



## Compact Operating Instructions



### Operator Panels DOP11C





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# 1 General information

## 1.1 Scope of this documentation

This documentation comprises the general safety notes and selected information regarding DOP11C operator panel.

- Please note that this documentation does not replace the detailed system manual (still in progress).
- Please consult the online help of the project planning software HMI-Builder.PRO before using the operator panels DOP11C.
- Note and follow the information, instructions and notes in the detailed system manual. This is essential for fault-free operation of the unit and fulfillment of any rights to claim under guarantee.
- The detailed system manual is provided in PDF format on the enclosed DVD.
- All technical documentation from SEW-EURODRIVE is available for download in PDF format from the SEW-EURODRIVE website: [www.sew-eurodrive.com](http://www.sew-eurodrive.com).

## 1.2 Design of the safety notes

### 1.2.1 Meaning of signal words

The following table shows the graduation and meaning of the signal words for safety notes, warnings regarding potential risks of damage to property, and other notes.

Signal word	Meaning	Consequences if disregarded
<b>▲ DANGER!</b>	Imminent hazard	Severe or fatal injuries
<b>▲ WARNING!</b>	Possible dangerous situation	Severe or fatal injuries
<b>▲ CAUTION!</b>	Possible dangerous situation	Minor injuries
<b>NOTICE</b>	Possible damage to property	Damage to the drive system or its environment
<b>NOTE</b>	Useful information or tip: Simplifies handling of the drive system.	



## General information

### Right to claim under warranty

#### 1.2.2 Design of the section-related safety notes

Section-related safety notes do not apply to a specific action, but to several actions pertaining to one subject. The symbols used either indicate a general hazard or a specific hazard.

This is the formal structure of a safety note for a specific section:



#### **▲ SIGNAL WORD!**

Type and source of danger.

Possible consequence(s) if disregarded.

- Measure(s) to prevent the danger.

#### 1.2.3 Design of the embedded safety notes

Embedded safety notes are directly integrated into the instructions just before the description of the dangerous action.

This is the formal structure of an embedded safety note:

- **▲ SIGNAL WORD!** Type and source of hazard.  
Possible consequence(s) if disregarded.
  - Measure(s) to prevent the hazard.

### 1.3 *Right to claim under warranty*

A requirement of fault-free operation and fulfillment of any rights to claim under limited warranty is that you adhere to the information in the documentation at hand. Therefore, read the documentation before you start working with the software and the connected units from SEW-EURODRIVE.

Make sure that the documentation is available to persons responsible for the machinery and its operation as well as to persons who work independently on the devices. Also ensure that the documentation is legible.

### 1.4 *Exclusion of liability*

You must adhere to this documentation and the documentation of the connected devices from SEW-EURODRIVE to ensure safe operation and to achieve the specified product characteristics and performance features.

SEW-EURODRIVE assumes no liability for injury to persons or damage to equipment or property resulting from non-observance of the documentation. In such cases, any liability for defects is excluded.

### 1.5 *Other applicable documentation*

Observe the following applicable documentation:

- Installation guide (supplied with the product)
- System manual (still in progress)
- EMC in Drive Engineering (part of the printed publication: Drive Engineering – Practical Implementation)



Always use the latest version of the documentation and software.

The SEW-EURODRIVE homepage ([www.sew-eurodrive.com](http://www.sew-eurodrive.com)) provides a wide selection of documentation in various languages available for download.

If required, you can also order printed and bound copies of the documentation from SEW-EURODRIVE.

## 1.6 **Product names and trademarks**

The product names mentioned in this documentation are brands or registered brands of the titleholders.

## 1.7 **Copyright notice**

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Unauthorized reproduction, modification, distribution, and use of this instruction manual, in whole or in part, are prohibited.



## 2 Safety notes

### 2.1 General information

- Read the safety notes carefully.
- Check the delivery for damage caused during transport on receipt. If damage is found, advise your supplier.
- The panel meets the requirements of article 4 of the EMC Directive 2004/108/EC.
- Do not use the operator panel in or near a mining facility or outdoors, or in areas where there is a risk of explosion or fire hazard.
- SEW-EURODRIVE is not liable for modifications, changes, additions and/or alterations to the product.
- Use only spare parts and accessories manufactured according to the specifications of SEW-EURODRIVE.
- Read the installation and operating instructions carefully prior to installation, use or repair of the operator panel.
- Never allow fluids to penetrate the slots or holes in the operator panel. This may lead to a fire or cause the equipment to become live.
- Operation of the panel is restricted to qualified personnel.

### 2.2 Target group

Any mechanical work may only be performed by adequately qualified personnel. Qualified personnel in the context of this documentation are persons familiar with the design, mechanical installation, troubleshooting and servicing of the product who possess the following qualifications:

- Training in mechanical engineering, e.g. as a mechanic or mechatronics technician (final examinations must have been passed).
- They are familiar with this documentation.

Any electronic work may only be performed by adequately qualified electricians. Qualified electricians in the context of this documentation are persons familiar with electrical installation, startup, troubleshooting and servicing of the product who possess the following qualifications:

- Training in electrical engineering, e.g. as an electrician or mechatronics technician (final examinations must have been passed).
- They are familiar with this documentation.

In addition to that, they must be familiar with the relevant safety regulations and laws, especially with the requirements of the performance levels according to DIN EN ISO 13849-1 and all other standards, directives and laws specified in this documentation. The above mentioned persons must have the authorization expressly issued by the company to operate, program, configure, label and ground units, systems and circuits in accordance with the standards of safety technology.

All work in further areas of transportation, storage, operation and waste disposal must only be carried out by persons who are trained appropriately.





## 2.3 Designated use

The operator panel of the DOP11C series are intended for the operation and diagnostics of industrial and commercial systems.

The DOP11C series comprises only panels for fixed installation .

A suitable response to communication errors between the DOP11C and the controller must be implemented in the controller. Additionally, suitable measures (e.g. limit switches, position monitoring) must be implemented to ensure that no damage occurs as a result of a communication error with DOP11C.

Do not take the operator panel into operation (i.e. start of designated operation) until you have ensured that the local laws and guidelines are complied with. For the member states of the European Union (EU) this means that the machine complies with EMC Directive 2004/108/EC and the end product with Machinery Directive 2006/42/EC; EN 60204 must be adhered to.

## 2.4 Non-designated use

- Do not install or operate the panels where they will be exposed to direct sunlight.

### 2.4.1 Safety functions



#### **⚠ WARNING**

The operator panels of the DOP11C series may not execute any safety functions without higher-level safety systems.

Severe or fatal injuries.

- Use higher-level safety systems to ensure protection of equipment and personnel.

## 2.5 Bus systems

A bus system makes it possible to adapt frequency inverters and/or motor starters to the particulars of the machinery within wide limits. This results in the risk that a change of parameters that cannot be detected externally can result in unexpected, though not uncontrolled, system behavior.



## 2.6 ***Preventive measures and protection devices***

Make sure that **preventive measures** and **protection devices** correspond to the **applicable regulations** (e.g. EN 60204 or EN 50178).

Required preventive measure:      Grounding the unit

Required protection devices:      Overcurrent protection devices

## 2.7 ***Transportation / storage***

Immediately upon delivery, inspect the shipment for any damage that may have occurred in transit. Inform the shipping company immediately about any damage. Do not operate the operator panel if it is damaged.

If necessary, use suitable, sufficiently rated handling equipment.

Store the operator panel in a dry, dust-free room if it is not to be installed straight away.

## 2.8 ***Installation and startup***

- Place the panel on a stable base during installation. The panel can be damaged if it is dropped.
- Install the panel according to the accompanying installation instructions.
- The unit must be grounded according to the accompanying installation instructions.
- The installation must be performed by qualified personnel.
- Route high-voltage cables, signal cables and supply cables separately from one another.
- Make sure that the voltage and polarity of the electrical power source are correct before you connect the operator panel to the power supply.
- The openings in the housing are designed to allow air to circulate and therefore must not be covered.
- Do not install the operator panel in locations where it will be exposed to a powerful magnetic field.
- The peripheral equipment must be suitable for the designated use.
- The display glass of the panel is covered with a laminated foil to protect it from scratches during delivery. Pull off the foil carefully after installation to prevent static electricity causing damage to the panel.



## 2.9 Operating notes

- Always keep the panel clean.
- Emergency stop and other functions should not be controlled from the operator panel.
- Make sure that the keys, display, etc. are not touched by any sharp objects.
- Bear in mind that the panel is ready for operation even if the backlighting is no longer illuminated, which means that entries made on the keyboard and touchscreen will still be registered.

## 2.10 Service and maintenance

- The agreed limited warranty applies.
- Clean the display and the front of the panel with a soft cloth and mild detergent.
- Repairs must be performed by qualified personnel.

## 2.11 Disassembly and waste disposal

Complete or partial recycling of the operator panel is subject to local regulations.

Note that the following components contain substances that may pose a health hazard and cause environmental pollution: Lithium battery, electrolyte capacitors and display.

**Please observe currently applicable national regulations.**

Dispose of the following materials separately in accordance with the country-specific regulations in force, as:

- Electronics scrap
- Plastics
- Sheet metal
- Copper

etc.





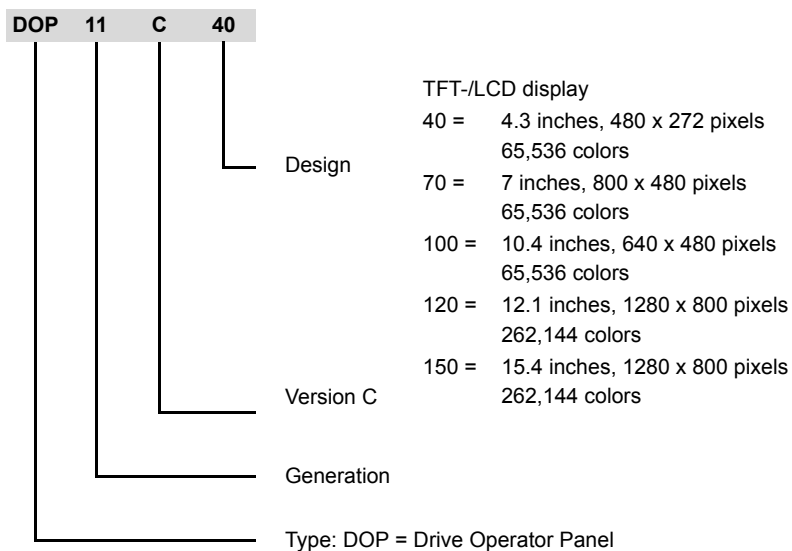
## Unit structure

### Type designation and nameplates

### 3 Unit structure

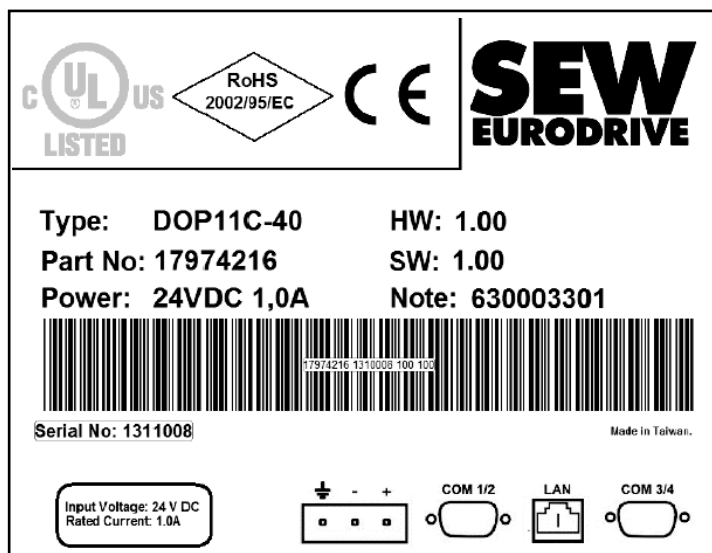
#### 3.1 Type designation and nameplates

##### 3.1.1 Sample type designation



##### 3.1.2 Example nameplate

The nameplate is attached to the rear of the unit:



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### **3.2 Scope of delivery**

Included in the scope of delivery:

- DOP11C operator panel
- Installation material
- Phoenix COMBICON connector for DC 24 V, 5 mm, 3-pin
- Compact operating instructions and installation guide (in English)



### 3.3 *DOP11C-40, -70 and -100*

The following sections will give you an overview of the display and the connections.  
For further details, refer to chapter "Technical data and dimension sheets".

