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1. About this document

1.1. Version

Version	Date	Change/addition	Chapter
01-05/25	05/2025	Prepared	All
02-06/26	06/2026	Function block expanded (read-back and comparison of the values), updated screenshots and text and table adaptations	Various

1.2. Scope

This application describes setting the EKS2's date and time using an acyclical command.

1.3. Target group

Design engineers and installation planners for safety devices on machines as well as setup and servicing staff possessing the following expertise:

- › specialist knowledge in handling safety components
- › expertise in the installation, setup, programming and diagnostics of programmable logic controllers (PLC) and bus systems
- › knowledge about the applicable EMC regulations
- › knowledge about the applicable regulations on operational safety and accident prevention.

1.4. Supplementary documents

The overall documentation for this application consists of the following documents:

Document title (document number)	Contents	
Operating instructions (MAN20001715)	Transponder-coded Electronic-Key-System Electronic-Key-System EKS2	
Possibly enclosed data sheets	Item-specific information about deviations or additions	

1.5. Notice

This document is based on the operating instructions for the EKS2. You can refer to the operating instructions for technical details and more information.

2. Components/modules used

2.1. EUCHNER

Description	Order number / item
Evaluation unit/read unit EKS2	170904 / EKS2-E-PN-MH1-170904
	170915 / EKS2-R1A1-B1-170915
EKS2 Electronic-Key	168433 / EKS2-K-K-B-D2-BK-168433
	168434 / EKS2-K-K-B-D2-BU-168434
	168435 / EKS2-K-K-B-D2-GN-168435
	168438 / EKS2-K-K-B-D2-OG-168438
	168432 / EKS2-K-K-B-D2-RD-168432
	168437 / EKS2-K-K-B-D2-WH-168437
	168436 / EKS2-K-K-B-D2-YE-168436



TIP!

More information and downloads about the aforementioned EUCHNER products can be found at www.euchner.com. Simply enter the order number in the search box.

2.2. Others

Description	Order number / item
SIMATIC ET200SP, CPU 1512SP F-1 PN	6ES7 512-1SK01-0AB0

2.3. Software

Description	Version
Totally Integrated Automation Portal	Version V19 Update 3
STEP 7 Professional	Version V19 Update 3

3. Functional description

3.1. General

The function block sets the date and time in evaluation unit EKS2 using an acyclical command. The block then reads back the values and compares them with the written setpoints.

The set time information supports the following functions:

- The EKS2 evaluates the expiry date stored on the Electronic-Key.
- The log and the error log represent events with the correct time stamp.

4. Setting date and time in the control system

Correctly set time information in the control system is the prerequisite for setting the date and time in evaluation unit EKS2. In this application, the setting is made in *Online access & Diagnostics* using the *Set time* function.

