Edition 03/2025

OPERATING INSTRUCTIONS

SINAMICS

Smart Drive Interface SDI Pro 5.5"

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SINAMICS Smart Drive Interface SDI Pro 5.5"

Operating Instructions

Valid for firmware version 1.0

03/2025, FW V1.0

A5E52612203B AB

Legal information

Warning notice system

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.

⚠**DANGER**
indicates that death or severe personal injury **will** result if proper precautions are not taken.

⚠**WARNING**
indicates that death or severe personal injury **may** result if proper precautions are not taken.

⚠**CAUTION**
indicates that minor personal injury can result if proper precautions are not taken.

NOTICE
indicates that property damage can result if proper precautions are not taken.

If more than one degree of danger is present, the warning notice representing the highest degree of danger will be used. A notice warning of injury to persons with a safety alert symbol may also include a warning relating to property damage.

Qualified Personnel

The product/system described in this documentation may be operated only by **personnel qualified** for the specific task in accordance with the relevant documentation, in particular its warning notices and safety instructions. Qualified personnel are those who, based on their training and experience, are capable of identifying risks and avoiding potential hazards when working with these products/systems.

Proper use of Siemens products

Note the following:

⚠**WARNING**
Siemens products may only be used for the applications described in the catalog and in the relevant technical documentation. If products and components from other manufacturers are used, these must be recommended or approved by Siemens. Proper transport, storage, installation, assembly, commissioning, operation and maintenance are required to ensure that the products operate safely and without any problems. The permissible ambient conditions must be complied with. The information in the relevant documentation must be observed.

Trademarks

All names identified by ® are registered trademarks of Siemens Aktiengesellschaft. The remaining trademarks in this publication may be trademarks whose use by third parties for their own purposes could violate the rights of the owner.

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.

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A5E52612203B AB
Ⓟ 04/2025 Subject to change

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Introduction

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1.1 About SINAMICS

Description

With the SINAMICS converter series you can solve drive tasks in the low, medium and DC voltage range. All Siemens drive components, such as converters, motors, and controls, are matched to each other and can be integrated into your existing automation systems.

You can find more information via the SINAMICS YouTube playlist (https://www.youtube.com/playlist?list=PLw7lLwXw4H53rtHeTeifKtVMr2aXTYt0X).

1.2 About this manual

1.2.1 Content

Overview

This manual provides a summary of all of the information required to operate the Operator Panel under safe conditions.

The manual enables the target groups being addressed to assembly, install, connect, and commission the Operator Panel safely and in the correct manner.

To illustrate possible application areas for our products, typical use cases are listed in this product documentation and in the online help. These are purely exemplary and do not constitute a statement on the suitability of the respective product for applications in specific individual cases. Unless explicitly contractually agreed, Siemens assumes no liability for such suitability. Suitability for a particular application in specific individual cases must be assessed by the user, taking into account all technical, legal, and other requirements on a case-by-case basis. Always observe the descriptions of the technical properties and the relevant constraints of the respective product contained in the product documentation.

1.2.2 Target group

Description

This manual is intended for persons who perform different tasks in the drive environment. The intended target groups include, but are not limited to the following:

- Installation personnel
- Commissioning engineers
- Machine operators
- Service and maintenance personnel

1.2.3 Standard scope

The functions of the system as delivered can only be found in the order documents.

Further functions may be executable in the system, which are not explained in this documentation. However, there is no entitlement to these functions in the case of a new delivery or service.

This documentation does not contain all detailed information on all types of the product. Furthermore, this documentation cannot take into consideration every conceivable type of installation, operation and service/maintenance.

The machine manufacturer must document any additions or modifications they make to the product themselves.

1.2.4 Use of third-party products in this documentation

This documentation contains recommendations relating to third-party products. Siemens accepts the fundamental suitability of these third-party products. You can use equivalent products from other manufacturers.

Siemens does not accept any warranty for the use of third-party products.

1.2.5 Websites of third-party companies

This document may contain hyperlinks to third-party websites. Siemens is not responsible for and shall not be liable for these websites and their content. Siemens has no control over the information which appears on these websites and is not responsible for the content and information provided there. The user bears the risk for their use.

1.3 SINAMICS documentation

Description

The documentation on the SINAMICS family of converters is available under Siemens Industry Online Support (https://support.industry.siemens.com/cs/ww/en/view/109807358).

You can display documents or download them in PDF and HTML5 format.

The Operator Panel documentation essentially comprises the following manuals:

Table 1- 1 SINAMICS documentation

Information	Documentation class	Content
Device information	Operating Instructions	Information for installing, commissioning, and operating the Operator Panel
General information	Industrial Cybersecurity Configuration Manual	Information on the Industrial Cybersecurity functions and on the safe operation of the Operator Panel

1.4 Service and Support

1.4.1 ID link and Siemens Online Support

You can find additional information about the product:

- via ID link
- using the Siemens Industry Online Support
  - Website: SIOS
  - App Industry Online Support (for Apple iOS and Android)

Product-specific information via ID link

The QR code on your product and on the product packaging contains the ID link.

ID link is a globally unique identifier according to IEC 61406-1.

You can use the ID link to access product data, manuals, Declarations of Conformity, certificates and other information about your product.

Figure 1-1 QR code with ID link included

The ID link is characterized by a frame with a black corner at the bottom right.

Content of Siemens Online Support

- Product support
- Global forum for information and best practice sharing between users and specialists
- Local contact persons via the contact person database (→ Contact)
- Product information
- FAQs (frequently asked questions)
- Application examples
- Manuals
- Downloads
- Compatibility tool
- Newsletter with product selection
- Catalogs/brochures
- Certificates

1.4.2 Spare parts services

The online spare part service "Spares on Web" offers spare parts for the product.

1.5 Important product information

1.5.1 Intended use

Requirement

⚠DANGER

Ensuring a safe and stable state

During commissioning of the converter it is essential to ensure that the system is in a safe and stable state, as some commissioning processes have the potential to start the motor. Therefore, it is important to secure any loads and ensure that should the motor start, no potentially dangerous conditions exist.

⚠WARNING

Death or serious injury if not used as intended

Not using as intended can result in hazardous states.

- Carefully observe the description of proper and intended use.

⚠WARNING

Risk of death due to software manipulation when using exchangeable storage media

- When the control panel is active, that is, when all OFF and RUN commands are given via the Operator Panel touch-buttons, if the Operator Panel is removed from the converter, the converter will stop within a few seconds of the Operator Panel being removed.
- Before removing the Operator Panel, ensure that the control panel is deactivated and the converter receives its command source from the PLC.

⚠CAUTION

Burns and thermal damage caused by hot surfaces

The Operator Panel has the potential to reach high temperatures. Touching hot surfaces may result in burns.

When its temperature exceeds the normal operating temperature, the Operator Panel displays a warning message and reduces the backlight brightness to Low. If the temperature continues to rise, the Operator Panel will switch off the display and log you out.

- When the screen displays the warning message, do not touch the Operator Panel, and allow the Operator Panel to cool down.
- When the screen returns to normal use, the Operator Panel is safe to touch.

NOTICE
Damage to the USB-C port due to potential power surges When you connect the converter-connected Operator Panel to the PC, power surges can occur and damage the USB-C port. • Before connecting the Operator Panel to a PC through the USB-C port, disconnect the Operator Panel from the converter.

Note

It cannot be guaranteed that EMC emission limits are complied with if the products are connected to an isolated line supply grounded through a high ohmic connection, or a line supply with a grounded line conductor.

- Draw-up an EMC plan to comply with the EMC requirements of the intended application.

Description

The products are professional devices for stationary indoor use in industrial, light-industrial and commercial applications, and are intended for supply from a non-public (industrial) low-voltage network. The products are not intended for use in residential areas and are not intended for supply from a public low-voltage network.

The products must be correctly transported and stored and must be installed, commissioned, and maintained by professionals who have adequate knowledge to implement the safety, security, and EMC measures in accordance with the specifications described in this manual and recognized state-of-the-art engineering practice.

You may only use the products when the following requirements are complied with:

- All regulations and directives that are applicable at the place of final use, especially with regard to electrical safety, functional safety, and electromagnetic compatibility (EMC).
- All instructions, notes, technical specifications, safety information, and security information contained in this document and other supporting documentation.

The products are part of a machine or system. They must ensure the safety of persons and material assets, as well as electromagnetic compatibility, by applying suitable measures when designing the system.

A risk assessment of the complete application, including third-party products, and implementation of adequate safety and security measures must be performed before using the product.

Products without protective enclosure (IP00 or IP20) are intended for installation in control panels or control cabinets that provide the required level of protection.

Any other use that is not expressly permitted can result in malfunctions and unpredictable hazards.

1.5.2 Firmware updates and constraints

Description

Firmware updates and constraints for the Operator Panel with the current firmware are available in SIOS:

Updates and constraints, SINAMICS SDI Pro 5.5" (https://www.siemens.com/sinamics-sdi-pro-dl)

1.5.3 Open-source software (OSS)

Description

The license conditions and copyright information of the open-source software components used by the device are saved on the device itself. You can download license and copyright information onto your PC via the support page of the integrated web server.

1.5.4 Compliance with the General Data Protection Regulation

Description

Siemens complies with the principles of the **General Data Protection Regulation (EU),** in particular the principle of data minimization ("privacy by design"). For this SINAMICS product, this means:

- **User management and access control (UMAC)**

  The product processes or stores the following personal data:

  – Login data for user management and access control:

    User name, group, password, role, rights.

  The data for user management and access control is stored in the converter and optionally on a memory card.

- **Support data (optional)**

  For optimal support in service cases, the end user or machine manufacturer (OEM) can optionally store contact data (header, email address, telephone number, homepage) in the converter.

  If this data is created, the author must give thought to data protection consent for this optional data. Siemens takes no responsibility for this data.

  This support contact data can be read and is freely accessible in, for example, the user interface as well as in the diagnostics report. This data is not encrypted.

This data is used for user management and access control (UMAC) and for the support function. The storage of this data is appropriate and limited to what is necessary, as it is essential to identify the authorized operators and service contact.

The personal data is also available as part of the backup system to ensure fast recovery of use cases.

The above-mentioned personal data cannot be stored anonymously or pseudonymized, as it serves the purpose of identifying the operating personnel. The anonymization or pseudonymization, e.g. of the login data, must be performed using suitable login names and contact data by the plant/machine operator.

Our product does not provide any functions for automatically deleting personal data. Individual UMAC data can be deleted manually by authorized personnel as soon as this is deemed recommended/required.

Fundamental safety instructions 2

2.1 General safety instructions

⚠ WARNING

Danger to life if the safety instructions and residual risks are not observed

If the safety instructions and residual risks in the associated hardware documentation are not observed, accidents involving severe injuries or death can occur.

- Observe the safety instructions given in the hardware documentation.
- Consider the residual risks for the risk evaluation.

⚠ WARNING

Malfunctions of the machine as a result of incorrect or changed parameter settings

As a result of incorrect or changed parameterization, machines can malfunction, which in turn can lead to injuries or death.

- Protect the parameterization against unauthorized access.
- Handle possible malfunctions by taking suitable measures, e.g. EMERGENCY STOP or EMERGENCY OFF.

2.2 Warranty and liability for application examples

Application examples are not binding and do not claim to be complete regarding configuration, equipment, or any eventuality which may arise. Application examples do not represent customer-specific solutions, but merely serve to provide assistance with typical tasks.

As the user you yourself are responsible for ensuring that the products described are operated correctly. Application examples do not relieve you of your responsibility for safe handling when using, installing, operating and maintaining the equipment.

2.3 Cybersecurity information

Siemens provides products and solutions with industrial cybersecurity functions that support the secure operation of plants, systems, machines and networks.

In order to protect plants, systems, machines and networks against cyber threats, it is necessary to implement – and continuously maintain – a holistic, state-of-the-art industrial cybersecurity concept. Siemens' products and solutions constitute one element of such a concept.

Customers are responsible for preventing unauthorized access to their plants, systems, machines and networks. Such systems, machines and components should only be connected to an enterprise network or the internet if and to the extent such a connection is necessary and only when appropriate security measures (e.g. firewalls and/or network segmentation) are in place.

For additional information on industrial cybersecurity measures that may be implemented, please visit
https://www.siemens.com/cybersecurity-industry.

Siemens' products and solutions undergo continuous development to make them more secure. Siemens strongly recommends that product updates are applied as soon as they are available and that the latest product versions are used. Use of product versions that are no longer supported, and failure to apply the latest updates may increase customer's exposure to cyber threats.

To stay informed about product updates, subscribe to the Siemens Industrial Cybersecurity RSS Feed under
https://new.siemens.com/cert.

Further information is provided on the Internet:

Configuration Manual Industrial Cybersecurity
(https://support.industry.siemens.com/cs/ww/en/view/109975311)

⚠WARNING

Unsafe operating states resulting from software manipulation

Software manipulations, e.g. viruses, Trojans, or worms, can cause unsafe operating states in your system that may lead to death, serious injury, and property damage.

- Keep the software up to date.
- Incorporate the automation and drive components into a state-of-the-art, integrated industrial cybersecurity concept for the installation or machine.
- Make sure that you include all installed products in the integrated industrial cybersecurity concept.
- Protect files stored on exchangeable storage media from malicious software by with suitable protection measures, e.g. virus scanners.
- Carefully check all cybersecurity-related settings once commissioning has been completed.

Description

3

3.1 SINAMICS SDI Pro 5.5" Operator Panel

Overview

The SINAMICS SDI Pro 5.5" Operator Panel (referred to as "Operator Panel") is a client device that allows you to access the web server integrated in the compatible SINAMICS converter.

Description

The Operator Panel is intended for use with the following SINAMICS converters:

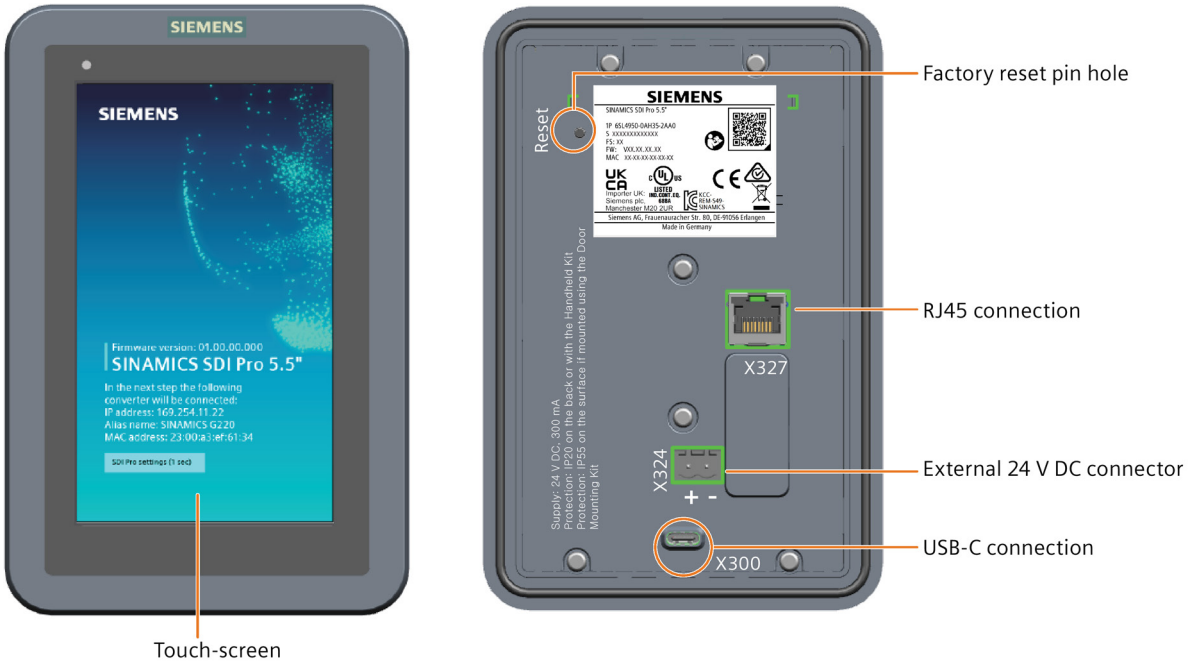
- SINAMICS G220 converters, firmware version V6.2 or later

You can connect and use the Operator Panel directly and without any additional accessories by using an 8-wire RJ45 Ethernet cable connected to the converter service interface (X127) or the PROFINET interface (X150).

You cannot directly mount the Operator Panel on the converter. You can use the SINAMICS SDI Pro 5.5" Door Mounting Kit to mount the Operator Panel on a cabinet door, or use the optional SINAMICS SDI Pro 5.5" Handheld Kit to hold the Operator Panel in a comfortable manner. For the G220 converter in degree of protection IP55, you can mount the Operator Panel to the converter and connect it to the service interface (X127) of the converter via SINAMICS SDI Pro 5.5" Mounting frame.

The Operator Panel is controlled with a color touch-screen and is operated via standard gestures used on most smart devices.

The front of the Operator Panel offers IP55 (UL Type 12) protection, and the back of the Operator Panel offers IP20 protection.



Note: The text on the back of the Operator Panel is white for clarity and illustration purposes. The actual text is engraved into the Operator Panel.

Figure 3-1 The Operator Panel

3.2 Scope of delivery

Description

The delivery includes at least the following components:

- A SINAMICS SDI Pro 5.5" Operator Panel with loaded firmware (article number: 6SL4950-0AH35-2AA0)
- A connector for external 24 V DC power supply
- A "Safety instructions" sheet

3.3 Optional components

Description

The Operator Panel cannot be mounted directly on the converter. The following options are available for mounting the Operator Panel:

Table 3- 1 Optional components

Optional component	Article number
SINAMICS SDI Pro 5.5" Handheld Kit	6SL4950-0AH65-0AA0
SINAMICS SDI Pro 5.5" Door Mounting Kit	6SL4950-0AH55-0AA0
SINAMICS SDI Pro 5.5" Mounting frame	6SL4950-0AH75-0AA0
Ethernet cable	• Applicable Siemens Ethernet cable 6XV1870-3Q❑❑❑ • Applicable third-party Ethernet cable (Page 24)

3.3.1 SINAMICS SDI Pro 5.5" Handheld Kit

3.3.1.1 Overview

Description

The optional SINAMICS SDI Pro 5.5" Handheld Kit (referred to as the "Handheld Kit") allows the Operator Panel to be used in an easier and more comfortable manner. The Handheld Kit consists of a rubber housing, a plastic support, three magnetic pads located on the back of the Handheld Kit, and a 3 m Ethernet cable. The magnetic pads allow you to temporarily attach the Operator Panel to a cabinet door. You can connect the Operator Panel to the converter by using the supplied Ethernet cable.

Note

The Handheld Kit is not designed for attaching the Operator Panel permanently to the cabinet door. To mount the Operator Panel permanently to the cabinet door, use the Door Mounting Kit.

Figure 3-2 Operator Panel with the Handheld Kit

3.3.1.2 Technical data

Technical data of the Handheld Kit

Table 3- 2 Technical data of the Handheld Kit

Property	Specification
Weight including the supplied accessories	389 g
Transport and storage ambient temperature	-40 °C ... +70 °C
Relative humidity	5% ... 95%, without condensation

3.3.2 SINAMICS SDI Pro 5.5" Door Mounting Kit

3.3.2.1 Overview

Description

The optional SINAMICS SDI Pro 5.5" Door Mounting Kit (referred to as the "Door Mounting Kit") enables the convenient installation of the Operator Panel onto a cabinet door, eliminating the need to open the door for visibility. The Door Mounting Kit consists of a back plate and 8 screws.

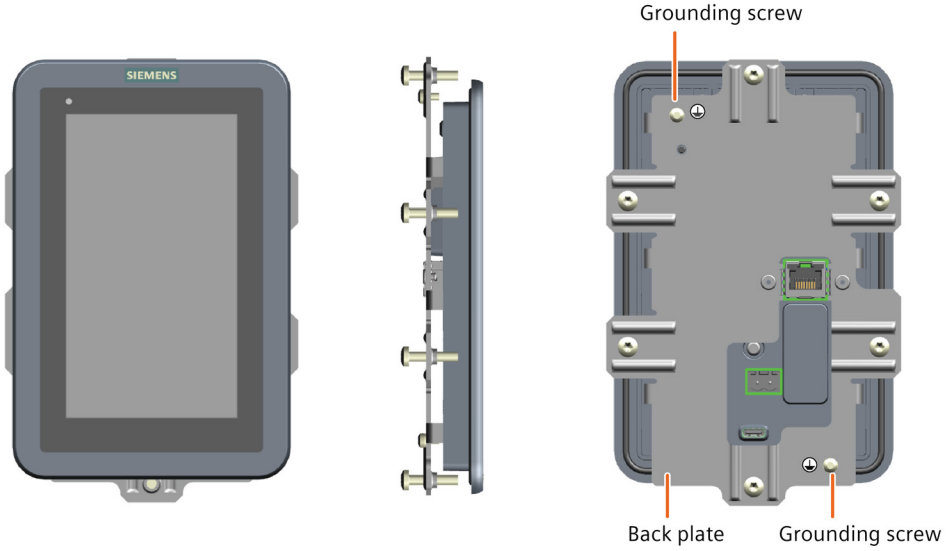


Figure 3-3 Operator Panel with the Door Mounting Kit

More information

To connect the Door Mounting Kit-mounted Operator Panel to the converter, use an 8-wire Ethernet cable.

You can find more information about the Ethernet cable in Chapter "Ethernet cable for Door Mounting Kit-mounted Operator Panel (Page 24)".