#### 3.3.1 Display

The following illustration shows the display on the front of the operator panel:

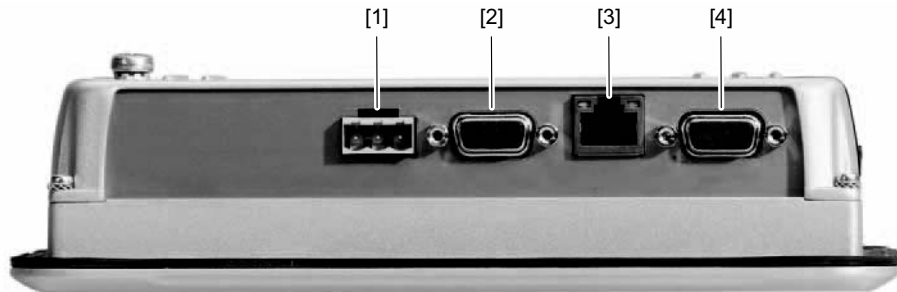


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### 3.3.2 Connections

- The following illustration shows the connections on the bottom of the operator panel:



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Pos.	Connection	Description
[1]	Voltage supply	DC 24 V (18 – 32 V)
[2]	COM1/2	Communication ports (serial, 9-pin D-sub) <ul style="list-style-type: none"> <li>• RS232</li> <li>• RS422</li> <li>• RS485</li> </ul>
[3]	Ethernet interface (LAN)	1 x 10/100 Base-T (shielded RJ45)
[4]	COM3/4	Communication ports (serial, 9-pin D-sub) <ul style="list-style-type: none"> <li>• RS232</li> <li>• RS422</li> <li>• RS485</li> </ul>

- The following illustration shows the connections on the back of the operator panel:



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Pos.	Connection	Description
[1]	USB interface	1 x USB host 2.0, max. output current 200 mA
[2]	SD memory card	1 x SD memory card (optional)



### 3.4 *DOP11C-120 and -150*

The following sections will give you an overview of the display and the connections.  
For further details, refer to chapter "Technical data and dimension sheets".

#### 3.4.1 Display

The following illustration shows the display on the front of the operator panel:



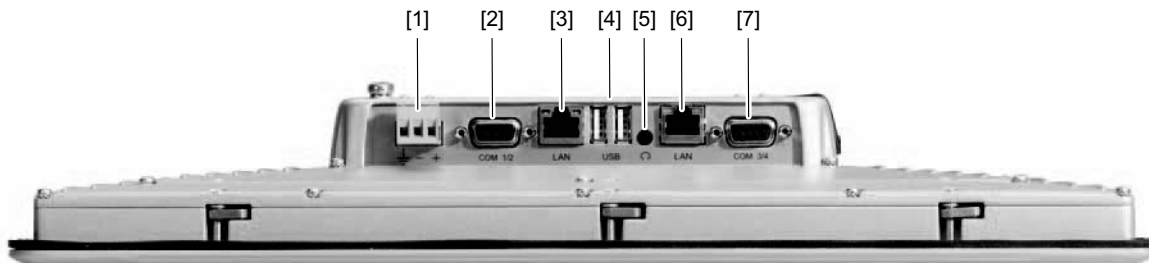
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### 3.4.2 Connections

- The following illustration shows the connections on the bottom of the operator panel:



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Pos.	Connection	Description
[1]	Voltage supply	DC 24 V (18 – 32 VDC)
[2]	COM1/2	Communication ports (serial, 9-pin D-sub) <ul style="list-style-type: none"> <li>• RS232</li> <li>• RS422</li> <li>• RS485</li> </ul>
[3]	Ethernet interface (LAN2)	1 x 10/100/1000 Base-T (shielded RJ45)
[4]	USB interface	2 x USB host 2.0, max. output current 500 mA
[5]	Audio output	Jack plug 3.5 mm
[6]	Ethernet interface (LAN1)	1 x 10/100 Base-T (shielded RJ45)
[4]	COM3/4	Communication ports (serial, 9-pin D-sub) <ul style="list-style-type: none"> <li>• RS232</li> <li>• RS422</li> <li>• RS485</li> </ul>

- The following illustration shows the connections on the back of the operator panel:



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Pos.	Connection	Description
[1]	USB interface	1 x USB host 2.0, max. output current 500 mA
[2]	SD memory card	1 x SD memory card (can be ordered optionally)



## 4 Installation

### 4.1 Important installation notes

#### 4.1.1 Installation notes for the basic unit

*Separate cable ducts*

Route **power cables** and **electronic cables** in **separate cable ducts**.

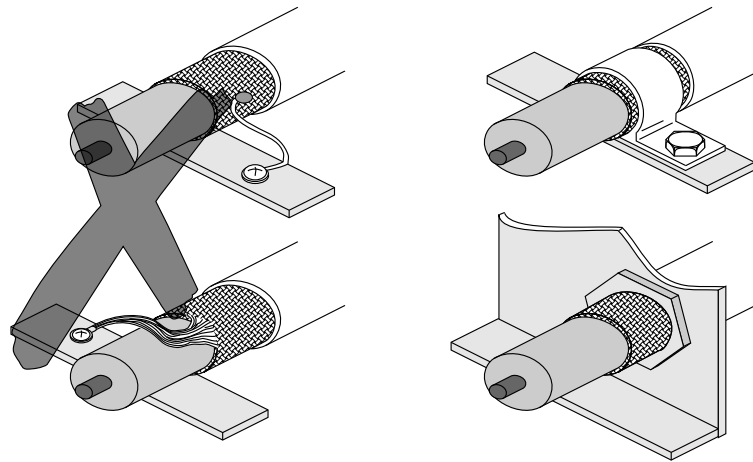
*Cross-sections*

- Voltage supply: **Cross section according to nominal input current.**
- Electronics cables:
  - 1 conductor per terminal 0.20 ... 0.75 mm<sup>2</sup> (AWG 20 ... 17)
  - 2 conductors per terminal 0.20 ... 0.75 mm<sup>2</sup> (AWG 20 ... 17)

*Shielding and grounding*

- Use only **shielded signal cables**.
- Connect the **shield by the shortest possible route and make sure it is grounded over a wide area at both ends**. You can ground one end of the shield via an interference suppression capacitor (220 nF / 50 V) to avoid ground loops. If using double-shielded cables, ground the outer shield on the controller end and the inner shield on the other end.

Examples of correct shield connection with metal clamp (shield terminal) or metal Pg cable gland.



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- **Shielding** can also be achieved by routing the cables in **grounded sheet metal ducts or metal pipes**. In this case, the **power cables and control cables** should be **routed separately**.
- The unit is grounded via the connector for 24 V voltage supply.



#### 4.1.2 UL-compliant installation

Note the following information for UL-compliant installation:

- Use only copper conductors with a temperature range of 60 / 75 °C as connection cable.



#### WARNING

- Disconnect units only if no voltage is applied.
- This device is equipped with a battery.
- The unit must be used on an even surface with protection 4X. Only for indoor use.



#### NOTICE

Only use tested units with a **limited output voltage** ( $V_{\max} = \text{DC } 30 \text{ V}$ ) and **limited output current** ( $I \leq 8 \text{ A}$ ) as an **external DC 24 V voltage source**.

UL certification does not apply to operation in voltage supply systems with a non-grounded star point (IT systems).



## Installation

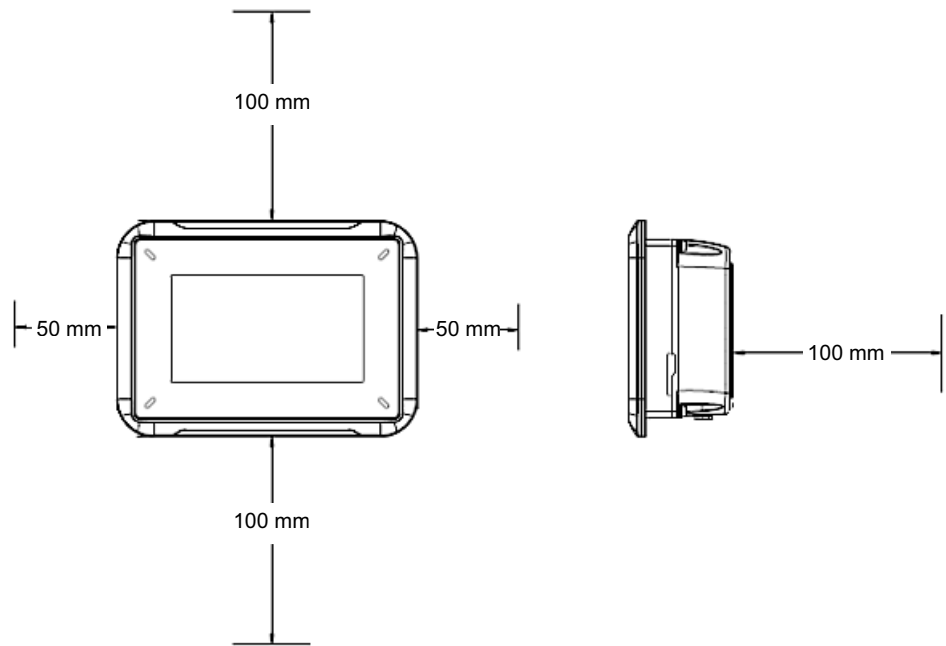
### Important installation notes

#### 4.1.3 Space required for installation

The thickness of the mounting plate depends on the unit type. The following table lists the maximum wall thickness for each unit type:

Unit type	Max. thickness of mounting plate:
DOP11C-40	11 mm
DOP11C-70	
DOP11C-100	8 mm
DOP11C-120	
DOP11C-150	

Space required for installing the operator panel:

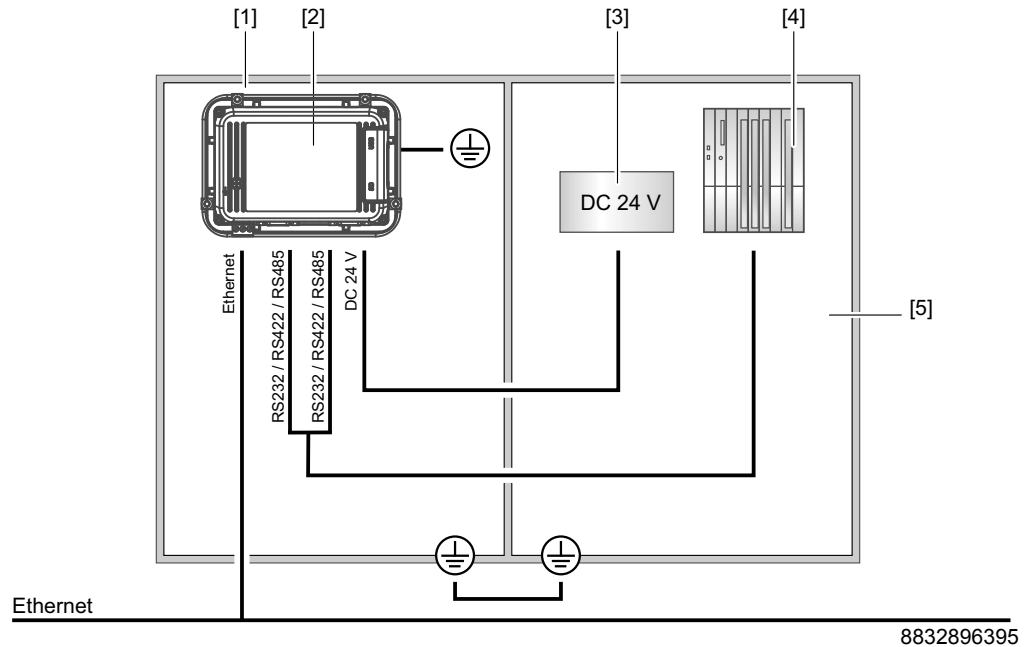


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#### 4.1.4 Installation diagram:

1. Connect the cables as shown to the following diagram:



- [1] Make sure that the operator panel and controller have the same electrical grounding (reference voltage value), as otherwise there may be problems with communication.
- [2] Use an M5 screw and a PE (as short as possible) with a minimum cross section of 2.5 mm<sup>2</sup>.
- [3] Only use shielded communication cables.  
Route high-voltage cables separately from signal and supply cables.
- [4] The operator panel must be adjusted to the ambient temperature before it is taken into operation. If condensation builds up, you must ensure that the operator panel is dry before connecting it to the power supply.  
Ensure that the voltage and polarity of the power source are correct.
- [5] Control cabinet

2. Carefully remove the protective film from the display of the operator panel to prevent damage from static electricity.

## 4.2 Unpacking

- Unpack the delivery and check it. Inform your supplier immediately in the event of damage.

### NOTICE



Place the operator panel on a stable base during installation. If the unit falls down, it could be damaged.



## Installation

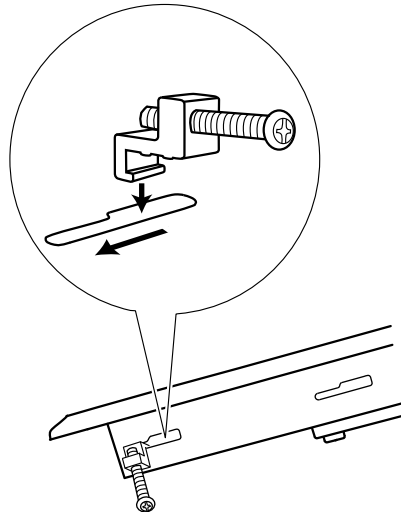
### Mounting the operator panel

#### 4.3 Mounting the operator panel

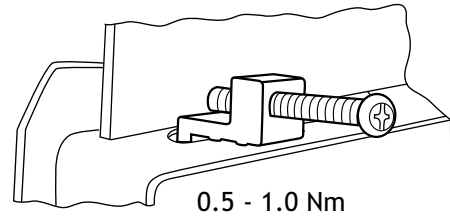
How the operator panel is mounted depends on the unit type:

- **DOP11C-40, -70 and -100**

Use all the retaining slots and the brackets and screws supplied to mount the operator panel.



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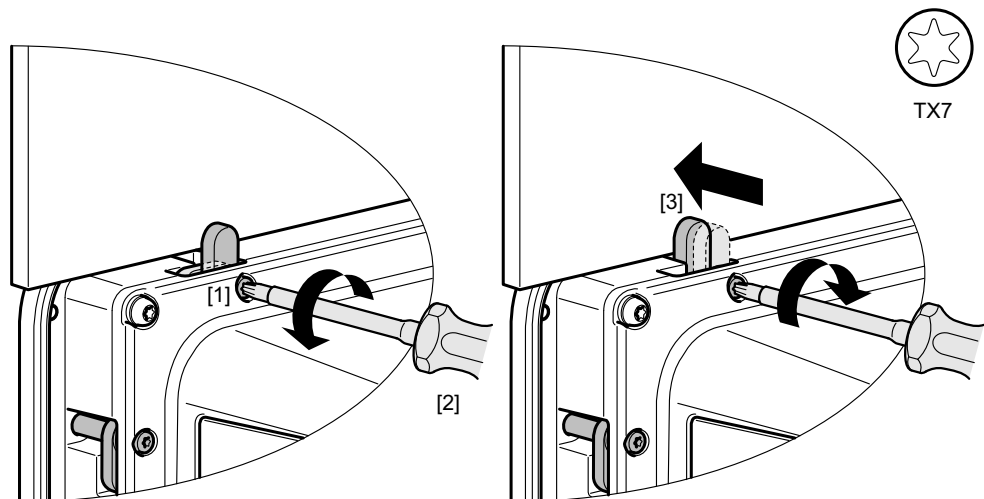
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- **DOP11C-120 and DOP11C-150**

Mount the operator panel to its designated spot using 8 screws (Torx, M4).

Loosen the screw [1] with a screw driver (Torx, TX7) [2] until the retaining clamp tilts up. Then tighten the screw clockwise (0.4 Nm) until the retaining clamp is pressed against the housing wall.

Repeat the procedure for the remaining screws.



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- [1] Screw (Torx, M4)
- [2] Screw driver (Torx, TX7)
- [3] Retaining clamp



#### 4.4 Connecting a voltage supply



##### NOTICE

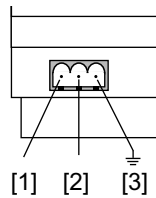
Ensure correct polarity when connecting the panel. Incorrect polarity will damage the unit.



##### INFORMATION

Make sure the operator panel and the controller system have the same electrical grounding (reference voltage value). Otherwise, communication errors might occur.

Voltage supply DOP11C:



- [1] +24 V
- [2] 0 V
- [3] Ground

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**4.5 Connecting the operator panel****4.5.1 Preparation****NOTICE**

Possible damage to property.

The power must be switched off when connecting the units.

---

- Take suitable measures to prevent the motor from starting up unintentionally via the connected frequency inverter.
  - Disconnect the electronics input X13.0/controller inhibit in MOVIDRIVE® or
  - Disconnect the supply voltage (24 V backup voltage must still be applied)
  - Disconnect the terminals "clockwise rotation" and "enable" on MOVITRAC®

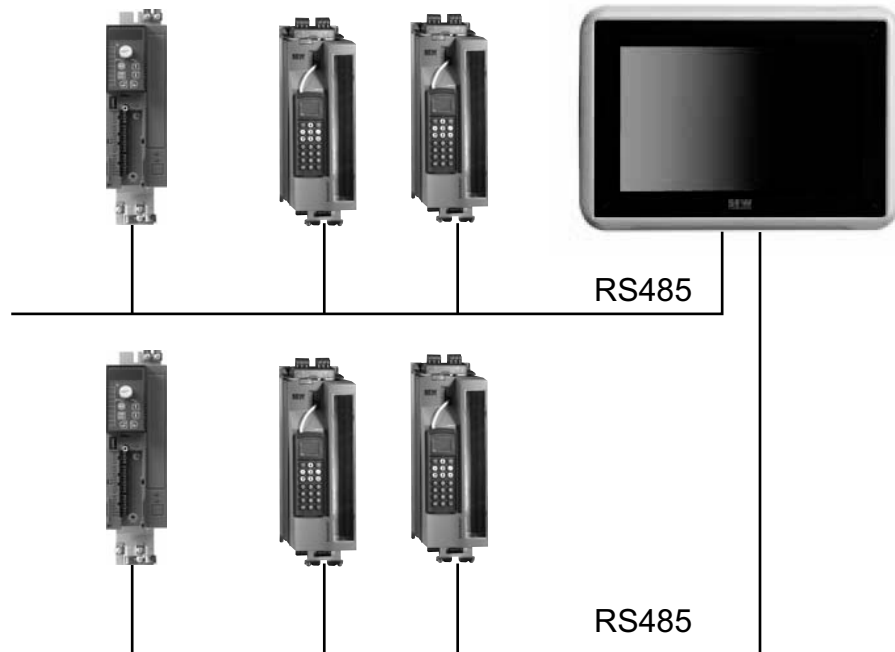
Additional safety measures must be taken depending on the application to avoid injury to people and damage to machinery.





#### 4.5.2 Connecting the operator panel to the frequency inverter and PC

1. Connect the operator panel to the inverter.  
For detailed information, refer to chapter "RS485 connection" (page 26).



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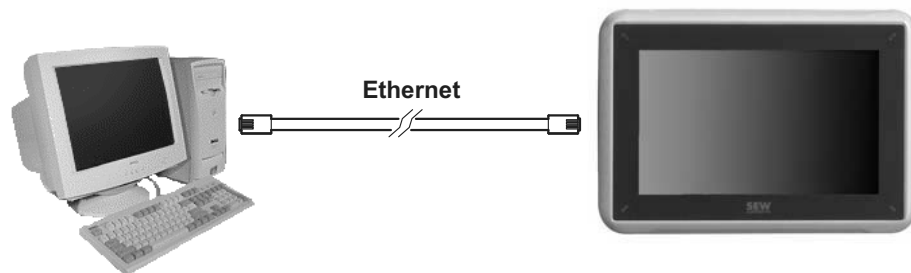
2. Connect the operator panel to the PC using the standard Ethernet patch cable.



#### INFORMATION

The Ethernet interface of the operator panel has an "autocrossing" function. Therefore, there is no need for a crossover cable for a point-to-point connection.

For detailed information, refer to chapter "Ethernet connection" (page 28).



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3. Switch on the PC. If the HMI Builder.PRO project planning software is not already installed on the PC, install it now and then start the software.
4. Switch on the supply (24 V) for the operator panel and the connected frequency inverter.



