

# SIEMENS

## SIMATIC HMI

### WinCC flexible 2008 Runtime

User's Manual

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WinCC flexible Runtime

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## Safety Guidelines

This manual contains notices you have to observe in order to ensure your personal safety, as well as to prevent damage to property. The notices referring to your personal safety are highlighted in the manual by a safety alert symbol, notices referring only to property damage have no safety alert symbol. These notices shown below are graded according to the degree of danger.

<b>⚠ DANGER</b>
indicates that death or severe personal injury <b>will</b> result if proper precautions are not taken.
<b>⚠ WARNING</b>
indicates that death or severe personal injury <b>may</b> result if proper precautions are not taken.
<b>⚠ CAUTION</b>
with a safety alert symbol, indicates that minor personal injury can result if proper precautions are not taken.
<b>CAUTION</b>
without a safety alert symbol, indicates that property damage can result if proper precautions are not taken.
<b>NOTICE</b>
indicates that an unintended result or situation can occur if the corresponding information is not taken into account.

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## Qualified Personnel

The device/system may only be set up and used in conjunction with this documentation. Commissioning and operation of a device/system may only be performed by **qualified personnel**. Within the context of the safety notes in this documentation qualified persons are defined as persons who are authorized to commission, ground and label devices, systems and circuits in accordance with established safety practices and standards.

## Prescribed Usage

Note the following:

<b>⚠ WARNING</b>
This device may only be used for the applications described in the catalog or the technical description and only in connection with devices or components from other manufacturers which have been approved or recommended by Siemens. Correct, reliable operation of the product requires proper transport, storage, positioning and assembly as well as careful operation and maintenance.

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## Disclaimer of Liability

We have reviewed the contents of this publication to ensure consistency with the hardware and software described. Since variance cannot be precluded entirely, we cannot guarantee full consistency. However, the information in this publication is reviewed regularly and any necessary corrections are included in subsequent editions.

# Preface

## Purpose of this manual

This user manual is part of the WinCC flexible documentation.. The manual provides you with a comprehensive overview of working in WinCC flexible Runtime. The manual supports you in simulating new projects on your programming computer, in transferring a project to an HMI device and in working with WinCC flexible Runtime.

The readership addressed by this manual are newcomers, system migrators, operators and engineers who are concerned with operation, configuration, commissioning and service tasks using WinCC flexible.

## Basic Knowledge Requirements

General knowledge in the field of automation engineering is required to understand this manual.

You should also have experience of using PCs running under the Windows 2000 or Windows XP operating systems.

## Scope of the manual

This manual applies to the WinCC flexible 2008 Runtime software package.

## Position in the information scheme

This manual is part of the SIMATIC HMI documentation. The information below presents an overview of the information landscape of SIMATIC HMI.

### User manual

- WinCC flexible Micro
  - describes the engineering basics based on the WinCC flexible Micro engineering system (ES)
- WinCC flexible Compact/ Standard/ Advanced
  - describes the engineering basics based on the WinCC flexible Compact, WinCC flexible Standard and WinCC flexible Advanced engineering systems (ES)
- WinCC flexible Runtime:
  - Describes how to commission and operate your Runtime project on a PC.

- WinCC flexible Migration:
  - Describes how to convert an existing ProTool project to WinCC flexible.
  - Describes how to convert an existing WinCC project to WinCC flexible.
  - Describes how to migrate ProTool projects with an HMI migration from OP3 to OP 73 or OP 73 micro.
  - Describes how to migrate ProTool projects with an HMI migration from OP7 to OP 77B or OP 77A.
  - Describes how to migrate ProTool projects with an HMI migration from OP17 to OP 177B.
  - describes how to migrate ProTool projects with HMI migration from RMOS graphic devices to Windows CE devices.
- Communication:
  - Communication Part 1 describes the connection of the HMI device to SIMATIC PLCs.
  - Communication Part 2 describes the connection of the HMI device to third-party PLCs.

### **Operating Instructions**

- Operating instructions for SIMATIC HMI devices:
  - OP 73, OP 77A, OP 77B
  - TP 170micro, TP 170A, TP 170B, OP 170B
  - OP 73micro, TP 177micro
  - TP 177A, TP 177B, OP 177B
  - TP 270, OP 270
  - MP 270B
  - MP 377
- Operating instructions for mobile SIMATIC HMI devices:
  - Mobile Panel 170
  - Mobile Panel 277
  - Mobile Panel 277 IWLAN, Mobile Panel 277F IWLAN
- Operating instructions (compact) for SIMATIC HMI devices:
  - OP 77B
  - Mobile Panel 170

## Getting Started

- WinCC flexible for first time users:
  - Based on a sample project, this is a step-by-step introduction to the basics of configuring screens, alarms, and recipes, and screen navigation.
- WinCC flexible for advanced users:
  - Based on a sample project, this is a step-by-step introduction to the basics of configuring logs, project reports, scripts, user management, and multilingual projects, and integration into STEP 7.
- WinCC flexible options:
  - Based on a sample project, this is a step-by-step introduction to the basics of configuring the WinCC flexible Audit, Sm@rtServices, Sm@rtAccess and OPC Server options.

## Online availability

The following link actively guides you to technical documentation for SIMATIC products and systems in different languages.

- SIMATIC Guide Technical Documentation:

[http://www.automation.siemens.com/simatic/portal/html\\_76/techdoku.htm](http://www.automation.siemens.com/simatic/portal/html_76/techdoku.htm)

## Guide

Structure of this manual:

- Introduction to WinCC flexible Runtime – Chapters 1-3
- Commissioning WinCC flexible Runtime – Chapter 4
- Operating in Runtime – Chapters 5-6
- Appendix– Chapter 7

## Conventions

This documentation uses the term "HMI device" for all systems operating with WinCC flexible Runtime.

A distinction is made in the naming conventions for the configuration and runtime software:

- "WinCC flexible" refers to the configuration software.
- "Runtime" designates the runtime software running on the HMI devices.
- "WinCC flexible Runtime" designates the visualization product for use on standard PCs or panel PCs.

The term "WinCC flexible" is used in the general context. A version name such as "WinCC flexible 2008" is used whenever it is necessary to distinguish it from other versions.

The following formatting is used to facilitate reading of the manual:

Notation	Scope
"Add screen"	<ul style="list-style-type: none"><li>• Terminology that occurs in the user interface, e.g., dialog names, tabs, buttons, menu commands.</li><li>• Inputs required, e.g., limit values, tag values</li><li>• Path information</li></ul>
"File > Edit"	Operational sequences, e.g., menu commands/shortcut menu commands.
<F1>, <Alt + P>	Keyboard inputs

Please observe notes labeled as follows:

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**Note**

Notes containing important information about the product and its use or a specific section of the documentation to which you should pay particular attention.

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**Trademarks**

HMI®
SIMATIC®
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SIMATIC ProTool®
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**Additional support**

**Representatives and offices**

If you have questions concerning the use of the described product which are not answered in this manual, please contact the Siemens representative in your area.

Find your contact partner at:

<http://www.siemens.com/automation/partner>

A guide to the technical documentation for the various SIMATIC products and systems is available at:

<http://www.siemens.com/simatic-tech-doku-portal>

The online catalog and the online ordering system is available at:

<http://mall.automation.siemens.com>

## Training center

To familiarize you with automation systems, we offer a variety of courses. Please contact your regional training center or the central training center in D-90327 Nuremberg, Germany.

Phone: +49 (911) 895-3200

Internet: <http://www.sitrain.com>

## Technical support

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<http://www.siemens.com/automation/support-request>

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Fax: + 49 180 5050 223

Additional information about our technical support is available in the Internet at:

<http://www.siemens.com/automation/service>

## Service & support on the Internet

In addition to our documentation, we offer our complete knowledge base on the Internet at.

<http://www.siemens.com/automation/service&support>

There you will find:

- The newsletter which provides the latest information on your products.
- Relevant documentation for your application, which you can access via the search function in our service & support database.
- A forum where users and experts from all over the world exchange ideas.
- Your local Automation & Drives representative.
- Information about on-site service, repairs, spare parts. And lots more under "Services".





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# WinCC flexible Runtime

## Principle

In runtime, the operator can control and monitor the process. This involves in particular the following tasks:

- Communication with the automation systems.
- On-screen visualization of images
- Operating the process, for example, by setting setpoint values or opening and closing valves.
- Archiving of current runtime data, e.g. process values and alarm events.

## Performance spectrum of WinCC flexible Runtime

WinCC flexible Runtime supports a certain number of process variables (Powertags) which is determined by your license:

- WinCC flexible Runtime 128: Supports 128 process variables
- WinCC flexible Runtime 512: Supports 512 process variables
- WinCC flexible Runtime 2048: Supports 2048 process variables

You can increase the number of process variables with a PowerPack.



# Introduction to WinCC flexible Runtime

## Introduction

WinCC flexible Runtime is a high-performance and comprehensive software for the visualization of processes in projects you created with the WinCC flexible Advanced programming software.

Modern automation concepts are extremely demanding on process visualization. Process control close to machines must in particular meet the demands for simple, high-performance control of the processes. The goal is to present process data to the operator quickly and clearly in a form that can be easily understood, such as a trend display. This increasingly requires process displays that simplify understanding of the actual process. It is also becoming more important to be able to archive the data, e.g. for quality control. This makes it necessary to log process data at machine level.

WinCC flexible Runtime is designed for visualization and operation of machines and small systems. The Runtime software has a window-based pixel-graphics user interface. Due to its short response times, the software features secure process operation, jogging at the machine and secure data acquisition.

## Licensing

If you install the WinCC flexible Runtime software on a standard PC or a panel PC, you will require a license for unrestricted use. WinCC flexible Runtime runs in a non-licensed mode if the licensing is missing.

- PC: The license is supplied with WinCC flexible Runtime.
- Panel PCs: The license and WinCC flexible Runtime are supplied with the device.

## Components of WinCC flexible

The configuration software WinCC flexible Advanced is used to create your project data on a PC or PG that is operating on a Windows platform.

The process visualization software WinCC flexible Runtime is used to run the user program under Windows and to visualize the process. WinCC flexible Runtime is also used on the configuration computer to test and simulate the compiled project file.

There are also a number of options with enhanced functions available for WinCC flexible Runtime. These can be ordered separately as required.

## **Virus scanner in Runtime**

An active virus scanner will increase system load, and may lead to disturbances in Runtime.

Always disable the virus scanner when you install an application. An active virus scanner may also cause operational disruptions of hardware expansions. Running WinCC flexible can cause a blockade of the modules for process linking. This fact disqualifies in particular dynamic virus protection via gatekeeper mechanisms.

Always run virus tests in offline mode, and then restart the computer before you enable process coupling.

Any automatic update of virus scanners initiated on the network may cause unnecessary load on the system. Always run virus scanner updates in offline mode, and then restart the computer before you enable process coupling.



## Functional scope

### Dependencies of the functions

The functional scope of WinCC flexible Runtime depends on the following conditions:

- Hardware of the HMI device

The functionality is determined by the features of the HMI device used, such as memory capacity and the number of function keys.

- Licensing / licensing model

The scope of functions and performance is determined by the licensing and the licensing model, for example, with respect to the number of tags (power tags).

- Runtime options

You can access additional functions by installing the options (e.g. remote access using the Sm@rtClient display).

### Range of functions

Functionality of WinCC flexible Runtime:

- Convenient process visualization on a Windows-type user interface
- Large selection of standard I/O fields, bars, trend displays, vector graphics and buttons
- Integrated alarm system
- Dynamic positioning of objects
- Archiving of alarms and process values
- Recipes
- Visual Basic Script for user functions
- Standard couplings to SIMATIC S7, SIMATIC S5 and SIMATIC 505 as well as to PLCs from other manufacturers
- HTML Browser
- Input protection by means of user groups, passwords and log off times
- Remote access using the Sm@rtClient view



## System prerequisites

### System requirements for PCs

If you wish to run WinCC flexible Runtime on a PC, it must meet the following system requirements:

Released operating systems

- Windows XP Professional SP2
- Windows XP Professional SP3
- Windows XP Embedded

Only for the approved platforms, such as Panel PC 477.

For information on this, refer to the operating manual for the target platform.

- Windows Vista Business 32-bit
- Windows Vista Ultimate 32-bit

System requirements		Operating system
RAM	128 MB, 512 MB recommended	Windows XP
	min. 1 GB	Windows Vista
Processor	min. 300 MHz, Pentium III or similar processors with 500 MHz recommended	Windows XP
	min. 1 GHz	Windows Vista
Graphic controller	SVGA min. 1024 x 768 to 1600 x 1200	Windows XP Windows Vista
Hard disk Free memory space	min. 250 MB Make allowances for additional free hard disk space required for the page file, for example. For further information, refer to your Windows documentation.	Windows XP Windows Vista
To view documents in PDF format	Adobe Acrobat Reader 5.0 or higher Visit the Adobe homepage at " <a href="http://www.Adobe.com">http://www.Adobe.com</a> ."	Windows XP Windows Vista

More powerful processors, as of Pentium IV, may be necessary in connection with Options. When operating the configuration PC as access point to the process (Panel PC with WinCC flexible Runtime) set all performance schemes to unlimited continuous operation.

---

**Note**

**"Aero Glass Style" of Microsoft Vista**

"Aero Glass Style" requires a powerful graphics card. Requirements are DirectX9 capability and a separate 128MB graphics memory.

The performance power of the graphics system architecture can significantly impact the performance of WinCC flexible.

---

For WinCC flexible Runtime licensing you must have access to a USB memory device. The license can also be transferred via network connection. The term storage location generally denotes the location to which the License Keys are saved.

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**Note**

**Maximum number of files in the root directory of memory cards or internal flash**

The capacity of the root directory on a memory card or internal flash memory is limited to 256 files. This limit does not apply to subdirectories.

---

## Runtime behavior in Windows XP

Operating system Windows XP or higher provides a Data Execution Prevention (DEP) function. Deactivate DEP to allow the successful start of WinCC flexible Runtime or add WinCC flexible Runtime to an exception list. Check the settings by double-clicking the "System" entry in the Control Panel of the operating system. The "System Properties" dialog opens. Select the "Advanced" tab in the system properties and click "Settings" in the "Performance" section. The "Performance Options" dialog box opens. Select the "Data Execution Prevention" tab.

The "Turn on DEP for essential Windows programs and services only" is selected by default and WinCC flexible Runtime can be started.

WinCC flexible Runtime must be added to the exception list if the "Turn on DEP for all programs and services except those selected" is selected. Click the "Add" button and navigate to the WinCC flexible installation directory, e.g. <C:\Program Files\Siemens\SIMATIC WinCC flexible\WinCC flexible 2008 Runtime>. Select the file "HmiRTm.exe" and confirm your selection with "OK". Close the dialog boxes and restart the station.

---

**Note**

You can also set the DEP options "AlwaysOn" or "AlwaysOff" in the Boot.ini of Windows. The exception list is no longer valid if "AlwaysOn" is selected. This setting prevents the start of WinCC flexible Runtime.

---

For additional information on DEP, refer to the Windows help and the Microsoft homepage.

## Setting up WinCC flexible Runtime

### 5.1 Installing WinCC flexible Runtime

#### Supported devices

WinCC flexible Runtime will run on the following Windows-based systems:

- Standard PC
- SIMATIC Panel PCs: PC 670, PC 677, PC 870, PC 877, PC IL 70, PC IL 77
- SINUMERIK Panel PCs: OP 010, OP 012, OP 015, OP 015A, TP 012, TP 015A
- SIMOTION Panel PCs: P012K, P012T, P015K, P012T, PC-R Key, PC-R Touch

#### Installation on the PC

Install System WinCC flexible Runtime on your system, if you have not done that yet.

Install WinCC flexible Runtime from the "WinCC flexible Runtime" CD.

---

#### Note

Do not install the Runtime software from the product DVD of the WinCC flexible Engineering System. The Runtime software on the product DVD is intended for simulation within the Engineering System only.

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A license (license key) is required to run the Runtime software.

<b>NOTICE</b>
WinCC flexible Runtime runs in demo mode only if you do not have a license. In demo mode, you are prompted to acknowledge specific messages at regular intervals.

1. Install the runtime software from the CD.  
If the autorun function is enabled for your CD-ROM drive, the CD browser is run automatically when the CD is inserted. Otherwise, run Setup by selecting "WinCCflexible\Runtime\setup.exe" from the CD.
2. Select the user interface language of the Setup program under "Language."
3. Select "Installation", then run the "WinCC flexible Runtime" setup.
4. Follow the setup instructions on the screen.
5. Install the license when you are prompted to do so.

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**Note**

If, when installing the Runtime software, you do not have a license, you can install this later using the Automation License Manager. The Automation License Manager is automatically installed during the WinCC flexible installation.

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## **Starting Runtime**

OP 73micro, TP 170micro and TP 177micro HMIs cannot write values to the PLC after the start of Runtime unless the connection to the PLC is up. Any previously initiated write requests are not executed. This also applies to the "ScreenNumber" area pointer and to the "SetValue" functions of the "Build screen" event of the start screen.

## 5.2 Electrical installation

### Connecting the PC to the controller

The PC is connected to the controller via a communication processor or via the COM1 to COM4 ports. Please refer to the hardware description from the manufacturer for the proper electrical installation of your PC.

The table below shows the use of the interfaces:

Controller	PC interface
SIMATIC S5 over AS511	COM1 to COM4 6) requires an RS232/TTY adapter
SIMATIC S5 via PROFIBUS DP <sup>1)</sup>	via CP CP 5511, CP 5512, CP 5611
SIMATIC S7 via PPI	via CP CP 5511, CP 5512, CP 5611, CP 5613, CP 5614 via PC/PPI adapter <sup>2)</sup>
SIMATIC S7 via MPI	via CP CP 5511, CP 5512, CP 5611, CP 5613, CP 5614 via PC/MPI adapter <sup>3)</sup> via PC adapter USB <sup>3)</sup> via Teleservice V5.1
SIMATIC S7 via PROFIBUS DP <sup>4)</sup>	via CP CP 5511, CP 5512, CP 5611, CP 5613, CP 5614
SIMATIC S7 -PROFINET (Ethernet (TCP/IP))	via CP CP 1512, CP 1612, CP 1613
SIMATIC 500/505 - NITP	COM1 through COM4 (depending on arrangement)
SIMATIC 500/505 - PROFIBUS DP	via CP CP 5511, CP 5512, CP 5611
SIMATIC HMI HTTP Protocol	Ethernet <sup>5)</sup>
OPC	Ethernet network cards
Allen Bradley via DF, DH+, DH485	COM1 through COM4, depending on arrangement
Allen-Bradley Ethernet IP	Ethernet
LG GLOFA-GM	COM1 through COM4, depending on arrangement
Mitsubishi FX	COM1 through COM4, depending on arrangement
Mitsubishi P4	COM1 through COM4, depending on arrangement
Modicon Modbus RTU	COM1 through COM4, depending on arrangement
Modicon Modbus TCP/IP	Ethernet
Omron	COM1 through COM4, depending on arrangement
Telemecanique	— not supported

<sup>1)</sup> WinCC flexible Runtime is passive node (DP slave)

<sup>2)</sup> Point-to-point connection with S7-200 only, no configuration transfer

<sup>3)</sup> Point-to-point connection with S7-300 or S7-400 only

<sup>4)</sup> WinCC flexible Runtime is active node

<sup>5)</sup> WinCC flexible Runtime must be installed on the devices

<sup>6)</sup> COM2 is blocked for the following devices:

- PC 477 12" Touch\_1.2.0.0
- PC 477 15" Touch\_1.2.0.0
- PC 477 12" Key\_1.2.0.0
- PC 477 15" Key\_1.2.0.0

## 5.3 Connection to the controller

### Connection to the controller

Connect your HMI device to the controller in order to allow you to simulate your project online with the controller. You can also test the project by calling the simulator. In this case, you do not need an online connection to the controller.

