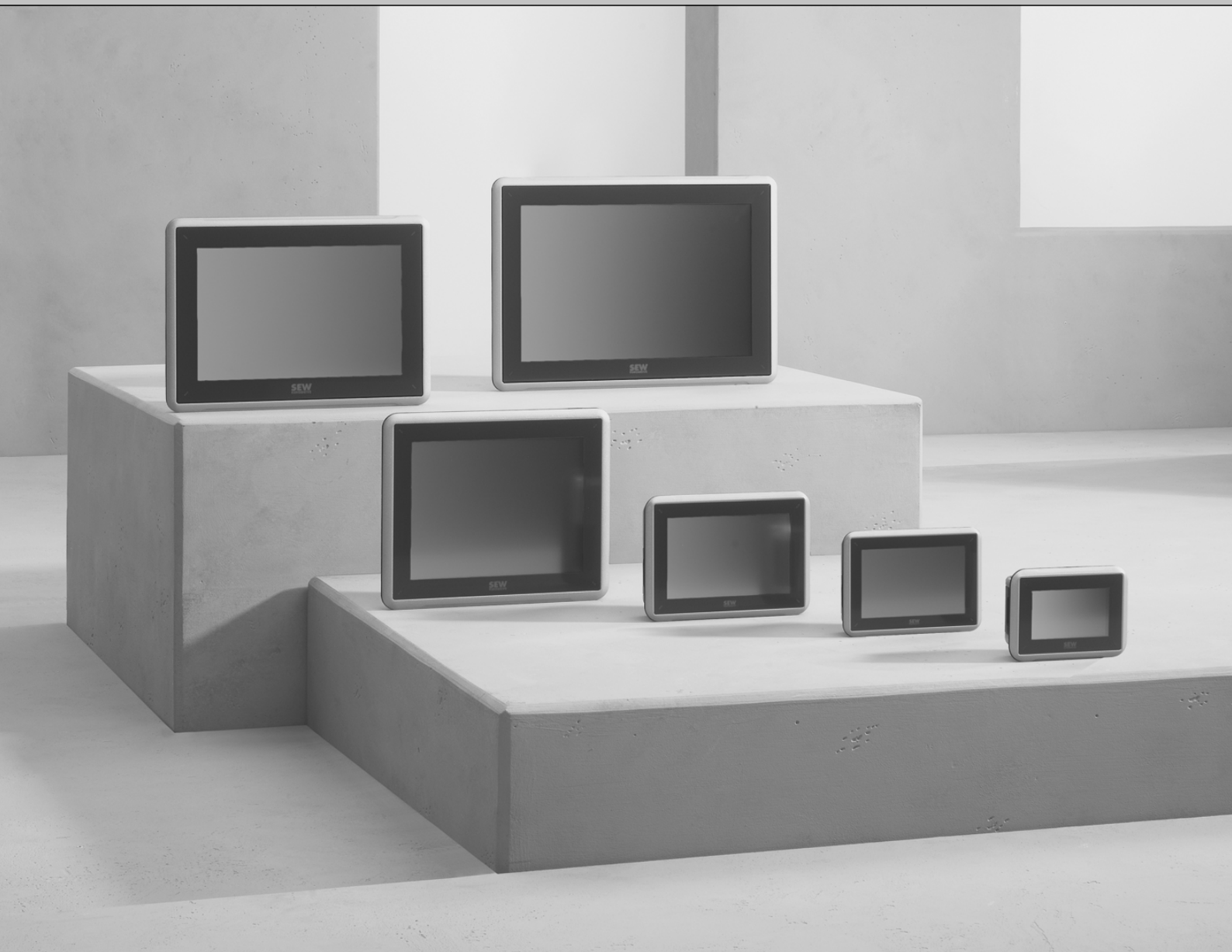




Operating Instructions



DOP11C Operator Panels



Table of Contents

1	General information.....	5
1.1	About this documentation	5
1.2	Other applicable documentation	5
1.3	Structure of the safety notes	5
1.4	Decimal separator in numerical values	6
1.5	Rights to claim under limited warranty	6
1.6	Product names and trademarks	6
1.7	Copyright notice	6
2	Safety notes	7
2.1	Preliminary information	7
2.2	Duties of the user	7
2.3	Target group	7
2.4	Designated use	8
2.5	Functional safety technology	8
2.6	Network security and access protection	9
2.7	Transportation/storage	9
2.8	Setup/installation	9
2.9	Installation	9
2.10	Electrical connection	10
2.11	Startup and operation	10
2.12	Service/maintenance	10
3	Device structure	11
3.1	Type designation	11
3.2	Nameplate	12
3.3	Scope of delivery	12
3.4	Connections	13
4	Installation	16
4.1	Installation notes	16
4.2	UL-compliant installation	17
4.3	Space required for installation	18
4.4	Thickness of mounting plate	19
4.5	Unpacking the operator panel	19
4.6	Installing the operator panel	19
4.7	Connecting the operator panel	22
4.8	Connecting the operator panel to the inverter and engineering PC	24
4.9	Connecting a voltage supply	28
5	Startup	30
5.1	Starting the operator panel	30
6	Operation	31
6.1	Opening the service menu	31
7	Service	32
7.1	Waste disposal	32

8 **Technical data**..... 33

8.1 Part numbers 33

8.2 Voltage supply 33

8.3 Touchscreen 33

8.4 Housing..... 34

8.5 Ambient Conditions..... 35

8.6 Certifications 35

8.7 Communication and memory 36

8.8 Chemical resistance..... 37

8.9 Pin assignment 39

8.10 Cable..... 40

8.11 Dimension sheets 43

Index 51

27788903/EN – 05/2023

1 General information

1.1 About this documentation

The documentation at hand is the original.

This documentation is an integral part of the product. The documentation is intended for all employees who perform work on the product.

Make sure this documentation is accessible and legible. Ensure that persons responsible for the systems and their operation as well as persons who work on the product independently have read through the documentation carefully and understood it. If you are unclear about any of the information in this documentation or if you require further information, contact SEW-EURODRIVE.

1.2 Other applicable documentation

Observe the corresponding documentation for all additional components.

1.3 Structure of the safety notes

1.3.1 Meaning of signal words

The following table shows the graduation and meaning of the signal words in the warnings:

Signal word	Meaning	Consequences if not observed
▲ DANGER	Imminent danger	Death or severe injuries
▲ WARNING	Possible, dangerous situation	Death or severe injuries
▲ CAUTION	Possible, dangerous situation	Slight injuries
NOTICE	Possible damage to property	Damage to the product or its environment
INFORMATION	Useful information or tip: Simplifies handling of the product.	

1.3.2 Structure of section-related safety notes

Section-related safety notes do not apply to a specific action but to several actions pertaining to one subject. The hazard 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 hazard.

Possible consequence(s) if disregarded.

- Measure(s) to prevent the hazard.

1.3.3 Structure of embedded safety notes

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

This is the formal structure of an embedded safety note:

▲ SIGNAL WORD! Type and source of danger. Possible consequence(s) if disregarded. Measure(s) to prevent danger.

1.4 Decimal separator in numerical values

In this document, a period is used to indicate the decimal separator.

Example: 30.5 kg

1.5 Rights to claim under limited warranty

Read the information in this documentation. This is essential for fault-free operation and fulfillment of any rights to claim under limited warranty. Read the documentation before you start working with the product.

1.6 Product names and trademarks

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

1.7 Copyright notice

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2 Safety notes

2.1 Preliminary information

The following general safety notes serve the purpose of preventing injury to persons and damage to property. They primarily apply to the use of products described in this documentation. If you use additional components, also observe the relevant warning and safety notes.

2.2 Duties of the user

As the user, you must ensure that the basic safety notes are observed and complied with. Make sure that persons responsible for the machinery and its operation as well as persons who work on the device independently have read through the documentation carefully and understood it.

As the user, you must ensure that all of the work listed in the following is carried out only by qualified specialists:

- Setup and installation
- Installation and connection
- Startup
- Maintenance and repairs
- Shutdown
- Disassembly

Ensure that the persons who work on the product pay attention to the following regulations, conditions, documentation, and information:

- The national and regional regulations governing safety and the prevention of accidents
- The warning and safety signs on the product
- All other associated project planning documents, installation and startup instructions, as well as wiring diagrams
- Do not assemble, install or operate damaged products
- All system-specific specifications and regulations

Ensure that systems in which the product is installed are equipped with additional monitoring and protection devices. Observe the applicable safety regulations and legislation governing technical work equipment and accident prevention regulations.

2.3 Target group

Specialist for mechanical work

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

- Qualifications in the field of mechanics in accordance with the national regulations
- Familiarity with this documentation

Specialist for electrotechnical work	Any electrotechnical work may be performed only by electrically skilled persons with a suitable education. Electrically skilled persons in the context of this documentation are persons who are familiar with electrical installation, startup, troubleshooting, and maintenance of the product, and who possess the following qualifications: • Qualifications in the field of electrical engineering in accordance with the national regulations • Familiarity with this documentation
Additional qualifications	In addition to that, these persons must be familiar with the valid safety regulations and laws, as well as with the requirements of the standards, directives, and laws specified in this documentation. The persons must have the express authorization of the company to operate, program, parameterize, label, and ground devices, systems, and circuits in accordance with the standards of safety technology.
Instructed persons	All work in the areas of transport, storage, installation, operation and waste disposal may only be carried out by persons who are trained and instructed appropriately. These instructions must enable the persons to carry out the required activities and work steps safely and in accordance with regulations.

2.4 Designated use

This product is used for operation and diagnostics purposes of industrial and commercial systems.

The product is intended for control cabinet installation in electrical systems or machines.

In case of installation in electrical systems or machines, startup of the product is prohibited until it is determined that the machine meets the requirements stipulated in the local laws and directives. For Europe, Machinery Directive 2006/42/EC as well as the EMC Directive 2014/30/EU apply. Observe EN 60204-1 (Safety of machinery - electrical equipment of machines). The product meets the requirements stipulated in the Low Voltage Directive 2014/35/EU.

The standards given in the declaration of conformity apply to the product.

Technical data and information on the connection conditions are provided on the nameplate and in chapter "Technical data" in the documentation. Always comply with the data and conditions.

Unintended or improper use of the product may result in severe injury to persons and damage to property.

A suitable response to communication errors between the product 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 the product.

2.5 Functional safety technology

The product must not perform any safety functions without a higher-level safety system unless explicitly allowed by the documentation.

2.6 Network security and access protection

A bus system makes it possible to adapt electronic drive technology components to the particulars of the machinery within wide limits. There is a risk that a change of parameters that cannot be detected externally may result in unexpected but not uncontrolled system behavior and may have a negative impact on operational safety, system availability, or data security.

Ensure that unauthorized access is prevented, especially with respect to Ethernet-based networked systems and engineering interfaces.

Use IT-specific safety standards to increase access protection to the ports. For a port overview, refer to the respective technical data of the device in use.

2.7 Transportation/storage

Inspect the shipment for damage as soon as you receive the delivery. Inform the shipping company immediately about any damage. If the product is damaged, it must not be assembled, installed or started up.

If necessary, use suitable, sufficiently dimensioned handling equipment.

Observe the information on climatic conditions in chapter "Technical data" of the documentation.

Store the operator panel in a dry, dust-free room if you do not install it right away.

2.8 Setup/installation

The following applications are prohibited unless the device is explicitly designed for such use:

- Operation in a mining facility or outdoors
- Operation in potentially explosive atmospheres and high fire risk areas
- Use in areas with a strong magnetic field
- Use in direct sunlight

2.9 Installation

Install the product according to the accompanying installation instructions.

Place the product on a stable surface during installation. If the product falls down, it could be damaged.

Route high-voltage cables, signal cables and supply cables separately from one another.

Make sure that the voltage and polarity of the current source are correct before you connect the product to the current supply.

To prevent scratches on the touchscreen of the product during delivery, the touchscreen has a laminated protective film. To avoid static electricity damaging the product, only remove the protective film from the glass after the installation.

2.10 Electrical connection

Familiarize yourself with the applicable national accident prevention regulations before working on the product.

Perform electrical installation according to the pertinent regulations (e.g. cable cross-sections, fusing, protective conductor connection). The documentation at hand contains additional information.

Ensure that all of the required covers are correctly attached after the electrical installation.

Protective measures and protection devices must comply with the regulations in force.

2.10.1 Required preventive measure

Make sure that the product is correctly attached to the ground connection.

2.10.2 Required protection devices

Make sure the product is protected against overload and short circuit by an overcurrent protection device.

2.11 Startup and operation

Observe the safety notes in the chapters "Startup and Operation" in the documentation.

Always keep the operator panel clean.

The openings in the housing are designed to allow air to circulate and must not be covered over. Make sure that no liquids enter the openings. This may lead to a fire or cause the equipment to become live.

Do not control any emergency stop functions and other safety functions with the operator panel.

Make sure that the touchscreen is not touched by any sharp objects.

Bear in mind that the operator panel is ready for operation even if the backlighting is no longer illuminated, which means that entries made on the touchscreen will still be registered.

2.12 Service/maintenance

Use only spare parts and accessories manufactured according to the specifications of SEW-EURODRIVE. SEW-EURODRIVE is not liable for modifications, changes, additions and / or alterations to the product.

Clean the touchscreen and face of the operator panel with a soft cloth and mild cleaning agent.

3 Device structure

3.1 Type designation

The type designation is structured as follows.

Example: DOP11C-53		
Type	DOP	Drive Operator Panel
Mounting variant	11	Fixed installation
Generation	C	
Diagonal screen measurement	5	• 4 = 4.3 inches • 5 = 5 inches • 7 = 7 inches • 10 = 10.1 inches • 12 = 12.1 inches • 15 = 15.4 inches
Design	3	• 0 = Aluminum • 1 = Plastic • 2 = Aluminum • 3 = Plastic

INFORMATION



Unit designs "0" and "1" have been discontinued. The operating instructions can be found in the [Online Support portal of SEW-EURODRIVE](#).

3.2 Nameplate

The nameplate is attached to the rear of the unit.



