Serie SX302

Alphanumeric large size displays
with PROFINET IO RT interface
Operating instructions

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2 Legal note

This operation manual has been prepared with the utmost care. However, we do not accept any liability for possible errors. We always appreciate your suggestions for improvement, corrections, comments and proposals. Please contact us: editing@siebert-group.com

3 Safety precautions

Important information

Read these operating instructions before starting the unit. They provide you with important information on the use, safety and maintenance of the units. This helps you to protect yourself and prevent damage to the unit.

Information intended to help you to avoid death, bodily harm or considerable damage to property is highlighted by the warning triangle shown here; it is imperative that this information be properly heeded.

The operating instructions are intended for trained professional electricians familiar with the safety standards of electrical technology and industrial electronics.

Store these operating instructions in an appropriate place.

The manufacturer is not liable if the information in these operating instructions is not complied with.

Safety

Components inside the units are energized with electricity during operation. For this reason, mounting and maintenance work may only be performed by professionally-trained personnel while observing the corresponding safety regulations.

The repair and replacement of components and modules may only be carried out by the manufacturer for safety reasons and due to the required compliance with the documented unit properties.

The units do not have a power switch. They are operative as soon as the operating voltage is applied.

Intended use

The units are intended for use in industrial environments. They may only be operated within the limit values stipulated by the technical data.

When configuring, installing, maintaining and testing the units, the safety and accident-prevention regulations relevant to use in each individual case must be complied with.

Trouble-free, safe operation of the units requires proper transport, storage, installation, mounting and careful operation and maintenance of the units.

Mounting and installation

The attachment options for the units were conceived in such a way as to ensure safe, reliable mounting.

The user must ensure that the attachment hardware, the unit carrier and the anchoring at the unit carrier are sufficient to securely support the unit under the given surrounding conditions.

The units are to be mounted in such a way that they can be opened up while mounted. Sufficient space for the cables must be available in the unit near the cable entries.

Sufficient space is to be kept clear around the units to ensure air circulation and to prevent the build-up of heat resulting from use. The relevant information must be heeded in the case of units ventilated by other means.

When the housing fasteners are opened, the front frame of the housing hinges out upward or downward (depending on the unit version) automatically.

Grounding

All devices are equipped with a metal housing. They comply with safety class I and require a protective earth connection. The connecting cable for the operating voltage must contain a protective earth wire of a sufficient cross section (DIN VDE 0106 part 1, DIN VDE 0411 part 1).

EMC measures

The devices comply with the current EU Directive (EMC Directive) and provide the required interference immunity. Observe the following when connecting the operating voltage and data cables:

Use shielded data cables.

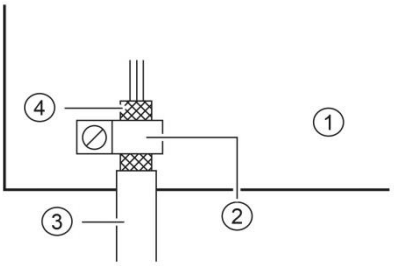
The data and operating voltage cables must be laid separately. They may not be laid together with heavy-current cables or other interference-producing cables.

The cable thickness must be properly assessed (DIN VDE 0100 Part 540).

The cable lengths inside the units are to be kept as short as possible to prevent interference. This applies especially to unshielded operating voltage cables. Shielded cables are also to be kept short due to any interference which might be emitted by the shielding.

Neither excessively long cables nor cable loops may be placed inside the units.

The connection of the cable shielding to the functional ground (PE) must be as short and low-impedance as possible. It should be made directly to the mounting plate over a large area with a conductive clip:



① mounting plate ② conductive clamp
③ data lines ④ cable shielding

The cable shielding is to be connected at both cable ends. If equipotential bonding currents are expected due to the cable arrangement, electrical isolation is to be performed on one side. In this case, capacitive connection (approx. 0.1µF/600 V AC) of the shielding on the isolated side must occur.