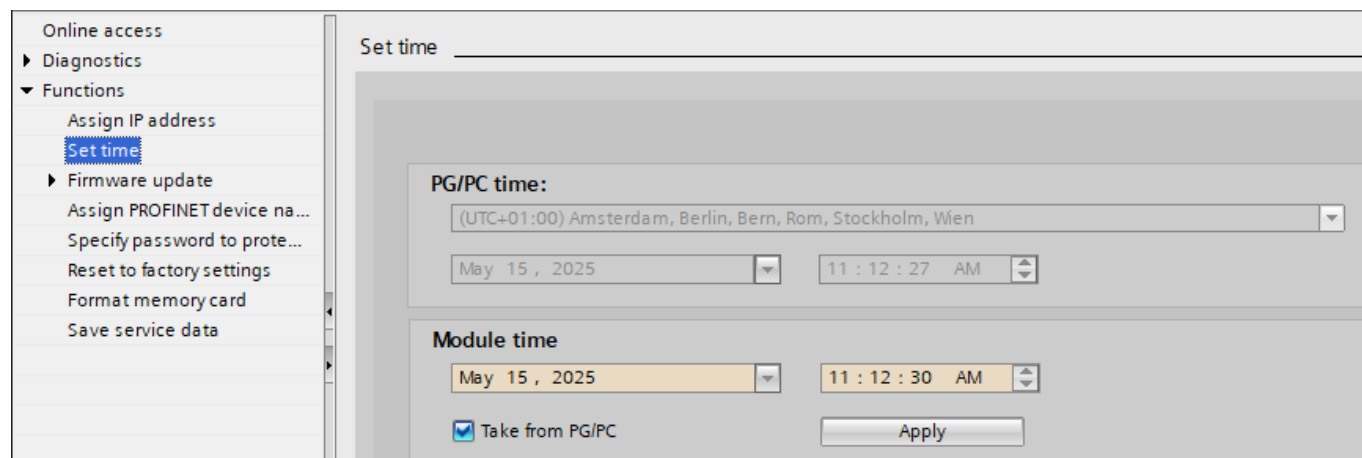


Fig. 1: Setting date and time in the control system

Specify the local time zone in the control system settings. To do this, open the general properties of the control system, select the *Time of day* property and set the local time zone.

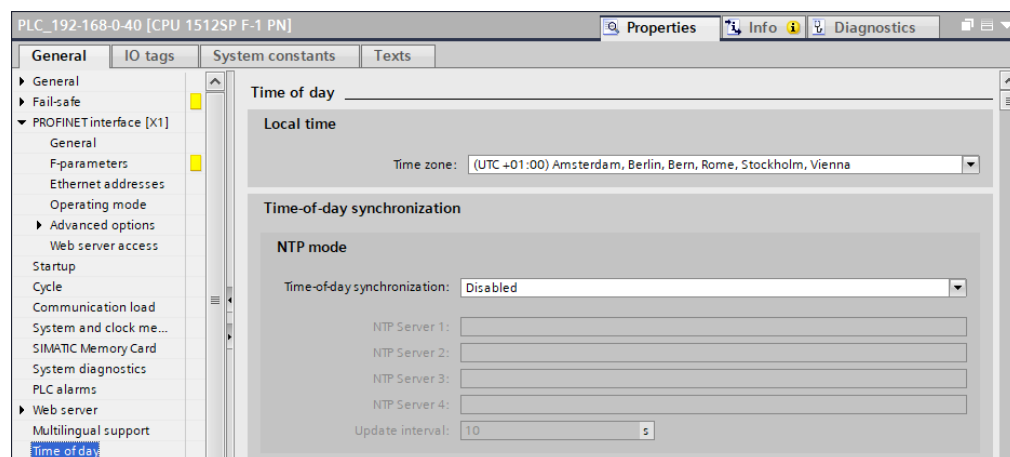


Fig. 2: Setting the time zone

5. Using the TIA Portal library (from TIA V19)

The library provides templates for simple integration of the EKS2 into the application.

The Applications area under the Downloads area at www.euchner.com contains the EKS2 library.

5.1. Retrieving the library

1. Change to the *Task Card* view (shortcut: Ctrl+3).
2. Select the *Libraries* entry.
3. Use the *Open global library* button to open the dialog.

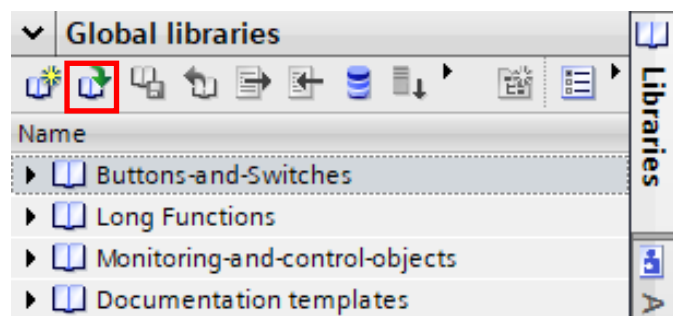


Fig. 3: Opening the library

1. Select the *Compressed libraries...* file type.
2. Open the EKS2 library.
3. The TIA Portal from version V20 updates the library during retrieval. The library was created using TIA Portal V19.