## Installation

### Connecting the operator panel

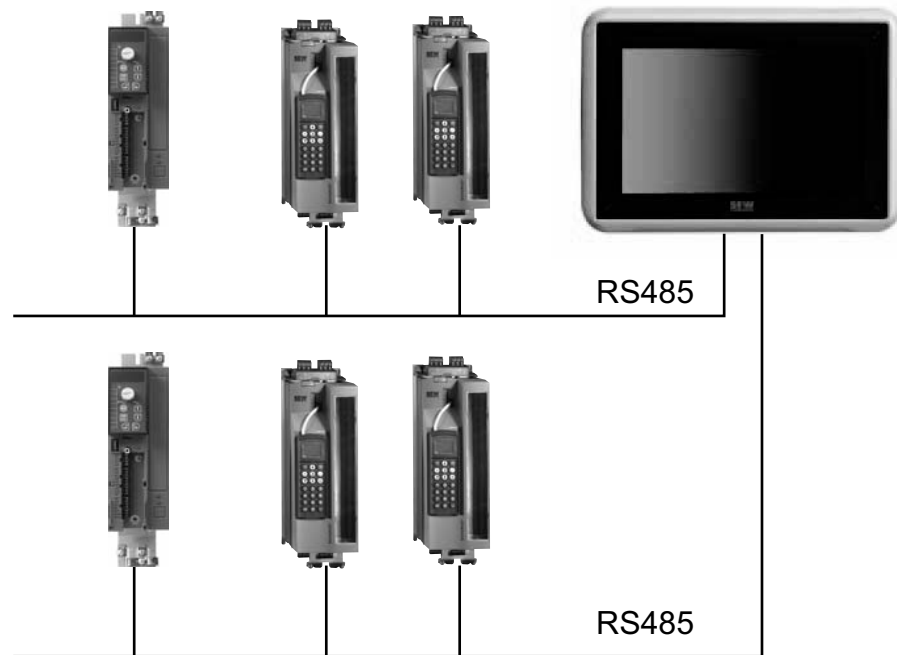
#### 4.5.3 Connection types

**RS-485 connection** With the RS485 interface you can connect up to 31 MOVIDRIVE® units to one operator panel.

DOP11C can be directly connected to a frequency inverter of the type MOVIDRIVE® via the RS485 interface using a 9-pin Sub-D connector.

*Wiring diagram:*  
RS485 interface

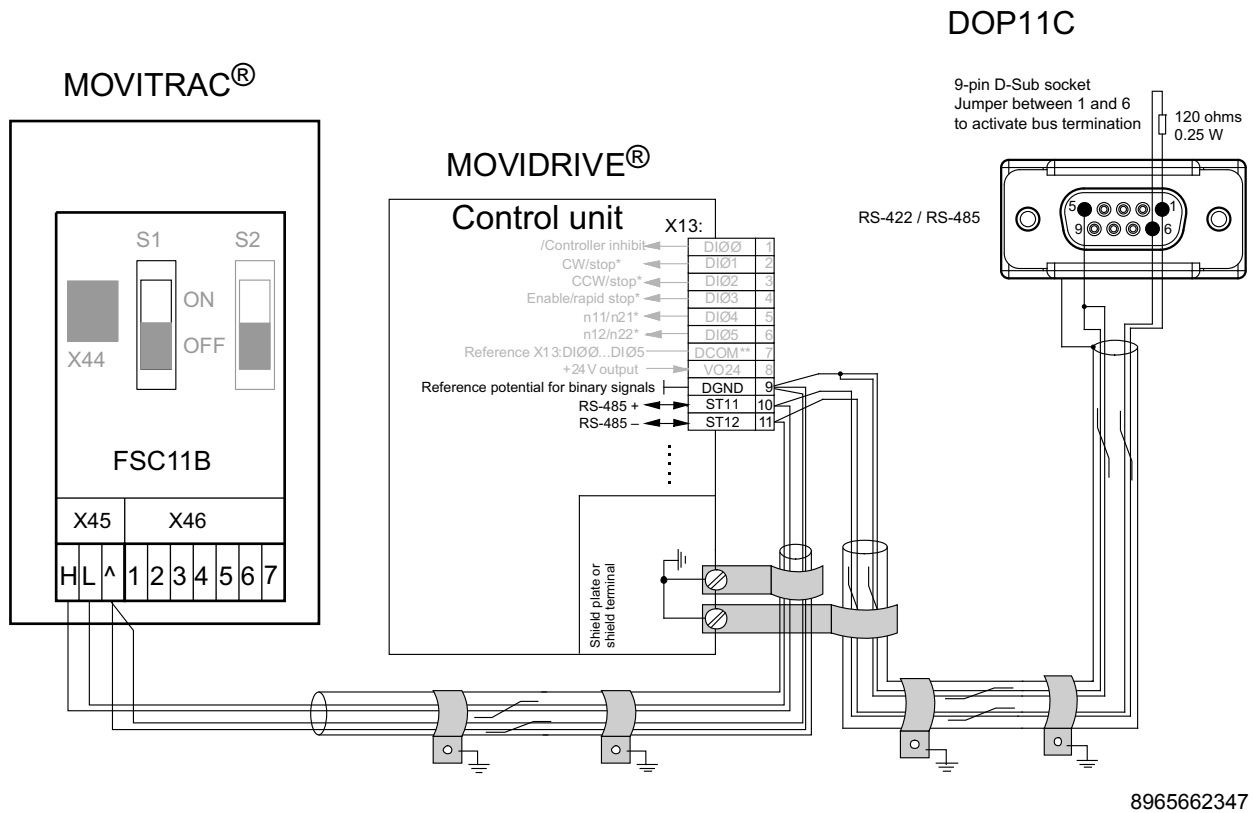
RS485 connection:



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Pin assignment for DOP11C:



**Cable specification** Use a 2 x 2-core twisted and shielded copper cable (data transmission cable with braided copper shield). The cable must meet the following specifications:

- Core cross section 0.5 ... 0.75 mm<sup>2</sup> (AWG 20 ... 18)
- Cable resistance 100 ... 150 Ω at 1 MHz
- Capacitance per unit length ≤ 40 pF/m (12 pF/ft) at 1 kHz.

For example, the following cable is suitable:

- UNITRONIC® BUS CAN, 2 x 2 x 0.22 mm<sup>2</sup> by Lappkabel.

**Applying the shield** Apply the shield at both ends over large area to the electronics shield clamp of the controller and in the housing of the 9-pin Sub-D connector of the operator panel.



**NOTICE**

The bus controller may suffer irreparable damage as a result of a short circuit in the EMC decoupling between the electronics and ground.

**Never connect the shield ends to DGND!**

**Cable length** The permitted total cable length is 200 m.



## Installation

### Connecting the operator panel

Potential shift

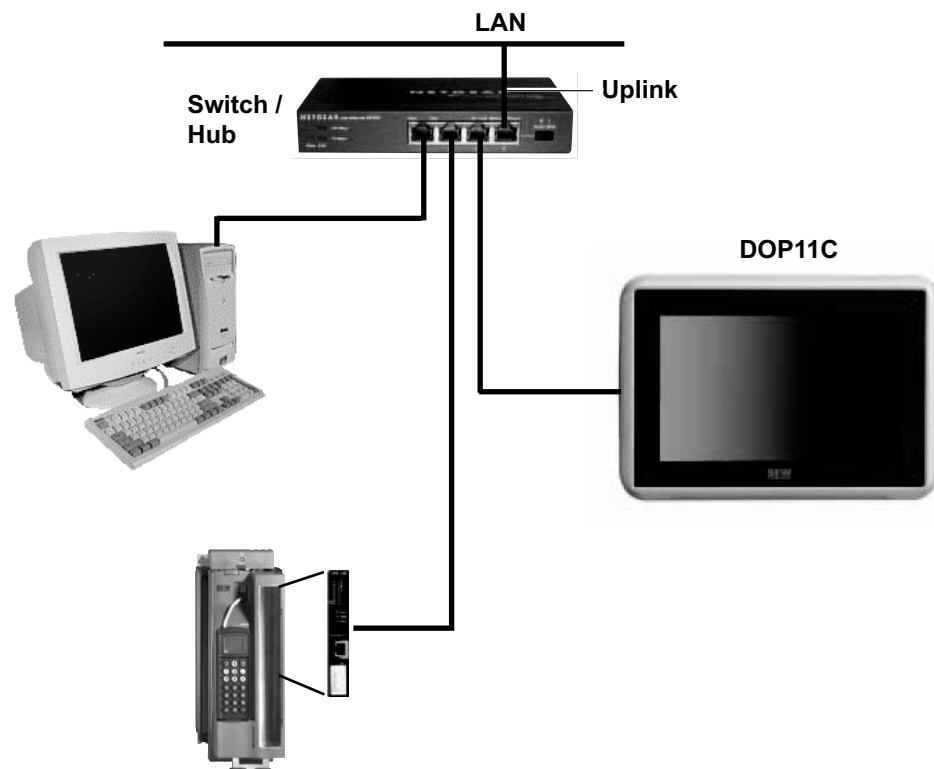


#### NOTICE

There must not be any potential shift between the units connected to RS485. Take suitable measures to avoid potential shift, for example, by connecting the unit grounds (GND) with a separate cable, connecting the voltage supply (24 V) etc.

Ethernet connection

Connecting DOP11C to a PC for programming and remote maintenance via Ethernet and TCP/IP.



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Cable specification

Use a standard shielded Ethernet cable with shielded RJ45 connectors and cables according to the CAT5 specification. The maximum cable length is 100 m.

For example, the following cable is suitable:

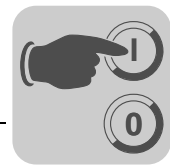
- UNITRONIC® LAN UTP BS flexible 4 x 2 x 26 AWG by Lappkabel

Ethernet connections of DOP11C-120 and -150

The units DOP11C-120 and -150 are equipped with 2 Ethernet connections.

**Note:** The Ethernet connections cannot be used as a switch (with the same IP address).

- Used the Ethernet connections independently (only one or both at one time) in order to connect the operator panel to other devices (inverters, controller).
- Assign one IP address from your local network (IP address range) to each Ethernet connection.



## 5 Startup



### **⚠ WARNING**

Risk of injury due to electric shock.

**Severe or fatal injuries.**

- Adhere to the safety instructions in chapter 2 during installation.

### 5.1 *Important notes on startup*

For a successful startup, a correct electrical connection of the operator panel is required.

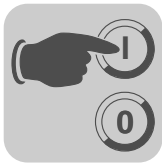


### **⚠ WARNING**

The operator panels of the DOP11C series may not execute any safety functions without higher-level safety systems.

**Severe or fatal injuries.**

- Use higher-level safety systems to ensure protection of equipment and personnel.



