

4. Press "Save ID".

The ID is sent to the RFID tag and stored there. A check mark is set in the "Tag" list, if the configured tag ID is successfully written to the RFID tag.

| |
|--|
| <p>NOTICE</p> <p>Recording the ID of the RFID tag</p> <p>If you replace the RFID tag at a later date due to a defect, for example, you will always need the ID of the RFID tag.</p> <p>Therefore, record the ID of the RFID tag so that it is at hand at all times. For example, write it on the front of the RFID tag using a permanent marker.</p> |
|--|

5. Repeat steps 2 to 4 for all RDIF tags of this effective range.

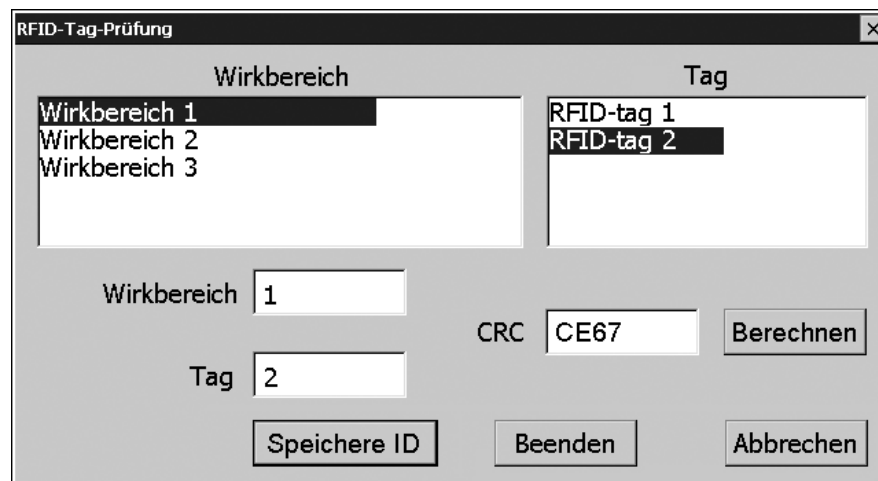
When all the RFID tags of an effective range have an ID, the selected effective range has a check mark in the "Effective range" list.

6. Repeat steps 1 to 5 for all effective ranges.

The "Calculate" button is gray and only becomes black again, and thus enabled, when all RFID tags have successfully been assigned an ID.

7. Press "Calculate".

The CRC checksum is displayed.



8. Record the checksum or enter it immediately in "Effective ranges (RIFD)" in the WinCC flexible editor.
9. Click "Exit" to close the dialog.

Result

You have assigned a unique identifier to all RFID tags and determined a checksum.

Transfer the project with the added CRC checksum again to the HMI device. You can log onto a machine and operate the machine in fail-safe mode.

See also

Replacing an RFID tag (Page 202)

8.6 Replacing an RFID tag

If it is not possible to log onto an effective range, the HMI device or RFID tag may be defective. This section describes the configuration work carried out after replacement of a defective RFID tag.

Requirement

- The defective RFID tag has been replaced.
- The ID of the defective RFID tag is available.
- The project, in which the RFID tag has failed, is still on the HMI device.

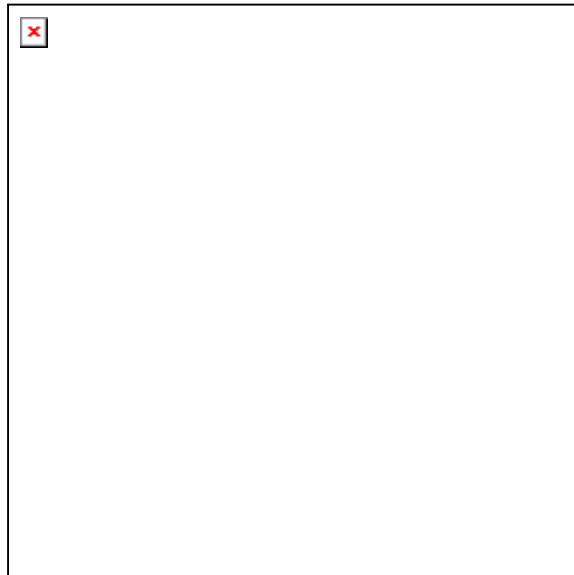
Procedure



Proceed as follows:

1. Switch on the HMI device.
2. Open the Control Panel.
3. Press the "RFID Config" icon.

The following dialog appears:



4. Select the effective range ID in the "Effective range" selection box and the ID of the defective RFID tag in the "Tag" selection box.
5. Bring the HMI device into the effective range of the RFID tag.
6. Press "Save ID".

The HMI device transmits the ID to the RFID tag. The new RFID tag has the ID of the previously used RFID tags.

7. Click "Exit" to close the dialog.
8. Close the Control Panel and start the project.
9. Log the HMI device onto a machine to check the new RFID tag.
 - When the logon is successful, you can continue working in the project.
 - If logon is not possible close the dialog and repeat steps 2 to 8.

9

Commissioning the plant

9.1 Overview

The acceptance of the plant involves the following:

- Safety-related project
- Safety program
- RFID tags with effective ranges

9.2 Acceptance of the plant

All of the relevant application-specific standards and the procedure described in this section must be observed in the course of final acceptance of the plant.

Note

This section provides a detailed description of the additional tasks required for the fail-safe operation of the HMI device.

Read the detailed description provided in the "System Acceptance Test" section of the "S7 Distributed Safety, Configuring and Programming" manual when performing an acceptance procedure for the plant.

The acceptance of the plant involves the following tasks:

- Configure the F-CPU and F-I/O
- Create a safety program

Requirement

- The hardware configuration has been created in HW Config.
- The safety program has been created and generated.
- A backup of the STEP 7 project has been created.

Configuring the F-CPU and F-I/O

- Printing and archiving the hardware configuration.
- Check the following parameters in the hardware configuration:
 - Parameters of the F-CPU
 - Parameters of the F-I/O

This includes unique PROFIsafe addresses and additional PROFIsafe parameters.

- Save the hardware configuration with the STEP 7 project.

A detailed description is provided in the "Acceptance test for the configuration of the F-CPU and the F-I/O" section of the "S7 Distributed Safety, Configuring and Programming" manual.

Acceptance of the safety program

- Print and archive the safety program.
- Check the printed copy of the safety program for existence of the criteria specified in the "S7 Distributed Safety, Configuring and Programming" manual, section "Acceptance of a safety program."
- Download the entire safety program to the F-CPU.
- Test all functions of the safety program.

A detailed description is provided in the "Acceptance test for the configuration of the F-CPU and the F-I/O" section of the "S7 Distributed Safety, Configuring and Programming" manual.

See also

Programming and operation manual "S7 Distributed Safety - Configuring and Programming" (<http://support.automation.siemens.com/WW/view/en/22099875>)

9.3 Diagnostics

Use the diagnostics function to determine the following:

- Does signal acquisition function without errors on the HMI device?
- Does the safety-related module of the HMI device work properly?

Diagnostic function of the HMI device in STEP 7

The HMI device provides diagnostics conforming to PROFINET IO standard IEC 61784-1, Ed1, CP 3/3 for standard application.

The diagnostics function cannot be parameterized. The diagnostics are always enabled and information is provided automatically by the HMI device in STEP 7 in the event of an error. The diagnostic function also passes the "Communication error" message, if at all possible, for the safety-related component.

The communication between the HMI device as an input and output device, and the F-CPU and IO controller is disrupted. This situation can be caused, for example, by an incorrect PROFI-safe address or the lack of a wireless network.

Reading diagnostics information

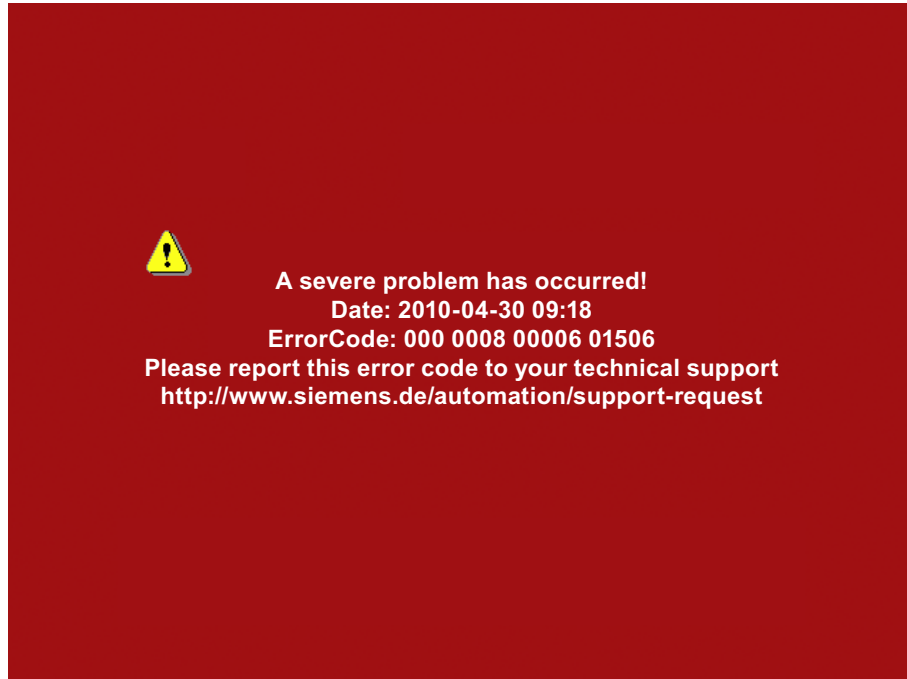
Open the module diagnostics in STEP 7 to determine the cause of the error. For additional information, refer to the online help for STEP 7.

You also have the option of reading the diagnostic information using SFB 52 or SFB 54 in the standard user program. For additional information, refer to the "System and Standard Functions" reference manual.

Diagnostic information for internal errors

All LEDs of the LED display go out when an internal error of the HMI device causes a failure. When a project is running on the HMI device, the following occurs:

- The project is closed.
- The following error code message is displayed on the HMI device:



Procedure

Proceed as follows:

1. Record the error number – see Error Code.
2. Switch off the HMI device.
3. Restart the HMI device.

Contact Technical Support

(<http://support.automation.siemens.com/WW/llisapi.dll?aktprim=99&lang=en&referer=%2fWW%2f&func=cslib.csinfo2&siteid=csius&extranet=standard&viewreg=WW>) if the error persists. Based on the error code, Technical Support can come to a conclusion about the type of internal error.

Error code for discrepancy errors

The following table lists the error codes for discrepancy errors. You may be able to find a remedy for a discrepancy error yourself, depending on the situation. The first six digits of the error code are decisive for the correct identification of the error.

| Error code | Error type | Remedy |
|-------------------|---|---|
| 000 008 | Discrepancy error at the EMERGENCY STOP button | Release the EMERGENCY STOP button. |
| 000 014 | Discrepancy error at the right enabling button, Panic switch position | Make sure that the button does not become askew when it is pressed. |
| 000 015 | Discrepancy error at the left enabling button, Panic switch position | |

The terms "left" and "right" enabling buttons refer to your position facing the display of the HMI device.

See also

Discrepancy error during enabling (Page 258)

Fail-safe operation

10.1 Organizational measures

The HMI device should only be operated in the plant with a main rechargeable battery or in the docking station.

You must adhere to the organizational measures described in this section to ensure fail-safe operation of the HMI device.

WARNING

EMERGENCY STOP button out of service when HMI device is removed

If the HMI device is not integrated in the safety program of the F-CPU, the EMERGENCY STOP button will be out of service.

To avoid confusion between HMI devices with enabled and disabled EMERGENCY STOP buttons, only one integrated HMI device should be freely accessible.

If an HMI device is not integrated and not in use, store the HMI device in a location with protected access.

Handling the HMI device during operation

CAUTION

Shutdown or global rampdown may occur with an empty main rechargeable battery

An integrated HMI device with an empty main rechargeable battery triggers a communication error. This error results in the following reaction of the F-CPU:

- When the HMI device is logged onto a machine – shutdown
- When the HMI device is not logged onto a machine – global rampdown

Check the charge of the main rechargeable battery at brief intervals using the "BAT" LED.

Note


It is prohibited to leave the protection zone without an HMI device while the HMI device is logged onto a machine.

Log off the HMI device from the machine before you leave the protection zone.

Pay attention to the LED display of the HMI device – see section "LED display (Page 85)".

10.2 Switch-off behavior

The shutdown reaction of the plant will vary according to cause and effect.

| |
|---|
|  DANGER |
| <p>Shutdown</p> <p>The shutdown response described in the next sections is only triggered in the plant if the F-CPU has been programmed accordingly.</p> <p>Programming the F-CPU accordingly.</p> |

The following types of shutdown may occur depending on the operating state of the plant:

- EMERGENCY STOP
- Global rampdown
- Local rampdown
- Shutdown

The following table shows the shutdown reaction depending on the operating state and the cause:

| Operating state | | | Cause of the shutdown | |
|--------------------|---|---|-------------------------------|---------------------|
| | | | EMERGENCY STOP button pressed | Communication error |
| HMI not integrated | | | - | - |
| HMI integrated | HMI device is logged onto a machine | HMI device is in the protection zone | EMERGENCY STOP | Shutdown |
| | | HMI device is outside the protection zone | EMERGENCY STOP | Shutdown |
| | HMI device is logged off from the machine | | EMERGENCY STOP | Global rampdown |

See also

Terms for fail-safe operation (Page 32)

10.3 Integrating the HMI device

During fail-safe operation, a safety program runs in the F-CPU. The HMI device is integrated into this safety program. The HMI device and F-CPU communicate via PROFINET IO.

When there is a project for a safety program on the HMI device, it is automatically integrated following the start of the project. The "SAFE" LED lights up to indicate that integration is complete.

The EMERGENCY STOP button is enabled as soon as the HMI device is integrated.

Requirement

- WLAN
- PROFIsafe safety-related bus profile, as of V2.0
- The plant has been accepted.
- The loader is displayed on the HMI device.

Procedure

Proceed as follows:

1. Start the project.

PROFIsafe communication is established. While the connection is being established, the "Establishing secure connection" dialog is displayed with the following symbol.



The HMI device is integrated in the safety program of the F-CPU.

The "SAFE" LED lights up.

The "Test enabling switch" dialog is displayed with the following symbol.

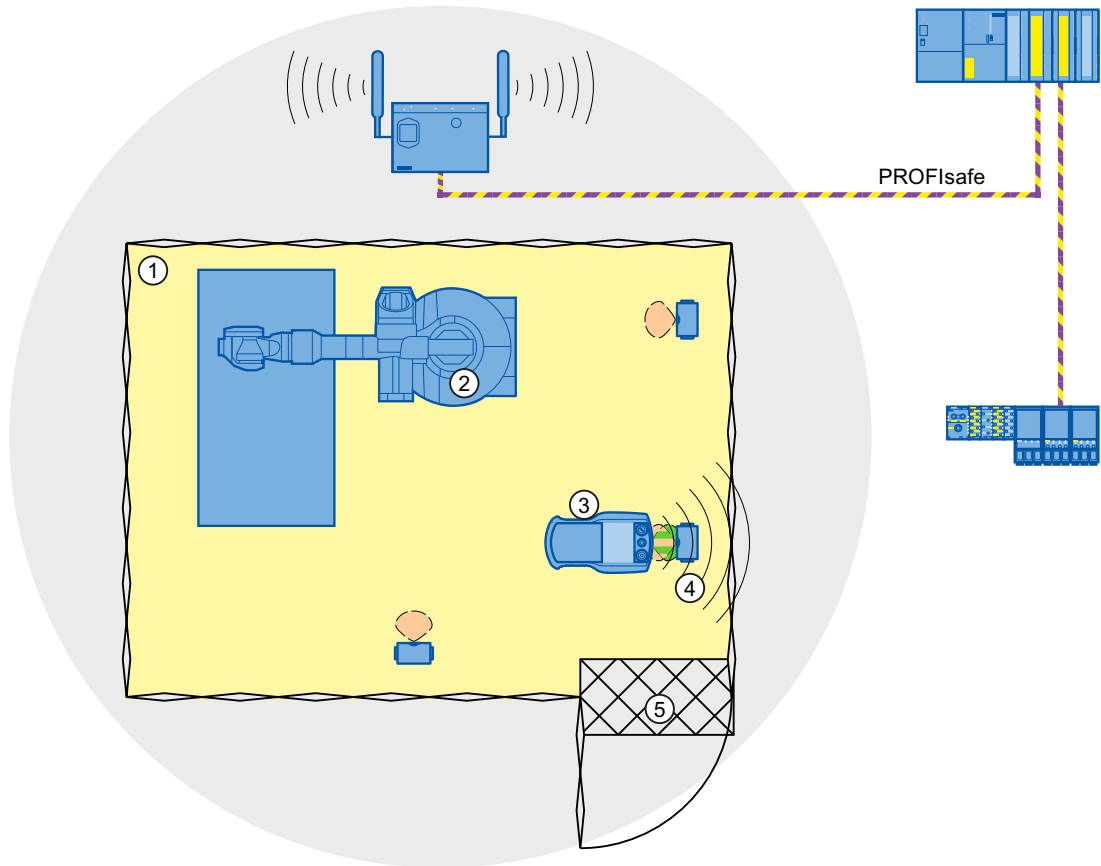


2. Fully press down both enabling buttons.

The project start screen appears.

10.4 Logging onto a machine

The following figure shows the logon of an HMI device to a machine within a protection zone.



- ① Protection zone
- ② Machine
- ③ HMI device
- ④ RFID tag 1
- ⑤ Access monitoring

Requirement

- WLAN connection
- RFID tags have been commissioned
- The HMI device is integrated

Procedure




Proceed as follows:

1. Switch to the screen that contains the "Effective range name (RFID)" button labeled "Scan".



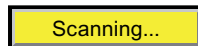
2. Bring the HMI device into the effective range of the RFID tag to which you want to log on, for example, "RFID Tag 1".

The following table shows how to align the HMI device to the RFID tag.

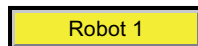
| | | | |
|-----------|---|--|---|
| Alignment |  |  |  |
| Logon | Possible | Not supported | Not supported |

3. Press the button labeled "Scan".

During the scan procedure, the button is yellow and displays the text, "Scanning...".



The HMI device reads the ID from the RFID tag. After the data transfer, the name of the effective range will be briefly displayed on the "Effective range name (RFID)" operator control, for example, "Robot 1".



The "Effective range logon" dialog is then displayed with the following symbol.



Note

As soon as the "Effective range logon" dialog is displayed, you can remove the HMI device from the effective range of the RFID tag.

4. Enter the ID of the effective range in the text box.
The ID of the effective range is located on the label of the RFID tag.
5. Confirm the entry with "OK".
The dialog closes.

Note

A message appears if the ID of the effective range is incorrect. The corresponding dialog must be acknowledged. Repeat the logon to the effective range with a valid ID.

Fail-safe operation

10.5 Logging off the machine

The "Confirmation of logon" dialog is displayed with the following symbol.



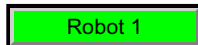
6. Confirm the logon with the enabling button.

The successful logon is indicated by the "RNG" LED on the HMI device.

Result

You are logged onto the machine and the machine can operate within the protection zone in fail-safe mode. The "Effective range name (RFID)" operator control is shown in green and labeled with the name of the effective range.

The following figure shows the "Effective range name (RFID)" object after logon to an effective range with the name "Robot 1".



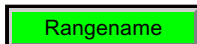
10.5 Logging off the machine

You do not need to stand directly in front of the RFID tag to log off the machine you are operating in fail-safe mode.

Procedure

Proceed as follows:

1. Press the "Effective range name (RFID)" operator control.



The "Effective range logoff" dialog is displayed with the following symbol.

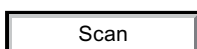


2. Confirm the logoff from the machine with the "OK" button.

The "RNG" LED goes out when the logoff is successfully completed.

Result


- The HMI device is logged off the machine.
- The "Effective range name (RFID)" operator control is shown in white and labeled "Scan".



10.6 Removing the HMI device

You have the following options for removing the HMI device:

- Close the project.
- Press and hold the "ON/OFF" button for at least 4 seconds.

| |
|--|
|  WARNING |
| EMERGENCY STOP button out of service when HMI device is removed |
| If the HMI device is not integrated in the safety program of the F-CPU, the EMERGENCY STOP button will be out of service. |
| To avoid confusion between HMI devices with enabled and disabled EMERGENCY STOP buttons, only one integrated HMI device should be freely accessible. |
| If an HMI device is not integrated and not in use, store the HMI device in a location with protected access. |

Requirement

- The project must be started.
- The HMI device is integrated into the safety program of the F-CPU.
- The HMI device is not logged onto a machine.

Procedure

Proceed as follows:

1. Close all open dialogs.
2. Close the project using the operator control designed for this purpose or press the "ON/OFF" button for more than 4 seconds.

The "Start removal" dialog is displayed with the following symbol.



3. Use the "Yes" button to confirm the removal.

The "Confirm removal" dialog opens with the following symbol.



4. Press an enabling button within 60 seconds.

| |
|---|
| NOTICE |
| Global rampdown A global rampdown will occur, if you do not confirm the "Confirm removal" dialog within 60 seconds with the enabling button. Press an enabling button within 60 seconds. |

The "Confirm removal" dialog closes.

- The "SAFE" LED on the HMI device goes out.
- PROFIsafe communication is terminated.
- The HMI device has been successfully removed from the safety program of the F-CPU.
- The project is closed.
- If you have pressed the ON/OFF" button during step 1, the HMI device switches off.

11

Operating a project

11.1 Starting the project

Note

A project may demand operator actions that require in-depth knowledge of the specific plant on part of the operator. Proceed with caution, for example, when you use jog mode. Refer to your plant documentation for additional information.

Requirement

The following requirements have to be met to start the project:

- The plant has been accepted.
- The main rechargeable battery is charged and inserted in the HMI device.
If no main rechargeable battery is available, place the HMI device in the docking station.
- The radio signal from the WLAN is sufficiently strong.
- The PROFIsafe address is configured on the HMI device.
- The data channel is configured on the HMI device.
- The project has been transferred to the HMI device.

Procedure

Proceed as follows:

1. Press the "ON/OFF" button.

The HMI device performs the following tasks:

- The HMI device starts.
- The "PWR" LED lights up.
- The "BAT" LED shows the remaining charge of the main rechargeable battery.
- The WLAN connection is established.

The "COM" LED flashes while the connection is being established.

The "COM" LED lights up when the WLAN connection is established.

The project is started.

- PROFIsafe communication is established.

The "Establishment of safety connection" dialog is displayed. The HMI device is integrated once the PROFIsafe connection has been successfully established.

The "SAFE" LED lights up.

The EMERGENCY STOP button is enabled.

- The "Test enabling button" dialog is displayed.

2. Fully press down both enabling buttons.

Result

The HMI device displays the start screen of the project.

Log onto a machine to enable the enabling button.

See also

Logging onto a machine (Page 210)

11.2 Operator input options

A project may demand operator actions that require in-depth knowledge of the specific plant on part of the operator. Proceed with caution, for example, when you use jog mode. Refer to your plant documentation for additional information.

CAUTION

Unintentional action

If you press several operator controls at once, you may trigger an unintentional action.

Do not carry out several operations simultaneously.

- When using the touch screen:
Never press more than one operator control on the touch screen at once.
- When using an external keyboard:
Do not press more than two keys at once

Operator input options

Once the project is transferred to the HMI device, you can operate and monitor active processes during the process control phase. You have the following operating options:

- Touch screen

The operator controls shown in the configured screens are touch-sensitive. Touch objects are operated in the same way as mechanical keys. You trigger an operator control by pressing it with your finger. To double-click an operator control, you tap it twice in quick succession.

- Membrane keyboard

You can use the numeric area of the membrane keyboard to enter numeric values.

Note

Read the section "Overview (Page 83)".

- USB keyboard

You can operate the Windows CE interface and Control Panel with an external keyboard in the exact same way as you do with the screen keyboard of the HMI device.

- USB mouse

You can operate the Windows CE interface and Control Panel with an external mouse in the exact same way as you do with the touch screen of the HMI device.

Feedback from an operator control

The HMI device provides optical feedback as soon as it detects that an operator control has been selected. The operator control receives the focus and is selected. The selection is independent of any communication with a PLC. Therefore this selection does not indicate whether the relevant action is actually executed or not.

The selection of an operator control can deviate from the standard. Refer to your plant documentation for additional information.

The type of optical operation feedback depends on the operator control:

- Button

If the configuration engineer has configured a 3D effect, the button appears differently depending on the "Pressed" and "Not pressed" states:

- "Pressed" state



- "Not pressed" state



The line width and color of the button are set during the configuration.

- Invisible button

By default, an invisible button is displayed as not pressed when it is selected. There is no optical operation feedback.

The configuration engineer may, however, configure invisible buttons so that their outline appears as lines when they are pressed. This lines will remain visible until you press another operator control.

- I/O field

When you select an I/O field, the content of the I/O field is displayed against a colored background. With touch operation, a screen keyboard is displayed for the entering of values.