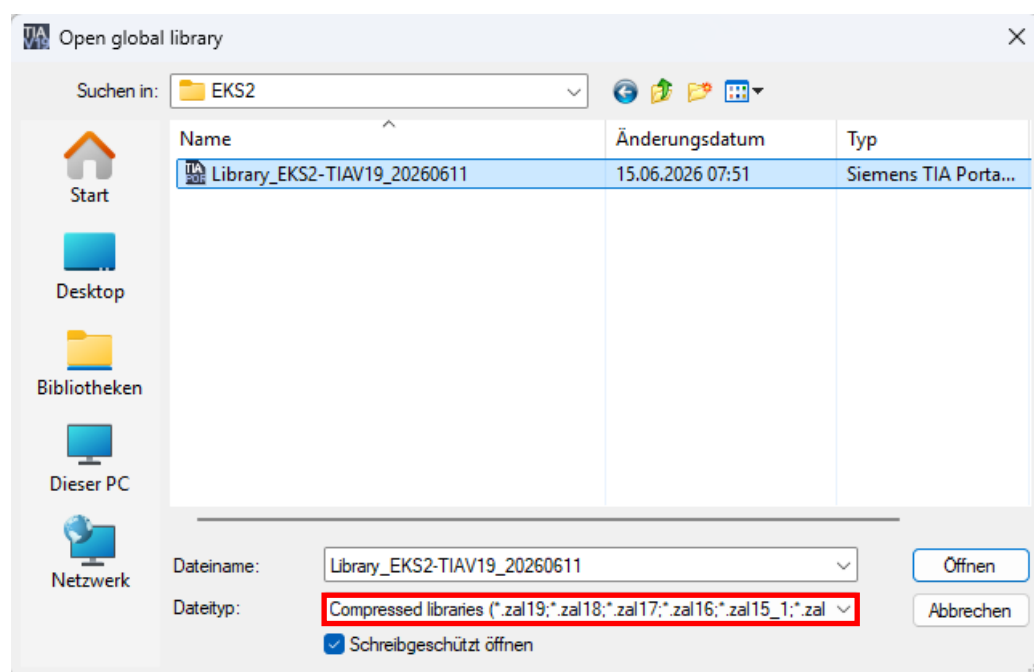


Fig. 4: Selecting the library



IMPORTANT!

Evaluation units EKS2 from **version 1.2.0** support the library.

Drag & drop the function block to add it to the *Program blocks* area of the *Project tree*.

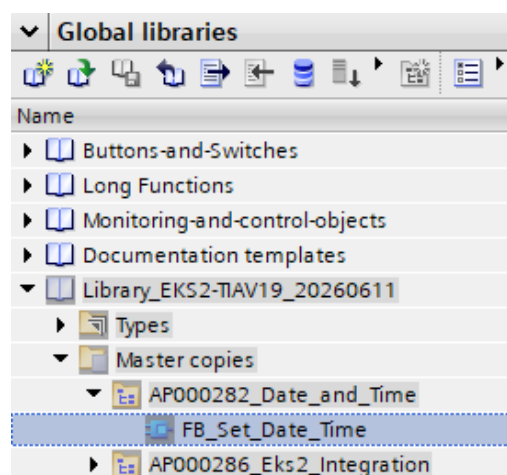


Fig. 5: Opened library

6. Setting date and time in evaluation unit EKS2

6.1. Parameters for the FB_Set_Date_Time block

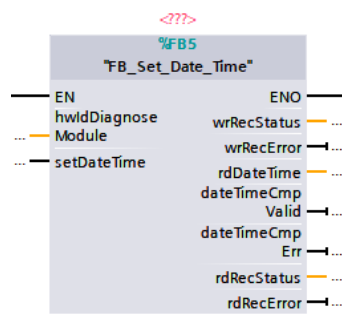
	Variable	Use	Data type	Description
	hwIdDiagnoseModule	INPUT	HW_IO	Hardware ID of the diagnostic module in evaluation unit EKS2.
	setDateTime	INPUT	Bool	Triggers the request to set the date and time. The date and time are set on every HIGH signal.
	wrRecStatus	OUTPUT	DWord	Status of the WRREC block used.
	wrRecError	OUTPUT	Bool	Error bit of the WRREC block used.
	rdDateTime	OUTPUT	DTL	Date and time information read from the EKS2.
	dateTimeCmpValid	OUTPUT	Bool	Successful comparison between written and read values.
	dateTimeCmpErr	OUTPUT	Bool	Failed comparison between written and read values.
	rdRecStatus	OUTPUT	DWord	Status of the RDREC block used.
	rdRecError	OUTPUT	Bool	Error bit of the RDREC block used.