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3.3 Scope of delivery

The following are included in the scope of delivery:

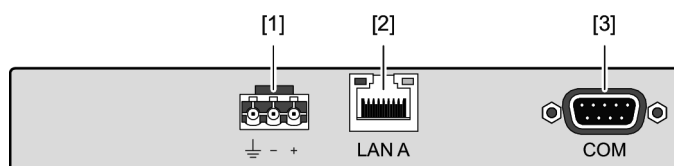
- Operator panel
- Mounting material (not applicable for DOP11C-122 and -152)
- Connector for DC 24 V, 5 mm, 3-pin
- Installation instructions
- Plug connector for COM6, 3-pin (DOP11C-53, -73, -103 only)

3.4 Connections

3.4.1 Connections on the underside

Below, you can find a description of the connections on the underside of the different designs of the operator panel. For detailed information, refer to chapter "Technical data" (→ 33).

Connections of DOP11C-42, -72

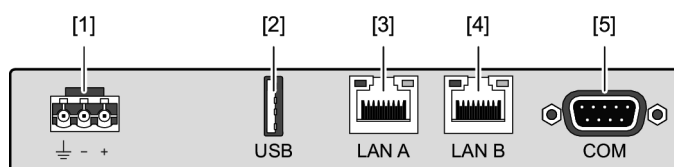


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Item	Connection	Description
[1]	Voltage supply	DC 24 V (DC 18 – 32 V)
[2]	Ethernet interface (LAN A)	1 x 10/100 Base-T (shielded RJ45)
[3]	COM interface	Communication ports (serial, 9-pin D-sub): • COM1: RS232 • COM2: RS422 or RS485 • COM3: RS485¹⁾ NOTE: To operate several communication ports simultaneously, use the CAB150 adapter cable. Refer to chapter "CAB150 adapter cable" (→ 42) for detailed information on the W cable.

1) COM3 can only be used if COM2 is a RS485 connection.

Connections of DOP11C-102, -122, -152



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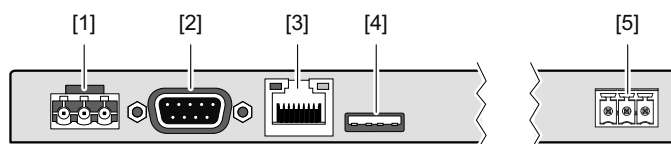
Item	Connection	Description
[1]	Voltage supply	DC 24 V (DC 18 – 32 V)
[2]	USB interface	1 x USB host 2.0, maximum output current 500 mA ¹⁾
[3]	Ethernet interface (LAN A)	1 x 10/100 Base-T (shielded RJ45)
[4]	Ethernet interface (LAN B)	1 x 10/100 Base-T (shielded RJ45)

Item	Connection	Description
[5]	COM interface	Communication ports (serial, 9-pin D-sub) • COM1: RS232 • COM2: RS422 or RS485 • COM3: RS485²⁾ NOTE: To operate several communication ports simultaneously, use the CAB150 adapter cable. Refer to chapter "CAB150 adapter cable" (→ 42) for detailed information on the W cable.

1) Another USB host 2.0 is located next to the SD slot on the rear.

2) COM3 can only be used if COM2 is a RS485 connection.

Connections of DOP11C-53, -73, -103



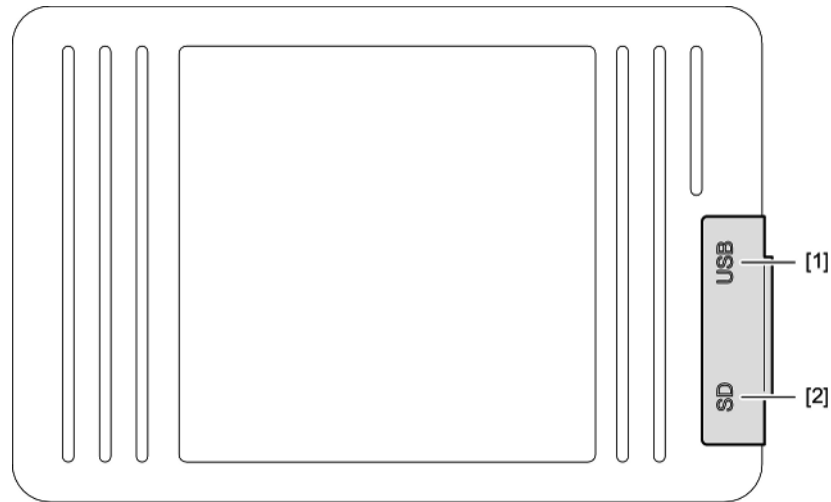
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Pos.	Connection	Description
[1]	Voltage supply	DC 24 V (DC 18 – 32 V)
[2]	Interface COM1/COM2/COM3	Communication ports (serial, 9-pin D-sub) • COM1: RS232 • COM2: RS422 or RS485 • COM3: RS485¹⁾ INFORMATION: To operate several communication ports simultaneously, use the CAB150 adapter cable. Refer to chapter "CAB150 adapter cable" (→ 42) for detailed information on the W cable.
[3]	Ethernet interface (LAN A)	1 × 10/100 Base-T (shielded RJ45)
[4]	USB interface	1 × USB host 2.0, maximum output current 500 mA
[5]	Interface COM6	Communication port (RS485, MINI-COMBICON MC)

1) COM3 can only be used if COM2 is a RS485 connection.

3.4.2 Connections on the rear

Below, you can find a description of the connections on the rear of the different designs of the operator panel. For detailed information, refer to chapter "Technical data" (→ 33).



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Pos.	Connection	Description
[1]	USB interface	1 × USB host 2.0 with a maximum output current of 500 mA
[2]	SD memory card slot	1 × SD memory card (optional)



INFORMATION

Slots for a microSD memory card and a micro-USB interface are located underneath a cover of the DOP11C-53, -73 and -103 operator panels. This is provided with a warranty seal and must not be opened.

4 Installation

4.1 Installation notes

NOTICE

Impermissible voltage levels in the signal circuit due to an impermissible voltage supply.

Damage to components.

- The installation must meet the requirements for protective separation according to SELV (Safety Extra Low Voltage) or PELV (Protective Extra Low Voltage).

4.1.1 Separate cable ducts

Route power cables and signal cables in separate cable ducts.

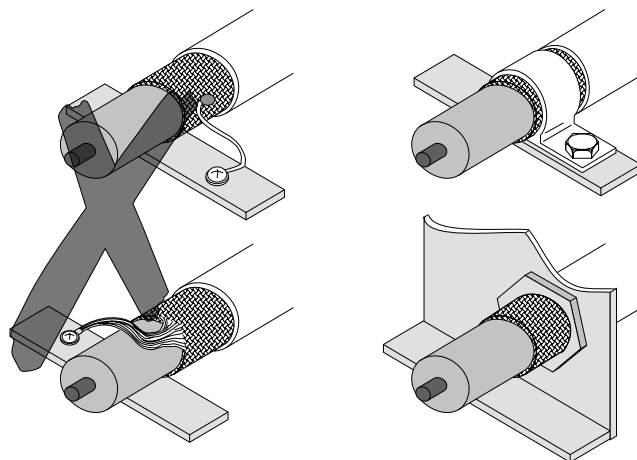
4.1.2 Cable cross sections

- Voltage supply: Cable cross section according to nominal input current.
- Signal lines:
 - 1 core per terminal 0.20 mm²– 0.75 mm² (AWG 20 – 17)
 - 2 cores per terminal 0.20 mm²– 0.75 mm² (AWG 20 – 17)

4.1.3 EMC-compliant installation

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

The following figure displays examples of correct shield connections using a metal clamp (shield terminal) or metal Pg cable gland:



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- You can also use grounded sheet-metal ducts or metal pipes to shield the cables. Route the power and signal cables separately.
- Ground the device using the built-in connector for a voltage supply of 24 V.

4.2 UL-compliant installation



INFORMATION

Due to UL requirements, the following chapter is always printed in English independent of the language of the documentation.



INFORMATION

The UL label must be attached to the device or in close proximity to the device.

4.2.1 UL and cUL installation

Validity

This section is only valid for UL labeled panels.

Suitability

- This equipment is suitable for use in Class 2 non-hazardous locations only.
- Combinations of equipment in your system are subject to investigation by the local authority having jurisdiction at the time of installation.
- All devices have to be supplied by a Class 2 power supply.

Expansion units

Only UL and cUL approved expansion units are allowed to be connected to the port designated "EXPANSION". At the moment there are no such units evaluated or allowed.

Battery

Battery may explode if mistreated. Do not recharge, disassemble or dispose of in fire.

- This product contains a battery; this must only be changed in an area known to be non-hazardous.
- Replace the battery with a BR 2032 battery. Use of another type of battery may present a risk of fire or explosion.

Flat surface

For use on a flat surface of a type 4X enclosure indoor use only.

Power terminals

Use minimum 75 °C copper wire only.

Wiring connections

To make wiring connections to the power supply connector, follow the table with cable and torque specifications below:

Terminal Block Connector	Wire Size AWG	Torque (Lb. In.)
X1/X100 Phoenix connectors	AWG 30 – 12	5 – 7
X1/X100 Anytek connectors	AWG 24 – 12	3.5
X1/X100 DECA connectors	AWG 24 – 12	7

Usage

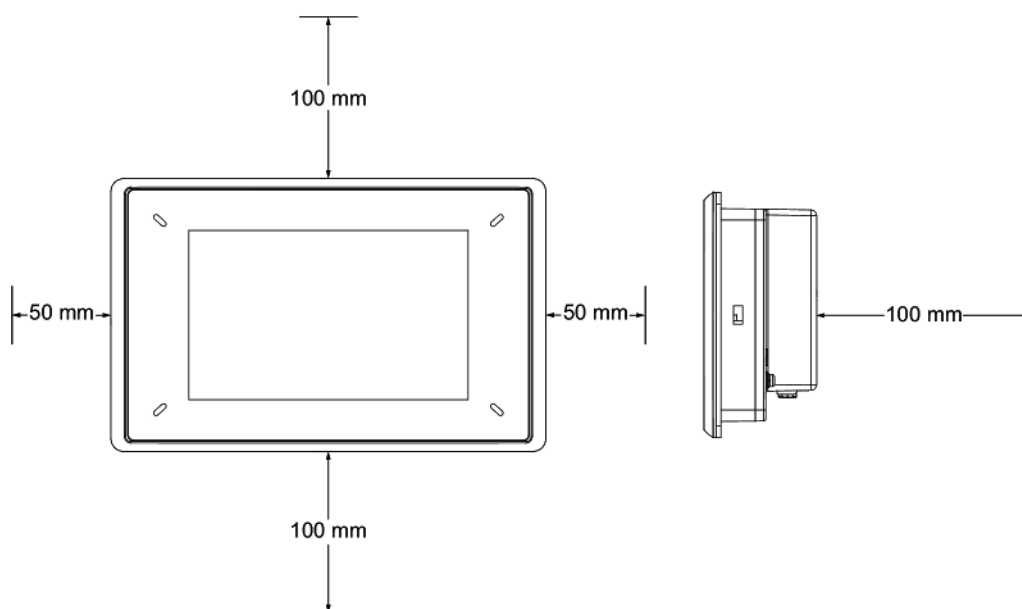
These devices are Class 2 supplied programmable controllers (industrial PCs) for the use in industrial control equipment and are intended to be (front) panel mounted (type 12 and 4X for indoor use only).

International protection

The enclosure provides a degree of protection of at least IP20, but when installed in an apparatus, it should meet IP65.

4.3 Space required for installation

The following figure shows the required space for installing the operator panel:



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27788903/EN – 05/2023

4.4 Thickness of mounting plate

The thickness of the mounting plate depends on the unit design.

Unit design	Maximum thickness
DOP11C-42	11 mm
DOP11C-53	4 mm
DOP11C-72	11 mm
DOP11C-73	4 mm
DOP11C-102	7 mm
DOP11C-103	5 mm
DOP11C-122	8 mm
DOP11C-152	8 mm

4.5 Unpacking the operator panel

Proceed as follows:

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

4.6 Installing the operator panel

4.6.1 DOP11C-42, -72, -102

Cut-out

The required cut-out in the mounting plate depends on the unit design.

Operator panel	Cut-out dimensions
DOP11C-42	130 × 89 mm
DOP11C-72	189 × 128 mm
DOP11C-102	275 × 177 mm

Installing the operator panel

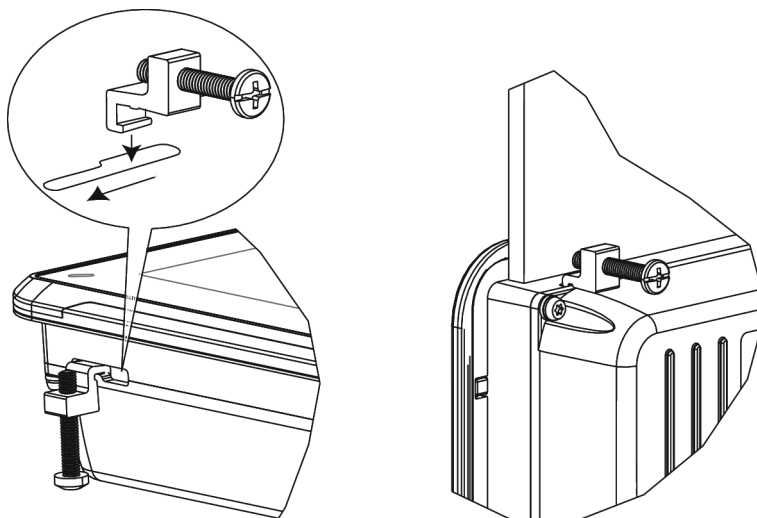
Proceed as follows:

1. Create a corresponding cut-out in the mounting plate.
2. Insert the operator panel into the mounting plate.

4 Installation

Installing the operator panel

3. Insert the hooks on all of the holding fixtures into the designated openings on the operator panel and slide them in the direction of the arrow to prevent the panel from falling out.



19312007051

4. Tighten the screws until they are hand-tight.

INFORMATION



If a secure seal is required between the operator panel and the mounting plate, tighten the screws with a torque of 0.5 to 1.0 Nm.

4.6.2 DOP11C-122, -152

Cut-out

The required cut-out in the mounting plate depends on the unit design.