11.3 Direct keys

A direct key on the HMI device is a direct way to set a bit in the I/O area of the controller. A direct key enables an operation with a fast response time. Fast response time is essential, for example, for jogging mode.

NOTICE

Leaving the WLAN

Note that leaving the WLAN area will cause the PROFINET IO device to fail and therefore result in a PLC stop.

Determine suitable programming measures in the PLC, in order to prevent a PLC stop. Refer to your plant documentation for additional information.

Pressing a direct key

If you trigger an operator control with direct key functionality in an active project, the corresponding function is always executed, regardless of the screen display at the time.

Avoid pressing a direct key unintentionally.

Note

A direct key is enabled when both of the following conditions are satisfied:

- The HMI device is in the WLAN with sufficient radio signal.
- The HMI device is in "Offline" mode.

The following objects can be configured as a direct key:

- Button
- Screen number
- Illuminated pushbutton
- Rotary switch

Note

Direct keys result in additional basic load on the HMI device.

Additional information is available in the "WinCC flexible, Communication" system manual.

11.4 Setting the project language

The HMI device supports multilingual projects. You must have configured a corresponding operator control which lets you change the language setting on the HMI device during runtime.

The project always starts with the language set in the previous session.

Requirement

- The required language for the project must be available on the HMI device
- The language switching function must be logically linked to a configured operator control such as a button

Selecting a language

You can change project languages at any time. Language-specific objects are immediately output to the screen in the new language when you switch languages.

The following options are available for switching the language:

- A configured operator control switches from one language to the next in a list
- A configured operator control directly sets the desired language

More detailed information is available in your plant documentation.

11.5 Operating the screen keyboard in the project

If you do not use an external keyboard, use the screen keyboard to enter numeric and alphanumeric characters. As soon as you touch a text box, a numeric or alphanumeric screen keyboard is displayed, depending on the type of the text box.

Display methods for the screen keyboard

You can change the type of display for the screen keyboard and move its position on the screen.

- Numerical screen keyboard



- Alphanumerical screen keyboard



The alphanumerical screen keyboard has the following levels.

- Normal level
- Shift level
The shift level includes uppercase letters.
- Special character level

Note

The ' character (button between ";" and "\") appears only when followed by a space. If the ' character is followed by a letter, then the result will be an accent, such as "á".

- Reduced screen keyboard





Note

When the screen keyboard is open, PLC job 51, "Select screen" has no function.

The screen keyboard display is independent of the configured project language. Language switching in the project has no influence on the alphanumerical screen keyboard. This means you cannot enter Cyrillic or Asian characters.


Procedure for moving the screen keyboard

Proceed as follows:



1. Touch the  symbol and move the screen keyboard on the touch screen.
2. When the desired position is reached, release the icon .

Procedure for adjusting the size of the screen keyboard







Note

The  icon only appears on the screen keyboard if in the "Siemens HMI InputPanel" dialog you have selected the "Show Resize button" check box.





Proceed as follows:

1. Touch the  symbol and drag the screen keyboard to the appropriate size.
2. When the size you want is reached, release contact with the  icon.

Changing the display of the screen keyboard

| Key | Function |
|---|--|
|  | Switching between the numerical and alphanumeric keyboard |
|  | Switching between the normal level and Shift level of the alphanumeric screen keyboard |
|  | Switchover to special characters |
|  | Switching from full display to reduced display |
|  | Switching from reduced display to full display |
|  | Closing of reduced display of the screen keyboard |

Entering data

| Key | Function |
|---|---|
|  | Delete character left of cursor |
|  | Delete character right of cursor |
|  | Confirm entry and close the screen keyboard |
|  | Cancel input |


Note**Data input - numerical text box**

- Hexadecimal values
When you enter a value in hexadecimal format, the alphanumeric screen keyboard opens.
- Decimal places
The configuration engineer can define the number of decimal places for a numerical text box. The number of decimal places is checked when you enter a value in this type of I/O field.
 - Decimal places in excess of the limit are ignored.
 - Empty decimal places are filled with "0".
- Limits
A tag can be configured with limits. If you enter a value outside these limits, it will be rejected.
If an alarm view is configured, a system event is triggered and the original value is displayed again.

Data input – date and time

When entering the date and time, note that their format is determined by the configured project language.

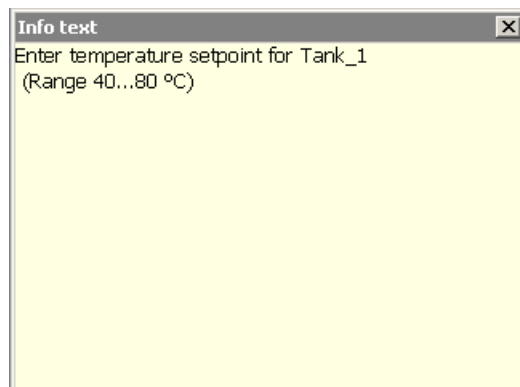
Opening the Windows CE taskbar


You open the Windows CE taskbar with the  key.

Displaying infotext

The configuration engineer uses infotext to provide additional information and operating instructions. There may be infotext for HMI screens and operator controls in the project.

The infotext for an I/O field may contain, for example, information on the value to be entered.



The screen keyboard appears on the HMI device touch screen when you touch an operator control that requires input. If an infotext was configured for the current operator control, call up the infotext with the  button. If no infotext is available for the current operator control, the infotext for the current HMI screen will be displayed.

Note

If an infotext was configured for the current control object as well as the current HMI screen, you can switch between both infotexts by touching the infotext window.

Close the infotext window with the  button.

Depending on the project, infotext can also be called by an operator control configured for this purpose. For additional information, refer to the online help of WinCC flexible.

11.6 Device-specific displays

11.6.1 Overview

This section describes the device-specific WinCC flexible objects, which you can use in a project for the Wireless Teach Pendant F IWLAN.




For a full description of all WinCC flexible objects, refer to the online help of WinCC flexible.

11.6.2 Showing the battery charge

The "Battery" object indicates the remaining charge of the main rechargeable battery.

Charge the main rechargeable battery in time or replace it. Read the information provided in section "Replacing and charging the main rechargeable battery (Page 72)".

The amount of charge for the main rechargeable battery is shown by the "Battery" object as follows:

| Icon | Color | Meaning | Charge level |
|---|--------|---|--------------|
|  | Green | The main rechargeable battery is sufficiently charged. | > 20 % |
|  | Yellow | The charge is low. The main rechargeable battery must be charged or replaced. | 6% to 20 % |
|  | Red | The charge is very low. The main rechargeable battery must be charged or replaced. | < 6 % |

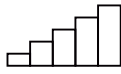
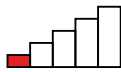
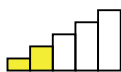
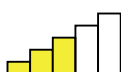
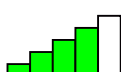
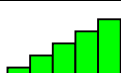
See also

Displaying the charge status of the batteries (Page 138)

11.6.3 Displaying WLAN quality

The "WLAN quality" object indicates the signal strength of the wireless network at the location of the HMI device. The HMI device measures the signal strength and depicts it with the "WLAN quality" object.

The signal strength of wireless network is indicated by the "WLAN quality" object as follows:




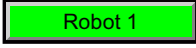
| Icon | Meaning | Signal strength |
|---|-------------------------------|-----------------|
|  | No wireless connection | No signal |
|  | Very poor wireless connection | ≤ 20% |
|  | Poor wireless connection | ≤ 40% > 20% |
|  | Wireless connection OK | ≤ 60% > 40% |
|  | Good wireless connection | ≤ 80% > 60% |
|  | Very good wireless connection | > 80% |

11.6.4 Displaying the "Effective range name (RFID)" object

The "Effective range name (RFID)" object is only available for an HMI device of the RFID tag system. The "Effective range name (RFID)" object displays the following information:

- Logon status
- "Scan", "Scanning..." or name of the effective range associated with the machine on which the HMI device is logged on

The "Effective range name (RFID)" object can show the following operating states:

| Icon | Operating state | Logon |
|---|--|---|
|  | The HMI device is not logged onto a machine. The enabling button is not enabled. | It is not possible to log onto a machine. To log onto a machine, the user must press the operator control and search for effective ranges. |
|  | The user has pressed the operator control to search for effective ranges. The HMI device searches for an effective range. The enabling button is not enabled. | Logon can only take place when the HMI device has detected an effective range. |
|  | The HMI device has detected the effective range, "Robot 1". | The logon to the machine associated with the "Robot 1" effective range is possible. |
|  | The user is logged onto the machine associated with the "Robot 1" effective range. The enabling button is enabled. | – |

11.7 Project security

11.7.1 Overview

Design of the security system

The configuration engineer can protect the operation of a project by implementing a security system. The security system is based on authorizations, user groups and users.

If operator controls protected by a password are pressed, the HMI device first requests that you log on. A logon screen is displayed in which you enter your user name and password. After logging on, you can press the operator controls for which you have the necessary authorizations.

The logon dialog can be set up by the configuration engineer via an individual operator control. Similarly, an operator control can be configured for logoff. After logging off, objects with password protection can no longer be operated – you need to log on again.

Refer to your plant documentation for additional information.

Central user administration using SIMATIC Logon

Users, user groups and authorizations can be stored on a central server.

If user administration cannot contact the server, an error message is displayed. If this is the case, you can only log on locally. More detailed information is available in your plant documentation.

The operation of SIMATIC Logon differs as follows:

- The simple user display is not supported
- Users cannot be deleted
- You cannot change your logout time
- When changing the password, you must enter it twice for security reasons
- The domain name is also indicated in the "User" field

User groups and authorizations

Project-specific user groups are created by the configuration engineer. The "Administrators" and "PLC User" groups are included in all projects by default. User groups are assigned authorizations. Authorization required for an operation is specifically defined for each individual object and function in the project.

Users and passwords

Each user is assigned to exactly one user group.

The following persons are allowed to create users and assign them passwords:

- The configuration engineer during configuration
- The administrator on the HMI device
- A user with user management authorization on the HMI device

Irrespective of the user group, each user is allowed to change his own password.

Logoff times

A logoff time is specified in the system for each user. If the time between any two user actions, such as entering a value or changing screens, exceeds this logoff time, the user is automatically logged off. The user must then log on again to continue to operate objects assigned password protection.

Backup and restore

Note

Backup and restore is not available to central user administration with SIMATIC Logon.

The user data is encrypted and saved on the HMI device to protect it from loss due to power failure.

The users, passwords, group assignments and logoff times set up on the HMI device can be backed up and restored. This prevents you having to enter all of the data again on another HMI device.

NOTICE

The currently valid user data is overwritten in the following cases:

- Depending on the transfer settings, when the project is transferred again
- Upon restore of a backed-up project
- Upon import of the user administration via an operator control.

More detailed information is available in your plant documentation.

The retransferred or restored user data and passwords are valid with immediate effect.

Number of characters for user, password and user view

| | Number of characters |
|-------------------------------|----------------------|
| Length of user name, maximum | 40 |
| Length of password, minimum | 3 |
| Length of password, maximum | 24 |
| Entries in user view, maximum | 50 |

11.7.2 User View

The user view is used to show user accounts configured on the HMI device.

- If you are an administrator or a user with administrator rights, you can see all user accounts configured on the HMI device in the user view.
- If you are a user without user management rights, you can only see your personal user account.

The authorizations of a user after logging on depends on the user group to which the user belongs.

More detailed information is available in your plant documentation.

A simple or extended user view can be configured in the project. The two user views offer the same functions. The presentation of information differs.

Simple user view

If you are not logged onto the HMI device, the only entry contained in the simple user view is "<ENTER>".

If you are logged onto the HMI device, the simple user view only displays the user name and user group.

| | |
|------------|-----------|
| Admin | Group (9) |
| PLC User | Group (1) |
| User 1 | Group (1) |
| <New user> | |

Extended user view

The extended user view displays information about the users.

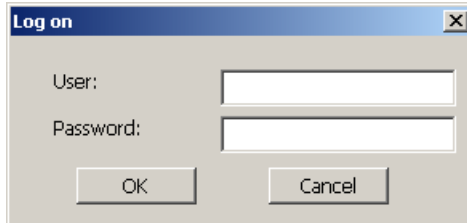
| User | Password | Group | Logoff time |
|----------|----------|-----------|-------------|
| Admin | ***** | Group (9) | 5 |
| PLC User | ***** | Group (1) | 5 |
| User 1 | ***** | Group (1) | 5 |
| | | | |

The extended user view contains the following columns:

- Users
- Password
- Group
- Logoff time

11.7.3 User logon

Use the logon dialog of the HMI device to log onto the security system. Enter your user name and password in the logon dialog.



The logon dialog opens in the following cases:

- You press an operator control with password protection
- You press an operator control that was configured for displaying the logon dialog
- Select the "<ENTER>" entry in the simple user view
- Select a blank entry in the extended user view
- The logon dialog will be automatically displayed when the project is started, depending on the configuration

More detailed information is available in your plant documentation.

Requirement

- The logon dialog is open.

Procedure

Proceed as follows:

1. Enter the user name and password.

Touch the corresponding text box. The alphanumeric screen keyboard is displayed.

Note

The user name is not case-sensitive.

The password is case-sensitive.

2. Select "OK" to confirm logon.

Result

After successful logon to the security system, you can execute password-protected functions on the HMI device for which you have authorizations.

If you enter a wrong password, an error message is displayed when an alarm window has been configured.

11.7.4 User logoff

Requirement

- You have logged into the security system of the HMI device.

Procedure

You have the following options for logging off:

- Press an operator control that is configured for logging off the security system.
- If you do not operate a project and exceed the logoff time, your user account will be locked.

Your user account will be automatically logged off if you enter an incorrect password.

Result

You are no longer logged onto the project. In order to use an operator control in the security system, you need to log on again.

11.7.5 Creating users

You create a user with both the simple and enhanced user display.

Requirement

- A configured screen with user display is shown.
- You have user management authorization or you are the administrator.

Note

The following characters are prohibited in passwords:

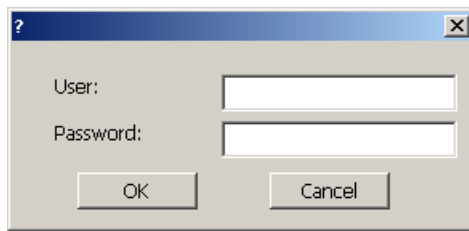
- Blank
 - Special characters * ? . % / \ ' "
-

Procedure – Creating a user in the simple user view

Proceed as follows:

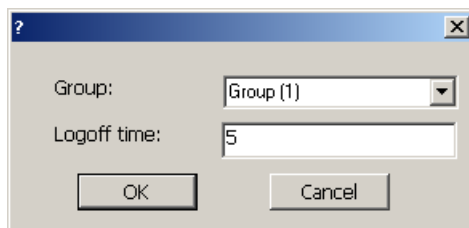
1. Touch the "<New User>" entry in the user view.




The following dialog appears:



2. Enter the desired user name and password.
Touch the corresponding text box. The alphanumerical screen keyboard is displayed.
3. Touch the "OK" button.

The following dialog appears:



4. Assign the user to a group.
In order to do so, open the "Group" drop down list box by means of the  button. Select  and  to scroll in the drop down list box.
5. Touch the required entry in the drop down list box.
The selected entry is then accepted as input.
6. Touch the text box "Logoff time".
The screen keyboard is displayed.
7. Enter a value between 0 and 60 for the logoff time in minutes.
The value 0 stands for "no automatic logoff."
8. Touch the "OK" button to confirm your entries.

Procedure – Creating a user in the extended user view

Proceed as follows:

1. Double-click the desired field in the blank line of the user view.
The screen keyboard is displayed.
2. Enter the respective user data in the field:
 - Assign the user to one of the groups from the drop down list box.
 - Enter a value between 0 and 60 for the logoff time in minutes.
The value 0 stands for "no automatic logoff."

Result

The new user is created.

11.7.6 Changing user data

You have opened a screen with a user view. The data you are allowed to change depends on your authorization:

Requirement

- You are an administrator or a user with user management authorization.
In these cases you are allowed to change the data for all the users on the HMI device in the user view:
 - User name
 - Group assignment
 - Password
 - Logoff time
- You are a user without user management authorization.
In this case you are only allowed to change your personal user data:
 - Password
 - Logoff time, if configured

Note

You can only change the logoff time and password for the "Admin" user.

You can only change the logoff time for the "PLC_User". This user is used for logging on via the PLC

Procedure

The procedure applies to simple and extended user view alike.

Proceed as follows:

1. In the user view, touch the user whose user data you want to change
2. When entering the data, use exactly the same procedure as for creating a user

Result

The user data for the user is changed.

11.7.7 Deleting users

Requirement

- You have opened a screen with a user view.
- You are an administrator or you have permission for user management.

Procedure

Note

The "Admin" and "PLC_User" users exist by default. You cannot delete these users.

1. Delete the entered user name.

Result

The affected user can no longer use the operator controls with permission.

11.8 Error cases in the project operation

During fail-safe operation, you must be aware that the following error cases may arise:

- Leaving an HMI device logged onto a machine

| |
|--|
| CAUTION |
| <p>Shutdown possible</p> <p>If the HMI device is in a state where it is constantly ready for operation, the main rechargeable battery will lose its charge. A discharged main rechargeable battery causes communication failure. The F-CPU initiates a shutdown.</p> <p>If you do not need the HMI device:</p> <ul style="list-style-type: none"> • Log off the HMI device from the machine. • Close the active project. • Switch off the HMI device or place it in the docking station. |

- Internal error

If an internal error occurs on the HMI device, the "SAFE" and "RNG" LEDs go out, and the project is terminated immediately. The HMI device displays the error code message – see section "Diagnostics (Page 204)".

Safety functions are no longer available. Contact the SIEMENS hotline.

- Communication error

If a communication error occurs on the HMI device, the "SAFE" LED goes out. Safety functions are no longer available. The following situations can occur with communication errors:

- When the HMI device is logged onto a machine:

The F-CPU initiates a shutdown. The F-CPU stops the plant unit associated with the machine.

- When the HMI device is not logged onto a machine:

The F-CPU initiates a global rampdown.

- If communication is reestablished within 60 seconds:

The EMERGENCY STOP button is enabled again. The "SAFE" LED lights up again.

Acknowledge the communication error. The "RNG" LED lights up when the HMI device is logged onto a machine.

- If communication remains interrupted for more than 60 seconds:

The HMI device terminates the project. The "RNG" LED lights up when the HMI device is logged on to a machine.

11.9 Closing the project

The procedure for closing the active project is identical to the procedure for removing the HMI device.

See also

Removing the HMI device (Page 213)

Service and maintenance

12.1 Maintenance and care

Read sections "Safety-related operator controls (Page 88)" and "Safety instructions (Page 72)" for information on service and maintenance.

Scope of maintenance

The HMI device is designed for maintenance-free operation. Remember to include accessories and peripheral equipment in the maintenance.

The scope of maintenance includes:

Function test

Perform an annual function test for the enabling button and EMERGENCY STOP button.

Proceed as follows:

1. Switch on the HMI device.
2. Press both enabling buttons when the "Test Enabling Button" dialog is shown.
3. Press the EMERGENCY STOP button.

Storing the main rechargeable battery

A lithium-ion rechargeable battery loses more than 50% of its charge capacity within three years .

Store rechargeable batteries at 40 to 60% of their capacity to ensure optimal service life. Manufacturers recommend storage at 15° C – which is optimal for aging and self-discharge.

Charge the battery every six months to 40 to 60% of its charge capacity.

Scope of maintenance

The scope of maintenance includes:

- Cleaning the touch screen
- Cleaning the membrane keypad

Procedure

| |
|--|
| <p>CAUTION</p> <p>Damage possible</p> <p>The use of compressed air, steam cleaners or aggressive solutions or scouring agents will damage the HMI device.</p> <p>Use a cleaning cloth dampened with a cleaning agent to clean the equipment. Only use water with a little liquid soap or a screen cleaning solution.</p> |
|--|

Proceed as follows:

1. Switch off the HMI device.
2. Spray the cleaning solution onto a cleaning cloth.
Do not spray directly onto the HMI device.
3. Clean the HMI device.
When cleaning the display, wipe inwards from the edge of screen.

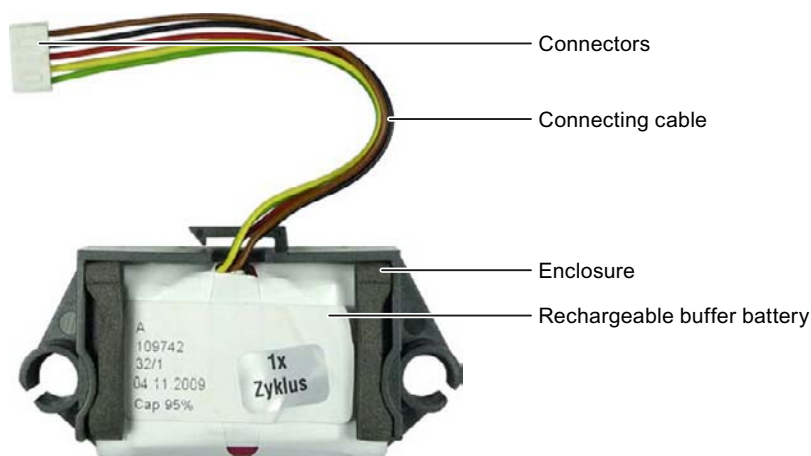
12.2 Replacing the rechargeable buffer battery

The capacity of the rechargeable buffer battery is reduced by age. After about five years, the rechargeable buffer battery needs to be replaced. This section describes how to replace the rechargeable buffer battery.

Procedure

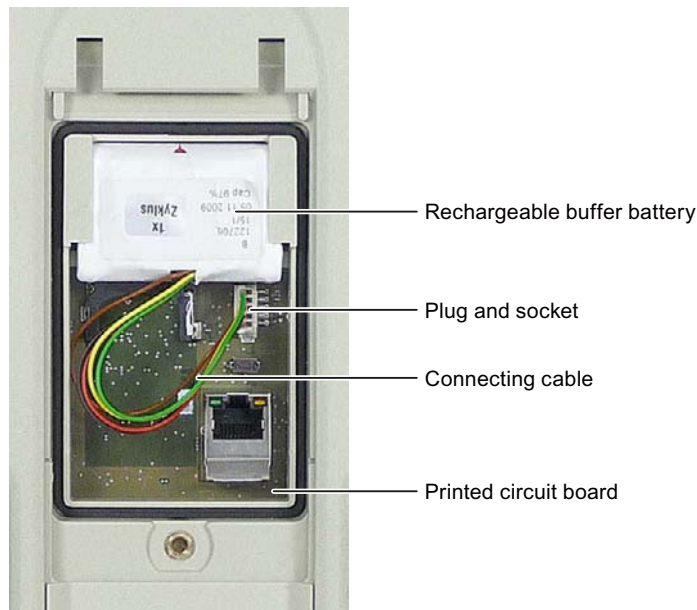
Note

Read sections "Safety instructions (Page 66)", "Opening and closing the terminal compartment (Page 67)" and "Safety instructions (Page 72)".



Proceed as follows:

1. Remove the enclosure.
The enclosure is not needed for installation.
2. Open the connection compartment.
3. Pull out the connector.
4. Slide the rechargeable buffer battery out of the guide and put it down.
5. Insert the new rechargeable buffer battery, as shown in the following illustration.



6. Connect the plug.
7. Position the cable so that it cannot be pinched when you close the connection compartment.
8. Close the connection compartment.

12.3 Spare parts and repairs

If the unit needs to be repaired, ship the HMI device to the Return Center in Fürth.

The address is:

Siemens AG
Industry Sector
Returns Center
Siemensstr. 2
90766 Fürth
Germany

You can find more detailed information on the Internet at Spare parts and repairs (<http://support.automation.siemens.com/WW/view/en/16611927>).

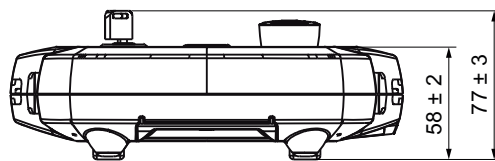
Service and maintenance
12.3 Spare parts and repairs

13

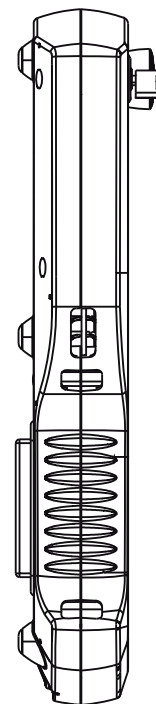
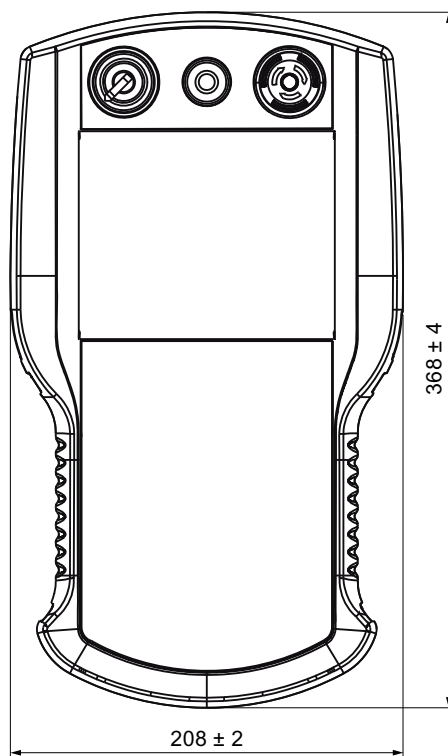
Technical specifications

13.1 Dimension drawings

13.1.1 Wireless Teach Pendant F IWLAN



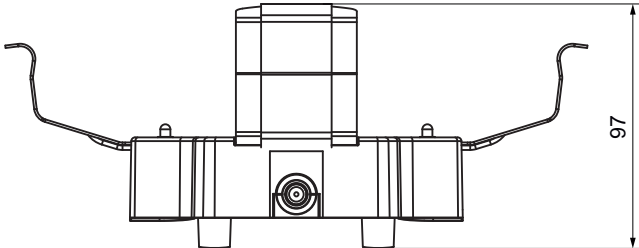
All dimensions in mm.