3.3.2.2 Installing the Operator Panel using the Door Mounting Kit

Procedure

Proceed as follows to install the Operator Panel on the cabinet door by using the Door Mounting Kit:

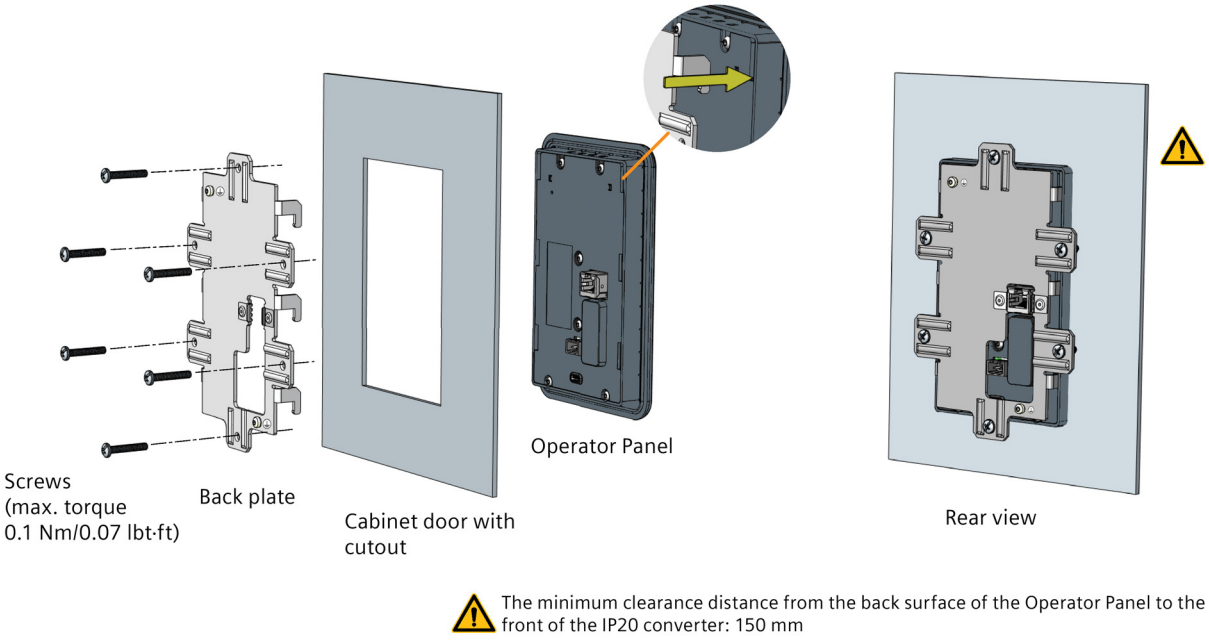
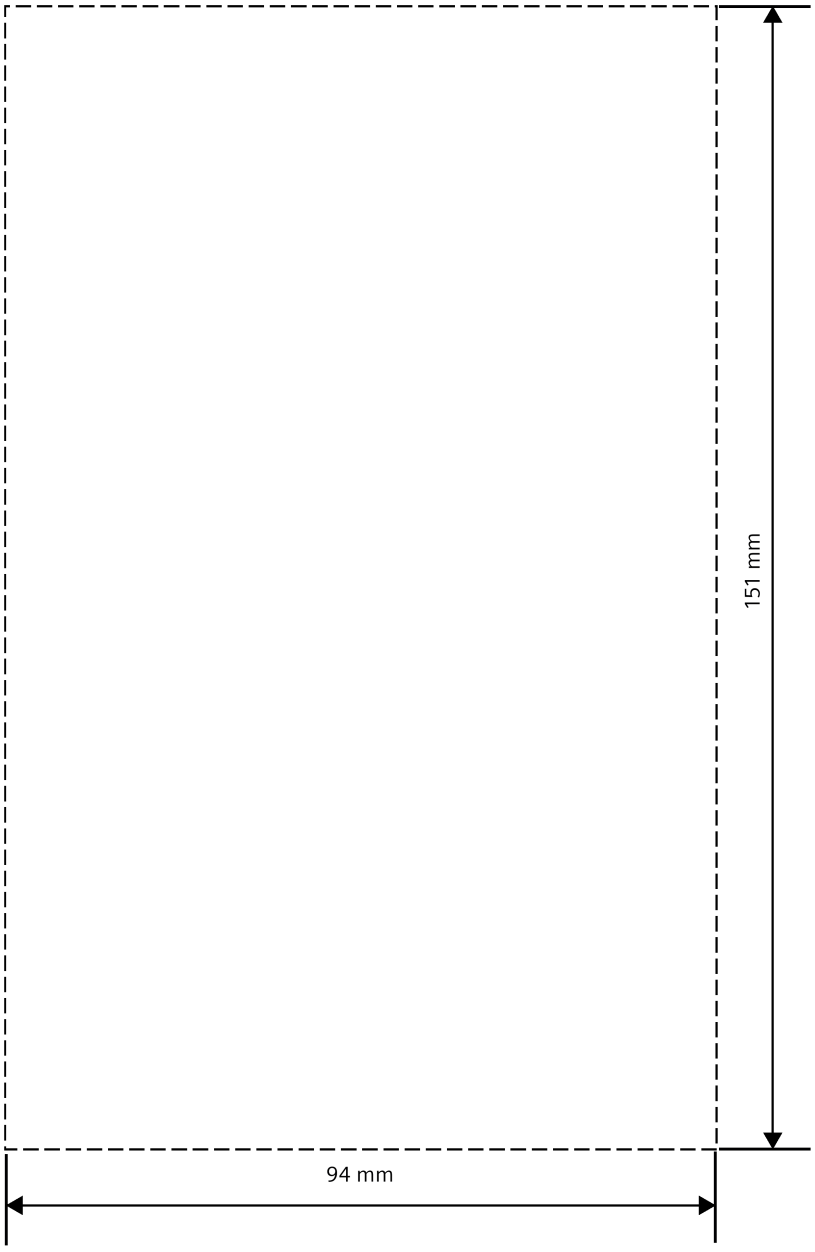


Figure 3-4 Fitting the Door Mounting Kit

You can use the supplied two M3 grounding screws of the Door Mounting Kit to ground the Operator Panel at the top-left or lower-right corner.



Notes:
1. The cutout is at 1:1 scale, the page must be printed at full size.
2. When printing from a PDF file, do not select "fit to page" option as this will reduce the page size by 3% of the true size.

Figure 3-5 Cabinet cutout stencil

3.3.2.3 Technical data

Technical data of the Door Mounting Kit

Table 3- 3 Technical data of the Door Mounting Kit

Property	Specification
Cut-out dimensions (height x width)	94 mm x 151 mm
Fixing	• M4/0.1 Nm, 6 pieces • M3/1.2 Nm, 2 pieces
Weight including the supplied accessories	225 g
Transport and storage ambient temperature	-40 °C ... +70 °C
Relative humidity	5% ... 95%, without condensation

3.3.2.4 Ethernet cable for Door Mounting Kit-mounted Operator Panel

Description

Siemens Ethernet cables

Siemens recommends that you use an 8-wire Siemens Ethernet cable (article number: 6XV1870-3Q❑❑❑) to connect the Door Mounting Kit-mounted Operator Panel to the converter.

The maximum permissible cable length is 30 m.

You can find more information about available Siemens Ethernet cables on the Internet: Cabling technology for communication networks in industry (https://support.industry.siemens.com/cs/ww/en/view/109766358)

Ethernet cables from third-party manufacturers

For easier cable routing through the control cabinet, you can also select a suitable 8-wire RJ45 Ethernet cable with one or two angled connectors from a third-party manufacturer.

You can find more information about applicable Ethernet cables with the following link: Chapter of SINAMICS SDI Pro 5.5" (www.siemens.com/d36-1)

Table 3- 4 Technical data of recommended Ethernet cables

Property	Specification
General	• Pre-assembled on both sides • With one or two angled connectors • Copper cable • 8-wire cable; wiring 1:1 • Halogen-free • Oil resistant
Number of cores	8
Core structure	4 x 2 twisted pair
Transport and storage ambient temperature	-30 °C ... +75 °C unmoved -5 °C ... +50 °C moved
Degree of protection	IP20
Transmission characteristics	Cat. 6A Class EA up to 500 MHz
Data rate	10 MB/s, 100 MB/s, 1 GB/s, 10 GB/s

3.3.3 SINAMICS SDI Pro 5.5" Mounting frame

3.3.3.1 Overview

Description

The optional SINAMICS SDI Pro 5.5" Mounting frame (referred to as the "Mounting frame") allows you to mount the Operator Panel to the G220 IP55 converter, while ensuring the IP55 rating of the converter. The option includes a mounting frame, 4 screws, and a 15 cm Ethernet cable.

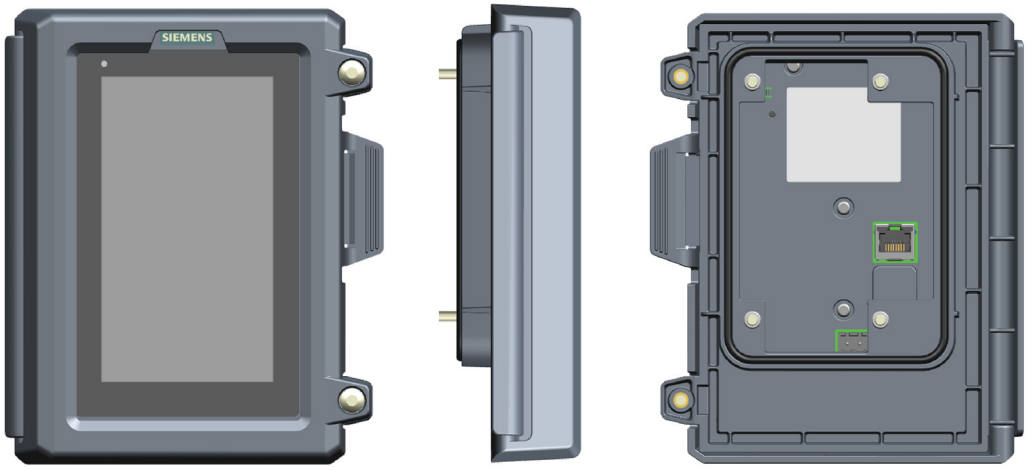


Figure 3-6 Operator Panel with the Mounting frame

3.3.3.2 Installing the Operator Panel using the Mounting frame

Overview

The G220 IP55 converter is delivered with a pre-installed IP55 frame for the SDI Standard panel. To install the Operator Panel to the G220 IP55 converter, remove the SDI Standard panel frame first.

Requirement

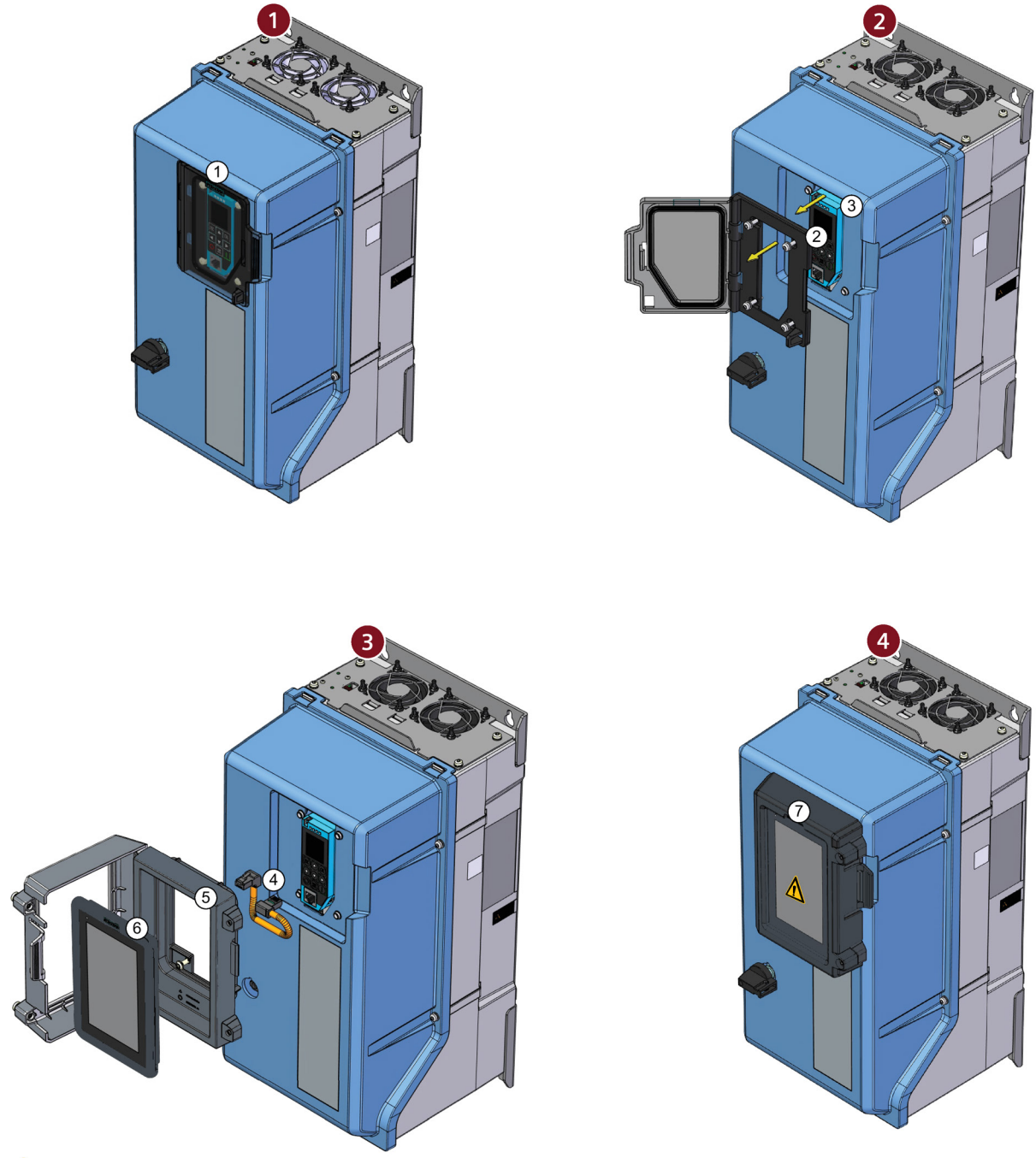
You have prepared the following items:

- Screwdriver
- SINAMICS SDI Pro 5.5" Mounting frame

Procedure

Proceed as follows to install the Operator Panel to the G220 IP55 converter:

1. Identify the pre-installed SDI Standard panel frame.
2. Loosen the 4 self-retaining screws that secure the SDI Standard panel frame in position.
3. Remove the SDI Standard panel frame from the converter.
4. Connect the Ethernet cable to the converter service interface X127.
5. Tighten the four self-retaining M4 screws with a tightening torque of 1.8 Nm to fit the Mounting frame in place.
6. Connect the Ethernet cable to the Operator Panel, and fit the Operator Panel into the Mounting frame.
7. Close the Mounting frame door and tighten the two M5 screws with a tightening torque of 1.8 Nm to secure the Operator Panel in place.



The minimum clearance distance between the front of the Operator Panel and the cabinet door is 50 mm.

Figure 3-7 Installing the Operator Panel using the Mounting frame

Result

The Operator Panel is secured in place, and the IP55 rating of the converter is maintained.

3.3.3.3 Technical data

Technical data of the Mounting frame

Table 3- 5 Technical data of the Mounting frame

Property	Specification
Dimensions (height x width x depth)	180 mm x 150 mm x 47 mm
Fixing	• M4/1.8 Nm, 4 pieces • M5/1.8 Nm, 2 pieces
Weight including the supplied accessories	339 g
Transport and storage ambient temperature	-40 °C ... +70 °C
Relative humidity	5% ... 95%, without condensation

3.4 Directives and standards

EC Declaration of Conformity

CE

European Machinery Directive

The Operator Panel fulfills the requirements stipulated in the Machinery Directive 2006/42/EC, if it is covered by the application area of this directive.

However, the use of the Operator Panel in a typical machine application has been fully assessed for compliance with the main regulations in this directive concerning health and safety.

European Low-Voltage Directive

The Operator Panel fulfills the requirements stipulated in the Low-Voltage Directive 2014/35/EU, insofar as it is covered by the application area of this directive.

Directive 2011/65/EU

The Operator Panel fulfills the requirements stipulated in Directive 2011/65/EU relating to the restriction of the use of certain hazardous substances in electrical and electronic devices (RoHS).

European EMC Directive

The compliance of the Operator Panel with the regulations of the Directive 2014/30/EU has been demonstrated by full compliance with the IEC/EN 61800-3.

Taking back and recycling waste electrical and electronic equipment (WEEE)

The Operator Panel fulfills the requirements stipulated in Directive 2012/19/EU with regard to the return and recycling of waste electrical and electronic equipment.

UKCA Declaration of Conformity

The Operator Panel complies with the requirements for the British market (England, Wales and Scotland).

Underwriters Laboratories (North American market)

The Operator Panel provided with the test symbols displayed fulfills the requirements stipulated for the North American market as a component of drive applications.

Australia and New Zealand (RCM, formerly C-Tick)

The Operator Panel with the symbol shown complies with requirements relating to electromagnetic compatibility for Australia and New Zealand.

EMC requirements for South Korea

The Operator Panel with the KC marking on the nameplate fulfills the EMC requirements relating to electromagnetic compatibility for South Korea.

Eurasian conformity

The Operator Panel fulfills the requirements of the Russia/Belarus/Kazakhstan customs union (EAC).

China Compulsory Certification

The Operator Panel does not fall in the area of validity of the China Compulsory Certification (CCC).

ISO 9001 and ISO 14001 quality systems

Siemens AG employs a quality management system that complies with ISO 9001 and ISO 14001.

Certificates for download

You can find all relevant certificates for download on the Internet:

Certificates (https://www.siemens.com/sinamics-sdi-pro-cert)

3.5 Device disposal

Description

For environmentally-friendly recycling and disposal of your old device, contact a company certified for the disposal of waste electrical and electronic equipment, and dispose of the old device as prescribed in the respective country of use.

Mounting

4

4.1 Dimensions

Dimension drawing

All dimensions are specified in millimeters.

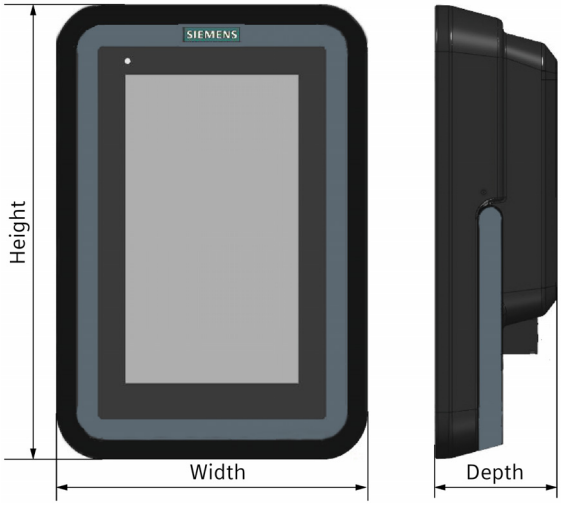


Figure 4-1 Dimensions

Dimensions	Width	Height	Depth
Operator Panel	111 mm	167 mm	24 mm
Operator Panel with the Handheld Kit	121 mm	177 mm	48 mm

4.2 Mounting with the Handheld Kit

Description

You can fit the Operator Panel to the Handheld Kit for easy handling or temporary attachment to the cabinet door.

More information

You can find more information about the Handheld Kit in Chapter "SINAMICS SDI Pro 5.5" Handheld Kit (Page 19)".

4.3 Mounting with the Door Mounting Kit

Description

You can mount the Operator Panel to the cabinet door using the Door Mounting Kit.

More information

You can find more information about mounting the Operator Panel with the Door Mounting Kit in Chapter “SINAMICS SDI Pro 5.5" Door Mounting Kit (Page 21)”.

4.4 Mounting with the Mounting frame

Description

You can mount the Operator Panel to the G220 IP55 converter using the Mounting frame.

More information

You can find more information about mounting the Operator Panel with the Mounting frame in Chapter “SINAMICS SDI Pro 5.5" Mounting frame (Page 25)”.

Connecting

5

5.1 Interface overview

Description

The Operator Panel interfaces are located on the back of the panel.

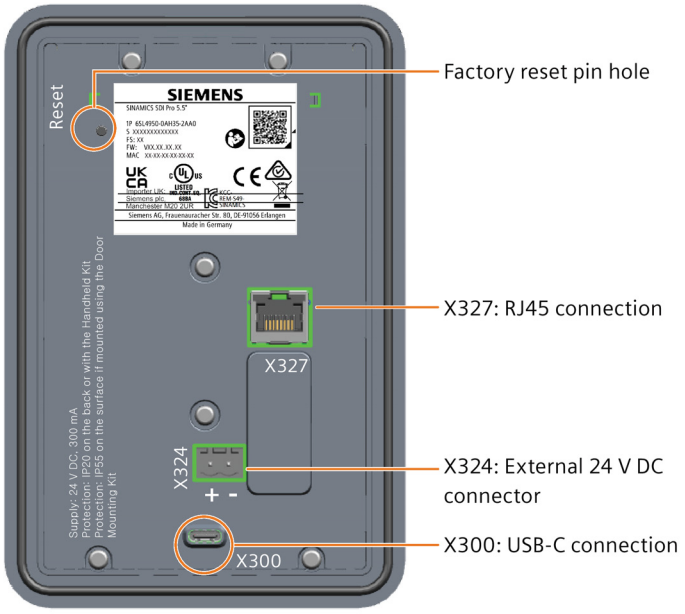


Figure 5-1 Operator Panel interfaces

Table 5- 1 Operator Panel interfaces

Interface	Designation	Description
X327	RJ45	Allows the Operator Panel to be connected to the converter through the following interfaces: • Service interface X127 (including power supply) • PROFINET interface X150 (external power supply is needed) • Switch port (external power supply is needed) When connected to the service interface X127 using an 8-wire Ethernet cable (e.g., the cable supplied along with the Handheld Kit), the Operator Panel is powered by the internal 24 V DC power supply from the converter. When connected to the PROFINET interface X150 or the switch port, the Operator Panel is powered by the external 24 V DC power supply.
X324	24 V DC power supply	Allows the Operator Panel to be powered using an external 24 V DC power supply.

Interface	Designation	Description
X300	USB-C	Allows the Operator Panel to be connected directly to a PC to facilitate the following functions: • Operator Panel firmware update • Backup and restore of the Operator Panel settings • Exchange of files including boot screen images, converter lists, user-defined parameter lists, third-party software license conditions and copyright notes, and converter certificates
Factory reset pin hole	-	Offers the following functions: • Formatting user volume • Restoring factory settings • Rebooting the Operator Panel

5.2 Maximum permissible cable lengths

Technical data

Table 5- 2 Maximum permissible cable length

Connection type	Interface on the Operator Panel	Cable type	Maximum permissible cable length (m)
24 V DC power supply	X324	Shielded/unshielded cable	30
RJ45 connection	X327	Straight-through shielded Ethernet cable	30
USB-C connection	X300	USB type-C cable	3

You can find more information about the RJ45 Ethernet cable in Chapter "Ethernet cable for Door Mounting Kit-mounted Operator Panel (Page 24)".

5.3 Connecting the Operator Panel to a converter

Description

The Operator Panel can be connected to an individual converter at the following interfaces using a standard RJ45 network cable:

- Service interface X127 (no external 24 V DC power supply required)

  When the Operator Panel is connected to X127, the default interface settings of the Operator Panel and the converter match with each other; therefore, the Operator Panel can access the web server of the converter without modification to the default interface settings.

  – Operator Panel default settings

    IP address: 169.254.11.200

    Subnet mask: 255.255.0.0

  – Converter default settings

    IP address: 169.254.11.22

    Subnet mask: 255.255.0.0

- PROFINET interface X150 (external 24 V DC power supply required)

  When the Operator Panel is connected to X150, the default interface settings of the Operator Panel and the converter do not match with each other. For the Operator Panel to access the web server of the converter, configure the interface settings of the Operator Panel and the converter to make sure that their IP addresses are in the same network segment.

  – Operator Panel default settings

    IP address: 169.254.11.200

    Subnet mask: 255.255.0.0

  – Converter default settings

    IP address: 0.0.0.0

    Subnet mask: 0.0.0.0

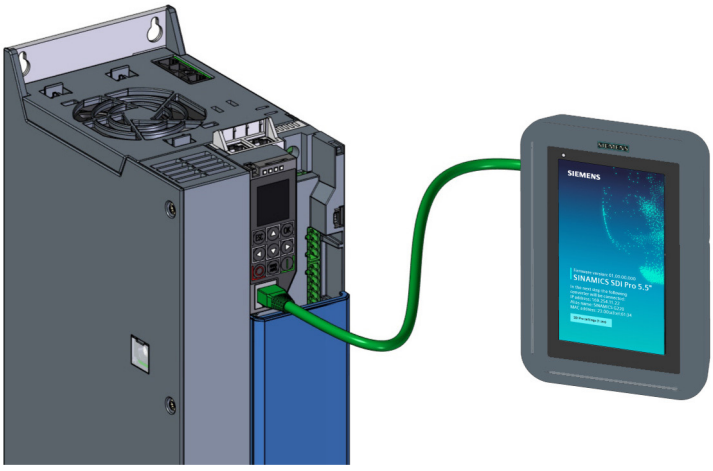


Figure 5-2 Connecting the Operator Panel to the converter interface X127

5.4 Connecting the Operator Panel to a network

Overview

The Operator Panel can communicate with a network of up to 20 converters through a switch.

Requirement

An external 24 V DC power supply is required for connecting the Operator Panel to the network.

