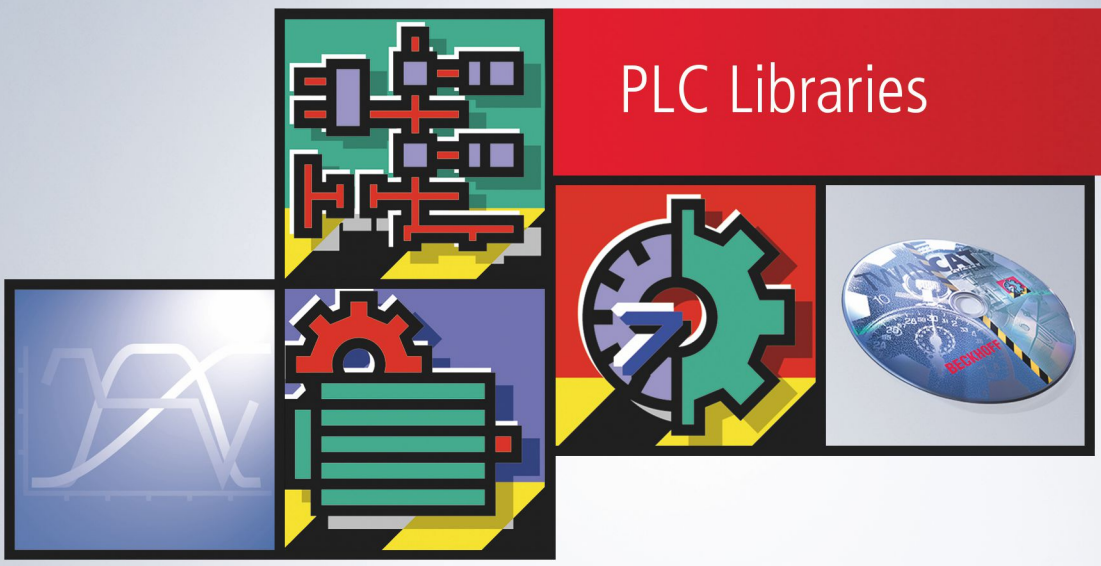
BECKHOFF New Automation Technology

Manual | EN

TX1200

TwinCAT 2 | PLC Library: TcSystemC69xx



2022-11-07 | Version: 1.1

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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.
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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Patent Pending

The EtherCAT Technology is covered, including but not limited to the following patent applications and patents:
EP1590927, EP1789857, EP1456722, EP2137893, DE102015105702
with corresponding applications or registrations in various other countries.

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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

The products of Beckhoff Automation GmbH & Co. KG (Beckhoff), insofar as they can be accessed online, are equipped with security functions that support the secure operation of plants, systems, machines and networks. Despite the security functions, the creation, implementation and constant updating of a holistic security concept for the operation are necessary to protect the respective plant, system, machine and networks against cyber threats. The products sold by Beckhoff are only part of the overall security concept. The customer is responsible for preventing unauthorized access by third parties to its equipment, systems, machines and networks. The latter should be connected to the corporate network or the Internet only if appropriate protective measures have been set up.

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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

This library contains functions and function blocks which are using special features of the PC C69xx.

Functions

Name	Description
F_GetVersionTcSystemC69xx [▶ 9]	The function returns library version info.

Function blocks

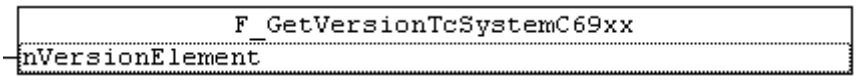
Name	Description
FB_C69xxSetLedColor [▶ 10]	change the USER-LED color of the C69xx
FB_C69xxSetWatchdog [▶ 10]	activates/deactivates hardware watchdog (auto-reboot of C69xx-PC in case of PLC problems)

Requirements

Component	Version
TwinCAT on the development PC	2.9 Build 959 or higher
CX1030-Windows CE-Image	2.04 or higher
CX1030-Windows XP-Image	1.30 or higher

3 Functions

3.1 F_GetVersionTcSystemC69xx



The function returns library version info.

FUNCTION F_GetVersionTcSystemC69xx : UINT

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

nVersionElement : Version element:

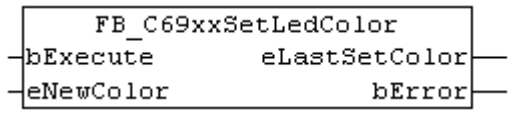
- 1 : major number;
- 2 : minor number;
- 3 : revision number;

Requirements

Development environment	Target plattform	PLC Libraries to include
TwinCAT v2.9.0	PC (i386)	TcSystemC69xx.Lib

4 Function Blocks

4.1 FB_C69xxSetLedColor



The function block FB_C69xxSetLedColor can be used to change the color of the User-LED off the C69xx. The LED color is changed with a rising edge on bExecute and new color in eNewColor. The LED can be switched off (eNewColor = eULED_Off) or to red (eNewColor = eULED_Red), blue (eNewColor = eULED_Blue) or green (eNewColor = eULED_Green).

```
TYPE E_UserLED_Color : (
    eULED_Off   := 0,
    eULED_Red   := 1,
    eULED_Blue  := 2,
    eULED_Green := 3
);

END_TYPE
```

FUNCTION_BLOCK FB_C69xxSetLedColor

VAR_INPUT

```
VAR_INPUT
    bExecute        : BOOL;
    eNewColor       : E_UserLED_Color;
END_VAR
```

bExecute : With a rising edge on bExecute the new color is set.

eNewColor : New LED color

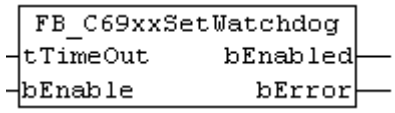
VAR_OUTPUT

```
VAR_OUTPUT
    eLastSetColor  : E_UserLED_Color;
    bError         : BOOL;
END_VAR
```

eLastSetColor : Last LED color that was set using this FB.

bError : Error when activate or deactivate the watchdog.

4.2 FB_C69xxSetWatchdog



The function block FB_C69xxSetWatchdog activates a hardware watchdog on the C69xx-PC. The watchdog is enabled with bEnable = TRUE and a timeout time. The minimum timeout time is 2 seconds, the maximum timeout time is 255 seconds.

Once the watchdog is activated, the function block instance has to be called cyclically, because if the tTimeOut-time expires then the C69xx-PC automatically reboots. The watchdog can be used to reboot the system if the PLC gets stuck (i.e. in an endless loop).

The watchdog can be disabled by bEnable = FALSE.

The Watchdog must be disabled before using breakpoints, before a PLC reset or PLC reset all, before a TwinCAT Stop, a change to Config Mode or before activating the configuration, otherwise the C69xx-PC reboots immediately after the timeout time has expired!

FUNCTION_BLOCK FB_C69xxSetWatchdog

VAR_INPUT

```
VAR_INPUT
    tTimeout        : TIME;
    bEnable         : BOOL;
END_VAR
```

tTimeOut : Watchdog time, if expired a reboot is automatically executed.

bEnable : Activate or deactivate the watchdog.

VAR_OUTPUT

```
VAR_OUTPUT
    bEnabled    : BOOL;
    bError      : BOOL;
END_VAR
```

bEnabled : TRUE = Watchdog is activated, FALSE = Watchdog is not activated.

bError : Error when activate or deactivate the watchdog.

More Information:
www.beckhoff.com/tx1200

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