### Setting the PG / PC interface

#### PROFIBUS DP communication

1. Select "Start > Settings > Control Panel", then select "Set PG/PC interface."  
Select PROFIBUS under used module parameters.
2. Click "Properties". The DP profile is selected in the network parameters.
3. Select universal (DP/FMS), then confirm with OK.
4. Click "Properties" again.
5. Select the DP profile again, then confirm with OK.

#### MPI communication

1. Select "Start > Settings > Control Panel", then select "Set PG/PC interface."
2. Click "Properties", then set the parameters on the MPI network tab for the HMI device so that this is the only master on the bus.

Only one of several HMI devices may be operated as master on the MPI bus. Verify the network settings of the connected devices.

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#### Note

For comprehensive information relating to communication between the controller and the HMI device, refer to the communication user manual.

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## 5.4 Settings of the Runtime software

### Principle

In the configuration software WinCC flexible, make the following settings for the Runtime software:

- Display on the PLC

In WinCC flexible, you configure the Runtime layout of the generated project: Select whether to start the project in full-screen mode, or in a window smaller than the screen size. In full-screen mode, the project is zoomed to the full screen. There will be no window and operator control elements for this view.

---

#### Note

If the HMI screen does not match the configured size (in pixels), the project appears only on a part of the screen when opened in full-screen mode.

---

To start the system in full-screen mode, open the "Device settings" dialog box in the project view in WinCC flexible. Under "Runtime Settings", set the "Full-screen mode" check box. You can hide the taskbar under Windows as required. To hide the taskbar, select "Start > Settings > Taskbar", then clear the "Always on Top" and "Auto hide" check boxes on the "Taskbar properties" dialog box.

- Dialog fonts

The dialog text will be shown in the standard font. You define the standard font in the "Languages and fonts" editor.

- Disabling program switching

In order to prevent the operator from calling other applications in Runtime, you may lock program switching. To do so, open the "Device settings" dialog box in the project view, then set the "Disable program switching" and "Full-screen mode" check boxes. Also hide the taskbar under Windows as described earlier.

---

#### Note

If you decide to lock program switching, you should always configure a function key or button for calling the "StopRuntime" system function. Otherwise, it will not be possible to exit WinCC flexible Runtime or Windows.

When program switching is disabled, the <Ctrl+Alt+Del> keystroke function is also disabled.

---

- Screen saver

A screensaver is no longer required for most modern screens and can even damage them. These monitors switch to hibernate mode as soon as the video signal has not changed for a specified time. A conventional screensaver would prevent this and thus reduce the service life of your monitor.

---

#### Note

In case you do want to use a screensaver, please note that WinCC flexible Runtime is only released for operation with the standard Windows screensavers.

---

- Setting the time zone

Make sure that the correct time zone is set on the PC on which the runtime software is installed. To set the time zone in Windows, select Start > Settings > Control Panel > Date/Time.

## 5.5 Test project

### Function

WinCC flexible is supplied with a simulator software which you can use to test your project offline. The simulator is a separate application. It allows you to debug the functions of configured graphics, graphic objects, alarms etc.

The simulator simulates the control as follows:

- Defined modification of the values of configured tags, e.g. in increments or decrements, sine-wave, random or by bit-shifting.


The simulation/runtime components must also be installed on your programming device in order to run a simulation.

### Principle

You have various options of simulating your project:

- Simulation with PLC connection

You can simulate you project directly in Runtime. In this case, tags and range pointers will only function if your programming device is interconnected with a corresponding PLC.

By connecting your computer to the PLC, you can achieve an authentic simulation of your configured HMI device during runtime. For simulation with WinCC flexible, select "Compiler" > "Start Runtime" from the "Project" menu. Alternatively, click on the  symbol in the "Compiler" toolbar.

- Simulation without PLC connection

The simulation program installed with WinCC flexible Runtime allows offline simulation of your project, including its tags and flags. Specify the parameters of flags and tags in a simulation table that will be read by the simulation program of WinCC flexible Runtime.

For simulation with the simulator, select "Compiler > Start Runtime with simulator" from the "Project" menu. Alternatively, click on the  symbol in the "Compiler" toolbar.

- Simulation in integrated mode

An integrated configuration in STEP 7 allows you to simulate a PLC connection with PLCSIM. For more information, please see the STEP 7 documentation.

## Handling instructions

The following steps show the basic procedures for simulating a project offline without PLC connection.

1. Start by creating a project as it is going to be run later with an interconnected PLC.
2. Save and compile the project.
3. Launch the simulator directly from the running configuration software. Select "Compiler" > start Runtime with simulator" from the "Project" menu. Alternatively, click on the



symbol in the "Compiler" toolbar.

When you simulate the project for the first time, the simulator is started with a new, empty simulation table. If you have already created a simulation table for your project, it will be opened.

The simulation table "\*.sim" contains all your settings for the simulation of tags and flags.

4. You now manipulate the tags and flags of your project in the simulation table.  
You can monitor the profile of the changing value by switching the task from simulation to the project.
5. You can save all settings made in this table for project simulation to a file. To do so, select "File > Save" in the Simulator, then type in a file name (\*.sim).
  - You can now always retrieve these settings in order to simulate your project again. The condition is here, that you have not reconfigured any of the tags or flags you want to simulate in your project in the meantime.

## Changing the language of the simulator user interface

The simulator neither provides a language change function, nor does it start using the engineering language of WinCC flexible.

You change the user interface language of the simulator as follows:

1. Open the shortcut menu from "Start > SIMATIC > WinCC flexible 2008 > WinCC flexible 2008 Runtime Simulator".
2. Click "Properties".
3. If you want to work on an English user interface, for example, replace the path definition in the "Target" area with the following entry:

"C:\Program Files\Common Files\Siemens\HmiRTmSim\HmiRTmSim.exe" / I1033

Overview of language IDs required:

Language	Language ID required
German	I1031
English	I1033
French	I1036
Italian	I1040
Spanish	I1034
Chinese - Taiwan	I1028
Chinese - China	I2052
Japanese	I1041
Korean	I1042

## 5.6 Transferring a project

### Overview

Various scenarios are possible for transferring the project:

- WinCC flexible Runtime is installed on the same PC as the WinCC flexible programming software.
- WinCC flexible Runtime and the WinCC flexible programming software are installed on different systems. In this case, the project must be downloaded from the programming device to the destination device.

In the first step, you need to set the corresponding transfer properties in the "Loader menu" on the HMI device.

---

#### Note

Depending on the configuration, the safety prompts request you to confirm overwriting of online recipe data and user management data on the HMI device with offline configuration data.

---

### Rebuild all

Recompile the entire project by executing the "Rebuild all" command before releasing your project to the production process.

It is also advisable to execute a "Rebuild all..." command at suitable intervals to reduce the time required for compiling delta data in current engineering sessions.


Execute a full compilation by selecting the "Project > Compiler > Rebuild all..." menu command.

The "Select HMI devices for generation" dialog opens after you have called the "Rebuild all..." command and if you have configured several HMI devices.

Select the HMI devices to be generated from this dialog. Multiple selection is possible.

### The programming software and runtime software are on the same system

If the configuration software and WinCC flexible Runtime are on the same system, proceed as follows:

1. Create and then compile your project (e.g., named Myproject.hmi).  
The compiled file with the file name extension \*.fwx will be stored in the folder containing the project file, e.g. "Myproject.fwx."
2. Start WinCC flexible Runtime directly from the running configuration software. Select "Compiler" > start Runtime" from the "Project" menu. Alternatively, click on the  symbol in the "Compiler" toolbar.
3. You may test and operate the project online with the controller if you have configured the corresponding communication.

### Configuration software and Runtime software on different systems

If the programming software and WinCC flexible Runtime are installed on two different systems, proceed as follows:

1. Create and then compile your project (e.g., named Myproject.hmi).  
The compiled file with the file name extension \*.fwx, e.g. Myproject.fwx, is stored in the same folder.
2. To transfer the compiled file via cable:  
Depending on the required type of transfer, use a suitable standard cable to interconnect the HMI device with the programming device, then switch on the HMI device.

---

#### Note

If the HMI device is a PC, you can transfer the compiled file without using the loader, for example, via Ethernet. To do so, double-click the compiled file on your PC to start Runtime.

---

3. Download the compiled file from the programming device to your PLC.  
Windows provides the following options of transferring the compiled file:
  - Copy the file \*.fwx to the PLC via the parallel or serial interface via dial-up connection under Windows or copy the file \*.fwx to the PLC via a network.
  - Copy the \*.fwx file to a diskette and then from the diskette to the destination PC.

## 5.7 Runt the project

### Introduction

You can start the project immediately after its transfer.

### Project start modes

Options of starting a WinCC flexible project on a Runtime PC:

- Running it from the Explorer

You can run the project by double-clicking its file name in Windows Explorer.

- Starting together with Runtime

Enter the project file in "HmiRT.ini" in order to run it with the start of WinCC flexible Runtime by means of the Windows Start menu.

- Run from the command line

To run your project, type in one command either at the MS-DOS prompt, or on the "Start > Run" command line in Windows, and then press <Enter>. Note that the following command line may diverge from its installation path:

```
c:\Programs\Siemens\SIMATIC WinCC flexible\WinCC flexible 2008  
Runtime\HmiRTm.exe c:\project\myproject.fwx
```

- Autostart

- If your project is linked to the Autostart directory of the Windows start menu, it will be automatically upon system startup.
- It is also possible to define the autostart settings in the "Settings" dialog box of the WinCC flexible Runtime loader.

---

#### Note

Start the loader using the "SIMATIC\WinCC flexible 2008 Runtime > WinCC flexible 2008 Runtime Loader" command in the Windows Start menu.

---

### Missing objects in Runtime

If objects are not displayed in Runtime or startup of the project fails, rebuild the project by selecting "Project ► Generator ► Rebuild all...". Transfer the project once again.

## 5.8 Backup configuration data

### Principle

Several years of operation in a rugged industrial environment may damage the hard disk drive of your HMI device. To ensure that you can retrieve all programs and settings to the new hard disk, create a backup copy of your hard disk configuration data. Refer to the operating instructions of the HMI device for a detailed description of creating a backup.

### Procedure

1. Run the backup program as directed in the description included with the SIMATIC HMI device.

You have thus prepared the conditions for putting your HMI device into operation again without any significant loss of time after you replace the hard disk drive.

A commonly available software can also be used to generate a backup copy.

## 5.9 Stop runtime

### Introduction

You define the steps in closing Runtime in the user program:

### Procedure

1. When Runtime is running in window mode, you can close it simply by clicking "Close".
2. When Runtime is running in full-screen mode, you can close it by means of the program switching function and the Task Manager.
3. When Runtime is running in full-screen mode and program switching is disabled for the project, the closing sequence of Runtime must be configured separately. Actuate the relevant button to close Runtime.





## Runtime functionality

### 6.1 Screen objects in Runtime

#### Overview

WinCC flexible Runtime offers the following objects for operating and monitoring:

- Button
- Switch
- IO Field
- Graphic IO Field
- Symbolic IO Field
- Alarm indicator
- Alarm view
- Alarm window
- Media Player <sup>1)</sup>
- Recipe view
- Bar
- Trend View
- Slider
- Gauge
- Date-Time Field
- Clock
- User view
- Symbol Library
- Status Force
- HTML Browser
- Sm@rtClient View

<sup>1)</sup> for MP 377 only

## 6.2 Alarms in Runtime

### Alarms

Alarms indicate events and states on the HMI device which have occurred in the system, in the process or on the HMI device itself. A status is reported when it is received.

An alarm could trigger one of the following alarm events:

- Activate
- Deactivate
- Acknowledge

The configuration engineer defines which alarms must be acknowledged by the user.

An alarm may contain the following information:

- Date
- Time
- Alarm text
- Location of fault
- Status
- Alarm class
- Alarm number
- Alarm group

### Alarm classes

Alarms are assigned to various alarm classes.

- Warning

Warning alarms usually indicate states of a plant such as "Motor switched on". Alarms in this class do not require acknowledgement.

- Error

Alarms in this class must always be acknowledged. Alarms normally indicate critical errors within the plant such as "Motor temperature too high".

- System

System alarms indicate states or events which occur on the HMI device.

System alarms provide information on occurrences such as operator errors or communication faults.

- Diagnostic alarm

SIMATIC diagnostic alarms show states and events in the controllers SIMATIC S7 or SIMOTION.

- STEP 7 alarm classes

The alarm classes configured in STEP 7 are also available to the HMI device.

- Custom alarm classes

The properties of this alarm class must be defined in the configuration.

### **Alarm buffer**

Alarm events are saved to an internal, volatile buffer. The size of this alarm buffer depends on the HMI device type.

### **Alarm log**

When alarm logging is enabled, alarm events are output directly to the printer.

You can set the logging function separately for each alarm. The system outputs "activated" and "deactivated" alarm events to the printer.

The output of alarms of the "System" class to a printer must be initiated by means of the corresponding alarm buffer. This outputs the content of the alarm buffer to the printer. To be able to initiate this print function, you need to configure a corresponding control object in the project.

### **Alarm log**

Alarm events are stored in an alarm log, provided this log file is configured. The capacity of the log file is limited by the storage medium and system limits.

### **Alarm view**

The alarm view shows selected alarms or events from the alarm buffer or alarm log. Whether alarm events have to be acknowledged or not is specified in your configuration. By means of configuration, the display can be filtered in such a way that only alarms that contain a specific character string will be shown.

The following HMI devices update the tag value in an alarm after the alarm status has changed, for example by acknowledgment.

- OP 73micro
- TP 177micro
- OP 73
- OP 77A
- TP 177A

The tag value at other HMI devices remains unchanged.

The following HMI devices do not resort active and unacknowledged alarms shown in an alarm view after an alarm was acknowledged.

- OP 73micro
- TP 177micro
- OP 73
- OP 77A
- TP 177A

### Alarm window

If configured, an alarm window shows all pending alarms or alarms awaiting acknowledgement of a particular alarm class. The alarm window is displayed as soon as a new alarm occurs.

You can configure the order in which the alarms are displayed. You can choose to display the alarms in ascending or descending order of their occurrence. The alarm window can also be set to indicate the exact location of the fault, including the date and time of the alarm event. By means of configuration, the display can be filtered in such a way that only alarms that contain a specific character string will be shown.

### Alarm indicator

The alarm indicator is a graphic symbol that is displayed on the screen when an alarm of the specified alarm class is activated.

The alarm indicator can have one of two states:

- Flashing: At least one unacknowledged alarm is pending.
- Static: The alarms are acknowledged but at least one of them is not yet deactivated. The number indicates the number of queued alarms.

## 6.3 Tags in Runtime

### Definition

Tags correspond to defined memory areas on the HMI device, to which values are written and/or from which values are read. This action can be initiated by the PLC, or by the operator at the HMI device.

## 6.4 Log files in Runtime

### Overview

Alarm events and process values can be saved to log files.

Examples of alarm events are the incoming, acknowledged and outgoing events occurring with an alarm message.

Process value logging is used for the following purposes, for example:

- Early detection of danger / fault states
- Increase of productivity
- Enhancement of product quality
- Optimization of maintenance cycles
- Documentation of processes
- Quality assurance

## Memory options

Depending on the configuration, the logs are written to a file or stored in a database set up for this purpose.

- Logging to a CSV file

The project engineer must have specified a folder path for storing the CSV file containing your logged data. This references the storage location.

CSV format table columns are separated by separators, the table rows are terminated by a line break character. This allows you to evaluate or edit your log data using an external text editor or spreadsheet program, for example.

- Logging to a database

By storing your log files in a database, you can utilize the full database functionality for further processing and analysis of the logged data.

WinCC flexible supports logging via ODBC interface. This functionality was verified using Microsoft SQL Server 2005 Express Edition.

Logging methods used in WinCC flexible Runtime:

- Circular log
- Segmented circular log
- Log with level-dependent system alarm
- Log file with data volume-based system alarm

## Alarm logs

Alarms in the project indicate fault states and operating states of a process. They are generally triggered by the controller. Alarms can be output to the HMI in the form of images. WinCC flexible lets you log alarms and document operational states and error states of the plant.

The following data are logged to the file:

- Date and time of alarm
- Alarm number
- Alarm tags (up to 8)
- Alarm status
- Alarm text (optional)
- Fault location (optional)

All alarms are assigned to a specific alarm class. All alarm classes can be logged.

Alarms can be logged either automatically, or by operator intervention.

The contents of log files can be output to the HMI, if a corresponding alarm view has been configured.

## Data logs

In Runtime, the process values are logged, processed and, depending on the project, written either to files or to the log database.

Data logging is controlled by means of cyclic operations and events. Logging cycles are used to ensure continuous acquisition and storage of the data. In addition, data logging can also be triggered by events, e.g. when a value changes.

## File storage on Windows 2003 Server

Only the HMI devices listed below support the storage of files such as logs and recipes on Windows 2003 Server with Active Directory:

- MP 277
- MP 377
- Mobile Panel 277
- Mobile Panel 277 IWLAN

# 6.5 Recipes in Runtime

## 6.5.1 Recipes in Runtime

### Overview

Recipes are a collection of associated data, e.g. machine configuration or production data. This data can be generally transferred between the HMI device and PLC in a single step. This way you can convert the production to a different product variant. If you have programmed directly at the machine, for example, you can transfer the data to your HMI device and write it to the recipe.

### Operating recipes in Runtime

WinCC flexible offers two options of viewing and editing recipes and the corresponding recipe data records in Runtime on the HMI device:

- Recipe view
- Recipe screen

## Recipe view

The recipe view is a screen object that is configured in the "Screens" editor.

The recipe view can be represented as follows:

- As enhanced recipe view

The enhanced recipe view interface includes the following elements:

- Recipe Name: Orange (dropdown menu)
- No.: 1 (text field)
- Data Record Name: Nectar (dropdown menu)
- No.: 2 (text field)
- Table with columns: Entry Name, Value
- Table rows: Water (40), Concentrate (70)
- Navigation icons: Home, Save, Cancel, Back, Forward
- Status bar: Ready

- As simple recipe view

On HMI devices with displays smaller than 6" (e.g. OP 77B) the simple recipe view is used to display and edit recipes.

The simple recipe view interface displays a list of recipes:

- 1 Juice
- 2 Beverage
- 3 Nectar

Navigation arrows (left and right) are located to the right of the list.

For example, you can specify what operating function the recipe view will have in runtime:

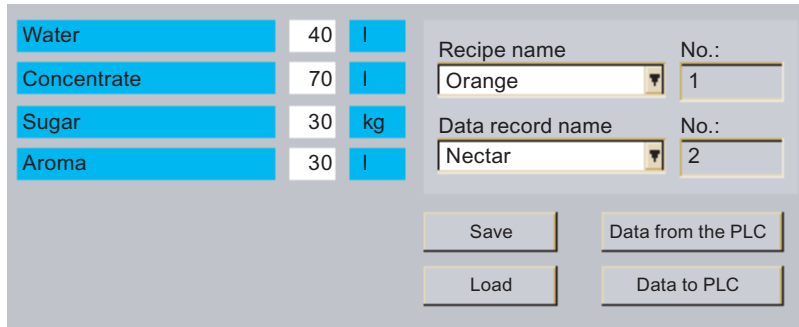
The recipe view shows recipe data records in tabular form. The Recipe view is particularly useful if data records are small in size or only a few values are to be modified.

In the recipe view, the recipe values are saved in the recipe data records. The recipe data record is not transferred between the HMI device and PLC until you use the corresponding operating element.

### Recipe screen

The recipe screen is a process picture. It contains an individual input screen for the recipes. The input screen contains IO fields and other screen objects. You have to implement the recipe functionality with system functions, e.g. for saving recipe data records.

This makes it possible for you to input parameter data in the context of machine visualization. The I/O fields for a recipe can be distributed over multiple recipe screens, with topical organization of recipe elements, for example.



In the recipe screen, the values are saved in recipe tags. Depending on the configuration, the recipe values are transferred between the PLC and the HMI device either immediately or after the respective operating element has been activated.