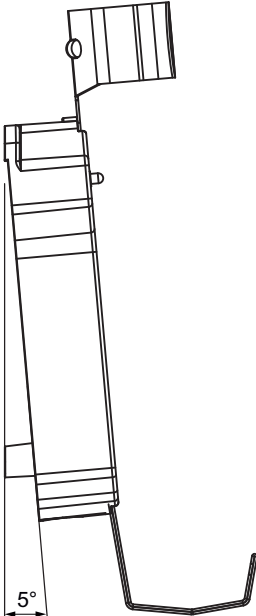
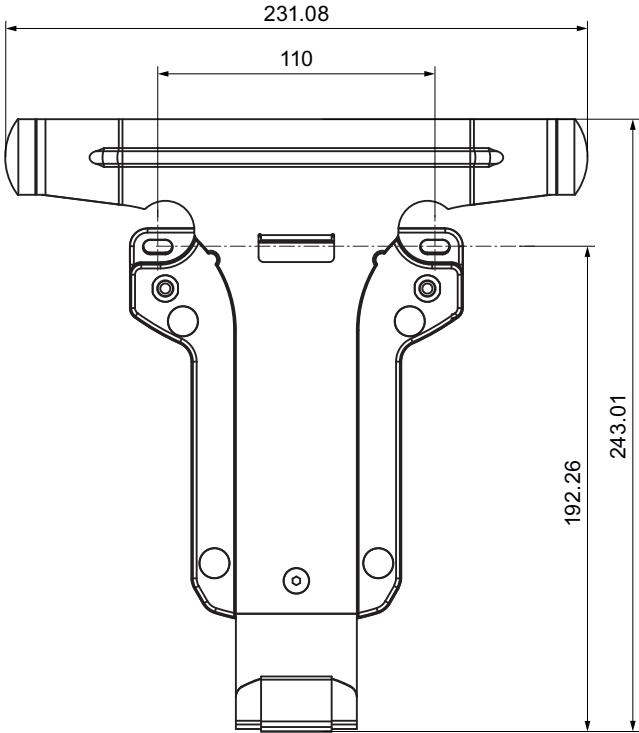
Technical specifications

13.1 Dimension drawings

13.1.2 Docking station

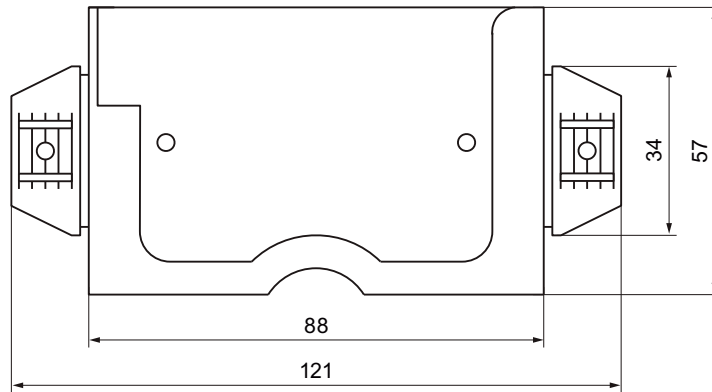


All dimensions in mm.



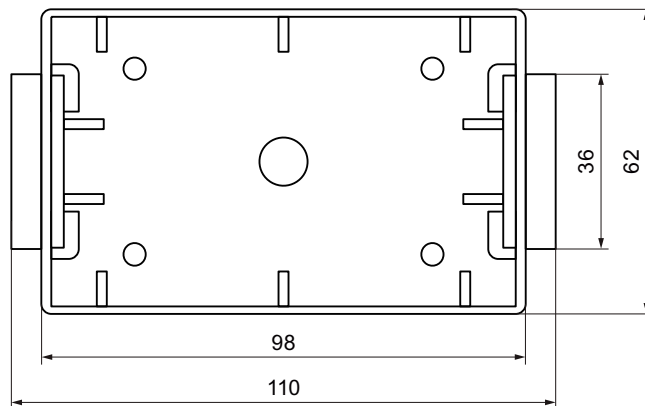
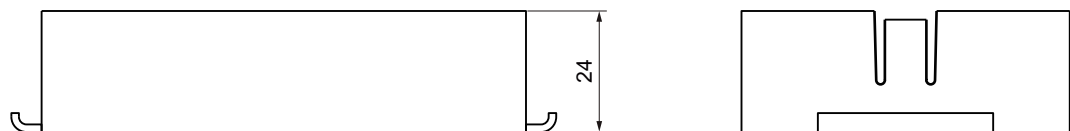
13.1.3 RFID tag

Fixing pocket



All dimensions in mm.

Spacer



Alle Angaben in mm.

You can find additional illustrations on the Internet at Image database
(<http://www.automation.siemens.com/bilddb/index.aspx?att14s=35>).

13.2 Specifications

13.2.1 Wireless Teach Pendant F IWLAN V2

General information

| | |
|---|----------------|
| Weight with battery, without packaging | Approx. 2 kg |
| Drop height with main rechargeable battery, max. | 0.5 m |
| Buffer time of internal clock with battery inserted | Approx. 4 days |

Display

| | |
|---|----------------------|
| Type | Color TFT LC display |
| Display area, active | 132.5 mm x 99.5 mm |
| Resolution | 640 x 480 pixels |
| Colors, displayable | 65536 colors |
| Brightness control | Yes |
| Backlighting | CCFL |
| Half Brightness Life Time, typical | 50000 h |
| Pixel error class according to DIN EN ISO 13406-2 | II |

Input unit

| | |
|------------------------|---------------------|
| Touch screen | Analog, resistive |
| Membrane keyboard | 1 |
| Rotary switch | 1, with 2 positions |
| Illuminated pushbutton | 1 |
| EMERGENCY STOP button | 1 |
| Enabling button | 2 |

Memory

| | |
|--------------------|------|
| Application memory | 6 MB |
| SD memory card | 2 GB |

Ports

| | |
|----------|---|
| 2 x USB | <ul style="list-style-type: none"> • USB host; conforms to USB standard 1.1 Supports low-speed and full-speed USB devices. • Current load per port, max. 100 mA |
| 1 x WLAN | For PROFINET WLAN |
| 1 x RJ45 | For LAN |

WLAN antenna

| | |
|---|-------------------------|
| Antenna type | Dual port patch antenna |
| Polarization | Vertical and horizontal |
| Antenna gain in principle ray direction, max. | 2 dBi |
| Impedance | 50 Ω |

Fail-safe operation

Note

The safety characteristics in the specifications apply for a proof-test interval of 10 years and a mean repair time of 8 hours.

| In accordance with IEC 61508 | |
|---|---------------------|
| Hardware architecture | Redundant 1oo2 |
| Hardware error tolerance | 1 |
| Safe failure fraction | 99.5 % |
| Diagnostic test interval | 10 ms |
| Request rate | High demand mode |
| High demand (PFH – probability of a dangerous failure per hour) | $8.60e^{-11}h^{-1}$ |
| Safety class, maximum achievable (SIL) | 3 |
| Useful life | 10 years |

| According to ISO 13849-1 | |
|---|------------|
| Mean time to failure (MTTF _d) | 1516 years |
| Meantime to Restoration (MTTR) | 8 h |
| Diagnostic coverage | 99 % |
| Performance level | e |
| Safety category | 4 |

Technical specifications

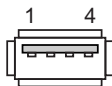
13.2 Specifications

| Other safety-related characteristic values | |
|---|---------------------------|
| Acknowledgement time | 40 ms |
| Response time with no fault, max. | 25 ms |
| Discrepancy time – EMERGENCY STOP | 500 ms |
| Discrepancy time – enabling button | |
| <ul style="list-style-type: none"> • "Enabling" position • "Panic" position | <p>2 sec</p> <p>1 sec</p> |

13.2.2 Interface description

USB

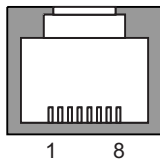
The figure below shows the pin assignment of the USB interface.



| Pin | Assignment |
|-----|---------------------------|
| 1 | +5 VDC, out (max. 100 mA) |
| 2 | USB-DN |
| 3 | USB-DP |
| 4 | GND |

RJ45

The figure below shows the pin assignment of the RJ45 interface.



| Pin | Assignment |
|-----|------------|
| 1 | TD+ |
| 2 | TD- |
| 3 | RD+ |
| 4 | n. c. |
| 5 | n. c. |
| 6 | RD- |
| 7 | ICD+ |
| 8 | ICD- |

WLAN

Operation of a wireless interface in the frequency bands 2.4 GHz and 5 GHz. The wireless interface is compatible with the following standards:

- IEEE 802.11a
- IEEE 802.11h
- IEEE 802.11b
- IEEE 802.11g

Receiver sensitivity

| WLAN standard | Data transfer rate | Receiver sensitivity |
|----------------|--------------------|----------------------|
| IEEE 802.11a/h | 54 Mbps | -74 dBm |
| | 48 Mbps | -75 dBm |
| | 36 Mbps | -80 dBm |
| | 24 Mbps | -83 dBm |
| | 18 Mbps | -86 dBm |
| | 12 Mbps | -88 dBm |
| | 9 Mbps | -89 dBm |
| | 6 Mbps | -90 dBm |
| IEEE 802.11g | 54 Mbps | -76 dBm |
| | 48 Mbps | -77 dBm |
| | 36 Mbps | -82 dBm |
| | 24 Mbps | -85 dBm |
| | 18 Mbps | -88 dBm |
| | 12 Mbps | -91 dBm |
| | 9 Mbps | -92 dBm |
| | 6 Mbps | -93 dBm |
| IEEE 802.11b | 11 Mbps | -90 dBm |
| | 5.5 Mbps | -92 dBm |
| | 2 Mbps | -94 dBm |
| | 1 Mbps | -98 dBm |

Technical specifications

13.2 Specifications

Transmission power

| WLAN standard | Data transfer rate | Receiver sensitivity |
|--|--------------------|----------------------|
| IEEE 802.11a/h (5.18 ~ 5.7 GHz) | 54 Mbps | 13.5 dBm |
| | 48 Mbps | 15 dBm |
| | 36 Mbps | 16 dBm |
| | 6-24 Mbps | 17 dBm |
| IEEE 802.11a/h (4.92 ~ 5.16 GHz) (5.745 ~ 5.825 GHz) | 54 Mbps | 11.5 dBm |
| | 48 Mbps | 13 dBm |
| | 36 Mbps | 14 dBm |
| | 6-24 Mbps | 15 dBm |
| IEEE 802.11g (2.412 ~ 2.484 GHz) | 54 Mbps | 16 dBm |
| | 48 Mbps | 17 dBm |
| | 36 Mbps | 17 dBm |
| | 6-24 Mbps | 17 dBm |
| IEEE 802.11b | 11 Mbps | 20 dBm |
| | 5.5 Mbps | 20 dBm |
| | 2 Mbps | 20 dBm |
| | 1 Mbps | 20 dBm |

13.2.3 Rechargeable batteries

| Main rechargeable battery | |
|---------------------------------|---------------------------|
| Type | Lithium ion accumulator |
| Operation time in normal mode | Approx. 4 h |
| Operation time in stand-by mode | Approx. 15 days |
| Charging cycles | 500 |
| Charging time | Approx. 4 h ¹⁾ |

| Rechargeable buffer battery | |
|-----------------------------|-------------------------|
| Type | Lithium ion accumulator |
| Bridging time | 20 sec |
| Charging cycles | 500 |

¹⁾ See section Charging the main rechargeable battery (Page 75),
Maintenance and care (Page 237)

13.2.4 Docking station

| | |
|------------------------|----------------|
| Weight without packing | Approx. 1.1 kg |
|------------------------|----------------|

Power supply

| | |
|--|--|
| Nominal voltage | +24 VDC via external power supply |
| Transients, maximum permitted | 35 V (500 ms) |
| Time between two transients, minimum | 50 s |
| Power consumption with Wireless Teach Pendant F IWLAN <ul style="list-style-type: none"> • Typical • Constant current, maximum • Power on current surge I^2t | <ul style="list-style-type: none"> • Approx. 1.5 A • Approx. 1.8 A • Approx. 1.7 A²s |
| Fuse, internal | Electronic |

13.2.5 Charger

| | |
|------------------------|----------------|
| Weight without packing | Approx. 1.1 kg |
|------------------------|----------------|

Power supply

| | |
|--|--|
| Nominal voltage | +24 VDC via external power supply unit |
| Transients, maximum permitted | 35 V (500 ms) |
| Time between two transients, minimum | 50 sec |
| Power consumption with Wireless Teach Pendant F IWLAN <ul style="list-style-type: none"> • Typical • Constant current, maximum • Power on current surge I^2t | <ul style="list-style-type: none"> • Approx. 1.5 A • Approx. 1.8 A • Approx. 1.7 A²s |
| Fuse, internal | Electronic |

Technical specifications

13.2 Specifications

13.2.6 RFID tag

| | |
|--|-----------------------------------|
| Memory capacity | 128 bytes |
| Memory technology | EEPROM |
| Protocol | ISO 15693 |
| Data retention, at +40° C | 10 years |
| MTBF, at + 40° C | 2 x 106 hours |
| Read cycles | Unlimited |
| Write cycles, typical | 200000 |
| Write cycles, minimal | 100000 |
| Multitag-capable | Yes |
| Energy supply, inductive | Energy transfer (without battery) |
| Degree of protection in accordance with EN 60529 | IP68 |

Mechanical design

| | |
|------------------------------|-----------------|
| Material | PC |
| Color | White/petrol |
| Dimensions (L x W x H) in mm | 85.6 x 54 x 0.9 |

Ambient temperature

| | |
|-------------------|------------------|
| Operation | -25° C to +80° C |
| Storage/transport | -25° C to +80° C |

13.2.7 F-FBs and configuration

| F-FBs required in safety program | |
|----------------------------------|---|
| F_FB_MP | 1 per Wireless Teach Pendant F IWLAN, maximum 126 |
| F_FB_RNG_4 | 1 per effective range, for which up to 4 HMI devices have logon permission |
| F_FB_RNG_16 | 1 per effective range, for which up to 16 HMI devices have logon permission |
| DB_STATES | 1 |

| Configuration | |
|--|--|
| Number of effective ranges in a project, max. | 127 |
| Number of RFID tags in a project, max. | 127 |
| Number of RDIF tags per effective range, max. | 127 |
| Number of HMI devices authorized for logon per effective range, max. | <ul style="list-style-type: none"> • With F_FB_RNG_4: 4 • With F_FB_RNG_16: 16 |

A

Appendix

A.1 ESD guideline

What does ESD mean?



An electronic module is equipped with highly integrated electronic components. Due to their design, electronic components are highly sensitive to overvoltage and thus to the discharge of static electricity. Such electronic components are labeled as electrostatic sensitive devices (ESD).

The following abbreviations are commonly used for electrostatic sensitive devices:

- ESD – Electrostatic Sensitive Device
- ESD – Electrostatic Sensitive Device (internationally recognized term)

Electrostatic charge

CAUTION

Electrostatic charge

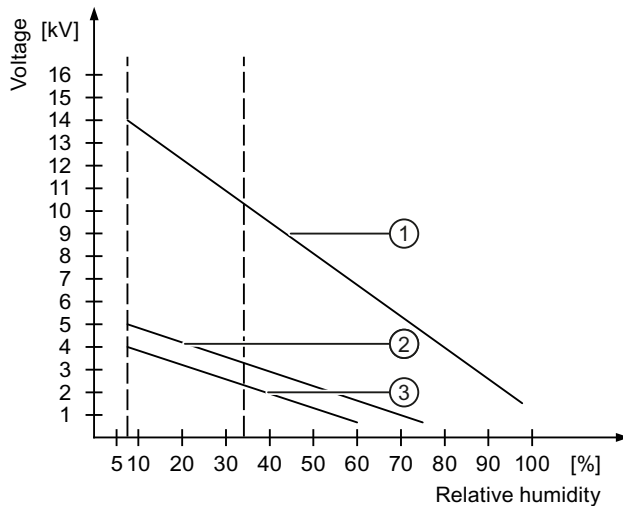
ESDs may be destroyed by voltages far below the level perceived by human beings. If you are not discharged electrostatically, the voltage that you transfer when touching a component or the contact points of a module can already cause damage.

The damage to an ESD caused by overvoltage is usually not recognized immediately. The damage only becomes apparent after a long period of operation.

Discharge any electrostatic charge of your body before you touch the ESD.

Anyone who is not connected conductively to their surroundings is subject to electrostatic charge.

The following diagram shows the maximum voltage values to which a person can be charged electrostatically. The values depend on the material and humidity. The shown values are in conformity with the specifications of EN 61000-4-2.



- ① Synthetic materials
- ② Wool
- ③ Antistatic materials such as wood or concrete

Protective measures against discharge of static electricity

CAUTION

Grounding measures

There is no equipotential bonding without grounding. An electrostatic charge is not discharged and may damage the ESD.

When working with electrostatic sensitive devices, make sure that the person and the workplace are properly grounded.

Note the following:

- Only touch the ESD if it is absolutely necessary.
- When you touch ESD modules, avoid touching the pins or the PCB tracks.
This precaution reduces the risk of damaging an ESD.
- Discharge electrostatic electricity from your body if you are performing measurements on an ESD.
To do so, touch a grounded metal object before you carry out the measurement.
- Always use grounded measuring instruments.

A.2 Typical operating procedures and potential fault scenarios


A.2.1 Overview

This section describes typical application cases for the HMI device. The following states are graphically represented in the application cases.



- LED status
- Operability of the EMERGENCY STOP button and enabling buttons

The used icons have the following meaning:

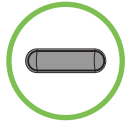

- LED display

| Icon | Meaning |
|--|---|
|  | Status of the LEDs that are displayed on the HMI device during the described situation. All LEDs are on. |

- EMERGENCY STOP button

| Icon | Meaning |
|---|--|
|  | Pressing the EMERGENCY STOP button triggers an EMERGENCY STOP. |
|  | Pressing the EMERGENCY STOP has no effect. |

- Enabling button

| Icon | Meaning |
|---|---|
|  | The operator can release movements of the assigned machine with the enabling buttons. |
|  | Pressing the enabling buttons has no effect. |



Appendix

A.2 Typical operating procedures and potential fault scenarios

A.2.2 Switch on the HMI device.

Requirement

- The HMI device is switched off.
- The rechargeable battery is fully charged.

| LED display | EMERGENCY STOP button | Enabling button |
|---|---|---|
| <input type="checkbox"/> SAFE <input type="checkbox"/> PWR <input type="checkbox"/> COM <input type="checkbox"/> RNG <input type="checkbox"/> BAT |  |  |



Procedure

1. Switch on the HMI device using the ON/OFF button.

Communication via WLAN starts up. While the WLAN connection is being established the "COM" LED flashes.

Result

- WLAN communication is established.
- The HMI device displays the Windows CE Desktop with the Loader.

| LED display | EMERGENCY STOP button | Enabling button |
|--|---|---|
| <input type="checkbox"/> SAFE <input checked="" type="checkbox"/> PWR <input checked="" type="checkbox"/> COM <input type="checkbox"/> RNG <input checked="" type="checkbox"/> BAT |  |  |

A.2.3 Integrating the HMI device

Requirement

- The HMI device is switched on.
- WLAN communication is established.
- The HMI device shows the Windows CE Desktop with the Loader.

| LED display | EMERGENCY STOP button | Enabling button |
|--|-----------------------|-----------------|
| <input type="checkbox"/> SAFE <input checked="" type="checkbox"/> PWR <input checked="" type="checkbox"/> COM <input type="checkbox"/> RNG <input checked="" type="checkbox"/> BAT | | |

Procedure

1. Start the project.
 - PROFIsafe communication is established.
 - The "Establishment of safety connection" dialog is shown with the following icon.



- The HMI device is integrated in the safety program of the F CPU.
- The "Test enabling button" dialog opens with the following icon.



2. Press both enabling buttons when prompted until the "Panic" switch position is reached.

Result




- Both enabling buttons have been tested in the "Enable" and "Panic" switch positions.
- The project start screen appears.

| LED display | EMERGENCY STOP button | Enabling button |
|---|-----------------------|-----------------|
| <input checked="" type="checkbox"/> SAFE <input checked="" type="checkbox"/> PWR <input checked="" type="checkbox"/> COM <input type="checkbox"/> RNG <input checked="" type="checkbox"/> BAT | | |

A.2.4 Communication error for the integrated HMI device

Requirement

- The HMI device is integrated in the safety program of the F-CPU.
- The HMI device is not logged onto a machine.

| LED display | EMERGENCY STOP button | Enabling button |
|---|---|---|
|  |  |  |

Procedure

1. You are leaving the WLAN range with the HMI device.

The "COM" LED flashes. The F CPU detects a communication error and initiates a global rampdown. The "SAFE" LED goes out. The user is informed that no safety functions are available. The "No safety connection" dialog is shown with the following symbol.



2. You will return to the WLAN range within 60 seconds.

The "Acknowledgment of communication error" dialog opens with the following symbol.



3. Acknowledge the communication error. See Result 1.
4. You remain outside the WLAN.



The "Confirm removal" dialog will be displayed after 60 seconds with the following symbol.



See Result 2.



Result 1 – Return to the WLAN range

- The "Global rampdown" signal is canceled. PROFIsafe communication is again possible.
- The HMI device is fully operable.

| LED display | EMERGENCY STOP button | Enabling button |
|---|---|---|
| <input checked="" type="checkbox"/> SAFE <input checked="" type="checkbox"/> PWR <input checked="" type="checkbox"/> COM <input type="checkbox"/> RNG <input checked="" type="checkbox"/> BAT |  |  |

Result 2 – No return to the WLAN range

- The project will be closed immediately if you confirm the Confirm removal dialog within 60 seconds.
- The active project will be closed automatically if you do **not** confirm the "Confirm removal" dialog within 60 seconds.
- The Windows CE desktop with the loader is shown on the display.

| LED display | EMERGENCY STOP button | Enabling button |
|---|--|--|
| <input type="checkbox"/> SAFE <input checked="" type="checkbox"/> PWR <input type="checkbox"/> COM <input type="checkbox"/> RNG <input checked="" type="checkbox"/> BAT |  |  |

Wireless network communication is reestablished if you later return to the WLAN range with the HMI device. Start the project again. Acknowledge the communication error in the "Acknowledgment of communication error" dialog with the following symbol.



The "Global rampdown" signal is cancelled when you acknowledge the communication error.

Test the enabling buttons when the "Test Enabling Button" dialog is shown with the following symbol.



The HMI device is integrated again.

Note

Users can react to a fault on the HMI device by resetting the associated F_FB_MP to the "original state" using input "S7_MP_RES." This action sets the relevant HMI device to the "removed" state and the global rampdown signal is canceled.

Appendix

A.2 Typical operating procedures and potential fault scenarios

A.2.5 Discrepancy error during enabling

The enabling button is two-channel. Both contacts must be closed at the same time to reach the enabled state. A discrepancy error is generated if one of the contacts is open while the other is closed. The following fault scenarios can occur:

- The enabling button is askew
- The enabling button is defective.

A.2.5.1 The enabling button is askew

Requirement

The HMI device is integrated.

- The HMI device is **not** logged onto a machine.

| LED display | EMERGENCY STOP button | Enabling button |
|-------------|-----------------------|-----------------|
| | | |

- The HMI device is logged on to a machine.

| LED display | EMERGENCY STOP button | Enabling button |
|-------------|-----------------------|-----------------|
| | | |

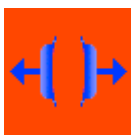
Procedure

1. Press the enabling button.

If you press the edge of an enabling button, the pressure point for the contacts is not centered. The signal is therefore transmitted only through one of the two contacts. The controller detects a discrepancy.

Result

The enabled state is withdrawn when a discrepancy is detected. The "Discrepancy error enabling button" dialog opens with the following symbol when the discrepancy time expires.