Table 1: Parameters for the block

6.2. Calling the FB_Set_Date_Time block

Call the *FB_Set_Date_Time* function block and configure the parameters in accordance with the application.

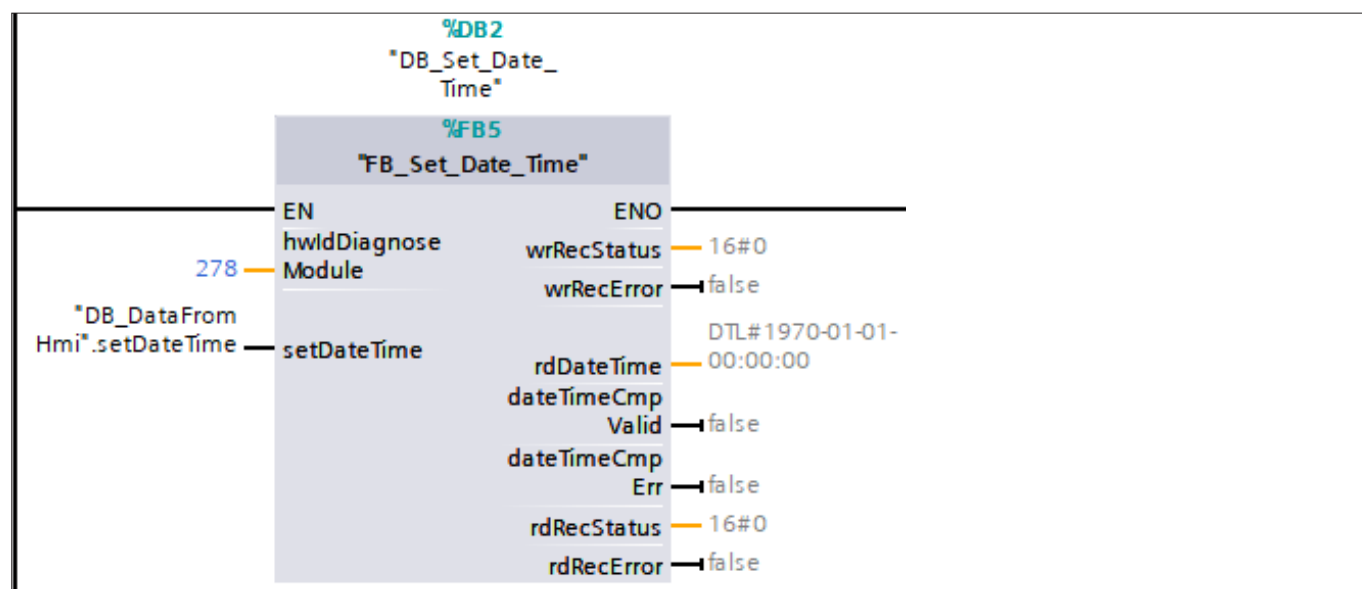


Fig. 6: Configured function block



NOTICE

The *setDateTime* input only reacts to a rising edge.



NOTICE

The date and time must be set again each time evaluation unit EKS2 is restarted.

EN

6.3. Web server

After successful execution of the acyclical command, an entry of the *DateTime 0x8000* category appears on the *LOG* tab of the EKS2 web server. The *LOG* tab and the *ERROR LOG* tab then enable events and error messages to be assigned to specific times and tracked.