Connection example

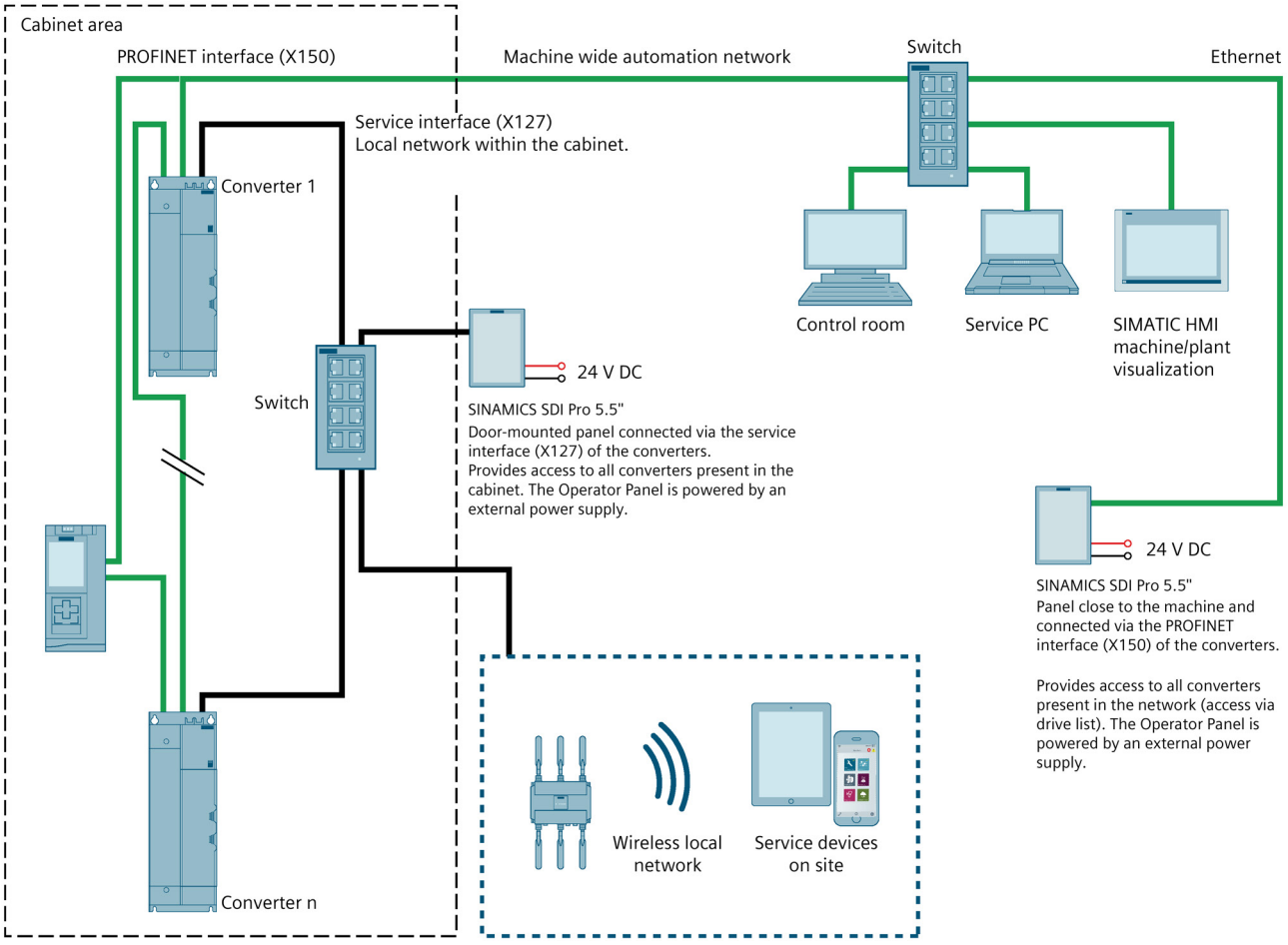


Figure 5-3 The Operator Panel network topology

Initial setup of the Operator Panel

6

Note

Menu and functionality of the Operator Panel may vary

The structure, functionality and features of the SINAMICS SDI Pro 5.5" Operator Panel may vary depending upon the firmware version that is installed in the Operator Panel.

Overview

The initial setup guides you through the configuration of the Operator Panel:

- Language
- Date and time
- New user
- SDI interface
- Converter

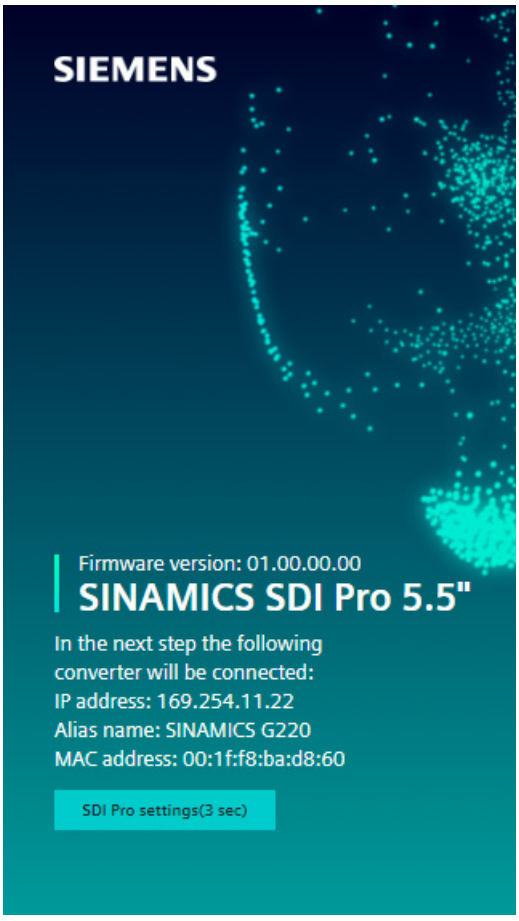
Requirement

- The Operator Panel is set up for the first time or after resetting to factory settings.
- If you want to perform the initial setup without a converter connected, or with a converter connected via the PROFINET interface X150 on the converter or via the switch port, you have connected the Operator Panel to an external 24 V DC power supply via the X324 interface.
- If you want to perform the initial setup with a converter connected via the service interface X127 on the converter using an 8-wire Ethernet cable (e.g., the cable supplied along with the Handheld Kit), you have connected the Operator Panel to the converter via X127.

Procedure

Proceed as follows to perform the initial setup of the Operator Panel:

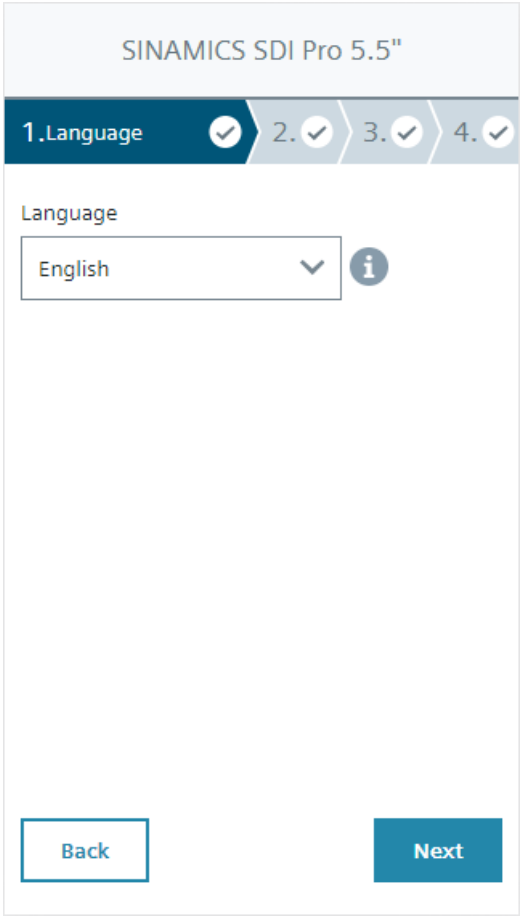
1. Switch on the Operator Panel and wait until the following boot screen appears:



2. Either wait until the three-second countdown prompt on the screen has expired or tap the button on the screen during the countdown to go to the initial setup wizard.

3. In the first step of the wizard, select a preferred user interface language for the Operator Panel from a list of the supported languages (see below) and proceed with "Next".

   Supported user interface languages: English (default), German, Chinese, Italian, French, and Spanish.



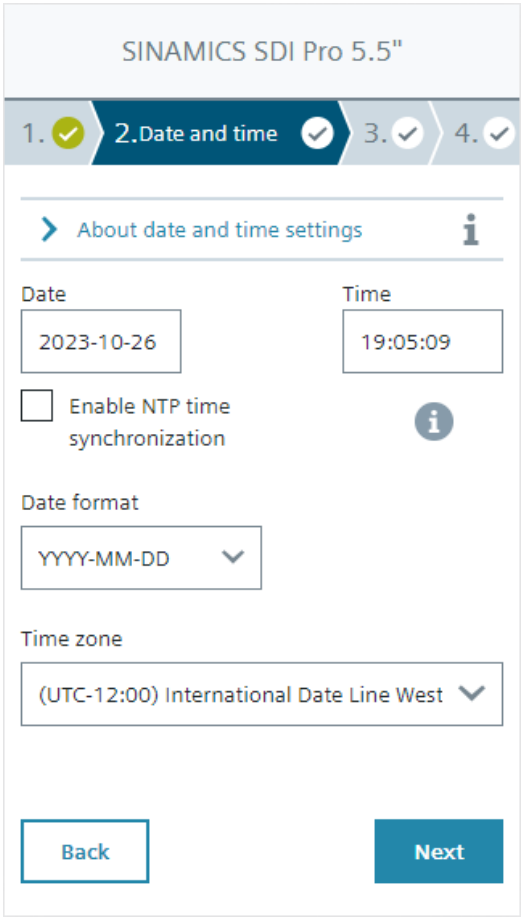
Note

User interface language

The language selection changes only the user interface language of the Operator Panel rather than that of the web server integrated in the converter.

4. In the second step of the wizard, set the date and time of the Operator Panel integrated real-time clock and then proceed with "Next".

   After the date and time has been set once, the Operator Panel calculates the date and time based on its real-time clock. The option for enabling NTP time synchronization synchronizes the date and time with a central NTP server via the Ethernet.



Note

- The real-time clock in the Operator Panel continuously determines the date and time to save the precise time that a fault or alarm occurs. The real-time clock can buffer power supply interruptions for up to seven days.
- The IP addresses of the Operator Panel and the NTP server must be in the same network segment.

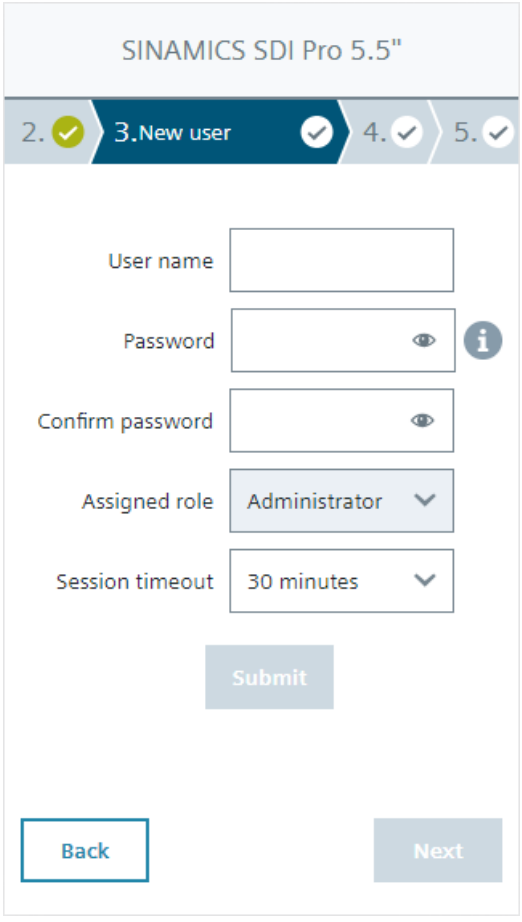
Note

You can only set the date and time of the converter on the user interface of the web server integrated in the converter.

5. In this step of the wizard, you can enter the details for the default user role "Administrator".

   The password must be at least eight characters and consist of at least one digit, one uppercase letter, and one lowercase letter.

   Available session timeout settings are 30 minutes, 60 minutes, and never. The Operator Panel automatically logs you out after the specified timeout period of inactivity on the user interface of the Operator Panel.



Note

In the initial setup, you cannot change the new-user settings submitted. If you want to create more user accounts, modify or delete user accounts, or change the password policy, see information in Chapter "User administration (Page 65)".

6. The fourth step of the wizard allows you to configure the following network parameters for the Operator Panel:

   – Dynamic Host Configuration Protocol (DHCP)

     Disable (default): To avoid the configuration errors caused by manual IP address configuration and reduce network administration, you can enable the DHCP function with the options of DHCP server or DHCP client.

DHCP server: The Operator Panel acts as a server to assign the IP address to other devices. You can define the range of assignable IP addresses when you select this option.

DHCP client: The Operator Panel acts as a client to request the IP address from the server. The IP address, subnet mask, and gateway cannot be configured when you select this option.

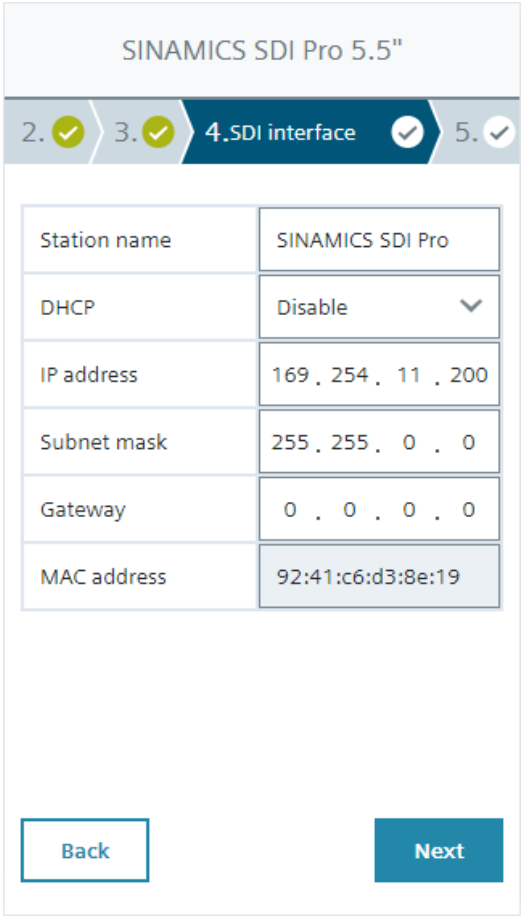
- IP address: 169.254.11.200 (default)
- Subnet mask: 255.255.0.0 (default)

  Make sure the IP addresses of the Operator Panel and the converter are in the same network segment.

  You can find more information about the default IP address and subnet mask in Chapter "Connecting the Operator Panel to a converter (Page 35)".
- Gateway: 0.0.0.0 (default)

  When the Operator Panel needs to communicate with other network through a router, set the gateway depending on the router.

After the configuration is complete, proceed with "Next".



Note

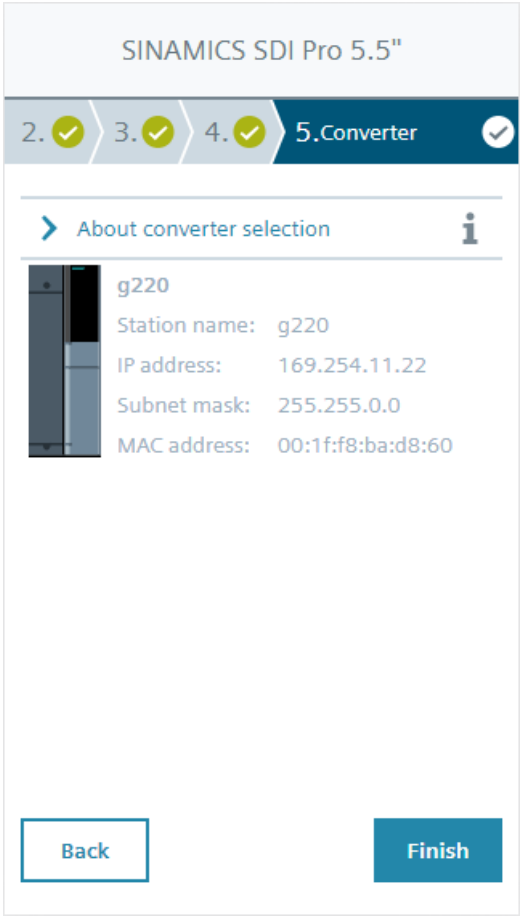
The MAC address has been assigned to the Operator Panel at the factory and cannot be changed.

7. In the final step of the wizard, select the target converter for a point-to-point connection with the Operator Panel. The view in this step varies depending upon whether the initial setup is performed with or without a converter connected.

   The figure below shows the view with a converter connected and the Operator Panel automatically recognizes the network parameters of the converter. If there are multiple converters available in a network, the Operator Panel recognizes the network parameters of all available converters and you can swipe through the converter list.

   If the initial setup of the Operator Panel is performed without a converter connected, the view shows only the default converter network parameters.

   After the converter selection is complete, tap "Finish" to complete the initial setup.



Note

You cannot configure the converter list here. To configure the list, go to Chapter "Converter selection (Page 60)".

8. Upon completion of the initial setup, a dialog box appears informing you that the initial setup has been completed. You can then proceed with one of the three given options and confirm with "OK".

   – Option 1: establishes a connection to the selected converter.

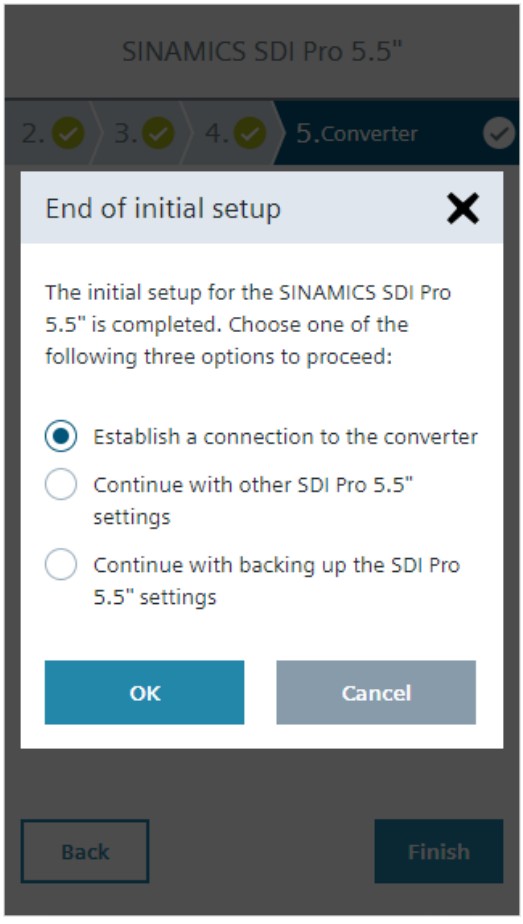
   Note

   - Before selecting this option, check that you have established physical connection between the Operator Panel and the converter.
   - After selecting this option, the Operator Panel proceeds to certificate checking (Page 67).
   - If you do not select any converter, the Operator Panel connects to the first converter in the list.

   – Option 2: takes you to the Operator Panel's home page.

   – Option 3: takes you to the Operator Panel's backup and restore function view.

   If you select "Cancel" or the Close icon, the Operator Panel returns you to the previous step of the initial setup procedure.



Note

Failure to access the converter-integrated web server

When the Operator Panel fails to access the web server integrated in the connected converter, the Operator Panel shows an access error page with the following options available:

- Reconnect

  Check that the network cable is properly connected and then select this option to reconnect to the converter.
- SDI Pro settings

  This option opens the logon user interface of the Operator Panel. You can then proceed to the converter selection function view to check whether the IP address of the connected converter is correct. If incorrect, update the IP address and connect to the converter again.
- Converter selection

  Note that this option is available only when the converter list is activated in the converter selection function view (Page 60). You can select another converter in the list for connection with the Operator Panel.

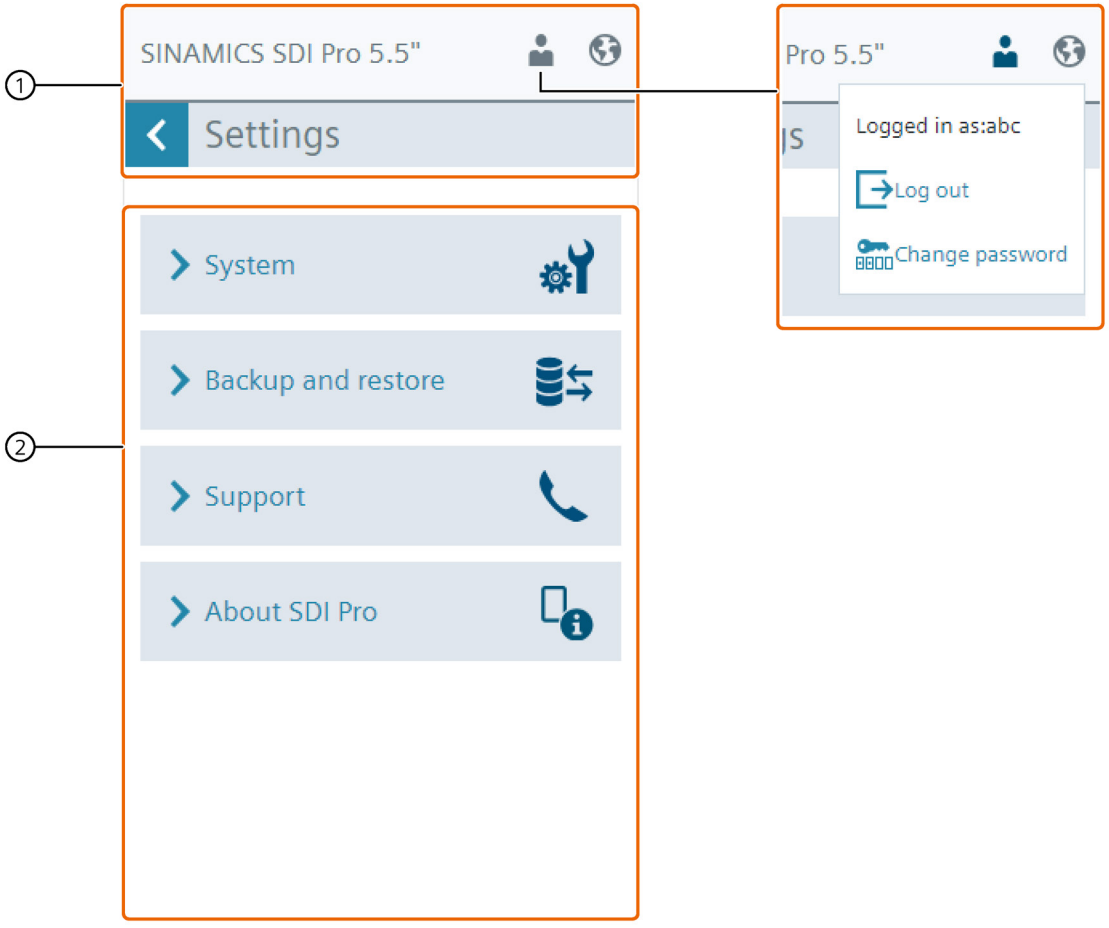
Functions and menus of the Operator Panel

7

7.1 Home page

Description

The figure below shows the home page of the SINAMICS SDI Pro 5.5" Operator Panel:



① Header area

The header area allows you to perform the following tasks:

- Return to the next higher-level menu or view
- View the current logon user
  - Log off from the Operator Panel
  - Change the logon password
- Select the user interface language of the Operator Panel

② Operator Panel menus

Tapping on › opens the target menu.