Operator panel	Cut-out dimensions
DOP11C-122	324 × 226 mm
DOP11C-152	394 × 270 mm

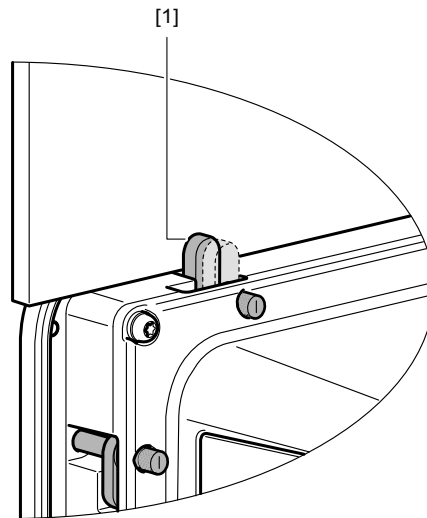
Installing the operator panel

Proceed as follows:

1. Create a corresponding cut-out in the mounting plate.

27788903/EN – 05/2023

2. Insert the operator panel into the mounting plate.
3. Hand-tighten the screws [2] to raise the fastening brackets [1].



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INFORMATION



If a secure seal is required between the operator panel and the mounting plate, tighten the screws with a torque of 0.5 to 0.9 Nm.

4.6.3 DOP11C-53, -73, -103

Cut-out

The required cut-out in the mounting plate depends on the unit design.

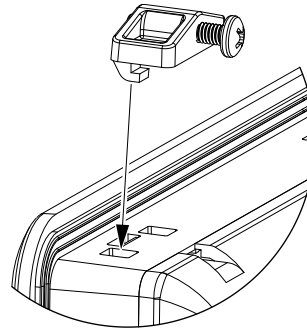
Operator panel	Cut-out dimensions
DOP11C-53	161 × 93 mm
DOP11C-73	186 × 136 mm
DOP11C-103	275 × 177 mm

Installing the operator panel

Proceed as follows:

1. Create a corresponding cut-out in the mounting plate.
2. Insert the operator panel into the mounting plate.

3. Insert the hooks on all of the holding fixtures into the designated openings on the operator panel.



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4. Tighten the screws until they are hand-tight.

INFORMATION



If a secure seal is required between the operator panel and the mounting plate, tighten the screws with a torque of 0.15 to 0.2 Nm.

4.7 Connecting the operator panel

NOTICE

Damage to the unit caused by disconnecting or connecting live plug connectors.

Possible damage to property.

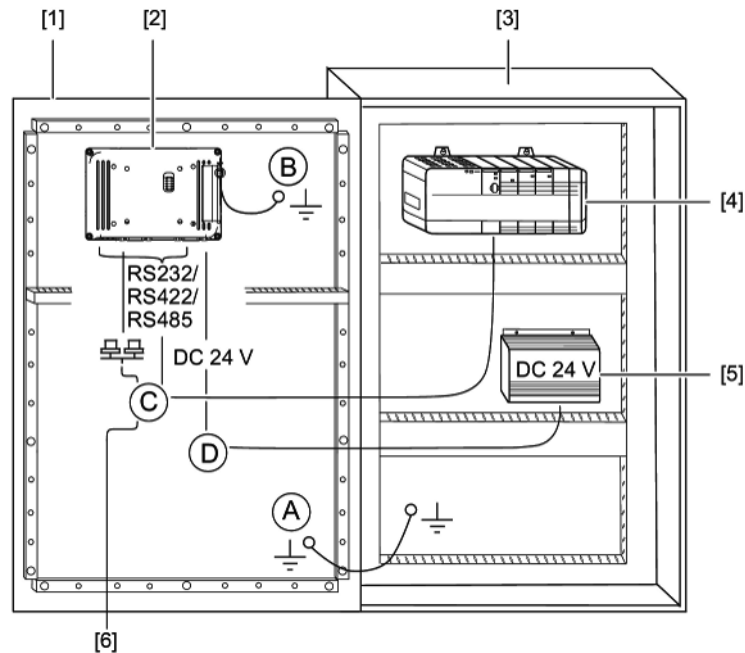
- Switch off the line voltage.
- Never connect or disconnect plug connectors while they are energized.

INFORMATION



Use shielded communication cables only. Separate high voltage cables from signal and supply cables.

The following figure shows the installation diagram of the operator panel:



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- [1] Control cabinet door/front panel
- [2] Operator panel
- [3] Control cabinet
- [4] Controller
- [5] Power supply unit (voltage supply)
- [6] Ethernet

Connect the cables in the order shown.

Proceed as follows:

1. Connect cable A. Make sure that the operator panel and the controller have the same electrical grounding (reference voltage value). Otherwise, communication errors may occur.
2. Connect cable B. Use a PE (as short as possible) with a minimum cross section of 2.5 mm². You can use the following screws:
 - M5 screws for operator panels in design ..2 (DOP11C-42, -72, -102, -122 and -152)
 - M3 screws for operator panels in design ..3 (DOP11C-53, -73 and -103)
3. Connect the operator panel to the controller, the inverters and the engineering PC (cable C). For information on the connection cable between operator panel and controller, refer to the help file for the corresponding driver. For information on the connection to the inverters and the engineering PC, refer to chapter "Connecting the operator panel to the inverter and engineering PC" (→ 24).
4. Connect cable D (→ 28).
5. Carefully remove the laminated protective film from the glass of the touchscreen to prevent the operator panel from being damaged by static electricity.

4.8 Connecting the operator panel to the inverter and engineering PC



⚠ WARNING

Risk of crushing if the motor starts up unintentionally via the connected MOVIDRIVE® inverter.

Severe or fatal injuries.

- Take appropriate measures to prevent the motor from starting up unintentionally:
 - Disconnect the electronics input X13.0/control inhibit or
 - Switch off the line voltage. A backup voltage of 24 V must still be applied.
- Depending on the application, additional safety precautions must be taken to avoid injury to personnel and damage to machines.



⚠ WARNING

Risk of crushing if the motor starts up unintentionally via the connected MOVITRAC® inverter.

Severe or fatal injuries.

- Disconnect the "Clockwise rotation" and "Enable" terminals.
- Depending on the application, additional safety precautions must be taken to avoid injury to personnel and damage to machines.



INFORMATION

Before connecting the operator panel, observe the online help of the HMI-Builder.PRO software. The operating software is an integral part of the MOVITOOLS® MotionStudio engineering software.

Proceed as follows:

1. Connect the operator panel and the inverter. For detailed information, refer to chapter "RS485 connection" (→ 25).
2. Connect the operator panel to the engineering PC using a standard Ethernet patch cable. For detailed information on Ethernet communication, refer to chapter "Ethernet connection" (→ 28)



INFORMATION

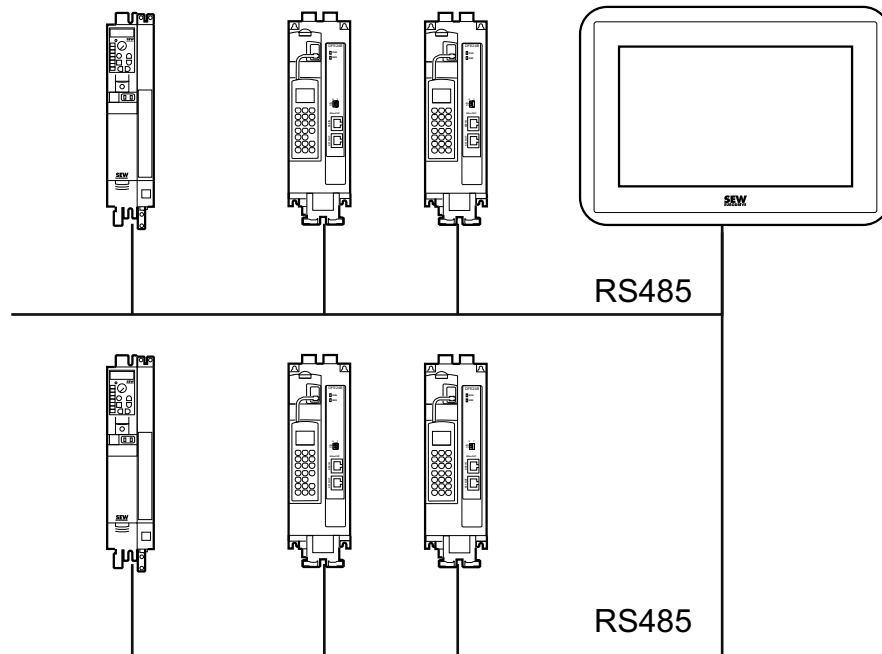
The Ethernet interface of the operator panels supports "Autocrossing". Therefore, it is not necessary for you to use a crossover cable for point-to-point connections.

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

4.8.1 Connection types

RS485 connection

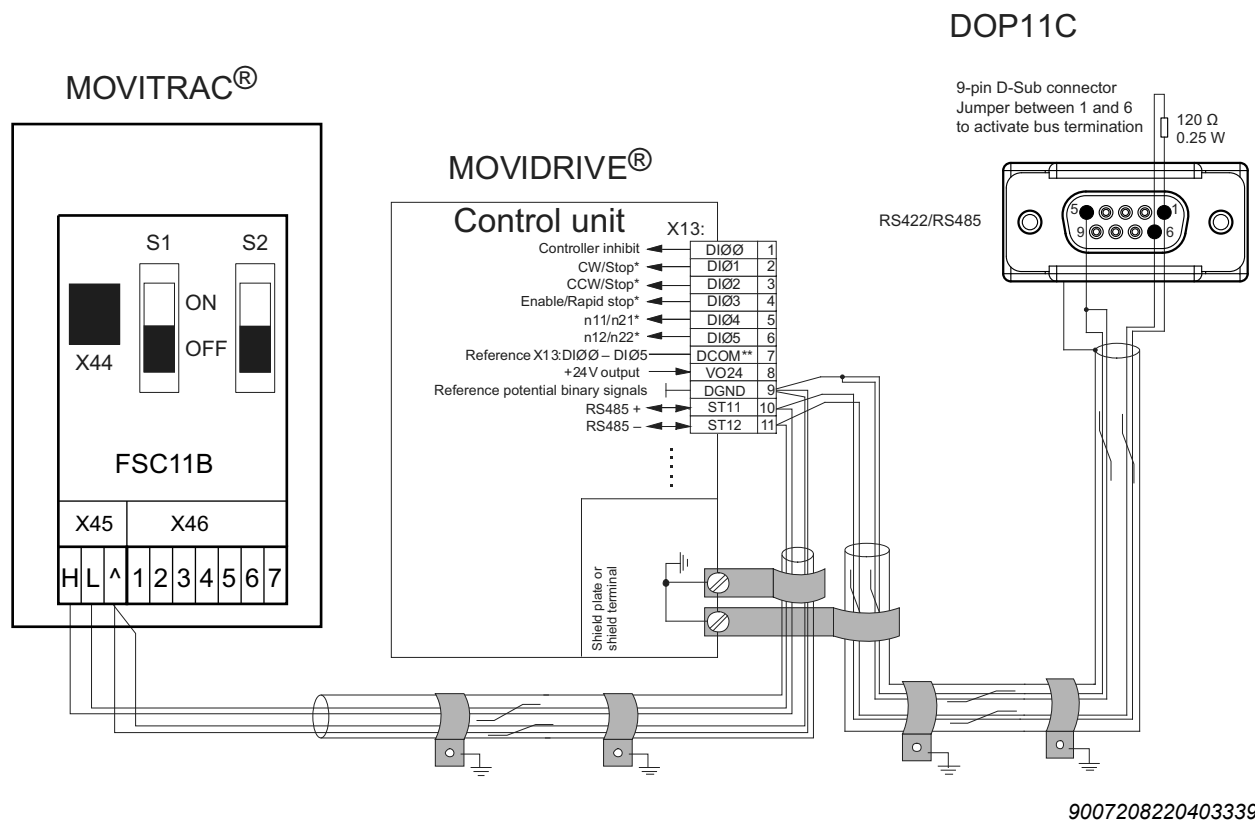
Up to 31 stations can be connected to each serial interface. The connection is established via a 9-pin D-sub connector.



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Wiring diagram RS485 interface

The following figure shows the pin assignment of the operator panel:



Cable specification

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

- Maximum core cross section at the terminals: 0.75 mm² (AWG20 – 18)
- Line resistance 100 – 150 Ω at 1 MHz
- Capacitance per unit length ≤ 40 pF/m (12 pF/ft) at 1 Hz

The following cables are suitable, for example:

- Prefabricated cables from SEW-EURODRIVE. For further information, refer to chapter "Prefabricated communication cables" (→ 40).
- UNITRONIC[®] BUS CAN, 2 x 2 x 0.22 mm² by Lappkabel.

Applying the shield

Connect the shield over a large area at both ends:

- At the electronics shield clamp of the control unit in the inverter
- At the 9-pin D-sub socket in the operator panel

NOTICE

Short-circuit of the EMC decoupling between electronics and ground might destroy the bus controller in the control unit of the inverter.

Possible damage to property.

- Never connect the shield ends to DGND.

Cable length

The permitted total cable length is 200 m.

*Potential shift***NOTICE**

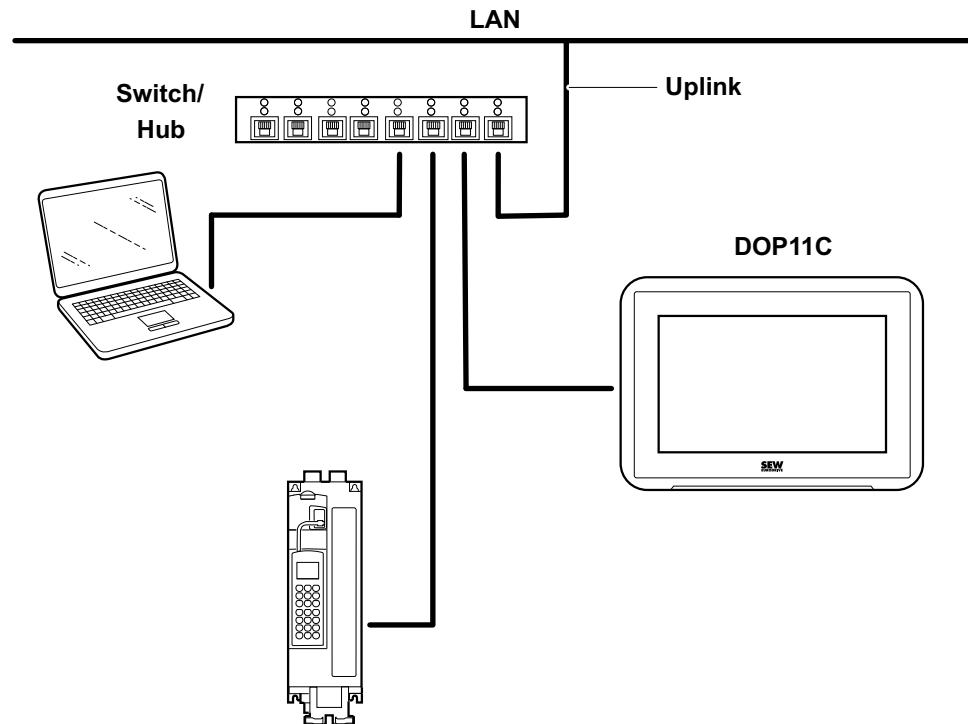
Malfunction of units connected with RS485 due to potential shift.