A.2 Typical operating procedures and potential fault scenarios


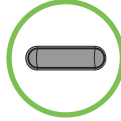
The dialog stays open until this discrepancy is corrected. Additional information on discrepancy time is available in "Wireless Teach Pendant F IWLAN V2 (Page 244)", section "Fail-safe operation".

Enabling is made possible by pressing the enabling button again from the zero position.

- The HMI device is integrated but **not** logged onto a machine.

| LED display | EMERGENCY STOP button | Enabling button |
|--|---|---|
| <input type="checkbox"/> SAFE <input checked="" type="checkbox"/> PWR <input checked="" type="checkbox"/> COM <input type="checkbox"/> RNG <input checked="" type="checkbox"/> BAT |  |  |

- The HMI device is integrated and logged onto a machine:

| LED display | EMERGENCY STOP button | Enabling button |
|--|---|---|
| <input checked="" type="checkbox"/> SAFE <input checked="" type="checkbox"/> PWR <input checked="" type="checkbox"/> COM <input checked="" type="checkbox"/> RNG <input checked="" type="checkbox"/> BAT |  |  |

A.2.5.2 The enabling button is defective.

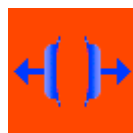
Requirement


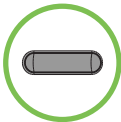
- The HMI device is integrated and logged onto a machine.
- An enabling button is defective and not pressed.

Distinguish between the two scenarios:

- Scenario 1
One channel of the enabling button is opened permanently.
- Scenario 2
One channel of the enabling button is closed permanently.

Discrepancy is detected in this situation. The "Discrepancy error enabling button" dialog is displayed with the following symbol.



| LED display | EMERGENCY STOP button | Enabling button |
|--|---|---|
| <input checked="" type="checkbox"/> SAFE <input checked="" type="checkbox"/> PWR <input checked="" type="checkbox"/> COM <input checked="" type="checkbox"/> RNG <input checked="" type="checkbox"/> BAT |  |  |

Appendix

A.2 Typical operating procedures and potential fault scenarios

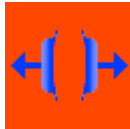
Procedure

1. Press the enabling button.

Result – Scenario 1

- The enabled state is not activated.

The "Discrepancy error enabling button" dialog opens with the following symbol when the discrepancy time expires.



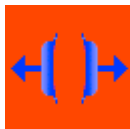
The dialog stays open until the enabling button is released. This step cancels the discrepancy. A discrepancy error is displayed again when the operator presses the enabling button once again .

- The device must be repaired. See section "Spare parts and repairs (Page 239)".
- Press the second working enabling button to remove the HMI device.

Result – Scenario 2

- The "Discrepancy error enabling button" dialog is closed and the discrepancy is cleared.

The enable signal remains in deactivated state. The "Discrepancy error enabling button" dialog is displayed with the following symbol when the enabling button is released.

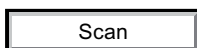


- The device must be repaired. See section "Spare parts and repairs (Page 239)".

A.2.6 Logging onto a machine

Requirement

- You have the HMI device at a distance of no more than 5 cm in front of an RFID tag.
- The "Effective range name (RFID)" object is shown in white labeled "Scan".



| LED display | EMERGENCY STOP button | Enabling button |
|--|-----------------------|-----------------|
| SAFE PWR COM RNG BAT | | |

Procedure

1. Touch the "Effective range name (RFID)" object labeled "Scan".

The HMI device searches for RFID tags, the "Effective range name (RFID)" object is shown in yellow labeled "Scanning".



If the "Effective range name (RFID)" object is configured with password protection, enter a valid user name and a valid password.

The "Effective range logon" dialog opens with the following symbol.



2. Read the effective range ID from the RFID tag.
3. Enter the effective range ID.
4. Click "Yes".

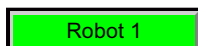
The dialog closes. The "Confirmation of logon" dialog is displayed with the following symbol.



5. Confirm the logon to the RFID tag with the enabling button.

Result

- You have logged on the HMI device to the machine via the RFID tag.
- The "Effective range name (RFID)" operator control is shown in green and labeled with the name of the effective range. The following figure shows the "Effective range name (RFID)" object after logon to an effective range with the name "Robot 1".



| LED display | EMERGENCY STOP button | Enabling button |
|-------------|-----------------------|-----------------|
| | | |

Appendix

A.2 Typical operating procedures and potential fault scenarios

A.2.7 Leaving a protection zone without logging off

Requirement

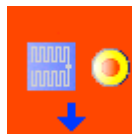
- A security system is installed for the protection zone, for example, a photoelectric sensor or a contact pressure mat.
- The HMI device has been logged on to a machine, such as "Robot 1", via an RFID tag.



| LED display | EMERGENCY STOP button | Enabling button |
|--------------------------|-----------------------|-----------------|
| SAFE PWR COM RNG BAT | | |

Procedure

1. You leave the protection zone with the HMI device through the security system.
The HMI device initiates a local rampdown.
The "Forced logoff" dialog opens with the following symbol.



2. Close the "Forced logoff" dialog with "OK".

Result

The HMI device is logged off the machine. The machine is free again for logon.







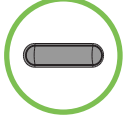
| LED display | EMERGENCY STOP button | Enabling button |
|--------------------------|-----------------------|-----------------|
| SAFE PWR COM RNG BAT | | |

A.2.8 Communication errors with logged on HMI device

Starting situation

The HMI device is logged on to a machine.

Rangename

| LED display | EMERGENCY STOP button | Enabling button |
|--|---|---|
|  SAFE  PWR  COM  RNG  BAT |  |  |

Fault

A communication error occurs.








The F-CPU initiates a shutdown and stops the machine. The "SAFE" and "RNG" LEDs are off.

The operator is alerted that no safety-related communication is available.

Result – Communication will be reestablished within 60 seconds

If the communication is reestablished within 60 seconds, the "Acknowledgment of communication error" dialog will open.

If the operator acknowledges the communication error, the shutdown signal will be cancelled. PROFIsafe communication is again possible. The machine is free again for logon.

| LED display | EMERGENCY STOP button | Enabling button |
|--|---|---|
|  SAFE  PWR  COM  RNG  BAT |  |  |

Result – Communication remains interrupted for more than 60 seconds

If communication remains interrupted for more than 60 seconds, the project will be closed. The HMI device displays the Windows CE Desktop with the loader.

Wireless network communication is reestablished if you later return to the WLAN range with the HMI device. Start the project again. Acknowledge the communication error in the "Acknowledgment of communication error" dialog.

The shutdown signal is revoked. The HMI device is fully operable.

Appendix

A.2 Typical operating procedures and potential fault scenarios

| LED display | EMERGENCY STOP button | Enabling button |
|---|-----------------------|-----------------|
| <input type="checkbox"/> SAFE <input checked="" type="checkbox"/> PWR <input type="checkbox"/> COM <input type="checkbox"/> RNG <input checked="" type="checkbox"/> BAT | | |

A.2.9 Logging off the machine

Requirement

- The HMI device is logged on to a machine.
- The "Effective range name" object will be displayed in green.



| LED display | EMERGENCY STOP button | Enabling button |
|--|-----------------------|-----------------|
| <input checked="" type="checkbox"/> SAFE <input checked="" type="checkbox"/> PWR <input checked="" type="checkbox"/> COM <input checked="" type="checkbox"/> RNG <input checked="" type="checkbox"/> BAT | | |

Procedure

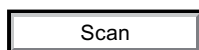
1. Confirm the "Effective range name (RFID)" object.
The "Effective range logoff" dialog opens with the following symbol.



2. Confirm the logoff from the machine with the "Yes" button.

Result

- The HMI device is logged off the machine.
- The "Effective range name (RFID)" object is shown in white labeled "Scan".






| LED display | EMERGENCY STOP button | Enabling button |
|---|-----------------------|-----------------|
| <input checked="" type="checkbox"/> SAFE <input checked="" type="checkbox"/> PWR <input checked="" type="checkbox"/> COM <input type="checkbox"/> RNG <input checked="" type="checkbox"/> BAT | | |

A.2.10 Removing the HMI device

Requirement

- The project must be started.
- The HMI device is integrated in the safety program of the F-CPU.
- The HMI device is not logged onto a machine.

| LED display | EMERGENCY STOP button | Enabling button |
|---|---|---|
|  |  |  |

Procedure

1. To close the project, use the operator control designed for this purpose.
The "Start removal" dialog opens with the following symbol.



2. Use the "Yes" button to confirm the removal.
The "Confirm removal" dialog opens with the following symbol.



3. Press an enabling button within 60 seconds.

| NOTICE |
|--|
| <p>Global rampdown</p> <p>A global rampdown will occur, if you do not confirm the "Confirm removal" dialog within 60 seconds with the enabling button.</p> <p>Press an enabling button within 60 seconds.</p> |

Result

- Safety-related communication is terminated.
- The HMI device has been successfully removed from the safety program of the F-CPU.
- The project is closed.
- The HMI device shows the Windows CE Desktop with the loader.

Appendix

A.2 Typical operating procedures and potential fault scenarios

| LED display | EMERGENCY STOP button | Enabling button |
|--|-----------------------|-----------------|
| <input type="checkbox"/> SAFE <input checked="" type="checkbox"/> PWR <input checked="" type="checkbox"/> COM <input type="checkbox"/> RNG <input checked="" type="checkbox"/> BAT | | |

A.2.11 Switching off the HMI device

Requirement

- The project must be started.
- The HMI device is integrated in the safety program of the F-CPU.

| LED display | EMERGENCY STOP button | Enabling button |
|---|-----------------------|-----------------|
| <input checked="" type="checkbox"/> SAFE <input checked="" type="checkbox"/> PWR <input checked="" type="checkbox"/> COM <input type="checkbox"/> RNG <input checked="" type="checkbox"/> BAT | | |

Procedure

1. Close all open dialogs.
2. Press and hold the "ON/OFF" button for at least 4 seconds.
The "Start removal" dialog opens with the following symbol.



3. Use the "Yes" button to confirm the removal.
The "Confirm removal" dialog opens with the following symbol.





4. Press an enabling button within 60 seconds.

| NOTICE |
|--|
| <p>Global rampdown</p> <p>A global rampdown will occur, if you do not confirm the "Confirm removal" dialog within 60 seconds with the enabling button.</p> <p>Press an enabling button within 60 seconds.</p> |

Result

- Safety-related communication is terminated.
- The HMI device has been successfully removed from the safety program of the F-CPU.
- The project is closed.
- The HMI device will be switched off.

| LED display | EMERGENCY STOP button | Enabling button |
|---|---|---|
| <input type="checkbox"/> SAFE <input type="checkbox"/> PWR <input type="checkbox"/> COM <input type="checkbox"/> RNG <input type="checkbox"/> BAT |  |  |


A.3 Example of an application

A.3.1 Configuration and operation

This application example shows one possible application with the safety features of the HMI device.

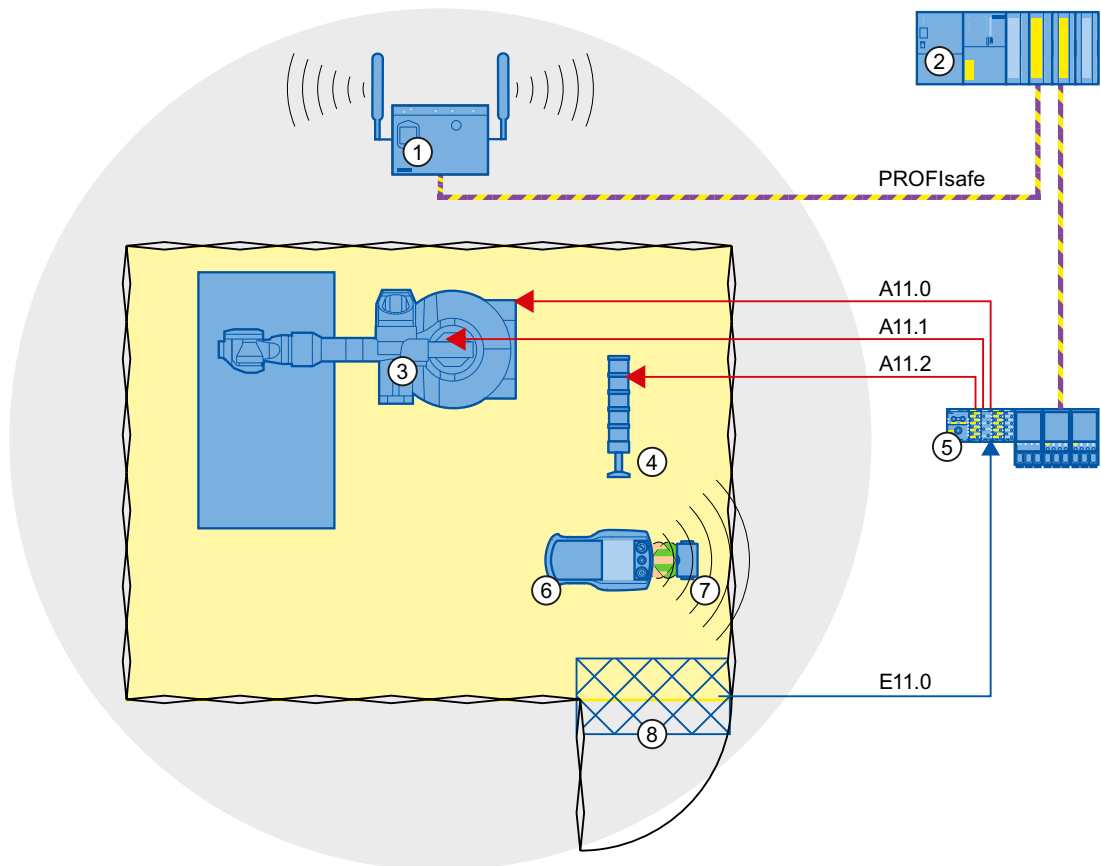
Note

In this example, the HMI device is logged onto a machine via an RFID tag within a protection zone. The security system of the protection zone consists of a wire mesh fence with a door and a contact pressure mat.

| |
|--|
| <p> WARNING</p> <p>Read the documentation for S7 Distributed Safety</p> <p>An incorrectly configured or programmed system can result in death or serious injuries.</p> <p>We highly recommend that you read the information on S7 Distributed Safety in Programming and operation manual "S7 Distributed Safety - Configuring and Programming" (http://support.automation.siemens.com/WW/view/en/22099875) and in the online help of S7 Distributed Safety.</p> |
|--|

Configuration example

The following example configuration shows a robot cell which is secured by a wire mesh fence with a contact pressure mat.



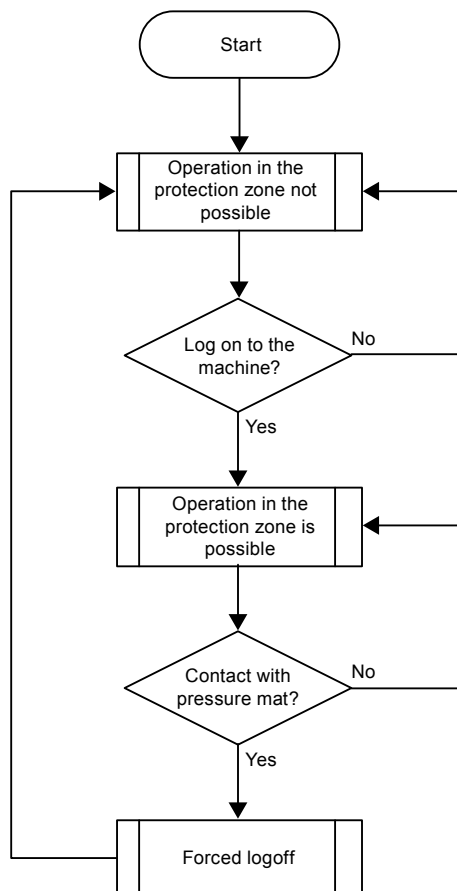
- ① Access point
- ② Fail-safe controller
- ③ Robot
- ④ Signal lamp
- ⑤ F-I/O, PROFINET IO device
- ⑥ HMI device
- ⑦ RFID tag
- ⑧ Contact pressure mat

The following signals are used:

| Function Symbolic name | Signal | Explanation |
|--|------------------------|--|
| Contact pressure mat "Contact_Mats" | I11.0 | "0": Step on contact pressure mat "1": Do not step on contact mat |
| "Key1" button, configured as direct key on the HMI device: | E0.0 | "0": Button not pressed "1": Button pressed |
| Enabling button | ENABLE (F_FB_RNG_4) | "0": No enable "1": Enable |
| Power ON-OFF robot "E_Stop_Robot" | O11.0 | "0": EMERGENCY STOP triggered. "1": Normal operation of plant. |
| Actuator to robot | O11.1 | "0": The robot is not operated with Key1 and the enabling buttons "1": The robot is operated with Key1 and the enabling buttons |
| Signal lamp | O 11.2 | "0": Robot is not in use; the signal lamp is off "1": Robot is in use; the signal lamp is on |

Flowchart

The following flowchart shows the operation sequence in the example.



A.3.2 Configuring the controller and HMI device in STEP 7

This section describes the most important parameters you need to set in "HW Config" for the F-CPU and for the HMI device.

WARNING

Safety category

Any changes to parameters may result in the loss of the safety category.

Set the parameters as described. The parameters will contribute to meeting safety category 4 PL e/SIL 3.

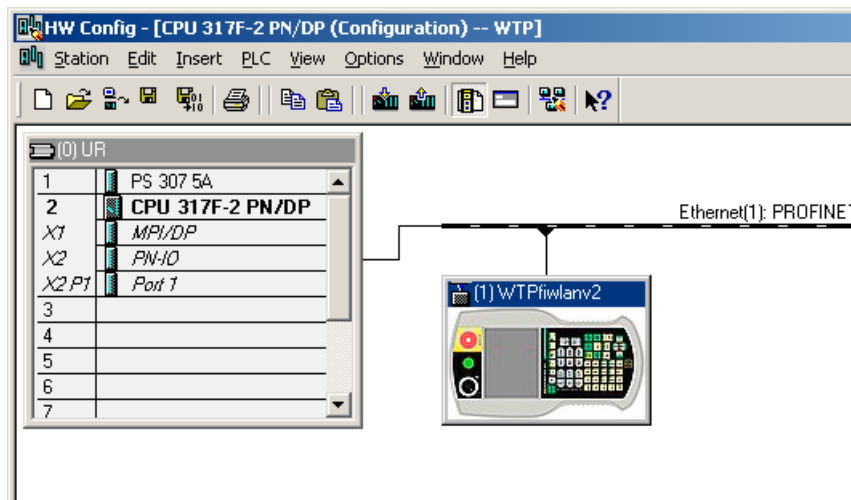
Requirement

The software for fail-safe operation has been installed, see section "Required software (Page 22)".

Procedure – Configuring CPU 317F-2 PN/DP

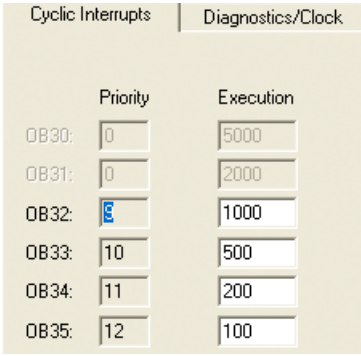

Proceed as follows:

1. Create a STEP 7 project in SIMATIC Manager.
2. Open the "HW Config" hardware configuration and insert the desired F-CPU and a PROFINET connection, as shown in the following figure:



3. Open the settings by double-clicking the F-CPU in "HW Config".

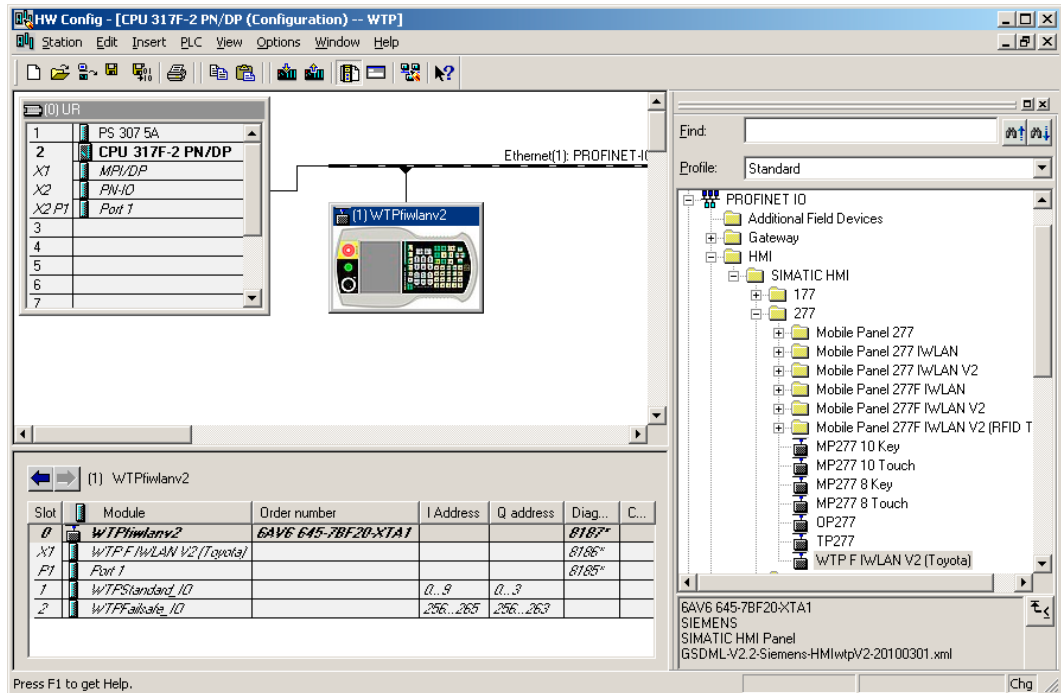
The table below shows the most important settings:

| Setting | Explanation | | | | | | | | | | | | | | | | | | | | | |
|---|---|-----------|-----------|-------|---|------|-------|---|------|-------|---|------|-------|----|-----|-------|----|-----|-------|----|-----|--|
|  <table border="1" data-bbox="389 374 751 728"> <thead> <tr> <th></th> <th>Priority</th> <th>Execution</th> </tr> </thead> <tbody> <tr> <td>OB30:</td> <td>0</td> <td>5000</td> </tr> <tr> <td>OB31:</td> <td>0</td> <td>2000</td> </tr> <tr> <td>OB32:</td> <td>8</td> <td>1000</td> </tr> <tr> <td>OB33:</td> <td>10</td> <td>500</td> </tr> <tr> <td>OB34:</td> <td>11</td> <td>200</td> </tr> <tr> <td>OB35:</td> <td>12</td> <td>100</td> </tr> </tbody> </table> | | Priority | Execution | OB30: | 0 | 5000 | OB31: | 0 | 2000 | OB32: | 8 | 1000 | OB33: | 10 | 500 | OB34: | 11 | 200 | OB35: | 12 | 100 | <p>This is where you set the cycle time for OB35.</p> <p>Note</p> <p>If the cycle time for OB35 is set lower than the PBIO update time, the message frame may be lost and the evaluation of the "E-STOP" output of F_FB_RNG_4 or F_FB_RNG_16 may be delayed.</p> <p>Set the cycle time of OB35 to a value higher than the PNIO update time.</p> |
| | Priority | Execution | | | | | | | | | | | | | | | | | | | | |
| OB30: | 0 | 5000 | | | | | | | | | | | | | | | | | | | | |
| OB31: | 0 | 2000 | | | | | | | | | | | | | | | | | | | | |
| OB32: | 8 | 1000 | | | | | | | | | | | | | | | | | | | | |
| OB33: | 10 | 500 | | | | | | | | | | | | | | | | | | | | |
| OB34: | 11 | 200 | | | | | | | | | | | | | | | | | | | | |
| OB35: | 12 | 100 | | | | | | | | | | | | | | | | | | | | |
|  <p>Protection level</p> <ul style="list-style-type: none"> <input checked="" type="radio"/> 1: Access protect. for F CPU <ul style="list-style-type: none"> <input checked="" type="checkbox"/> Can be bypassed with password <input type="radio"/> 2: Write-protection <input type="radio"/> 3: Write-/read protection <p>Password: <input type="password"/></p> <p>Enter again: <input type="password"/></p> <p><input checked="" type="checkbox"/> CPU contains safety program</p> | <p>Assign a password for the safety program.</p> <p>Set the "CPU contains safety program" check box.</p> <p>This setting is required to generate all the necessary F-FBs for safe operation of the fail-safe modules during compilation of "HW Config" by STEP 7.</p> | | | | | | | | | | | | | | | | | | | | | |

Procedure – Configuring Wireless Teach Pendant F IWLAN


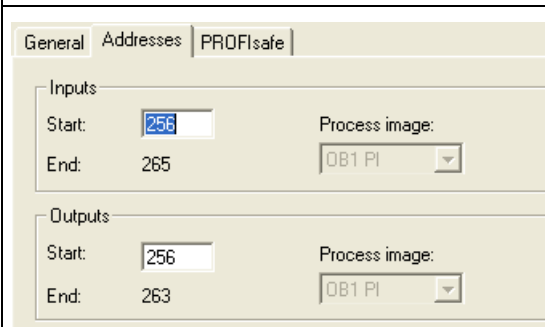
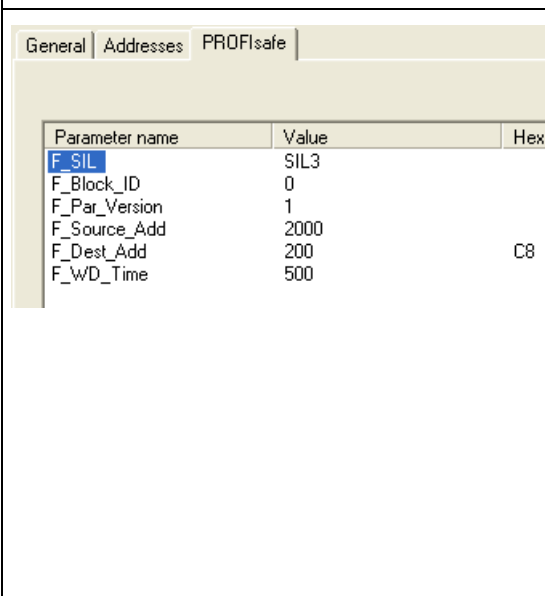
Proceed as follows:

1. Insert the Wireless Teach Pendant F IWLAN in "HW Config" as shown in the following figure.



2. Open the properties dialog of the HMI device by double-clicking the "WTPfiwlan" icon.
3. Enter the device name of the HMI device in the properties dialog.
4. Open the properties dialog of the "WTFfailsafe_IO" module by double-clicking the "WTFfailsafe_IO" entry in the detailed view of the HMI device.
5. Change to the "PROFIsafe" tab.