Figure 7-1 The Operator Panel home page

Note

Accessing the home page of the Operator Panel

You have the following two alternatives to accessing the home page of the Operator Panel:

- Accessing from the boot screen

  Tapping on the button on the boot screen within the three-second countdown enters the logon user interface of the Operator Panel.
- Accessing through the floating menu (Page 82) on the user interface of the web server integrated in the converter

Menu structure

The following figure shows the menu structure of the Operator Panel:

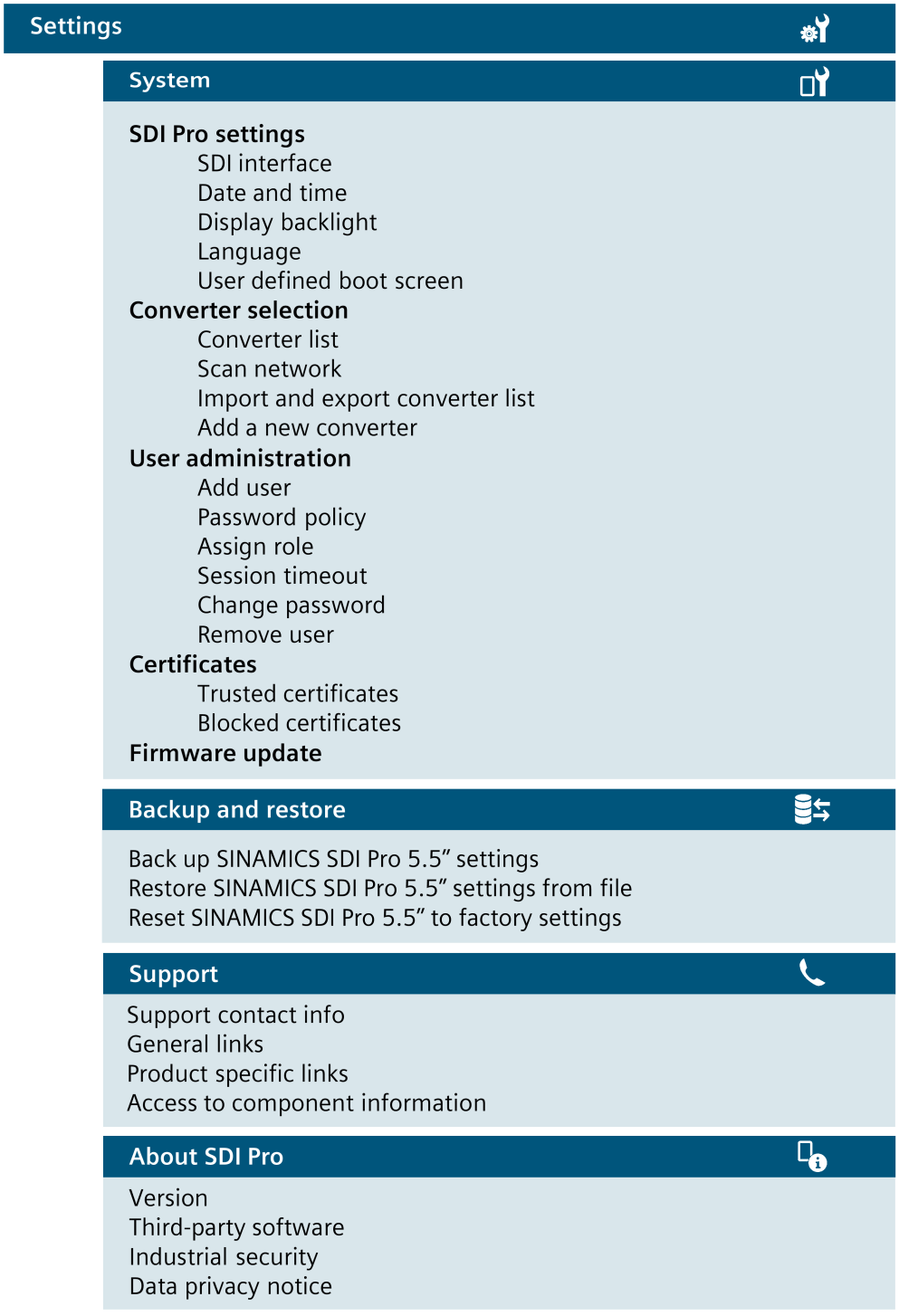


Figure 7-2 The Operator Panel menus

7.2 Logging on to the Operator Panel

Overview

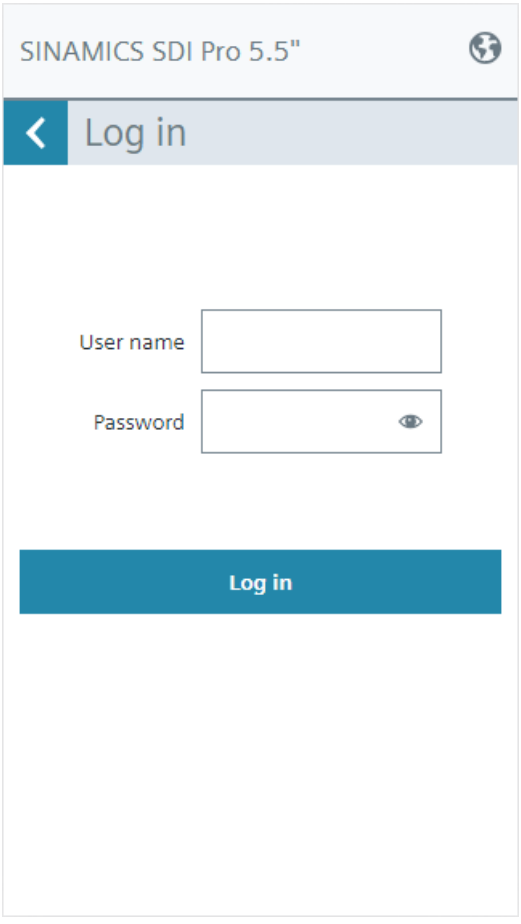
Every time you log on to the user interface of the Operator Panel, you must enter the user name and the password.

Requirement

You have a user account for the Operator Panel.

Procedure

Enter the user name and password. To view the password, select the icon. Tap the button on the menu to log on to the home page of the Operator Panel.



Result

You have logged on to the user interface of the Operator Panel.

7.3 Switching user accounts

Overview

When the Operator Panel has more than one user account, you can switch the users.

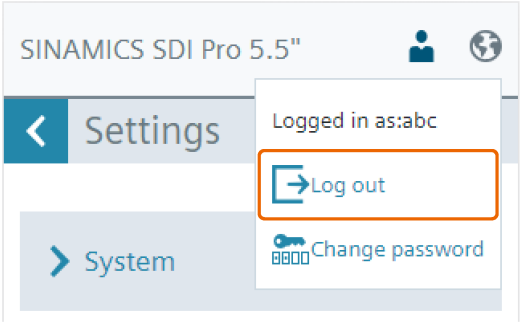
Requirement

- The Operator Panel has multiple user accounts.
- You have logged on to your user account for the Operator Panel.

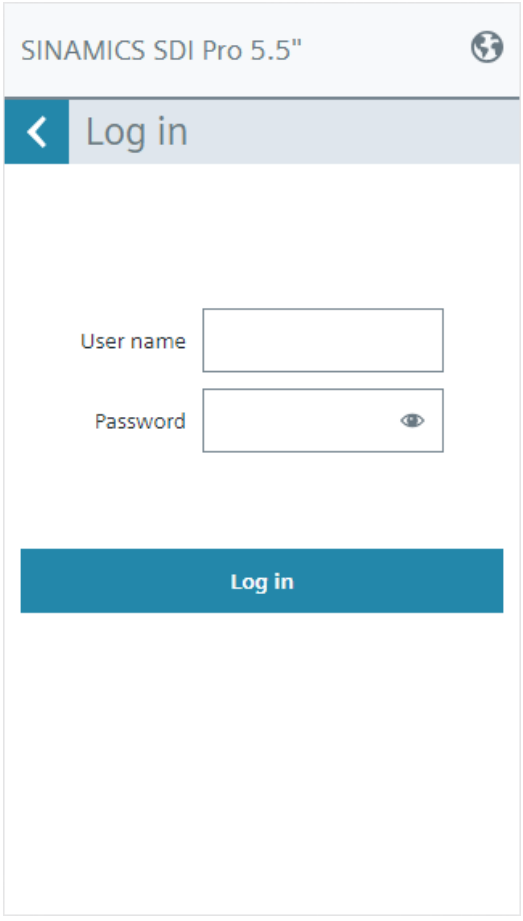
Procedure

Proceed as follows to switch the user accounts:

1. Tap the icon, and select the logoff command. The Operator Panel then returns to the logon screen.



2. Enter the user name and password of a different user account, and tap the button to log on again.



Result

You have logged on as a different user.

7.4 Changing passwords

Overview

Selecting the password changing command allows you to change the password of your own user account.

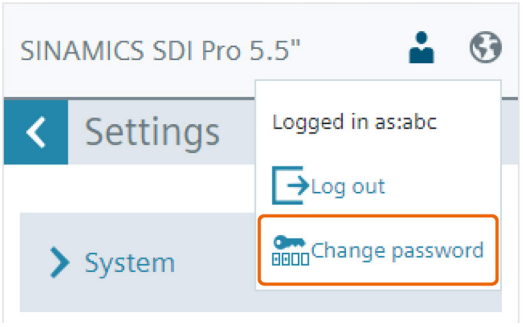
Requirement

You have logged on to your user account.

Procedure

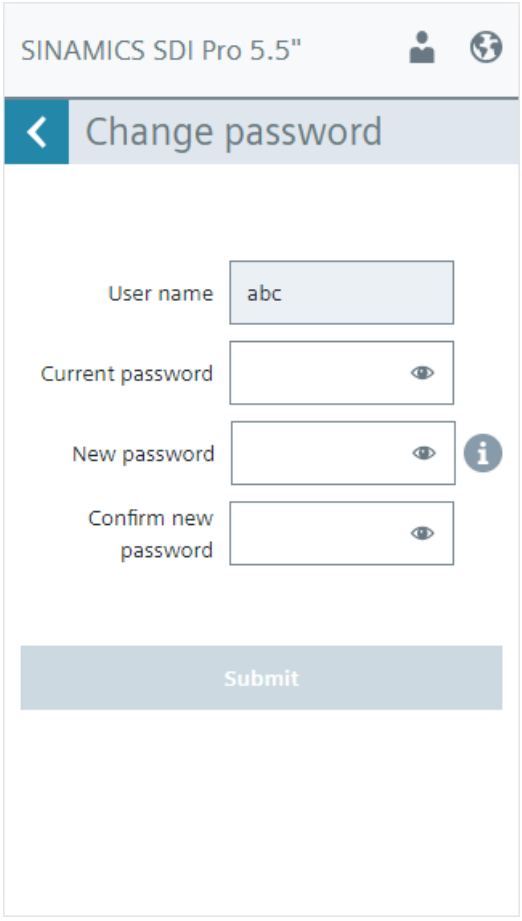
Proceed as follows to change the password of your user account:

1. Tap the icon, and select "Change password".



2. Enter your current password and your new password.

   Select the info icon beside the password input field and view the password policy.



3. Submit your changes.

A message appears at the bottom of the screen to inform you that the password is successfully changed.

Result

You have changed the password of your user account for the Operator Panel.

More information

If you are the user role "Administrator", you can change the passwords of all user roles in the user administration function view (Page 65).

7.5 System

Description

This menu offers settings for configuring the following functions:

- SDI Pro settings
- Converter selection
- User administration (visible only to the user role "Administrator")
- Certificates
- Firmware update

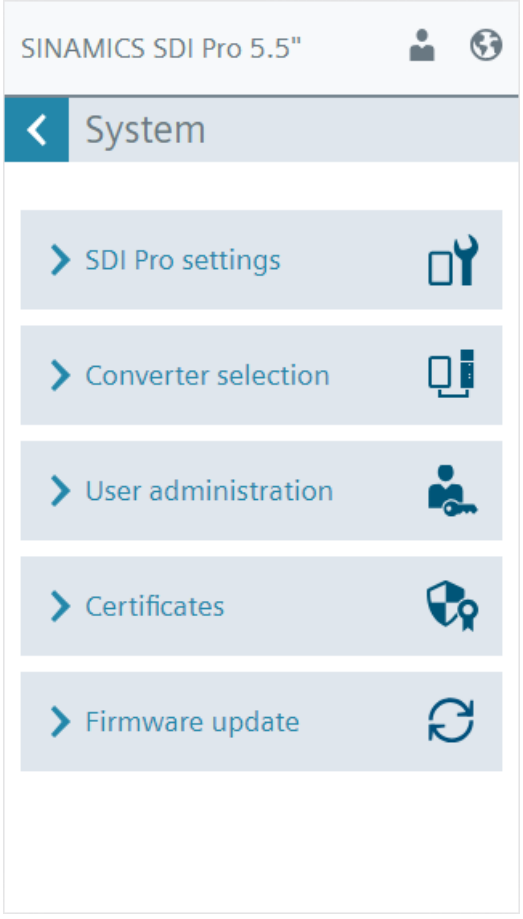


Figure 7-3 System menu

7.5.1 SDI Pro settings

7.5.1.1 SDI interface

Overview

This tabbed page provides the settings for assigning the correct IP address to the Operator Panel.

Description of function

The figure below shows the default IP address and subnet mask of the Operator Panel.

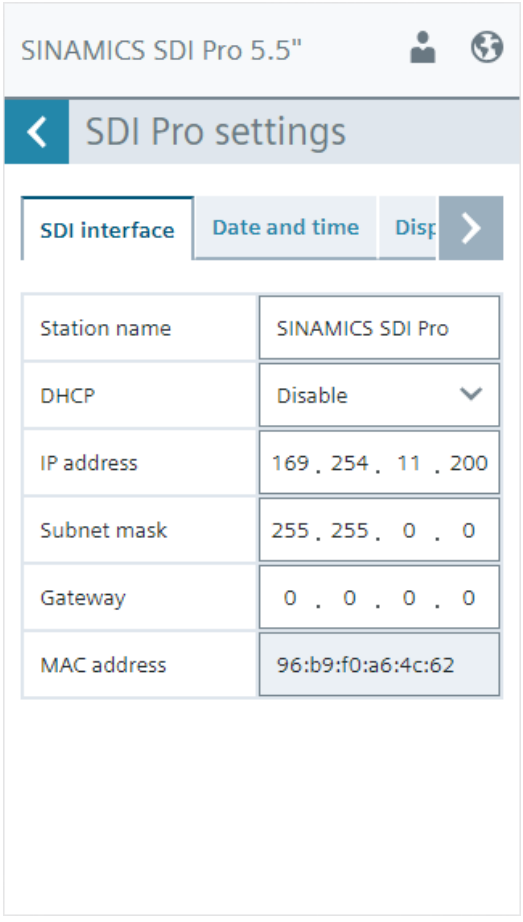


Figure 7-4 SDI Pro settings - SDI interface

More information

You can find more information about the settings under this tabbed page in Chapter "Initial setup of the Operator Panel (Page 37)".

7.5.1.2 Date and time

Overview

This tabbed page provides options for setting the real-time clock of the Operator Panel.

Description of function

You can manually set the date and time, or use an NTP server available on the network to set automatically.

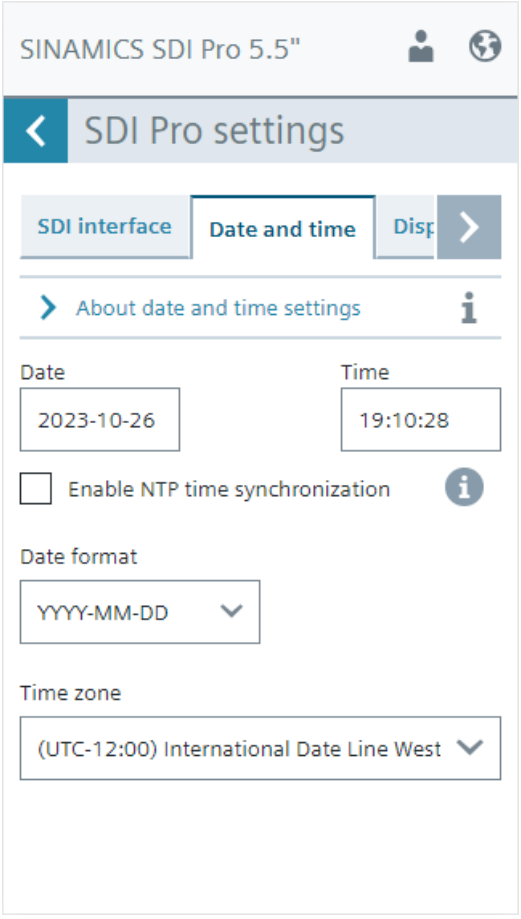


Figure 7-5 SDI Pro settings - Date and time

More information

You can find more information about the settings under this tabbed page in Chapter "Initial setup of the Operator Panel (Page 37)".

7.5.1.3 Display backlight

Overview

This tabbed page provides options for setting the brightness and lighting duration of the Operator Panel's backlight.

Description of function

The figure below shows the default brightness and backlight timeout settings for the Operator Panel.

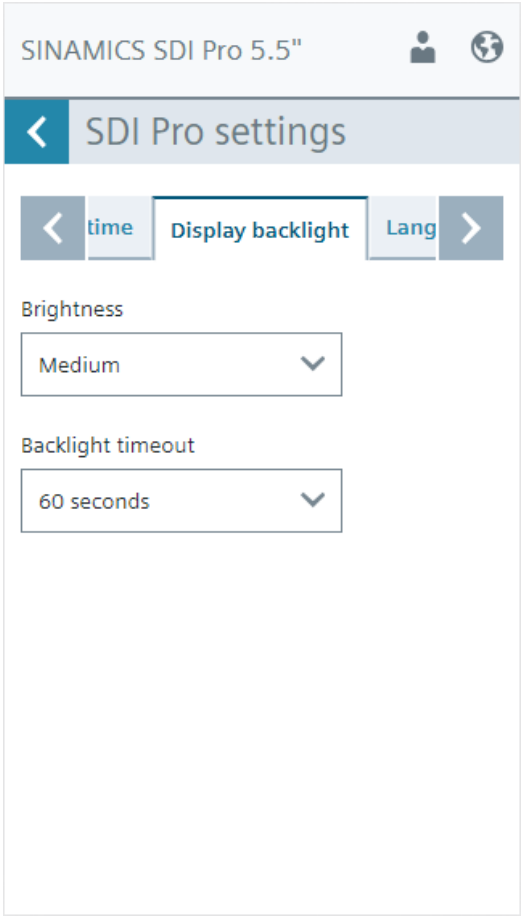


Figure 7-6 SDI Pro settings - Display backlight

The backlight timeout function does not become active until you enter the user interface of the converter web server via the Operator Panel. If the converter does not have any active fault or alarm present within the specified timeout period of inactivity on the Operator Panel, the backlight brightness of the Operator Panel then automatically reduces to the minimum.

7.5.1.4 Language

Overview

This tabbed page provides an option for selecting a preferred language of the user interface.

Description of function

This selection changes the displayed language of the user interface for the Operator Panel only.

The language settings for the web server of the converter must be changed within the user interface of the web server.

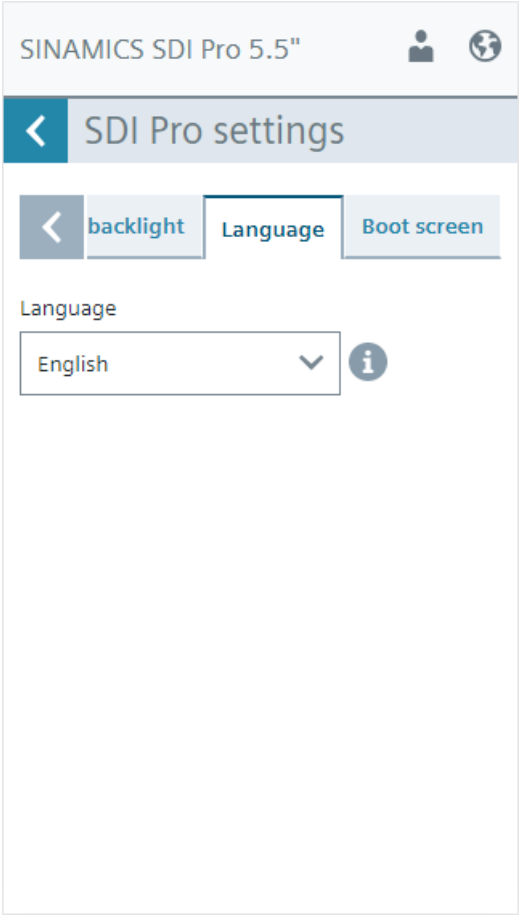


Figure 7-7 SDI Pro settings - Language

More information

You can find more information about the settings under this tabbed page in Chapter "Initial setup of the Operator Panel (Page 37)".

7.5.1.5 Boot screen

Overview

This tabbed page provides an option for changing the background image of the boot screen.

Description of function

The supported image format for the boot screen is PNG and the best image resolution is 720 x 1280 pixels.

Before changing the boot screen image, you must first disconnect the Operator Panel from the converter and then connect the Operator Panel to the PC. The root directory of the Operator Panel's user memory will then appear on the PC, which is the only location required for storing your customized boot screen images.

Tap the file selection button on the figure below; and the Operator Panel directs you to the target root directory where you can select the customized image file you have created.

After the new boot screen image is loaded into the Operator Panel, a dustbin icon appears on the current user interface. Selecting this icon restores the background image of the boot screen to the factory default one.

To make a full-screen preview of the image, tap the Maximize icon next to the image.

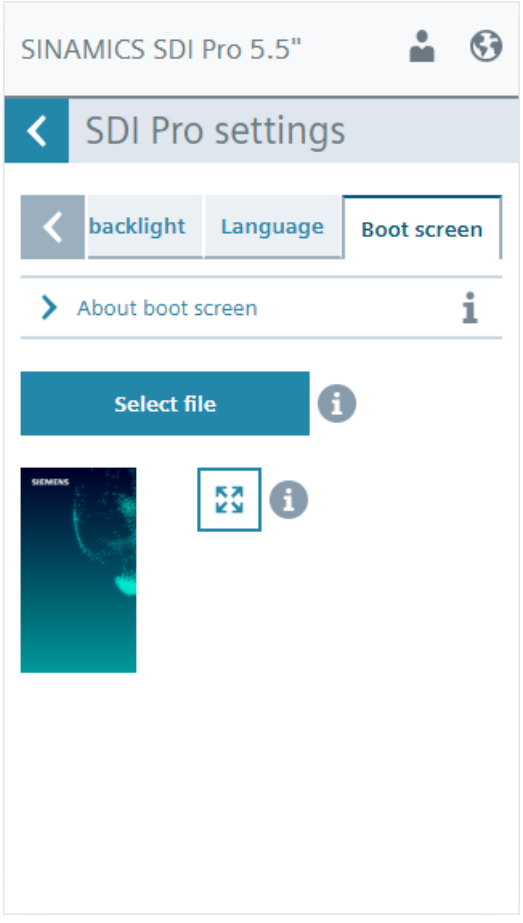


Figure 7-8 SDI Pro settings - Boot screen

7.5.2 Converter selection

Overview

This function view offers settings for managing and configuring the converters connected to the Operator Panel.

Description of function

You can configure the converter in either single-converter mode or multi-converter mode.

Note

- The IP addresses of the converter service interface X127 and the PROFINET interface X150 must not be in the same subnet.
- The converter IP address and the station name must be unique in the network.
- In multi-converter selection mode, the maximum number of converters that can appear in the converter list is 20.
- If the station name or the IP address of the listed converter deviates from that of the target converter, you can change the station name or the IP address according to the target converter. These changes are only saved and displayed in the Operator Panel, and do not affect the original station name and IP address of the target converter.
- Only SINAMICS converters are listed.
- Before you select the connection button to establish the connection between the Operator Panel and the converter, check that you have established physical connection between the Operator Panel and the converter.
- When you connect the Operator Panel to a converter for the first time, the Operator Panel checks the converter for a trusted security certificate (Page 67).

Supported function with the converter list option disabled by default (single-converter mode)

The following figure shows an example of the function view with the converter list option being disabled by default:

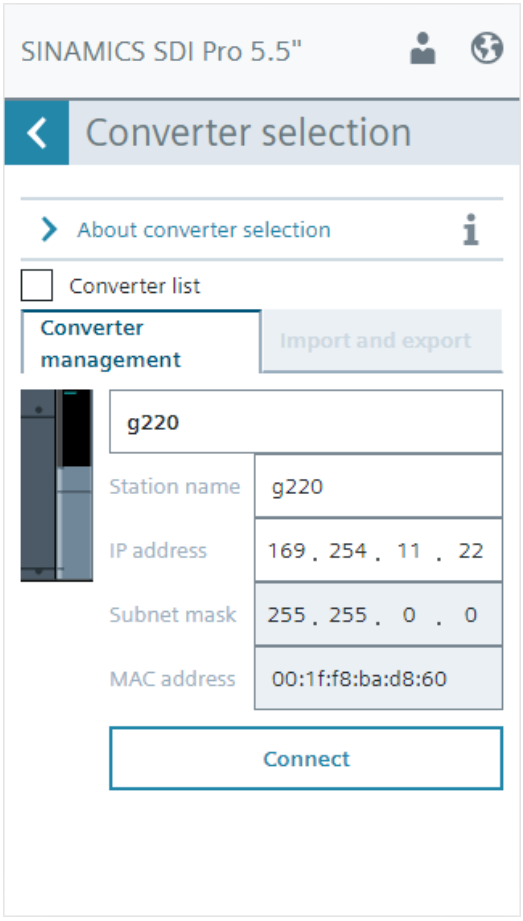


Figure 7-9 Converter selection (single-converter mode)

- Connecting the Operator Panel to a converter

  The Operator Panel automatically recognizes the converter in this mode.