## 6.5.2 Structure of recipes

### Introduction

The basic structure of a recipe is illustrated with reference to a filling station in a fruit juice plant.

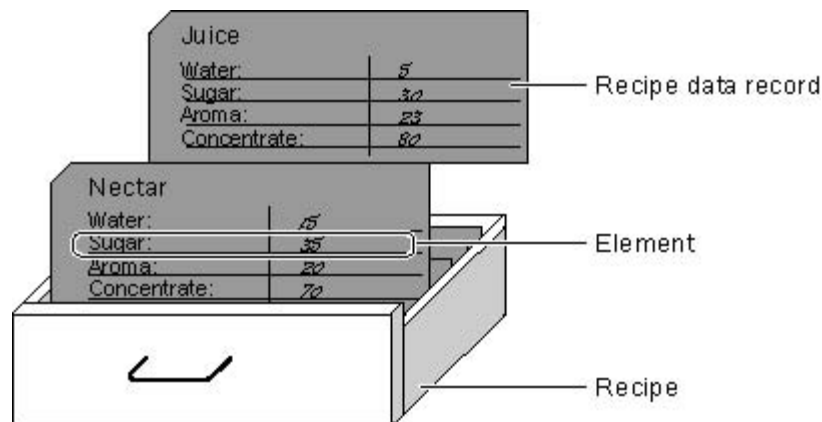
There may be several different recipes in an HMI device. A recipe can be compared to an index card box that contains several index cards. The index card box contains several variants for manufacturing a product family. The full data for each manufacturing variant is contained on a single index card.

Example:

In a soft drinks production plant, a recipe is needed for different flavors. Drink variants include fruit juice drink, juice and nectar.



## Recipe



### Recipe data records

Each index card represents a recipe data record needed to manufacture a product variant.

### Recipe entries

Each index card in a drawer is printed immediately. All the index cards contain fields for the different ingredients. Each field corresponds to a recipe entry. All the records of a recipe thus contain the same entries. The records differ, however, in the value of the individual entries.

Example:

All drinks contain the same components:

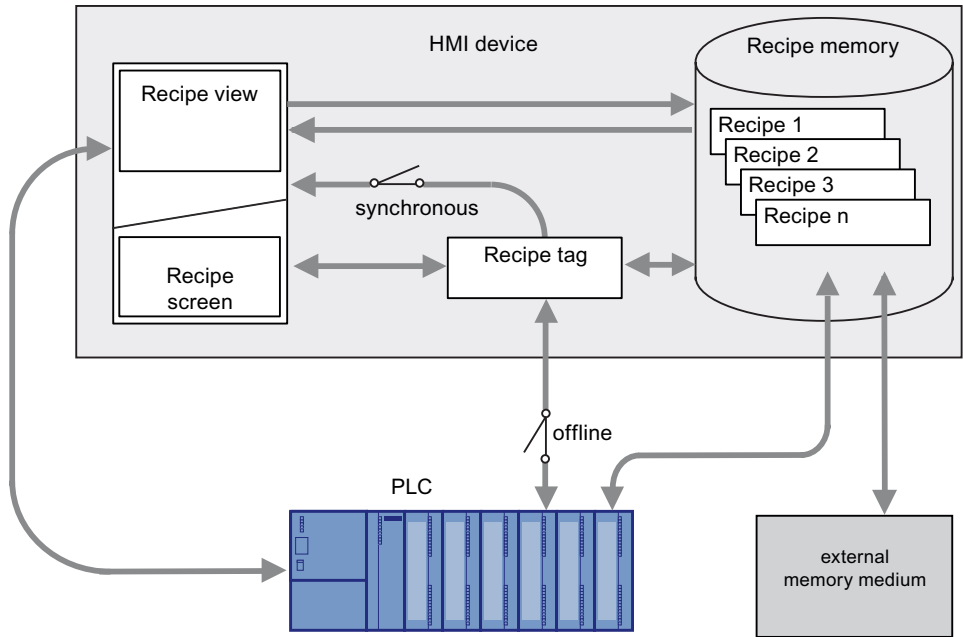
- Water
- Concentrate
- Sugar
- Flavoring

The records for juice drink, fruit juice or nectar differ, however, in the quantity of sugar used in production.

### 6.5.3 Recipe application

#### 6.5.3.1 Transfer of recipe data records

##### Flow of data in recipes



##### Interaction between the components

There is interaction between the following components at runtime:

- Recipe view / recipe screen  
On the HMI device, recipes are displayed and edited in the recipe view or in a recipe screen.
  - The recipe data records from the internal memory of the HMI device are displayed and edited in the recipe view.
  - The values of the recipe tags are displayed and edited in the recipe screen.Depending on the configuration, the values displayed in the recipe view are synchronized with the values of recipe tags.
- HMI device recipe memory  
Recipes are saved in the form of recipe data records in the HMI device's recipe memory.
- Recipe tags  
The recipe tags contain recipe data. When you edit recipes in a recipe screen, the recipe values are stored in recipe tags. The point at which the values of the recipe tags are exchanged with the PLC depends on the configuration.

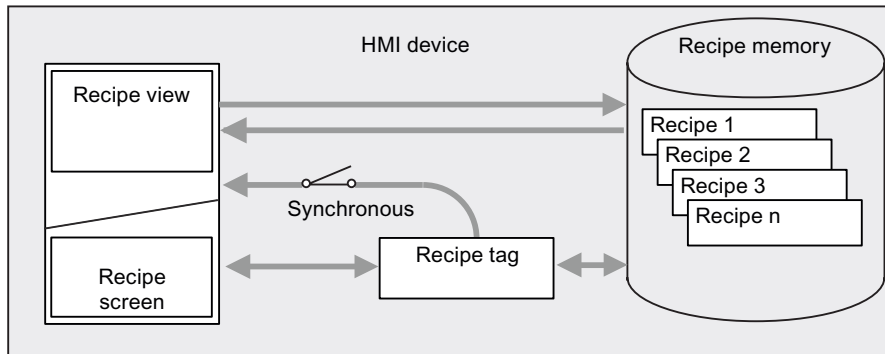
---

##### Note

You can synchronize the recipe tags with the recipe data records so that the same values are saved in both.

---

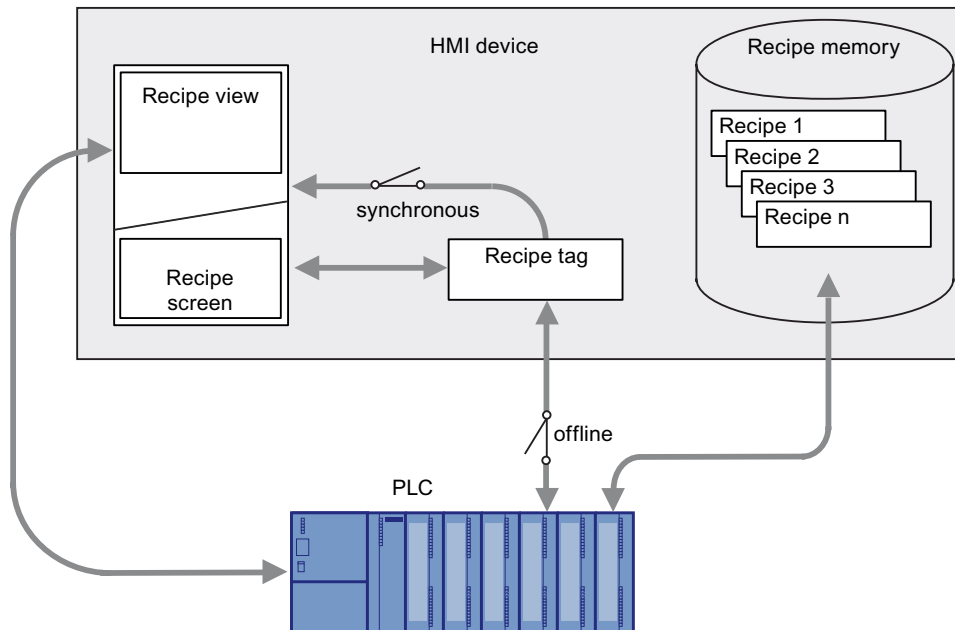
### Loading and saving recipe data



Complete recipe data records are loaded from or saved to the recipe memory on the HMI device in the recipe view.

The values of the recipe data record are loaded from the recipe memory to the recipe tags in the recipe screen. When they are saved, the values of the recipe tags are saved to a recipe data record in the recipe memory.

### Transferring the recipe values between the HMI device and the PLC



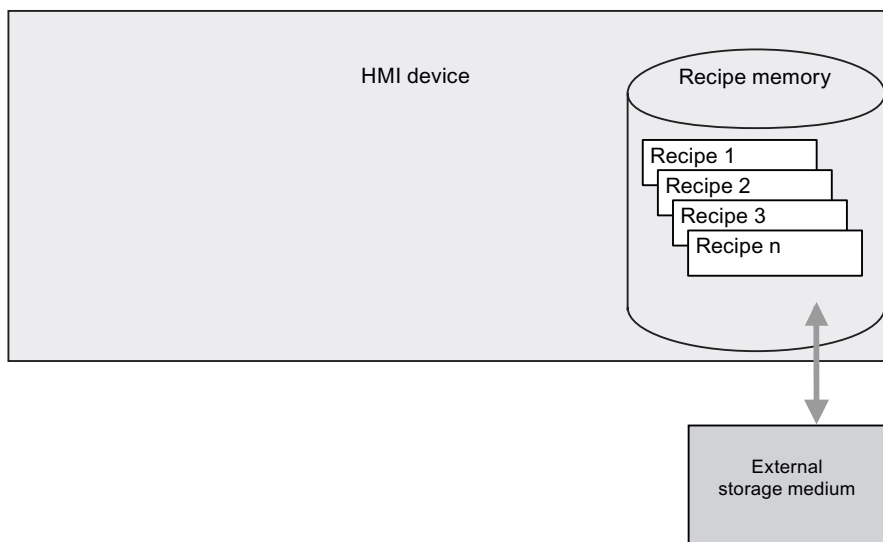
Complete recipe data records are transferred between the recipe view and PLC.

The following transfers are possible between the recipe screen and PLC, depending on the configuration:

- Transferring recipe data records between PLC and recipe tags
- Immediate transfer of individual modified values between the PLC and recipe tags. The following settings are needed in the recipe in order to do this:
  - "Synchronize tags" has been enabled.
  - "Tags offline" has been deactivated.

Recipe data records can be transferred directly between the HMI device and PLC. In these situations, the display on the HMI device is not essential.

### Exporting and importing recipe data records



Recipe data records are exported from the HMI device recipe memory and are saved to a CSV file on the external storage medium. The records can be reimported from the storage medium to the recipe memory.

The following external storage media may be used, depending on the HMI device:

- Memory card
- USB stick
- Hard disk

### 6.5.3.2 Configuration of recipes

#### Introduction

Recipes are configured differently depending on the intended use.

- If you are editing recipes with a recipe view in your project, the values are only saved in recipe data records.
- If you are editing recipes in a recipe screen in your project, the values are saved in recipe tags.

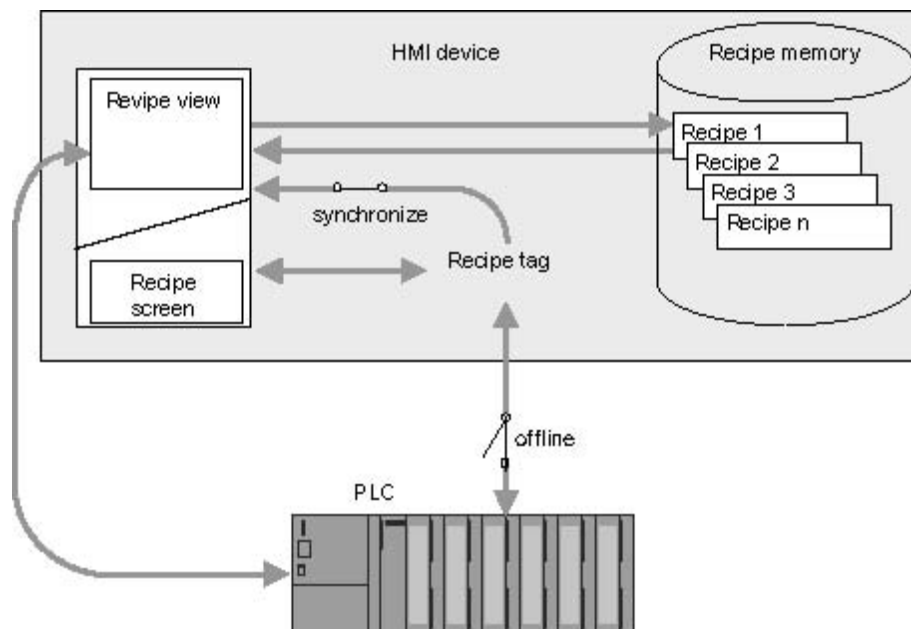
The following possible settings determine how the recipe data records, recipe tags and PLC all interact.

#### "Synchronize tags" deactivated

The data in a data record is only displayed and can only be edited in the recipe view. Using these same tags outside of the recipe view does not affect their values.

#### "Synchronize tags" enabled

Differences may occur during runtime between the values displayed in the recipe view and the values saved in the associated tags when you edit recipes with a recipe view and in a recipe screen. To prevent this, the recipe data record values must be synchronized with the values of the recipe tags.



#### Note

Recipe tags can only be synchronized in the enhanced recipe view.

The values of the recipe view and the associated recipe tags are not synchronized automatically. The recipe tags and the recipe view are not synchronized until you use the operating element with the "RecipeViewSynchronizeDataRecordWithTags" function.

### "Synchronize tags" and "Tags offline enabled"

With this setting, modified recipe values are not synchronized immediately between the recipe tags in the recipe screen of the HMI device and PLC.

There must be an operating element with the "SetDataRecordToPLC" and "GetDataRecordFromPLC" functions present in order to synchronize the values.

If recipe values are changed in the controller, the modified values are displayed immediately in the recipe screen if you use the operating element with the "GetDataRecordFromPLC" function.

### "Synchronize tags" enabled and "Tags offline deactivated"

With this setting, modified recipe values are synchronized immediately between the recipe tags on the HMI device and PLC.

When you change recipe values in the recipe screen, these changes are applied immediately by the PLC and immediately influence the process.

If recipe values are changed in the PLC, the changed values are displayed immediately in the recipe screen.

## 6.5.3.3 Scenario: Entering recipe data records in Runtime

### Objective

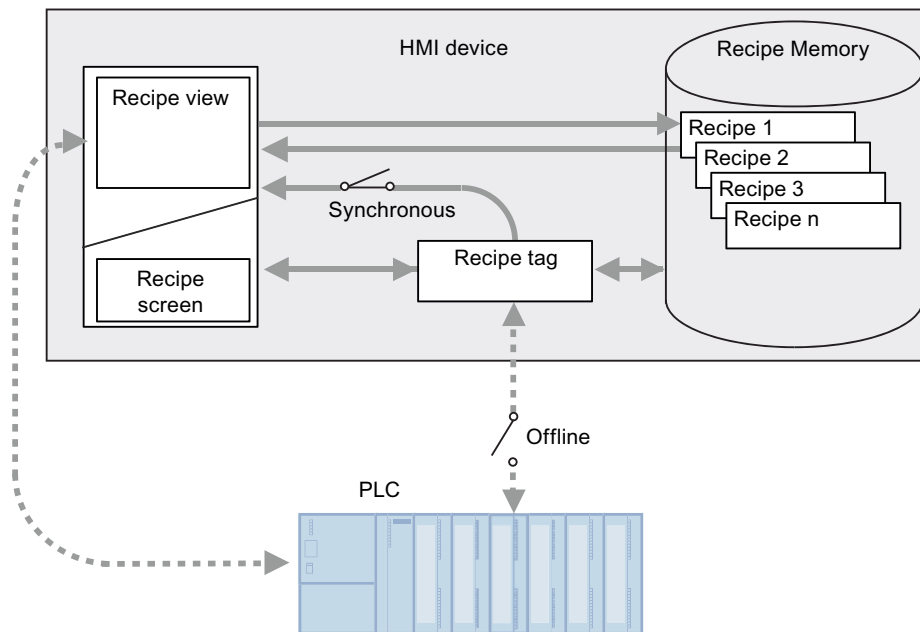
You want to enter production data on the HMI device without disturbing the process that is currently underway. Therefore, the production data should not be transferred to the PLC.

### Requirements

- The recipe has been created. The recipe has the following settings:
  - "Synchronize tags" is checked or unchecked.
  - If "Synchronize tags" is checked, then "Tags offline" must also be checked.

This will prevent the recipe tags being transferred automatically between the HMI device and PLC.
- A recipe screen or mimic with recipe view is available.
- There is an operating element for saving the recipe data records.

## Sequence



1. Enter the production data in the recipe view or recipe screen.
2. Save the modified recipe data record.
3. Alternatively save the recipe data record with a new name.

The recipe data record is saved in the recipe memory of the HMI device.

### Transfer the recipe data to the PLC

The configuration may provide operating elements for transferring recipe data to the PLC.

#### 6.5.3.4 Scenario: Manual production sequence

### Objective

A reading device connected to the PLC reads a bar code on the work piece to be processed. The recipe data record names correspond to the respective bar code names. This will enable the PLC to load the necessary recipe data record from the storage medium of the HMI device. The recipe data record is displayed for inspection on screen.

You want to be able to correct the transferred production data online, if necessary.

### Requirements

- The recipe has been created. The recipe has the following settings:
  - "Synchronize tags" has been enabled.
  - "Tags offline" has been deactivated.

---

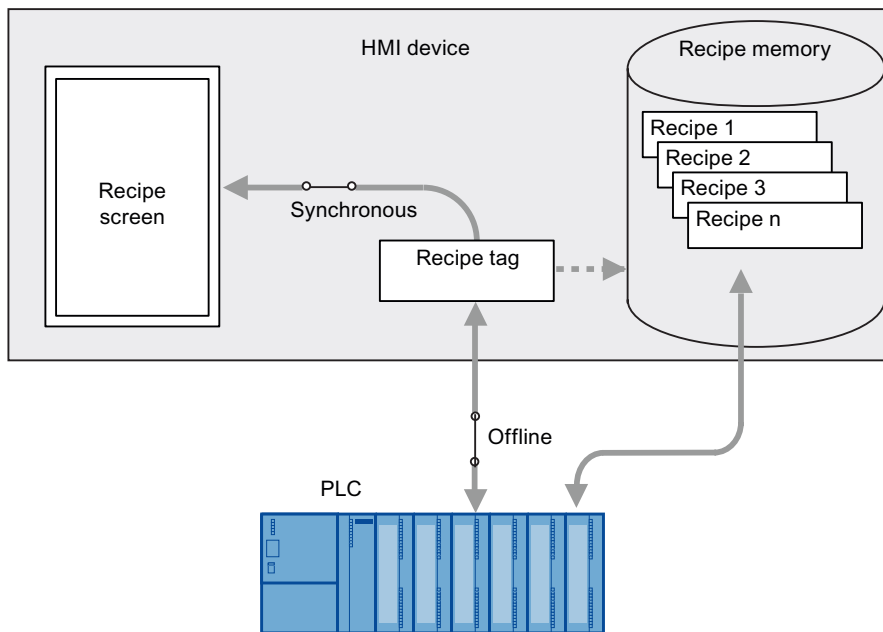
#### Note

The changes are transferred immediately to the PLC

---

- There is a recipe screen available. There may also be an operating element for saving the recipe data records in the recipe screen.

### Sequence



### Behavior when the recipe view is used

If the recipe view is used, it is not possible to transfer changes immediately. You must use the operating element to transfer the recipe data record to the PLC.

#### 6.5.3.5 Scenario: Automatic production sequence

### Objective

You want production to be executed automatically. The production data is to be transferred directly to the PLC, either from the recipe memory in the HMI device or from an external storage medium. The screen display is not necessary.

