummy  : BYTE;
  nData   : WORD;
END_STRUCT
END_TYPE
    
```

Requirements

Development environment	required PLC library
TwinCAT from v3.1.4020.14	Tc2_DALI from v3.4.3.0

4.2.2.11 ST_KL6811OutData

```

TYPE ST_KL6811OutData:
STRUCT
  nCtrl : BYTE;
  nDummy : BYTE;
  nData : WORD;
END_STRUCT
END_TYPE
    
```

Requirements

Development environment	required PLC library
TwinCAT from v3.1.4020.14	Tc2_DALI from v3.4.3.0

4.2.3 [Obsolet]

4.2.3.1 ST_DALIV2InData

```

TYPE ST_DALIV2InData :
STRUCT
  nStatus : BYTE;
  nDummy  : BYTE;
  nData   : WORD;
END_STRUCT
END_TYPE

```

Requirements

Development environment	required PLC library
TwinCAT from v3.1.4020.14	Tc2_DALI from v3.4.3.0

4.2.3.2 ST_DALIV2OutData

```

TYPE ST_DALIV2OutData :
STRUCT
  nCtrl  : BYTE;
  nDummy : BYTE;
  nData  : WORD;
END_STRUCT
END_TYPE

```

Requirements

Development environment	required PLC library
TwinCAT from v3.1.4020.14	Tc2_DALI from v3.4.3.0

4.3 Integration into TwinCAT

4.3.1 KL6821 with PC system (CX5120)

This sample explains how to write a simple PLC program for DALI in TwinCAT and how to link it with the hardware. The task is to control an individual dimmable lamp via a button.

Sample: https://infosys.beckhoff.com/content/1033/tcplclib_tc2_dali/Resources/zip/4325884043.zip

Hardware

Setting up the components

- 1x Embedded PC CX5120
- 1x digital 4-channel input terminal KL1104 (for the dimming and reset functions)
- 1x DALI terminal KL6821
- 1x KL9010 end terminal

Set up the hardware and the DALI components as described in the documentation.

This example assumes that a Dim button was connected to the first KL1104 input and a Reset button to the second, and that a dimmable lamp is connected to DALI address 0. Set the initial fade rate of the control gear to 7 to achieve suitable dimming.

Software

Creation of the PLC program

Create a new "TwinCAT XAE project" and a "Standard PLC project".

Add the library Tc2_DALI in the PLC project under "References".

Create the following global variables:

```
VAR_GLOBAL
  bSwitch          AT %I* : BOOL;
  bReset           AT %I* : BOOL;
  stKL6821InData  AT %I* : ST_KL6821InData;
  stKL6821OutData AT %Q* : ST_KL6821OutData;
  stCommandBuffer : ST_DALIV2CommandBuffer;
END_VAR
```

bSwitch: Input variable for the Dim button.

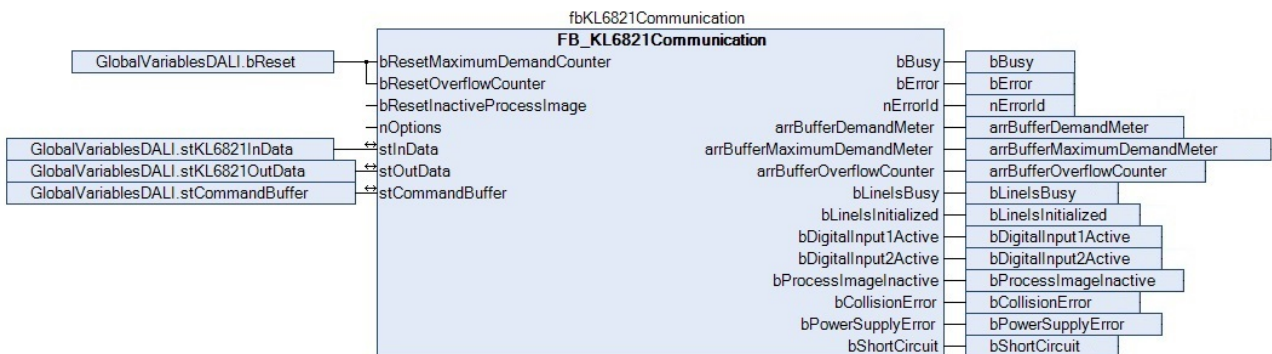
bReset: Input variable for the Reset button.

ST_KL6821InData: Input variable for the DALI terminal. ([ST_KL6821InData \[► 407\]](#))

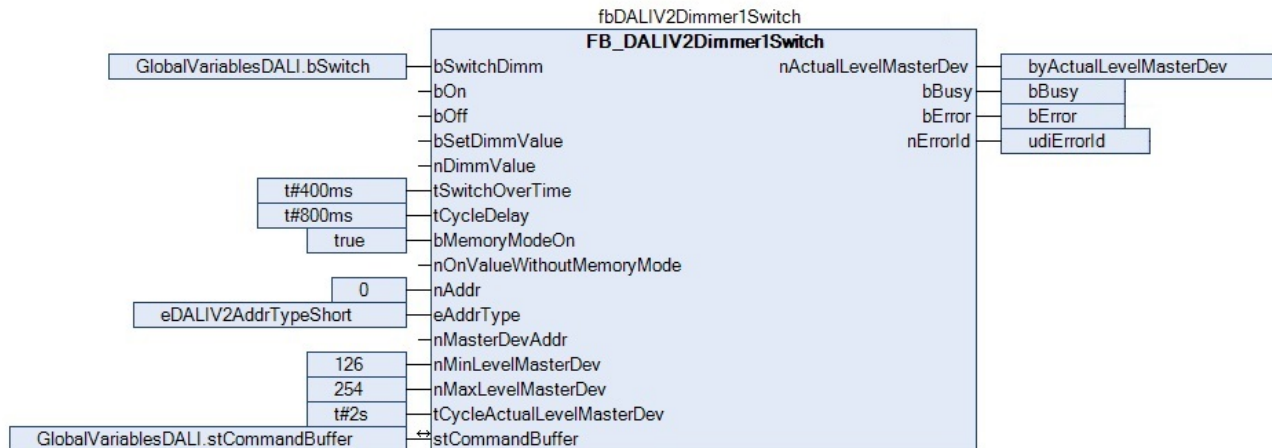
ST_KL6821OutData: Output variable for the DALI terminal. ([ST_KL6821OutData \[► 407\]](#))

stCommandBuffer: Required for the communication with DALI.

Create a program (CFC) for the background communication with DALI. The function block [FB_KL6821Communication\(\) \[► 74\]](#) is called in the program. In the communication function block ensure that the structures *stInData*, *stOutData* and *stCommandBuffer* are linked.



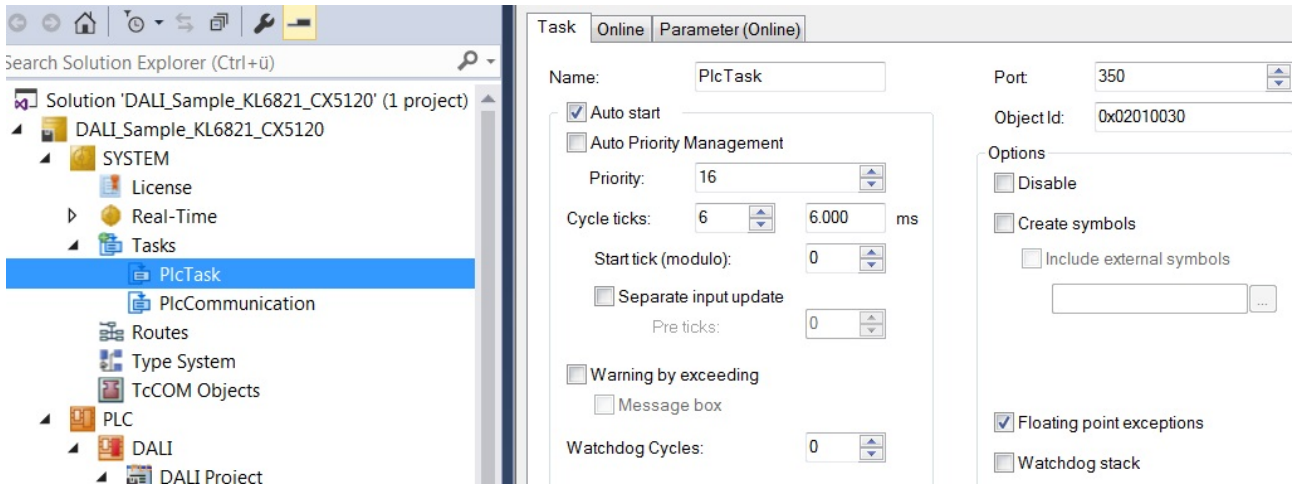
Create a MAIN program (CFC) in which the function block [FB_DALIV2Dimmer1Switch\(\) \[► 22\]](#) is called up. Connect the input *bSwitchDimm* of the dimmer function block with the global variable *bSwitch* and *stCommandBuffer* with the global variable *stCommandBuffer*.