  Tapping the button on the screen connects the Operator Panel to the converter.

  If the connection fails, select the options available on the access error page (Page 37).

Note that the first input field is the converter alias name input field. The alias name can be different from the station name of the converter.

Supported functions with the converter list option enabled (multi-converter mode)

The following figure shows an example of the default function view with the converter list option being enabled:

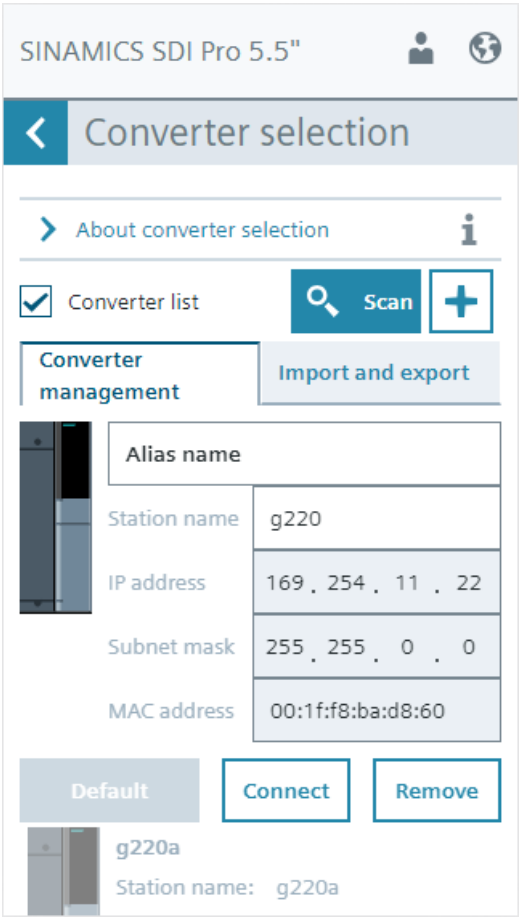


Figure 7-10 Converter selection (multi-converter mode)

- Manually adding converters

  You can manually add a new converter by tapping the "**+**" symbol, which is beside the button. The converter that you want to add must be in the current network.

  You can then enter the necessary details as displayed on the screen.

- Automatically creating a converter list

  Tapping the scan button allows you to create a converter list automatically.

  Proceed as follows to create a converter list automatically:

  1. Tap on the screen.

  When the scan is completed, a message appears in the center of the screen, displaying the number of new converters that have been found and the number of inaccessible converters that have been deleted.

  2. Tap "OK" or tap **X** to close the dialog box.

  3. Select "Yes" or "No" when the message appears at the top of the screen, asking you to accept the scan results or restore the previous list.

  When this message is pending, the newly generated list can be checked and adjusted. If the list is correct, the list can be accepted with "Yes".

  When you tap "Yes", the new converters are listed under the converter management tab.

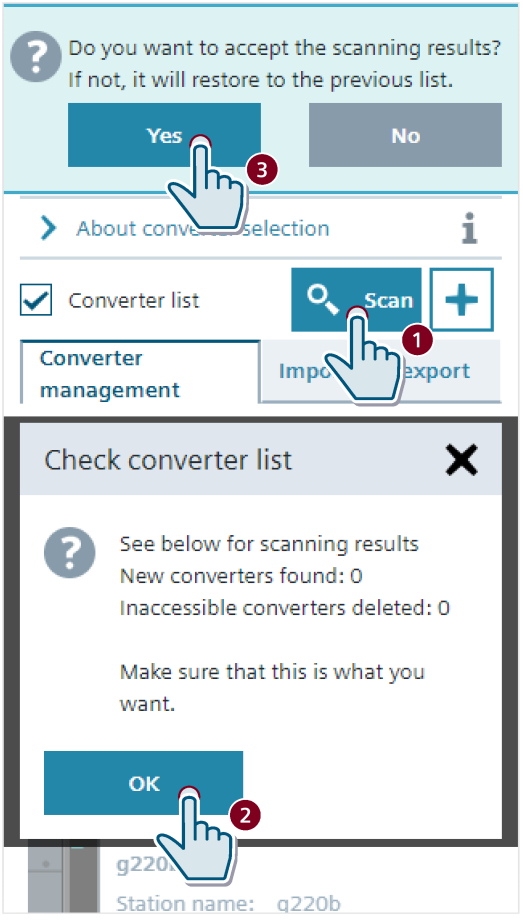


Figure 7-11 Scanning the converters

- Managing the converter list

  You can perform the following generic tasks:
  - Change the converter alias name and station name.
  - Remove a converter from the list or connect it to the Operator Panel with the corresponding buttons on the screen.

  When the converter management list contains multiple converters, you can additionally perform the following tasks:
  - Change the order of the converters in the list

    You can press and hold the desired converter in the list to scroll it up and down until the required position is reached. Lift your finger and the selected converter appears in the new position in the list.
  - Set one converter as the default converter

    You can select a desired converter in the list and tap "Default" to set it to the default one. The selected converter will then appears at the top of the list. At the next Operator Panel reboot, the Operator Panel automatically connects to this default converter. If you have never set the default converter, the Operator Panel takes the first converter in the list as the default one.
- Importing or exporting the converter list

  Select the import and export tab and the following dialog box appears:

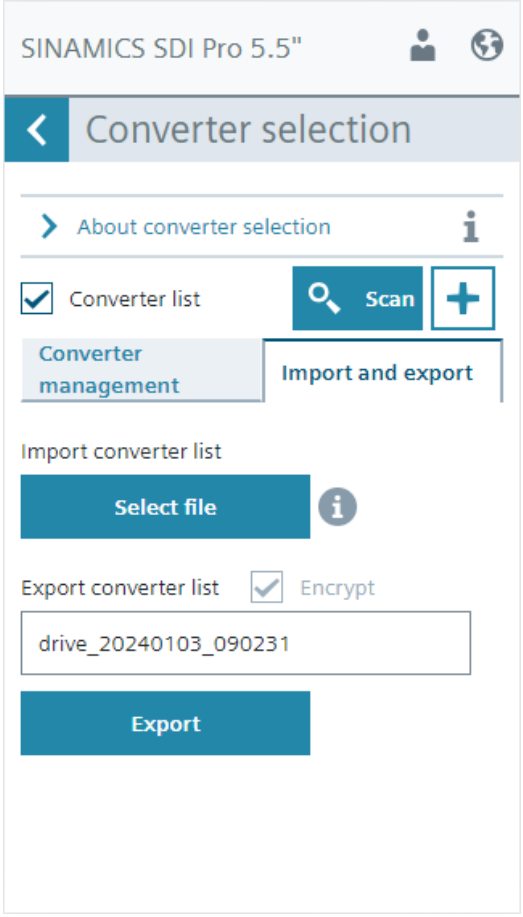


Figure 7-12 Importing and exporting converter list

You can use the import and export functions to perform the following tasks:

- Transfer converter lists between the Operator Panels via a PC

  Transfer of a converter list created and stored on one Operator Panel to another Operator Panel takes place via an intermediate device, that is, a PC. Before connecting the Operator Panel to the PC, make sure that you have disconnected the Operator Panel from the converter; otherwise, damage to the USB-C port (Page 11) on the Operator Panel can occur.

- Directly import a new converter list already available on the Operator Panel to replace the existing one

With the export button, the Operator Panel exports the currently active converter list in encrypted form by default to the user memory of the Operator Panel and saves it as a *.list file. The default file name follows the format of "<file type>_<time stamp>_<suffix>".

With the file selection button, the Operator Panel shows all converter list files available on the user memory of the Operator Panel. You can import the desired converter list in *.list format to the Operator Panel to replace the existing converter list.

Note

The file for import must be in *.list format.

7.5.3 User administration

Overview

This function view is visible only to the user role "Administrator". You can manage users and configure their roles and rights for accessing the Operator Panel.

Requirement

You have logged on to the Operator Panel as the user role "Administrator".

Description of function

This function view allows you to create, modify or delete user accounts. You can also find information on the guidelines for creating the correct type of passwords.

The Operator Panel allows you to create a maximum of ten user accounts and configure three fixed user roles.

The following are the user roles and access rights available on the Operator Panel:

- Administrator

  Full read and write access to all screens and configurations of the Operator Panel.

- Service

  Full read and write access to all screens and configuration of the Operator Panel with the exception that this user administration function view is invisible to the service user.

- Operator

  Can only change the user interface language of the Operator Panel but has full read access to all screens with the exception of the user administration function view.

Note

The user account setup on the Operator Panel is valid only for the Operator Panel. When the Operator Panel is connected to the converter's web server, a separate user account must be created to allow full access to the web server.

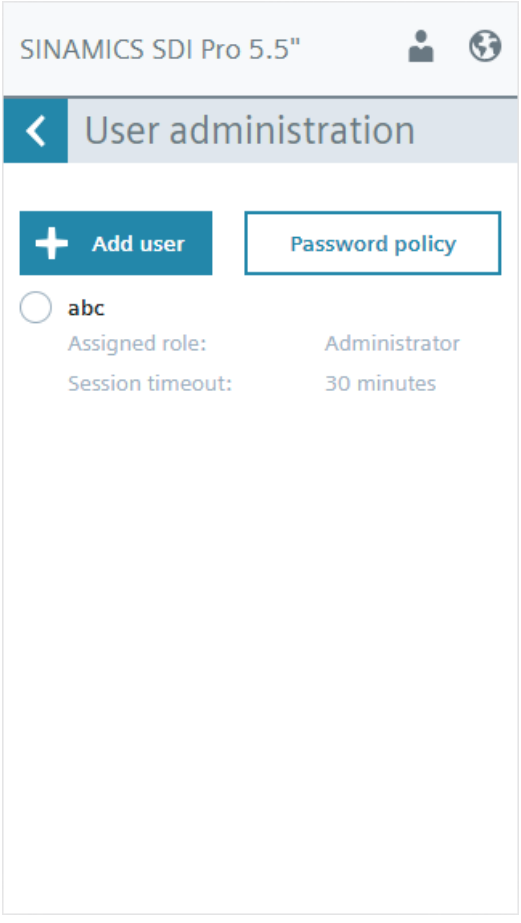


Figure 7-13 User administration

In this function view, you can perform the following tasks:

- Create user accounts

  You can add a new user by tapping the "+" button.

  When you assign the role "Administrator" to the new user, the new user has the same access right as you have.

- Modify user accounts

  Tap the "○" symbol before the user name and you can modify the user names, user roles and session timeouts of the existing user accounts, and change the passwords without the original passwords required.

  When the Operator Panel has more than one administrator, and you change your user role from "Administrator" to "Service" or "Operator", you lose the access rights to this user administration function view immediately.

- Delete user accounts

  You can remove a user account, but cannot delete your own account.

- Set password policy

  Select the password policy button and you can change the complexity of the password to a level that is suitable for your own required level of security.

  The password requirements include the following items and the settings given below are default settings:

  - Maximum password length: 120
  - Minimum password length (8...32): 8
  - Minimum number of digits (0...9): 1
  - Minimum number of special characters: 0
  - At least one uppercase letter and one lowercase letter: Yes

The modified password policy takes effect only under the following circumstances:

- The administrator creates a new user account.
- The administrator changes the passwords of other user accounts.
- The existing users change their passwords.

7.5.4 Certificates

Overview

The certificates function view shows the issued certificates.

Description of function

Trusted certificates are used to create secure HTTPS connection between the Operator Panel and the connected converters. To establish encrypted communication with the converter, a certificate is essential.

When you connect the Operator Panel to a converter for the first time, the Operator Panel checks the converter for a trusted security certificate. If the Operator Panel fails to find a valid security certificate or does not trust the certificate, the Operator Panel shows the following dialog box with three options available:

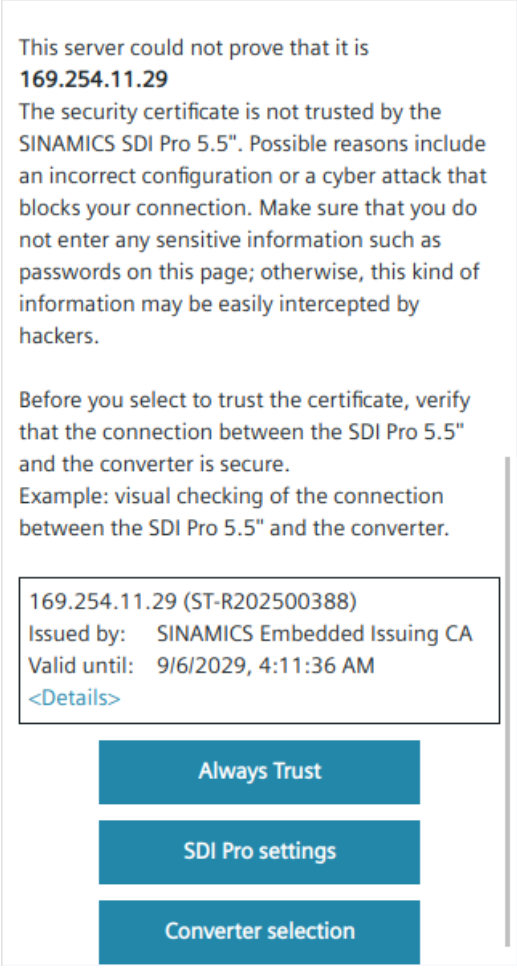


Figure 7-14 Trusting a certificate

Available options

- Always Trust

  This allows the Operator Panel to accept the current certificate as authentic.

  Before you select to trust the certificate, check that the connection between the Operator Panel and the converter is secure.

  After you select to trust the certificate, a dialog box appears, asking you whether to reboot the Operator Panel. If you are configuring only a single converter, confirm with "Yes" and

the Operator Panel reboots automatically; however, if you are configuring multiple converters on the same network, it is more efficient to postpone the reboot until all converters on the network have been configured.

After the Operator Panel reboot, wait a few seconds until the user interface of the web server integrated in the converter appears, which indicates that you have established a secure connection between the Operator Panel and the converter. The Operator Panel has also registered this certificate in the list of trusted certificates.

- SDI Pro settings

  This allows you to return to the logon user interface of the Operator Panel.

- Converter selection

  This allows you to select another converter that is available in the converter selection list.

Once a certificate is registered on the Operator Panel, you can use the certificates function view to administer the certificate by selecting the relevant certificate and then selecting either not to trust or to delete the certificate.

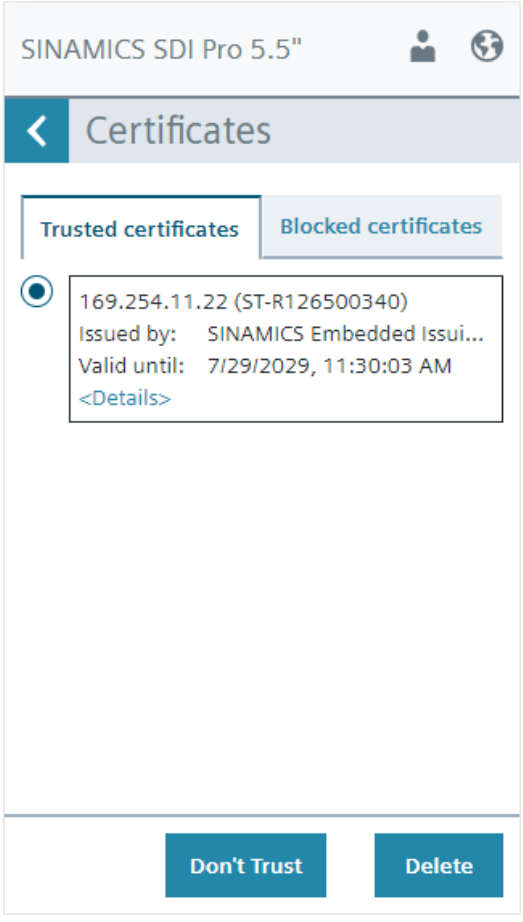


Figure 7-15 Certificates

If you select not to trust the certificate, the Operator Panel moves the selected certificate to the area of blocked certificates and disables connection of the certificate authority to the network.

If you select to delete the certificate, the relevant certificate is completely deleted from the Operator Panel and is no longer available.

7.5.5 Firmware update

Overview

This function view allows you as an administrator or a service user to perform firmware updates for the Operator Panel. If you are an operator user, you can only view the information about the current firmware version of the Operator Panel in this function view.

Requirement

- You have disconnected the Operator Panel from the converter and then connected the Operator Panel to the PC.
- During the firmware update, the power supply must be guaranteed without interruption.
- The size of the firmware update package is approximately 1.6 GB. Ensure that the Operator Panel has enough space to store the downloaded update package.

Description of function

The Operator Panel supports you to download the latest firmware to the connected PC from the link below:

SINAMICS SDI Pro 5.5" firmware download (https://www.siemens.com/sinamics-sdi-pro-dl)

Before you tap the button on the function view to select the desired firmware file, make sure that you have saved the file (ZIP file format) in the root directory of the Operator Panel's user memory mapped on the connected PC.

Note that the firmware update takes effect only after a restart of the Operator Panel.

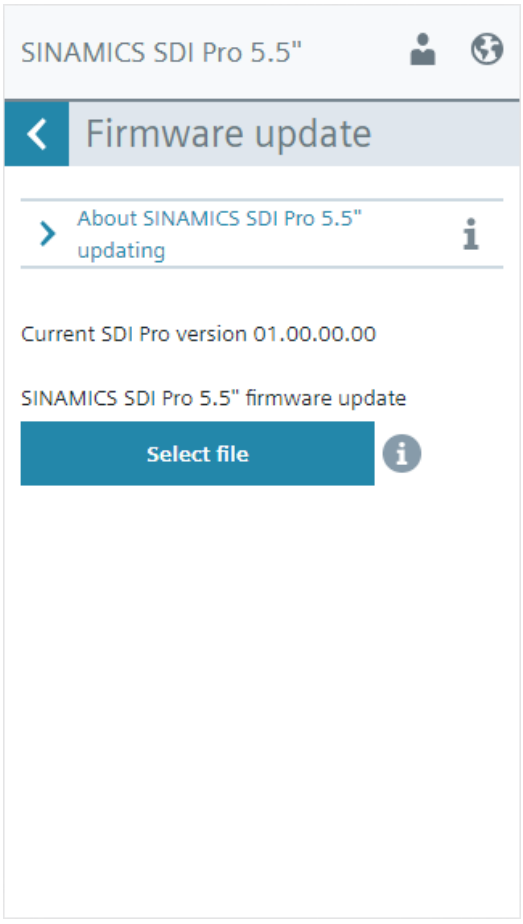


Figure 7-16 Firmware update

7.6 Backup and restore

7.6.1 Backup and restore menu and functionality

Overview

This menu offers functions for backing up, restoring, and automatically resetting the Operator Panel settings.

Description of function

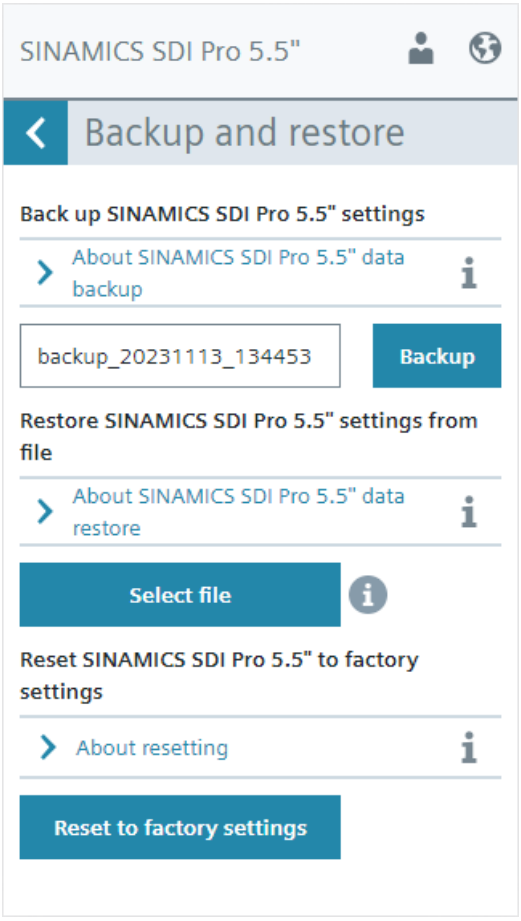


Figure 7-17 Backup and retore

Setting backup

Tap on the backup file name input field and you can change the default file name given or keep it unchanged; you can then tap the backup button to back up the Operator Panel settings in a file.

The default file name follows the format of "<file type>_<time stamp>_<suffix>".

The Operator Panel backs up the following settings into a file which is stored in an encrypted form and cannot be viewed or modified:

- Device settings
- User accounts
- Converter list
- Certificates

After device replacement or during series commissioning, you can write the Operator Panel settings of this file into the Operator Panel with the restore function.

Setting restoration

During device replacement or series commissioning of the Operator Panel, you can load the backed-up Operator Panel settings into the Operator Panel to restore the settings. Select the file selection button and you can select from the dialog box to restore which backed-up settings.

After restoration, the Operator Panel reboots automatically.

Reset to factory settings

With a reset to factory settings, all the Operator Panel settings are reset to the factory values.

After the reset, you can load the backed-up Operator Panel settings into the Operator Panel or commission the Operator Panel again.

Note

- This function only reset the Operator Panel settings to the default factory settings, and it does not reset the settings of the converter.
- If the Operator Panel becomes corrupted or does not work correctly, you can reset the Operator Panel by using the factory reset pin hole on the back of the Operator Panel.

More information

You can find more information about resetting the Operator Panel that becomes corrupted or does not work properly in Chapter "Resetting the Operator Panel manually (Page 73)".

7.6.2 Resetting the Operator Panel manually

Overview

If the Operator Panel becomes corrupted or it does not work correctly, you can reset the Operator Panel manually with the factory reset pin hole on the back of the Operator Panel.

Requirement

You have an implement (for example, a paper-clip) for pressing into the pin hole.

Procedure

Proceed as follows to perform the factory reset:

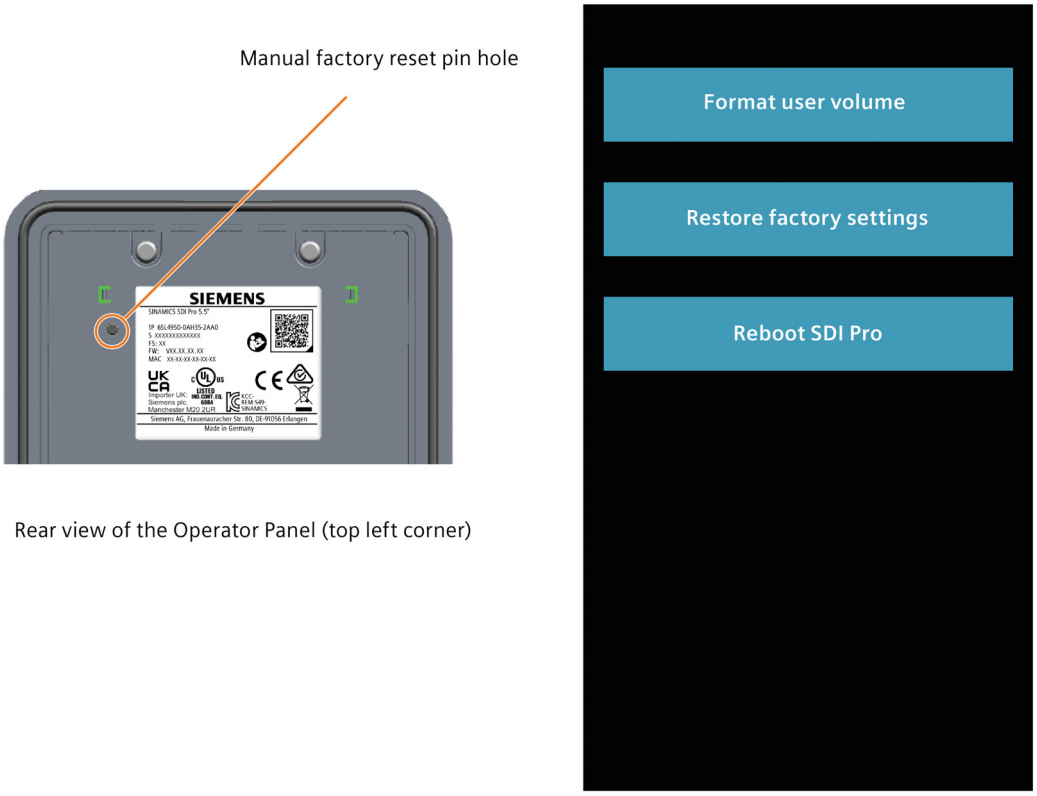
1. Power off the Operator Panel.
2. Locate the factory reset pin hole on the back of the Operator Panel.