The table below shows the most important settings:

| Setting | Explanation |
|---|--|
|  | <p>Device name</p> <p>Here you assign a device name to the HMI device, which is unique in the local Ethernet network segment. This name must match the name defined in the Control Panel of the HMI device under "PROFINET" in the text box "Device name:".</p> <p>Additional information is available in the section: "Specifying the computer name of the HMI device (Page 145)".</p> |
|  | <p>Inputs</p> <p>This is where you specify the start address of the inputs and the process image associated with this address area (PII).</p> <p>Outputs</p> <p>Here you specify the start address of the outputs and the process image associated with this address area (PIQ).</p> |
|  | <p>F_Dest_Add</p> <p>PROFIsafe address of the Wireless Teach Pendant F IWLAN. This address must match the address on the HMI device.</p> <p>F_WD_Time</p> <p>Monitoring time in the fail-safe IO device.</p> <p>A valid current safety message frame must reach the F-CPU and be returned to the HMI device within the monitoring time period. This ensures that failures and errors are detected and appropriate responses are triggered to keep the fail-safe system in a safe state or transfer it to a safe state.</p> <p>The monitoring time selected must be long enough that message frame delays will be tolerated by the communication system, but also that the fault reaction function responds quickly enough in the event of a fault (e.g. interruption in the communication connection).</p> |

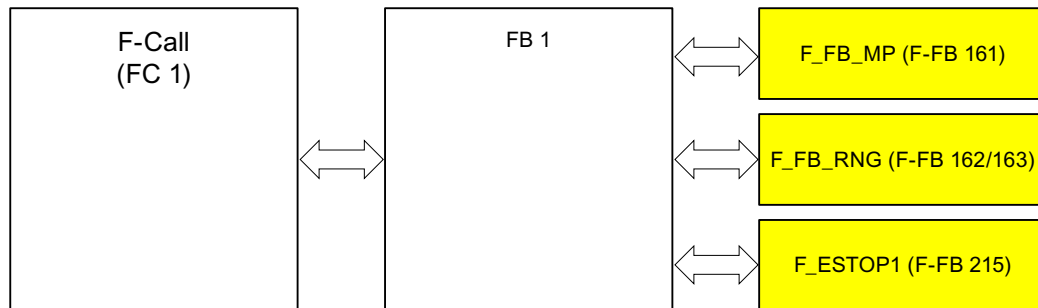
A.3.3 Safety program S7 Distributed Safety

In the safety program of the S7-CPU, the operation sequence of the application example is implemented by the following programming:

- Once the HMI device is logged on to a machine, the signal lamp and the "Override" mode are enabled.
- In the protection zone, the operator can operate the robot with the "Key1" button and the enabling button.
- If the operator leaves the protection zone over the contact pressure mat, the safety program responds as follows:
 - The signal lamp goes out.
 - "Override" mode is deactivated.
 - The HMI device is logged off the machine.
- After an EMERGENCY STOP, the plant only restarts when the operator performs an acknowledgment.
- Reactions specific to a plant are initiated when a rampdown or shutdown occurs.

Safety program

The safety program is structured as follows:



Symbolic names

The following symbolic names are used in the networks of the sample programs

| Symbolic name | Meaning |
|------------------------|---|
| F00256_WTPFail-safe_IO | Fail-safe I/O DB of HMI device |
| MP1_FB_S7_MP_RE | Input which is set when a reset of the HMI device is performed from the F-CPU. |
| MP1_FB_S7_ACK_ERR | Input which is set when a communication error is acknowledged from the F-CPU. |
| MP1_F_DATA_PII | Word 1 of the PII of the HMI device |
| MP1_F_RANGE_PII | Word 2 of the PII of the HMI device |
| MP1_F_DATA_PIQ | Word 1 of the PIQ of the HMI device |
| MP1_F_RANGE_PIQ | Word 2 of the PIQ of the HMI device |
| Interface_DB | F-DB for the data transfer of user data |
| F_DB_States | F-DB for the transfer of data between the F_FB_MP of the HMI device and the F_FB_RNG_n of the effective range |

F-CALL (FC 1)

F-CALL (FC1) is the F-run-time group and is called from the cyclic interrupt OB (OB35).

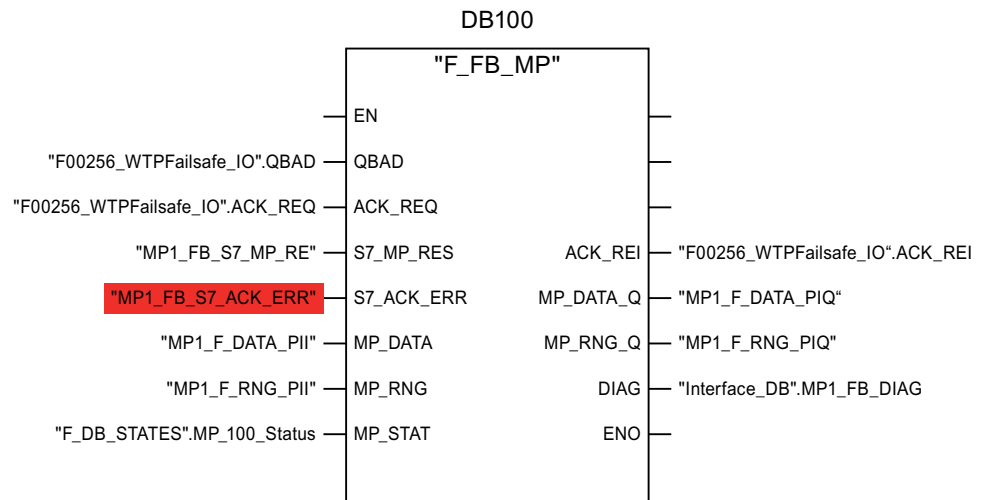
F-CALL (FC1) calls the F-program block (in this case: FB1).

FB1

For reasons of program modularity, all other F-FBs are called from this FB.

In FB 1, you have to call the F-FBs in the following order.

1. Network 1



The controller uses this F-FB to monitor the PROFIsafe communication of the HMI device. The following diagnostics information is indicated at the "DIAG" output:

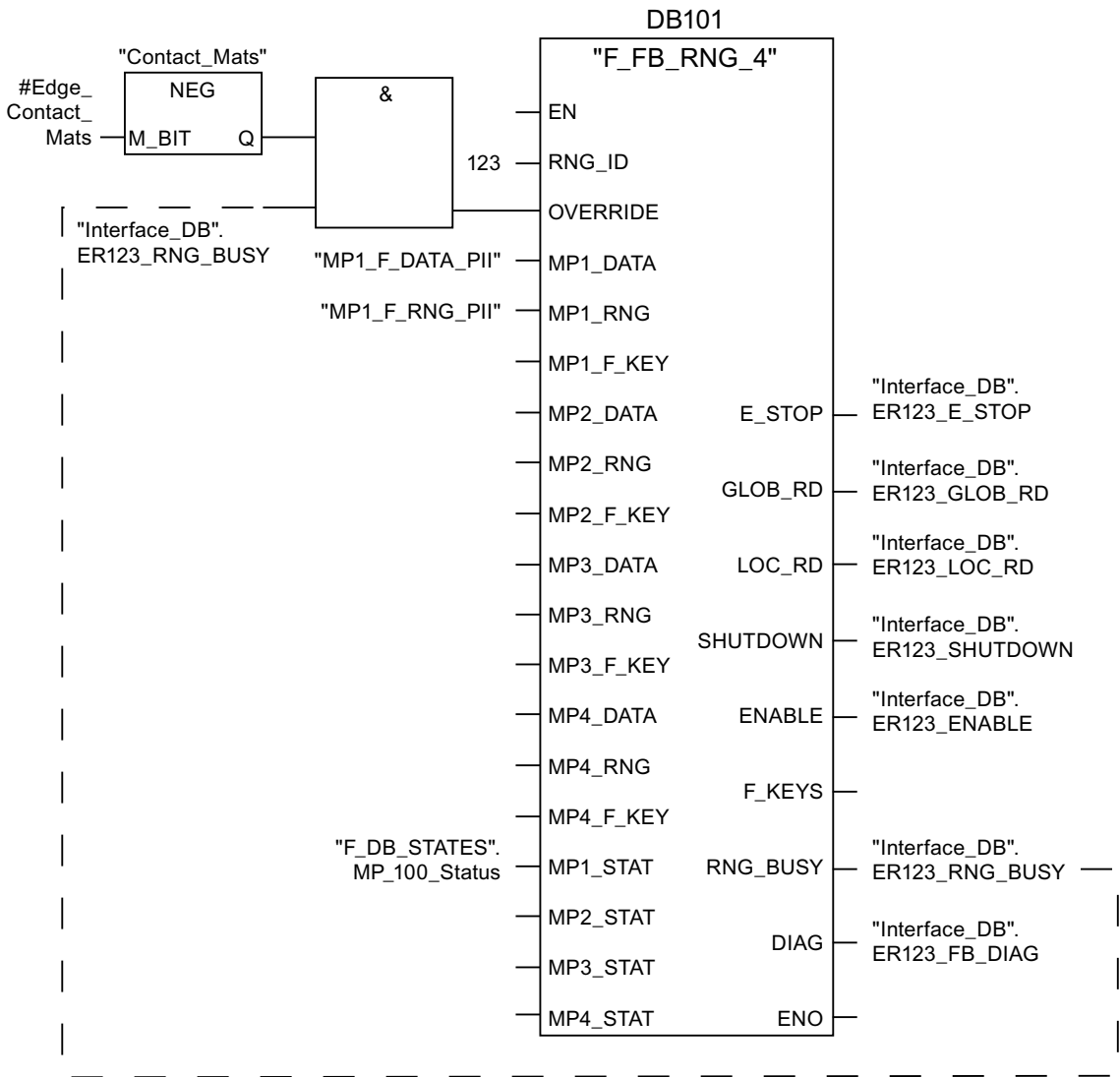
- Status of the HMI device: integrated or removed
- A communication error has occurred.
- Communication error must be acknowledged

Additional information is available in F_FB_MP (Page 171).

Appendix

A.3 Example of an application

2. Network 2

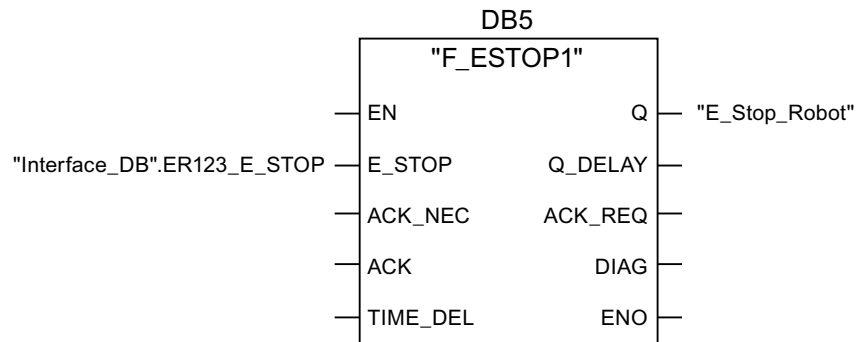


The activation of the "override" mode is controlled in this network.

"OVERRIDE" is set as soon as the operator has logged the HMI device on to the machine via the RFID tag. (RNG_BUSY). "OVERRIDE" is reset by a negative edge on the contact pressure mat, in other words I11.0 = "0". This is the case when the operator leaves the protection zone.

At the same time, F_FB_RNG monitors the signals "EMERGENCY STOP", "Global rampdown", "Local rampdown" and "Shutdown". They are scanned in networks 3 to 6.

3. Network 3

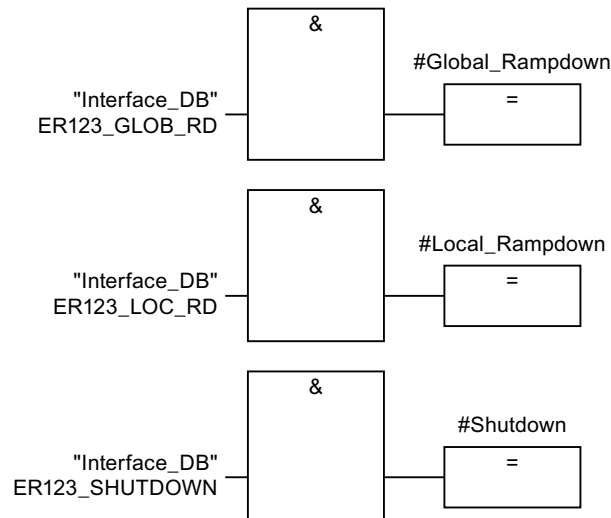


In network 3, the EMERGENCY STOP signal of the HMI device is monitored via F_ESTOP1 from the F-library of S7 Distributed Safety. F_ESTOP1 ensures that the plant is only able to restart following an EMERGENCY STOP after acknowledgment by the operator via the input "ACK".

Note

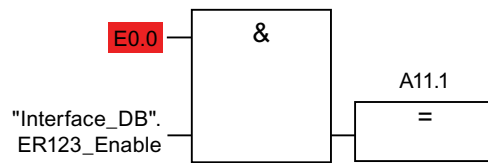
Read also the information on FB215 in the online help for F-FBs and in the manual "SIMATIC S7-Distributed Safety, Configuring and Programming", section "FB215 "F_ESTOP1:" Emergency STOP up to Stop Category 1".

4. Networks 4, 5 and 6



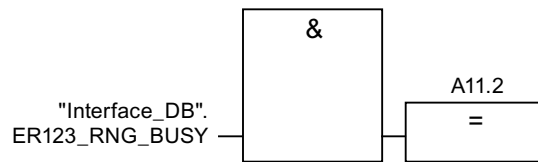
In network 4, 5 and 6 the signals for a global and a local rampdown and shutdown are processed further. As the configuration of the monitored plant determines which responses have to occur following occurrence of a particular safety state, these networks are not explained in detail in this example.

5. Network 7



If the operator simultaneously presses the Key1 key and the enabling button, the robot is activated via the output Q11.1.




6. Network 8



If the "RNG_BUSY" signal is set in F_FB_RNG, output Q11.2 is used to control the signal lamp that indicates whether or not the machine is in use.





A.4 Safety-related messages

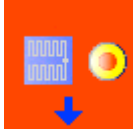

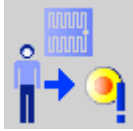
The following safety-related messages are displayed in fail-safe mode depending on the operating situation. In contrast to system alarms, no message window needs to be configured for safety-related messages.

| Dialog | Reaction | Situation |
|--|--|---|
| <p>Establishment of safety connection</p>  <p>No safe connection available. Reason:</p> <ul style="list-style-type: none"> • Connection not yet completed • PROFIsafe address error • Internal configuration error • Communication error (timeout) • Communication error (CRC) • CPU in STOP • PROFIsafe CRC configuration error <p>Should the Panel be switched off?</p> | <p>"Yes" button</p> | <p>The following is reported in the warning message depending on the operating situation:</p> <ul style="list-style-type: none"> • Connection not yet completed The safe connection is not yet established after the project has been started. Wait until the connection has been established. The dialog is closed on completion. • A communication error occurred after the HMI device was successfully integrated. Correct the cause of the error described by "Reason". |
| <p>Start removal</p>  <p>The removal cannot be interrupted once it has started. Do you want to start the removal?</p> | <p>"Yes" button "No" button</p> | <p>The "Start removal" dialog opens in the following cases:</p> <ul style="list-style-type: none"> • The operator has pressed the "ON/OFF" button for more than 4 seconds. • The operator has pressed the operator control for closing the project. |
| <p>Confirm removal</p>  <p>Please confirm the removal with the enabling button.</p> | <p>Press an enabling button until the "Enable" switch position is reached.</p> | <p>The removal starts, in other word, the user has pressed the "Yes" button in the "Start removal" dialog.</p> |

Appendix

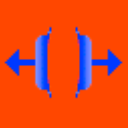
A.4 Safety-related messages

| Dialog | Reaction | Situation |
|--|-------------------------------------|---|
| <p>Effective range logon</p>  <p>Do you want to logon to the following effective range? Effective range <<EFFECTIVE RANGE NAME>> Please enter the effective range ID:</p> | <p>"Yes" button "No" button</p> | <p>The HMI device is located directly in front of an RFID tag and is not yet logged on to the corresponding machine.</p> <p>The operator has activated the "Scan" object to log on.</p> <div style="border: 1px solid black; padding: 2px; width: fit-content; margin: 10px auto;">Scan</div> |
| <p>Effective range logoff</p>  <p>Do you want to log off from the following effective range? Effective range <<EFFECTIVE RANGE NAME>></p> | <p>"Yes" button "No" button</p> | <p>The HMI device is logged on to a machine.</p> <p>The operator has activated the "Effective range name (RFID)" object to log off.</p> |
| <p>Effective range logoff (shutdown)</p>  <p>The Panel cannot be switched off. You first have to log off from the effective range.</p> <p>Do you want to logoff from the following effective range? Effective range <<EFFECTIVE RANGE NAME>></p> | <p>"Yes" button "No" button</p> | <p>The HMI device is logged on to a machine.</p> <p>The operator has attempted to:</p> <ul style="list-style-type: none"> • Shut down the HMI device. • Close the project with the corresponding operator control. |
| <p>Acknowledgment of communication error</p>  <p>A safe connection is possible again. Please confirm the communication error.</p> | <p>"OK" button</p> | <p>Communication was recovered after a short communication error. The operator must confirm this state.</p> <p>Causes:</p> <ul style="list-style-type: none"> • The operator has briefly left the WLAN range and then returned. • PROFI-safe communication was briefly interrupted. |

| Dialog | Reaction | Situation |
|--|---|---|
| <p>Forced logoff</p>  <p>You are automatically logged off from the effective range. A local rampdown has been triggered! Confirm the logoff from the effective range.</p> | "OK" button | The operator has left the protection zone with a logged-on HMI device via the safety system. |
| <p>Low battery alarm</p> <p>Battery charge is less than 20 percent.</p> | "OK" button | The remaining charge of the main rechargeable battery is less than 20%. An additional system alarm is output after the charge of the main rechargeable battery has dropped to less than 6%. |
| <p>Test enabling button</p>  <p>Both enabling buttons must be tested to ensure they are operational. Fully press both enabling buttons until the panic position is reached.</p> | Press both enabling buttons until the "Panic" switch position is reached. | The operator has started the project. Perform a function test for the enabling button. |
| <p>Error during effective range logon</p>  <p>Error during effective range logon. The enabling button remains deactivated.</p> | "OK" button | An error occurred during logon of the HMI device to a machine. The operator cannot use the enable switches to control the production process. Possible causes: <ul style="list-style-type: none"> You are already logged on to the machine with your HMI device or the logon is currently in progress. Another HMI device is already logged on to the machine. RFID tag is defective. RFID module in the HMI device is defective. No ID has been assigned to the RFID tag. The operator has entered an incorrect RFID tag ID for the logon. F_FB_RNG missing in the STEP7 configuration. F_FB_RNG is wired incorrectly in STEP7. |

Appendix

A.4 Safety-related messages

| Dialog | Reaction | Situation |
|--|---|--|
| <p data-bbox="347 340 729 374">Enabling switch discrepancy error</p>  <p data-bbox="347 530 651 589">Please release the enabling button.</p> | <p data-bbox="742 340 932 398">Release both enabling buttons.</p> | <p data-bbox="976 340 1420 430">The HMI device detects a discrepancy at one of the two enabling buttons in switch position "Enable".</p> |

See also

Communication error for the integrated HMI device (Page 256)

A.5 System alarms

Introduction

System alarms on the HMI device provide information about internal states of the HMI device and PLC.

The following overview shows the causes of system alarms and how to eliminate the cause of error.

Some of the system alarms described in this section are relevant to individual HMI devices based on their range of features.

Note

System alarms are only indicated if an alarm window was configured. System alarms are output in the language currently set on your HMI device.

System alarm parameters

System alarms may contain encrypted parameters which are relevant to troubleshooting because they provide a reference to the source code of the runtime software. These parameters are output after the text "Error code:"

Displaying the "System alarms" editor

You can find the text content of the system alarm in WinCC flexible. The "System alarms" editor is not displayed by default in WinCC flexible.

1. Enable the "System alarms" editor under "Options > Setting... > Workbench > Settings for Project Window" with "Display all entries".
2. Select the "System alarms" editor under "Alarms" in the project view.

The system alarms are sorted numerically in the "System alarms" editor.