Possible damage to property.

- Take suitable measures to avoid potential shift, e.g. by connecting the unit grounds (GND) using a separate cable.

Ethernet connection

The following figure shows the connection of the operator panel to an engineering PC that is used for programming and remote maintenance via Ethernet.



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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 × 2 26 AWG by Lappkabel

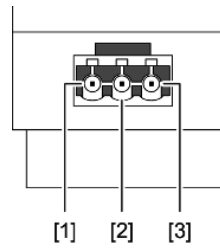
4.9 Connecting a voltage supply**NOTICE**

Damage to the device due to reversed polarity during connection.

Possible damage to property.

- Ensure correct polarity when making the connection.

The following figure shows the connection of the voltage supply:



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

Proceed as follows:

1. Make sure that the operator panel and the controller have the same electrical grounding (reference voltage value). Communication errors may occur if this is not the case.
2. Before startup, the operator panel must be brought to ambient temperature. If condensation builds up, you must ensure that the operator panel is dry before connecting it to the voltage supply.

5 Startup

5.1 Starting the operator panel

INFORMATION



Units are delivered without an uploaded project.

The unit starts automatically when the voltage supply is connected. Without a loaded project, the unit shows the start screen.

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

To open a service menu, proceed as follows:

1. If no project is loaded, touch the start screen.
2. If a project was uploaded to the unit, observe the instructions in chapter "Opening the service menu" (→ 31).



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6 Operation

6.1 Opening the service menu

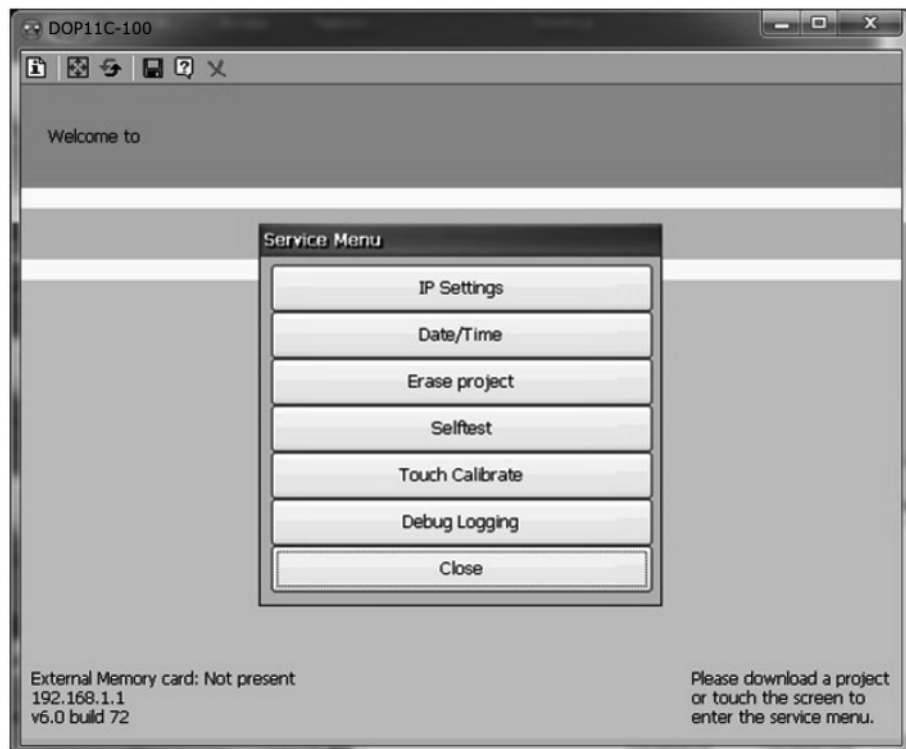
INFORMATION



The following procedure describes how to open the service menu if a project was already uploaded to the operator panel.

Proceed as follows:

1. Close the operator panel and switch on the voltage supply.
⇒ An hourglass symbol appears on the screen.
2. When the hourglass disappears, 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"*
3. Lift your finger and tap the display again.
⇒ The service menu is displayed.



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7 Service

7.1 Waste disposal

Dispose of the product and all parts separately in accordance with their material structure and the national regulations. Put the product through a recycling process or contact a specialist waste disposal company. If possible, divide the product into the following categories:

- Iron, steel or cast iron
- Stainless steel
- Magnets
- Aluminum
- Copper
- Electronic parts
- Plastics

The following materials are hazardous to health and the environment. These materials must be collected and disposed of separately:

- Oil and grease

Collect used oil and grease separately according to type. Ensure that the used oil is not mixed with solvent. Dispose of used oil and grease correctly.

- Screens
- Capacitors
- Rechargeable batteries
- Batteries



Waste disposal according to WEEE Directive 2012/19/EU

This product and its accessories may fall within the scope of the country-specific application of the WEEE Directive. Dispose of the product and its accessories according to the national regulations of your country.

For further information, contact the responsible SEW-EURODRIVE branch or an authorized partner of SEW-EURODRIVE.



Waste disposal according to the Battery Directive 2006/66/EC

This product contains batteries or accumulators. Dispose of this product and the batteries or accumulators separately from the municipal waste according to the national regulations.

8 Technical data

8.1 Part numbers

8.1.1 Operator panels in design ..2

	DOP11C-42	DOP11C-72	DOP11C-102	DOP11C-122	DOP11C-152
Part number	19500742	19500750	19500769	19500777	19500785

8.1.2 Operator panels in design ..3

	DOP11C-53	DOP11C-73	DOP11C-103
Part number	19504098	19504101	19504128

8.2 Voltage supply

8.2.1 Operator panels in design ..2

	DOP11C-42	DOP11C-72	DOP11C-102	DOP11C-122	DOP11C-152
Voltage supply	DC 24 V (DC 18 – 32 V) CE: The voltage supply must meet the requirements of IEC 60950 and IEC 61558-2-4. UL/cUL: The current supply has to be in line with guidelines for current supply class 2.				
Fuse	Internal DC fuse, 3.14 AT (slow-blow), 5 x 20 mm		Internal DC fuse, 4 AT (slow-blow), 5 x 20 mm		
Power consumption at rated voltage	12 W	14.4 W	21.6 W	28.8 W	31.2 W
Accumulator/Battery	Battery: BR 2032				

8.2.2 Operator panels in design ..3

	DOP11C-53	DOP11C-73	DOP11C-103
Voltage supply	DC 24 V (DC 18 – 32 V) CE: The voltage supply must meet the requirements of IEC 60950 and IEC 61558-2-4. UL/cUL: The current supply must be in line with the regulations for current supply class II.		
Fuse	Internal DC fuse, 3 AT SMD		
Power consumption at nominal voltage	4.8 W	5.6 W	6.9 W
Accumulator/battery	Battery: BR 2032		

8.3 Touchscreen

8.3.1 Operator panels in design ..2

	DOP11C-42	DOP11C-72	DOP11C-102	DOP11C-122	DOP11C-152
Resolution (pixel)	480 x 272 (16:9)	800 x 480 (16:9)	1024 x 600 (16:9)	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")	222.7 x 125.3 mm (10.1")	261.1 x 163.2 mm (12.1")	331.2 x 207 mm (15.4")
Brightness (cd/m ²)	300	350	500	400	450
Contrast	400: 1	400: 1	700: 1	1000: 1	1000: 1
Backlighting	LED	LED	LED	LED	LED
Service life of the backlighting ¹⁾	> 50000 h	> 20000 h	> 50000 h		
Screen	TFT-LCD, 64 k colors		TFT-LCD, 262 k colors		
Viewing angle (H)/(V)	140 °/115 °	140 °/115 °	160 °/140 °	176 °/176 °	160 °/140 °
Touchscreen contacts	1 million touchscreen contacts				
Touchscreen material ²⁾	Polyester on glass, ITO film, resistive				

	DOP11C-42	DOP11C-72	DOP11C-102	DOP11C-122	DOP11C-152
Touchscreen coating	Autoflex EBA180L				

1) Can be dimmed at an ambient temperature of +25 °C.

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

8.3.2 Operator panels in design ..3

	DOP11C-53	DOP11C-73	DOP11C-103
Resolution (pixel)	800 × 480 (16:9)	800 × 480 (16:9)	1024 × 600 (16:9)
Active screen size, W x H	108 × 64.8 mm (5")	154.1 × 85.9 mm (7")	222.7 × 125.3 mm (10.1")
Brightness (cd/m ²)	250	400	350
Contrast	600:1	800:1	500:1
Backlighting	LED		
Service life and back- lighting	> 20000 h		
Screen	TFT-LCD, 16.7 million colors		
Viewing angle (H)/(V)	140 °/120 °	160 °/130 °	150 °/120 °
Touchscreen contacts	1 million touchscreen contacts		
Touchscreen material ¹⁾	Polyester on glass, ITO film, resistive		
Touchscreen coating	Autoflex EBA 180L		

1) For detailed information, refer to "Chemical resistance".

8.4 Housing

8.4.1 Operator panels in design ..2

	DOP11C-42	DOP11C-72	DOP11C-102	DOP11C-122	DOP11C-152
Front dimensions W × H × D	145 x 104 x 7 mm	204 x 143 x 7 mm	292 x 194 x 8 mm	340 x 242 x 8 mm	410 x 286 x 8 mm
Cutout W × H	130 x 89 mm	189 x 128 mm	275 x 177 mm	324 × 226 mm	394 x 270 mm
Installation depth/In- stallation depth incl. clearance	43 mm/143 mm	43 mm/143 mm	45 mm/145 mm	49 mm/149 mm	53 mm/153 mm
Weight	0.5 kg	0.8 kg	1.65 kg	2.6 kg	3.85 kg
Protection material, rear and frame	Powder-coated aluminum				
Degree of protection front	IP 66, NEMA 4X/12, UL type 4X/12	IP 65, NEMA 4X/12, UL type 4X/12			
Degree of protection, rear	IP 20				

8.4.2 Operator panels in design ..3

	DOP11C-53	DOP11C-73	DOP11C-103
Front dimensions W × H × D	172 x 109 x 8 mm	202 x 152 x 8 mm	290 x 193 x 8 mm
Cut-out dimensions W × H	161 x 93 mm	186 x 136 mm	275 x 177 mm
Installation depth/In- stallation depth incl. clearance	29 mm/129 mm	29 mm/129 mm	32 mm/132 mm
Weight	0.32 kg	0.56 kg	0.84 kg
Protective material, rear and frame	Plastic		
Degree of protection, front of the unit	IP 65		

	DOP11C-53	DOP11C-73	DOP11C-103
Degree of protection, rear	IP 20		

8.5 Ambient Conditions

8.5.1 Operator panels in design ..2

	DOP11C-42	DOP11C-72	DOP11C-102	DOP11C-122	DOP11C-152
Operating temperature	-10 °C – +60 °C				
Storage temperature	-20 °C – +70 °C				
Rel. air humidity	5% – 85% (non-condensing)				

8.5.2 Operator panels in design ..3

	DOP11C-53	DOP11C-73	DOP11C-103
Operating temperature	-10 °C – +50 °C		
Storage temperature	-20 °C – +60 °C		
Rel. humidity	5% – 90% (non-condensing)		

8.6 Certifications

8.6.1 Operator panels in design ..2

	DOP11C-42	DOP11C-72	DOP11C-102	DOP11C-122	DOP11C-152
EMC tests on panel	Tested according to: EN 61000-6-3 (emission) and EN 61000-6-2 (interference immunity).				
DNV approval	Yes				
NEMA	4X, only indoor installation equals the degree of protection of device front				
UL approval ¹⁾	UL 61010-2-201	UL 61010-2-201	UL 61010-2-201	UL 61010-2-201	UL 61010-2-201
Part number of installation guide					
CE certification	Yes				
FCC certification	Yes				
KCC certification	Yes				

1) In association with the UL approval, the installation guides (in English) delivered with the device apply.

8.6.2 Operator panels in design ..3

	DOP11C-53	DOP11C-73	DOP11C-103
EMC tests on the panel	Tested according to: EN 61000-6-3 (emission) and EN 61000-6-2 (interference immunity).		
DNV certification	Yes		
NEMA	4X, only indoor installation equals the degree of protection of unit front		
UL approval ¹⁾	UL 61010-2-201	UL 61010-2-201	UL 61010-2-201
CE certification	Yes		
China RoHS	Yes		
FCC certification	Yes		
KCC certification	Yes		
UKCA	Yes		

1) In association with the UL approval, the brief instructions (in English) that are delivered with the unit apply.

8.7 Communication and memory

8.7.1 Operator panels in design ..2

	DOP11C-42	DOP11C-72	DOP11C-102	DOP11C-122	DOP11C-152
Serial interface COM1 RS232, COM2 RS422/RS485 and COM3 RS485 ¹⁾	9-pin D-sub connection, mounted connectors with 4-40 UNC retaining screws				
Ethernet	1 x 10/100 Base-T (shielded RJ45)		2 x 10/100 Base-T (shielded RJ45)		
USB	1 x USB host 2.0		2 x USB host 2.0		
Maximum output current	500 mA		500 mA		
Speakers	Yes				
Processor	i.MX6Solo, Single Cortex-A9 1.0 GHz 512 kB L2 cache memory		i.MX6DualLite, Dual Cortex-A9, 1.0 GHz 512 kB L2 cache memory		
Main memory	512 MB (DDR3)		1 GB (DDR3)		
Application memory	1.5 GB				
SD memory card slot	1 x SD memory card (optional)				
Real-time clock	Yes (on chip)				
LED	1 x RGB, programmable via software				
Speakers	ferroelectric. output can be parameterized via software				

1) COM3 can only be used if COM2 is an RS485 connection.