[HOME](#)
[LOG](#)
[ERROR LOG](#)
[STATUS](#)
[SETTINGS](#)

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PROFIT
NETT
INDUSTRY 4.0

DCP Name: euchner-eks2
 IP Address: 192.168.0.41
 MAC-ID:
 EKS2: 00:1A:5C:0B:68:CD
 PN1: 00:1A:5C:0B:68:CE
 PN2: 00:1A:5C:0B:68:CF

**ELECTRONIC-KEY-SYSTEM
EKS2 LOG**

Nr.	Category	Status Code	Message	Time Stamp	BootCounter
100	DateTime	0x8000	Current Date [S] = 0x6825cdcb	15:05:2025 11:19:39	57
99	Boot	0x0101	BootloaderInfo = 0x00000000	01:01:1970 00:00:00	57

Fig. 7: Web server of evaluation unit EKS2 (LOG)

The *STATUS* tab displays the current date and time of evaluation unit EKS2.

[HOME](#)
[LOG](#)
[ERROR LOG](#)
[STATUS](#)
[SETTINGS](#)

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DCP Name: euchner-eks2
 IP Address: 192.168.0.41
 MAC-ID:
 EKS2: 00:1A:5C:0B:68:CD
 PN1: 00:1A:5C:0B:68:CE
 PN2: 00:1A:5C:0B:68:CF

**ELECTRONIC-KEY-SYSTEM
EKS2**

Name	Voltage [V]	CPU Temperature [°C]	Time Stamp	BootCounter
EKS2 Evaluation unit	23,5	45,4	15:05:2025 11:25:57	57
EKS2 Read unit	22,4	55,2	15:05:2025 11:25:57	0

Fig. 8: Web server of evaluation unit EKS2 (STATUS)

7. Important notice – please observe carefully!

This document is intended for a design engineer who possesses the requisite knowledge in safety engineering and knows the applicable standards, e.g. through training for qualification as a safety engineer. Only with the appropriate qualification is it possible to integrate the example provided into a complete safety chain.

The example represents only part of a complete safety chain and does not fulfill any safety function on its own. In order to fulfill a safety function, the energy switch-off function for the danger zone and the software must also be considered in the safety evaluation, for example.

The applications provided are only examples for solving certain safety tasks for protecting safety doors. The examples cannot be comprehensive due to the application-dependent and individual protection goals within a machine/installation.

If questions concerning this example remain open, please contact us directly.

According to the Machinery Directive 2006/42/EC, the design engineer of a machine or installation has the obligation to perform a risk assessment and take measures to reduce the risk. While doing this, the engineer must comply with the applicable national and international safety standards. Standards generally represent the current state-of-the-art. Therefore, the design engineer should continuously inform himself about changes in the standards and adapt his considerations to them. Relevant standards for functional safety include EN ISO 13849 and EN 62061. This application must be regarded only as assistance for the considerations about safety measures.

The design engineer of a machine/installation has the obligation to assess the safety engineering himself. The examples must not be used for an assessment, because only a small excerpt of a complete safety function was considered in terms of safety engineering here.

In order to be able to use the safety switch applications correctly on safety doors, it is indispensable to observe the standards EN ISO 13849-1, EN ISO 14119 and all relevant C-standards for the respective machine type. Under no circumstances does this document replace the engineer's own risk assessment, and it cannot serve as the basis for a fault assessment.

In particular in relation to a fault exclusion, it must be noted that a fault can be excluded only by the machine's or installation's design engineer and this action requires justification. A general fault exclusion is not possible. More information about fault exclusion can be found in EN ISO 13849-2.

Changes to products or within assemblies from third-party suppliers used in this example can lead to the function no longer being ensured or the safety assessment having to be adapted. In any event, the information in the operating instructions on the part of EUCHNER, as well as on the part of third-party suppliers, must be used as the basis before this application is integrated into an overall safety function. If contradictions should arise between the operating instructions and this document, please contact us directly.

Use of brand names and company names

All brand names and company names stated are the property of the related manufacturer. They are used only for the clear identification of compatible peripheral devices and operating environments in relation to our products.

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