Disposal

Units or unit parts which are no longer needed are to be disposed of in accordance with the regulations in effect in your country.

4 Model designation

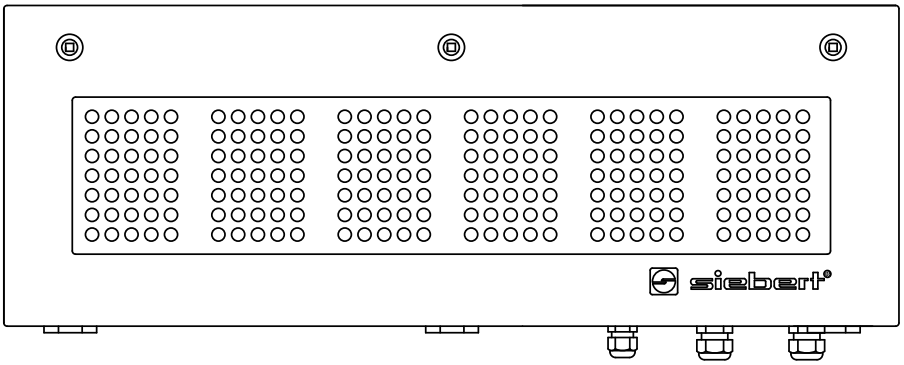
Model designation

This manual applies to units with the following model designation (x = the 'x's in the model designation indicate the size and design of the units):

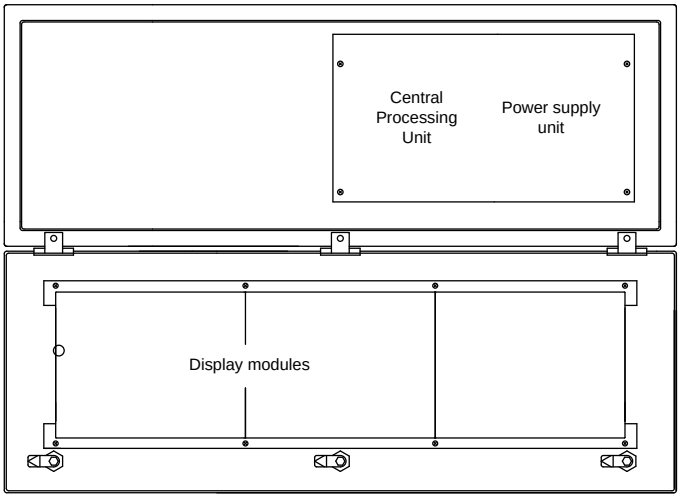
SX302-xx/xx/xx-xxx/xx-N0

Unit construction

The following figure shows model type SX302-06/10/xx-xxx/xx-xx as example for the other model types. The front frame of the housing is locked with quick-action releases. When opening the unit the front frame hinges downward.



The following figure shows the unit when open.



Units with double-sided display show the same information on the front and on the rear side.

5 Quick start

The display is put into operation with the following steps. The display then shows the values sent via PROFINET.

The screenshots were created with the following hardware and software. For other engineering frameworks, the descriptions shown in this user's guide may differ from the screen display on your device.

Display	SX302-08/10/0R-101/0A-N0
Engineering-Framework	Siemens TIA Portal V17, Update 4
SPS	Siemens S7-1214C DC/DC/Rly, V4.5, 6ES7 214-1HG40-0XB0
Operating system	Microsoft Windows 10 Professional, 64 Bit

The quick start describes the parameterization of the display. Operation of the TIA Portal is required. The devices are delivered without PROFINET name.

Step 1: Open project

Open your project in the Engineering-Framework.

