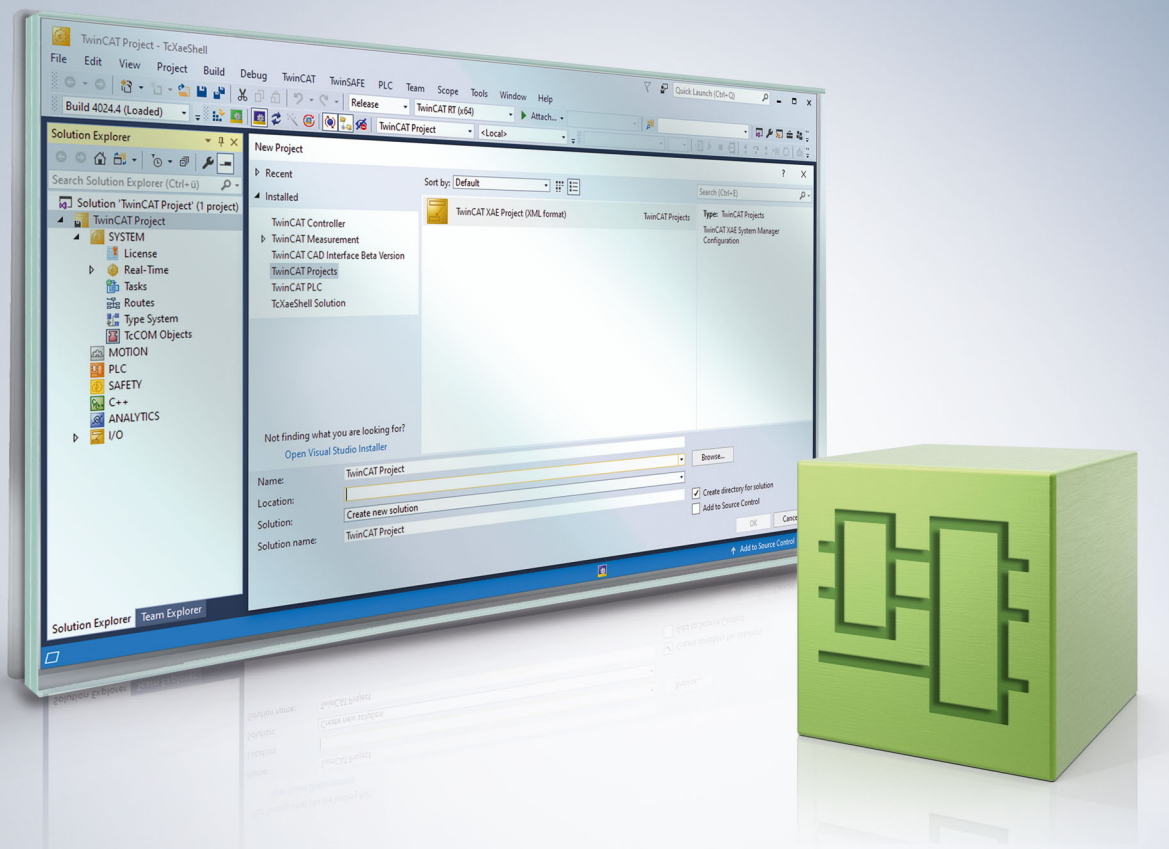
BECKHOFF New Automation Technology

Manual | EN

TE1000

TwinCAT 3 | PLC Library: Tc2_SystemC69xx



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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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EP1590927, EP1789857, EP1456722, EP2137893, DE102015105702
with corresponding applications or registrations in various other countries.

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1.2 For your safety

Safety regulations

Read the following explanations for your safety.
Always observe and follow product-specific safety instructions, which you may find at the appropriate places in this document.

Exclusion of liability

All the components are supplied in particular hardware and software configurations which are 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 technology who are familiar with the applicable national standards.

Signal words

The signal words used in the documentation are classified below. In order to prevent injury and damage to persons and property, read and follow the safety and warning notices.

Personal injury warnings

⚠ DANGER
Hazard with high risk of death or serious injury.

⚠ WARNING
Hazard with medium risk of death or serious injury.

⚠ CAUTION
There is a low-risk hazard that could result in medium or minor injury.

Warning of damage to property or environment

NOTICE
The environment, equipment, or data may be damaged.

Information on handling the product

This information includes, for example:
recommendations for action, assistance or further information on the product.