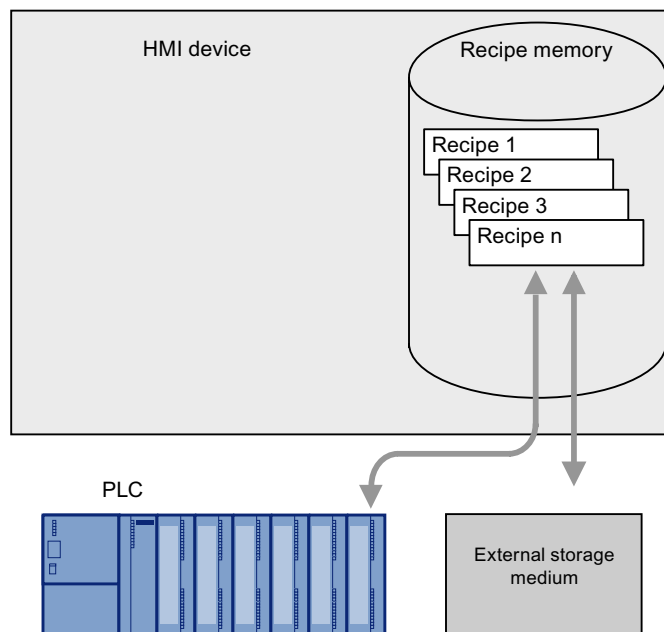


## Requirements

- The recipe has been created. The recipe has the following settings:
  - "Synchronization" is enabled under "Transfer".

The production data is transferred to the PLC, so it is necessary to synchronize with the PLC to prevent the data from being accidentally overwritten.

## Sequence



## Implementation

You can control the flow of data in the following ways:

- The control program controls the automatic transfer via control jobs or, if necessary, via WinCC flexible system functions.

The sequence is controlled via the status information in the mailbox and via return values from the functions used.

- One or more scripts control the automatic transfer via WinCC flexible system functions.

The sequence can be checked using the values returned by the functions used.

You can implement the automatic production sequence with available system functions:

- "ImportDataRecords"

This function loads data records from a \*.CSV file onto the recipe memory on the HMI device.

- "SetDataRecordToPLC"

This function transfers a data record from the HMI device's recipe memory to the PLC.

## 6.5.4 Displaying recipes

### 6.5.4.1 Recipe screen and recipe view

You can display and edit recipes on the HMI device with a recipe view or recipe screen.

#### Recipe view

The recipe view is an off-the-shelf screen object in WinCC flexible.

The recipe view is available in the following views:

- As enhanced recipe view
- As simple recipe view

The operating elements of the enlarged recipe view and the possible operations in the simple recipe view can both be set.

---

#### Note

It is advisable to use the simple recipe view on HMI devices with a display size of less than 6".

---

#### Recipe screen

The recipe screen is a process picture. It contains an individual input screen for the recipes. The input screen contains IO fields and other screen objects. The recipe functionality is implemented with system functions, e.g. for saving recipe data records.

---

#### Note

##### Recipe screen

You can configure a recipe screen in the TP 170B and higher models.

---

### 6.5.4.2 Recipe view

#### Recipe view

The recipe view is an off-the-shelf screen object used to manage recipe data records. The recipe view shows recipe data records in tabular form.

The recipe view can be represented as follows:

- As enhanced recipe view
- As simple recipe view

The operating elements of the enlarged recipe view and the possible operations in the simple recipe view can both be set.

The values displayed or entered in the recipe view are saved in recipe data records. The recipe data records are exchanged with the PLC via system functions.

## Enhanced recipe view

The figure below shows an example of the enhanced recipe view.

The screenshot shows a software interface for recipe management. It features two dropdown menus at the top: 'Recipe Name:' with 'Orange' selected and 'No.:' with '1' selected; and 'Data Record Name:' with 'Nectar' selected and 'No.:' with '2' selected. Below these is a table with two columns: 'Entry Name' and 'Value'. The table contains two rows: 'Water' with a value of '40' and 'Concentrate' with a value of '70'. At the bottom of the interface, there are several icons (a folder, a floppy disk, a trash can, and two bar charts) and a status bar that reads 'Ready'.

## Simple recipe view

The simple recipe view consists of three areas:

- Recipe list
- Data record list
- Element list

In the simple recipe view, each area is shown separately on the HMI device. Depending on the configuration, the simple recipe view starts with the recipe list.

The figure below shows an example of the data record list.

The screenshot shows a list of three data records. Each record consists of a number and a name: '1 Juice', '2 Beverage', and '3 Nectar'. To the right of the list are two arrow buttons: a left-pointing arrow above a right-pointing arrow, used for navigating between records.

## Display of values

### NOTICE

#### Changing the recipe data record in the background

Applies to the processing of a recipe data record:

If values of the corresponding recipe data record are changed by a control job, the recipe view is not updated automatically.

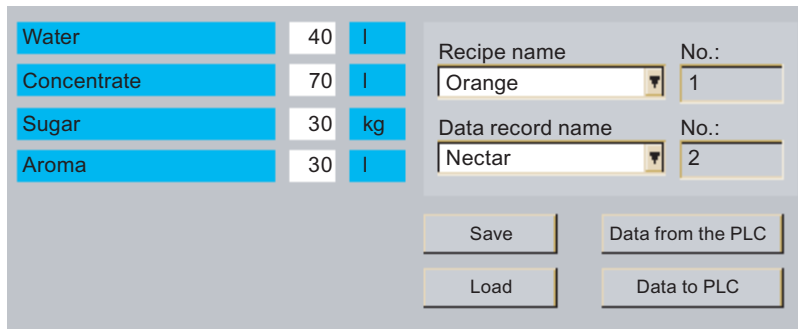
To update the recipe view, reselect the respective recipe data record.

### 6.5.4.3 Recipe screen

#### Introduction

The recipe screen is a process picture. It contains an individual input screen for the recipes. The input screen contains IO fields and other screen objects. The recipe functionality is implemented with system functions, e.g. for saving recipe data records.

The figure below shows an example of the recipe screen.



---

#### Note

You can configure a recipe screen in the TP 170B and higher models.

---

#### Principle

Configuration of a recipe screen offers you the opportunity for customization: You can spread large recipes over several process screens according to topic and display them vividly, using features such as graphical screen objects.

- Spreading recipes over several process screens according to topic
  - You can distribute recipe data records with multiple entries across several process images. E.g. for each plant section you can configure a process image containing the associated input screens for the recipe data records.

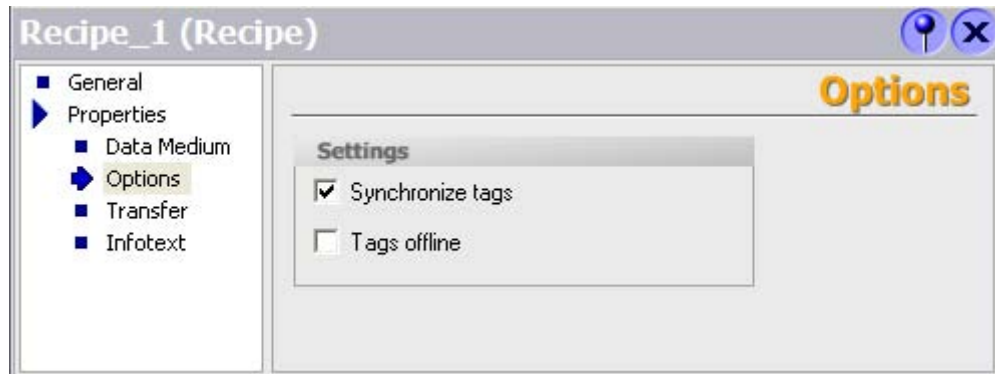
Splitting recipes among several process screens is useful for HMI devices with small displays. For one thing, you can avoid having to scroll in tables during runtime.

- Visual machine simulation

You can visually simulate your machine in a process screen using graphical screen objects. This enables you to display parameter settings more clearly by positioning IO fields directly beside machine elements such as axes or guide rails. You can use this to produce a direct reference between the values and the machine.

## Synchronize tags

You must enable the "Synchronize tags" function in the recipe properties in order to be able to enter recipe data record values in the configured IO fields outside the recipe view. The figure below shows the settings in WinCC flexible:



You must synchronize the tags in order to synchronize data between the tags of the recipe screen and the recipe data records displayed in the recipe view. Synchronization of tags is only possible in the enhanced recipe view.

## Tags offline

If the entered values are to be transferred immediately to the connected PLC during runtime, you must disable "Tags offline" in the Properties window.

Configure the "SetRecipeTags" system function if you want to enable and disable immediate transfer of entered values during runtime.

## System functions

The following system functions are available for operator control of a recipe screen:

- ImportDataRecords
- ExportDataRecords
- LoadDataRecord
- SaveDataRecord
- SetDataRecordTagsToPLC
- GetDataRecordTagsFromPLC

The following system functions are available for operator control of the recipe view when it is being used in the recipe screen:

- RecipeViewSaveDataRecord
- RecipeViewSaveAsDataRecord
- RecipeViewSynchronizeDataRecordWithTags
- RecipeViewDeleteDataRecord
- RecipeViewNewDataRecord
- RecipeViewGetDataRecordFromPLC
- RecipeViewRenameDataRecord (for simple recipe view only)
- RecipeViewShowOperatorNotes
- RecipeViewMenu (for simple recipe view only)
- RecipeViewOpen (for simple recipe view only)
- RecipeViewBack (for simple recipe view only)

The system functions for loading, saving, and transferring recipe data records and recipes are located in the "Recipes" group.

## 6.5.5 Operating Recipes

### 6.5.5.1 Exporting and importing recipe data records

#### Introduction

Based on your configuration, you can either export recipe data records to a CSV file for editing in MS Excel, for example, or import these from a CSV file. The extent to which you can influence these processes is determined by the project configuration.

---

#### Note

A list separator is used to separate the data records during importing and exporting. The list separator used as the default depends on the setting for formats and numbers in the operating system. Select "Start > Settings > Control Panel > Regional and Language Options". If you want to import or export recipe data records, do not use this list separator in the display name of the recipe data records.

---

The following fields can be configured on the user interface, for example, in order to use the export/import function:

- Selection field for the recipe
- Selection field for the recipe data record
- Operating element with the "ExportDataRecords" functionality
- Operating element with the "ImportDataRecords" functionality

### **Export recipe data record**

1. Select the relevant recipe and recipe data record from the selection boxes.
2. Use the operating element with the "ExportDataRecords" functionality.

### **Result**

The recipe data record are exported to a CSV file.

---

#### **Note**

New data records created in runtime can be exported to an external file.

---

### **Importing recipe data records**

1. Select the relevant recipe and recipe data record from the selection boxes.
2. Use the operating element with the "ImportDataRecords" functionality.

### **Result**

The recipe data record are imported.

## **6.5.5.2 Using the recipe view**



### **Recipe data record administration**

#### **Recipe data record administration**

You can use the recipe view as follows, depending on the configuration:

- Create new recipe data records
- Copy recipe data records
- Edit recipe data records
- Delete recipe data records

### Creating new recipe data records


1. Select the recipe on the HMI device in which you want to create a new recipe data record.
2. Click on the  button. Alternatively press the <Ctrl> + <Space> keys.  
A new recipe data record with the next available number is created.  
If you change the new data record number to an existing data record number, the existing data record is overwritten.
3. Enter values for the elements of the data record.  
The elements of the recipe data record can be assigned default values depending on the configuration.
4. Click on the  button. Alternatively press the <Ctrl> + <\*> keys.  
The dialog "Save as" opens.
5. Enter a name for the data record.
6. Click on "OK" to confirm your input.  
The data record is saved under the new name.  
If the recipe data record already exists, a dialog is opened. In this dialog, specify whether the existing data record is to be overwritten.

### Result

The new recipe data records will be saved to the selected recipe. If the recipe data records already exists, a system alarm will be output to the screen.

### Copying a recipe data record

You copy a recipe data record by saving it under a new name.


1. Select the recipe on the HMI device in which you want to edit an existing recipe data record.
2. Select the recipe data record that you want to copy on the HMI device.
3. Click on the  button in the recipe view. Alternatively press the <Ctrl> + <\*> keys.  
The dialog "Save as" opens.
4. Enter a name for the data record.
5. Click on "OK" to confirm your input.

### Result

The recipe data record is stored under the new name.




### Modify recipe data record

1. Select the recipe on the HMI device in which you want to edit an existing recipe data record.
2. Select the recipe data record that you want to edit on the HMI device.
3. Replace the old values with new ones.
4. Click on the  button in the recipe view. Alternatively press the <Ctrl> + <Enter> keys.

### Result

The modified values are applied to the recipe data record.

### Deleting a recipe data record

1. Select the recipe on the HMI device in which you want to delete an existing recipe data record.
2. Select the recipe data record that you want to delete on the HMI device.
3. Click on the  button in the recipe view. Alternatively press the <Ctrl> + <Del> keys.

### Result

The recipe data record is deleted from the data medium of the HMI device.

### Synchronizing a recipe data record

#### Introduction

Differences between the following values may occur during runtime:

- The values displayed in the recipe view
- The actual values of the recipe tags

Depending on the configuration, the values displayed in the recipe view are synchronized with the recipe tags. Synchronization always includes all the variables which belong to a recipe data record.

#### NOTICE

##### Changed tag name

Tags and the value of the recipe data record cannot be assigned to each other if the tag name of the tag to be synchronized has been changed. The tags in question are not synchronized.


#### Note

Recipe tags can only be synchronized in the enhanced recipe view.

## Requirements

A recipe data record is displayed in the recipe view. The values of recipe tags were modified by teaching, for example.

## Procedure

1. Click on the  button in the recipe view. Alternatively press the <Ctrl> + <=> keys.

## Result

The system always updates the current value of the recipe view with the up-to-date recipe tag value.

When the value shown in the recipe view is more recent than the current recipe tag value, the system writes this value to the recipe tag.

## Read recipe data record from PLC


### Introduction

The values which are also stored in the recipes in the HMI device can be changed directly in the plant during runtime. This is the case, for example, if a valve was opened further directly at the plant than is stored in the recipe. The values of the recipe data records saved in the HMI device possibly no longer match the values in the PLC.

You can read the values of the recipe tags from the PLC and write them to a recipe data record.

The read values are written to the recipe data record that is currently displayed on the HMI device.

## Procedure

1. Select the recipe on the HMI device.
2. On the HMI device, select the recipe data record of which you want to fetch the values from the PLC.
3. Click on the  button in the recipe view. Alternatively press the <Ctrl> + <UP> keys.

## Result

The values are read from the PLC and displayed on the HMI device.


## Transfer recipe record to PLC

### Introduction

For the values of a data record modified in the recipe view to take effect, you must transfer the values to the PLC.

The display values in the recipe view are always transferred to the PLC.

### Procedure

1. Select the recipe on the HMI device.
2. On the HMI device, select the recipe data record of which you want to transfer the values to PLC.
3. Click on the  button in the recipe view. Alternatively press the <Ctrl> + <Down> keys.

### Result

The values of the recipe data record are transferred to the PLC.

### 6.5.5.3 Using the simple recipe view

#### Recipe data record administration

#### Recipe data record administration

You can use the simple recipe view as follows, depending on the configuration:

- Create new recipe data records
- Copy recipe data records
- Edit recipe data records
- Delete recipe data records

### Creating new recipe data records

1. Select the recipe on the HMI device in which you want to create a new recipe data record.
2. Open the recipe list menu.
3. Select the menu command "0 New".  
A new data record with the next available number will be created.  
The element list of the new recipe data record opens.
4. Enter values for the elements of the recipe data record.  
The configuration data may already contain default values for the recipe data record.
5. Open the element list menu.
  - Select menu command "0 Save".  
The "Save As" dialog opens.
  - Under name, enter the name of the record. Click "OK" to save.
6. Alternatively you can return to the data record list. The "Save As" dialog opens.
  - Under name, enter the name of the record. Click "OK" to save.

### Result

The new recipe data records will be saved to the selected recipe. If the recipe data records already exists, a system alarm will be output to the screen.

### Copying a recipe data record

You copy a recipe data record by saving it under a new name.

1. Select the recipe on the HMI device in which you want to copy an existing recipe data record.
2. On the HMI device, select the recipe data record of which you want to save a copy.
3. Open the data record list menu.
4. Select menu command "2 Save As".  
The "Save As" dialog opens. The recipe data record is automatically given the next free recipe data record number.
5. Under name, enter the name of the record. Click "OK" to save.

### Result

The recipe data record is stored under the new name.

### **Modify recipe data record**

1. Select the recipe on the HMI device in which you want to edit an existing recipe data record.
2. Select the recipe data record that you want to edit on the HMI device.
3. Open the desired data record.  
The element list of the recipe data record is displayed.
4. Replace the old values with new ones.
5. Open the element list menu.
  - Select menu command "0 Save".

### **Result**

The modified values are applied to the recipe data record.

### **Delete recipe data record**

1. Select the recipe on the HMI device from which you want to delete an existing recipe data record.
2. Select the recipe data record that you want to delete on the HMI device.
3. Open the data record list menu.
4. Select the menu command "1 Delete".  
A dialog opens.
5. Confirm this message to delete the data record.

### **Result**

The recipe data record is deleted from the data medium of the HMI device.

### **Read recipe data record from PLC**

#### **Introduction**

The values which are also stored in the recipes in the HMI device can be changed directly in the plant at runtime. This is the case, for example, if a valve was opened further directly at the plant than is stored in the recipe. The values of the recipe data records saved in the HMI device possibly no longer match the values in the PLC.

You can read the values of the recipe tags from the PLC and write them to a recipe data record.

The read values are written to the recipe data record that is currently displayed on the HMI device.

### Procedure

1. Open the recipe on the HMI device.  
The data record list opens.
2. Select the element list of the recipe data record to which you want to apply the values from the PLC.
3. Open the element list menu.
4. Select the menu command "2 From PLC".  
The values are read from the PLC and displayed in the current recipe data record.
5. If you want to save the values, select the menu command "0 Save" or "3 Save As".

### Result

The values are read from the PLC, visualized on the HMI device and saved to the recipe data record.

## Transfer recipe record to PLC

### Introduction

For the values of a data record modified in the recipe view to take effect, you must transfer the values to the PLC.

The display values in the recipe view are always transferred to the PLC.

### Procedure

1. Open the recipe you want to use.  
The data record list opens.
2. Select the element list of the recipe data record whose values you want to transfer to the PLC.
3. Open the element list menu.
4. Select the menu command "1 To PLC".

### Result

The values of the recipe data record are transferred to the PLC.

#### 6.5.5.4 Reactions to modifications of the recipe structure

##### Introduction

Different recipe structures can occur in the following situations:

- In the event of changes during commissioning
- When work is carried out on the machine by the machine manufacturer (retrofit)
- When CSV files are imported, the structure of the CSV file can differ from the recipe structure.

Nevertheless, you can still use any recipe data records already created.

<b>CAUTION</b>
----------------

When a tag is renamed, the assignment is lost.
--

##### Effects

Structural differences are handled as follows:

- If the old recipe data record or the CSV file contains any additional values, these values will be discarded.
- If the old recipe data record or the CSV file contains values of the wrong data type, the configured default value is used in the recipe data record.

Example: The recipe data record contains values that show the tank contents and were input as floating point numbers. However, the corresponding recipe tag expects an integer value. In this case, the system discards the transferred value and the configured default value is used.

- If the old recipe data record or the CSV file contains too few values, the configured default value is again used in the recipe data record.

## 6.6 Reports in Runtime

### Overview

Logs are used to document process data and completed production cycles. The log content and layout are specified in the project, as is the event triggering the printout of the report.

For example, a log can be configured for output at the end of a shift, in order to record downtimes. A log can also be configured for the purpose of the documentation of product testing or quality inspections (ISO 9000).

### Output

Reports are printed in Runtime either automatically, e.g. by means of a scheduler, or manually, e.g. by means of a softkey.

### Printing reports

Reports are output to the printer in graphic mode. The use of a serial printer is not recommended because of the accumulated data volume.