Configuring events for system alarms

You can configure the "Incoming" event for the following system alarm in the "System alarms" editor.

| System alarms | | |
|------------------|--|--------------------|
| 10000 | 150000 | 230300 |
| • 10000 to 10006 | • 150000 • 150001 | • 230300 to 230308 |
| 20000 | 160000 | 240000 |
| • 20000 to 20015 | • 160000 • 160001 • 160010 to 160014 | • 240000 to 240005 |
| 30000 | 170000 | 250000 |
| • 30010 to 20012 | • 170000 to 170004 • 170007 | • 250000 to 250003 |

Appendix

A.5 System alarms

| System alarms | | |
|----------------------|--------------------|--------------------|
| 40000 | 180000 | 260000 |
| • 40010 | • 180000 to 180002 | • 260000 to 260009 |
| • 40011 | | • 260012 to 260014 |
| | | • 260028 |
| | | • 260030 |
| | | • 260033 to 260045 |
| 50000 | 190000 | 270000 |
| • 50000 | • 190000 to 190002 | • 270000 to 270003 |
| • 50001 | • 190004 to 190013 | |
| 60000 | 190100 | 280000 |
| • 60010 to 60011 | • 190100 to 190102 | • 280000 to 280004 |
| 70000 | 200000 | 290000 |
| • 70010 to 70044 | • 200000 to 200005 | • 290000 to 290008 |
| | | • 290010 to 290014 |
| | | • 290020 to 290027 |
| | | • 290040 to 290042 |
| | | • 290044 |
| | | • 290050 to 290065 |
| | | • 290070 to 290073 |
| | | • 290075 |
| 80000 | 200100 | 300000 |
| • 80001 to 80035 | • 200100 to 200105 | • 300000 |
| • 80044 to 80050 | | • 300001 |
| 90000 | 210000 | 310000 |
| • 90024 to 90026 | • 210000 to 210006 | • 310000 |
| • 90029 to 90033 | | • 310001 |
| • 90040 | | |
| • 90041 | | |
| • 90044 | | |
| 110000 | 220000 | 600000 |
| • 110000 to 110006 | • 220000 to 220008 | • 600000 |
| 120000 | 230000 | 620000 |
| • 120000 to 120002 | • 230000 | • 620000 |
| | • 230002 | |
| | • 200003 | |
| | • 200005 | |
| 130000 | 230100 | |
| • 130000 to 130012 | • 230100 | |
| 140000 | 230200 | |
| • 140000 to 140020 | • 230200 to 230203 | |

10000 - Printer alarms

| Number | Effect/cause | Remedy |
|--------|--|--|
| 10000 | The print job could not be started or was canceled due to an unknown error. Faulty printer setup. Or: No authorization is available for accessing the network printer. Power supply failure during data transfer. | Check the printer settings, cable connections and the power supply. Set up the printer once again. Obtain a network printer authorization. If the error persists, contact the Hotline! |
| 10001 | No printer is installed or a default printer has not been set up. | Install a printer and/or select it as the default printer. |
| 10002 | Overflow of the graphics buffer for printing. Up to two graphics are buffered. | Allow sufficient intervals between successive print jobs. |
| 10003 | Graphics can now be buffered again. | -- |
| 10004 | Overflow of the buffer for printing lines in text mode (e.g. alarms). Up to 1000 lines are buffered. | Allow sufficient intervals between successive print jobs. |
| 10005 | Text lines can now be buffered again. | -- |
| 10006 | The Windows printing system reports an error. Refer to the output text and the error ID to determine the possible causes. Nothing is printed or the print is faulty. | Repeat the action if necessary. |

20000 - Global script alarms

| Number | Effect/causes | Remedy |
|--------|--|---|
| 20010 | An error has occurred in the specified script line. Execution of the script was therefore aborted. Note the system alarm that may have occurred prior to this. | Select the specified script line in the configuration. Ensure that the tags used are of the allowed types. Check system functions for the correct number and types of parameters. |
| 20011 | An error has occurred in a script that was called by the specified script. Execution of the script was therefore aborted in the called script. Note the system alarm that may have occurred prior to this. | In the configuration, select the script that has been called directly or indirectly by the specified script. Ensure that the tags used are of the allowed types. Check system functions for the correct number and types of parameters. |
| 20012 | The configuration data is inconsistent. The script could therefore not be generated. | Recompile the configuration. |
| 20013 | The scripting component of WinCC flexible Runtime is not correctly installed. Therefore, no scripts can be executed. | Reinstall WinCC flexible Runtime on your PC. Rebuild your project with "Project > Compiler > Generate" and transfer the project to the HMI device. |
| 20014 | The system function returns a value that is not written in any return tag. | Select the specified script in the configuration. Check whether the script name has been assigned a value. |
| 20015 | Too many successive scripts have been triggered in short intervals. When more than 20 scripts are queued for processing, any subsequent scripts are rejected. In this case, the script indicated in the alarm is not executed. | Find what is triggering the scripts. Extend the times, e.g. the polling time of the tags which trigger the scripts. |

Appendix

A.5 System alarms

30000 - Alarms for IFwSetValue: SetValue()

| Number | Effect/causes | Remedy |
|--------|--|--|
| 30010 | The tag could not accept the function result, e.g. when it has exceeded the value range. | Check the tag type of the system function parameter. |
| 30011 | A system function could not be executed because the function was assigned an invalid value or type in the parameter. | Check the parameter value and tag type of the invalid parameter. If a tag is used as a parameter, check its value. |
| 30012 | A system function could not be executed because the function was assigned an invalid value or type in the parameter. | Check the parameter value and tag type of the invalid parameter. If a tag is used as a parameter, check its value. |

40000 - Linear scaling alarms

| Number | Effect/causes | Remedy |
|--------|---|---|
| 40010 | The system function could not be executed since the parameters could not be converted to a common tag type. | Check the parameter types in the configuration. |
| 40011 | The system function could not be executed since the parameters could not be converted to a common tag type. | Check the parameter types in the configuration. |

50000 - Data server alarms

| Number | Effect/causes | Remedy |
|--------|--|--------|
| 50000 | The HMI device is receiving data faster than it is capable of processing. Therefore, no further data is accepted until all current data have been processed. Data exchange then resumes. | -- |
| 50001 | Data exchange has been resumed. | -- |

60000 - Win32 function alarms

| Number | Effect/causes | Remedy |
|--------|---|---|
| 60000 | This alarm is generated by the "DisplaySystemAlarms" function. The text to be displayed is transferred to the function as a parameter. | -- |
| 60010 | The file could not be copied in the direction defined because one of the two files is currently open or the source/target path is not available. It is possible that the Windows user has no access rights to one of the two files. | Restart the system function or check the paths of the source/target files. Using Windows NT/XP: The user running WinCC flexible Runtime must be granted access rights to the files. |
| 60011 | An attempt was made to copy a file to itself. It is possible that the Windows user has no access rights to one of the two files. | Check the path of the source/target file. Using Windows NT/XP with NTFS: The user running WinCC flexible Runtime must be granted access rights to the files. |

70000 - Win32 function alarms

| Number | Effect/causes | Remedy |
|--------|---|--|
| 70010 | The application could not be started because it could not be found in the path specified or there is insufficient memory space. | Check whether the application exists in the specified path or close other applications. |
| 70011 | The system time could not be modified. The error alarm only appears in connection with area pointer "Date/time PLC". Possible causes: <ul style="list-style-type: none"> An invalid time was transferred in the job mailbox. The Windows user has no right to modify the system time. If the first parameter in the system alarm is displayed with the value 13, the second parameter indicates the byte containing the incorrect value. | Check the time which is to be set. Using Windows NT/XP: Users running WinCC flexible Runtime must be granted the right to modify the system time of the operating system. |
| 70012 | An error occurred when executing the function "StopRuntime" with the option "Runtime and operating system". Windows and WinCC flexible Runtime are not closed. One possible cause is that other programs cannot be closed. | Close all programs currently running. Then close Windows. |
| 70013 | The system time could not be modified because an invalid value was entered. Incorrect separators may have been used. | Check the time which is to be set. |
| 70014 | The system time could not be modified. Possible causes: <ul style="list-style-type: none"> An invalid time was transferred. The Windows user has no right to modify the system time. Windows rejects the setting request. | Check the time which is to be set. Using Windows NT/XP: Users running WinCC flexible Runtime must be granted the right to modify the system time of the operating system. |
| 70015 | The system time could not be read because Windows rejects the reading function. | -- |
| 70016 | An attempt was made to select a screen by means of a system function or job. This is not possible because the screen number specified does not exist. Or: A screen could not be generated due to insufficient system memory. Or: The screen is blocked. Or: Screen call has not been executed correctly. | Check the screen number in the function or job with the screen numbers configured. Assign the number to a screen if necessary. Check the details for the screen call and whether the screen is blocked for specific users. |
| 70017 | Date/time is not read from the area pointer because the address set in the PLC is either not available or has not been set up. | Change the address or set up the address in the PLC. |
| 70018 | Acknowledgment that the password list has been successfully imported. | -- |
| 70019 | Acknowledgment that the password list has been successfully exported. | -- |
| 70020 | Acknowledgment for activation of alarm reporting. | -- |
| 70021 | Acknowledgment for deactivation of alarm reporting. | -- |
| 70022 | Acknowledgment to starting the Import Password List action. | -- |

Appendix

A.5 System alarms

| Number | Effect/causes | Remedy |
|--------|--|--|
| 70023 | Acknowledgment to starting the Export Password List action. | -- |
| 70024 | The range of values of the tag was exceeded in the system function. No calculation of the system function. | Check and correct the calculation. |
| 70025 | The range of values of the tag was exceeded in the system function. No calculation of the system function. | Check and correct the calculation. |
| 70026 | No other screens are stored in the internal screen memory. No other screens can be selected. | -- |
| 70027 | The backup of the RAM file system has been started. | -- |
| 70028 | The files from the RAM have been copied in the Flash memory. The files from the RAM have been copied in the Flash memory. Following a restart, these saved files are copied back to the RAM file system. | -- |
| 70029 | Backup of the RAM file system has failed. No backup copy of the RAM file system has been made. | Check the settings in the "Control Panel > OP" dialog and save the RAM file system using the "Save Files" button in the "Persistent Storage" tab. |
| 70030 | The parameters configured for the system function are faulty. The connection to the new PLC was not established. | Compare the parameters configured for the system function with the parameters configured for the PLCs and correct them as necessary. |
| 70031 | The PLC configured in the system function is not an S7 PLC. The connection to the new PLC was not established. | Compare the S7 PLC name parameter configured for the system function with the parameters configured for the PLC and correct them as necessary. |
| 70032 | The object configured with this number in the tab order is not available in the selected screen. The screen changes but the focus is set to the first object. | Check the number of the tab order and correct it if necessary. |
| 70033 | An e-mail cannot be sent because a TCP/IP connection to the SMTP server no longer exists. This system alarm is generated only at the first attempt. All subsequent unsuccessful attempts to send an e-mail will no longer generate a system alarm. The event is regenerated when an e-mail has been successfully sent in the meantime. The central e-mail component in WinCC flexible Runtime attempts, in regular intervals (1 minute), to establish the connection to the SMTP server and to send the remaining e-mails. | Check the network connection to the SMTP server and re-establish it if necessary. |
| 70034 | Following a disruption, the TCP/IP connection to the SMTP server could be re-established. The queued e-mails are then sent. | -- |
| 70036 | No SMTP server for sending e-mails is configured. An attempt to connect to an SMTP server has failed and it is not possible to send e-mails. WinCC flexible Runtime generates the system alarm after the first attempt to send an e-mail. | Configure an SMTP server: In WinCC flexible Engineering System using "Device settings > Device settings" In the Windows CE operating system using "Control Panel > Internet Settings > E-mail > SMTP Server" |

| Number | Effect/causes | Remedy |
|--------|---|---|
| 70037 | An e-mail cannot be sent for unknown reasons. The contents of the e-mail are lost. | Check the e-mail parameters (recipient etc.). |
| 70038 | The SMTP server has rejected sending or forwarding an e-mail because the domain of the recipient is unknown to the server or because the SMTP server requires authentication. The contents of the e-mail are lost. | Check the domain of the recipient address or disable the authentication on the SMTP server if possible. SMTP authentication is currently not used in WinCC flexible Runtime. |
| 70039 | The syntax of the e-mail address is incorrect or contains illegal characters. The contents of the e-mail are discarded. | Check the e-mail address of the recipient. |
| 70040 | The syntax of the e-mail address is incorrect or contains illegal characters. | -- |
| 70041 | The import of the user management was aborted due to an error. Nothing was imported. | Check your user management or transfer it again to the panel. |
| 70042 | The range of values of the tag was exceeded while executing the system function. The system function was not calculated. | Check and correct the calculation. |
| 70043 | The range of values of the tag was exceeded while executing the system function. The system function was not calculated. | Check and correct the calculation. |
| 70044 | An error occurred while sending the e-mails. The e-mails were not sent. | Check the SMTP settings and the error message in the system alarm. |
| 70045 | Cannot load a file required for encrypting the e-mail. | Update the operating system and Runtime. |
| 70046 | The server does not support encryption. | Select an SMTP server that supports encryption. |
| 70047 | The SSL versions of the HMI device and SMTP server may not be compatible. | Contact your network administrator or the operator of the SMTP server. |

80000 - Log alarms

| Number | Effect/causes | Remedy |
|--------|--|---|
| 80001 | The log specified is filled to the size defined (in percent) and must be stored elsewhere. | Store the file or table by executing a 'move' or 'copy' function. |
| 80002 | A line is missing in the specified log. | -- |
| 80003 | The copying process for logging was not successful. In this case, it is advisable to check any subsequent system alarms, too. | -- |
| 80006 | Since logging is not possible, this causes a permanent loss of the functionality. | In the case of databases, check whether the corresponding data source exists and start up the system again. |
| 80009 | A copying action has been completed successfully. | -- |
| 80010 | Since the storage location was incorrectly entered in WinCC flexible, this causes a permanent loss of the functionality. | Configure the storage location for the respective log again and restart the system when the full functionality is required. |

Appendix

A.5 System alarms

| Number | Effect/causes | Remedy |
|--------|--|--|
| 80012 | Log entries are stored in a buffer. If the values are read to the buffer faster than they can be physically written (using a hard disk, for example), overloading may occur and recording is then stopped. | Archive fewer values. Or: Increase the logging cycle. |
| 80013 | The overload status no longer applies. Archiving resumes the recording of all values. | -- |
| 80014 | The same action was triggered twice in quick succession. Since the process is already in operation, the action is only carried out once. | -- |
| 80015 | This system alarm is used to report DOS or database errors to the user. | -- |
| 80016 | The logs are separated by the system function "CloseAllLogs" and the incoming entries exceed the defined buffer size. All entries in the buffer are deleted. | Reconnect the logs. |
| 80017 | The number of incoming events cause a buffer overflow. This can be caused, for example, by several copying actions being activated at the same time. All copy jobs in the buffer are deleted. | Stop the copy action. |
| 80019 | The connection between WinCC flexible and all logs were closed, for example, after executing the system function "CloseAllLogs". Entries are written to the buffer and are then written to the logs when a connection is re-established. There is no connection to the storage location and the storage medium may be replaced, for example. | -- |
| 80020 | The maximum number of simultaneously copy operations has been exceeded. Copying is not executed. | Wait until the current copying actions have been completed, then restart the last copy action. |
| 80021 | An attempt was made to delete a log which is still busy with a copy action. Deletion has not been executed. | Wait until the current copying actions have been completed, then restart the last action. |
| 80022 | An attempt was made to use the system function "StartSequenceLog" to start a sequence log for a log which is not configured as a sequence log. No sequence log file is created. | In the project, check <ul style="list-style-type: none"> • if the "StartSequenceLog" system function was properly configured. • if the tag parameters are properly provided with data on the HMI device. |
| 80023 | An attempt was made to copy a log to itself. The log is not copied. | In the project, check <ul style="list-style-type: none"> • if the "CopyLog" system function was properly configured. • if the tag parameters are properly provided with data on the HMI device. |
| 80024 | The "CopyLog" system function does not allow copying when the target log already contains data ("Mode" parameter). The log is not copied. | Edit the "CopyLog" system function in the project if necessary. Before you initiate the system function, delete the destination log file. |
| 80025 | You have canceled the copy operation. Data written up to this point are retained. The destination log file (if configured) is not deleted. The cancellation is reported by an error entry \$RT_ERR\$ at the end of the destination log. | -- |

| Number | Effect/causes | Remedy |
|--------|---|---|
| 80026 | This alarm is output after all logs are initialized. Values are written to the logs from then on. Prior to this, no entries are written to the logs, irrespective whether WinCC flexible Runtime is active or not. | -- |
| 80027 | The internal Flash memory has been specified as the storage location for a log. This is not permissible. No values are written to this log and the log file is not created. | Configure "Storage Card" or a network path as the storage location. |
| 80028 | The alarm returns a status report indicating that the logs are currently being initialized. No values are logged until the alarm 80026 is output. | -- |
| 80029 | The number of logs specified in the alarm could not be initialized. The logs are initialized. The faulty log files are not available for logging jobs. | Evaluate the additional system alarms related to this alarm. Check the configuration, the ODBC (Open Database Connectivity) and the specified drive. |
| 80030 | The structure of the existing log file does not match the expected structure. Logging is stopped for this log. | Delete the existing log data manually, in advance. |
| 80031 | The log in CSV format is corrupted. The log cannot be used. | Delete the faulty file. |
| 80032 | Logs can be assigned events. These are triggered as soon as the log is full. WinCC flexible Runtime is started and the log is already full, the event is not triggered. The log specified no longer logs data because it is full. | Close WinCC flexible Runtime delete the log, then restart WinCC flexible Runtime. Or: Configure a button which contains the same actions as the event and press it. |
| 80033 | "System Defined" is set in the data log file as the data source name. This causes an error. No data is written to the database logs, whereas the logging to the CSV logs works. | Reinstall SQL Sever 2005 Express. |
| 80034 | An error has occurred in the initialization of the logs. An attempt has been made to create the tables as a backup. This action was successful. A backup has been made of the tables of the corrupted log file and the cleared log was restarted. | No action is necessary. However, it is recommended to save the backup files or delete them in order to make the space available again. |
| 80035 | An error has occurred in the initialization of the logs. An attempt has been made to create backups of the tables and this has failed. No logging or backup has been performed. | It is recommended to save the backups or to delete them in order to release memory. |
| 80044 | The export of a log was interrupted because Runtime was closed or due to a power failure. It was detected that the export needed to be resume when Runtime restarted. | The export resumes automatically. |
| 80045 | The export of a log was interrupted due to an error in the connection to the server or at the server itself. | The export is repeated automatically. Check: <ul style="list-style-type: none"> • The connection to the server. • If the server is running. • If there is enough free space on the server. |
| 80046 | The destination file could not be written while exporting the log. | Check whether there is enough space on the server and if you have permission to create the log file. |
| 80047 | The log could not be read while exporting it. | Check whether the storage medium is correctly inserted. |

Appendix

A.5 System alarms

| Number | Effect/causes | Remedy |
|--------|--|--|
| 80049 | The log could not be renamed while preparing to export it. The job can not be completed." | Check whether the storage medium is correctly inserted and if there is sufficient space on the medium. |
| 80050 | The log which shall be exported is not closed. The job can not be completed. | Make sure the "CloseAllLogs" system function is called before using the "ExportLog" system function. Change the configuration as required. |
| 80051 | The log to be copied contains an invalid checksum. The log was not copied. | Select a log with a valid checksum. The selected log may have been manipulated. |
| 80052 | The log cannot be read. | Check the log and the specified path. |
| 80053 | The closed log cannot be read. | Open the log. |

90000 - FDA alarms

| Number | Effect/causes | Remedy |
|--------|---|--|
| 90024 | No operator actions can be logged due to lack of space on the storage medium for log. The operator action will therefore not be executed. | Make more space available by inserting an empty storage medium or swapping out the log files on the server using "ExportLog". |
| 90025 | No user actions can be logged because of error state of the archive. Therefore the user action will not be executed. | Check whether the storage medium is correctly inserted. |
| 90026 | No operator actions can be logged because the log is closed. The operator action will therefore not be executed. | Before further operator actions are carried out, the log must be opened again using the system function "OpenAllLogs". Change the configuration as required. |
| 90028 | The password you entered is incorrect. | Enter the correct password. |
| 90029 | Runtime was closed during ongoing operation (perhaps due to a power failure) or a storage medium in use is incompatible with Audit Trail. An Audit Trail is not suitable if it belongs to another project or has already been logged. | Ensure that you are using the correct storage medium. |
| 90030 | Runtime was closed during ongoing operation (perhaps due to a power failure). | -- |
| 90031 | Runtime was closed during ongoing operation (perhaps due to a power failure). | -- |
| 90032 | Running out of space on the storage medium for log. | Make more space available by inserting an empty storage medium or swapping out the log files on the server using "ExportLog". |
| 90033 | No more space on the storage medium for log. As of now, no more operator actions requiring logging will be executed. | Make more space available by inserting an empty storage medium or swapping out the log files on the server using "ExportLog". |
| 90039 | You do not have the necessary authorization to perform this action. | Adapt or upgrade your authorizations. |
| 90040 | Audit Trail is switched off because of a forced user action. | Activate the "Audit Trail" again using the system function "StartLog". |
| 90041 | A user action which has to be logged has been executed without a logged on user. | A user action requiring logging should only be possible with permission. Change the configuration by setting a required authorization for the input object. |
| 90044 | A user action which has to be confirmed was blocked, because there is another user action pending. | Repeat the user action if necessary. |

| Number | Effect/causes | Remedy |
|--------|---|---|
| 90048 | The Audit Trail cannot be printed while data relevant to the audit is being logged. | Stop logging using the system function "StopLogging". |
| 90049 | Access to required file is not possible. | Check the network connection or the storage medium. |
| 90056 | The recipe was not imported because the file contains no checksum. | Select a file with a checksum. As an alternative, disable verification of the checksum by using the system function "ImportDataRecords". |
| 90057 | The recipe was not imported because the file contains an invalid checksum. The selected file may have been manipulated. | Select a file with a valid checksum. |

110000 - Offline function alarms

| Number | Effect/causes | Remedy |
|--------|--|--|
| 110000 | The operating mode was changed. "Offline" mode is now set. | -- |
| 110001 | The operating mode was changed. "Online" mode is now set. | -- |
| 110002 | The operating mode was not changed. | Check the connection to the PLCs. Check whether the address area for the area pointer 88 "Coordination" in the PLC is available. |
| 110003 | The operating mode of the specified PLC was changed by the system function "SetConnectionMode". The operating mode is now "offline". | -- |
| 110004 | The operating mode of the specified PLC has been changed by the system function "SetConnectionMode". The operating mode is now "online". | -- |
| 110005 | An attempt was made to use the system function SetConnectionMode to switch the specified PLC to "online" mode, although the entire system is in "offline" mode. This changeover is not allowed. The PLC remains in "offline" mode. | Switch the complete system to "online" mode, then execute the system function again. |
| 110006 | The content of the "project version" area pointer does not match the user version configured in WinCC flexible. WinCC flexible Runtime is therefore closed. | Check the following: <ul style="list-style-type: none"> • The project ID entered on the PLC. • The project ID entered in WinCC flexible. |

120000 - Trend alarms

| Number | Effect/causes | Remedy |
|--------|---|--|
| 120000 | The trend is not displayed because you configured an incorrect axis to the trend or an incorrect trend. | Change the configuration. |
| 120001 | The trend is not displayed because you configured an incorrect axis to the trend or an incorrect trend. | Change the configuration. |
| 120002 | The trend is not displayed because the tag assigned attempts to access an invalid PLC address. | Check whether the data area for the tag exists in the PLC, the configured address is correct and the value range for the tag is correct. |

Appendix

A.5 System alarms

130000 - System information alarms

| Number | Effect/causes | Remedy |
|--------|---|---|
| 130000 | The action was not executed. | Close all other programs. Delete files no longer required from the hard disk. |
| 130001 | The action was not executed. | Delete files no longer required from the hard disk. |
| 130002 | The action was not executed. | Close all other programs. Delete files no longer required from the hard disk. |
| 130003 | No data medium found. The operation is canceled. | Check, for example, if <ul style="list-style-type: none"> • The correct data medium is being accessed • The data medium is inserted |
| 130004 | The data medium is write-protected. The operation is canceled. | Check whether access has been made to the correct data carrier. Remove the write protection. |
| 130005 | The file is read only. The operation is canceled. | Check whether access has been made to the correct file. Edit the file attributes if necessary. |
| 130006 | Access to file failed. The operation is canceled. | Check, for example, if <ul style="list-style-type: none"> • The correct file is being accessed • The file exists • Another action is preventing simultaneous access to the file. |
| 130007 | The network connection is interrupted. Records cannot be saved or read over the network connection. | Check the network connection and eliminate the cause of error. |
| 130008 | The storage card is not available. The specified data records cannot be saved to / read from the storage card. | Insert the storage card. |
| 130009 | The specified folder does not exist on the storage card. Any files saved to this directory are not backed up when you switch off the HMI device. | Insert the storage card. |
| 130010 | The maximum nesting depth can be exhausted when, for example, a value change in a script results in the call of another script and the second script in turn has a value change that results in the call of yet a further script etc. The configured functionality is not supported. | Check the configuration. |
| 130013 | The storage card is not available. The specified data records cannot be saved to / read from the storage card. | Insert the storage card. |

140000 - Connection alarms chns7: Connection + device

| Number | Effect/causes | Remedy |
|--------|---|--|
| 140000 | An online connection to the PLC is established. | -- |
| 140001 | The online connection to the PLC was shut down. | -- |
| 140003 | No tag updating or writing is executed. | Check the connection and if the PLC is switched on. Check the parameter definitions in the Control Panel using "Set PG/PC interface". Restart the system. |
| 140004 | No tag update or write operations are executed because the access point or the module configuration is faulty. | Verify the connection and check whether the PLC is switched on. Check the access point or the module configuration (MPI, PPI, PROFIBUS) in the Control Panel with "Set PG/PC interface". Restart the system. |
| 140005 | No tag updating or writing is executed because the HMI device address is incorrect (possibly too high). | Use a different HMI device address. Verify the connection and check whether the PLC is switched on. Check the parameter definitions in the Control Panel using "Set PG/PC interface". Restart the system. |
| 140006 | No tag updating or writing is executed because the baud rate is incorrect. | Select a different baud rate in WinCC flexible (according to module, profile, communication peer, etc.). |
| 140007 | Tags are not updated or written because the bus profile is incorrect (see %1). The following parameters could not be written to the registry: 1: Tslot 2: Tqui 3: Tset 4: MinTsdr 5: MaxTsdr 6: Trdy 7: Tid1 8: Tid2 9: Gap Factor 10: Retry Limit | Check the user-defined bus profile. Check the connection and if the PLC is switched on. Check the parameter definitions in the Control Panel using "Set PG/PC interface". Restart the system. |
| 140008 | No tag updating or writing is executed because baud rate is incorrect. The following parameters could not be written to the registry: 0: General error 1: Wrong version 2: Profile cannot be written to the registry. 3: The subnet type cannot be written to the registry. 4: The target rotation time cannot be written to the registry. 5: Faulty highest address (HSA). | Check the connection and if the PLC is switched on. Check the parameter definitions in the Control Panel using "Set PG/PC interface". Restart the system. |
| 140009 | Tags are not updated or written because the module for S7 communication was not found. | Reinstall the module in the Control Panel using "Set PG/PC interface". |

