

OPERATING INSTRUCTIONS

EN

Translation of the Original

OMNICONTROL

Control unit

PFEIFFER VACUUM

Dear Customer,

Thank you for choosing a Pfeiffer Vacuum product. Your new Control Unit should support you in your individual application with full performance and without malfunctions. The name Pfeiffer Vacuum stands for high-quality vacuum technology, a comprehensive and complete range of top-quality products and first-class service. From this extensive, practical experience we have gained a large volume of information that can contribute to efficient deployment and to your personal safety.

In the knowledge that our product must avoid consuming work output, we trust that our product can offer you a solution that supports you in the effective and trouble-free implementation of your individual application.

Please read these operating instructions before putting your product into operation for the first time. If you have any questions or suggestions, please feel free to contact info@pfeiffer-vacuum.de.

Further operating instructions from Pfeiffer Vacuum can be found in the Download Center on our website.

Disclaimer of liability

These operating instructions describe all models and variants of your product. Note that your product may not be equipped with all features described in this document. Pfeiffer Vacuum constantly adapts its products to the latest state of the art without prior notice. Please take into account that online operating instructions can deviate from the printed operating instructions supplied with your product.

Furthermore, Pfeiffer Vacuum assumes no responsibility or liability for damage resulting from the use of the product that contradicts its proper use or is explicitly defined as foreseeable misuse.

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1 About this manual

IMPORTANT
Read carefully before use.
Keep the manual for future consultation.

1.1 Validity

These operating instructions are a customer document of Pfeiffer Vacuum. The operating instructions describe the functions of the named product and provide the most important information for the safe use of the device. The description is written in accordance with the valid directives. The information in these operating instructions refers to the product's current development status. The document shall remain valid provided that the customer does not make any changes to the product.

1.1.1 Applicable documents

OmniControl control unit	Number
Gauge/IO option operating instructions	PT 0687 BN
Data option operating instructions	PT 0688 BN
Declaration of conformity	Part of this document

You can find these documents in the Pfeiffer Vacuum Download Center.

1.1.2 Variants

These instructions apply to control units with the following type designations:

- OmniControl 200, rack unit with integrated power supply pack
- OmniControl 300, rack unit with integrated power supply pack
- OmniControl 400, rack unit with integrated power supply pack
- OmniControl 001, rack unit without integrated power supply pack
- OmniControl 001 Mobile, handheld device without integrated power supply pack

1.2 Target group

These operating instructions are aimed at all persons performing the following activities on the product:

- Transportation
- Setup (Installation)
- Usage and operation
- Decommissioning
- Maintenance and cleaning
- Storage or disposal

The work described in this document is only permitted to be performed by persons with the appropriate technical qualifications (expert personnel) or who have received the relevant training from Pfeiffer Vacuum.

1.3 Conventions

1.3.1 Instructions in the text

Usage instructions in the document follow a general structure that is complete in itself. The required action is indicated by an individual step or multi-part action steps.

Individual action step

A horizontal, solid triangle indicates the only step in an action.

► This is an individual action step.

Sequence of multi-part action steps

The numerical list indicates an action with multiple necessary steps.

1. Step 1
2. Step 2
3. ...

1.3.2 Pictographs

Pictographs used in the document indicate useful information.

Note

Tip

1.3.3 Stickers on the product

This section describes all the stickers on the product along with their meanings.

	**Rating plate** (example) Rating plates of the devices are affixed to the housing where they can be clearly seen.
	**Test seal** The test seal provides information regarding additional certifications.
	**Warning hot surface** This sticker warns of injuries caused by high temperatures as a result of contact without protection during operation.