For proper output, the printer must support the paper format and page layout of the report.

---

#### Note

The value of a tag in the report is read and output at the moment of printing. A substantial time may elapse between printing out the first and the last page of a report consisting of several pages. This may lead to the same tag on the last page being output with a different value from that on the first page.

---

## 6.7 System functions and scripts in Runtime

### Application

System functions and scripts are used in Runtime for the following purposes:

- To control the process
- To use the properties of the HMI device
- To make system settings online on the HMI device

In WinCC flexible, each system function and each script is linked to an object, such as a button, field or screen, and an event. As soon as the event occurs, the system function is triggered.

### System functions

System functions are predefined functions that are used to implement many tasks in Runtime, such as:

- calculations, e.g. increasing a tag value by a specific or variable amount
- Logging function, e.g. starting a process value log
- Settings, e.g. changing the PLC or setting a bit in the PLC.
- Alarms, e.g. after a different user logs on.



## Scripts

Scripts may also be included in the project for specific applications which may require additional functions. For the creation of scripts, WinCC flexible provides an interface to Microsoft Visual Basic Script (VBScript). This allows you to integrate additional functions, such as:

- conversion of values, e.g. between different physical units (temperatures)
- Automation of production sequences

A script can control a production sequence by transferring production data to a PLC. The status can be checked based on the returned values, and appropriate measures can thus be initiated.

## Events

The object and the selected function determine what events can be defined as triggers for executing a system function.

For example, the events "Change Value", "Lower limit violated" and "Upper limit exceeded" are associated with the "Tag" object. The "Loaded" and "Cleared" events are associated with the "Screen" object.

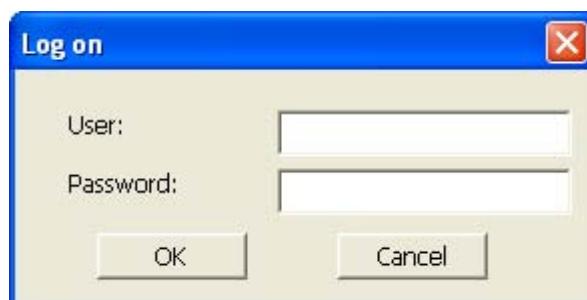
## 6.8 Security in Runtime

### Overview

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.

The security system of the HMI device is based on authorizations, user groups and users.

If operator control objects protected by a password are operated, the operator has to logon to the HMI device first. A login screen is displayed in which you enter your user name and password. After logging on, you can operate the operator control objects for which you have the necessary authorizations.



The login dialog can be set up by the configuration engineer via an individual operator control object.

In the same way, the configuration engineer can set up an operator control object to log off. After logging off, objects assigned password protection can no longer be operated; to do so, log in again.

## User groups and authorizations

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

## Users

Each user is assigned to exactly one user group.

Users can be created as follows:

- By the configuration engineer during configuration
- By the administrator on the HMI device
- By a user with "Administration" authorization to the user administration on the HMI device

## Passwords

Only registered users may log on to Runtime by entering their user name and password. The passwords can be assigned by the configuring engineer, by the "Admin" user (or by users who have "Administration" authorization), or by the user himself.

The authorizations of a user after logging on depends on the user group to the user is assigned.

After the project is transferred, only the administrator is authorized to create user accounts, make user group assignments, and change passwords. Any other users who are subsequently assigned to the "Administrator" group by the administrator may also carry out these tasks.

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

---

### Note

Depending on the transfer settings, changes to the user data are overwritten when the project is transferred again.

---

## Importing password lists

The import of a password list which was exported from a ProTool Runtime is not supported.

## Logoff times

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

---

### Note

If you enter the value "0" in the logoff time, there will be no automatic user logoff.

---

## User view

Use the User view to display the users on the HMI device.

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

## Export and import

The users, passwords, group assignments and logoff times established on the HMI device can be exported and then imported on a different HMI device. This prevents you having to enter all of the data again on another HMI device.

### NOTICE

When importing, the currently valid user data is overwritten. The imported user data and passwords are valid immediately.

## 6.9 Further operating options in Runtime

### Print functions

Print functions available in online mode:

- Hardcopy

You can print the content of the currently displayed screen if you utilize the "Print screen" system function in your configuration.

- Printing alarms

Each alarm event that occurs (incoming, outgoing, acknowledgment) is also sent to a printer.

- Printing reports

### LED control

The light-emitting diodes (LED) in the function keys of the SIMATIC HMI devices can be controlled from the PLC. For example, an illuminated or flashing LED can signal the operator to press a specific function key on the device.

### Language characteristics - Layout of the on-screen keyboard

The following applies to the layout of the on-screen keyboard:

The layout of the on-screen keyboard is not changed if the current Runtime language is not installed on the PC.

## Operating a project in Runtime

### 7.1 Basics for operation in Runtime

#### 7.1.1 Introduction

##### Introduction

Operation of a process depends on how the project was created and the options available on the HMI device. This chapter contains general information on the settings for the Runtime software and the operation of predefined screen objects.

Screen objects provide general system functions. Screen objects may have been used and configured in screens of the project.

WinCC flexible Runtime can be operated with the keyboard, mouse or touch screen, depending on the HMI device used.

---

##### Note

The following HMI devices do not support mouse functions in Runtime:

- OP73
  - OP 73micro
  - OP 77A
  - TP 177A
  - TP 177micro
- 

##### Multiple key operation

If you are using a key device, you can press two function keys at once.

 <b>CAUTION</b>
When you use a key device, you may not press more than two function keys simultaneously.
If you use a touch device, standard PC or a panel PC, you may only press one function key or button at a time.
In both cases, pressing too many keys may be inadvertently trigger actions.

## **Change language**

WinCC flexible allows you to configure a multilingual project. Up to five of these project languages can be loaded simultaneously onto the HMI device.

You can switch between the individual languages in Runtime, provided this function has been configured. When languages are switched, the language-dependent objects such as texts or formats are displayed in another language. Objects that may contain language-relevant texts include:

- Alarms
- Screens
- Text lists
- Operator notes
- Recipes
- Date/time
- Decimal symbol
- Static texts

## **Pictograms**

HMI devices with integrated keyboard (e.g. Panel PC 670) may be configured with pictograms on the bottom and on the left / right screen margins.

Pictograms are used to clarify the screen-specific functions of the function keys. Use the associated function key to trigger the function symbolized by the pictogram.

## **Deleting characters**

Activate numerical mode by pressing the <A-Z> keys to allow the deletion of characters using the <Ins-Del> key. The <Ins-Del> key function is disabled if you activate the left or right alphanumeric mode.

## 7.1.2 Operation with mouse and keyboard


### Operation with the keyboard

The navigation options listed in the table can be used for keyboard operations in a screen.

Navigation	PC	SIMATIC Panel PC
Next field right/left	<Shift+Right> / <Shift+Left>	<Right> / <Left>
Next field up/down	<Shift+Down> / <Shift+Up>	<Down> / <Up>
To the right/left in the field	<Right> / <Left>	<Shift+Right> / <Shift+Left>

The other keys have identical functions on the PC and the SIMATIC Panel PC:

Key	Function
<Enter>	Applies a value (e.g. in unmarked input fields) or opens a selection list. If the I/O field is marked (highlighted in color), WinCC flexible Runtime will switch to the special editing mode. Now, only one character will be marked in the field. Use the cursor keys <Up>/<Down> to scroll through a character table. Use the cursor keys Right/Left to move the cursor to the next or previous entry position. Press <Enter> or <Esc> to exit from the entry mode. The characters entered up to this point will be either applied or discarded.
<Esc>	Interrupts the input.
<Tab>	Selects the next available screen object in the configured tab sequence.
<Shift+Tab>	Selects the previously available screen object in the configured tab sequence.
<F1> -... <F12>, <Shift+F1>, ..., <Shift+F12>	On the PC: Triggers a function, e.g. screen selection.
<F1>, ... or <S1>, ... or <K1>, ...	On the SIMATIC Panel PC: triggers a global or local function.

 CAUTION
If you press a function key after a screen change, the associated function in the new screen may be triggered before the new screen is fully displayed.

### Controlling Windows with the keyboard

You may also use the keyboard to control the operating system of your HMI device. See your Windows manual for detailed information. The most important key combinations for SIMATIC Panel PCs are listed in the following table.

Navigation	HMI device
Open start menu	<Ctrl+Esc>
Show the shortcut menu of the selected element	<Shift+F10>
Select all	<Ctrl+A>
Display properties of the selected element	<Ctrl+Enter>
Explorer:	
Change folder	<F4>
Change display areas	<F6>
Enable menu bar	<F10>
Dialogs:	
Go to next field	<Tab>
Back to previous field	<Shift+Tab>
Open next tab	<Ctrl+Tab>
Open previous tab	<Ctrl+Shift+Tab>

### Operation with the mouse

A lightning symbol attached to the mouse pointer indicates that the screen object, for example a switch, may be operated with the mouse.



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#### Note

If a screen object is covered by another, e.g. a button from a rectangle with a transparent fill, it is not possible to operate with the mouse in runtime.

The screen object can be operated with the keyboard.

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## 7.1.3 Operating the touch screen device

### 7.1.3.1 Operating touch objects

#### Operation

Touch objects represent touch-sensitive operator control objects on the HMI screen such as buttons, I/O fields and alarm windows. Touch objects are basically operated in the same way as conventional keys. You operate touch objects by touching them with your finger.

Use the "Release button on leave" option in the "Device settings" editor to determine the way the system interprets the exit of the effective range of a button:

- Option enabled: The "Release" event is triggered in Runtime after the HMI has detected that the operator is exiting the active range while keeping the button pressed. You must exit the touch-screen user interface to re-enable the button for operation.
- Option disabled: The state of the button is still interpreted as being "Pressed" if the operator exits the effective range while maintaining contact with the touch screen.

 <b>CAUTION</b>
--

The "Release button on leave" option has no effect on the operation of direct keys. The state of the button is still interpreted as being "Pressed" if the operator exits the effective range while maintaining contact with the touch screen.
--

 <b>CAUTION</b>
--

Never touch more than one object on the screen. Do not touch several touch objects simultaneously. Otherwise, you can trigger an unintended action.
---

<b>CAUTION</b>
----------------

Do not use any pointed or sharp objects when operating the touch screen in order to avoid damage to its plastic screen membrane.
--

#### Direct keys

With a PROFIBUS DP connection, it is also possible to configure buttons for operation as direct keys in order to allow rapid operator inputs using keys. For example, jog mode requires rapid operator inputs using keys.

PROFIBUS-DP direct keys place bits directly from the HMI device in the I/O area of a SIMATIC S7.

---

**Note**

Direct keys can only be triggered by touch and not by a mouse click from a connected external USB mouse.

---

**Note**

With touch operation, direct keys are triggered independent of any configured password protection.

---

<b>NOTICE</b>
---------------

Direct keys are still active when the HMI device is in "offline" mode.
--

## Operation feedback

The HMI device responds with visual and auditory feedback as soon as it detects the operation of a touch object. This feedback is independent of any communication with the PLC. Therefore, this feedback does not indicate whether the relevant action is actually executed or not.

## Acoustic feedback

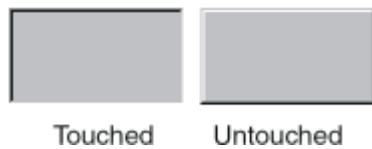
The HMI device outputs a beep to signal operation of a touch object. You can disable this acoustic feedback.

## Optical feedback

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

- Buttons

The HMI outputs different views of the "Touched" and "Untouched" states, provided the configuration engineer has configured a 3D effect:



The configuring engineer defines the appearance of a selected field (line width and color for the focus).

- Invisible buttons

The focus of hidden buttons is not marked after selection (focus width value is 0, default). In Runtime, the outline of a touched button is indicated as a line when you modify the value for the focus width in the configuration. This outline remains visible until the focus is set on another operating object.

- I/O fields

After you touch an I/O field, a screen keyboard appears as feedback.

## Operating screen objects with buttons

Screen objects with predefined buttons can also be operated with external buttons. To do so, the corresponding system functions must have been linked to this button by the configuring engineer.

In WinCC flexible, these system functions are compiled in the "Keyboard actions for screen objects" group.

### 7.1.3.2 Input of values

#### Screen keyboard

The HMI device automatically opens the screen keyboard when you touch an input object such as an I/O field. This screen keyboard is also displayed to input of passwords for access to protected functions. The keyboard is automatically hidden again when input is complete.

Based on the configuration of the input object, the HMI device shows a screen keyboard only for the input of numeric or alphanumeric values.

The screen keyboard is activated by selecting an input object in runtime.

### 7.1.3.3 Entering alphanumeric values

#### Alphanumeric screen keyboard

The HMI device automatically opens an alphanumeric on-screen keyboard for inputting character strings and numeric values in hexadecimal format when you touch an input object on the touch screen. The keyboard is automatically hidden again when input is complete.

The <Help> key is only active if an operator note has been programmed for the input object.



Touch screen keyboard for alphanumeric input

#### Keyboard layers

The alphanumeric keyboard is organized in several layers:

- Standard layer (see the figure)
- <Shift> layer
- <Alt Gr> layer
- <Shift+Alt Gr> layer

The <Alt Gr> and <Shift+Alt Gr> layers are used for the input of special characters.

#### Procedure

You enter alphanumeric values character-by-character using the on-screen keyboard buttons. Confirm the input value with <Enter>, or cancel it with <Esc>. Both actions close the screen keyboard.

### 7.1.3.4 Entering numeric values

#### Numerical screen keyboard

The HMI device automatically opens the numerical touch screen keyboard for entering numerical values when you touch an I/O field. The keyboard is automatically hidden again when input is complete.

The <Help> button is only active if an operator note is configured for the I/O field.



Screen keyboard for numeric input

#### Procedure

You enter the characters of numeric values using the screen keyboard buttons. Confirm the input value with <Enter>, or cancel it with <Esc>. Both actions close the screen keyboard.

---

#### Note

Limit values can be configured for numeric input fields. In this case, values are only accepted if they lie within configured limits. If you enter a value that is outside the configured limits, the system rejects this value and restores the original. The HMI outputs a system alarm to indicate this situation.

When you enter the first character, a tooltip appears showing the hi and lo limit values of the input field.

---

### 7.1.3.5 Calling the infotext

#### Purpose

The configuring engineer uses operator notes to provide additional information and operating instructions with respect to alarms, screens, and operable screen objects. For example, an operator note may contain information about the permissible range of values for an I/O field, or information on the cause and remedy of a fault in the event of an error alarm.



Operator note for an I/O field (Example)

#### Help on messages

Press  in the alarm window or in the alarm view.

#### Help on input objects

Touch the <Help> button on the on-screen keyboard. This button is only available if you configured an operator note.

#### Help on the current screen

If, for example, the "ShowOperatorNotes" function is assigned to a button in your configuration, you can call the configured operator note for the current screen by pressing this button.

#### Help on the focused screen object

Use the <Alt+H> key combination on the screen keyboard or on the connected USB keyboard to display the operator notes configured for the focused screen object.

---

#### Note

You cannot use any other screen object while the help window is open.

To view a new operator note, you first need to close the window showing the current operator note.

---

#### Closing the help window

Click on the  button.

## 7.2 Operating graphic objects

### 7.2.1 Button

#### 7.2.1.1 Description

##### Application

A button is a virtual key on the screen of the HMI device that can have one or more functions.



##### Layout

The layout of the button depends on the button type.

- Button with text: The text shown on the button gives information regarding the status of the button.
- Button with graphic: The graphic shown on the button gives information regarding the status of the button.
- Invisible: The button is not visible during Runtime.

##### Operation

Depending on the configuration, you can operate the button in the following ways:

- Standard operation: Click the button.
- Event: An event is triggered when you operate the button, e.g. when you click it. The processing of a function list can be configured to the event.

##### Operation behavior

The operation may be followed with a optical feedback. However, note that the optical feedback only indicates a completed operation and not whether the configured functions were actually executed.

## 7.2.1.2 Mouse and keyboard control

### Operation with the mouse

1. Click on the button with the mouse pointer.

### Operation with the keyboard

1. Press the <Tab> key until the button is selected.
2. Press <Enter> or <Space Bar>.

### Alternative operation

Depending on the configuration, you can also operate the button via the function keys.

### Operation behavior

The behavior depends on the configuration.

### Button with text, button with graphic

The operation may be followed with a optical feedback.

## 7.2.2 Switch

### 7.2.2.1 Description

#### Application

The switch is an operating element and display object with two states: "pressed" and "released." Switches can signal the state of a system component that cannot be seen from the HMI device, e.g. a motor. You can also change the state of that system component at the HMI device.



## Layout

The layout of the switch depends on the switch type.

- Switches: The switch has a slider. The position of this slider gives information about the status of the switch.
- Switch with text: The text shown on the switch gives information regarding the status of the switch.
- Switch with graphic: The graphic shown on the switch gives information regarding the status of the switch.

## Operation

Depending on the configuration, you can operate the switch in the following ways:

- Standard operation: Click the switch.
- Event: An event is triggered when you operate the switch, e.g. when you click it. The processing of a function list can be configured to the event.

## Operation behavior

A switch has two stable states: When you activate the switch, it changes to the other state. The switch retains this state until the next operation.

### 7.2.2.2 Mouse and keyboard control

#### Operation with the mouse

The behavior depends on the configuration.

#### Switch with slider

1. Click on the slider.
2. While holding down the mouse button, drag the slider to the other position.

#### Switch with text, switch with graphic

1. Click on the switch.

#### Operation with the keyboard

1. Press the <Tab> key until the switch is selected.
2. Press <Enter> or <Space Bar>.

## Operation behavior

The behavior depends on the configuration.



### Switch with slider

The slider jumps to the other position.

### Switch with text, switch with graphic

The switch changes the status.

## 7.2.3 IO field

### 7.2.3.1 Description

#### Application

You enter numeric or alphanumeric values in an I/O field. For example, a numeric value could be the number 80 as a temperature reference, an alphanumeric value could be the text "Service" as a user name.



#### Layout

The layout of the I/O field depends on the configuration:

- Numeric I/O field  
For input of numbers in decimal, hexadecimal or binary format.
- Alphanumeric I/O field  
For input of character strings.
- I/O field for date and time  
For input of calendar dates or time information. The format depends on the set configuration.
- I/O field for password entry  
For concealed entry of a password. The entered character string is displayed with placeholders (\*).

#### Operation

Depending on the configuration, you can operate the I/O field in the following ways:

- Standard operation: Enter a value in the I/O field.
- Event: An event is triggered after you operate the I/O field, e.g. by activation. The processing of a function list can be configured to the event.

## Operation behavior

### Limit value test of numerical values

Tags can be assigned limit values. The entered value is then only accepted if the value lies within the configured limits.

If an entered value exceeds a configured limit value, e.g. 80 with a limit value 78, the entered value is rejected. If an alarm window is configured, then a system alarm is displayed automatically. The original value is displayed again.

### Decimal places for numerical values

If a numeric input field is configured with a specific number of decimal places, decimal places in excess of the limit are ignored. Empty decimal places are filled with "0" after the number is confirmed.

### Hidden input

A "\*" is displayed for every character during hidden input. The data format of the value entered cannot be recognized.

### Behavior when switching between input fields

When you change to another input field within the same screen, and the screen keyboard appears, the "Exit field" event is not executed for the previous field unless you close the screen keyboard.

### Behavior in the case of incorrect entries

I/O fields at the OP 73micro, TP 177micro, OP 73, OP 77A and TP 177A HMI devices remain in editing mode when an incorrect entry is made. The original value is not restored automatically, but only after the "ESC" key has been pressed.

### Output fields closely spaced together

If you configure the I/O fields as output fields with a transparent background, and if these fields overlap so that the transparent part of one field covers the digits of the other field, display problems can occur in runtime. To avoid such overlaps, set the margins of the I/O fields to zero in the object properties under "Properties > Layout" and activate the "Auto-sizing" check box.