## 5.2 Starting the unit



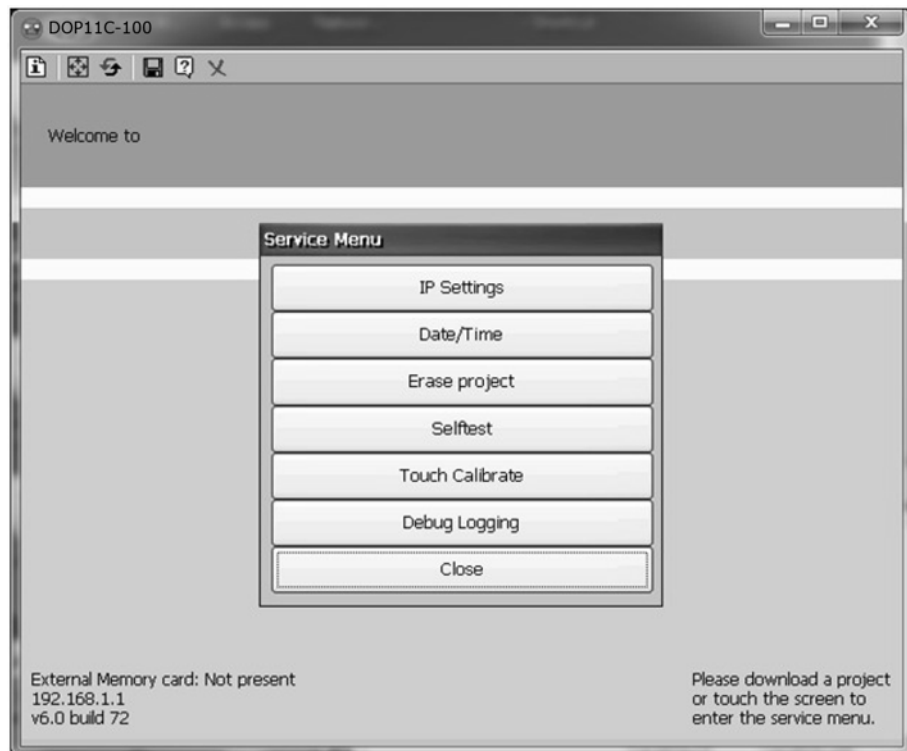
### INFORMATION

Units are delivered without an uploaded project.

The unit starts automatically and shows the start screen on the display when it is connected to a voltage supply.

Basic settings (e. g. IP addresses) can be set in the service menu.

- Touch the start screen to open the service menu.



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## 6 Operation

### 6.1 Open service menu

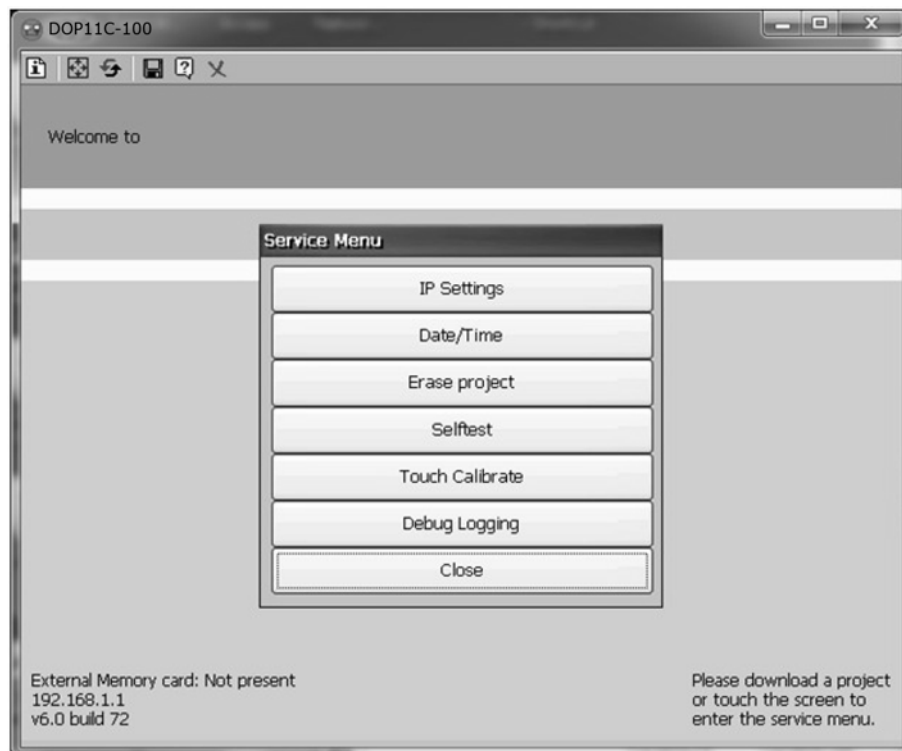


#### INFORMATION

For the following procedure, a project has to be uploaded into the service menu.

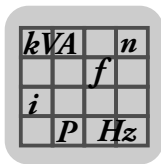
Proceed as follows to switch to the service menu:

1. Connect the operator panel to the voltage supply.  
An hourglass appears on the screen.
2. Wait until the hourglass disappears.
3. Touch the display and keep the finger on the display until the following message appears:  
*"Tap anywhere on screen, or touch calibrate will start in 10 seconds"*
4. Stop touching the display and then touch it again.  
The service menu appears.



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For detailed information on setting options, refer to the system manual.



## 7 Technical data and dimension sheets

### 7.1 Technical data

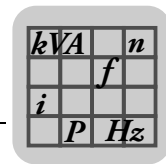
#### 7.1.1 Part numbers

	DOP11C-40	DOP11C-70	DOP11C-100	DOP11C-120	DOP11C-150
Part number	17974216	17974224	17974232	17974240	17974259

#### 7.1.2 Voltage supply

	DOP11C-40	DOP11C-70	DOP11C-100	DOP11C-120	DOP11C-150
Voltage supply	DC +24 V (DC 18-32 V) CE: The voltage supply has to meet the requirements of IEC 60950 and IEC 61558-2-4. UL and cUL: The current supply has to be in line with guidelines for current supply class 2.				
Power consumption at rated voltage	3.6 W	6 W	9.6 W	22 W	24 W
Fuse	Internal DC fuse, 2.0 AT, 5 x 20 mm			3.15 A TT (super slow blow) 5 x 20 mm	
Accumulator / Battery	Accumulator: MS920-SE			Battery: CR 2032	





### 7.1.3 Display

	DOP11C-40	DOP11C-70	DOP11C-100	DOP11C-120	DOP11C-150
Graphics resolution (pixels)	480 x 272 (16:9)	800 x 480 (16:9)	640 x 480 (4:3)	1280 x 800 (16:10)	1280 x 800 (16:10)
Active screen size, W x H	95.0 x 53.9 mm (4.3")	152.4 x 91.4 mm (7")	211.2 x 158.4 mm (10.4")	261.12 x 163.2 mm (12.1")	331.2 x 207.0 mm (15.4")
Backlight	LED, can be dimmed >50,000 h at an ambient temperature of +25 °C.	LED, can be dimmed >20,000 h at an ambient temperature of +25 °C.	LED, can be dimmed >50,000 h at an ambient temperature of +25 °C.		
Brightness (cd/m <sup>2</sup> )	350	350	450	400	450
Contrast	400 : 1	400 : 1	700 : 1	1000 : 1	1000 : 1
Display	TFT-LCD, 65 k colors				
Angle of vision (H) / (V)	140 deg. / 115 deg.	140 deg. / 115 deg.	160 deg. / 140 deg.	176 deg. / 176 deg.	160 deg. / 140 deg.
Touch screen material <sup>1)</sup>	Polyester on glass, resistive				
	Coating: Autoflex EBA180L			Coating: Autotex F157 / F207	
Touch screen contacts	1 million touch screen contacts				

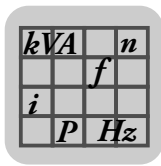
1) For detailed information, refer to "Chemical resistance" in the appendix

### 7.1.4 Housing

	DOP11C-40	DOP11C-70	DOP11C-100	DOP11C-120	DOP11C-150
Dimensions W x H x D	145 x 103 x 7 mm	204 x 143 x 7 mm	280 x 228 x 7 mm	340 x 242.2 x 79 mm	410 x 286 x 83 mm
Cutout W x H	128 x 87 mm	187 x 126 mm	262 x 209 mm	324 x 226 mm	394 x 270 mm
Installation depth	43 mm (143 mm incl. free space)		44 mm (144 mm incl. free space) free space:	72 mm (172 mm including free space)	76mm (176 mm including free space)
Degree of protection - front	IP 65				
Degree of protection - back	IP 20				
Protection material - back and frame	Powder-coated aluminum				
Weight	0.5 kg	0.8 kg	1.5 kg	2.6 Kg	3.85 kg

### 7.1.5 Ambient Conditions

	DOP11C-40	DOP11C-70	DOP11C-100	DOP11C-120	DOP11C-150
Operating temperature	-10 °C to +60 °C			-10 °C to +50 °C	
Storage temperature	-20 to +70 °C				
Rel. Humidity	< 85 % (non-condensed)			5 % – 85 % (non-condensing)	

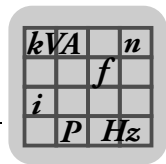


#### 7.1.6 Certifications

	DOP11C-40	DOP11C-70	DOP11C-100	DOP11C-120	DOP11C-150
EMC tests on panel	Tested according to: EN 61000-6-3 (emission) and EN 61000-6-2 (interference immunity).				
UL approval	UL 508				
	In association with the UL approval, the installation guides (in English) delivered with the unit and with the following document numbers apply:				
	20162944 / EN	20194544 / EN	20194943 / EN	20195346 / EN	20195745 / EN
DNV approval	Yes				
NEMA	4X, indoor use only				

#### 7.1.7 Communication and memory

	DOP11C-40	DOP11C-70	DOP11C-100	DOP11C-120	DOP11C-150
RS232 serial interface (COM1, 3)	9-pin D-sub connector, installed plug with 4-40 UNC retaining screws.				
RS422/485 serial interface (COM2, 4)					
Ethernet	1 x 10 Base-T / 100 Base-T (shielded RJ45)			1 x 10/100/1000 Mbit/s and 1 x 10/100 Mbit/s. Shielded RJ45	
USB	1 x USB host 2.0, max. output current 200 mA			3 x USB host 2.0, max. output current 500 mA	
Processor:	ARM9 400 MHz			Intel® Atom 1.1 GHz	
External memory media	1 x SD memory card (optional) Compatibly only with a standard SD format with a memory capacity of up to 2 GB.				
RAM	128 MB (DDR2)			1 GB (DDR2)	
Application memory	80 MB			1.4 GB	
LED	1 x blue / red, programmable using software			1 x multicolor	
Real-time clock	Yes (on chip)				



## 7.2 Pin assignment

### 7.2.1 Serial connections

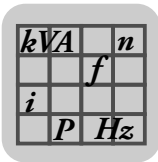
9-pin D-sub connector					
Diagram connector	terminal no.	COM1	COM2	COM3	COM4
	1	-	RS422 TX+ RS485 TX+/RX+	-	RS422 TX+ RS485 TX+/RX+
	2	RS232 RX	-	RS232 RX	-
	3	RS232 TX	-	RS232 TX	-
	4	-	RS422 RX+		RS422 RX+
	5	GND	GND	GND	GND
	6	-	RS422 TX- RS485 TX-/RX-	-	RS422 TX- RS485 TX-/RX-
	7	RS232 RTS	-	-	RS422 RTS+
	8	RS232 CTS	-	-	RS422 RTS-
	9	-	RS422 RX-	-	RS422 RX

### 7.2.2 Ethernet

RJ45 socket	Terminal no.	Designation	Signal direction operator panel ↔ XXX
	1	Tx+	→
	2	Tx-	→
	3	Rx+	←
	6	Rx-	←
	4, 5, 7, 8	GND	-