8.7.2 Operator panels in design ..3

	DOP11C-53	DOP11C-73	DOP11C-103
Serial interface COM1 RS232, COM2 RS422/RS485 and COM3 RS485 ¹⁾	9-pin D-sub connection, mounted connectors with 4-40 UNC retaining screws		
Serial interface COM6 RS485	3-pin screw connection		
Ethernet	1 x 10/100 Base-T (shielded RJ45)		
USB	1 x USB host 2.0		
Maximum output current	500 mA		
Processor	TI Sitara AM335x Single Core 600 MHz (TI AM3352BZCZ60)		
Main memory	512 MB (DDR3)		
Application memory	2 GB		
Real-time clock	Yes		
LED	–		
Speakers	–		

1) COM3 can only be used if COM2 is an RS485 connection.

8.8 Chemical resistance

8.8.1 Plastic housing

DOP11C-53, -73 and -103

In accordance with DIN42 115, Part 2, the protective film can be exposed to the following chemicals for 24 hours without any visible change:

Acetonitrile	Diesel	White spirit ¹⁾
Dissolved abrasives (Ajax/Vim)	Downy/Lenor ¹⁾	Phosphoric acid (<30%)
Alkali carbonate solution ¹⁾	Ethanol	Potassium ferrocyanide/ferricyanide
Ammonia (<40%) ¹⁾	Glycerine	Potassium hydroxide (<30%)
Acetic acid (<50%)	Glycol	Pure turpentine
Dissolved Ariel powder ¹⁾	Gumption ¹⁾	SBP 60/95 ¹⁾
Bleach ¹⁾	Hydrochloric acid (<36%)	Sulfuric acid (<10%)
Castor oil	Linseed oil	Tomato ketchup
Sodium hydroxide (<40%) ¹⁾	Methanol	Trichloroacetic acid (<50%)
Cutting oil	Nitric acid (<10%)	White spirit
Cyclohexanol	Paraffin oil	Windex ¹⁾
Diacetone alcohol	Dissolved Persil powder ¹⁾	Wisk

1) The structure exhibited an extremely faint glossy appearance.

The Autoflex protective film is able to resist glacial acetic acid for a maximum period of 1 hour without any visible change (in accordance with DIN42 115, Part 2). The Autoflex protective film is not resistant to high pressure steam in excess of 100 °C or to the following chemicals:

Concentrated inorganic acids	Benzyl alcohol
Concentrated etching solution	Methylene chloride

The surface of the touch display on the operator panel resists the following solvents without any visible change:

Solvent	Time
Acetone	10 min
Isopropanol	10 min
Toluol	5 h

8.8.2 Aluminum housing

Frame and housing of operator panels in design ..2 (DOP11C-42, -72, -102, -122 and -152) 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:

Acetic acid 10%	Phosphoric acid 4%
Citric acid 10%	Phosphoric acid 10%
Diesel	Sea water
Distilled water	Sodium chloride 2%
Cooking oil	Sodium chloride 20%
Fuel	Sulfuric acid 20%
Hydrogen peroxide 3%	Tap water

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, first test the reaction of the substance at a spot of the aluminum housing that is not visible to everybody.

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

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

8.8.3 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
Isopropyl alcohol	10 min
Toluene	5 h

8.8.4 Solvent resistance of the coating

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

Acetonitrile	Drilling oil	Paraffin oil
Dissolved abrasive cleaner	Cyclohexanol	Petroleum ether
Alkali carbonate solution	Diacetone alcohol	Phosphoric acid (< 30%)
Ammonia (< 40%)	Diesel	Potassium ferrocyanide / ferricyanide
Acetic acid (< 50%)	Ethanol	Potassium hydroxide (< 30%)
Dissolved washing agent	Glycerin	Pure turpentine
Liquid laundry detergent	Glycol	SBP 60/95
Cleaning paste	Hydrochloric acid (< 36%)	Sulfuric acid (< 10%)
Glass cleaner	Linseed oil	Ketchup
Bleach	Methanol	Trichloroacetic acid (< 50%)
Caster oil	Nitric acid (< 10%)	Test gasoline
Sodium hydroxide (< 40%)	–	–

A barely noticeable shininess can be observed in the structure with the following chemicals:

Alkali carbonate solution	Liquid laundry detergent	Petroleum ether
Ammonia (< 40%)	Cleaning paste	SBP 60/95
Sodium hydroxide (< 40%)	Glass cleaner	Test gasoline
Dissolved washing agent	Bleach	–

According to DIN 42115 part 2, Autotex F157/F207, Autoflex EBA180L and Autoflex EB can be exposed to glacial acetic acid for a maximum of 1 hour without showing any noticeable changes.

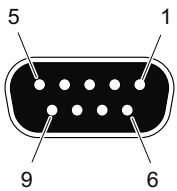
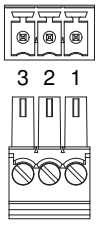
Autotex F157 / F207, Autoflex EBA180L and Autoflex EB is neither resistant to high pressure steam of over 100 °C nor to the following chemicals:

Concentrated inorganic acids	Benzyl alcohol
Concentrated etching solution	Methylene chloride

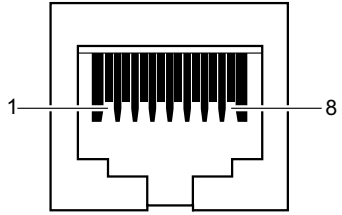
8.9 Pin assignment

8.9.1 Serial connections

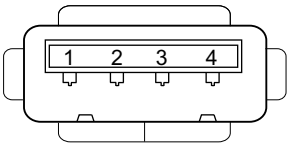
The CAB150 adapter cable is required for operating three communication ports (RS232 and 2 × RS485).

9-pin D-sub socket				
Representation	Terminal no.	COM1	COM2	COM3
	1	–	RS422 Tx+ RS485 Tx+/Rx+	–
	2	RS232 RxD	–	–
	3	RS232 TxD	–	–
	4	–	RS422 Rx+	RS485 Tx+/Rx+
	5	GND	GND	–
	6	–	RS422 Tx- RS485 Tx-/Rx-	–
	7	RS232 RTS	–	–
	8	RS232 CTS	–	–
	9	–	RS422 Rx-	RS485 Tx-/Rx-
3-pin socket MINI COMBICON MC				
Representation	Terminal no.	COM6		
	1	GND		
	2	RS485+		
	3	RS485-		

8.9.2 Ethernet

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

8.9.3 USB

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

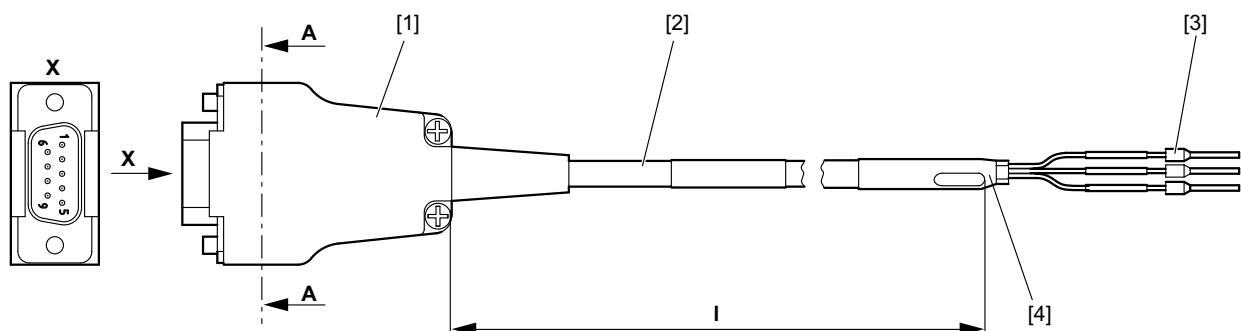
8.10 Cable

8.10.1 Prefabricated communication cables

SEW-EURODRIVE offers the following prefabricated RS485/RS422 communication cables with 9-pin D-sub connector for connecting the operator panel to inverters and PCs:

Cable type	Part number
Open end/conductor end sleeve	17975182
RJ10	17975190

Cable 17975182 (only available in 5 m lengths)

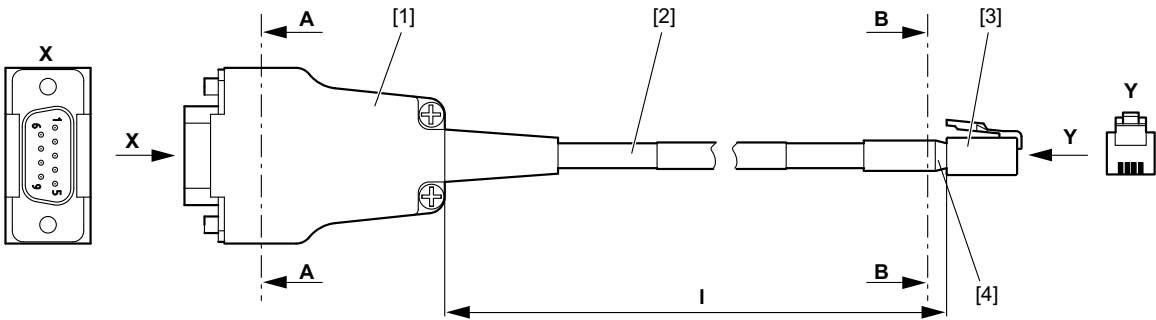


A			Connection overview			B
X	A-A	Contact male	Terminal link	Cable Conductor designation Color \ imprint	Signal	Terminal
		1	•	WHOG	RS485 +	CS
		6	•	OG	RS485 -	CS
		5		GN	GND	CS
		Housing		WHGN		
		nc. 2.3.4.7.8.9		Shielding (Outer)		

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- | | |
|---|--|
| [1] Plug connector D-sub 9-pole, female | [3] 3 × conductor end sleeves |
| [2] Cable LIYCY-Pair, 2 × 2 × 0.14 or Etherline Y Flex, 2 × 2 × AWG22/7 | [4] Braided shield fixed with heat shrink tubing |

Cable 17975190 (only available in 5 m lengths)



A			Connection overview				B	
X	A-A	Contact male	Terminal link	Cable Conductor designation Color \ imprint	Signal	Terminal	B-B	Y
		1		WHOG	RS485 +	2		
		6		OG	RS485 -	3		
		5		GN	GND	4		
				WHGN				
		Housing		Shielding (Outer)				
		no. 2.3.4.7.8.9						

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- [1]

Plug connector D-sub 9-pole, fe-
male
- [2]

Cable LIYCY-Pair, 2 × 2 × 0.14 or
Etherline Y Flex, 2 × 2 × AWG22/7
- [3]

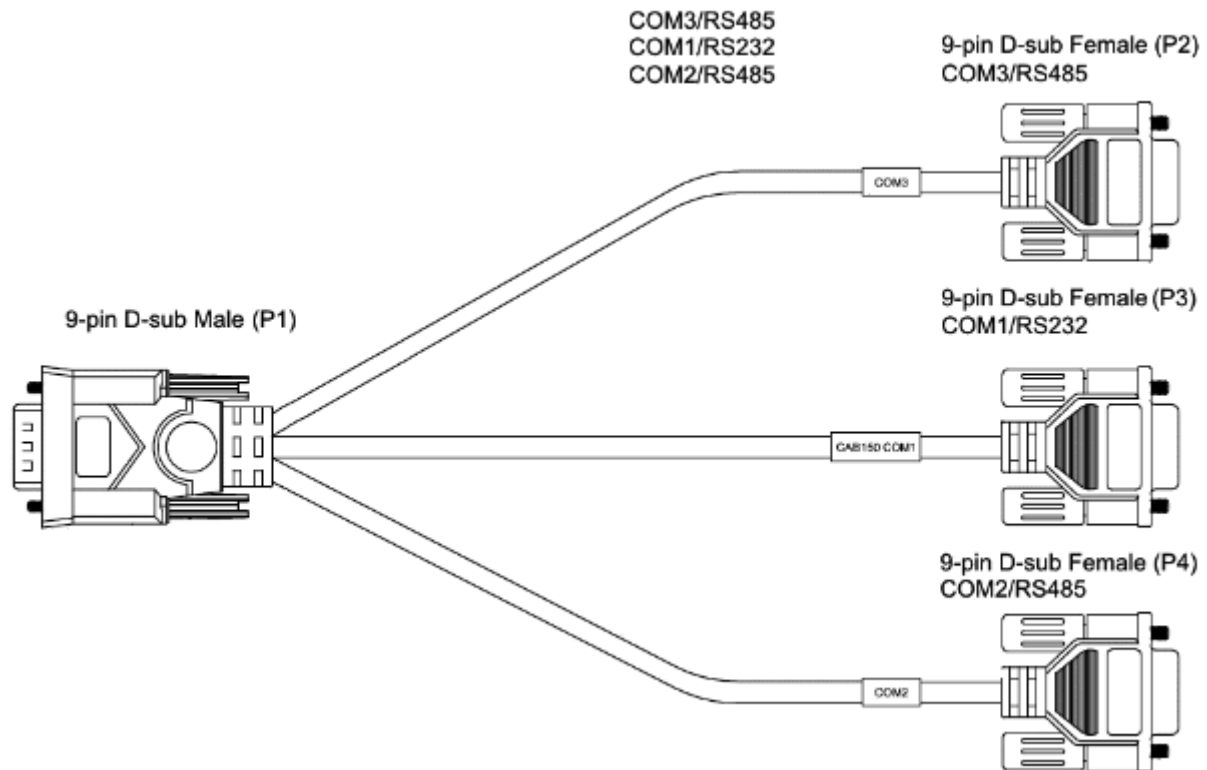
RJ10 connector
- [4]