## 7.2.3.2 Operation with mouse and keyboard

### Operation with the mouse

1. Click in the IO field with the mouse pointer.
2. Type in the relevant value.
3. Confirm your input with <Enter> or cancel it with <Esc>.

### Operation with the keyboard

1. Press the <Tab> key until the IO field is selected.
2. Set the value.
3. Confirm your input with <Enter> or cancel it with <Esc>.

### Alternative operation with the keyboard

1. Press the <Tab> key until the IO field is selected.
2. Press <Return>. The object changes to the specific editing mode. Now, only one character will be marked in the field.
3. Use the <Up>/<Down> cursor keys to scroll through a character table.
4. Use the <Right>/<Left> cursor keys to move the cursor to the next or previous input position.
5. Confirm your input with <Enter> or cancel it with <Esc>.

## 7.2.4 Graphic I/O field

### 7.2.4.1 Description

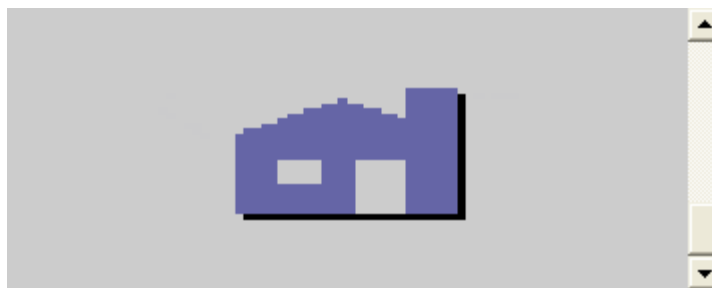
#### Application

A graphic IO field can have the following Runtime functions:

- Output of graphic list entries
- Combined entry and output

Example of its use as output field:

To indicate the Runtime status of a valve, the graphic IO field outputs the image of a closed or open valve.



## Operation

Depending on the configuration, you can operate the graphic IO field in the following ways:

- Standard operation: Select an entry from the graphic list.
- Event: An event is triggered when you operate the graphic IO field, e.g. when you activate it. The processing of a function list can be configured to the event.

## Operation behavior

If the graphic IO field displays a cactus image, you have not defined a graphic to be output for a specific value in your project.

The contents of the graphic IO field change color to show that it is now activated.

The frame in 3D is only shown graphically in an output field.

### 7.2.4.2 Mouse and keyboard control

#### Operation with the mouse

1. Click on the graphic IO field. The selection list opens.
2. Click on the scroll bar with the mouse pointer. Move the scroll bar in the desired direction while holding down the left mouse button.
3. Select the desired entry. The selection list is closed and the entry is displayed.

#### Operation with the keyboard

1. Press the <Tab> key until the graphic IO field is selected.
2. Press <Enter>. The selection list opens.
3. Select the desired entry from the selection list. Toggle between the next or previous entry by using the cursor keys <Left>, <Right>, <Up> and <Down>.
4. Confirm your input with <Enter> or cancel it with <Tab> or <Esc>.

## 7.2.5 Symbolic IO field

### 7.2.5.1 Description

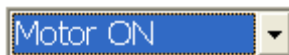
#### Application

A symbolic IO field can have the following Runtime functions:

- Output of text list entries
- Combined entry and output

Example of its use as combination IO field:

To control a motor in Runtime, the operator selects the text "Motor OFF" or "Motor ON" from the text list. The motor is then started or stopped in accordance with the selection. The symbolic IO field displays the respective status of the motor.



#### Operation

Depending on the configuration, you can operate the symbolic IO field in the following ways:

- Standard operation: Select an entry from the text list.
- Event: An event is triggered when you operate the symbolic IO field, e.g. when you activate it. The processing of a function list can be configured to the event.

#### Behavior during operation

If the symbolic IO field contains a blank text line in the selection list, no entries have been defined in the project. The contents of the symbolic IO field change color to show that it is now activated.

### 7.2.5.2 Mouse and keyboard control

#### Operation using the mouse

1. Left mouse click on the symbolic IO field. The selection list opens.
2. Click on the scroll bar with the mouse pointer. Move the scroll bar in the desired direction while holding down the left mouse button.
3. Select the desired entry with the left mouse button. The selection list is closed and the entry is displayed.

## Operation using the keyboard

1. Press the <Tab> key until the symbolic IO field is selected.
2. Press <Enter>. The selection list opens.
3. Select the desired entry from the selection list. Toggle between the next or previous entry by using the cursor keys <Left>, <Right>, <Up> and <Down>.
4. Confirm your input with <Enter> or cancel it with <Tab> or <Esc>.

## 7.2.6 Alarm indicator

### 7.2.6.1 Description

#### Application

During runtime, the alarm indicator is displayed if alarms of the specified alarm class are pending or require acknowledgement.



#### Layout

The alarm indicator can have one of two states:

- Flashing: At least one unacknowledged alarm is pending.
- Static: The alarms are acknowledged but at least one of them is not yet deactivated. The number indicates the number of queued alarms.

#### Operation

The icons from the symbol library can only be operated with a mouse or touch screen. Depending on the configuration, you can operate the alarm indicator in the following ways:

- Standard operation: Activate the alarm indicator.
- Event: The alarm window is shown or hidden by operating the alarm indicator, e.g. by clicking. The processing of a function list can be configured to the event.

#### Operation behavior

Depending on the configuration, when operating the alarm indicator an alarm window is opened.

## 7.2.6.2 Mouse control

### Operation with the mouse

1. Click on the alarm indicator with the mouse pointer. Depending on the configuration, the alarm window is opened.
2. Use the Close icon to close the Alarm window and be able to operate the screens. The alarm window can be opened again by clicking on the alarm indicator.

## 7.2.6.3 Alarm Indicator (OP 73, OP 73micro)

### Application

There is a "simpler" alarm indicator available for the OP 73 and OP 73micro HMI devices.

The "simpler" alarm indicator is displayed if the alarms waiting to be acknowledged or already acknowledged but still active alarms exist.



### Layout

The alarm indicator can have one of two states:

- Flashing: At least one unacknowledged alarm is pending.
- Static: The alarms are acknowledged but at least one of them is not yet deactivated.

### Operation

The alarm indicator is used only for visualization and cannot be operated. Alarms can be acknowledged with the button <ACK>, for example.

### Operation behavior

### Displaying dialogs

The displayed alarm indicator is covered by system dialogs, e.g. login dialog, Help dialog and alarm text windows. When this is closed, the alarm indicator is again visible.

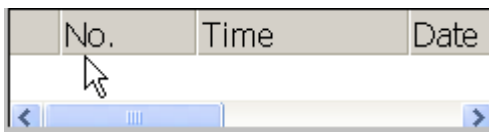
## 7.2.7 Alarm view

### 7.2.7.1 Description

#### Application

Alarms are indicated in the alarm view or in the alarm window on the HMI device. The layout and operation of the alarm window correspond to that of the alarm view.

The alarm window is independent of the process screen. Depending on the configuration, the alarm window appears automatically as soon as a new, unacknowledged alarm has been received. The alarm window can be configured so that it only closes after all the alarms have been acknowledged.



#### Layout

Depending on the configuration, in the alarm view different columns with information regarding an alarm or an alarm event are displayed. Establishes that only alarms that contain a specific character string will be displayed in the alarm text.

To differentiate between the different alarm classes, the first column in the alarm view contains a symbol:

Symbol	Alarm class
!	Error
(empty)	Warning
(depends on the configuration)	Custom alarm classes
\$	System
S7	Diagnostic alarm

---

#### Note

The layout of the alarm window in Runtime depends on the device settings of the target device.

---

#### Operation




Depending on the configuration you can:

- Change the column sequence
- Change the order in which the alarms are displayed
- Acknowledge alarms
- Editing alarms



## Operator controls

The buttons have the following functions:

Button	Function
	Displays an alarm operator note
	Editing alarms
	Acknowledge alarm

## Operation behavior

### Linked alarm window for touch panels

When configuring the alarm window for a keyboard unit, select "Properties > Mode", then set the "linked" (modal) window property. This ensures that the alarm window does not defocus during screen changes. This is important, as the switching between the screen and different windows with <Ctrl+TAB> is not supported. If the linked alarm window has the focus, then the buttons in the screen behind it cannot be operated. The functions configured on a function key are carried out.

### Changing the order of the displayed alarms

When you click on the column, first of all alarms requiring acknowledgement are sorted according to date and time. Then those alarms that do not require acknowledgement are sorted according to date and time.

## 7.2.7.2 Mouse and keyboard control

### Introduction

Within an alarm view there is a tabulator sequence that enables the operating elements and the last selected alarm to be selected via the keys of the HMI device.

### Operation with the mouse

1. Click on the alarm to be edited.
2. Click on the operating element you wish to use.

### Operation with the keyboard

1. Press the <Tab> key until the list of displayed alarms is selected in the alarm view.
2. Click on the alarm to be edited. You can use the keys <Home>, <End>, <Up> and <Down> for this
3. Press the <Tab> key until the operating element you wish to use is selected.
4. Press <Enter>.

### Alternative operation

Depending on the configuration, you can also operate the alarm view via the function keys.


### Example: Change the sequence of the columns

1. Choose the column header e.g. the "Date" column header.
2. While holding down the mouse button, drag the column header to the column header "Time".


### Example: Change the order of the columns

1. Click on the column header.
2. Click the same column header again to reverse the sort order.

### Example: Acknowledge alarm

1. Click on the alarm to be edited.
2. Click on the  button.

### Example: Edit alarm

1. Click on the alarm to be edited.
2. Click on the  button.

### Operation behavior

When you edit an unacknowledged alarm, it is acknowledged automatically.

## 7.2.8 Simple alarm view

### 7.2.8.1 Description

#### Application

The simple alarm view shows selected alarms or alarm events from the alarm buffer or alarm log. The layout and operation of the simple alarm window correspond to that of the simple alarm view.

---

#### Note

The "Single alarm view" object cannot be operated dynamically with a script.

In the Engineering System you can dynamically control, for example, the visibility of an object in the "Animations" group in the Properties window. In Runtime, the "Simple alarm view" does not support animations. If you have configured an animation, and, for example, wish to perform a consistency check of the project, then an error message is issued in the output window.

---



### Layout

Depending on the configuration, in the alarm view different columns with information regarding an alarm or an alarm event are displayed.

To differentiate between the different alarm classes, the first column in the alarm view contains a symbol:

Symbol	Alarm class
!	Error
(empty)	Warning
(depends on the configuration)	Custom alarm classes
\$	System










### Operation

Depending on the configuration you can:

- Acknowledge alarms
- Editing alarms

### Operator controls

The buttons have the following functions:

Button	Function
	Acknowledge alarm
	Edit alarm
	Displays an alarm operator note
	Shows the full text of the selected alarm in a separate window, the alarm text window. In the alarm text window, you can view alarm text that requires more space than is available in the alarm view. Close the alarm text window with  .
	Scrolls one alarm up
	Scrolls one page up in the alarm view
	Scrolls one page down in the alarm view
	Scrolls one alarm down

## Layout of the operator controls

On the operating panels OP 73micro and TP 177micro the simple alarm view has a button that displays the message text in a separate window. This button is not displayed during the configuration of the simple alarm view in the Engineering System.

The layout of the buttons for using the simple alarm view depends on the configured size. You should therefore check on the operating panel whether all the required buttons are available.

### 7.2.8.2 Mouse and keyboard control

#### Introduction

Within the simple alarm view there is a tabulator sequence that enables the operating elements and the last selected alarm to be selected via the keys of the HMI device.

#### Operation with the mouse

1. Click on the alarm to be edited.
2. Click on the operating element you wish to use.


#### Operation with the keyboard

1. Press the <Tab> key until the list of displayed alarms is selected in the alarm view.
2. Click on the alarm to be edited. You can use the keys <Home>, <End>, <Up> and <Down> for this
3. Press the <Tab> key until the operating element you wish to use is selected.
4. Press <Enter>.


#### Alternative operation

Depending on the configuration, you can also operate the alarm view via the function keys.



#### Example: Acknowledge alarm

1. Click on the alarm to be edited.
2. Click on the  button.

#### Example: Edit alarm

1. Click on the alarm to be edited.
2. Click on the  button.

### Example: Calling the infotext

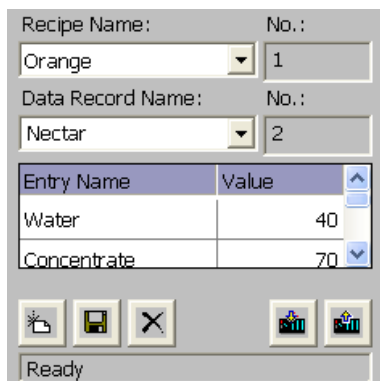
1. Click on the alarm to be edited.
2. Click on the  command button.
3. To close the window for displaying the operator note, press the  button or use the key combination <Alt+F4>.

## 7.2.9 Recipe view

### 7.2.9.1 Description

#### Application

The recipe view is used to display, edit and manage data records.











#### Operation

Depending on the configuration you can:

- Create, change, copy or delete recipe data records
- Synchronize recipe data records with the associated recipe tags
- Read recipe data records from or transfer to the PLC

## Operating elements

The following operating elements can be configured in the recipe view:

Button	Hotkeys	Function
		The configured help text is displayed.
	<Ctrl+Space Bar>	Creates a new recipe data record. If a start value is configured, it is shown in the input field.
	<Ctrl+Enter>	Saves the displayed values of the recipe data record. The storage location is predefined by the project.
	<Ctrl+*>	The recipe data record is saved under a different name regardless of the recipe view. A dialog box opens in which the name is entered.
	<Ctrl+Del>	The displayed recipe data record is deleted.
	<Ctrl+=>	The system always updates the current value of the recipe view with the up-to-date recipe tag value. When the value shown in the recipe view is more recent than the current recipe tag value, the system writes this value to the recipe tag. "Synchronize tags" must be enabled in the recipe properties before this function can be used.
	<Ctrl+Down>	The values of the set recipe data record displayed in the recipe view are transferred to the PLC.
	<Ctrl+Up>	The recipe values from the PLC are displayed in the recipe view.

## Mouse control or touchscreen control of the recipe view

1. Select the recipe you want to use.  
The records for the recipe are displayed.
2. Click on the data record you wish to edit.
3. Press the button whose function you wish to execute.

## Using the keyboard with the recipe view

1. Press the <Tab> key until the recipe is selected in the recipe view.
2. Press <Enter>.  
The drop-down list box for the recipes opens.
3. Choose a recipe or a record from the list. Toggle between the next or previous entry by using the cursor keys <Left>, <Right>, <Up> and <Down>.
4. Press the <Tab> key until the operating element you wish to use is selected.  
Alternatively, you can operate the recipe view via key combinations.

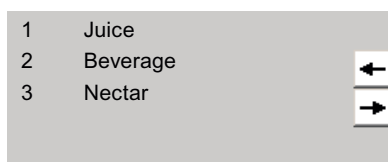
## 7.2.10 Simple recipe view

### 7.2.10.1 Description

#### Display mode

The simple recipe view consists of three areas:

- Recipe list
- Data record list
- Element list



Simple recipe view - example with data record list

In the simple recipe view, each area is shown separately on the HMI device. You can use the shortcut menu to operate each of these display areas.

The simple recipe view always begins with the recipe list.

#### Operation

You can use the simple recipe view as follows, depending on the configuration:

- Create, change, copy or delete recipe data records
- Read recipe data records from the PLC or transfer to the PLC

#### Using the simple recipe view


Toggle between the display areas and the shortcut menus to operate the simple recipe views.

The table below shows the operation of the display area.


Button	Key	Function
	<Enter>	The next lowest display area is opened, i.e. the data record list or the element list.
	<Esc>	The previous display area opens.
	<Right>	The shortcut menu of the display area opens.
	<Up>/<Down>	Selects the previous/next entry.
	<Pg Up>/<Pg Down>	Moves the display up or down one page.
	<Home>/<End>	Selects the first/last entry. The first/last entry is selected.



The table below shows the operation of the shortcut menu:

Button	Key	Function
	<Esc>	The menu is closed. The display area opens.
	Input of the number of the menu command	The menu command is executed.

### Shortcut menus of the simple recipe view

A command option selection can be called in for each display area by pressing the  button. The command selection lists those commands that are available in the current display area. A number is assigned to each command. The command is executed when you enter this number.

- Recipe list

Menu command	Function
New	A new recipe data record is created for the selected recipe. If a start value is configured, it is shown in the input field.
Viewing info text	The info text configured for the simple recipe view is displayed.
Open	The record list of the selected recipe opens.

- Data record list

Menu command	Function
New	Creates a new recipe data record. If a start value is configured, it is shown in the input field.
Delete	The displayed record is deleted.
Save as	The selected data record is saved under a different name. A dialog box opens in which the name is entered.
Rename	The selected record is renamed. A dialog box opens where you can enter the name.
Open	The element list of the selected data record opens.
Previous	The recipe list opens.

- Element list

Menu command	Function
Save	The selected record is renamed.
To PLC	The display values of the selected record are transferred from the HMI device to the PLC.
From PLC	The recipe values from the PLC are displayed on the HMI device in the recipe view.
Save as	The data record is saved under a new name. A dialog box opens where you can enter the name.
	Press the <ESC> key to open the data record list.

The following menu commands can also be configured on the TP 177A and OP 77A HMI devices:



- Data record list

Menu command	Function
To PLC	The displayed values of the selected data record are transferred from the HMI device to the PLC.
From PLC	The recipe values from the PLC are displayed in the recipe view of the HMI device.
Display help ...	Displays the help text configured for the simple recipe view.

- Element list

Menu command	Function
Display help ...	Displays the help text configured for the simple recipe view.
Rename	Renames the selected data record. A dialog box opens where you can enter the name.
Previous	Opens the data record list.

### Mouse control or touchscreen control of the simple recipe view

1. Select the desired recipe from the recipe view.
2. Click on the  button.  
The shortcut menu is opened.
3. Select the desired menu command.  
The menu command is executed.
4. Alternatively, open the desired recipe in the recipe view.  
The data record list is displayed.
5. Open the desired data record. Alternatively use the  button to open the shortcut menu and select a menu command.  
The menu command is executed.

### Using the keyboard with the simple recipe view

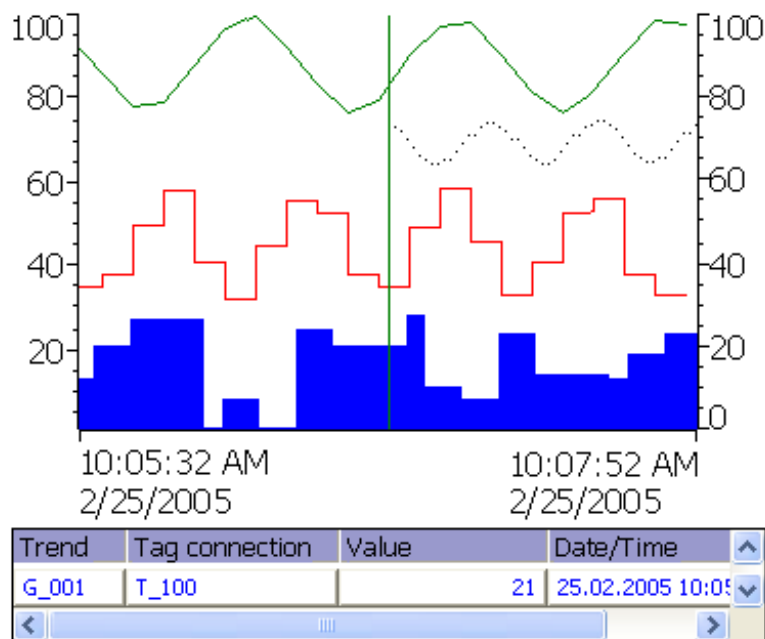
1. Press the <Tab> key until the simple recipe view is selected.
2. Select the desired recipe with the cursor keys.
3. Press <Right>.  
The shortcut menu is opened.
4. Press the <Down> key until the desired menu command is selected.
5. Press <Enter> to confirm the command.
6. Alternatively, press the number of the desired menu command.  
The menu command is executed.