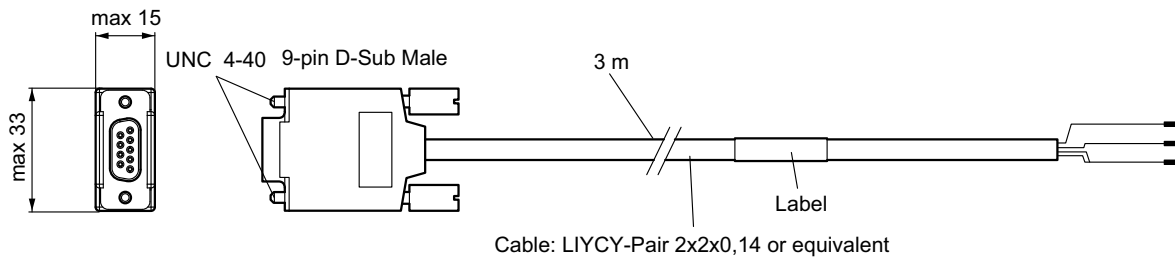
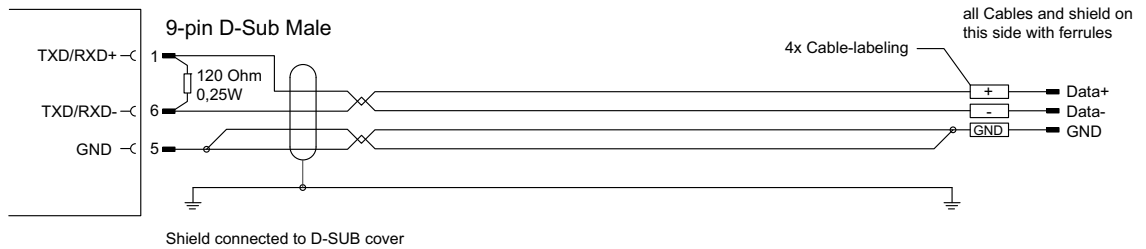
### 7.2.3 USB

USB socket	Terminal no.	Designation	Signal direction operator panel ↔ XXX
	1	VBUS	-
	2	D -	↔
	3	D+	↔
	4	GND	-
	1	VBUS	-
	2	D -	↔
	3	D+	↔
	4	GND	-