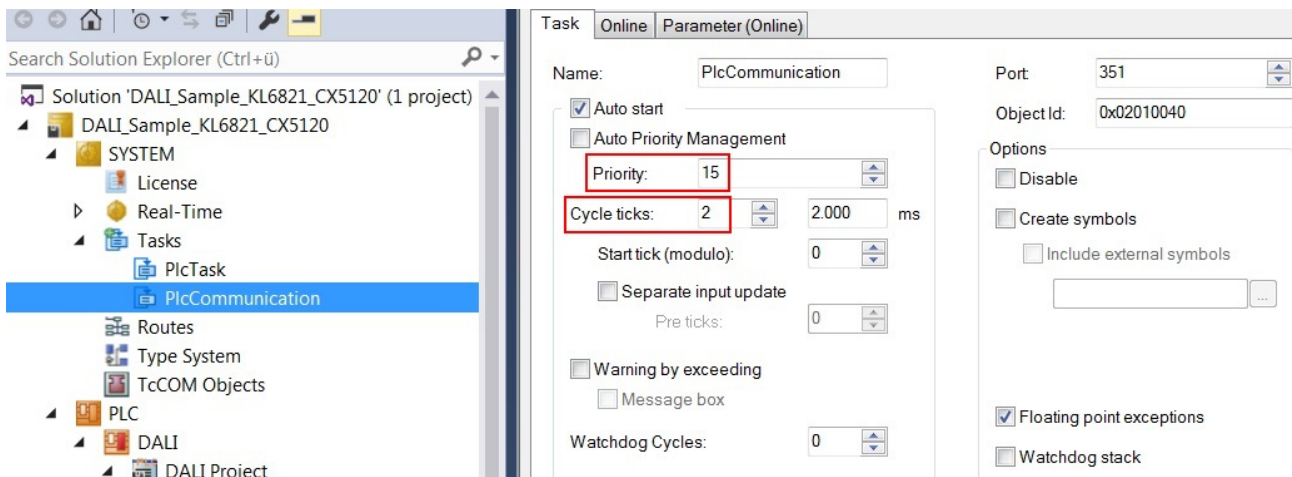
Parameters *nMinLevelMasterDevice* and *nMaxLevelMasterDevice*

i Make sure that the specified parameters *nMinLevelMasterDevice* and *nMaxLevelMasterDevice* match the minimum and maximum values of the device, in order to avoid malfunction.

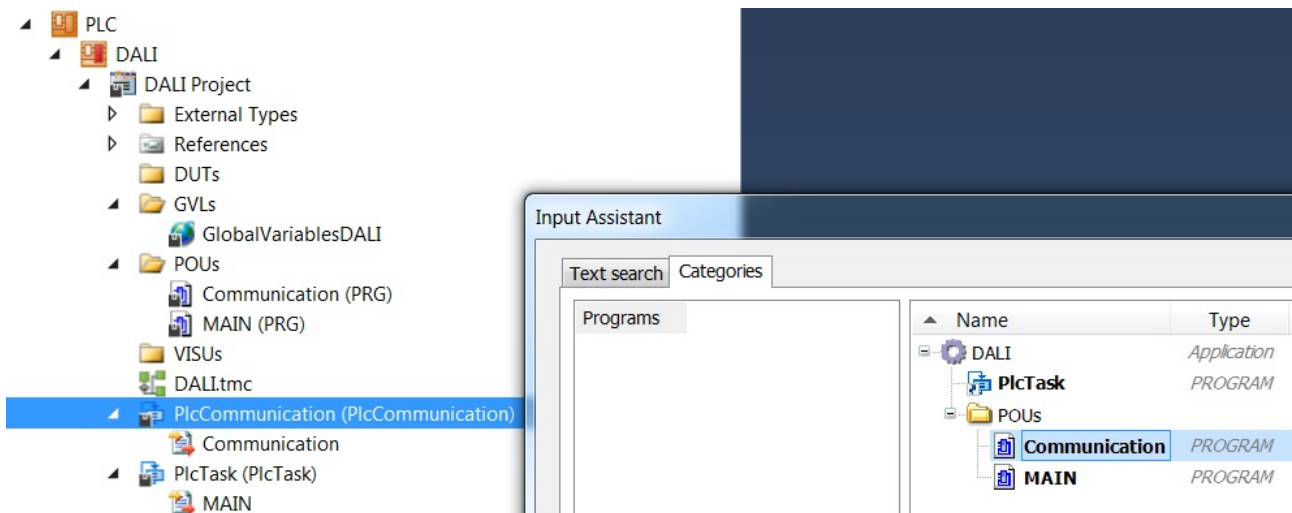
Navigate to the task configuration section and configure the PlcTask. By way of example, the task is assigned priority 16 and a cycle time of 6 ms.



Create a further task for the background communication. Assign a higher priority (smaller number) and a lower interval time to this task than the PLCTask.

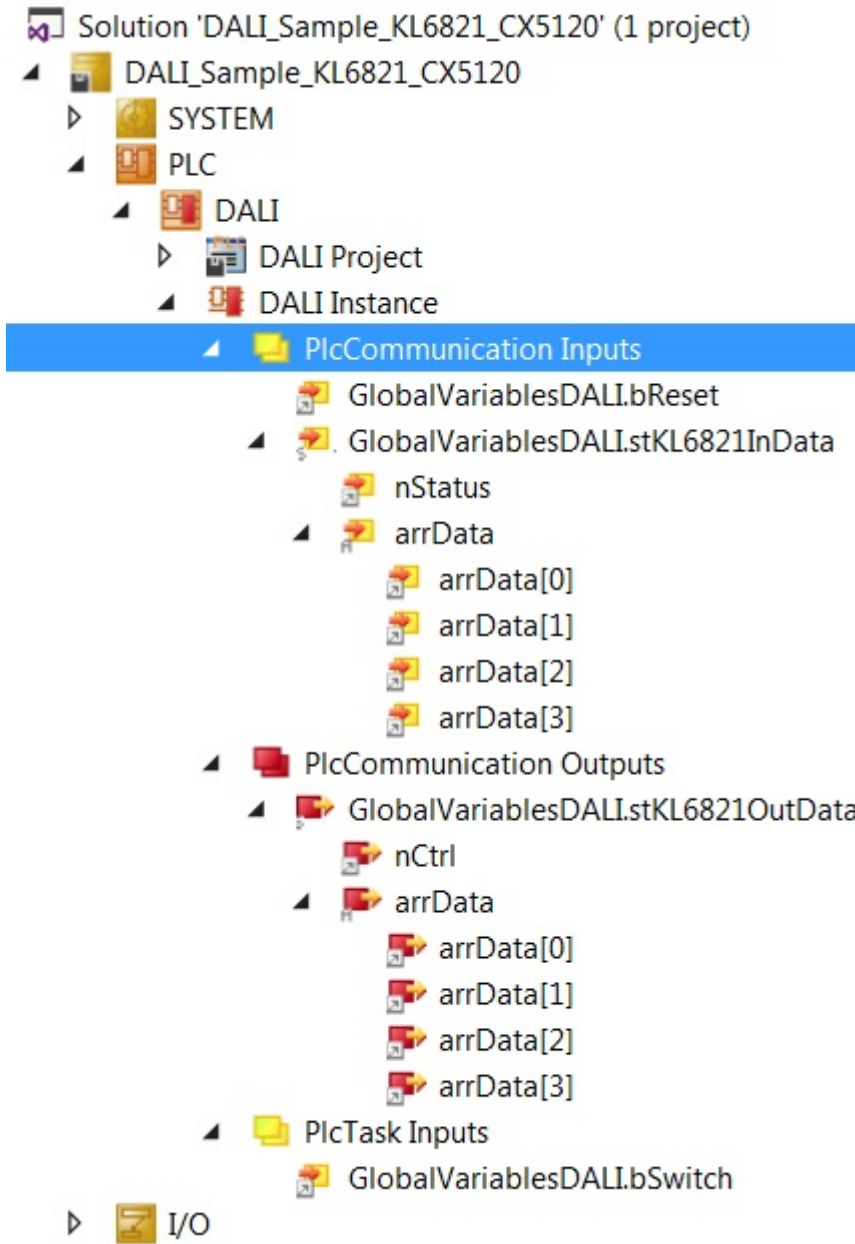


Add the program for the communication to this task. Further information on task configuration can be found in the description of the function block `FB_KL6821Communication()` [► 74].



I/O configuration

Select the CX as target system and initiate a search for its hardware. In the project instance within the PLC section, you can see that the input and output variables are assigned to the corresponding tasks.



Now link the global variables of PLC program with the inputs and outputs of the Bus Terminals. Create the Solution and enable the configuration.

The lamp can now be controlled by pressing or holding the dimmer button. You can use the Reset button to reset the inputs in *arrBufferMaximumDemandMeter* and *arrBufferOverflowCounter*.

5 Appendix

5.1 Support and Service

Beckhoff and their partners around the world offer comprehensive support and service, making available fast and competent assistance with all questions related to Beckhoff products and system solutions.

Beckhoff's branch offices and representatives

Please contact your Beckhoff branch office or representative for local support and service on Beckhoff products!

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You will also find further documentation for Beckhoff components there.

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Support offers you comprehensive technical assistance, helping you not only with the application of individual Beckhoff products, but also with other, wide-ranging services:

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