Braided shield fixed with heat shrink tubing

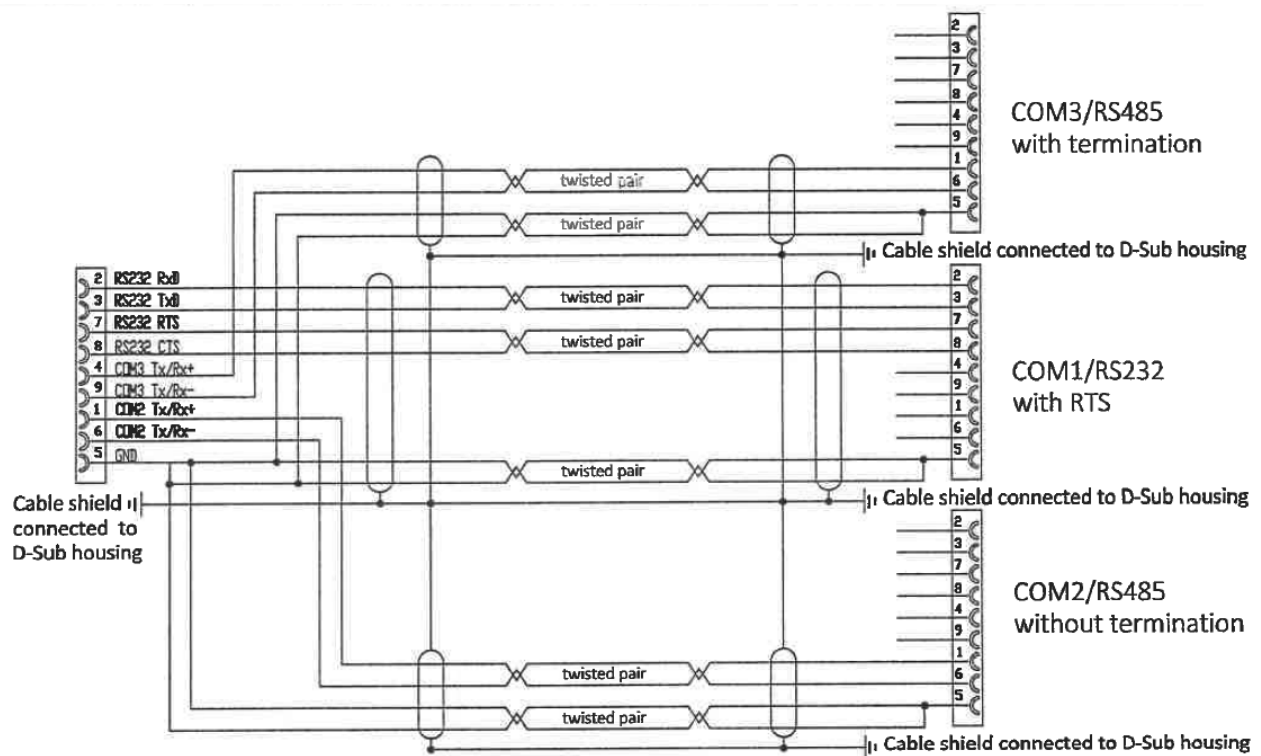
8.10.2 CAB150 adapter cable

SEW-EURODRIVE part number: 19500793

Use the CAB150 adapter cable to split the RS485 interfaces.



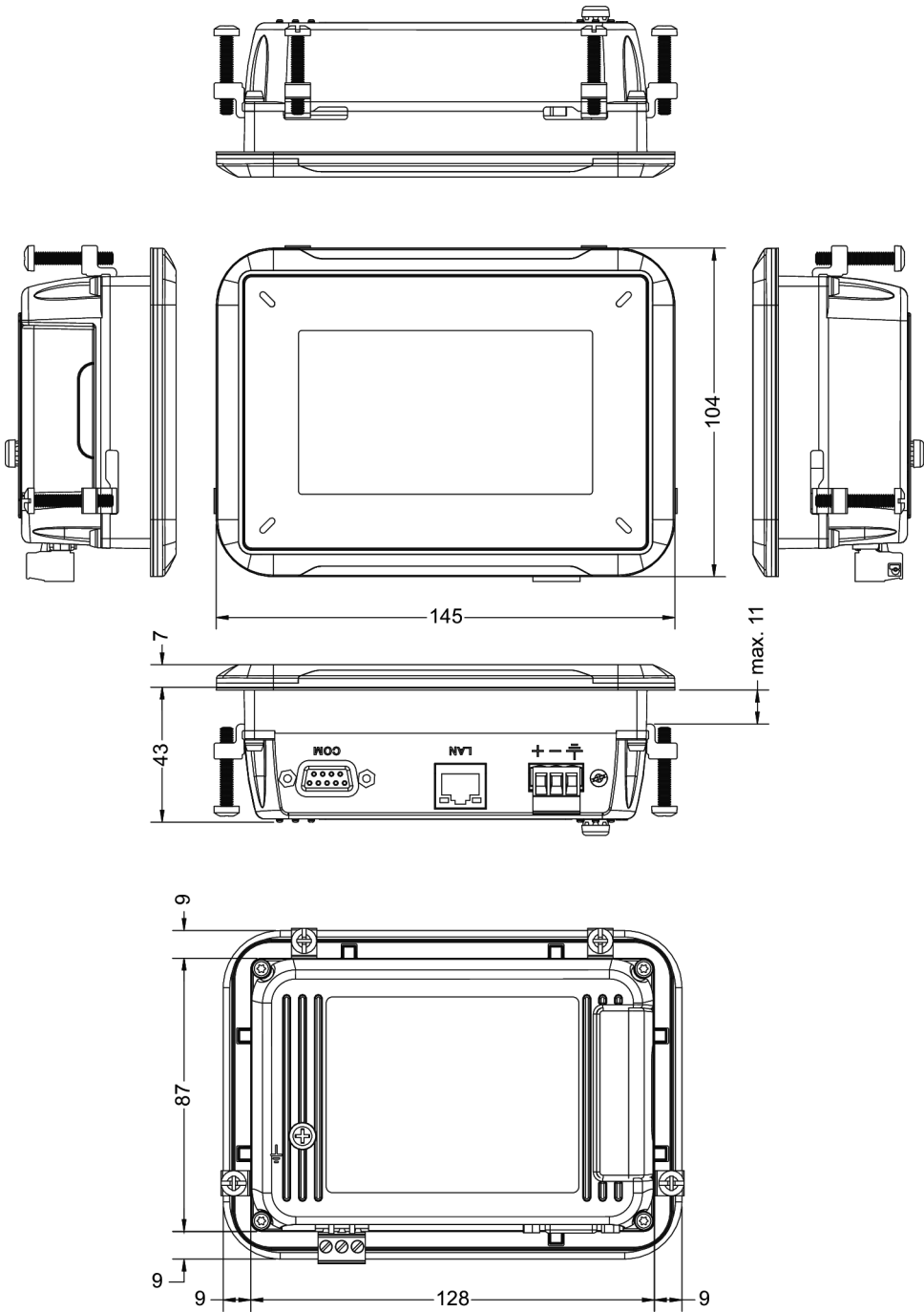
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8.11 Dimension sheets

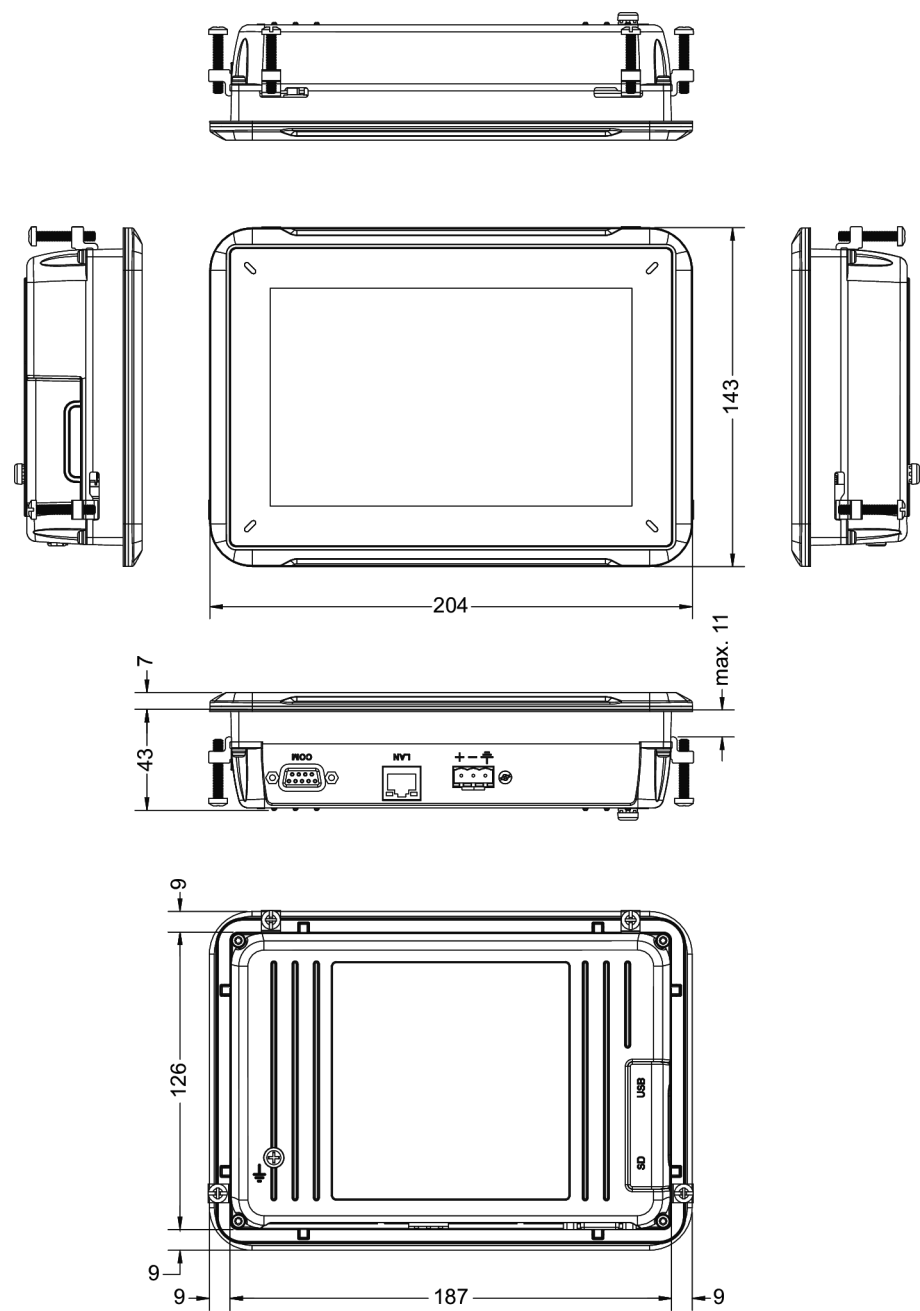
8.11.1 DOP11C-42



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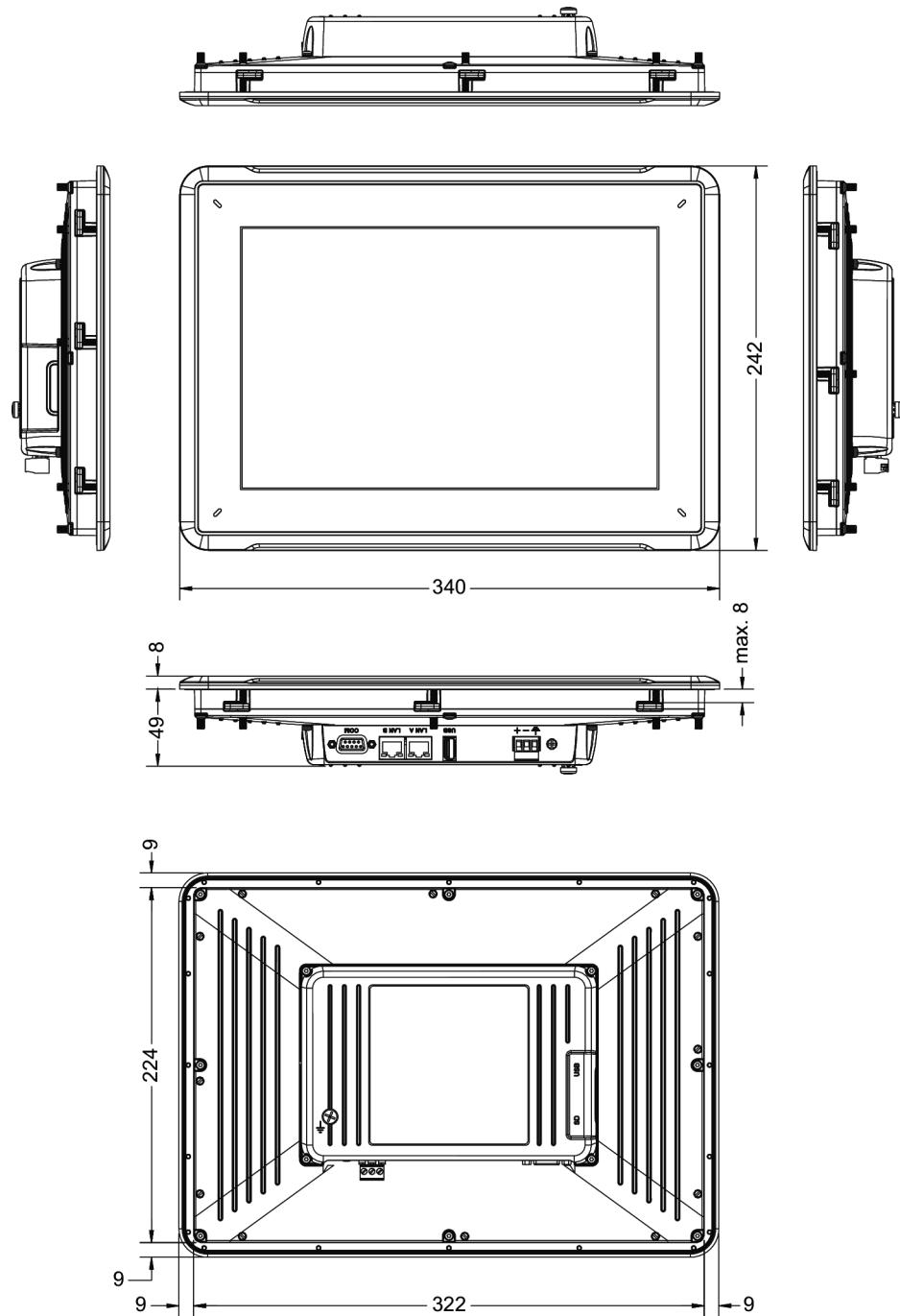
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8.11.2 DOP11C-72