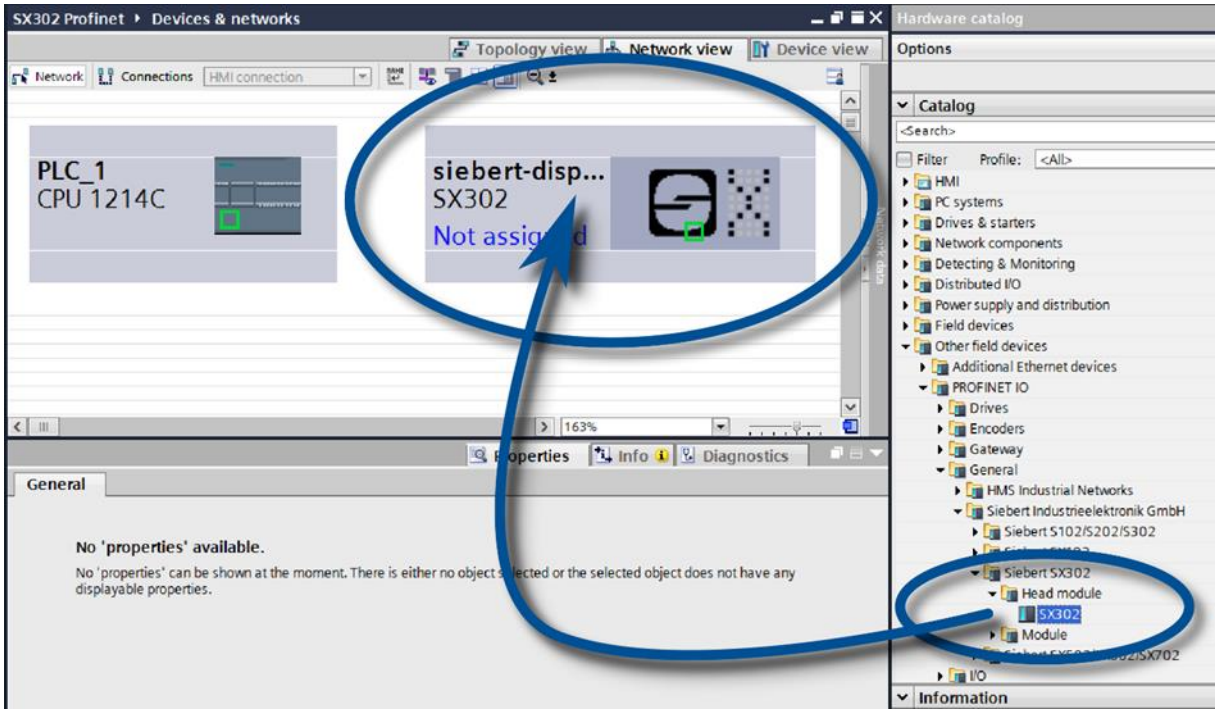
Step 2: Switch to project view

Switch to project view.