## 7.2.11 Trend view

### 7.2.11.1 Description

#### Application

The trend view is a dynamic display object. The Trend view can display actual process data and process data from a log continuously when it is supported by the HMI device.



#### Layout

The layout of the trend view is based on the configuration. A trend view can show multiple curves simultaneously to allow the user, for example, to compare different process sequences. If the displayed process value exceeds or falls below the configured limit values, the violation of the limit can be displayed by a change of color in the curve.

A ruler can also simplify the reading of the process values from the trend view. The ruler displays the Y-value that belongs to an X-value.










#### Operation

Depending on the configuration you can:

- The displayed time section extends.
- The displayed time section reduces.
- Scroll back by one display width.
- Scroll forwards by one display width.
- Stop or continue the trend recording.

**Control elements**

The buttons have the following functions:

Control element	Function
	Scrolls back to the beginning of the trend recording. The start values of the trend recording are displayed there.
	Zooms the displayed time section
	Zooms out of the displayed time section
	Moves the ruler backward (to the left).
	Moves the ruler forward (to the right).
	Scrolls one display width backward (to the left).
	Scrolls one display width forward (to the right).
	Shows or hides the ruler. The ruler displays the X-value associated with a Y-value.
	Stops or continues trend recording

**7.2.11.2 Mouse and keyboard control**

**Operation with the mouse**

1. Click on the desired button with the mouse button.

**Operation with the keyboard**

1. Press the <Tab> key until the trend view is selected.
2. Press the desired key combination.

The table below shows the shortcut keys used to control the trend view:

Key	Key (Panel PC)	Function
<Ctrl+Enter>	<Ctrl+Enter>	Scrolls back to the beginning of the trend recording. The start values of the trend recording are displayed there.
<Ctrl+Plus>	<Ctrl+Plus>	Zooms the displayed time section
<Ctrl+Minus>	<Ctrl+Minus>	Zooms out of the displayed time section
--	<Ctrl+Alt+Left>	Moves the ruler backward (to the left).
--	<Ctrl+Alt+Right>	Moves the ruler forward (to the right).
<Shift+Left>	<Left>	Scrolls one display width backward (to the left).
<Shift+Right>	<Right>	Scrolls one display width forward (to the right).

## Alternative operation

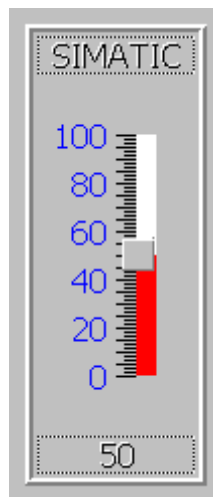
Depending on the configuration, you can also operate the button via the function keys.

## 7.2.12 Slider control

### 7.2.12.1 Description

#### Application

The slider is used to transfer a numerical value to the PLC by moving the slide to the desired position. Each change in the position of a slider element causes the corresponding value in the associated tag to change immediately.



#### Layout

If the slider control is used as a display object, the value represented is determined by the position and configuration of the movable slider.

#### Operation

Depending on the configuration, you can operate the slider control in the following ways:

- Standard operation: Activate the slider.
- Event: An event is triggered when you operate the slider, e.g. when you activate it. The processing of a function list can be configured to the event.

### Operation behavior

---

**Note**

The displayed value on the slider control may deviate from the actual value in the following circumstances:

- The value range (minimum and maximum value) configured for the slider control does not correspond to the configured limits for the slider control tag.
  - An invalid password has been entered for a password-protected slider control.
- 

### 7.2.12.2 Mouse and keyboard control

#### Operation with the mouse

1. Click the slider control.
2. Move the slider control in the desired direction while holding down the mouse button.

#### Operation with the keyboard

1. Press the <Tab> key until the trend view is selected.
2. You can operate the slider with the following keys:

Key	Key (Panel PC)	Function
<Up> or <Right>	<Shift+Up> or <Shift+Right>	Increase value
<Down> or <Left>	<Shift+Down> or <Shift+Left>	Reduce value
<Page up>	--	Increase value in 5% increments
<Page down>	--	Reduce value in 5% increments
<Home>	--	Set maximum value
<End>	--	Set minimum value

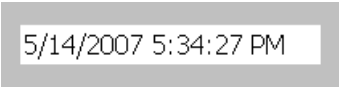
## 7.2.13 Date/time field

### 7.2.13.1 Description

#### Application

A "Date / time box" may have the following runtime functions:

- Output of the date and time
- Combined input and output; here the operator can edit the output values so as to reset the date and time.



5/14/2007 5:34:27 PM

#### Layout

The layout in the date/time field depends on the language set in the HMI device.

The date can be displayed in detail (e.g. Tuesday, 31 December 2003) or in short form (31.12.2003).

Entries in 24-hour format are always interpreted correctly on OP 73micro, TP 177micro, OP 73, OP 77A and TP 177A HMI devices, irrespective of the date/time field format.

#### Operation

Depending on the configuration, you can operate the date/time field in the following ways:

- Standard operation: Change date and time.

#### Operation behavior

When the operator ignores the syntax when entering values, or enters illegal values, the system rejects these. Instead, the original values (plus the time that has elapsed in the meantime) will appear in the date/time field and a system alarm will be displayed on the HMI device.

#### Conversion behavior

If invalid data are entered for the date and time, the conversion result can contain errors.

For example, month values greater than 12 can be entered. In this case the month data could be swapped with the day data in WinCC flexible when the date is imported.

- Example:

11/13/2007 is imported as 13/11/2007.

Check the values entered for DATE and DATE\_AND\_TIME carefully.

### 7.2.13.2 Mouse and keyboard control

#### Operation with the mouse

1. Click in the date/time field.
2. Type in the relevant value.
3. Confirm your input on the HMI with <Return> or cancel it with <Esc>.

#### Operation with the keyboard

1. Press the <Tab> key until the date/time field is selected.
2. Set the value.
3. Confirm your input with <Enter> or cancel it with <Esc>.

#### Alternative operation with the keyboard

1. Press the <Tab> key until the date/time field is selected.
2. Press <Enter>. The object changes to the specific editing mode. Now, only one character will be marked in the field.
3. Use the <Up>/<Down> cursor keys to scroll through a character table.
4. Use the <Right>/<Left> cursor keys to move the cursor to the next or previous input position.
5. Confirm your input with <Enter> or cancel it with <Esc>.

### 7.2.14 User view

#### 7.2.14.1 Description

##### Application

The user view is used by the administrator to manage user accounts, group assignments and user passwords.

Users can change their passwords and logoff times.

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



## Layout

The user view contains four columns for the user, password, group and log-off time. The passwords are encrypted by means of asterisks.

- All users on the HMI device system are displayed in the User view to the administrator or to a user with administrator authorizations.
- When user administration authorization is lacking, only the personal user entry is displayed.

## Operation

Depending on the configuration you can:

- Manage users, e.g. create, delete.
- Change existing user data.
- Export or import user data.

---

### **Note**

On an HMI device the number is restricted to 100 users and one PLC user. This restriction does not apply to PCs. On a PC, the maximum number of users is restricted by the physical memory.

---

## Operation behavior

If a user with administrator rights is registered in runtime, in the user view on the HMI devices OP 73, OP 77A and TP 177A the user "PLC user" is shown also.

---

### **Note**

Changes to the settings of the user logoff time in Runtime are only effective after this user was logged off.

---

### Change existing user data

The following options are available for the range of changes that can be made:

- The administrator or a user with user administration authorization can change the data for all users on the HMI device system in the user view.
  - User name
  - Group assignment
  - Password
  - Logoff times
- A user without user administration authorization can only change their own user data:
  - Password
  - Logoff time

---

**Note**

If you enter the value "0" in the logoff time, there will be no automatic user logoff.

---

**Note**

An additional dialog will be displayed when you alter a password. The input of the password is concealed.

---

### Export or import user data

A user view contains all users, passwords, group assignments and logoff times set up on the HMI device. To eliminate the necessity of reentering all data again on another HMI device, you can export the user view, and then import it to another device. However, this is only possible if this function has been configured.

---

**Note**

Do not export the password list immediately after changing it. Exit the "User view" object after making changes and wait until the changes have been written to the internal Flash memory before performing the export.

---

<b>NOTICE</b>
---------------

The currently valid passwords are overwritten during an import. The imported user data and passwords are valid immediately.
---

## **7.2.14.2 Mouse and keyboard control**

### **Operation with the mouse**

1. Click in the user view.
2. Click on the user to be edited.
3. Edit the user data.

### **Operation with the keyboard**

1. Press the <Tab> key until the user view is selected.
2. Click on the user to be edited. You can use the keys <Home>, <End>, <Up> and <Down> for this
3. Edit the user data

### **Example: Create user**

1. Click on an empty line in the "User" column of the user view.
2. Then enter the user name. Press <Enter>.
3. Use <Right> to select the next field.
4. Assign a password and a logoff time in the same way and then select the group.

### **Example: Changing group assignments**

1. Click in the "Group" field.
2. Select a group from the selection list. Alternatively, you can use the cursor keys <Home>, <End>, <Up> and <Down> for this
3. Confirm the entry with <Enter>.

## 7.2.15 Simple user view

### 7.2.15.1 Description

#### Application

On HMI devices with a small display, the simple user view is used to display users on the HMI device.

Admin	Gruppe (9)
Operator	Gruppe (2)
PLC User	Gruppe (1)

---

#### Note

The "Simple user view" object cannot be operated dynamically with a script.

---

#### Layout

The layout depends on the user rights.

- All users on the HMI device system are displayed in the User view to the administrator or to a user with administrator authorizations.
- When user administration authorization is lacking, only the personal user entry is displayed.

#### Operation

Depending on the configuration you can:

- Manage users, e.g. create, delete.
- Change existing user data.
- Export or import user data.

---

#### Note

On an HMI device the number is restricted to 100 users and one PLC user. This restriction does not apply to PCs. On a PC, the maximum number of users is restricted by the physical memory.

---

## Operation behavior

If a user with administrator rights is registered in Runtime, in the user view on the HMI devices OP 73, OP 77A and TP 177A the user "PLC user" is shown also.

---

### Note

Changes to the settings of the user logoff time in Runtime are only effective after this user was logged off.

---

## 7.2.15.2 Mouse and keyboard control

### Operation with the mouse

1. Click on the user name to be edited.
2. Change the user data. Custom user data (name, password, group, logoff time) is entered sequentially in several dialogs.
3. use the "OK" button to confirm the entries.

### Operation with the keyboard

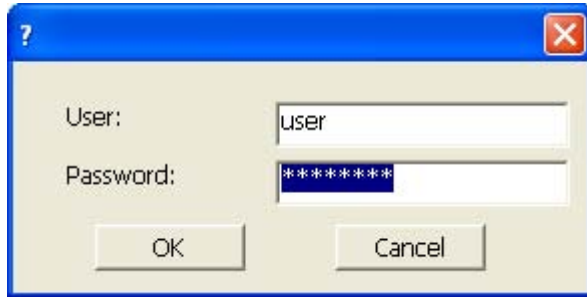
1. Press the <Tab> key until the simple user view is selected.
2. Click on the user to be edited.
3. Confirm the selection by pressing the <Enter> key. You can change the user data in the following dialogs.
4. Use the "OK" button to confirm the entries.

The following table shows the available key operations for entering custom user data in the dialogs:

Key	Function
<Up>/<Down>:	Selects the previous/next user
<Tab>	Selects the next element in the dialog
<Enter>	Opens the next dialog
<DEL>	Deletes the selected user.

**Example: Changing user data**

1. Click on the user name to be edited. The following dialog opens:



2. If necessary, change the user name and password. Click on the "OK" button. The following dialog opens:



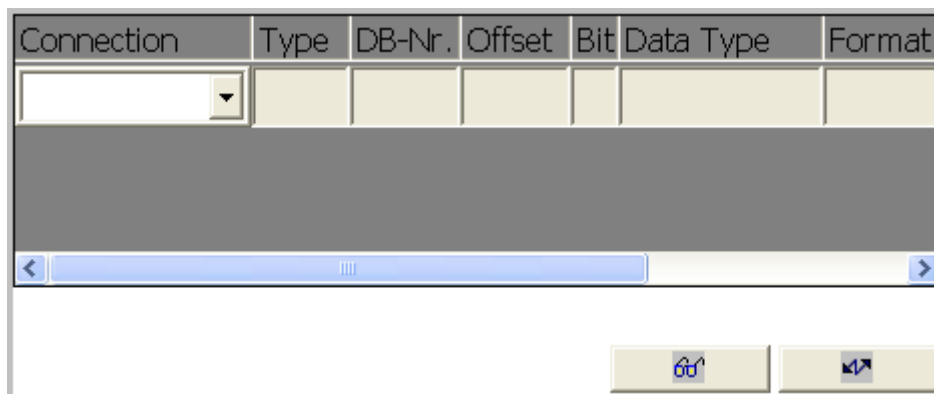
3. If necessary, change the user group and the logoff time. Click on the "OK" button.

## 7.2.16 Status force

### 7.2.16.1 Description

#### Application

You read or write access values of the connected PLC directly in the Status force view. The Status force view allows you to carry out operations such as monitoring or modifying the addresses of the PLC program, without the need of an online connection via PC or PG.



#### Note

The Status force view can only be used in combination with SIMATIC S5 or SIMATIC S7.

#### Layout

The screen shows the general layout of the status / control screen object. Every row represents an address.

The table shows the meaning of the individual columns.

Column	Function
Connection	The PLC of which the address ranges are to be displayed
Type, DB number, offset, bit	The address range of the operand
Data type, format	The data type of the operand
Status value	The value that was read from the given address of the operand
Control value	The value to be written to the given address of the operand



### Operation

Depending on the configuration you can:

- Change the column sequence.  
 To reverse the "Format" and "Control value" columns, drag the "Format" header to the "Control value" header while holding down the mouse button.
- Write the control value in the PLC.

### Control elements

The buttons have the following functions:

Button	Function
	Updates the display in the status value column. The button engages when it is pressed. You cannot operate any input fields until the button is actuated again and the refresh is stopped.
	Accepts the new value in the control value column. The control value is then written to the PLC.

#### 7.2.16.2 Mouse and keyboard control

##### Operation with the mouse

1. Click on the respective field.
2. Enter the value using the keyboard, or select a value from the selection list.
3. Click the desired buttons to write or read the values.

##### Operation with the keyboard

1. Press the <Tab> key until the Status force view is selected.
2. Press the desired key combination.

The following table shows the key combinations for operating the Status force view.

Key	Key (Panel PC)	Function
<Ctrl+Enter>	<Ctrl+Enter>	Operating the "Write" button
<Ctrl+Space Bar>	<Ctrl+Space>	Operating the "Read" button
<Ctrl+Left>	<Ctrl+Shift+Left>	Selects first field in current row
<Ctrl+Right>	<Ctrl+Shift+Right>	Selects last field in current row
<Ctrl+Up>	<Ctrl+Shift+Up>	Selects first field in current column
<Ctrl+Down>	<Ctrl+Shift+Down>	Selects last field in current column
<Ctrl+Del>	<Ctrl+INS/DEL>	Deletes current row
<Enter>	<Enter>	Opens selection list



## 7.2.17 HTML browser

### 7.2.17.1 Description

#### Application

You can use the HTML Browser to browse web sites. This allows you to access additional information.



---

#### Note

A change of HTML Browser functionality to support file explorer functions by entering a folder or drive , for example \ or c:, or by connecting to an FTP sever (ftp://... for example) is not released in WinCC flexible. One reason this function is not implemented is to prevent inadvertent changes to files, their deletion or execution.

To prevent unintentional activation of this mode, your program should only accept valid HTML pages entered, for example, using symbolic selection fields. The program may contain an entry with password protection for service purposes.

---

#### Operation

The HTML Browser is used to display Web pages. You click a relevant link to open a further page.

#### Control elements

The "HTML Browser" object does not feature any internal control elements.

#### Operation behavior

The HTML Browser is responds in the same way as the Internet Explorer.

The project engineer can also provide for the input of an Internet address by means of an I/O field. You open a page in the HTML Browser by entering the corresponding address.

## Remarks

The functional scope of the HTML Browser is limited in comparison to the Internet Explorer:

- The HTML Browser will only show pure HTML pages. VBScript, Java, JavaScript and ActiveX controls are not supported. Set up the HTML pages for display in the HTML Browser by using a text editor or using a simple HTML editor.
- Links to embedded files, for example \*.pdf or \*.xls, are not supported.
- Queries and dialogs that are conducted during the access of corresponding pages are not supported. This means that, for example, access to pages with invalid certificates is possible. In order to access pages which require authentication the user name and the password can be specified in the URL: <http://User\_Name:Password@Server\_Name> (for example, http://otto:asdf@192.168.56.199).

### 7.2.17.2 Mouse and keyboard control

#### Operation with the mouse

1. Click in the address line.
2. Enter the Internet address.
3. In order to reach a linked page, click on the link.

#### Operation with the keyboard

1. Press the <Tab> key until the address line is activated.
2. Enter the Internet address. The HTML browser opens the page in question.

## 7.2.18 Sm@rtClient view

### 7.2.18.1 Description

#### Application

The Sm@rtClient view may be used to start remote monitoring and control of another HMI device. With an appropriate configuration, the Sm@rtClient view can be used to monitor and control a system process from multiple HMI devices with the same authorizations.



#### Layout

The Sm@rtClient view displays the current Runtime screen of the remote device on your HMI device.

You can now monitor and control this screens according to your configuration. Scroll bars are displayed if the screen of the remote HMI device is larger than that of the current HMI device.

#### Operation

Depending on the configuration, you can operate the Sm@rtClient view in the following ways:

- Keys

In operation mode, all keys have the same function as those on the remote HMI device. You can therefore use the <Tab> key to move from one object to another on the remote screen, in the order of the tab configuration.

- Function keys

When you press a function key that has been configured with a function, this function will be executed in your project.

If you press a function key that has not been configured with a function in your project, it will actuate the respective function key on the remote HMI device.

---

#### Note

In the event of emergency, you can override the operation block on the remotely controlled or currently inactive HMI device by clicking on the user interface five times in succession or pressing the <Shift> key five times in succession. Then you may have to enter a specific (configured) password.

---

### **Monitoring mode**

On a Sm@rtClient view which is configured for monitoring mode, you can only monitor the remote HMI device. You cannot control its operation.

In this case, the keys retain their standard functions. Press <Tab> to open the next object in the current screen of your project.

### **Behavior during operation**

If the program cannot resolve the dynamic address of a Sm@rtClient display, after a screen change the system connects to the configured server using the static address of the server. If a tag is now set using the dynamic address, you can make a second connection to this server. As a remedy you should preset the tags of the dynamic address e.g. via a script.

## **7.2.18.2 Sm@rtClient view - mouse and keyboard control**

### **Operation with the mouse**

1. Click on the desired control object with the mouse pointer.
2. Click on the scroll bar with the mouse pointer. Move the scroll bar in the desired direction while holding down the left mouse button.
3. Press the left mouse button for a few seconds on an empty area. The shortcut menu is opened.
4. Select the desired menu command.

### **Operation with the keyboard**

1. Press the <Tab> key until the Sm@rtClient view is selected.
2. Move the scroll bar in the desired direction using <Ctrl+Up> and <Ctrl+Down>.
3. Open a menu line with the key combination <Shift+Ctrl>.
4. Select the desired menu command with <Alt+Shortcut key>.

## Operation behavior

### Call

The call for starting remote monitoring or control can be configured in different ways. You can open the view of the runtime of the remote operator device with the following steps, depending on the project:

- Automatically when the device is started (and selection of the screen with the Sm@rtClient view, if this is not the start screen)
- By activating the Sm@rtClient view with the <Tab> key or (on a touch screen device) through a touch
- By entering the IP address of the remote HMI device and, if required, entering a password in the appropriate field in the Sm@rtClient view

---

#### Note

If you enter an incorrect password five times in succession, all attempts to establish a connection are rejected for the next ten seconds.