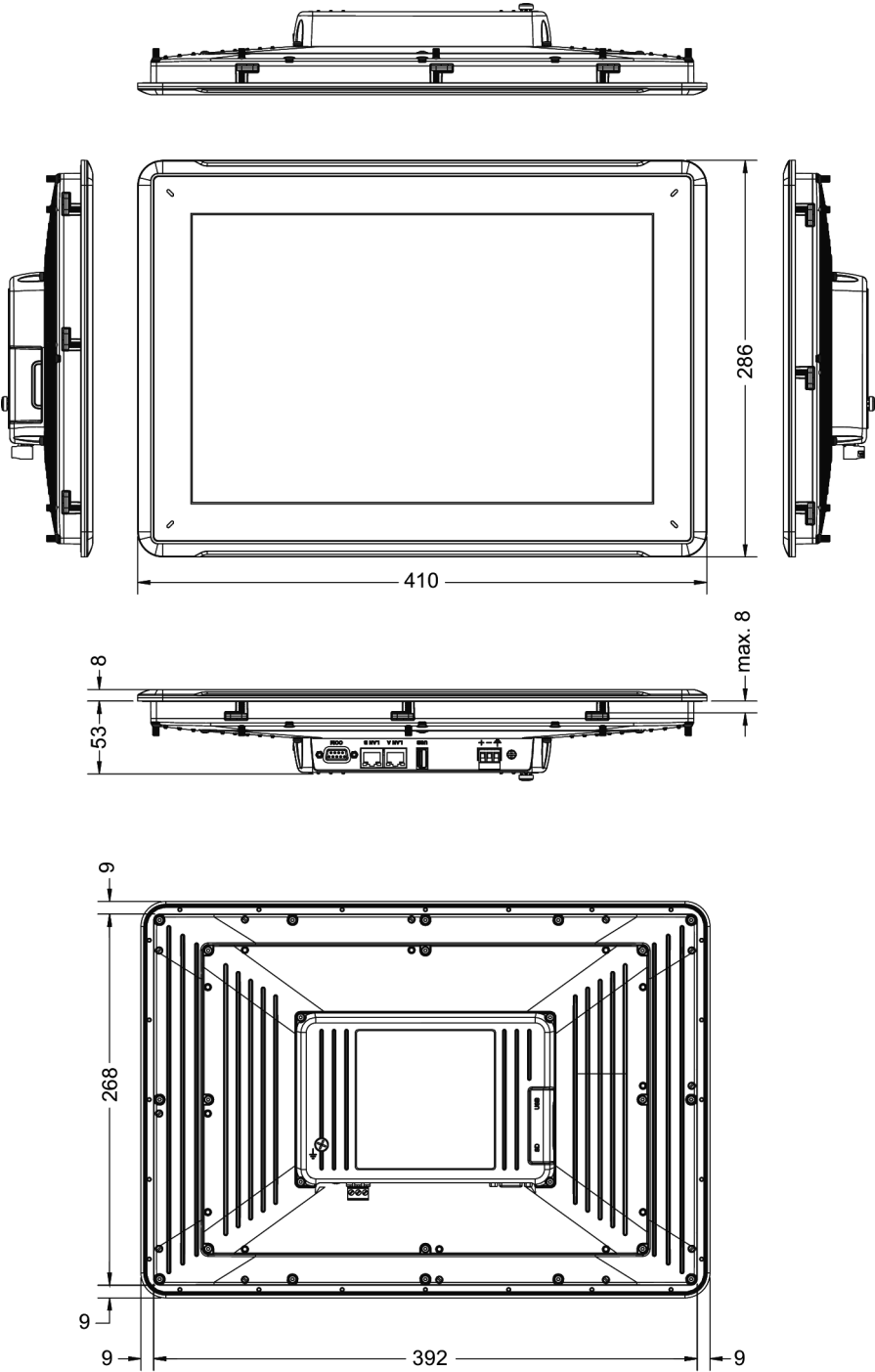
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8.11.4 DOP11C-122



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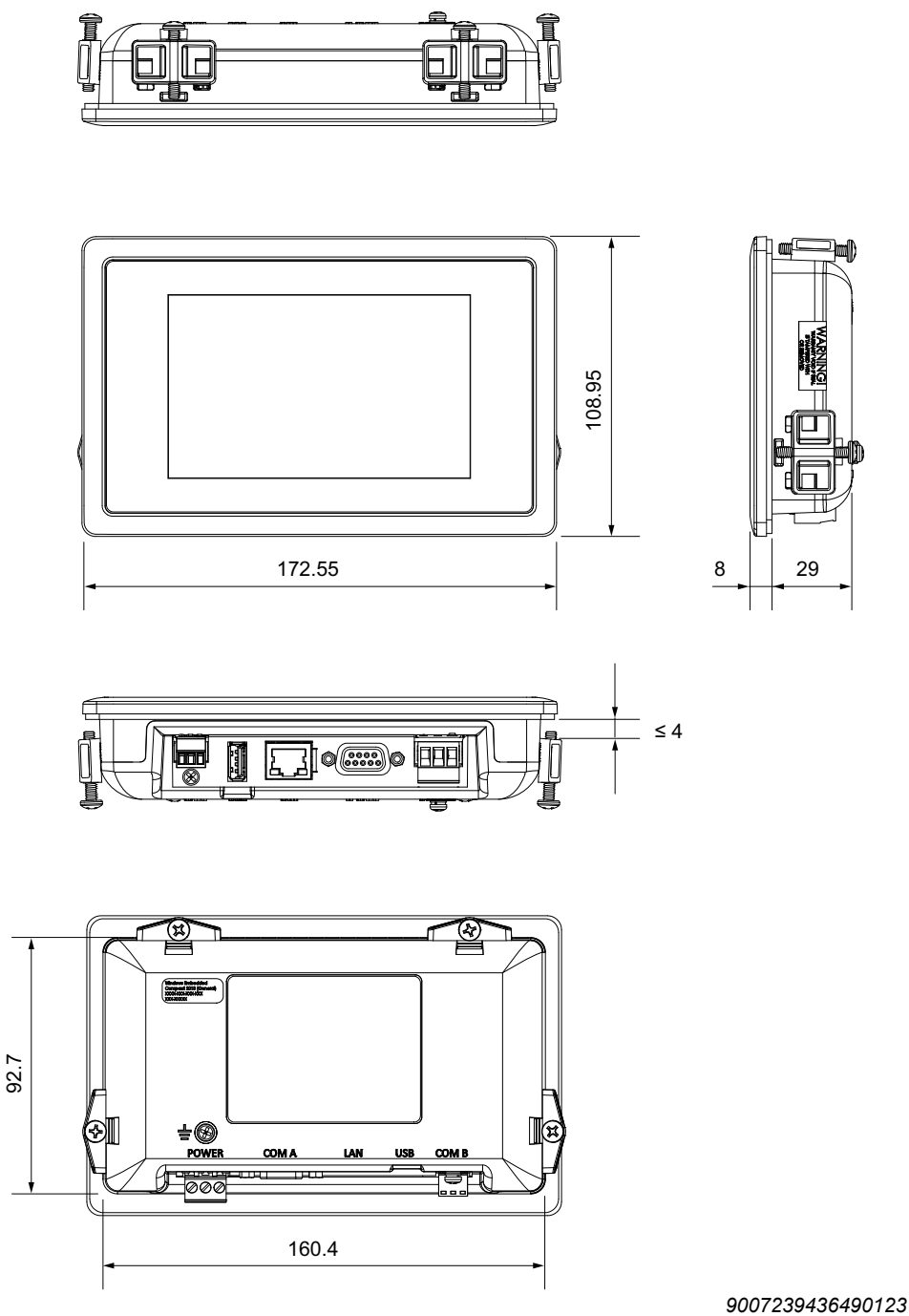
8.11.5 DOP11C-152



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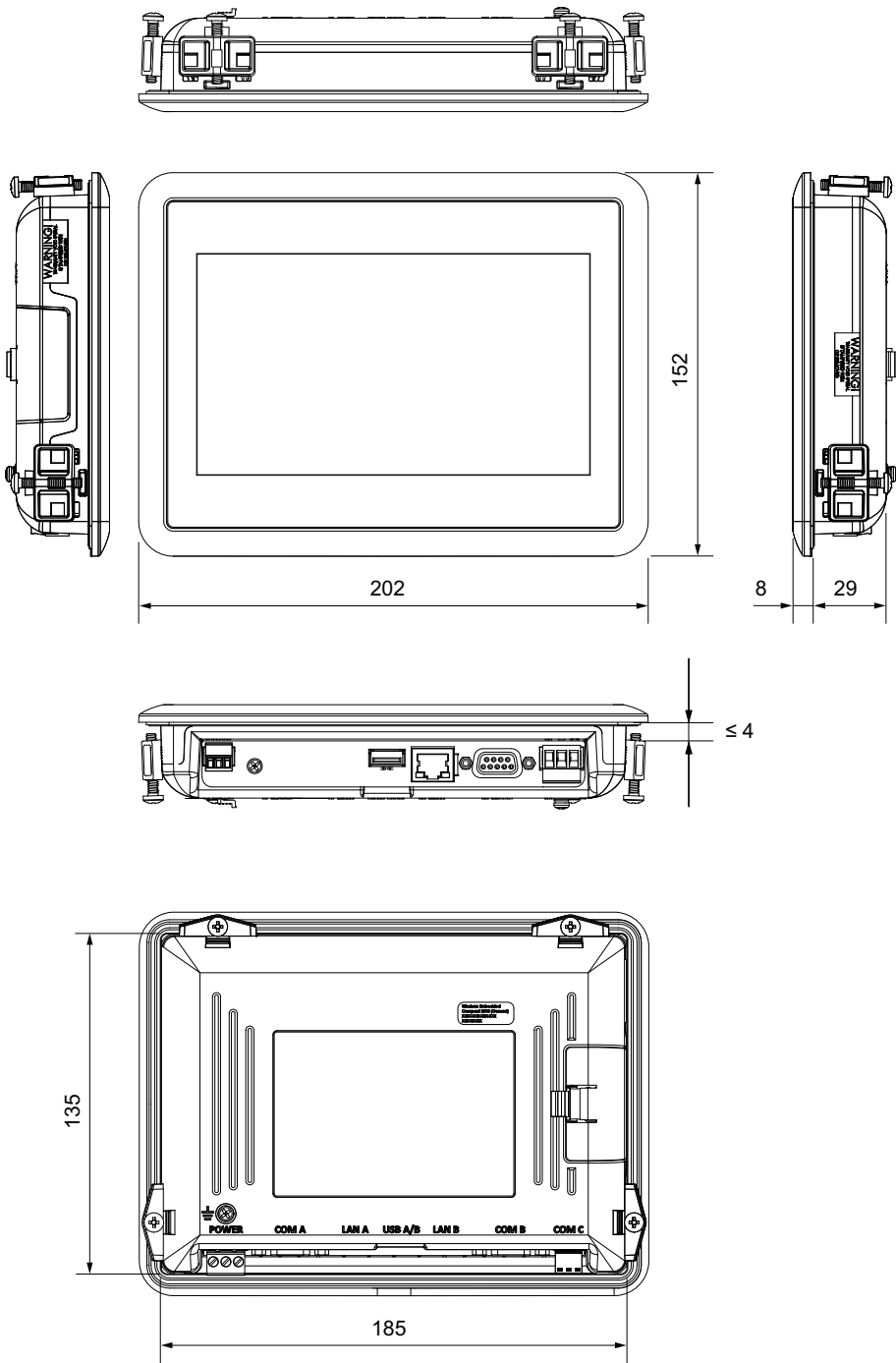
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8.11.6 DOP11C-53