Step 3: Install the GSDML file of the ad and add the display

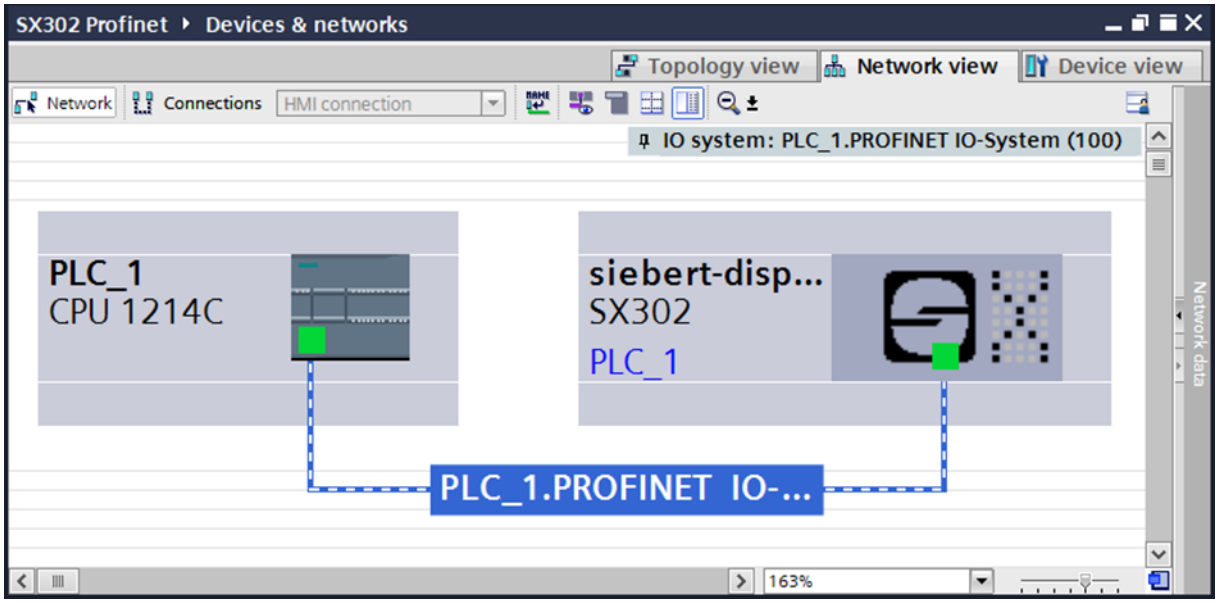
Install the GSDML file of the display. You find the file on the supplied data carrier or at www.siebert-group.com. After installation, the display is listed in the hardware catalog.

Add the module 'SX302' from the catalog to the 'Devices & networks/Network view'.



Step 4: Establish a connection to the display

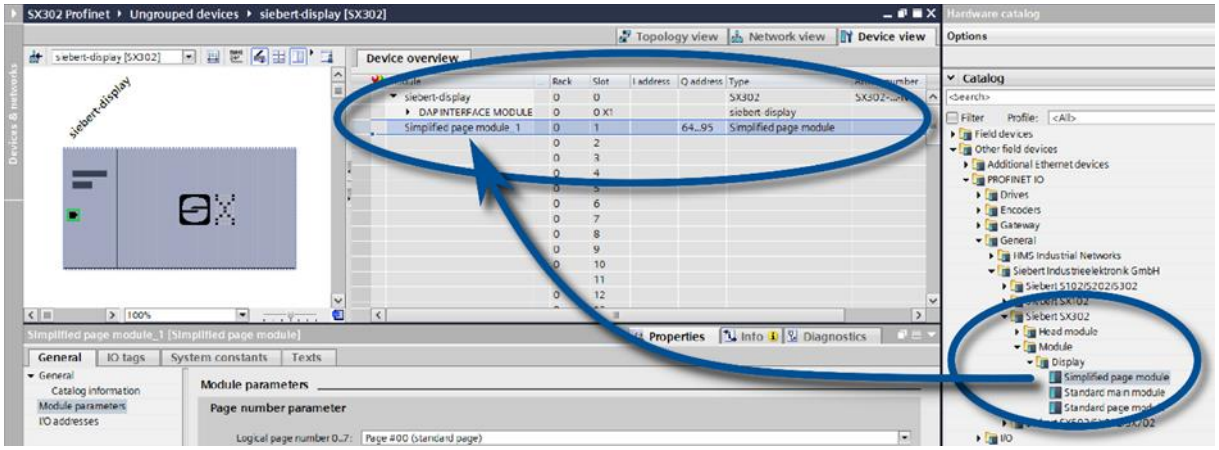
Assign the display to the desired control in the network view. Then the PROFINET connection is shown.



Step 5: Add sub-module to the display and define address range

Add the module 'Simplified page module' from the hardware catalog to the device overview.

This specifies that the display expects the values to be shown in ASCII String format. The module occupies 32 bytes (in this example the addresses 64 to 95).