Appendix

A.5 System alarms

| Number | Effect/causes | Remedy |
|--------|---|---|
| 140010 | No S7 communication partner found because the PLC is shut down. DP/T: The option "PG/PC is the only master" is not set in the Control Panel under "Set PG/PC interface." | Switch the PLC on. DP/T: If only one master is connected to the network, disable "PG/PC is the only master" in "Set PG/PC interface". If several masters are connected to the network, enable these. Do not change any settings, for this will cause bus errors. |
| 140011 | No tag updating or writing is executed because communication is down. | Check the connection and that the communication partner is switched on. |
| 140012 | There is an initialization problem (e.g. when WinCC flexible Runtime was closed in Task Manager). Or: Another application (e.g. STEP7) with different bus parameters is active and the driver cannot be started with the new bus parameters (transmission rate, for example). | Restart the HMI device. Or: Run WinCC flexible Runtime, then start your other applications. |
| 140013 | The MPI cable is disconnected and, thus, there is no power supply. | Check the connections. |
| 140014 | The configured bus address is already in use by another application. | Edit the HMI device address in the PLC configuration. |
| 140015 | Wrong transmission rate Or: Faulty bus parameters (e.g. HSA) Or: OP address > HSA or: Wrong interrupt vector (interrupt does not arrive at the driver) | Correct the relevant parameters. |
| 140016 | The hardware does not support the configured interrupt. | Change the interrupt number. |
| 140017 | The set interrupt is in use by another driver. | Change the interrupt number. |
| 140018 | The consistency check was disabled by SIMOTION Scout. Only a corresponding note appears. | Enable the consistency check with SIMOTION Scout and once again download the project to the PLC. |
| 140019 | SIMOTION Scout is downloading a new project to the PLC. Connection to the PLC is canceled. | Wait until the end of the reconfiguration. |
| 140020 | The version in the PLC and that of the project (FWX file) do not match. Connection to the PLC is canceled. | The following remedies are available: Download the current version to the PLC using SIMOTION Scout. Regenerate the project using WinCC flexible ES, close WinCC flexible Runtime and restart with a new configuration. |

150000 - Connection alarms chnAS511: Connection

| Number | Effect/causes | Remedy |
|--------|--|--|
| 150000 | No more data is read or written. Possible causes: <ul style="list-style-type: none"> • The cable is defective. • The PLC does not respond, is defective, etc. • The wrong port is used for the connection. • System overload | Ensure that the cable is plugged in, the PLC is operational, the correct port is being used. Restart the system if the system alarm persists. |
| 150001 | Connection is up because the cause of the interruption has been eliminated. | -- |

160000 - Connection alarms IVar (WinLC) / OPC: Connection

| Number | Effect/causes | Remedy |
|--------|--|--|
| 160000 | No more data is read or written. Possible causes: <ul style="list-style-type: none"> • The cable is defective. • The PLC does not respond, is defective, etc. • The wrong port is used for the connection. • System overload | Ensure that the cable is plugged in, the PLC is operational, the correct port is being used. Restart the system if the system alarm persists. |
| 160001 | Connection is up because the cause of the interruption has been eliminated. | -- |
| 160010 | No connection to the server because the server identification (CLS-ID) cannot be determined. Values cannot be read or written. | Check access rights. |
| 160011 | No connection to the server because the server identification (CLS-ID) cannot be determined. Values cannot be read or written. | Check, for example, if <ul style="list-style-type: none"> • The server name is correct. • The computer name is correct. • The server is registered. |
| 160012 | No connection to the server because the server identification (CLS-ID) cannot be determined. Values cannot be read or written. | Check, for example, if <ul style="list-style-type: none"> • The server name is correct. • The computer name is correct. • The server is registered. Note for advanced users: Interpret the value from HRESULT. |
| 160013 | The specified server was started as InProc server. This has not been released and may possibly lead to incorrect behavior because the server is running in the same process area as the WinCC flexible Runtime software. | Configure the server as OutProc Server or Local Server. |
| 160014 | Only one OPC server project can be started on a PC/MP. An alarm is output when an attempt is made to start a second project. The second project has no OPC server functionality and cannot be located as an OPC server by external sources. | Do not start a second project with OPC server functionality on the computer. |

Appendix

A.5 System alarms

170000 - S7 dialog alarms

| Number | Effect/causes | Remedy |
|--------|--|-----------------------------|
| 170000 | S7 diagnostics events are not indicated because it is not possible to log on to the S7 diagnostics functions at this device. The service is not supported. | -- |
| 170001 | The S7 diagnostics buffer cannot be viewed because communication with the PLC is shut down. | Set the PLC to online mode. |
| 170002 | The S7 diagnostics buffer cannot be viewed because reading of the diagnostics buffer (SSL) was canceled with error. | -- |
| 170003 | An S7 diagnostics event cannot be visualized. The system returns internal error %2. | -- |
| 170004 | An S7 diagnostics event cannot be visualized. The system returns an internal error of error class %2, error number %3. | -- |
| 170007 | It is not possible to read the S7 diagnostics buffer (SSL) because this operation was canceled with an internal error of class %2 and error code %3. | -- |

180000 - Misc/common alarms

| Number | Effect/causes | Remedy |
|--------|---|--|
| 180000 | A component/OCX received configuration data with a version ID which is not supported. | Install a newer component. |
| 180001 | System overload because too many actions running in parallel. Not all the actions can be executed, some are rejected. | Several remedies are available: <ul style="list-style-type: none"> • Generate the alarms at a slower rate (polling). • Initiate scripts and functions at greater intervals. If the alarm appears more frequently: Restart the HMI device. |
| 180002 | The screen keyboard could not be activated. Possible causes: "TouchInputPC.exe" was not registered due to a faulty Setup. | Install WinCC flexible Runtime again. |

190000 - Tag alarms

| Number | Effect/causes | Remedy |
|--------|---|--|
| 190000 | It is possible that the tag is not updated. | -- |
| 190001 | The tag is updated after the cause of the last error state has been eliminated (return to normal operation). | -- |
| 190002 | The tag is not updated because communication with the PLC is down. | Select the system function "SetOnline" to go online. |
| 190004 | The tag is not updated because the configured tag address does not exist. | Check the configuration. |
| 190005 | The tag is not updated because the configured PLC type does not exist for this tag. | Check the configuration. |
| 190006 | The tag is not updated because it is not possible to map the PLC type in the data type of the tag. | Check the configuration. |
| 190007 | The tag value is not modified because the connection to the PLC is interrupted or the tag is offline. | Set online mode or reconnect to the PLC. |
| 190008 | The threshold values configured for the tag have been violated, for example, by <ul style="list-style-type: none"> • A value entered • A system function • A script | Observe the configured or current threshold values of the tag. |
| 190009 | An attempt has been made to assign the tag a value which is outside the permitted range of values for this data type. For example, a value of 260 was entered for a byte tag or a value of -3 for an unsigned word tag. | Observe the range of values for the data type of the tags. |
| 190010 | Too many values are written to the tag (for example, in a loop triggered by a script). Values are lost because only up to 100 actions are saved to the buffer. | The following remedies are available: <ul style="list-style-type: none"> • Increase the time interval between multiple write actions. • Do not use an array tag longer than 6 words when you configure an acknowledgment on the HMI device using "Acknowledgment HMI". |
| 190011 | Possible cause 1: The value entered could not be written to the configured PLC tag because the high or low limit was exceeded. The system discards the entry and restores the original value. Possible cause 2: The connection to the PLC was interrupted. | Make sure that the value entered lies within the range of values of the control tags. Check the connection to the PLC. |
| 190012 | It is not possible to convert a value from a source format to a target format, for example: An attempt is being made to assign a value to a counter that is outside the valid, PLC-specific value range. A tag of the type Integer should be assigned a value of the type String. | Check the range of values or the data type of the tags. |
| 190013 | The user has entered a string that is longer than the tag. The string is automatically shortened to the permitted length. | Only enter strings that do not exceed the permitted tag length. |

Appendix

A.5 System alarms

190100 - Area pointer alarms

| Number | Effect/causes | Remedy |
|--------|--|--------------------------|
| 190100 | The area pointer is not updated because the address configured for this pointer does not exist. Type 1 Warnings 2 Errors 3 PLC acknowledgment 4 HMI device acknowledgment 5 LED mapping 6 Trend request 7 Trend transfer 1 8 Trend transfer 2 No.: Consecutive number displayed in WinCC flexible ES. | Check the configuration. |
| 190101 | The area pointer is not updated because it is not possible to map the PLC type to the area pointer type. Parameter type and no.: see alarm 190100 | -- |
| 190102 | The area pointer is updated after the cause of the last error state has been eliminated (return to normal operation). Parameter type and no.: See alarm 190100. | -- |

200000 - PLC coordination alarms

| Number | Effect/causes | Remedy |
|--------|--|---|
| 200000 | Coordination is not executed because the address configured in the PLC does not exist/is not set. | Change the address or set up the address in the PLC. |
| 200001 | Coordination is canceled because the write access to the address configured in the PLC is not possible. | Change the address or set the address in the PLC at an area which allows write access. |
| 200002 | Coordination is not carried out at the moment because the address format of the area pointer does not match the internal storage format. | Internal error |
| 200003 | Coordination can be executed again because the last error state is eliminated (return to normal operation). | -- |
| 200004 | The coordination may not be executed. | -- |
| 200005 | No more data is read or written. Possible causes: <ul style="list-style-type: none"> • The cable is defective. • The PLC does not respond, is defective, etc. • System overload | Ensure that the cable is plugged in and the PLC is operational. Restart the system if the system alarm persists. |

210000 - PLC job alarms

| Number | Effect/causes | Remedy |
|--------|---|--|
| 210000 | Jobs are not processed because the address configured in the PLC does not exist/has not been set up. | Change the address or set up the address in the PLC. |
| 210001 | Jobs are not processed because read/write access to the address configured in the PLC is not possible. | Change the address or set up the address in the PLC in an area which allows read/write access. |
| 210002 | Jobs are not executed because the address format of the area pointer does not match the internal storage format. | Internal error |
| 210003 | The job buffer is processed again because the last error status has been eliminated (return to normal operation). | -- |
| 210004 | It is possible that the job buffer will not be processed. | -- |
| 210005 | A control request with an illegal number was initiated. | Check the PLC program. |
| 210006 | An error occurred while attempting to execute the control request. As a result, the control request is not executed. Observe the next/previous system alarms. | Check the parameters of the control request. Recompile the configuration. |

220000 - WinCC channel adapter alarms

| Number | Effect/causes | Remedy |
|--------|---|--|
| 220001 | The tag is not downloaded because the associated communication driver / HMI device does not support the download of Boolean/discrete data types. | Change the configuration. |
| 220002 | The tag is not downloaded because the associated communication driver / HMI device does not support write access to the data type BYTE. | Change the configuration. |
| 220003 | The communication driver cannot be loaded. The driver may not be installed. | Install the driver by reinstalling WinCC flexible Runtime. |
| 220004 | Communication is down and no update data is transferred because the cable is not connected or defective etc. | Check the connection. |
| 220005 | Communication is up. | -- |
| 220006 | The connection between the specified PLC and the specified port is active. | -- |
| 220007 | The connection to the specified PLC is interrupted at the specified port. | Check whether <ul style="list-style-type: none"> • The cable is plugged in • The PLC is OK • The correct port is used • Your configuration is OK (port parameters, protocol settings, PLC address). Restart the system if the system alarm persists. |
| 220008 | The communication driver cannot access or open the specified port. The port may be in use by another application or the port used is not available on the destination device. There is no communication with the PLC. | Close all the applications which access this port and restart the computer. Use another port of the system. |

Appendix

A.5 System alarms

230000 - View alarms

| Number | Effect/causes | Remedy |
|--------|---|--|
| 230000 | The value entered could not be accepted. The system discards the entry and restores the previous value. Either <ul style="list-style-type: none"> • The value range has been exceeded • Illegal characters have been entered • The maximum permitted number of users has been exceeded. | Enter a practical value or delete any unneeded users. |
| 230002 | The currently logged in user has not the required authorization. The system therefore discards the input and restored the previous value. | Log on as a user with appropriate authorization. |
| 230003 | Changeover to the specified screen failed because the screen is not available/configured. The current screen remains selected. | Configure the screen and check the screen selection function. |
| 230005 | The value range of the tag has been exceeded in the I/O field. The original value of the tag is retained. | Observe the range of values for the tag when entering a value. |
| 230100 | During navigation in the web browser, the system returned a message which may be of interest to the user. The web browser continues to run but may not (fully) show the new page. | Navigate to another page. |
| 230200 | The connection to the HTTP channel was interrupted due to an error. This error is explained in detail by another system alarm. Data is no longer exchanged. | Check the network connection. Check the server configuration. |
| 230201 | The connection to HTTP channel was established. Data is exchanged. | -- |

| Number | Effect/causes | Remedy |
|--------|--|--|
| 230202 | <p>WININET.DLL has detected an error. This error is usually generated if it is not possible to connect to the server or if the server denies access because the client could not authenticate itself.</p> <p>A rejected server certificate could also cause a communication error in secure SSL connections. For details, refer to the error text in the alarm. This text is always output in the language of your Windows installation, as it is returned by the Windows operating system.</p> <p>Process values are not exchanged.</p> <p>The part of the alarm which is returned by the Windows operating system may not be displayed, for example "An error has occurred." WININET.DLL returns the following error: Number: 12055 Text:HTTP: <no error text available>."</p> | <p>Depending on the cause:</p> <p>When an attempt to connect fails or a timeout error occurs:</p> <ul style="list-style-type: none"> • Check the network connection and the network. • Check the server address. • Check whether the WebServer is actually running on the destination station. <p>Faulty authorization:</p> <ul style="list-style-type: none"> • The configured user name and/or password do not match those on the server. Establish consistency <p>When the server certificate is rejected: Certificate signed by an unknown CA ():</p> <ul style="list-style-type: none"> • Either ignore this item in your project, or • Install a certificate that has been signed with a root certificate known to the client computer. <p>The date of the certificate is invalid:</p> <ul style="list-style-type: none"> • Either ignore this item in your project, or • Install a certificate with a valid date on the server. <p>Invalid CN (Common Name or Computer Name):</p> <ul style="list-style-type: none"> • Either ignore this item in your project, or • Install a certificate with a name that corresponds to that of the server address. |
| 230203 | <p>Although a connection can be made to the server, the HTTP server refuses to connect because</p> <ul style="list-style-type: none"> • WinCC flexible Runtime is not running on the server or • The HTTP channel is not supported (503 Service unavailable). <p>Other errors can only occur if the Webserver does not support the HTTP channel. The language of the alarm text depends on the Webserver. Data is not exchanged.</p> | <p>Error 503 Service unavailable:</p> <p>Check if WinCC flexible Runtime is running on the server and if the HTTP channel is supported.</p> |
| 230301 | <p>An internal error has occurred. An English text explains the error in more detail. This may be caused by insufficient memory. OCX does not work.</p> | -- |
| 230302 | <p>The name of the remote server cannot be resolved. The attempt to connect failed.</p> | <p>Check the configured server address. Check whether the DNS service is available on the network.</p> |
| 230303 | <p>The remote server is not running on the addressed computer. Wrong server address. The attempt to connect failed.</p> | <p>Check the configured server address. Check whether the remote server is running on the target computer.</p> |
| 230304 | <p>The remote server on the addressed computer is incompatible with VNCOCX. The attempt to connect failed.</p> | <p>Use a compatible remote server.</p> |
| 230305 | <p>The authentication has failed because the password is incorrect. The attempt to connect failed.</p> | <p>Configure the correct password.</p> |

Appendix

A.5 System alarms

| Number | Effect/causes | Remedy |
|--------|---|--|
| 230306 | Error in the connection to the remote server. This may occur as a result of network problems. The attempt to connect failed. | Check whether <ul style="list-style-type: none"> • The bus cable is plugged in • There are network problems. |
| 230307 | The connection to the remote server was shut down because <ul style="list-style-type: none"> • The remote server was shut down, or • The user instructed the server to close all connections. The connection is closed. | -- |
| 230308 | This alarm provides information on the connection status. An attempt is made to connect. | -- |

240000 - Authorization alarms

| Number | Effect/causes | Remedy |
|--------|---|---|
| 240000 | WinCC flexible Runtime is operating in demo mode. You have no authorization or your authorization is corrupted. | Install the authorization. |
| 240001 | WinCC flexible Runtime is operating in demo mode. Too many tags are configured for the installed version. | Load an adequate authorization / power pack. |
| 240002 | WinCC flexible Runtime is operating with a time-limited emergency authorization. | Restore the full authorization. |
| 240004 | Error while reading the emergency authorization. WinCC flexible Runtime is operating in demo mode. | Restart WinCC flexible Runtime, install the authorization or repair the authorization (see Commissioning Instructions Software Protection). |
| 240005 | The Automation License Manager has detected an internal system fault. Possible causes: <ul style="list-style-type: none"> • A corrupt file • A defective installation • No free space for the Automation License Manager etc. | Reboot the HMI device or PC. If this does not solve the problem, remove the Automation License Manager and install it again. |

250000 - S7 Force alarms

| Number | Effect/causes | Remedy |
|--------|--|--|
| 250000 | The tag in the specified line in "Status Force" is not updated because the address configured for this tag is not available. | Check the set address and then verify that the address is set up in the PLC. |
| 250001 | The tag in the specified line in "Status Force" is not updated because the PLC type configured for this tag does not exist. | Check the set address. |

| Number | Effect/causes | Remedy |
|--------|--|---|
| 250002 | The tag in the specified line in "Status Force" is not updated because it is not possible to map the PLC type in the tag type. | Check the set address. |
| 250003 | An attempt to connect to the PLC failed. The tags are not updated. | Check the connection to the PLC. Check that the PLC is switched on and is online. |

260000 - Password system alarms

| Number | Effect/causes | Remedy |
|--------|---|--|
| 260000 | An unknown user or an unknown password has been entered in the system. The current user is logged off from the system. | Log on to the system as a user with a valid password. |
| 260001 | The logged in user does not have sufficient authorization to execute the protected functions on the system. | Log on to the system as a user with sufficient authorization. |
| 260002 | This alarm is triggered by the system function "TrackUserChange". | -- |
| 260003 | The user has logged off from the system. | -- |
| 260004 | The user name entered into the user view already exists in the user management. | Select another user name because user names have to be unique in the user management. |
| 260005 | The entry is discarded. | Enter a shorter user name. |
| 260006 | The entry is discarded. | Use a shorter or longer password. |
| 260007 | The logon timeout value entered is outside the valid range of 0 to 60 minutes. The new value is discarded and the original value is retained. | Enter a logon timeout value between 0 and 60 minutes. |
| 260008 | An attempt was made to read a PTPProRun.pwl file created with ProTool V 6.0 in WinCC flexible. Reading the file was canceled due to incompatibility of the format. | -- |
| 260009 | You have attempted to delete the user "Admin" or "PLC User". These users are fixed components of the user management and cannot be deleted. | If you need to delete a user, because perhaps you have exceeded the maximum number permitted, delete another user. |
| 260012 | The passwords entered in the "Change Password" dialog and the confirmation field are not identical. The password has not been changed. User will be logged off. | You have to log on to the system again. Then enter the identical password twice to be able to change the password. |
| 260013 | The password entered in the "Change Password" dialog is invalid because it is already in use. The password has not been changed. User will be logged off. | You have to log on to the system again. Then enter a new password that has not been used before. |
| 260014 | You have tried unsuccessfully to log on three times in succession. You will be locked out and assigned to group no. 0. | You can log on to the system with your correct password. Only an administrator can change the assignment to a group. |
| 260024 | The password you entered does not meet the necessary security guidelines. | Enter a password that contains at least one number. |
| 260025 | The password you entered does not meet the necessary security guidelines. | Enter a password that contains at least one special character. |

Appendix

A.5 System alarms

| Number | Effect/causes | Remedy |
|--------|---|---|
| 260028 | <p>Upon system start-up, an attempt to log on, or when trying to change the password of a SIMATIC log-on user, the system attempts to access the SIMATIC Logon Server.</p> <p>If attempting to log on, the new user is not logged in. If a different user was logged on before, then this user is logged off.</p> | <p>Check the connection to the SIMATIC Logon Server and its configuration; for example:</p> <ol style="list-style-type: none"> 1. Port number 2. IP address 3. Server name 4. Functional transfer cable <p>Or use a local user.</p> |
| 260030 | <p>The SIMATIC Logon user could not change his password on the SIMATIC Logon Server. The new password may not comply with the password regulations on the server or the user does not have the right to change his password.</p> <p>The old password remains and the user is logged off.</p> | <p>Log in again and choose a different password. Check the password rules on the SIMATIC Logon Server.</p> |
| 260033 | <p>The action change password or log on user could not be carried out.</p> | <p>Check the connection to the SIMATIC Logon Server and its configuration; for example:</p> <ol style="list-style-type: none"> 1. Port number 2. IP address 3. Server name 4. Functional transfer cable <p>Or use a local user.</p> |
| 260034 | <p>The last logon operation has not yet ended. A user action or a logon dialog can therefore not be called.</p> <p>The logon dialog is not opened. The user action is not executed.</p> | <p>Wait until the logon operation is complete.</p> |
| 260035 | <p>The last attempt to change the password was not completed. A user action or a logon dialog can therefore not be called.</p> <p>The logon dialog is not opened. The user action is not executed.</p> | <p>Wait until the procedure is complete.</p> |
| 260036 | <p>There are insufficient licenses on the SIMATIC Logon Sever. The logon is not authorized.</p> | <p>Check the licensing on the SIMATIC Logon Server.</p> |
| 260037 | <p>There is no license on the SIMATIC Logon Sever. A logon is not possible.</p> <p>It is not possible to log on via the SIMATIC Logon Server, only via a local user.</p> | <p>Check the licensing on the SIMATIC Logon Server.</p> |
| 260040 | <p>The system attempts to access the SIMATIC Logon Server upon system start-up or when trying to change the password.</p> <p>If attempting to log on, the new user is not logged in. If a different user was logged on before, then this user is logged off.</p> | <p>Check connection to the domain and its configuration in the Runtime security settings editor.</p> <p>Or use a local user.</p> |
| 260043 | <p>It was not possible to log the user on to the SIMATIC Logon Server. The user name or the password could be incorrect or the user does not have sufficient rights to log on.</p> <p>The new user is not logged in. If a different user was logged on before, then this user is logged off.</p> | <p>Try again. If necessary, check the password data on the SIMATIC Logon Server.</p> |

| Number | Effect/causes | Remedy |
|--------|---|---|
| 260044 | It was not possible to log the user on to the SIMATIC Logon Server as his account is blocked. The new user is not logged in. If a different user was logged on before, then this user is logged off. | Check the user data on the SIMATIC Logon Server. |
| 260045 | The SIMATIC Logon user is not associated to any or several groups. The new user is not logged in. If a different user was logged on before, then this user is logged off. | Check the user data on the SIMATIC Logon Server and the configuration in your WinCC flexible project. A user may only be assigned to one group. |

270000 - System alarms

| Number | Effect/causes | Remedy |
|--------|--|--|
| 270000 | A tag is not indicated in the alarm because it attempts to access an invalid address in the PLC. | Check whether the data area for the tag exists in the PLC, the configured address is correct and the value range for the tag is correct. |
| 270001 | There is a device-specific limit as to how many alarms may be queued for output (see the operating instructions). This limit has been exceeded. The view no longer contains all the alarms. However, all alarms are written to the alarm buffer. | -- |
| 270002 | The view shows alarms of a log for which there is no data in the current project. Wildcards are output for the alarms. | Delete older log data if necessary. |
| 270003 | The service cannot be set up because too many devices want to use this service. A maximum of four devices may execute this action. | Reduce the number of HMI devices which want to use the service. |
| 270004 | Access to persistent buffer is not possible. Alarms cannot be restored or saved. | If the problems persist at the next startup, contact Customer Support (delete Flash). |
| 270005 | Persistent buffer damaged: Alarms cannot be restored. | If the problems persist at the next startup, contact Customer Support (delete Flash). |
| 270006 | Project modified: Alarms cannot be restored from the persistent buffer. | The project was generated and transferred new to the HMI device; The error should no longer occur when the device starts again. |
| 270007 | A configuration problem is preventing the restore (a DLL is missing, a directory is unknown, etc.). | Update the operating system and then transfer your project again to the HMI device. |

Appendix

A.5 System alarms

280000 - DPHMI alarms Connection

| Number | Effect/causes | Remedy |
|--------|--|---|
| 280000 | Connection is up because the cause of the interruption has been eliminated. | -- |
| 280001 | No more data is read or written. Possible causes: <ul style="list-style-type: none"> • The cable is defective • The PLC does not respond, is defective, etc. • The wrong port is used for the connection • System overload | Check whether <ul style="list-style-type: none"> • The cable is plugged in • The PLC is OK • The correct port is used. Restart the system if the system alarm persists. |
| 280002 | The connection used requires a function block in the PLC. The function block has responded. Communication is now enabled. | -- |
| 280003 | The connection used requires a function block in the PLC. The function block has not responded. | Check whether <ul style="list-style-type: none"> • The cable is plugged in • The PLC is OK • The correct port is used. Restart the system if the system alarm persists. Remedy depends on the error code: <ol style="list-style-type: none"> 1: The function block must set the COM bit in the response container. 2: The function block must not set the ERROR bit in the response container. 3: The function block must respond within the specified time (timeout). 4: Go online to the PLC. |
| 280004 | The connection to the PLC is interrupted. There is no data exchange at present. | Check the connection parameters in WinCC flexible. Ensure that the cable is plugged in, the PLC is operational, the correct port is being used. Restart the system if the system alarm persists. |