3. Press down an implement (for example, a paper-clip) into the hole.
4. Press and hold the reset button with the paper-clip while powering on the Operator Panel until the Operator Panel shows the following with three options available:
   - Format user volume

     This formats the mass storage area on the Operator Panel.
   - Restore factory settings

     This restores the Operator Panel to factory settings.
   - Reboot SDI Pro

     This clears all internal temporary memory areas on the Operator Panel and then restarts the Operator Panel.



Rear view of the Operator Panel (top left corner)

Figure 7-18 Operator Panel manual reset pin hole location and reset screen options

More information

You can find more information about resetting the properly working Operator Panel to factory settings in Chapter "Backup and restore menu and functionality (Page 71)".

7.7 Support

Overview

This menu provides customer support information and additional service and support links. If you are an administrator or a service user, you can edit and store the desired customer support information.

Description of function

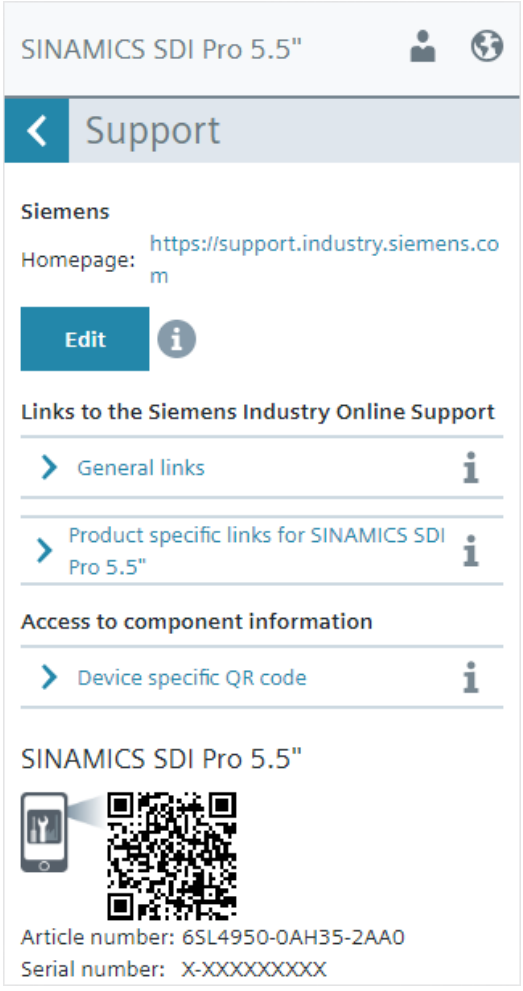


Figure 7-19 Support

The support menu provides the following functions:

- Customer support data
  Tapping the button opens the support settings dialog box, where you can edit and store the necessary support information. If there are any questions on site, you can get in touch with the contact person listed here.
- General links
  The general links provide access to general information. You can scan the QR code next to each link to access the link given:
  - Product page SINAMICS SDI Pro 5.5" (http://www.siemens.com/sinamics-sdi)
  - Siemens Industry Online Support - Home (https://support.industry.siemens.com)
  - Siemens Industry Online Support App (https://support.industry.siemens.com/cs/ww/en/sc/2067)
- Product specific links
  The product-specific links for the Operator Panel provide access to specific information within the customer support area, for example, FAQs, manuals and downloads.
  - Product support (https://www.siemens.com/sinamics-sdi-pro-ps)
  - FAQs (https://www.siemens.com/sinamics-sdi-pro-faq)
  - Software downloads (https://www.siemens.com/sinamics-sdi-pro-dl)
  - Manuals/operating Instructions (https://www.siemens.com/sinamics-sdi-pro-man)
  - Test certificates/certificates (https://www.siemens.com/sinamics-sdi-pro-cert)
  - Product update (https://www.siemens.com/sinamics-sdi-pro-pn)
- Device specific QR code
  The device-specific QR code provides you access to component information, and guides you directly to online support pages of the Operator Panel using the Industry Online Support App or using a standard code scanner.

7.8 About SDI Pro

Overview

This menu offers basic information of the Operator Panel.

Description of function

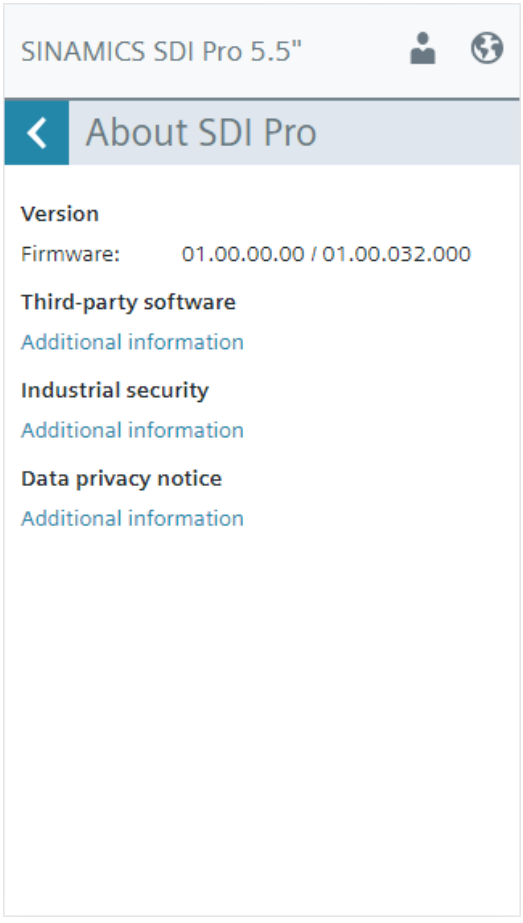


Figure 7-20 About SDI Pro

This menu presents the following information:

- Version

  You can view information about the firmware version currently installed on the Operator Panel.

- Third-party software

  The license conditions and copyright notes are transferred to the user memory of the Operator Panel. You can download the file to your PC using the USB-C interface, and the file can then be browsed on the PC.

- Industrial security

  Siemens provides products and solutions with industrial cybersecurity function that support the secure operation of plants, systems, machines and networks. This link provides additional information on the subject.

- Data privacy notice

  This notice provides an outline of the security principles that guide the secure use and transporting of data.

More information

You can find more information about industrial security in the following links:

- For additional information on possible industrial cybersecurity measures that may be implemented, visit Siemens Industrial Cybersecurity (https://www.siemens.com/industrialsecurity).
- To always stay informed about product updates, subscribe to the Siemens Industrial Security RSS Feed (https://www.siemens.com/cert).

Using the Operator Panel with a converter

8

Overview

When the Operator Panel is connected to a converter, the Operator Panel can be used for commissioning, diagnostics, monitoring and operation as well as for service and maintenance tasks.

The connected converter is controlled using a series of menus, which have extensive information screens available. The menus explain all the steps that are required to implement all the functions of the connected converter.

Note

Menu and functionality of the Operator Panel may vary

When the Operator Panel is connected to a converter, the menus and functionality are controlled by the converter integrated web-based client.

The integrated web-based client menus and functionality can change depending upon the firmware that is installed on the converter and type of converter to which the Operator Panel is connected.

Note

The IP addresses of the service interface X127 and the PROFINET interface X150 must not be in the same subnet.

Description

Integrated web-based client information

Every type of converter that is designed to use the SINAMICS SDI Pro 5.5" Operator Panel contains a specific chapter in its Operating Instructions on how to use the integrated web-based server which has been integrated into the converters.

You can search for the Operating Instructions of your specific converter through the Siemens Industry Online Support Website at the following link:

Siemens Industrial Online Support (https://support.industry.siemens.com/cs/ww/en/)

This chapter takes SINAMICS G220 converter as an example device. For more information about the web server integrated in the converter, see Chapter "Commissioning (web server)" in the SINAMICS G220 Converter Operating Instructions (https://support.industry.siemens.com/cs/ww/en/view/109820984).

Integrated web-based client menu structure

The web-based menu structure of the connected converter differs from the native menu structure of the Operator Panel.

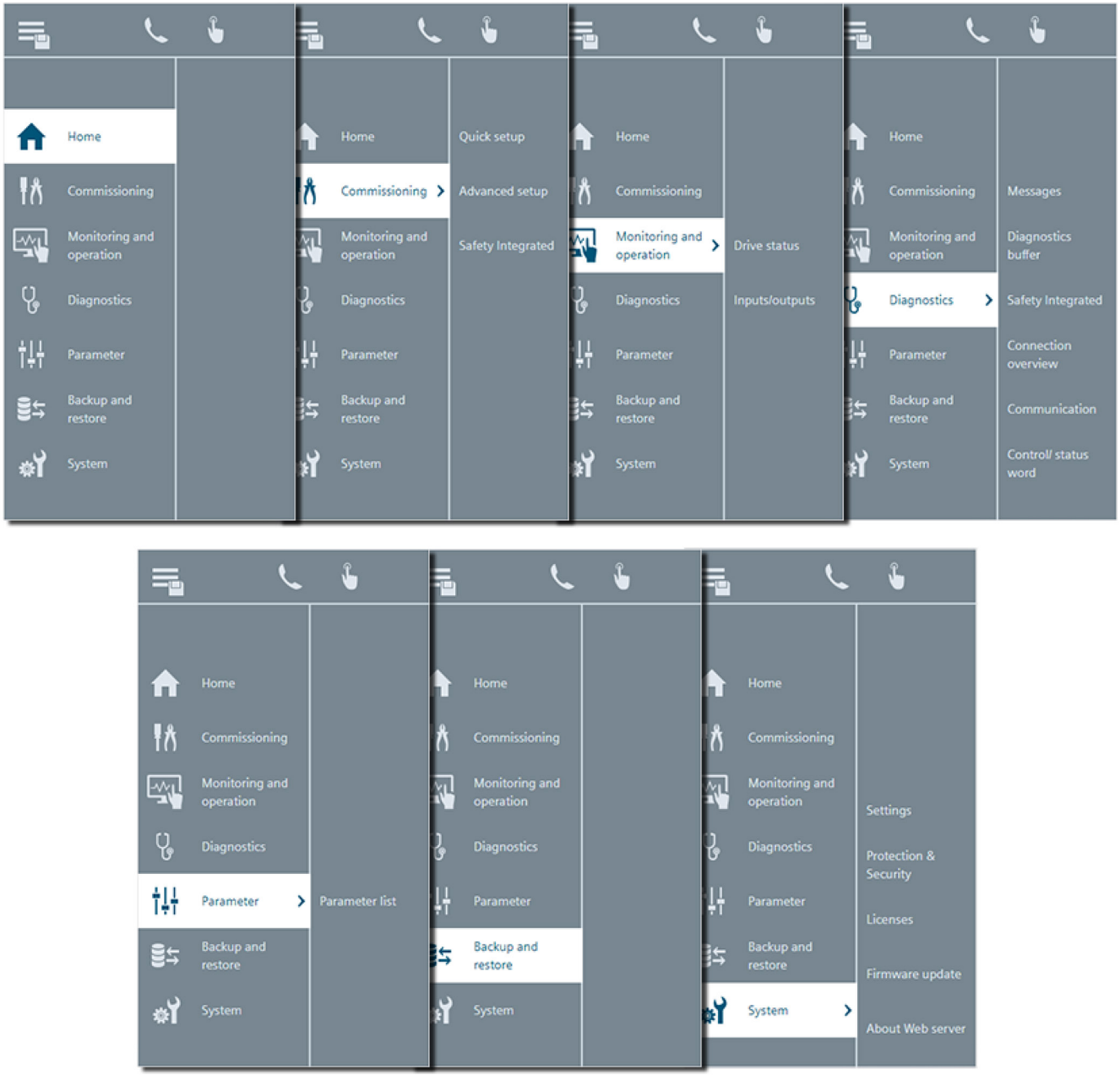
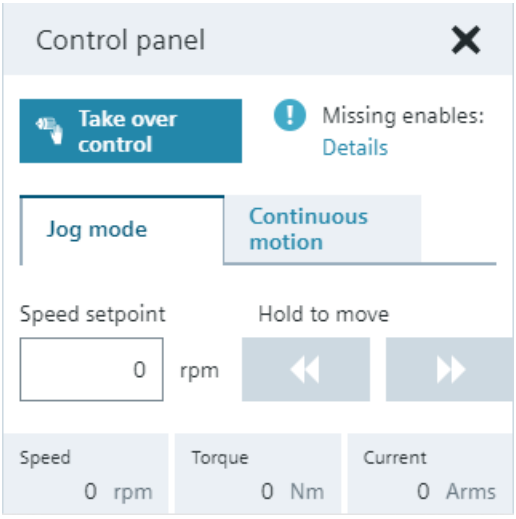
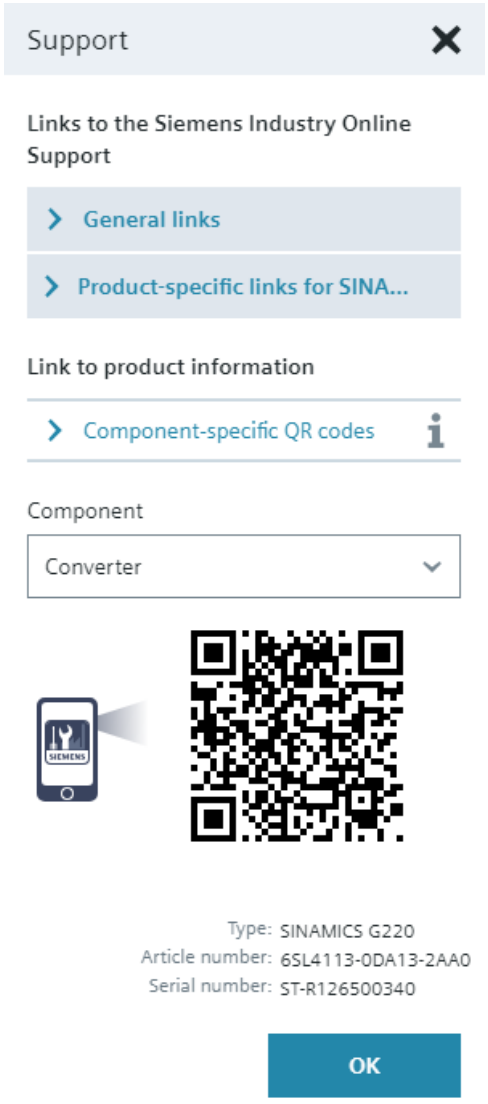


Figure 8-1 Menu structure of the web server

At the top of all menu screens there are two icons. The phone icon indicates that you can access the support information, and the hand icon indicates that you can access the control panel.



Control panel screen



Support screen

Note

The Operator Panel cannot open the external links. You can access the links through a device including a standard browser with Internet access.

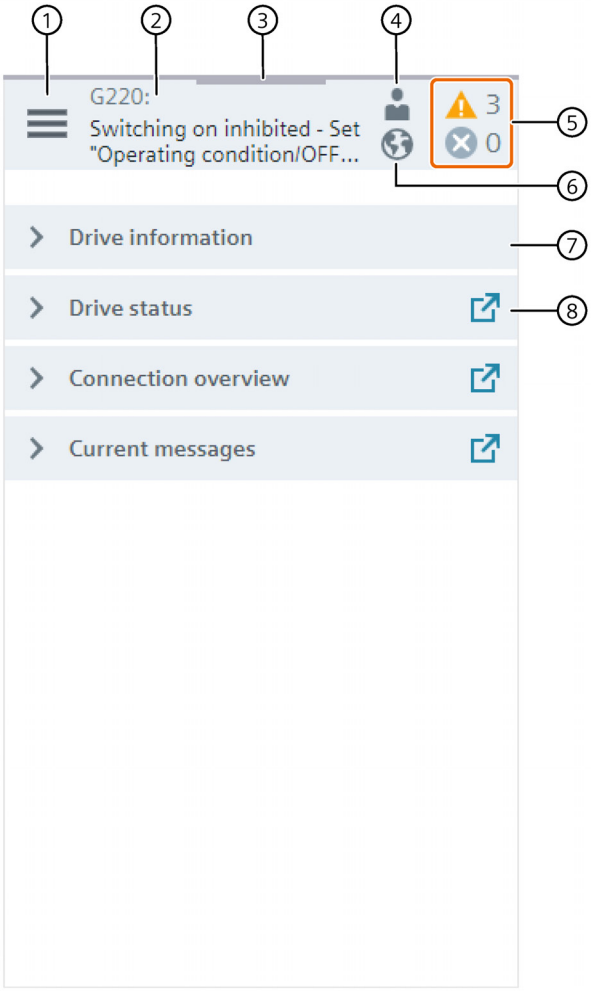
8.1 Home menu

Overview

This menu displays general information regarding the connected converter.

Description of function

The following figure shows the home page of the web server displayed on the Operator Panel:



① Navigation icon

The navigation icon provides access to the menus of the web server.

② Status bar

The status bar displays the converter product name and the converter status.

③ Floating menu icon

The icon is visible only when you have connected the Operator Panel to the converter. The floating menu can direct you to the logon user interface on the Operator Panel; if a converter list on the Operator Panel is activated, the menu can also direct you to the converter list.

④ Logon icon

The logon icon displays the logon status and provides the functions for changing user, changing password, and logging off from the web server.

Note: If UMAC is inactive, the logon icon appears dimmed.

⑤ Fault and alarm icons

The fault and alarm icons indicate active faults and alarms.

⑥ Language icon

The language icon provides the function of changing the display language of the web server user interface.

⑦ Function views

The function views provide information and settings of the connected converter.

⑧ Redirect icon

The redirect icon provides access to the function view of the corresponding menu item.

Figure 8-2 Home page

Drive information

This function view displays the basic characteristics of the connected converter and motor.

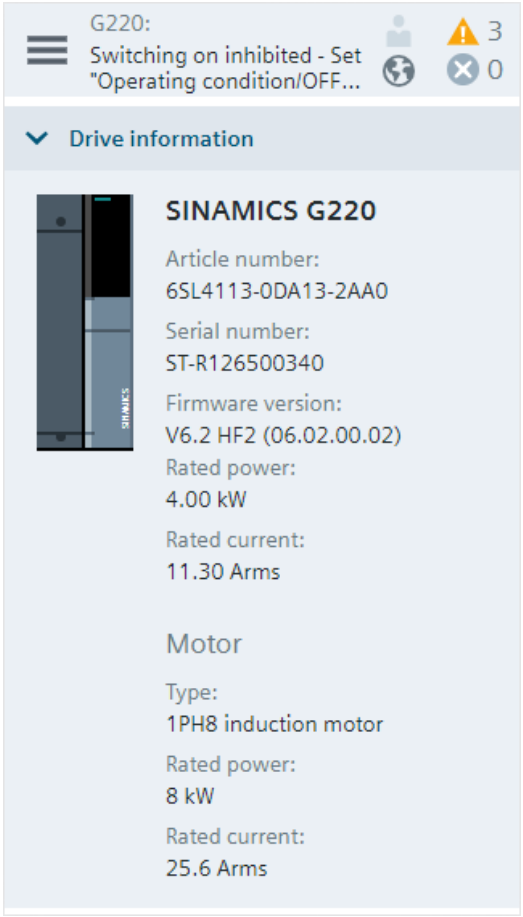


Figure 8-3 Drive information

Drive status

This function view can be configured to display specific values of various functions to monitor the actual converter activity.

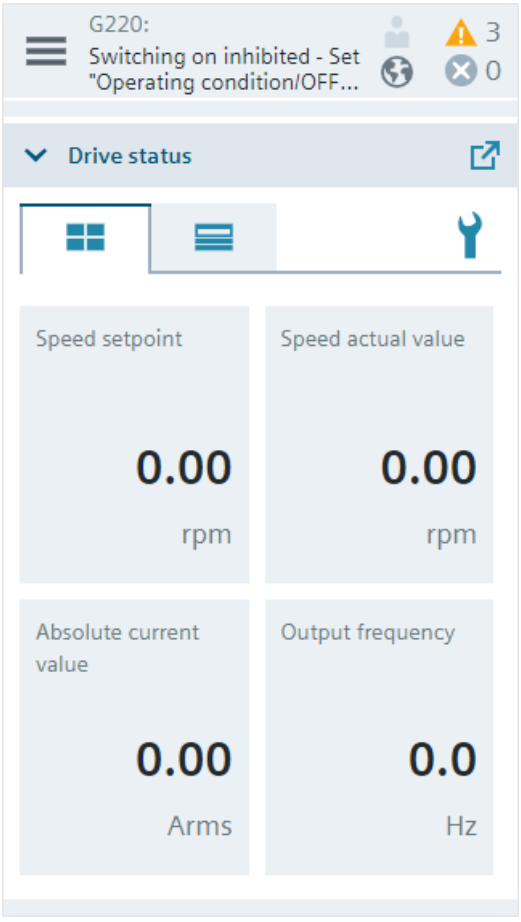


Figure 8-4 Drive status

Connection overview

This function view displays the technical information of all the connected devices, such as the operating unit or PLC, converter, and motor.

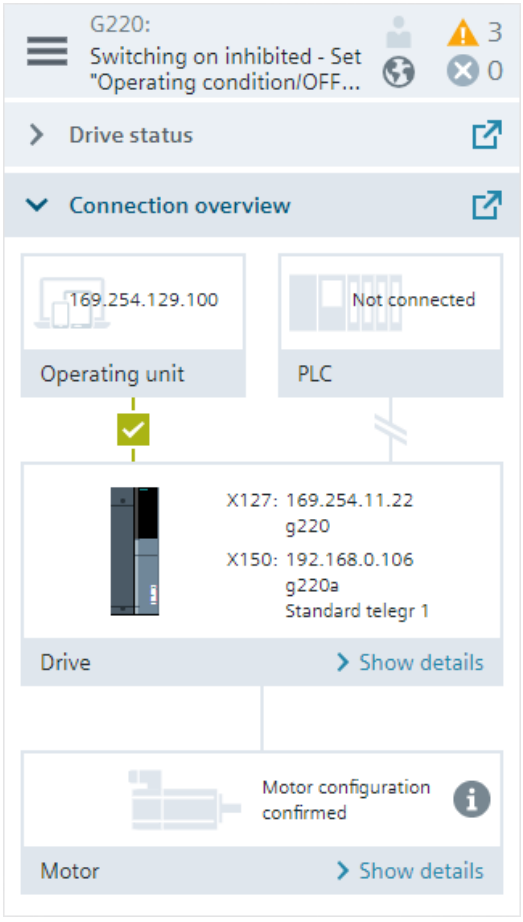


Figure 8-5 Connection overview

Current messages

This function view shows a list of the current active faults and alarms. The faults and alarms can be acknowledged using the screen.