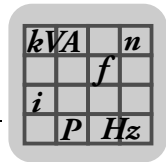


7.3 Cable

7.3.1 RS485 /RS422 communication cable (assembled Sub-D 9-pin)

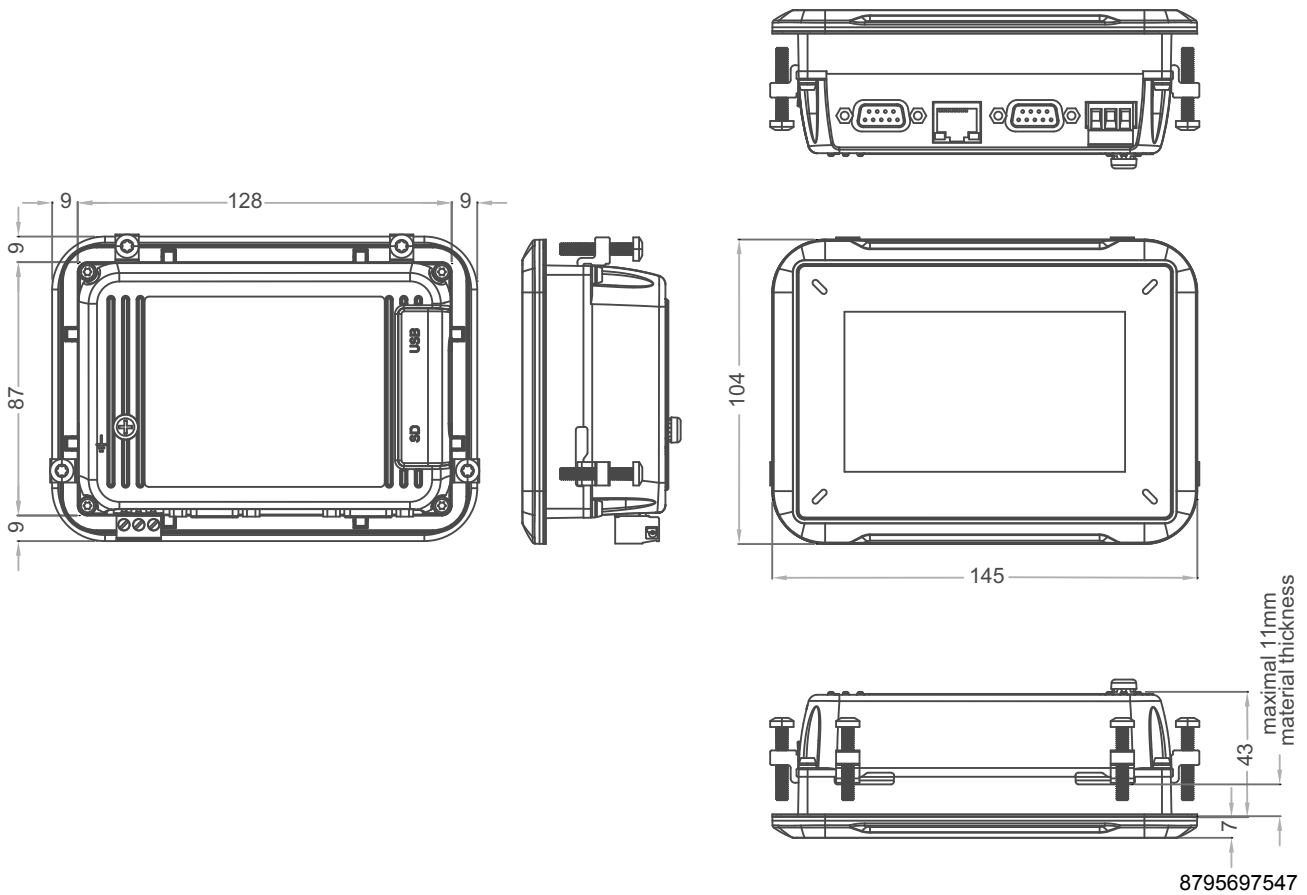


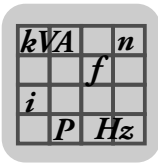
8966255627



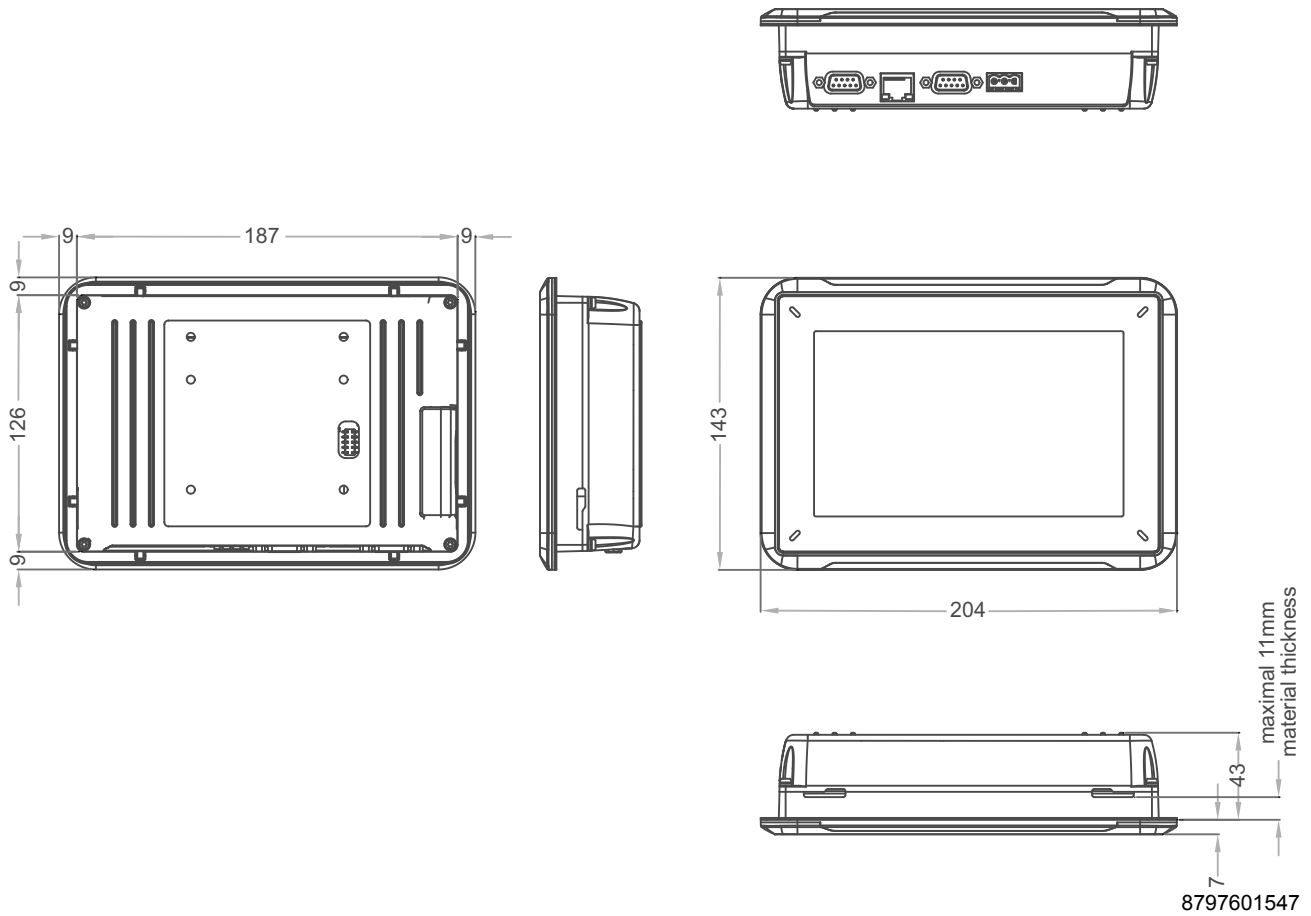
## 7.4 Dimension sheets

### 7.4.1 Dimension sheet DOP11C-40



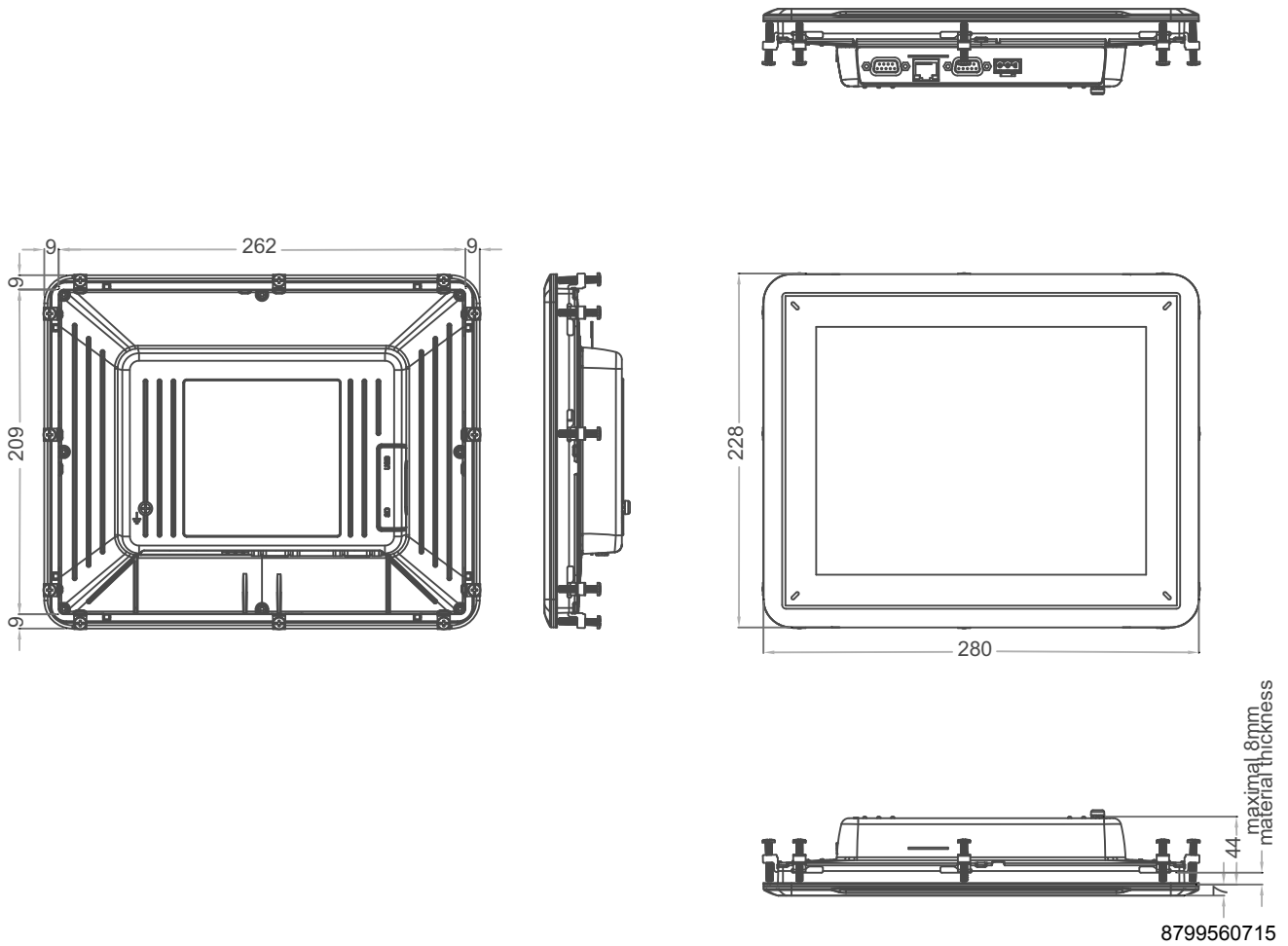


#### 7.4.2 Dimension sheet DOP11C-70



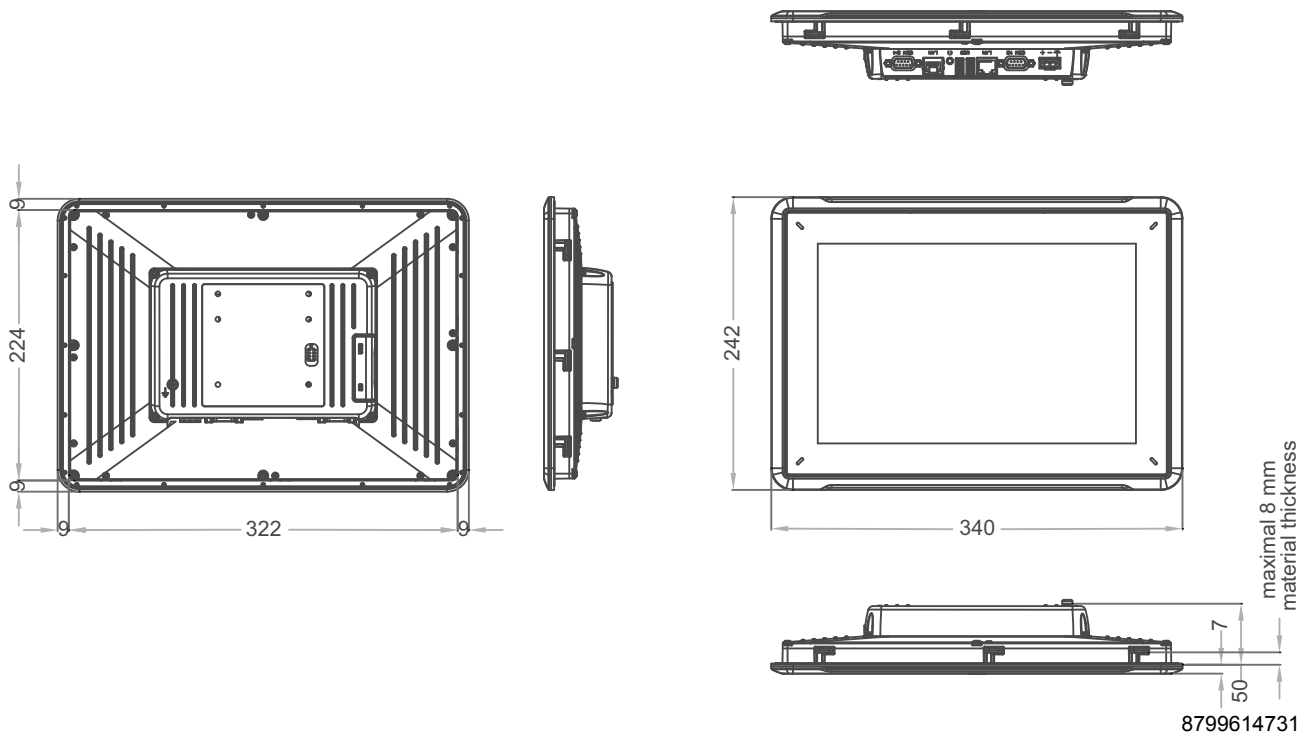
$kVA$	$n$
$i$	$f$
$P$	$H_z$

7.4.3 Dimension sheet DOP11C-100





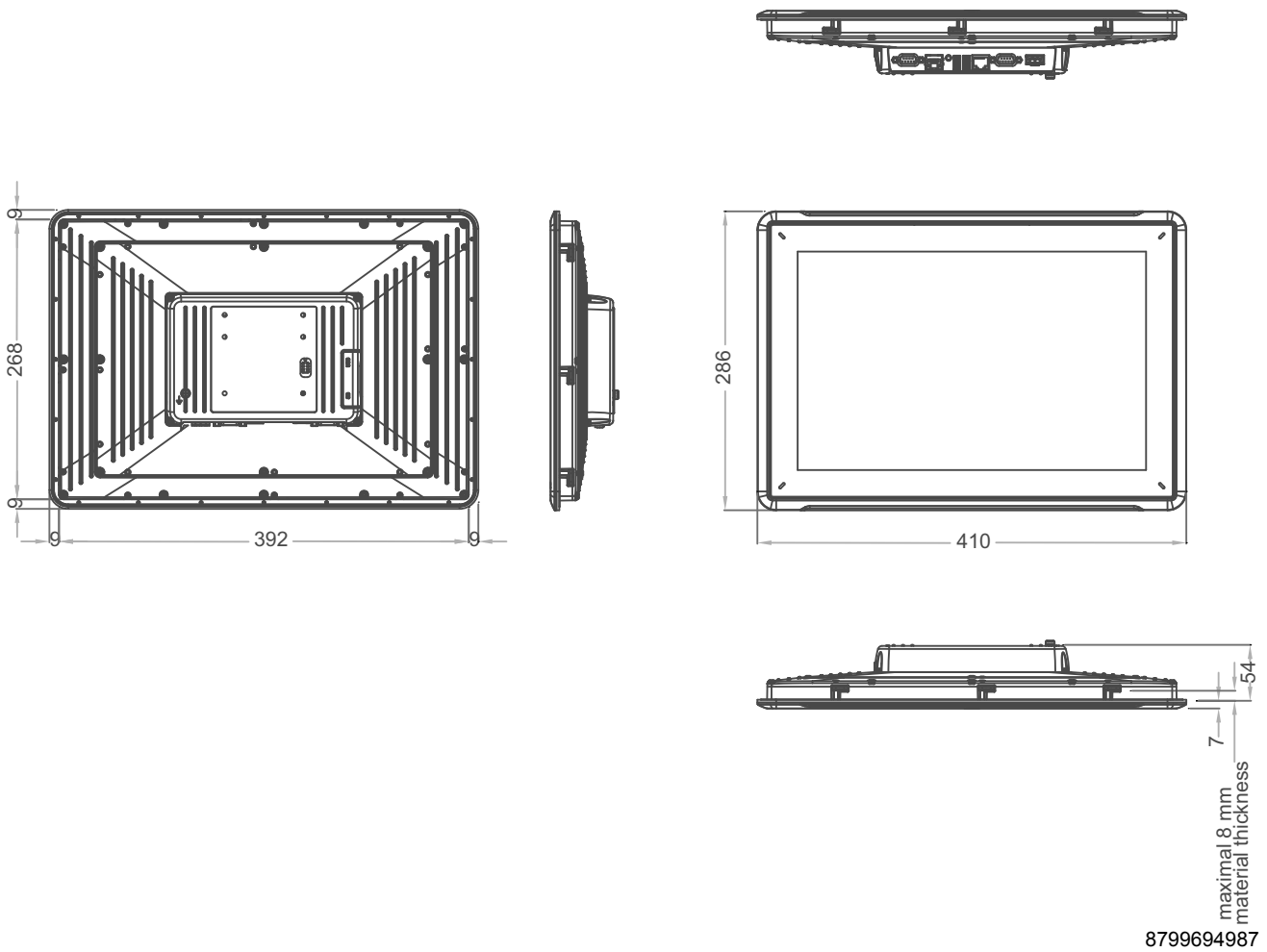
#### 7.4.4 Dimension sheet DOP11C-120





$kVA$	$n$
$i$	$f$
$P$	$H_z$

7.4.5 Dimension sheet DOP11C-150





## 8 Declaration of conformity

## EC Declaration of Conformity

**SEW**  
**EURODRIVE**

902080013

**SEW-EURODRIVE GmbH & Co KG**  
 Ernst-Blickle-Straße 42, D-76646 Bruchsal

declares under sole responsibility that the

operator panels	DOP11C-40 DOP11C-70 DOP11C-100 DOP11C-120 DOP11C-150
-----------------	--

are in conformity with

EMC Directive	2004/108/EC	4)
---------------	-------------	----

Applied harmonized standards:	EN 61000-6-2:2005 EN 61000-6-4:2007 + A1:2011
-------------------------------	--

- 4) According to the EMC Directive, the listed products are not independently operable products. EMC assessment is only possible after these products have been integrated in an overall system. The assessment was verified for a typical system constellation, but not for the individual product.