---

### Stop

The screen showing the display of the remote HMI device can be configured to be closed in different ways. Depending on the configuration, you can terminate the remote monitoring or remote operation and open the next object of your own project by taking one of the following steps:

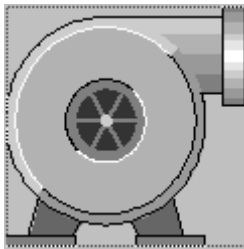
- Press the appropriate key.
- Click "Exit".
- Exit the screen.
- Press <Shift+Ctrl> or (with touch devices) press a clear spot for an extended period. The menu opens with the corresponding menu item.

## 7.2.19 Symbol library

### 7.2.19.1 Description

#### Application

The symbol library is a comprehensive library with images from the areas of technology and production.



#### Operation

Depending on the configuration, you have the following methods of operation:

- Event: An event is triggered when you operate the symbol, e.g. when you activate it. The processing of a function list can be configured to the event.

#### Operation behavior

The active mouse function is signaled in Runtime by a changing cursor icon according to your configuration.

There is no operator feedback, for example with color changes.

### 7.2.19.2 Mouse control

#### Operation with the mouse

1. Click on the symbol with the mouse pointer.
2. The functions are event-triggered.

# Appendix

## 8.1 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:"

### Meaning of the system alarms

All the system alarms that can be displayed are listed below. The system alarms are divided into different ranges:

#### 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 images are buffered.	Allow sufficient intervals between successive print jobs.
10003	Images 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 > Generator > 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.



Number	Effect/causes	Remedy
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.

## 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.	--

## 8.1 System alarms

## 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 executing WinCC flexible Runtime must be granted access rights for 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 executing WinCC flexible Runtime must be granted access rights for 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"> <li>An invalid time was transferred in the job mailbox.</li> <li>The Windows user has no right to modify the system time.</li> </ul> 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: The user executing WinCC flexible Runtime must be granted the right to change 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"> <li>An invalid time was transferred.</li> <li>The Windows user has no right to modify the system time.</li> </ul> Windows rejects the setting request.	Check the time which is to be set. Using Windows NT/XP: The user executing WinCC flexible Runtime must be granted the right to change the system time of the operating system.
70015	The system time could not be read because Windows rejects the reading function.	--

Number	Effect/causes	Remedy
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.	--
70023	Acknowledgment to starting the Export Password List action.	--
70024	The value range of the tag has been exceeded in the system function. The calculation of the system function is not performed.	Check the desired calculation and correct it if necessary.
70025	The value range of the tag has been exceeded in the system function. The calculation of the system function is not performed.	Check the desired calculation and correct it if necessary.
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.

Number	Effect/causes	Remedy
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"
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 value range for the tags has been exceeded while executing the system function. The system function calculation has not been carried out.	Check the desired calculation and correct it if necessary.
70043	The value range for the tags has been exceeded while executing the system function. The system function calculation has not been carried out.	Check the desired calculation and correct it if necessary.

## 80000 - Archive 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.
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 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.

8.1 System alarms

Number	Effect/causes	Remedy
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"> <li>if the "StartSequenceLog" system function was properly configured.</li> <li>if the tag parameters are properly provided with data on the HMI device.</li> </ul>
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"> <li>if the "CopyLog" system function was properly configured.</li> <li>if the tag parameters are properly provided with data on the HMI device.</li> </ul>
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.	--
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. If 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.

Number	Effect/causes	Remedy
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"> <li>• The connection to the server.</li> <li>• If the server is running.</li> <li>• If there is enough free space on the server.</li> </ul>
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.
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 "CloseAll Logs" system function is called before using the "ExportLog" system function. Change the configuration as required.

## 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 be archived.	Ensure that you are using the correct storage medium.
90030	Runtime was closed during ongoing operation (perhaps due to a power failure).	--

8.1 System alarms

Number	Effect/causes	Remedy
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 permission 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.

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: <ul style="list-style-type: none"> <li>• The project ID entered on the PLC.</li> <li>• The project ID entered in WinCC flexible.</li> </ul>



## 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.

## 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"> <li>• The correct data medium is being accessed</li> <li>• The data medium is inserted</li> </ul>
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"> <li>• The correct file is being accessed</li> <li>• The file exists</li> <li>• Another action is preventing simultaneous access to the file.</li> </ul>
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. 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.

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".

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.

8.1 System alarms

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"> <li>• The cable is defective.</li> <li>• The PLC does not respond, is defective, etc.</li> <li>• The wrong port is used for the connection.</li> <li>• System overload</li> </ul>	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"> <li>• The cable is defective.</li> <li>• The PLC does not respond, is defective, etc.</li> <li>• The wrong port is used for the connection.</li> <li>• System overload</li> </ul>	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"> <li>• The server name is correct.</li> <li>• The computer name is correct.</li> <li>• The server is registered.</li> </ul>
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"> <li>• The server name is correct.</li> <li>• The computer name is correct.</li> <li>• The server is registered.</li> </ul> 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.

## 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"> <li>• Generate the alarms at a slower rate (polling).</li> <li>• Initiate scripts and functions at greater intervals.</li> </ul> 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.	Reinstall WinCC flexible Runtime.

## 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.

Number	Effect/causes	Remedy
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"> <li>• A value entered</li> <li>• A system function</li> <li>• A script</li> </ul>	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"> <li>• Increase the time interval between multiple write actions.</li> <li>• Do not use an array tag longer than 6 words when you configure an acknowledgment on the HMI device using "Acknowledgment HMI".</li> </ul>
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.

## 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"> <li>• The cable is defective.</li> <li>• The PLC does not respond, is defective, etc.</li> <li>• System overload</li> </ul>	Ensure that the cable is plugged in and the PLC is operational. Restart the system if the system alarm persists.

## Appendix

### 8.1 System alarms

#### 200100 - PLC user version alarms

Number	Effect/causes	Remedy
200100	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.
200101	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.
200102	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
200103	Coordination can be executed again because the last error state is eliminated (return to normal operation).	--
200104	The coordination may not be executed.	--
200105	No more data is read or written. Possible causes: <ul style="list-style-type: none"> <li>• The cable is defective.</li> <li>• The PLC does not respond, is defective, etc.</li> <li>• System overload</li> </ul>	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.



Number	Effect/causes	Remedy
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"> <li>• The cable is plugged in</li> <li>• The PLC is OK</li> <li>• The correct port is used</li> <li>• Your configuration is OK (port parameters, protocol settings, PLC address).</li> </ul> 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.

## 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"> <li>• The value range has been exceeded</li> <li>• Illegal characters have been entered</li> <li>• The maximum permitted number of users has been exceeded.</li> </ul>	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.

8.1 System alarms

Number	Effect/causes	Remedy
230201	The connection to HTTP channel was established. Data is exchanged.	--
230202	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. 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. Process values are not exchanged. 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>."	Depending on the cause: When an attempt to connect fails or a timeout error occurs: <ul style="list-style-type: none"> <li>• Check the network connection and the network.</li> <li>• Check the server address.</li> <li>• Check whether the WebServer is actually running on the destination station.</li> </ul> Faulty authorization: <ul style="list-style-type: none"> <li>• The configured user name and/or password do not match those on the server. Establish consistency</li> </ul> When the server certificate is rejected: Certificate signed by an unknown CA ( ): <ul style="list-style-type: none"> <li>• Either ignore this item in your project, or</li> <li>• Install a certificate that has been signed with a root certificate known to the client computer.</li> </ul> The date of the certificate is invalid: <ul style="list-style-type: none"> <li>• Either ignore this item in your project, or</li> <li>• Install a certificate with a valid date on the server.</li> </ul> Invalid CN (Common Name or Computer Name): <ul style="list-style-type: none"> <li>• Either ignore this item in your project, or</li> <li>• Install a certificate with a name that corresponds to that of the server address.</li> </ul>
230203	Although a connection can be made to the server, the HTTP server refuses to connect because <ul style="list-style-type: none"> <li>• WinCC flexible Runtime is not running on the server, or</li> <li>• The HTTP channel is not supported (503 Service unavailable).</li> </ul> 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.	Error 503 Service unavailable: Check that WinCC flexible Runtime is running on the server and the HTTP channel is supported.
230301	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.	--
230302	The name of the remote server cannot be resolved. The attempt to connect failed.	Check the configured server address. Check whether the DNS service is available on the network.
230303	The remote server is not running on the addressed computer. Wrong server address. The attempt to connect failed.	Check the configured server address. Check whether the remote server is running on the target computer.
230304	The remote server on the addressed computer is incompatible with VNCOCX. The attempt to connect failed.	Use a compatible remote server.

Number	Effect/causes	Remedy
230305	The authentication has failed because the password is incorrect. The attempt to connect failed.	Configure the correct password.
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"> <li>• The bus cable is plugged in</li> <li>• There are network problems.</li> </ul>
230307	The connection to the remote server was shut down because <ul style="list-style-type: none"> <li>• The remote server was shut down, or</li> <li>• The user instructed the server to close all connections.</li> </ul> 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 / powerpack.
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"> <li>• A corrupt file</li> <li>• A defective installation</li> <li>• No free space for the Automation License Manager etc.</li> </ul>	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.

## 8.1 System alarms

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 PTProRun.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.
260023	The password you entered does not meet the necessary security guidelines.	Enter a password that contains at least one number.
260024	The password you entered does not meet the necessary security guidelines.	Enter a password that contains at least one character.

Number	Effect/causes	Remedy
260025	The password you entered does not meet the necessary security guidelines.	Enter a password that contains at least one special character.
260028	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.  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.	Check the connection to the SIMATIC Logon Server and its configuration; for example: 1. Port number 2. IP address 3. Server name 4. Functional transfer cable  Or use a local user.
260029	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.
260030	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.  The old password remains and the user is logged off.	Log in again and choose a different password. Check the password rules on the SIMATIC Logon Server.
260031	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.  The new user is not logged in. If a different user was logged on before, then this user is logged off.	Try again. If necessary, check the password data on the SIMATIC Logon Server.
260032	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.
260033	The action change password or log on user could not be carried out.	Check the connection to the SIMATIC Logon Server and its configuration; for example: 1. Port number 2. IP address 3. Server name 4. Functional transfer cable  Or use a local user.
260034	The last logon operation has not yet ended. A user action or a logon dialog can therefore not be called.  The logon dialog is not opened. The user action is not executed.	Wait until the logon operation is complete.
260035	The last attempt to change the password was not completed. A user action or a logon dialog can therefore not be called.  The logon dialog is not opened. The user action is not executed.	Wait until the procedure is complete.
260036	There are insufficient licenses on the SIMATIC Logon Sever. The logon is not authorized.	Check the licensing on the SIMATIC Logon Server.

## 8.1 System alarms

Number	Effect/causes	Remedy
260037	There is no license on the SIMATIC Logon Sever. A logon is not possible. It is not possible to log on via the SIMATIC Logon Server, only via a local user.	Check the licensing on the SIMATIC Logon Server.
260040	The system attempts to access the SIMATIC Logon Server upon system start-up or when trying to change the password. 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.	Check connection to the domain and its configuration in the Runtime security settings editor. Or use a local user.

## 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.

## 280000 - DPHMI alarms Connection

Number	Effect/causes	Remedy
280000	Connection is up because the cause of the interruption has been eliminated.	--

Number	Effect/causes	Remedy
280001	No more data is read or written. Possible causes: <ul style="list-style-type: none"> <li>• The cable is defective</li> <li>• The PLC does not respond, is defective, etc.</li> <li>• The wrong port is used for the connection</li> <li>• System overload</li> </ul>	Check whether <ul style="list-style-type: none"> <li>• The cable is plugged in</li> <li>• The PLC is OK</li> <li>• The correct port is used.</li> </ul> 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"> <li>• The cable is plugged in</li> <li>• The PLC is OK</li> <li>• The correct port is used.</li> </ul> Restart the system if the system alarm persists. Remedy depends on the error code: <ol style="list-style-type: none"> <li>1: The function block must set the COM bit in the response container.</li> <li>2: The function block must not set the ERROR bit in the response container.</li> <li>3: The function block must respond within the specified time (timeout).</li> <li>4: Go online to the PLC.</li> </ol>
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.

Number	Effect/causes	Remedy
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).
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"> <li>• Check the source for the number (constant or tag value).</li> <li>• First, delete the record.</li> <li>• Change the "Overwrite" function parameter.</li> </ul>
290014	The file specified to be imported could not be found.	Check: <ul style="list-style-type: none"> <li>• The file name</li> <li>• Ensure that the file is in the specified directory.</li> </ul>
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"> <li>• The tag addresses are configured in the PLC</li> <li>• The recipe number exists</li> <li>• The record number exist</li> <li>• The "Overwrite" function parameter is set</li> </ul>
290023	Alarm reporting that the download of records from the PLC to the HMI device has started.	--



Number	Effect/causes	Remedy
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"> <li>• The tag addresses are configured in the PLC</li> <li>• The recipe number exists</li> <li>• The record number exist</li> <li>• The "Overwrite" function parameter is set</li> </ul>
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.	--
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.	--

Number	Effect/causes	Remedy
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.
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.	--

Number	Effect/causes	Remedy
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"> <li>An error occurred while transferring the recipes.</li> <li>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.</li> </ul>	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.

## 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



## Abbreviations

### 9.1 Abbreviations

CPU	Central Processing Unit
CSV	Comma Separated Values
CTS	Clear To Send
DC	Direct Current
DCD	Data Carrier Detect
DIL	Dual-in-Line (electronic chip housing design)
DP	Distributed I/O
DSN	Data Source Name
DSR	Data Set Ready
DTR	Data Terminal Ready
ESD	Electrostatic Discharge, the components and modules endangered by such
EMC	Electromagnetic Compatibility
EN	European standard
ES	Engineering System
ESD	Electrostatic Sensitive Device
GND	Ground
HF	High Frequency
HMI	Human Machine Interface
IEC	International Electronic Commission
IF	Interface
LED	Light Emitting Diode
MMC	Multi-Media Card
MOS	Metal Oxide Semiconductor
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
PPI	Point to Point Interface (SIMATIC S7)

RAM	Random Access Memory
RTS	Request To Send
RxD	Receive Data
SELV	Safety Extra Low Voltage
SP	Service pack
PLC	Programmable Logic Controller
STN	Super Twisted Nematic
Sub-D	Subminiature D (plug)
TAB	Tabulator
TCP/IP	Transmission Control Protocol/Internet Protocol
TFT	Thin Film Transistor
TxD	Transmit Data
UL	Underwriter's Laboratory



## Glossary

### 10.1 Glossary

#### Acknowledge

Acknowledging an alarm confirms that you have noted it.

#### AG

Controller of the SIMATIC S5 series such as the AG S5-115U, for example

#### Alarm, acknowledging

Acknowledgement of an alarm confirms that it has been noted.

#### Alarm, activated

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

#### Alarm, deactivated

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

#### Alarm logging

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

#### Alarm, user-specific

A user-specific alarm can be assigned to one of the following alarm classes:

- Error
- Warning
- User-specific alarm classes

A user-specific alarm designates a certain operating status of the plant connected to the HMI device via the controller.

- AS**  
Controller of the SIMATIC S7 series such as a SIMATIC S7-300
- AS 511**  
Protocol of the programming device interface of a SIMATIC S5 controller
- Boot loader**  
Used to start the operating system. Automatically started when the HMI device is switched on. A start screen appears during startup. After the operating system has been loaded, the Loader opens.
- Configuration computer**  
General term for programming devices (PGs) and PCs on which plant projects are created using an engineering software.
- Controller**  
General term for devices and systems with which the HMI device communicates, e.g. SIMATIC S7.
- Control request**  
Triggers a function via the controller.
- Display duration**  
Defines whether and how long a system alarm is displayed on the HMI device.
- EMC**  
Electromagnetic compatibility is the ability of electrical equipment to function properly in its electromagnetic environment without influencing this environment.
- Engineering software**  
Software for the creation of projects for process visualization – see also project, process visualization and runtime software
- Event**  
Functions are triggered by defined incoming events. Events can be configured. Events which can be assigned to a button include "Press" and "Release", for example.

**Fault time**

Refers to the time interval between an activated and deactivated alarm.

**Field**

Area reserved in configured screens 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 lifetime**

Time period until the brightness degrades to 50% of its original value. The specified value is dependent on the operating temperature.

**Hardcopy**

Output of the screen content to a printer.

**HMI device image**

File which can be transferred from the programming device to the HMI device. The HMI device image contains the operating system and elements of the runtime software required to run a project.

**Infotext**

Configured information on objects within a project. An alarm infotext, for example, may contain information on the cause of the fault and troubleshooting routines.

**IO field**

Enables the input or output of values on the HMI device which are transferred to the controller.

**Notation**

System consisting of characters, symbols and rules. In particular used to define the write format of a programming language in data processing.

**Object**

Component of a project. Example: screen or alarm. Objects are used to view or enter texts and values on the HMI device.

### **Operator control object**

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

### **Plant**

General term referring to machines, processing centers, systems, plants and processes which are operated and monitored on an HMI device.

### **Process visualization**

Visualization of processes from the areas of production, logistics and services in text-based and graphics format. Configured plant screens allow operator intervention in active plant processes by means of the input and output data.

### **Project**

Result of a configuration using an engineering software. The project normally contains several screens with embedded system-specific objects, basic settings and alarms. The project file of a project configured in WinCC flexible is saved under the file name extension \*.hmi.

You distinguish between the project on the configuration computer and that on an HMI device. A project may be available in more languages on the configuration computer than can be managed on the HMI device. The project on the configuration computer can also be set up for different HMI devices. Only the project set up for a particular HMI device can be transferred to that HMI device.

### **Project file**

File which is generated based on a source file for a specific HMI device when the configuration is completed. The project file is transferred to the corresponding HMI device and is used to operate and monitor plants. Refer to Source file.

### **Recipe**

Combination of tags forming a fixed data structure. The data structure configured can be assigned data on the HMI device and is then referred to as a data record. The use of recipes ensures that when a data record is downloaded, all the assigned data is transferred synchronously to the controller.

### **Runtime software**

Process visualization software which can be used to debug a project on a configuration computer. Also refer to "Project" and "Engineering software".

### **Screen**

Form of the visualization of all logically related process data for a plant. The visualization of the process data can be supported by graphic objects.

### **Screen object**

Configured object for operating and monitoring the system, e.g. a rectangle, an IO field or a recipe view.

### **Softkey**

Key on the HMI device which supports user-specific functions. A function is assigned to the key in the configuration. The assignment of the keys may be specific to an active screen or not.

### **Source file**

File from which various project files can be created, depending on the configuration. The source file is not transferred and remains on the configuration computer.

The file name extension of a source file is \*.hmi. Refer to Source file, compressed and Project file.

### **Source file, compressed**

Compressed form of the source file. Can be transferred in addition to the project file to the corresponding HMI device. "Enable Upload" must be set in the project on the configuration computer. The file extension of a compressed source file is \*.pdz. The standard memory location for a compressed source file is the external MMC. Refer to Source file.

To restore a source file, it is necessary to use the same WinCC flexible version which was used to configure the project.

### **STEP 7**

Programming software SIMATIC S7, SIMATIC C7 and SIMATIC WinAC controllers.

### **STEP 7 Micro/WIN**

Programming software for controllers of the SIMATIC S7-200 series.

### **Symbolic IO field**

Box for the input/output of a parameter. Contains a list of default entries from which one can be selected.

### **System alarms**

Assigned to the "System" alarm class. A system alarm refers to internal states on the HMI device and the controller.

### **Tab order**

In the configuration, this sets the sequence in which objects are focused on pressing the <TAB> key.

**Tag**

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

**Transfer**

The transfer of an executable project to the HMI device.

**"Transfer" mode**

HMI device operating mode, set to transfer an executable project from the configuration computer to the HMI device.

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