290000 - Recipe system alarms

| Number | Effect/causes | Remedy |
|--------|---|--|
| 290000 | The recipe tag could not be read or written. It is assigned the start value. The alarm can be entered in the alarm buffer for up to four more failed tags if necessary. After that, alarm 290003 is output. | Check in the configuration that the address has been set up in the PLC. |
| 290001 | An attempt has been made to assign a value to a recipe tag which is outside the value range permitted for this type. The alarm can be entered in the alarm buffer for up to four more failed tags if necessary. After that, alarm 290004 is output. | Observe the value range for the tag type. |
| 290002 | It is not possible to convert a value from a source format to a target format. The alarm can be entered in the alarm buffer for up to four more failed recipe tags if necessary. After that, alarm 290005 is output. | Check the value range or type of the tag. |
| 290003 | This alarm is output when alarm number 290000 is triggered more than five times. In this case, no further separate alarms are generated. | Check in the configuration that the tag addresses have been set up in the PLC. |
| 290004 | This alarm is output when alarm number 290001 is triggered more than five times. In this case, no further separate alarms are generated. | Observe the value range for the tag type. |
| 290005 | This alarm is output when alarm number 290002 is triggered more than five times. In this case, no further separate alarms are generated. | Check the value range or type of the tag. |
| 290006 | The threshold values configured for the tag have been violated by values entered. | Observe the configured or current threshold values of the tag. |
| 290007 | There is a difference between the source and target structure of the recipe currently being processed. The target structure contains an additional data recipe tag which is not available in the source structure. The data recipe tag specified is assigned its start value. | Insert the specified data recipe tag in the source structure. |
| 290008 | There is a difference between the source and target structure of the recipe currently being processed. The source structure contains an additional data recipe tag which is not available in the target structure and therefore cannot be assigned. The value is rejected. | Remove the specified data recipe tag in the specified recipe from the project. |
| 290010 | The storage location configured for the recipe is not permitted. Possible causes: Illegal characters, write protection, data carrier out of space or does not exist. | Check the configured storage location. |
| 290011 | The record with the specified number does not exist. | Check the source for the number (constant or tag value). |
| 290012 | The recipe with the specified number does not exist. | Check the source for the number (constant or tag value). |

Appendix

A.5 System alarms

| Number | Effect/causes | Remedy |
|--------|---|--|
| 290013 | An attempt was made to save a record under a record number which already exists. The action is not executed. | The following remedies are available: <ul style="list-style-type: none"> • Check the source for the number (constant or tag value). • First, delete the record. • Change the "Overwrite" function parameter. |
| 290014 | The file specified to be imported could not be found. | Check: <ul style="list-style-type: none"> • The file name • Ensure that the file is in the specified directory. |
| 290020 | Alarm reporting that the download of records from the HMI device to the PLC has started. | -- |
| 290021 | Alarm reporting that the download of records from the HMI device to the PLC was completed. | -- |
| 290022 | Alarm reporting that the download of records from the HMI device to the PLC was canceled due to an error. | Check in the configuration whether: <ul style="list-style-type: none"> • The tag addresses are configured in the PLC • The recipe number exists • The record number exists • The "Overwrite" function parameter is set |
| 290023 | Alarm reporting that the download of records from the PLC to the HMI device has started. | -- |
| 290024 | Alarm reporting that the download of records from the PLC to the HMI device was completed. | --- |
| 290025 | Alarm reporting that the download of records from the PLC to the HMI device was canceled due to an error. | Check in the configuration whether: <ul style="list-style-type: none"> • The tag addresses are configured in the PLC • The recipe number exists • The record number exists • The "Overwrite" function parameter is set |
| 290026 | An attempt has been made to read/write a record although the record is not free at present. This error may occur in the case of recipes for which downloading with synchronization has been configured. | Set the record status to zero. |
| 290027 | Unable to connect to the PLC at present. As a result, the record can neither be read nor written. Possible causes: No physical connection to the PLC (no cable plugged in, cable is defect) or the PLC is switched off. | Check the connection to the PLC. |
| 290030 | This alarm is output after you selected screen which contains a recipe view in which a record is already selected. | Reload the record from the storage location or retain the current values. |
| 290031 | While saving, it was detected that a record with the specified number already exists. | Overwrite the record or cancel the action. |
| 290032 | While exporting records it was detected that a file with the specified name already exists. | Overwrite the file or cancel the process. |
| 290033 | Confirmation request before deleting records. | -- |

| Number | Effect/causes | Remedy |
|--------|---|--|
| 290040 | A record error with error code %1 that cannot be described in more detail occurred. The action is canceled. It is possible that the record was not installed correctly on the PLC. | Check the storage location, the record, the "Data record" area pointer and if necessary, the connection to the PLC. Restart the action after a short time. If the error persists, contact Customer Support. Forward the relevant error code to Customer Support. |
| 290041 | A record or file cannot be saved because the storage location is full. | Delete files no longer required. |
| 290042 | An attempt was made to execute several recipe actions simultaneously. The last action was not executed. | Trigger the action again after waiting a short period. |
| 290043 | Confirmation request before storing records. | -- |
| 290044 | The data store for the recipe has been destroyed and is deleted. | -- |
| 290050 | Alarm reporting that the export of records has started. | -- |
| 290051 | Alarm reporting that the export of records was completed. | -- |
| 290052 | Alarm reporting that the export of records was canceled due to an error. | Ensure that the structure of the records at the storage location and the current recipe structure on the HMI device are identical. |
| 290053 | Alarm reporting that the import of records has started. | -- |
| 290054 | Alarm reporting that the import of records was completed. | -- |
| 290055 | Alarm reporting that the import of records was canceled due to an error. | Ensure that the structure of the records at the storage location and the current recipe structure on the HMI device are identical. |
| 290056 | Error when reading/writing the value in the specified line/column. The action was canceled. | Check the specified line/column. |
| 290057 | The tags of the recipe specified were toggled from "offline" to "online" mode. Each change of a tag in this recipe is now immediately downloaded to the PLC. | -- |
| 290058 | The tags of the specified recipe were toggled from "offline" to "online" mode. Modifications to tags in this recipe are no longer immediately transferred to the PLC but must be transferred there explicitly by downloading a record. | -- |
| 290059 | Alarm reporting that the specified record was saved. | -- |
| 290060 | Alarm reporting that the specified record memory was cleared. | -- |
| 290061 | Alarm reporting that clearing of record memory was canceled due to an error. | -- |
| 290062 | The record number is above the maximum of 65536. This record cannot be created. | Select another number. |

Appendix

A.5 System alarms

| Number | Effect/causes | Remedy |
|--------|---|---|
| 290063 | This occurs with the system function "ExportDataRecords" when the parameter "Overwrite" is set to No. An attempt has been made to save a recipe under a file name which already exists. The export is canceled. | Check the "ExportDataRecords" system function. |
| 290064 | Alarm reporting that the deletion of records has started. | -- |
| 290065 | Alarm reporting that the deletion of records has successfully completed. | -- |
| 290066 | Confirmation request before deleting records. | -- |
| 290068 | Security request to confirm if all records in the recipe should be deleted. | -- |
| 290069 | Security request to confirm if all records in the recipe should be deleted. | -- |
| 290070 | The record specified is not in the import file. | Check the source of the record number or record name (constant or tag value). |
| 290071 | During the editing of record values, a value was entered which exceeded the low limit of the recipe tag. The entry is discarded. | Enter a value within the limits of the recipe tag. |
| 290072 | When editing record values, a value was entered which exceeds the high limit of the recipe tag. The entry is discarded. | Enter a value within the limits of the recipe tag. |
| 290073 | An action (e.g. saving a record) failed due to an unknown error. The error corresponds to the status alarm IDS_OUT_CMD_EXE_ERR in the large recipe view. | -- |
| 290074 | While saving, it was detected that a record with the specified number already exists but under another name. | Overwrite the record, change the record number or cancel the action. |
| 290075 | A record with this name already exists. The record is not saved. | Please select a different record name. |
| 290110 | The default values could not be set due to an error. | -- |
| 290111 | The Recipes subsystem cannot be used. Recipe views have no content and recipe-specific functions will not be performed. Possible causes: <ul style="list-style-type: none"> • An error occurred while transferring the recipes. • The recipe structure was changed in ES. When the project was downloaded again, the recipes were not transferred with it. This means that the new configuration data is not being transferred to the old recipes on the device. | Transfer the project to the device again, together with the recipes (the corresponding check box in the Transfer dialog must be checked). |

300000 - Alarm_S alarms

| Number | Effect/causes | Remedy |
|--------|---|--|
| 300000 | Faulty configuration of process monitoring (e.g. using PDiag or S7 Graph): More alarms are queued than specified in the specifications of the CPU. No further ALARM_S alarms can be managed by the PLC and reported to the HMI devices. | Change the PLC configuration. |
| 300001 | ALARM_S is not registered on this PLC. | Select a controller that supports the ALARM_S service. |

310000 - Report system alarms

| Number | Effect/causes | Remedy |
|--------|---|--|
| 310000 | An attempt is being made to print too many reports in parallel. Only one log file can be output to the printer at a given time; the print job is therefore rejected. | Wait until the previous active log was printed. Repeat the print job if necessary. |
| 310001 | An error occurred on triggering the printer. The report is either not printed or printed with errors. | Evaluate the additional system alarms related to this alarm. Repeat the print job if necessary. |

Appendix

A.5 System alarms

320000 - Alarms

| Number | Effect/causes | Remedy |
|--------|--|--|
| 320000 | The movements have already been indicated by another device. The movements can no longer be controlled. | Deselect the movements on the other display units and select the motion control screen on the required display unit. |
| 320001 | The network is too complex. The faulty addresses cannot be indicated. | View the network in STL. |
| 320002 | No diagnosable alarm message (error) selected. The unit associated with the alarm message could not be selected. | Select a diagnostics alarm from the ZP_ALARM alarm screen. |
| 320003 | No alarm message (error) exists for the selected unit. The detail view cannot visualize any networks. | Select the defective unit from the overview screen. |
| 320004 | The required signal states could not be read by the PLC. The faulty addresses cannot be found. | Check the consistency between the configuration on the display unit and the PLC program. |
| 320005 | The project contains ProAgent elements which are not installed. ProAgent diagnostic functions cannot be performed | In order to run the project, install the optional ProAgent package. |
| 320006 | You have attempted to execute a function which is not supported in the current constellation. | Check the type of the selected unit. |
| 320007 | No error-triggering addresses were found on the networks. ProAgent cannot indicate any faulty addresses. | Switch the detail screen to STL layout mode and check the status of the addresses and exclusion addresses. |
| 320008 | The diagnostic data stored in the configuration are not synchronized with those in the PLC. ProAgent can only indicate the diagnostic units. | Transfer the project to the HMI device again. |
| 320009 | The diagnostic data stored in the configuration are not synchronized with those in the PLC. The diagnostic screens can be operated as usual. ProAgent may be unable to show all diagnostic texts. | Transfer the project to the HMI device again. |
| 320010 | The diagnostic data stored in the configuration are not synchronized with those in STEP7. The ProAgent diagnostics data is not up-to-date. | Transfer the project to the HMI device again. |
| 320011 | A unit with the corresponding DB number and FB number does not exist. The function cannot be executed. | Check the parameters of the "SelectUnit" function and the units selected in the project. |
| 320012 | The "Step sequence mode" dialog is no longer supported. | Use the ZP_STEP step sequence screen from the corresponding standard project for your project. Instead of calling the Overview_Step_Sequence_Mode function, call the "FixedScreenSelection" function using ZP_STEP as the screen name. |
| 320014 | The selected PLC cannot be evaluated for ProAgent. The Alarm view assigned to the "EvaluateAlarmDisplayFault" system function could not be found. | Check the parameters of the "EvaluateAlarmDisplayFault" system function. |

330000 - GUI alarms

| Number | Effect/causes | Remedy |
|--------|--|---|
| 330022 | Too many dialogs are open on the HMI device. | Close all dialogs you do not require on the HMI device. |
| 330026 | The password will expire after the number of days shown. | Enter a new password. |

350000 - GUI alarms

| Number | Effect/causes | Remedy |
|--------|---|---|
| 350000 | PROFIsafe packages have not arrived within the necessary period. There is a communication problem with the F-CPU. RT is terminated. | Check the WLAN connection. |
| 350001 | PROFIsafe packages have not arrived within the necessary period. There is a communication problem with the F-CPU. The PROFIsafe connection is re-established. | Check the WLAN connection. |
| 350002 | An internal error has occurred. Runtime is terminated. | Internal error |
| 350003 | Feedback concerning the connection established with the F-CPU. The Emergency-Off buttons are active immediately. | -- |
| 350004 | PROFIsafe communication was set and the connection was cleared. The Runtime can be terminated. The Emergency-Off buttons are deactivated immediately. | -- |
| 350005 | Incorrect address configured for the F-slave. No PROFIsafe connection. | Check and modify the address of the F slave in WinCC flexible ES. |
| 350006 | The project has started. At the start of the project, the enabling buttons must be checked for functionality. | Press the two enabling buttons one after another in the "Enable" and "Panic" positions. |
| 350008 | The wrong number of fail-safe buttons was configured. No PROFIsafe connection. | Change the number of fail-safe buttons in the project. |
| 350009 | The device is in Override mode. It may no longer be possible to detect the location because transponder detection fails. | Exit Override mode. |
| 350010 | Internal error: The device has no fail-safe buttons. | Send the device back. Worldwide contact person |

Appendix

A.5 System alarms

B

Abbreviations

| | |
|-------|--|
| CPU | Central Processing Unit |
| CRC | Cyclic redundancy check |
| CSV | Comma Separated Values |
| DC | Direct Current |
| DHCP | Dynamic Host Configuration Protocol |
| DNS | Domain Name System |
| DP | Distributed I/O |
| IO | Input and Output |
| EAP | Extensible Authentication Protocol |
| ESD | Components and modules endangered by electrostatic discharge |
| EMC | Electromagnetic Compatibility |
| EN | European standard |
| ES | Engineering System |
| ESD | Components and modules endangered by electrostatic discharge |
| F-CPU | Fail-safe Central Processing Unit (fail-safe PLC) |
| GND | Ground |
| HF | High Frequency |
| HMI | Human Machine Interface |
| IEC | International Electronic Commission |
| IEEE | Institute of Electrical and Electronics Engineers |
| IP | Internet Protocol |
| IWLAN | Industrial Wireless Local Area Network |
| LAN | Local Area Network |
| LED | Light Emitting Diode |
| MAC | Media Access Control |
| MPI | Multipoint Interface (SIMATIC S7) |
| MS | Microsoft |
| MTBF | Mean Time Between Failures |
| n. c. | Not connected |
| OP | Operator Panel |
| PC | Personal Computer |
| PG | Programming device |
| PELV | Protective Extra Low Voltage |
| PPI | Point-to-Point Interface (SIMATIC S7) |
| RAM | Random Access Memory |
| RJ45 | Registered Jack Type 45 |

Abbreviations

| | |
|--------|---|
| SAR | Specific absorption rate |
| SD | Security Digital |
| SIL | Safety Integrity Level |
| SP | Service Pack |
| PLC | Programmable Logic Controller |
| SSID | Service set identifier |
| TAB | Tabulator |
| TCP/IP | Transmission Control Protocol/Internet Protocol |
| TFT | Thin Film Transistor |
| TIA | Totally Integrated Automation |
| TLS | Transport Layer Security |
| UL | Underwriter's Laboratory |
| USB | Universal Serial Bus |
| WAP | Wireless Access Point |
| WLAN | Wireless Local Area Network |
| WINS | Windows Internet Naming Service |

Glossary

"Transfer" mode

"Transfer" is an operating mode of the HMI device in which an executable project is transferred from the configuration PC to an HMI device.

Access point

See Wireless access point.

Ad hoc network

An ad hoc network in information technology refers to a wireless network between two or more mobile devices, for which no fixed infrastructure is necessary. This technique is used with Bluetooth, for example, to spontaneously link mobile phones. Ad hoc mode is also possible for WLAN.

Alarm logging

Output of user-specific alarms to a printer, in parallel to their output to the HMI device screen.

Alarm, acknowledging an

Acknowledgment of an alarm confirms that it has been noted.

Alarm, coming in

Moment at which an alarm is triggered by the PLC or HMI device.

Alarm, going out

Moment at which the initiation of an alarm is reset by the PLC.

Alarm, user-specific

An alarm is configurable object. A user-specific alarm designates a certain operating status of the plant connected to the HMI device via the PLC.

Automation system

An automation system is a controller of the SIMATIC S7 series, such as a SIMATIC S7-300.

Bootloader

Used to start the operating system. Automatically started when the HMI device is switched on. After the operating system has been loaded, the Loader opens.

Configuration PC

A configuration PC is a programming device or PC on which HMI projects are created for a plant with a configuration software.

CRC

Test values contained in a safety message frame can be backed up as follows:

- The validity of the process values contained in the safety message frame
- The accuracy of the assigned address relationships
- The safety-related parameters

Display duration

Defines whether a system alarm is displayed on the HMI device and the duration of the display.

Engineering software

Use the configuration software to create a project for process visualization. WinCC flexible, for example, is such a configuration software.

Event

An event is configurable object. Functions are triggered by defined incoming events. Events which can be assigned to a button include "Press" and "Release", for example.

Fail-safe

Ability of a technical system to remain in a safe operating state or switch to another safe operating state immediately after certain failures occur.

Fail-safe operation

Operating mode of the HMI device in which safety-related communication can be performed via safety message frames.

Fail-safe system, F system

A fail-safe system is used to control production processes by achieving a safe operating state immediately after shutdown. In other words, fail-safe systems control processes in which an immediate shutdown does not endanger people or the environment. Fail-safe systems are used in plants requiring higher levels of safety.

Field array

A field is configurable object. A reserved area is used for the input and output of values.

Flash memory

Non-volatile memory with EEPROM chips, used as mobile storage medium or as memory module installed permanently on the motherboard.

Half Brightness Life Time

Time period after which the brightness reaches 50% of the original value. The specified value is dependent on the operating temperature.

HMI device

An HMI device is used for operation and monitoring of production processes. The operating states of the plant are visually depicted on the HMI device. Operator controls on the HMI device enable intervention in the production process of the plant.

HMI device image

An HMI device image is a file that can be transferred from the configuration PC to the HMI device. An HMI device image contains the operating system for a specific HMI device and the runtime components required for the executable project file.

HMI screen

The HMI screens on the HMI device visualize the production process. The HMI screens are configured with WinCC flexible and will be available on the HMI device once the project has been transferred to the HMI device.

Infotext

Infotext is configurable object. It displays information about other objects within a project. Infotext for an alarm, for example, may contain information on the cause of the fault and troubleshooting routines.

Infrastructure mode

An infrastructure network is a wireless LAN, which enables communication among the various devices through a central wireless access point. The terminal devices must log on with their MAC address to the wireless access point and get an IP address assigned, if a DHCP server responds to the requesting device.

IO field

An IO field is configurable object. It enables values to be entered on the HMI device and transferred to the controller, and values to be output from the controller.

IO field, symbolic

A symbolic IO field is configurable object. It enables values to be entered on the HMI device and transferred to the controller, and values to be output from the controller. Contains a list of default entries from which one can be selected.

IT system

This is a particular type of ground connection in a distribution system in electrical engineering for increased resistance to isolation errors.

Object

An object is a configuration component of a project, for example, a screen, alarm or IO field.

Operating element

Component of a project used to enter values and trigger functions. A operator control is a button, for example.

PLC

A PLC is a general term for devices and systems with which the HMI device communicates, for example SIMATIC S7.

PLC job

A PLC job triggers a function for the PLC at the HMI device.

Process image

The process image is a memory area in the controller which the HMI device and controller access together. At the beginning of the cyclic control program the signal states of the inputs of the HMI device are transferred to the controller via the process input images, PII. At the end of the cyclic program the process image of the outputs, PIQ is transferred as a signal state to the HMI device.

Process visualization

Visualization of technical processes by means of text and graphic elements. Configured plant screens allow operator intervention in active production processes by means of the input and output of data.

PROFINET

Within the framework of Totally Integrated Automation, PROFINET represents an enhancement of the following bus systems:

- PROFIBUS DP as well-established fieldbus
- Industrial Ethernet as the communication bus on the device level

The experience gained from both systems has been and continues to be integrated in PROFINET. PROFINET as an Ethernet-based automation standard from PROFIBUS International defines a vendor-independent communications and engineering model.

PROFINET IO controller

Device used to address the connected IO devices. This means the IO controller exchanges input and output signals with assigned field devices. The IO controller is often a PLC.

PROFINET IO device

A distributed field device that is assigned to one of the IO controllers (e.g. remote IO, valve terminals, frequency converters, switches)

PROFINET IO

As part of PROFINET, PROFINET IO is a communication solution that is used to implement modular, distributed applications.

PROFINET IO allows you to create automation solutions of the type with which you are familiar from PROFIBUS. PROFINET IO is implemented by the PROFINET standard for automation devices on the one hand, and on the other hand by the STEP 7 engineering software. This means that you have the same application view in STEP 7 regardless of whether you configure PROFINET or PROFIBUS devices. The programming in the user program is similar for PROFINET IO and PROFIBUS DP, provided you use the expanded blocks and system status lists for PROFINET IO.

PROFIsafe

A fail-safe bus profile from PROFINET for communication between the safety program and the F-I/O in a fail-safe system.

PROFIsafe address

Every F-I/O has a PROFIsafe address. The F-I/O uses this address to receive safety message frames from the F-CPU or send safety message frames to the F-CPU.

Project

A project is the result of a configuration using an configuration software. The project normally contains several HMI screens, in which plant-specific objects are embedded. If it has been configured in WinCC flexible, the project is saved in a project file with the file name extension, ".hmi".

You need to distinguish between the project on the configuration PC and the runtime project on an HMI device. A project on the configuration PC may have more languages than can be managed on the HMI device. The project on the configuration PC can also be set up for different HMI devices. Only the runtime project that has been generated for the respective HMI device can be transferred to it.

Project file

File generated from the runtime project file for use on the HMI device. The project file is usually not transferred and remains on the configuration PC.

The file name extension of a project file is ".hmi".

Project file, compressed

Compressed format of the project file. The compressed project file can be transferred together with the runtime project file to the respective HMI device. Backtransfer must be enabled on the configuration PC for this purpose. The compressed project file is usually saved to an external storage medium.

The file extension of a compressed project file is ".pdz".

Proof-test interval

A period after which a component must be set to a safe state. Either the component is replaced by an unused component or full, error-free operation must be demonstrated.

Recipe

A recipe is a configurable component of a project. A recipe assembles variables in a fixed data structure. The corresponding data structure can be filled with data in the configuration software or on an HMI device.

Using a recipe ensures that all assigned data is transferred to the PLC synchronously during the transfer of a data record.

Runtime

You need the Runtime software to run a project you have created with WinCC flexible on a PC or HMI device.

Runtime project file

A runtime project file is a file that is generated from the finished project file for a specific HMI device based on the configuration. It can therefore only be run on a particular HMI device type. The runtime project file is transferred to the corresponding HMI device and used there to operate and monitor a production process.

The file extension of a runtime project file is "fwx".

Safe operating state

An operating state of a visualization unit which achieves safety. This is defined by the absence of safety-related failures. It is defined by the acceptably low risk achieved with the protective measures taken against potential safety-related failures.

The basic principle of the safety concept in a fail-safe system is the existence of a safe operating state for all process variables.

Safety function

A safety system integrated in F-I/Os and F-CPUs, enabling them to be used in fail-safe systems. According to IEC 61508, a safety function is implemented by a safety mechanism to ensure that the plant is kept in a safe operating state or brought into a safe operating state in the event of a fault (user safety function).

Safety Integrity Level

Safety Integrity Level (safety class) according to IEC 61508 and prEN 50129.

The higher the safety integrity level, the greater the measures required for fail-safe operation in order to avoid systematic errors and bring systematic errors and random equipment failure under control.

Safety-related communication

Communication used for fail-safe data communication.

Screen

See HMI screen.

Screen object

A screen object is a configurable object used to display or operate the plant, for example, a rectangle, I/O field or alarm view.

STEP 7

STEP 7 is the programming software for SIMATIC S7, SIMATIC C7 and SIMATIC WinAC PLCs.

System alarm

A system alarm is assigned to the "System" alarm class. A system alarm refers to internal states on the HMI device and the PLC.

Tab sequence

The tab order is the configured order of the objects that are accessed by successively pressing the "TAB" key.

Tag

Defined memory location to which values can be written to and read from. This can be done from the PLC or the HMI device. Based on whether the tag is interconnected with the PLC or not, we distinguish between "external" tags (process tags) and "internal" tags.

Transfer

Transfer of a runtime project from the configuration PC to the HMI device.

Transponder

A transponder is a – usually wireless – communication, display or control device that receives incoming signals and automatically responds to them. The term transponder is derived from transmitter and responder. Transponders can be passive or active.

Wireless access point

A wireless access point is an electronic device that acts as an interface for wireless communication devices. Terminal devices provide a wireless connection to the wireless access point via wireless adapter, which in turn is connected by cable to an installed communication network.

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