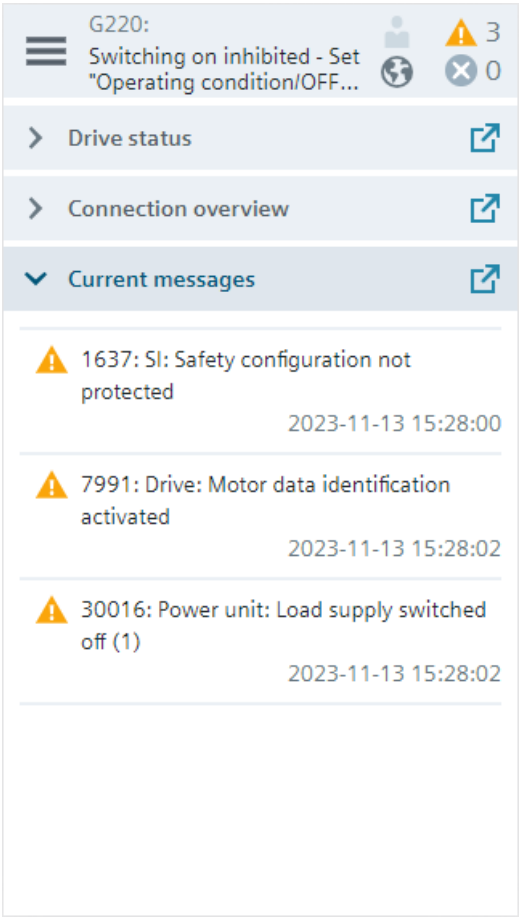


Figure 8-6 Current messages

Floating menu

After the Operator Panel is connected to the converter, a floating menu icon appears on the home page of the converter integrated web server. Pull down the icon and you can see the complete view of the menu.

This menu provides information about the station name and IP address of the connected converter, a button for jumping to the user interface of the Operator Panel, and a button for reloading the current page of the web server to make it responsive.

If you have previously activated a converter list on the Operator Panel, you can see an additional button which allows you to open the activated converter list and select a different converter for connection to the Operator Panel.

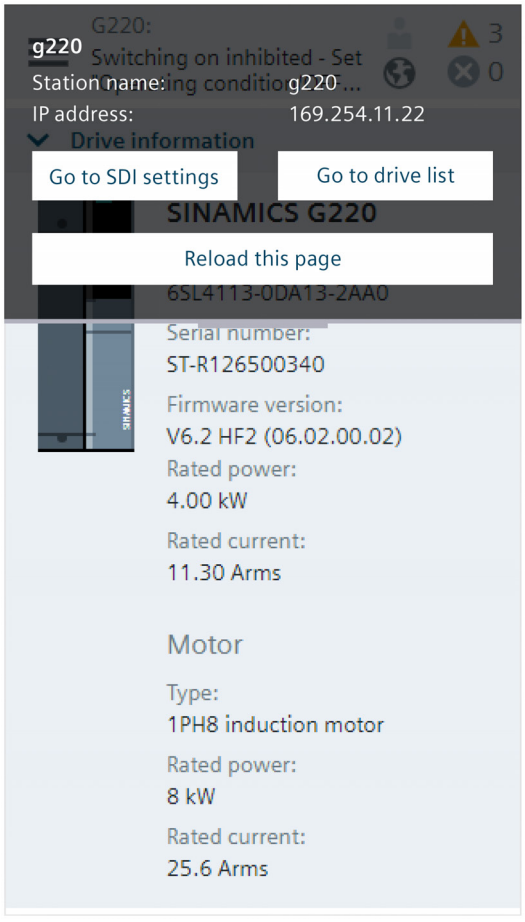


Figure 8-7 Floating menu

8.2 Commissioning menu

Description

This menu allows you to access the procedures to perform the various types of commissioning of the converter.

8.2.1 Quick setup

Overview

Quick setup comprises the basic settings that are required to commission the converter.

Description of function

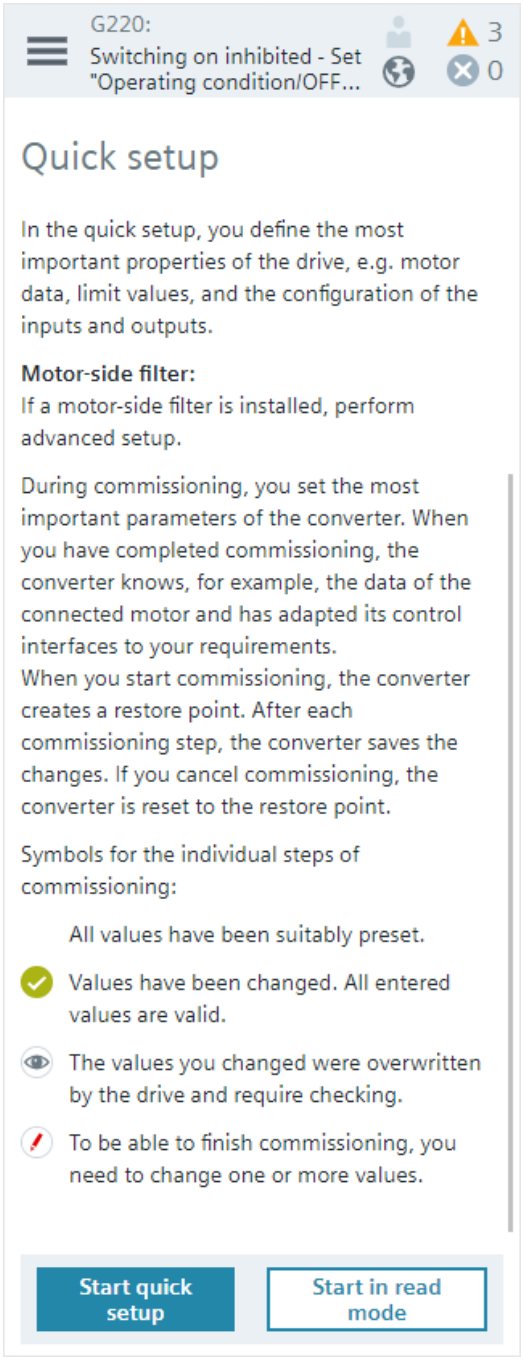


Figure 8-8 Quick setup

In the quick setup, you define the most important properties of the drive, such as motor data, limit values, and the configuration of the inputs and outputs.

When you have completed commissioning, the converter knows, for example, the data of the connected motor and has adapted its control interfaces to your requirements.

When you start commissioning, the converter creates a restore point. After each commissioning step, the converter saves the changes. If you cancel commissioning, the converter is reset to the restore point.

Two modes are available for the quick setup:

- "Start quick setup"

  This option guides you through the individual steps to commission the converter at the most basic level.

- "Start in read mode"

  This option is a read-only mode for quick verification of the configuration data set.

Note

Motor-side filter

If a motor-side filter is installed, advanced setup must be used to commission the drive.

8.2.2 Advanced setup

Overview

Advanced setup contains all settings of the quick setup as well as additional options and functions.

Description of function

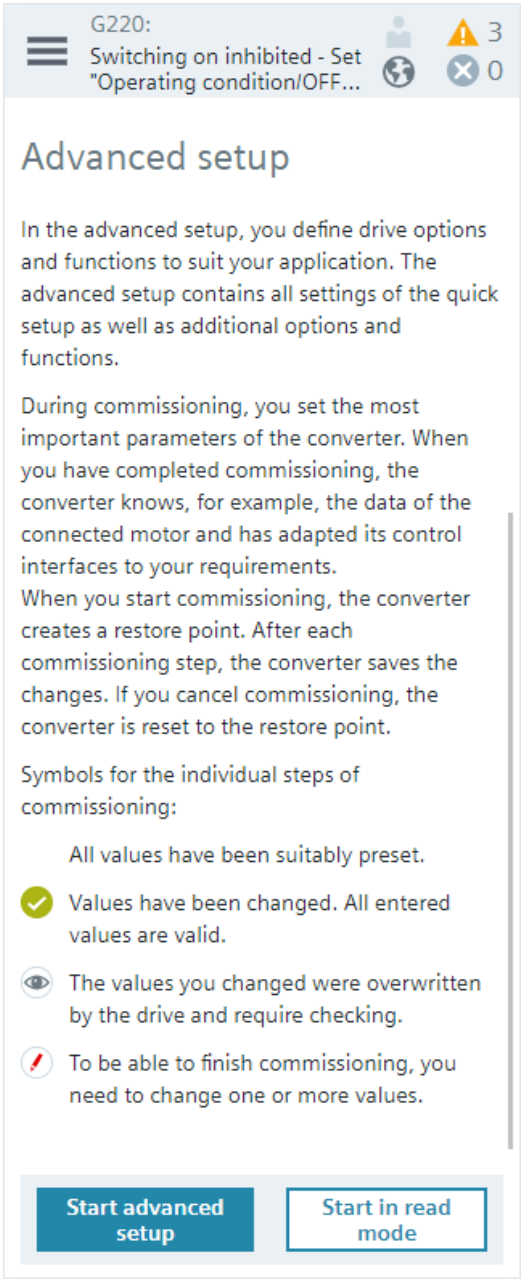


Figure 8-9 Advanced setup

In the advanced setup, you define drive options and functions to suit your application.

During commissioning, you set the most important parameters of the converter. When you have completed commissioning, the converter knows, for example, the data of the connected motor and has adapted its control interfaces to your requirements.

When you start commissioning, the converter creates a restore point. After each commissioning step, the converter saves the changes. If you cancel commissioning, the converter is reset to the restore point.

Two modes are available for the advanced setup:

- "Start advanced setup"

  This option guides you through the individual steps to commission the converter at the advanced level.

- "Start in read mode"

  To get to know the drive options and functions first, the commissioning can be started and run through in read-only mode.

Note

The advanced setup function is not available with some converters.

8.2.3 Safety Integrated commissioning

Overview

Commissioning the Safety Integrated Functions of the converter includes the following:

- Selecting the functions
- Parameterizing the functions as required for the application
- Control of the functions

Description of function

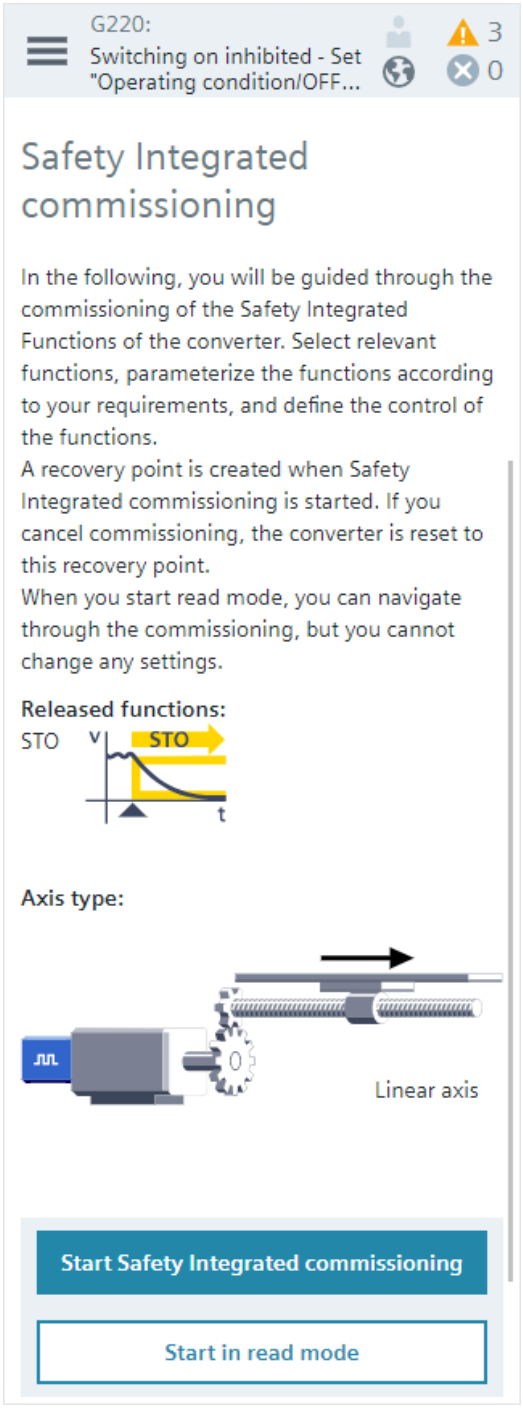


Figure 8-10 Safety Integrated commissioning

Changes to Safety Integrated settings are only possible in the "Safety Integrated commissioning" mode. The drive is in the safe state as soon as the commissioning mode is active. Safe Torque Off (STO) is active.

Commissioning of Safety Integrated must be completely run through. No settings are applied if an interruption occurs during commissioning.

When starting Safety Integrated commissioning, the converter creates a restore point. The converter saves the changes after every commissioning step. If Safety Integrated commissioning is canceled, the converter is reset to the restore point.

Two modes are available for the Safety Integrated commissioning:

- "Start Safety Integrated commissioning"

  This option guides you through the commissioning of the Safety Integrated Functions of the converter. Select relevant functions, parameterize the functions according to your requirements, and define the control of the functions via fail-safe digital inputs.

- "Start in read mode"

  This option is a read-only mode for fast navigation through Safety Integrated commissioning, for example to check the settings.

Note

The Safety Integrated commissioning function is not available with some converters.

8.3 Monitoring and operation menu

Description

This menu allows you to view the real-time physical values and configure the display mode. You can view the current value and status of all the inputs and outputs.

8.3.1 Drive status

Overview

This function view shows the current status of the converter.

Description of function

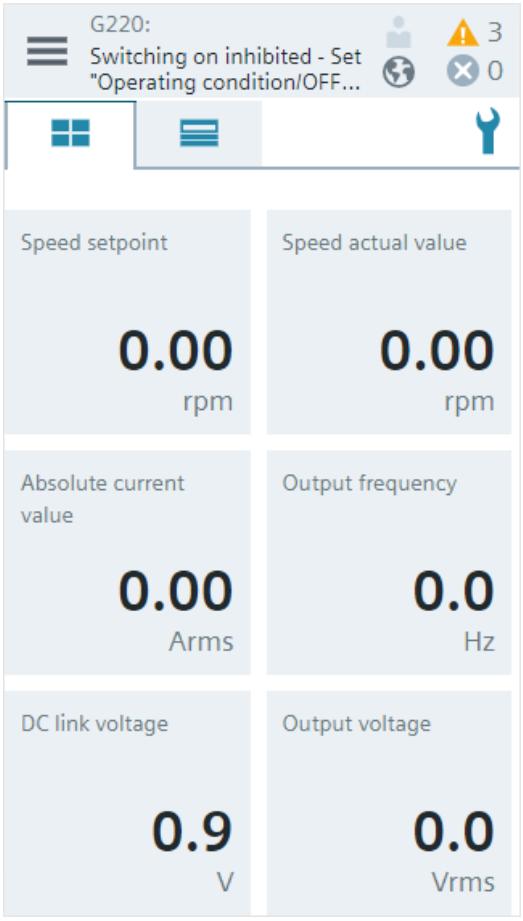


Figure 8-11 Drive status

You can set this screen to display a variety of real-time values, such as speed setpoint and output frequency. You can see how the converter is working.

The real-time values and labels displayed is preset in factory setting, and when required, can be modified using the icon . On selection, a dialog presents a table of the available real-time values that can be displayed.

You can view the drive status with the icon or .

8.3.2 Inputs/outputs

Overview

This function view shows the status of all inputs and outputs.

Description of function

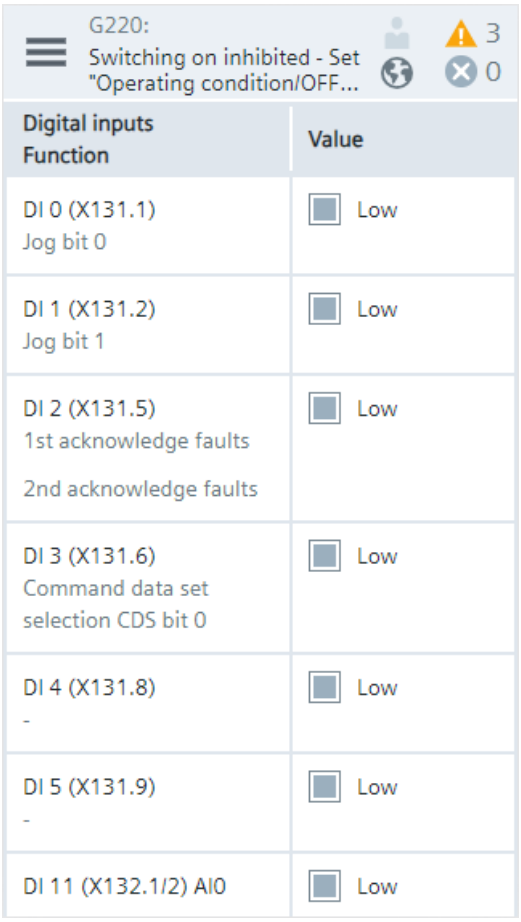


Figure 8-12 Inputs/outputs

This screen lists all the current settings for the digital inputs, digital outputs, analog inputs, and analog outputs as follows:

- Name and terminal marking of the input and output
- Function of the input and output
- Actual value, for example, "high" or "low" for a digital input

The values or states shown on the screen are for information purposes only and cannot be modified.

8.4 Diagnostics menu

Description

This menu allows you to have visibility of the present state of the drive as follows:

- All active faults and alarms
- Current and past events logs
- Other information

8.4.1 Messages

Overview

This function view displays a list of all active alarm and warning notifications.

Description of function

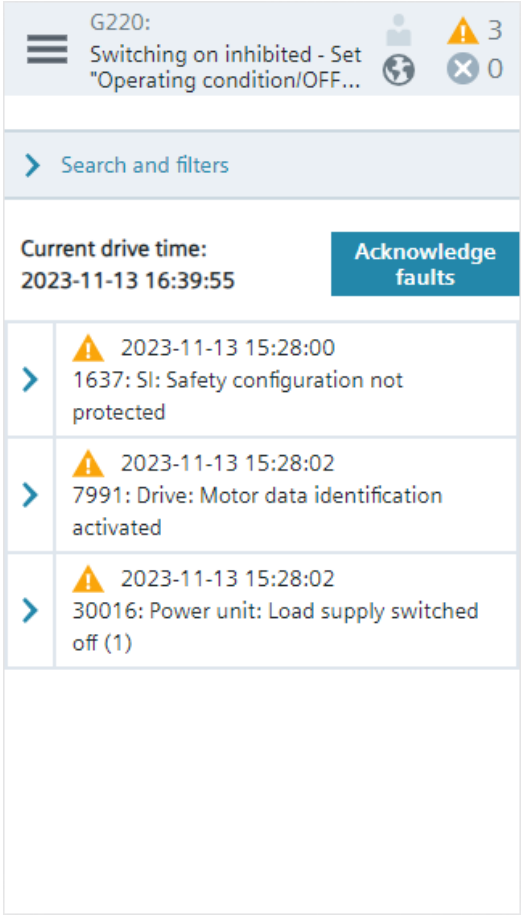


Figure 8-13 Messages

All faults can be acknowledged using the button on this screen.

Using search and filter options, you can filter the results displayed on the screen and search for specific faults.

8.4.2 Diagnostics buffer

Overview

This function view provides information about all system-relevant operations, such as commissioning, new ramp-up, and generation of a certificate.

Description of function

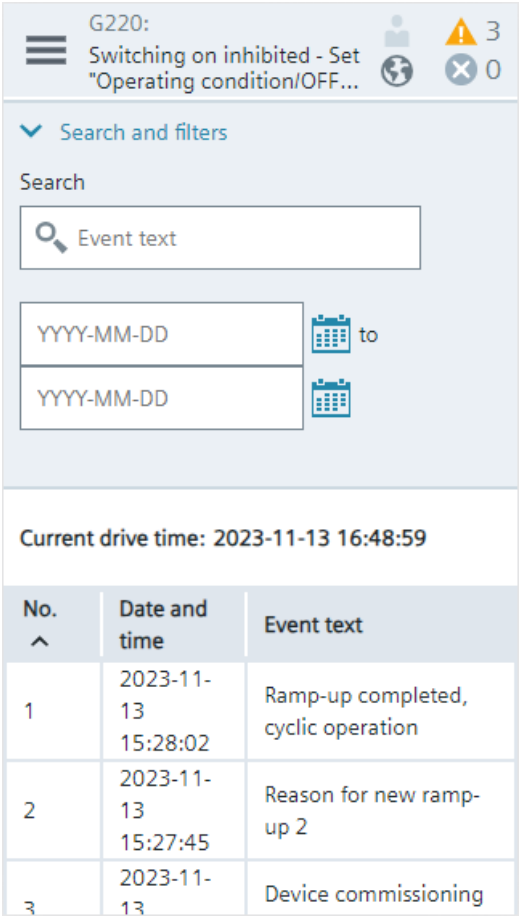


Figure 8-14 Diagnostics buffer

The diagnostic buffer provides you the ability to search for specific events that the converter records, for example, when the converter is powered on or powered off or when a new certificate is automatically generated.

The information can be searched by text and by date range if necessary. The results of the search are displayed as a scrolling table at the bottom of the screen.

The diagnostic buffer is kept when restoring factory settings via the backup and restore menu.

8.4.3 Safety Integrated

Overview

This function view provides information about the Safety Integrated Functions.

Description of function

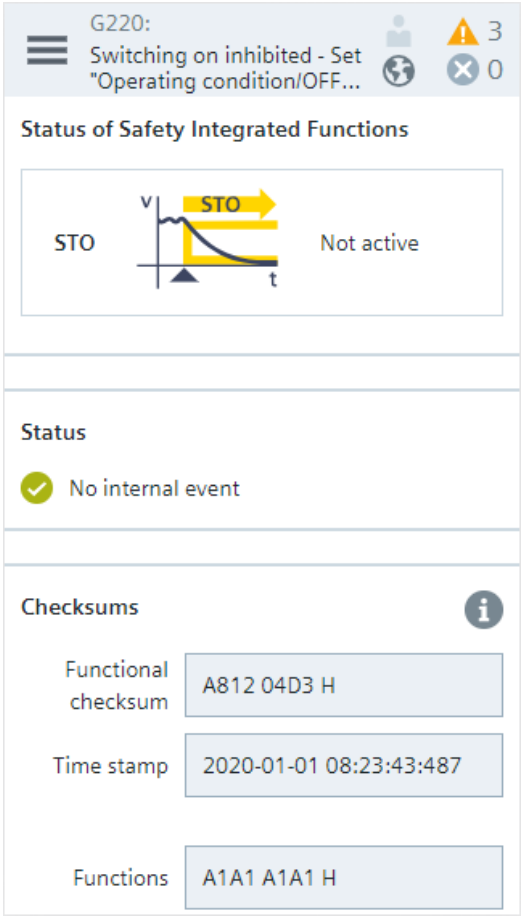


Figure 8-15 Safety Integrated

The Safety Integrated comprises the following components:

- Status of Safety Integrated Functions

  Displays the status of the Safety Integrated Function
- Status

  Displays the internal events (limit violations, system errors)
- Checksums
  - Functional checksum

    Displays the functional checksum of the converter to track changes (safety logbook)
  - Time stamp

    The time stamp indicates when the update was made.
  - Functions

    Displays the checksum over the checksum-checked parameters to configure the converter
  - PROFIsafe

    Displays the checksum of the PROFIsafe parameterization
- Versions

  Displays the safety-relevant software versions of the corresponding components
  - SINAMICS Safety Integrated

    Contains the Safety Integrated Function of the converter, for example, Safe Torque Off
  - I/O processor firmware

    Contains the control of the Safety Integrated Functions via the converter interfaces F-DI or PROFIsafe
  - Encoder firmware

    Contains the safe motion detection of the motor

8.4.4 Connection view

Overview

This function view provides information about the connections in the drive system.

Description of function

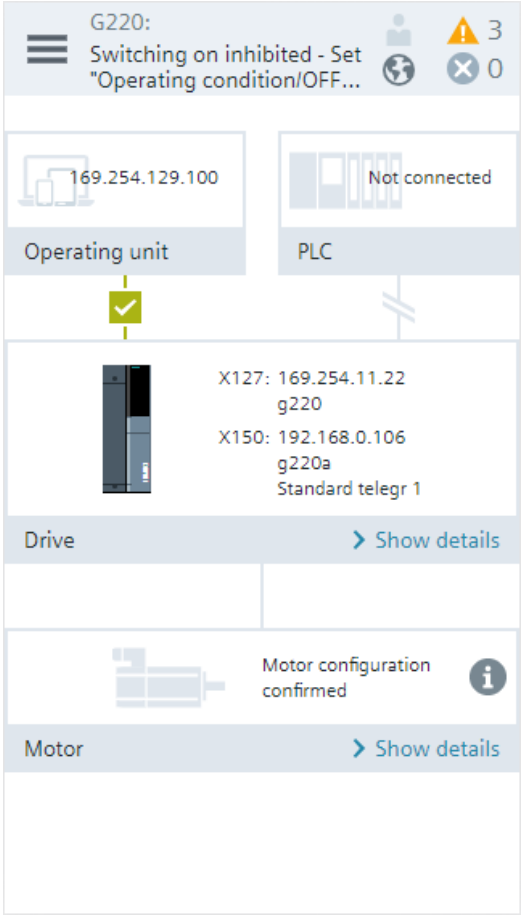


Figure 8-16 Connection overview

The individual components with IP address and additional details are graphically displayed in the connection overview.