Tbl. 1: Stickers on the product

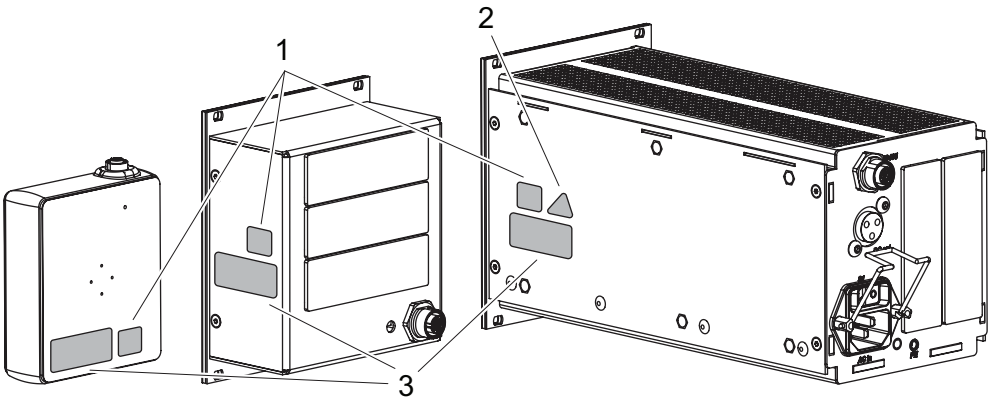


Fig. 1: Position of the stickers on the product

1 TÜV test seal
2 Hot surface warning sign
3 Rating plate

1.3.4 Abbreviations

Abbreviation	Meaning in this document
µSD	microSD
AC	Alternating Current voltage

Abbreviation	Meaning in this document
APR	Piezo gauge
AR	Analog output with two switch-points
AWG	American Wire Gauge
CCT	Capacitive gauge
CMR	Capacitive gauge
CPT	Piezo-resistive gauge
DC	Direct Current voltage
DCU	Display Control Unit
FCR	Fluorocarbon rubber
HPT	Pirani/Bayard-Alpert combination
HPU	Handheld Programming Unit (aid for controlling and monitoring pump parameters)
IKR	Cold cathode gauge
IMR	Hot cathode gauge
IO	Input Output (in out)
LED	Light emitting diode
MPT	Pirani/Cold cathode combination
PBR	Hot cathode gauge
PCR	Pirani/capacitive gauge
PE	Protective earth (earthed conductor)
PKR	Pirani/cold cathode transmitter
PPT	Pirani transmitter
[P:xxx]	Electronic drive unit control parameters. Printed in bold as a three-digit number in square brackets. Frequently displayed in conjunction with a short description. Example: **[P:312]** software version
RPT	Piezo/Pirani combination
RS-485	Standard for a physical interface for asynchronous serial data transmission (recommended standard)
S1	Switch on power supply pack
T	Temperature (in °C)
TC	Turbopump electronic drive unit (turbo controller)
TM	Turbopump electronic drive unit (turbo controller) and magnetic bearing controller
TPR	Pirani gauge
USB	Universal serial bus

Tbl. 2: Abbreviations used in this document

2 Safety

2.1 General safety information

The following 4 risk levels and 1 information level are taken into account in this document.

⚠ DANGER

Immediately pending danger

Indicates an immediately pending danger that will result in death or serious injury if not observed.

► Instructions to avoid the danger situation

⚠ WARNING

Potential pending danger

Indicates a pending danger that could result in death or serious injury if not observed.

► Instructions to avoid the danger situation

⚠ CAUTION

Potential pending danger

Indicates a pending danger that could result in minor injuries if not observed.

► Instructions to avoid the danger situation

NOTICE

Danger of damage to property

Is used to highlight actions that are not associated with personal injury.

► Instructions to avoid damage to property

Notes, tips or examples indicate important information about the product or about this document.

2.2 Safety instructions

All safety instructions in this document are based on the results of the risk assessment carried out in accordance with Low Voltage Directive 2014/35/EU. Where applicable, all life cycle phases of the product were taken into account.

Risks during installation

⚠ DANGER

Danger to life from electric shock

When establishing the voltages that exceed the specified safety extra-low voltage (according to IEC 60449 and VDE 0100), the insulating measures will be destroyed. There is a danger to life from electric shock at the communication interfaces.

► Connect only suitable devices to the bus system.