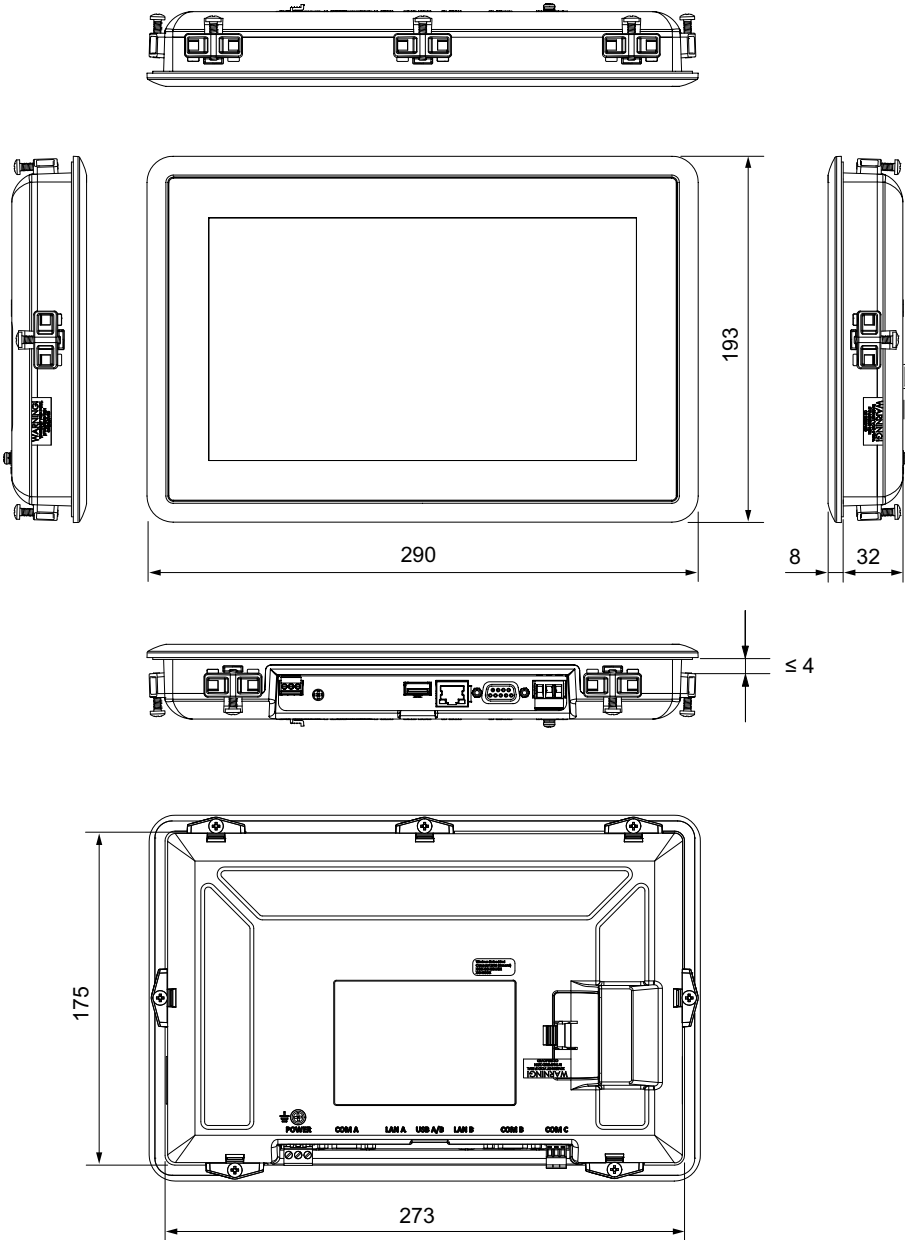
27788903/EN – 05/2023

8.11.7 DOP11C-73



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Index

A

Adapter cable 42

B

Brands 6

C

CAB150 42

Cables

Cable cross sections 16

Cable ducts 16

Shielding and grounding 16

Chemical resistance

Aluminum housing 37

Coatings 38

Display surface 38

Plastic housing 37

Connection

Safety notes 10

Connection types

Ethernet 28

RS485 25

Connections

Bottom 13

Rear side 15

Copyright notice 6

D

Decimal separator 6

Device

Structure 11

Dimension sheets 43

E

Electrical connection 10

Embedded safety notes 5

F

Functional safety technology

Safety note 8

I

Information

Designation in the documentation 5

Installation 16

Space requirements 18

UL-compliant 17

O

Operator panel

Connecting to inverter and PC 24

Connecting to voltage supply 28

Installation diagram 23

Starting 30

Unpacking 19

P

Product names 6

R

Rights to claim under limited warranty 6

S

Safety functions 8

Safety notes

Bus systems 9

On installation and startup 9

On operation 10

Preliminary information 7

Structure of section-related 5

Section-related safety notes 5

Service menu

Opening with transferred project 31

Opening without project 30

Signal words in safety notes 5

Startup 30

T

Target group 7

Technical data

Cables 40

Connector 39

U

UL-compliant installation 17

Use

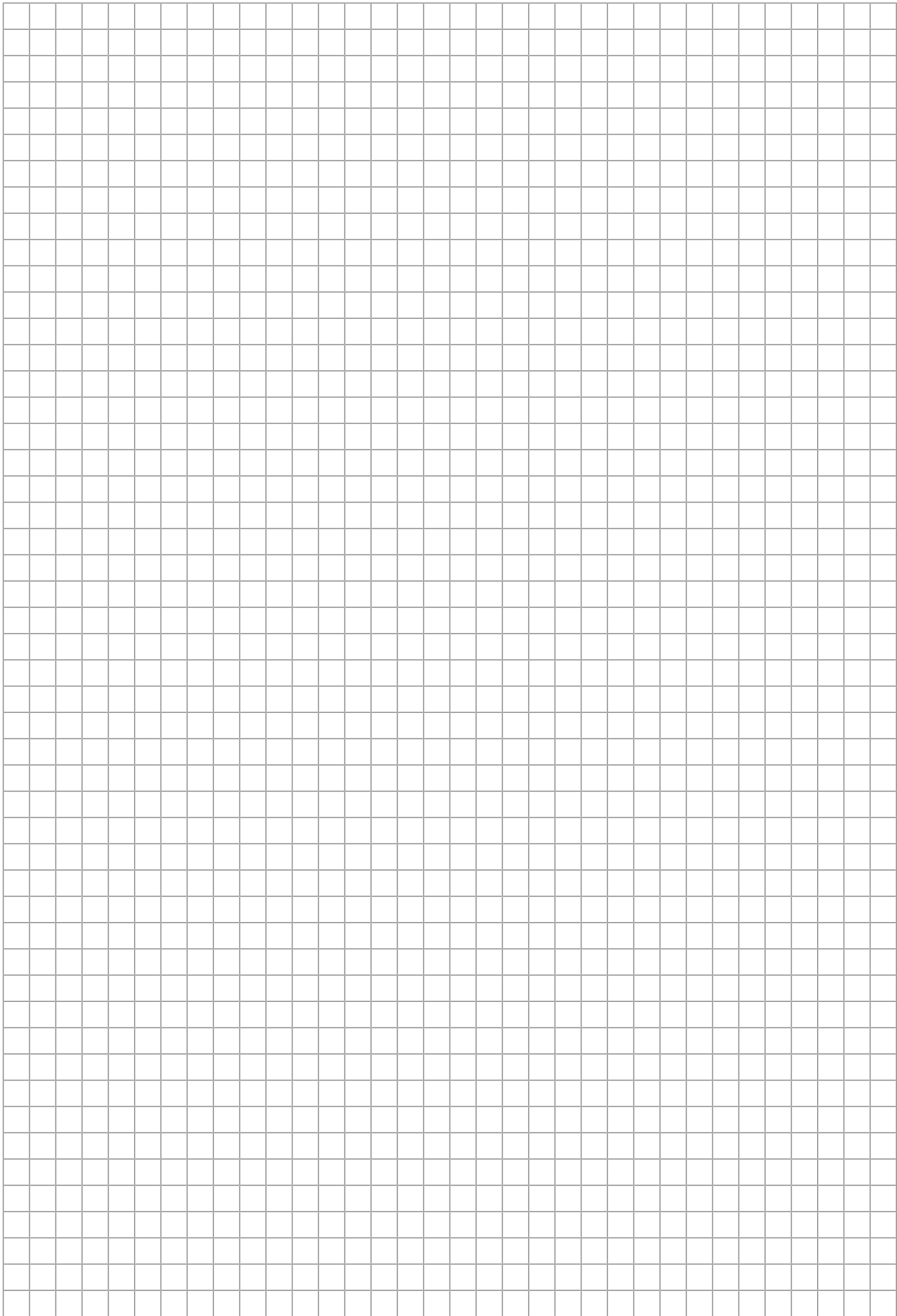
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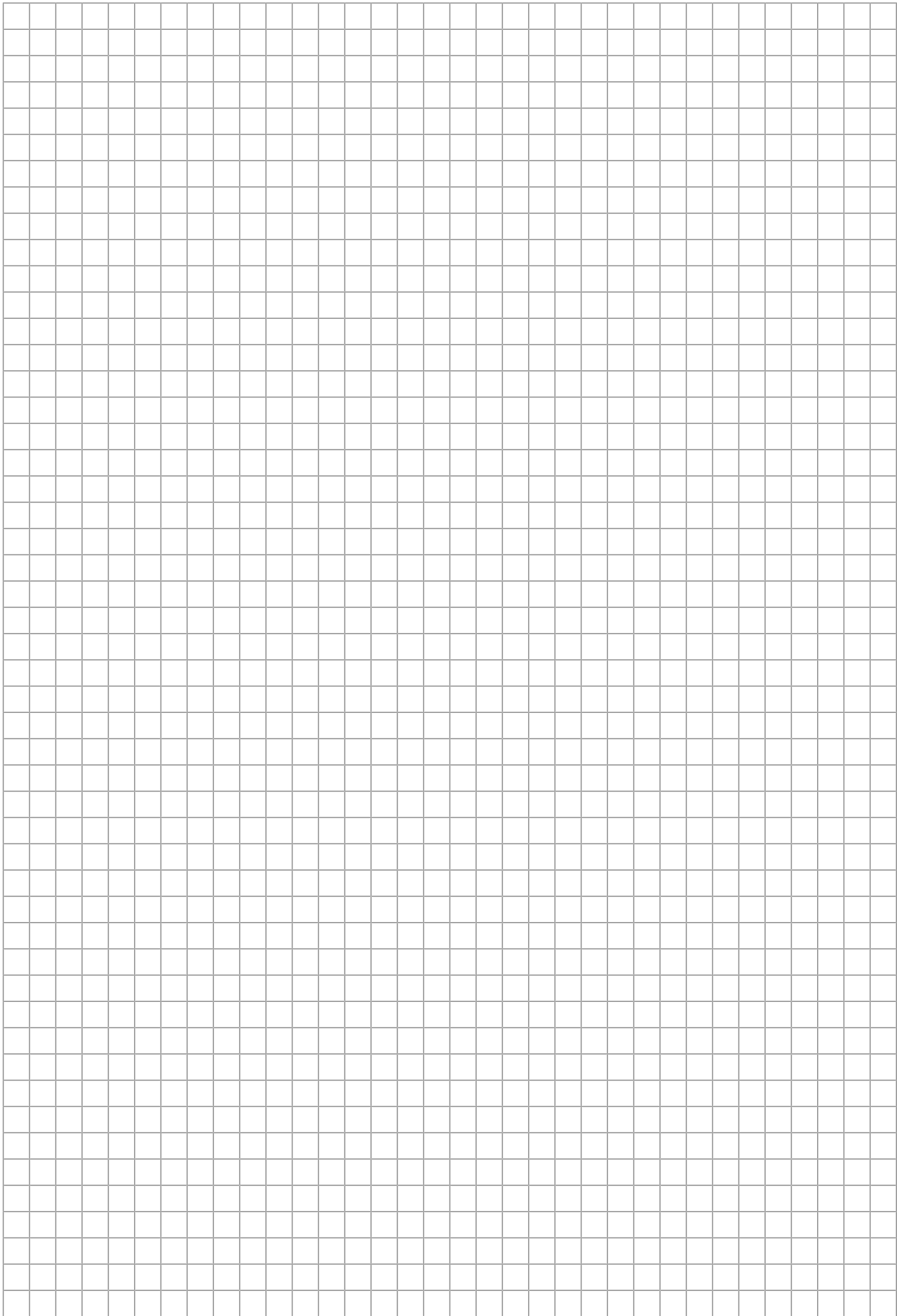
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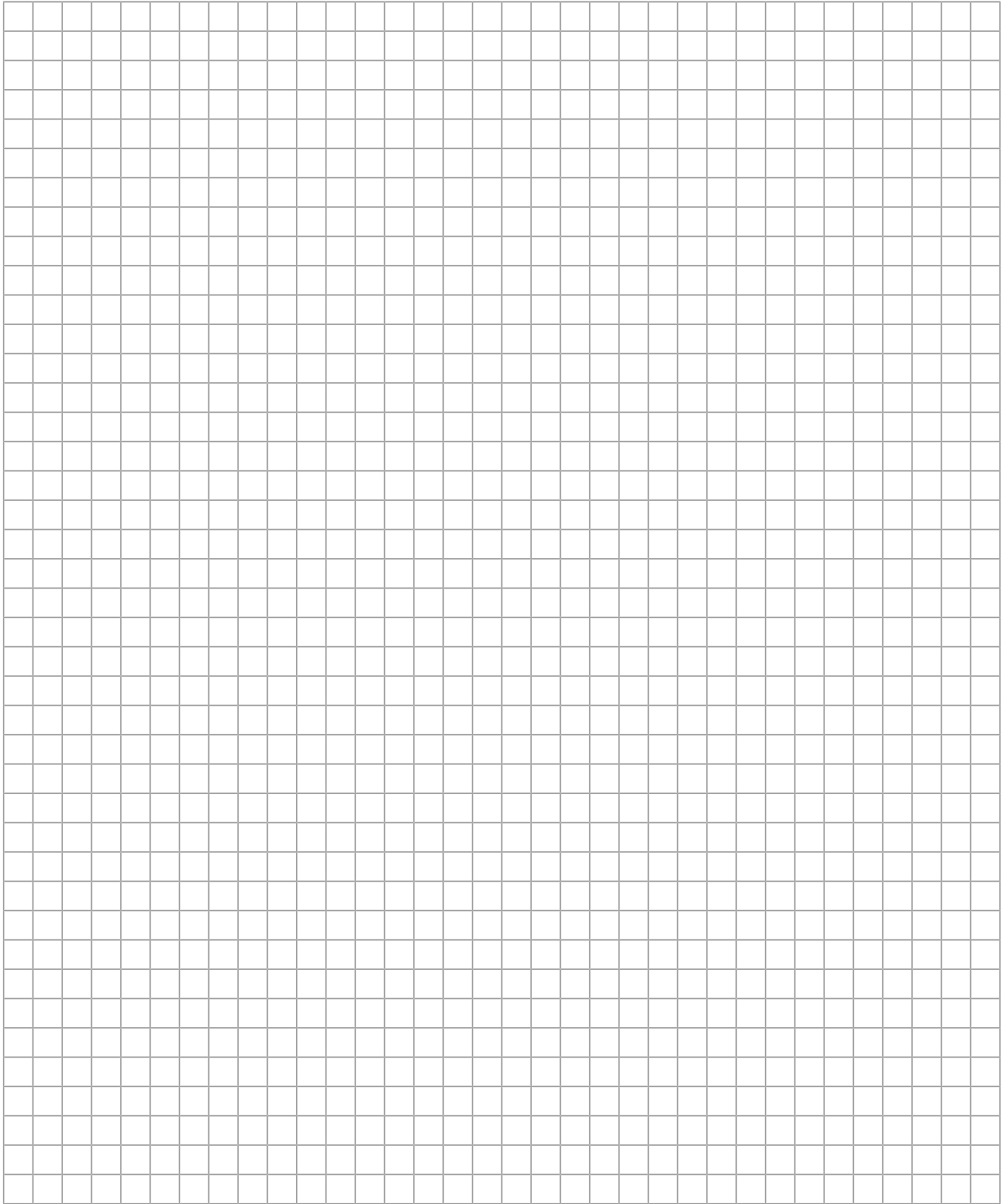
Warning notes

Designation in the documentation 5

Structure of the embedded safety notes	5
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