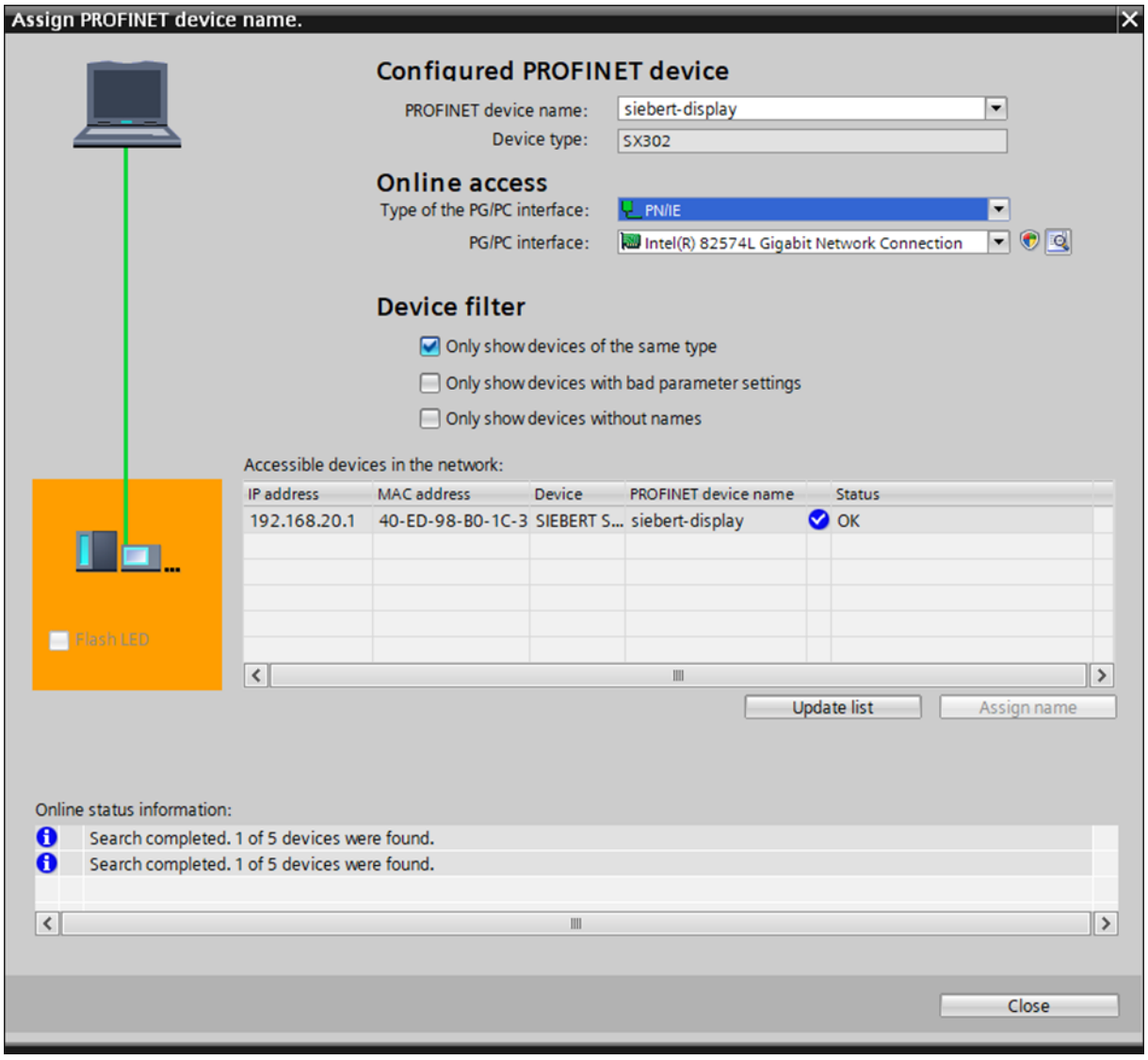
You can change the name given by the TIA Portal.