You can access the detailed information through tapping the "Show details" button within each item.

8.4.5 Communication

Overview

This function view provides information about the activated fieldbus protocol.

Description of function

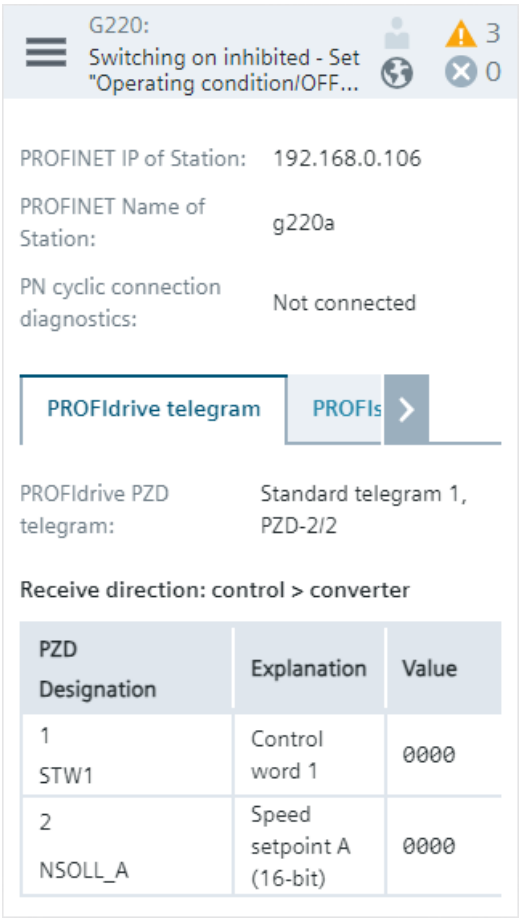


Figure 8-17 Communication

This screen displays the detailed status of the PZD telegrams currently being used by the converter.

The telegrams are displayed in hex format. To switch the display of individual values between binary, decimal and hex format, you can tap the button on the right of the value.

8.4.6 Control/status word

Overview

This function view provides information about the current status of the sequence control system.

Description of function

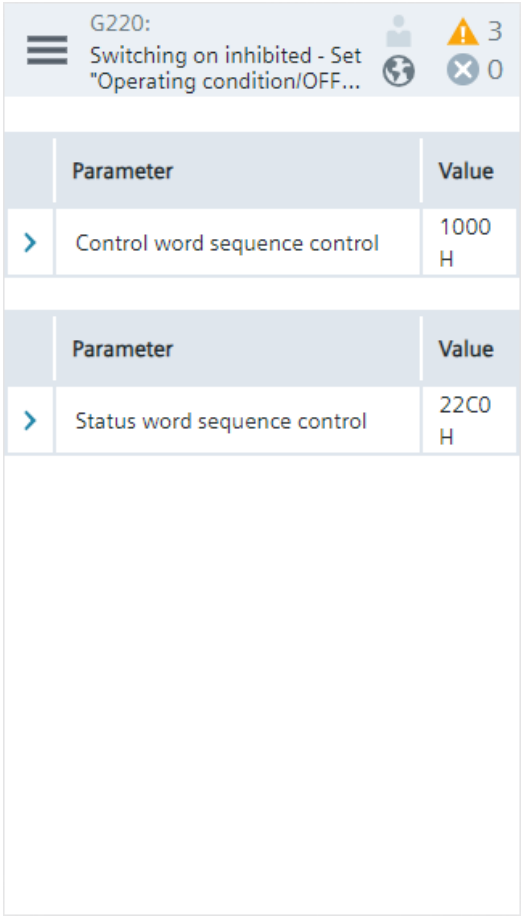


Figure 8-18 Control/status word

This screen displays the real-time status of the control word sequence control and the status word sequence control.

The information contains the actual status of all control word and status word parameter indices.

8.5 Parameter menu

Description

This menu provides a variety of tools to search, view and create parameter lists.

8.5.1 Parameter list

Overview

This function view contains the converter parameters and enables the targeted modification of specific parameter values.

Description of function

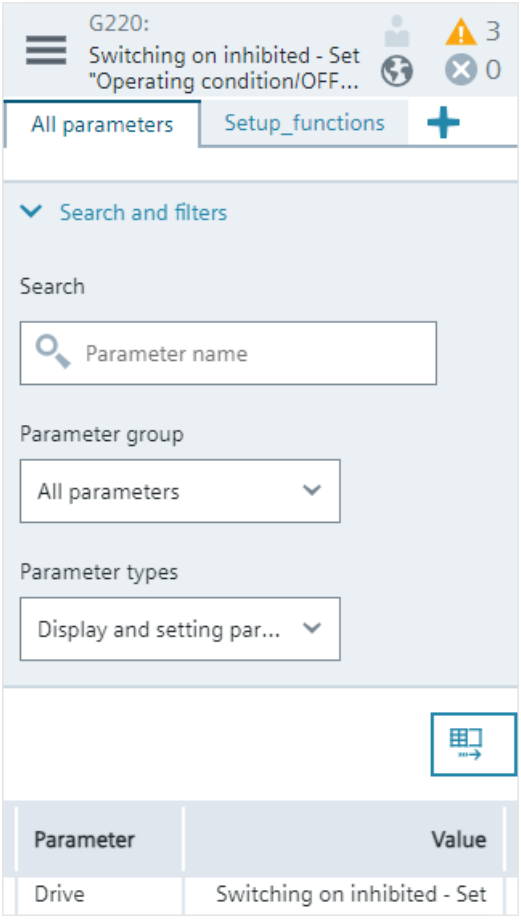


Figure 8-19 Parameter list

This screen allows you to perform the following actions:

- Create a simple view of all the parameters as a list on the screen
- Create an advanced view of all the parameters as a list on the screen
- Search and filter the entire parameter list for the connected converter
- Change parameter values directly in a parameter list
- Create a custom parameter list which contains only the selected parameters
- Store a user-defined list via export to the Operator Panel

8.6 Backup and restore menu

Overview

This menu allows you to save all the current drive data and settings in a backup file. You can restore the backup file to the converter if necessary.

Description of function

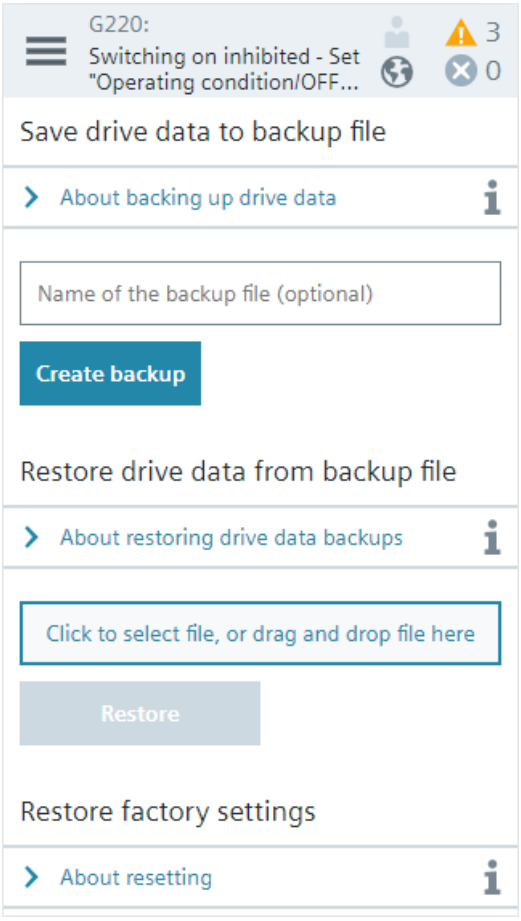


Figure 8-20 Backup and restore

The following functions are available to back up and restore data and settings:

- Save drive data to backup file

  Back up the settings to a file after commissioning.
- Restore drive data from backup file

  During device replacement or series commissioning, load the backed-up drive data and settings into the converter.
- Restore factory settings

  After resetting to factory settings, almost all settings of the converter are reset to the factory values, with the exception of the settings for the communication interfaces, UMAC and security data. You can load a valid parameter backup or recommission the converter.
- Restore Safety Integrated to factory settings

  The converter only sets the settings of the Safety Integrated Functions to factory settings. All other settings remain unchanged.

8.7 System menu

Description

This menu allows you to configure settings for the converter via the integrated web server.

8.7.1 Settings

Overview

This function view offers basic settings for the web server and the converter.

Requirement

- To edit the web server settings you need the "Edit web server configuration" right.
- To edit the drive settings you need the "Edit device configuration or drive applications" right.

Description of function

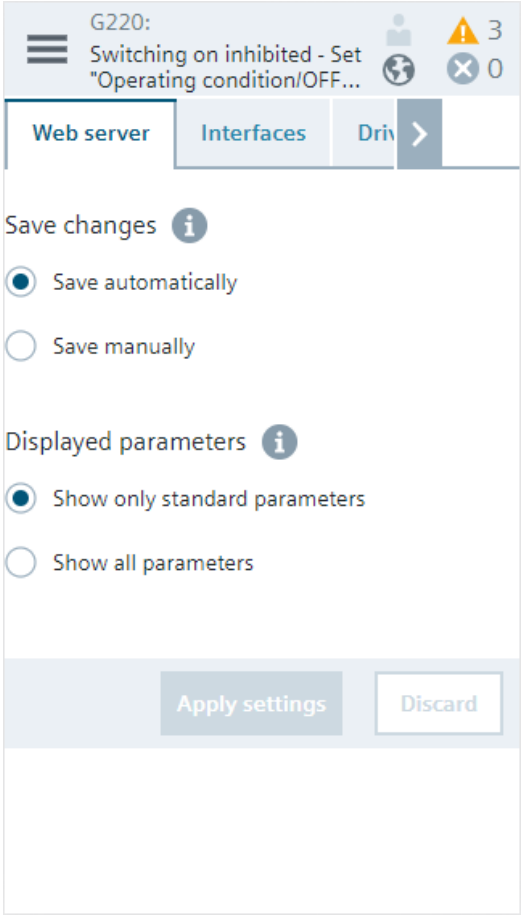


Figure 8-21 Settings

The following settings are available in this function:

- Web server

  The web server provides options for saving changes automatically or manually and showing only standard parameters or all parameters.

- Interfaces

  The web server provides settings for the service interface X127 and PROFINET interface X150 that can access the Protection & Security page.

- Drive date and time

  The web server provides options for setting the date format and for obtaining the date, time and time zone of the converter.

- Maintenance

  Under the fan wear tab, a counter is set to keep track of the fan usage. When it reaches the wear limit, the fan requires replacement. When the fan is replaced, the counter can be reset.

- Support settings

  The web server provides the option to store additional support and hotline data. The web server displays these data in the support function view.

8.7.2 User administration

Overview

In this function view, you can manage users and configure their roles and rights for accessing the converter.

Requirement

- You have activated the user management (UMAC) in "Configure security settings" during first commissioning.
- You have logged on to the web server and have the necessary rights to manage users.

Description of function

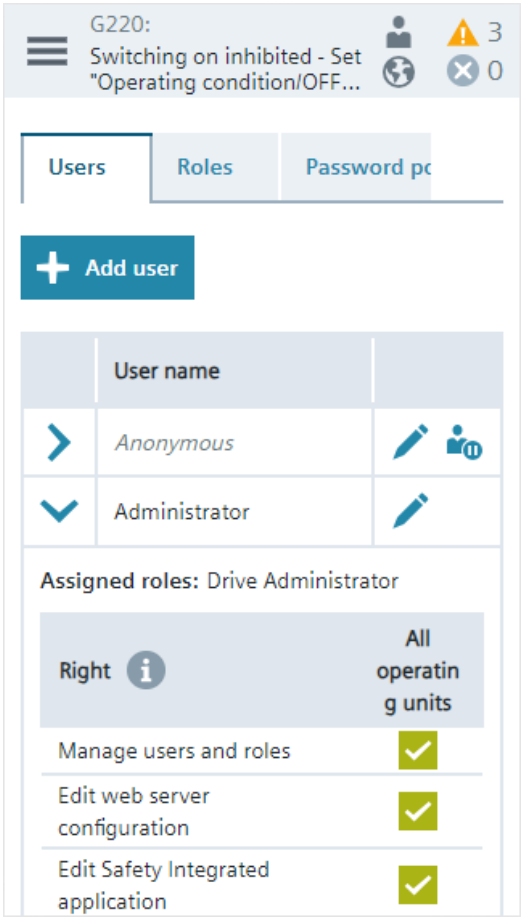


Figure 8-22 User administration

Users

Under this tab, the web server provides a summary of the created users and offers the following functions:

- Create new user accounts
- Change existing user accounts
- Activate or deactivate user accounts

Roles are assigned to give users read or write access to certain functions.

Roles

Under this tab, the web server provides a summary of the existing roles and the assigned rights.

Password policy

Under this tab, you specify the requirements a password must meet. You define the password complexity and the time to password expiry (if any).

More information

You can find more information about the user management and security settings in the SINAMICS Industrial Cybersecurity Configuration Manual (https://support.industry.siemens.com/cs/ww/en/view/109823969).

8.7.3 Protection & Security

Overview

In this function view, you can configure basic security settings using the Security Wizard.

Requirement

- You have activated the security settings during first commissioning.
- You have logged on to the web server and have the necessary rights to edit drive data.

Description of function

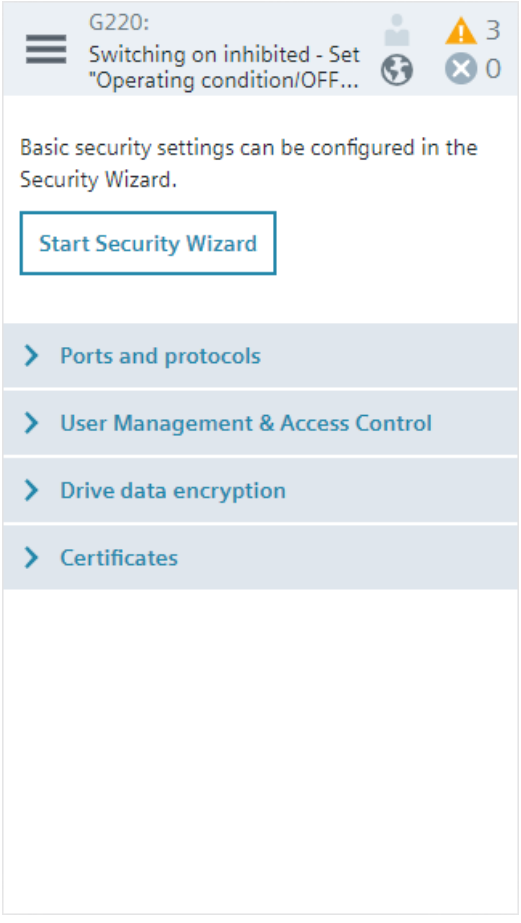


Figure 8-23 Protection & Security

The following settings are available in this function:

- Start Security Wizard

  In the Security Wizard, you configure the most important security settings for the converter. They include User Management & Access Control and web server activation.

- Ports and protocols

  The web server provides an overview of the available ports and protocols and their status.

- User Management & Access Control

  The web server provides an overview of the settings in user management.

- Drive data encryption

  The web server shows whether the function of drive data encryption is enabled.

- Certificates

  The web server provides an overview of the issued certificates. Digital certificates identify the converter as a "trusted device". The web server cannot be accessed from the Operator Panel without a digital certificate.

More information

You can find more information on configuring secure communication in SINAMICS Industrial Cybersecurity (https://support.industry.siemens.com/cs/ww/en/view/109823969).

8.7.4 Licenses

Overview

You must purchase licenses for supplementary functions and options.

Use this function view to manage the licenses for drive functions and options.

Requirement

- You have logged on to the web server and have the necessary rights to edit drive data.
- The Operator Panel is connected online with the converter.

Description of function

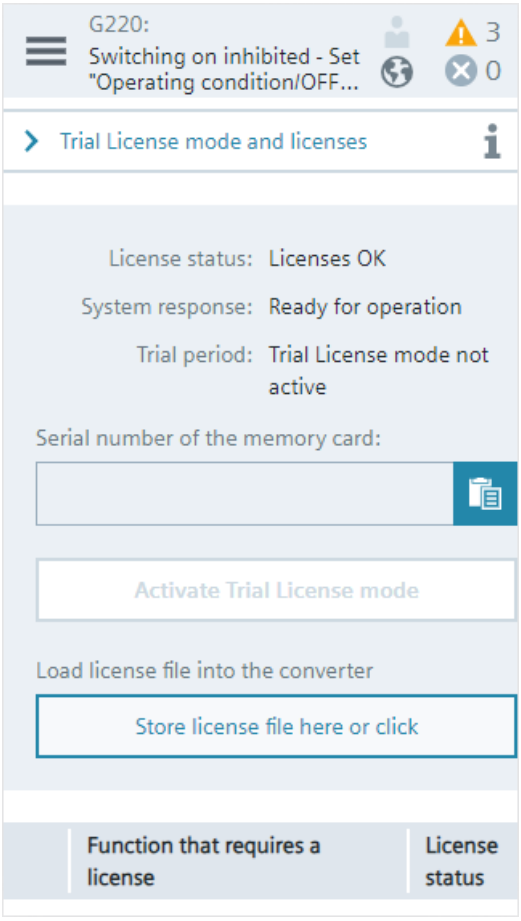


Figure 8-24 Licenses

This function view offers the following functions:

- Load and activate licenses

  Under "Trial License mode and licenses", you upload license files created with the Web License Manager.

  In Trial License mode, you can try out functions for a specified period.

- Using functions/options requiring a license

  The web server provides an overview of the options that require licensing and their license status.

- Certificates of License (eCoL)

  Under "Certificates of License (eCoL)", you load purchased licenses directly from an SD card into the file system of the Operator Panel.

8.7.5 Firmware update

Overview

This function view displays the current version of the firmware and of the web server.

You can perform a firmware update in the web server:

- For an upgrade, the converter settings are retained.
- For a downgrade, the converter is restored to factory settings.

Requirement

You have saved the converter firmware ZIP file to the user memory of the Operator Panel.

Description of function

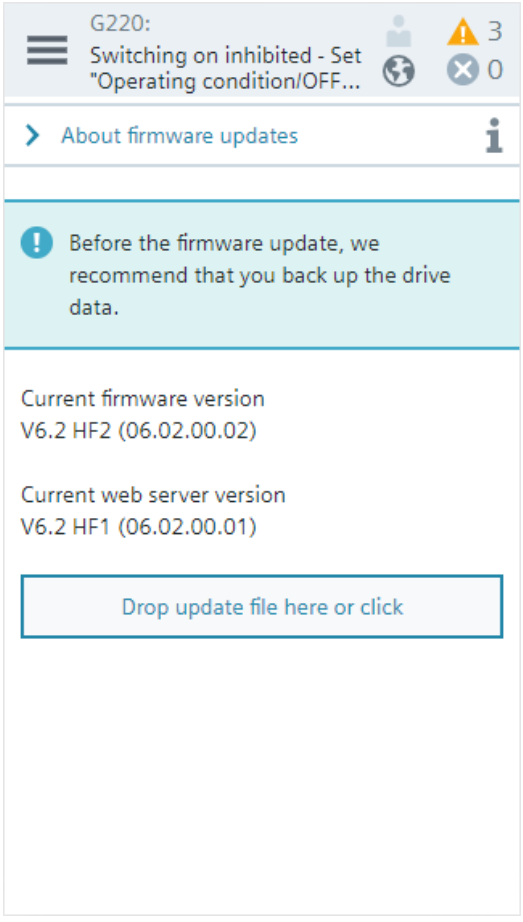


Figure 8-25 Firmware update

The firmware file contains either only the web server or the converter firmware including web server.

Prerequisites for transferring the firmware file to the converter:

- The motor is switched off, that is, the converter is not in the "Operation" state.
- The power supply to the converter is not interrupted while the firmware is being transferred.
- The Operator Panel is connected to the converter's web server.
- Do not reload the web page.
- Do not close the web page.

The firmware update is only complete after the restart of the converter.

8.7.6 About web server

Overview

This function view contains information about the web server and links to additional information.

Description of function

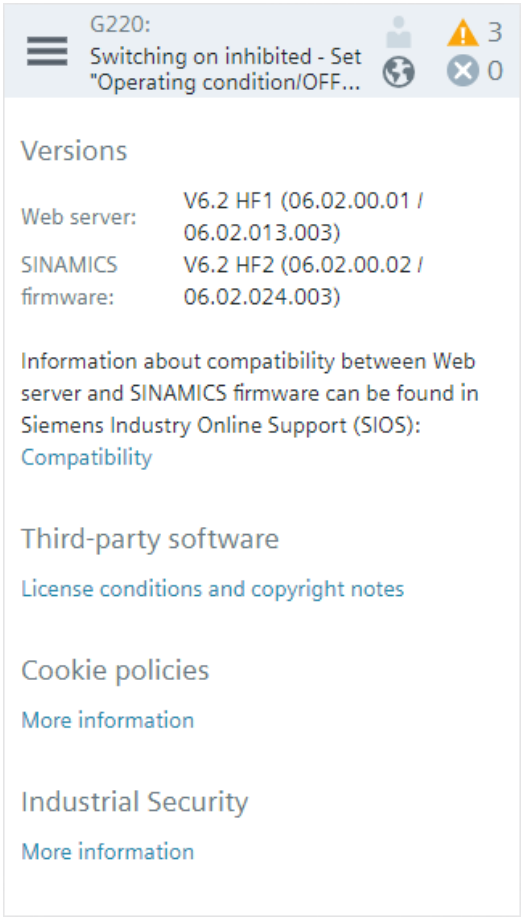


Figure 8-26 About web server

Under "Versions" you can see the revision levels of the web server and the loaded firmware.

Under "Third-party software" there is a link to information about any third-party software used. After you tap the link, the license conditions are loaded to the user memory of the Operator Panel in the file "READ_OSS.ZIP". You can transfer the file to your PC using the USB-C interface, and the HTML file included in the ZIP file can then be browsed on the PC.

You can find more links to information about:

- Cookie policies
- Industrial Cybersecurity
- Privacy policy

Note

The Operator Panel cannot open the external links. You can access the links through a device including a standard browser with Internet access.

Technical data

9

Technical data of the Operator Panel

Table 9- 1 Technical data of the Operator Panel

Property		Specification
Power supply		20 V DC ... 29 V DC • Power supply via converter service interface X127: 24 V DC • External power supply: 24 V DC
Max. current		300 mA
Degree of protection		• IP20 protection on the back surface • IP55 protection on the front surface
Dimensions (height x width x depth)		167 mm x 111 mm x 24 mm
Weight		275 g
Surrounding temperature	Operation[1)]	-20 °C ... 50 °C when connected to an IP55 converter. -20 °C ... 55 °C when using the Door Mounting Kit.
	Transport and storage	-40 °C ... 70 °C
Relative humidity		5% ... 95%, without condensation
Compliance with standards		CE, UKCA, RCM, cULus, EAC, KC-REM-S49-SINAMICS
Environmental class in operation		Harmful chemical substances Class 3C3 according to IEC 60721-3-3: 2002

1) When the actual temperature of the Operator Panel exceeds the normal operating temperature, the backlight brightness is automatically set to Low, and a warning is displayed on the screen. If the Operator Panel exceeds the maximum permissible temperature, the Operator Panel switches off the display until it cools to the normal operating temperature.

Technical data of the optional components

You can find more information about the technical data of the optional components in Chapter "Optional components (Page 19)".

Get more information

www.siemens.com/sinamics

www.siemens.com/online-support