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 Introduction

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

Functionblocks

Name	Description
FB_C69xxSetLedColor [▶ 9]	Sets the color of the User-LED of the C69xx-PC.
FB_C69xxSetWatchdog [▶ 9]	Activates/deactivates hardware watchdog (auto-reboot of C69xx-PC in case of PLC problems)

Functions

Name	Description
F_GetVersionTcSystemC69xx [▶ 11]	Returns version informations of the PLC library

Requirements

Development environment	Target plattform	PLC Libraries to include
TwinCAT v3.0.0	PC (i386)	Tc2_SystemC69xx

3 Function Blocks

3.1 FB_C69xxSetLedColor

This function block is deprecated on newer IPCs. Use FB_SetLedColor_BAPI from Tc2_System instead.

The function block FB_C69xxSetLedColor can be used to switch the user LED on the C69xx PC. The LED color is switched via a rising edge at bExecute and the eNewColor parameter. The LED can be switched off (eNewColor = eULED_Off) or set 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
```

Inputs

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

Name	Type	Description
bExecute	BOOL	Switching of the LED with rising edge.
eNewColor	E_UserLED_Color	Color value to be set

Outputs

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

Name	Type	Description
eLastSetColor	E_UserLED_Color	Last color value set with this function block
bError	BOOL	Error while setting the LED color

Requirements

Development environment	Target plattform	PLC Libraries to include
TwinCAT v3.0.0	PC (i386)	Tc2_SystemC69xx

3.2 FB_C69xxSetWatchdog

This function block is deprecated on newer IPCs. Use FB_PcWatchdog_BAPI from Tc2_System instead.

The function block FB_C69xxSetWatchdog enables a hardware watchdog on the C69xx PC. The watchdog is enabled via bEnable = TRUE and the tTimeOut time. The tTimeOut time can be a minimum of 2 seconds and a maximum of 255 seconds.

Once the watchdog has been enabled, the function block instance must be called cyclically at shorter intervals than tTimeOut, since the C69xx PC restarts automatically when tTimeOut has elapsed. The watchdog can therefore be used to automatically reboot systems, which have entered an infinite loop or where the PLC has become stuck.

The watchdog can be disabled via bEnable = FALSE or tTimeOut = T#0s.

NOTICE

Reboot

The watchdog must be disabled before breakpoints are used, before a PLC reset or an overall reset, before a TwinCAT stop, before switching to Config mode or before the configuration is activated, because otherwise the C69xx would reboot immediately once tTimeOut has elapsed.

Inputs

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

Name	Type	Description
tTimeOut	TIME	Watchdog time, after which a restart is performed.
bEnable	BOOL	Enabling/disabling the watchdog.

Outputs

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

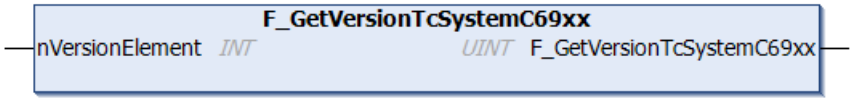
Name	Type	Description
bEnabled	BOOL	TRUE = Watchdog is enabled, FALSE = Watchdog is disabled.
bError	BOOL	Error when enabling or disabling the watchdog.

Requirements

Development environment	Target plattform	PLC Libraries to include
TwinCAT v3.0.0	PC (i386)	Tc2_SystemC69xx

4 [Obsolete functions]

4.1 F_GetVersionTcSystemC69xx



This function can be used to read PLC library version information.

FUNCTION F_GetVersionTcSystemC69xx : UINT

Inputs

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

Name	Type	Description
nVersionElement	INT	Version element to be read. Possible parameters: • 1 : major number; • 2 : minor number; • 3 : revision number;

Requirements

Development environment	Target plattform	PLC Libraries to include
TwinCAT v3.0.0	PC (i386)	Tc2_SystemC69xx

5 Global constants

5.1 Library version

All libraries have a specific version. This version isinter alia shown in the PLC library repository.
A global constant contains the library version information:

Global_Version

```
VAR_GLOBAL CONSTANT
    stLibVersion_Tc2_SystemC69xx : ST_LibVersion;
END_VAR
```

To compare the existing version to a required version the function F_CmpLibVersion (defined in Tc2_System library) is offered.

All other possibilities known from TwinCAT 2 to query a library version are obsolete!

More Information:
www.beckhoff.com/te1000

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