In the Module parameters section you can set the initialization parameters for brightness and text alignment.

Step 6: Assign a PROFINET device name to the display

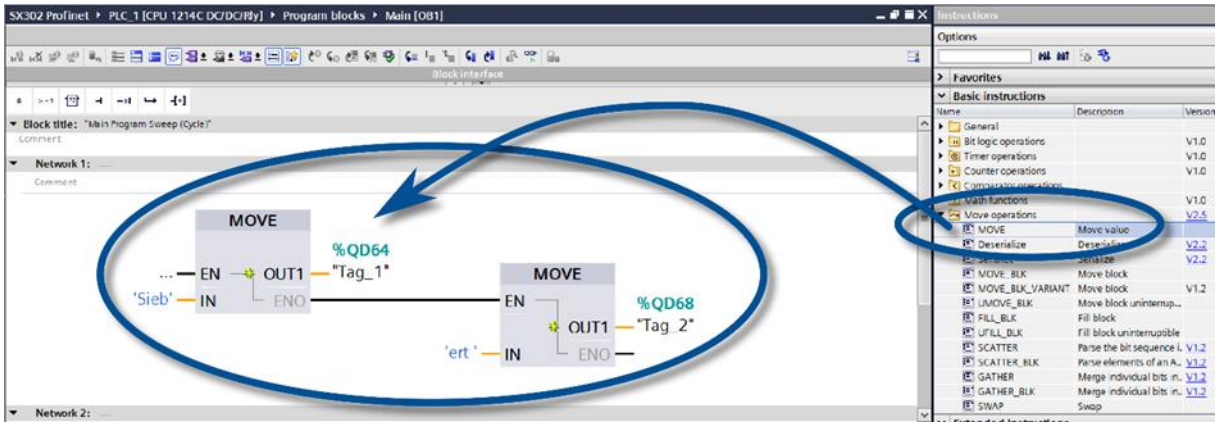
Now assign the IP address and device name to the display. To do this, call up the context menu of the Siebert display in the Device view and click on 'Assign device name'.

After the data is transferred successfully to the display, the configuration is displayed as follows in the engineering tool.



Step 7: Define text

To send a value to the display, you can for example create a function chart with 'MOVE' instructions. In the following screenshot the text 'Siebert' is sent. This requires two 'MOVE' function blocks.



Spep 8: Loading hardware configuration and program into the control.

After switching on the display the start text 'SX302' is shown.

As soon as the configuration and the program function block are loaded into the control, the control connects to the display via PROFINET and the display shows the text 'Siebert'.

The data traffic via PROFINET is indicated with status LEDs on both RJ45 sockets.
The meaning is the same for both ports.

LED green	LED yellow	Meaning
off	off	▪ no power supply ▪ no network connection
on	ons	▪ network connection exists
on	flashing	▪ initialization phase ▪ application relation is set up
on	on	▪ application relation is established

If the connection can not be established or faults occur during operation the display shown the error message '*Err*'. Possible causes are IP problems due to incorrect network parameters, multiple device names, command of undefined properties or other fieldbus errors.

6 Technical data

Fieldbus

Interface	PROFINET IO RT, conformance class CC-B
MAC address	The MAC address for the PROFINET coupling is on the top side of the device.
Integrated switch	PROFINET IO IRT, conformance class CC-C

Power supply

The screw terminals for the power supply are located on the power supply unit in the lower part of the housing. They have the following designations:

Devices for power supply	115 V AC or 230 V AC	L, N, and PE
Devices for power supply	24 V DC	+, - and PE

Housing colors

Housing front frame	RAL 5002 ultramarine blue
Housing lower part	RAL 7035 light gray

Ambient conditions

Operating temperature	0…55 °C, with heating -20…55 °C
Storage temperature	-30…85 °C
Relative humidity	max. 95% (non-condensing)