

Manual | EN

TX1200

TwinCAT 2 | PLC Library: TcCPLink3



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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.

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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.

1.3 Notes on information security

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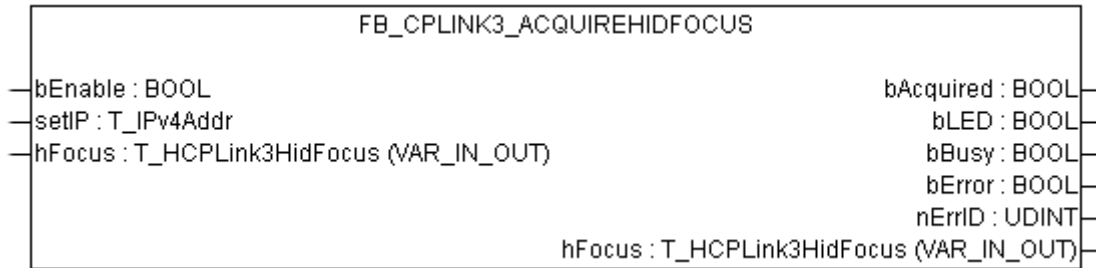
To stay informed about information security for Beckhoff products, subscribe to the RSS feed at <https://www.beckhoff.com/secinfo>.

2 Overview

The PLC library TcCPLink3.Lib belongs to the product CP-Link 3. The CP-Link 3 installation copies this library to the folder ..\TwinCAT\Lib . The PLC library contains CP-Link 3 functions and function blocks.

3 Function blocks

3.1 FB_CPLink3_AcquireHIDFocus



This function block is used to acquire or release the HID focus.

VAR_IN_OUT

```
VAR_IN_OUT
    hFocus : T_HCPLink3HidFocus; (* CPLink3 HID focus handle *)
END_VAR
```

hFocus: CP-Link3 HID focus [handle](#) [► 12].

VAR_INPUT

```
VAR_INPUT
    bEnable : BOOL := FALSE; (* TRUE = Acquire, FALSE = Release focus *)
    setIP : T_IPv4Addr := '';
END_VAR
```

bEnable: TRUE = acquire focus, FALSE = release focus.

setIP: The IP address of the client.

VAR_OUTPUT

```
VAR_OUTPUT
    bAcquired : BOOL := FALSE; (* Focus status information *)
    bLED : BOOL := FALSE; (* LED control output *)
    bBusy : BOOL; (* TRUE => function in progress *)
    bError : BOOL; (* Error flag *)
    nErrID : UDINT; (* Error code *)
END_VAR
```

bAcquired: This output is set when the client gets the focus and is reset when the client loses the focus.

bLED: This meaning of this output depends on the output mode:

Mode	Meaning
Constant TRUE	The client has the focus.
Constant FALSE	The client does not have the focus.
Toggles	The client is waiting for the focus.

bBusy: When the function block is activated this output is set. It remains set until an acknowledgement is received.

bError: If an ADS error occurs during the execution of the command, then this output is set, after the *bBusy* output has been reset.

nErrID: When the *bError* output is set, this variable supplies the [ADS error code](#).

Example: Example Program: Controlling the HID focus through special keys

Manually setting the HID focus can, for instance, be controlled by a client's special key. The special key is linked to the corresponding input variable in the PLC program through the TwinCAT System Manager. An instance of FB_CPLink3_AcquireHidFocus is generated for each client and configured with the client's IP address. After the special key at a client is pressed, where the rising edge will be detected by the R_TRIG function block, the PLC program will attempt to set the HID focus through the corresponding instance of FB_CPLink3_AcquireHidFocus. The function block can, in addition, control an output (e.g. a LED) that indicates whether the HID focus has successfully been set, or whether it is still attempting to obtain the focus. Pressing the special key again resets the HID focus.

The three instances of the FB_CPLink3_AcquireHidFocus function block use the hFocus variable to exchange information between each other. This is used, for instance, to ensure that only the instance that has successfully set the HID focus is able to reset it.

The PLC program for three clients looks like this:

```
PROGRAM MAIN
VAR
  button1 AT%IX0.0 : BOOL;
  button2 AT%IX0.1 : BOOL;
  button3 AT%IX0.2 : BOOL;

  led1 AT%QX0.0 : BOOL;
  led2 AT%QX0.1 : BOOL;
  led3 AT%QX0.2 : BOOL;

  hFocus : T_HCPLink3HidFocus;
  fbPanel1 : FB_CPLink3_AcquireHidFocus := ( setIP := '192.168.1.1' );
  fbPanel2 : FB_CPLink3_AcquireHidFocus := ( setIP := '192.168.1.2' );
  fbPanel3 : FB_CPLink3_AcquireHidFocus := ( setIP := '192.168.1.3' );

  trigger1 : R_TRIG;
  trigger2 : R_TRIG;
  trigger3 : R_TRIG;
END_VAR

(* Panel 1 *)
trigger1( CLK := button1 );
IF trigger1.Q THEN
  fbPanel1.bEnable := NOT fbPanel1.bEnable;
END_IF
fbPanel1( hFocus:= hFocus, bLED=>LED1);

(* Panel 2 *)
trigger2( CLK := button2 );
IF trigger2.Q THEN
  fbPanel2.bEnable := NOT fbPanel2.bEnable;
END_IF
fbPanel2( hFocus:= hFocus, bLED=>LED2 );

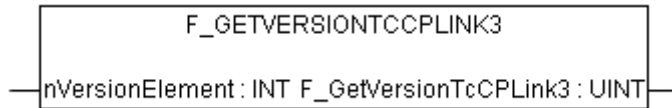
(* Panel 3 *)
trigger3( CLK := button3 );
IF trigger3.Q THEN
  fbPanel3.bEnable := NOT fbPanel3.bEnable;
END_IF
fbPanel3( hFocus:= hFocus, bLED=>LED3 );
```

Requirements

Development environment	Target system type	PLC libraries to include
TwinCAT v2.10.0 and higher	PC	TcCPLink3.Lib

4 Functions

4.1 F_GetVersionTcCPLink3



This function returns library version information.

FUNCTION F_GetVersionTcCPLink3 : UINT

```
VAR_INPUT
    nVersionElement : INT;
END_VAR
```

nVersionElement: Version element to be read. Possible parameter:

- 1: major number
- 2: minor number
- 3: revision number

Requirements

Development environment	Target system type	PLC libraries to include
TwinCAT v2.10.0 and higher	PC	TcCPLink3.Lib

5 Data types

5.1 T_HCPLink3HidFocus

CP-Link3 HID focus handle: used by several instances of the function block `FB_CPLink3_AcquireHIDFocus` [► 9] to exchange information between each other.

```
TYPE T_HCPLink3HidFocus :  
END_TYPE
```

Requirements

Development environment	Target system type	PLC libraries to include
TwinCAT v2.10.0 Build and higher	PC	TcCPLink3.Lib

More Information:
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