Bruchsal 11.07.13

Place	Date	Johann Soder Managing Director Technology	a) b)
-------	------	--	-------

- a) Authorized representative for issuing this declaration on behalf of the manufacturer  
 b) Authorized representative for compiling the technical documents

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## 9 Appendix

### 9.1 Chemical resistance

#### 9.1.1 Metal housing

The frame and housing are made of powder-coated aluminum. This powder coating can be exposed to the following substances for more than 24 hours without any visible changes:

Sea water	Tap water
Diesel oil / fuel oil	Sodium chloride solution 2% / 20%
Deionized water	Phosphoric acid 4% / 10%
Acetic acid 10%	Sulfuric acid 20%
Hydroperoxide 3%	Cooking oil
Citric acid	-

The powder coating is partly resistant to the following chemicals at room temperature:

Butanol	Nitric acid 3%
Hydrochloric acid 5%	Nitric acid 10%
Isopropyl alcohol	Phosphoric acid 43%
Sodium hypochlorite 10%	Turpentine



#### INFORMATION

If contact with any of the above mentioned chemicals cannot be avoided, it is recommended to first test the reaction of the substance at a spot of the metal housing which is not visible to everybody.

The powder coating is not or barely resistant to the following chemicals at room temperature:

Concentrated acetic acid	Methyl ethyl ketone
Toluene	Acetone
Nitric acid 30%	Trichlorethylene
Ammonia 5%	Phenol
Xylene	Concentrated ammonia
Sodium hydroxide 5%	Gasoline, 97 octane, unleaded
Ethyl acetate	Sodium hydroxide 30%
Gasoline, 98 octane, leaded	-

#### 9.1.2 Solvent resistance of the display

The display can be exposed to the following substances for given time period the without any visible changes:

Solvent	Time period
Acetone	10 min
Isopropanol	10 min
Toluene	5 h



#### 9.1.3 Solvent resistance of the coating

*Autotex F157 / F207, Autoflex EBA180L*

According to DIN 42115 part 2, Autotex F157 / F207, Autoflex EBA180L can be exposed to the following chemicals for more than 24 hours without showing any noticeable changes:

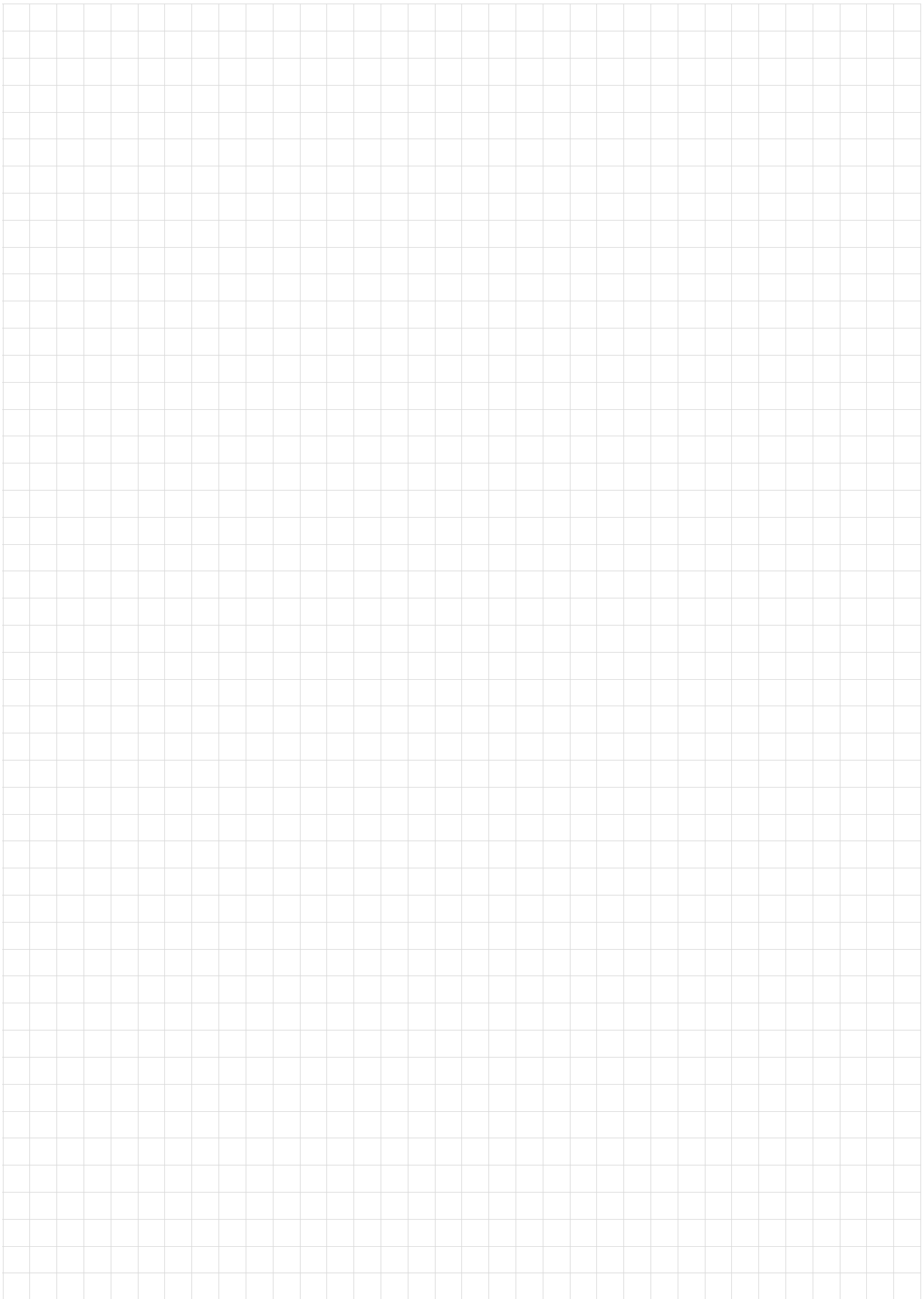
Acetonitrile	Fuel Downey / Lenor <sup>1)</sup>	Phosphoric acid (<30%)
Dissolved abrasive cleaner (Ajax / Vim)	Ethanol	Potassium ferrocyanide / ferricyanide
Alkali carbonate solution	Glycerin	Potassium hydroxide (< 30%)
Ammonia <sup>1)</sup> (< 40%)	Glycol	Pure turpentine
Acetic acid (<50%)	Gumption <sup>1)</sup>	SBP 60/95 <sup>1)</sup>
Dissolved Ariel powder (laundry detergent) (1)	Hydrochloric acid (<36%)	Sulfuric acid (<10%)
Bleach <sup>1)</sup>	Linseed oil	Ketchup
Caster oil	Methanol	Trichloroacetic acid (< 50%)
Sodium hydroxide <sup>1)</sup> (<40%)	Nitric acid (<10%)	Test gasoline <sup>1)</sup>
Drilling oil	Paraffin oil	Windex <sup>1)</sup>
Cyclohexanol	Dissolved Persil powder (laundry detergent) (1)	Wisk
Diacetone alcohol	-	-

1) A barely noticeable shininess was detected.

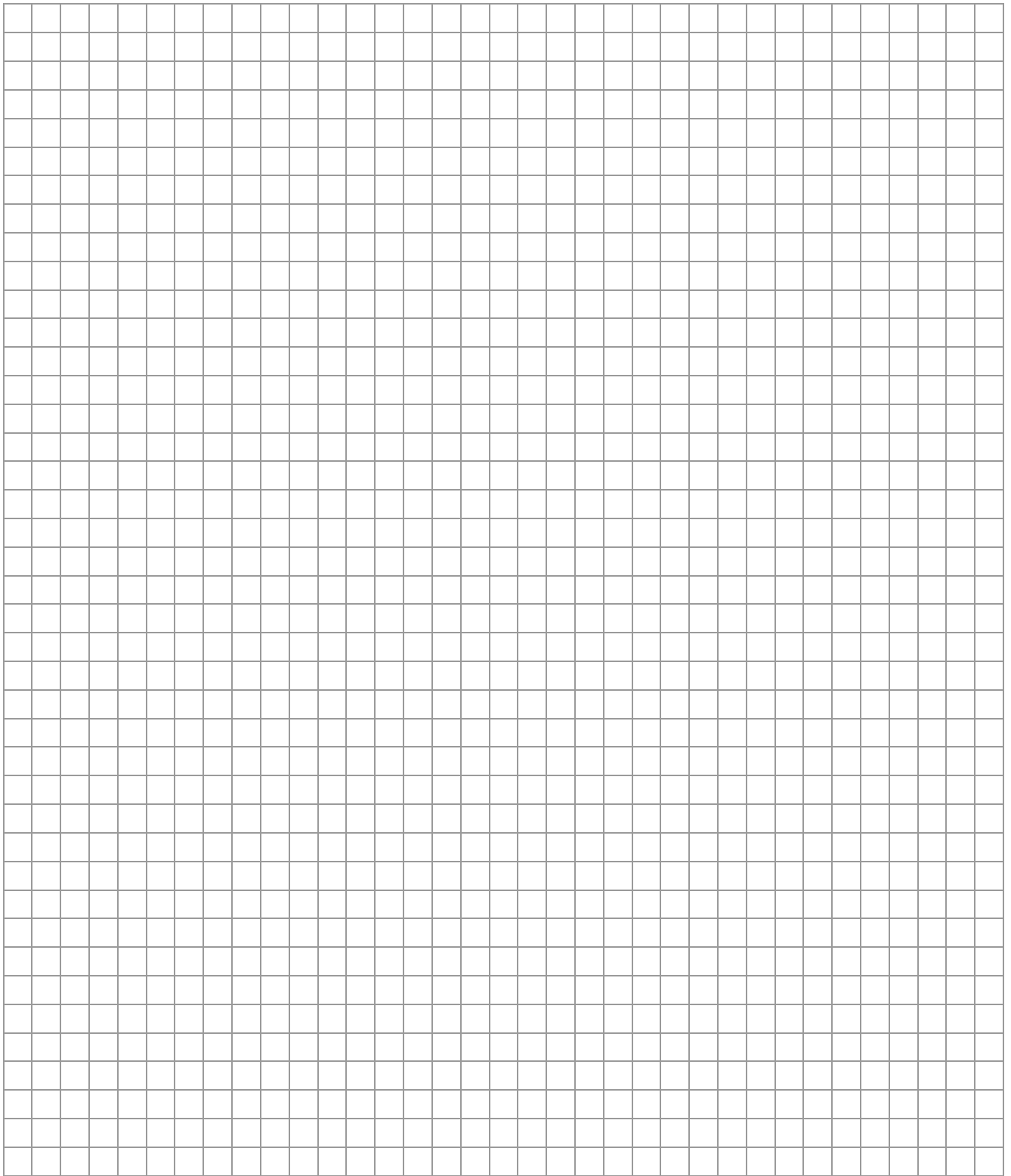
According to DIN 42115 part 2, Autotex F157 / F207, Autoflex EBA180L is resistant to glacial acetic acid for 1 hour maximum without any noticeable changes.

Autotex F157 / F207, Autoflex EBA180L is neither resistant to high pressure steam of over 100 °C nor to the following chemicals:

Concentrated inorganic acids	Benzyl alcohol
Concentrated etching solution	Methylene chloride









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