⚠ DANGER

Danger to life from electric shock

Touching exposed and voltage-bearing elements causes an electric shock. Improper connection of the mains supply leads to the risk of touchable live housing parts. There is a risk to life.

► Before the installation, check that the connection leads are voltage-free.
► Make sure that electrical installations are only carried out by qualified electricians.
► Provide adequate grounding for the device.
► After connection work, carry out an earthed conductor check.

⚠ DANGER

Danger to life from electric shock

Power supply packs that are not specified or are not approved will lead to severe injury to death.

- ► Make sure that the power supply pack meets the requirements for double isolation between mains input voltage and output voltage, in accordance with IEC 61010-1 IEC 60950-1 and IEC 62368-1.
- ► Make sure that the power supply pack meets the requirements in accordance with IEC 61010-1 IEC 60950-1 and IEC 62368-1.
- ► Where possible, use original power supply packs or only power supply packs that correspond with the applicable safety regulations.

⚠ WARNING

Risk of fatal injury due to electric shock on account of incorrect installation

The device's power supply uses life-threatening voltages. Unsafe or improper installation can lead to life-threatening situations from electric shocks obtained from working with or on the unit.

- ► Ensure safe integration into an emergency off safety circuit.
- ► Do not carry out your own conversions or modifications on the unit.

⚠ WARNING

Risk of danger to life through missing mains disconnection device

The vacuum pump and electronic drive unit are **not** equipped with a mains disconnection device (mains switch).

- ► Install a mains disconnection device according to SEMI-S2.
- ► Install a circuit breaker with an interruption rating of at least 10,000 A.

⚠ WARNING

Health hazard through poisoning from toxic contaminated components or devices

Toxic process media result in contamination of devices or parts of them. During maintenance work, there is a risk to health from contact with these poisonous substances. Illegal disposal of toxic substances causes environmental damage.

- ► Take suitable safety precautions and prevent health hazards or environmental pollution by toxic process media.
- ► Decontaminate affected parts before carrying out maintenance work.
- ► Wear protective equipment.

Risks during operation

⚠ WARNING

Danger to life due to incorrect operation

The OmniControl and its options are not designed as safety-related controllers. Manual misuse of the OmniControl or options, or automatically executed programming of the OmniControl's auto control function may result in damage relating to materials, the environment, health, or life.

- ► Only use the OmniControl, options, or auto control function to control functions that will not cause damage.
- ► To ensure correct settings, ensure that the operating instructions are available to qualified personnel and operators.

Risks during maintenance

⚠ WARNING

Danger to life from electric shock during maintenance and service work

The device is only completely de-energized when the mains plug has been disconnected and the vacuum pump is at a standstill. There is a danger to life from electric shock when making contact with live components.

- ► Before performing all work, switch off the main switch.
- ► Wait until the vacuum pump comes to a standstill (rotation speed =0).
- ► Disconnect all connection cables.
- ► Remove the mains plug from the device.
- ► Secure the device against unintentional restarting.

Risks during troubleshooting

⚠ WARNING

Danger to life from electric shock in the event of a fault

In the event of a fault, devices connected to the mains may be live. There is a danger to life from electric shock when making contact with live components.

- ► Always keep the mains connection freely accessible so you can disconnect it at any time.

2.3 Safety precautions

Duty to provide information on potential dangers

The product holder or user is obliged to make all operating personnel aware of dangers posed by this product.

Every person who is involved in the installation, operation or maintenance of the product must read, understand and adhere to the safety-related parts of this document.

Infringement of conformity due to modifications to the product

The Declaration of Conformity from the manufacturer is no longer valid if the operator changes the original product or installs additional equipment.

- Following the installation into a system, the operator is required to check and re-evaluate the conformity of the overall system in the context of the relevant European Directives, before commissioning that system.

General safety precautions when handling the product

- ► Use only power supply packs that comply with the applicable safety regulations.
- ► Observe all applicable safety and accident prevention regulations.
- ► Check that all safety measures are observed at regular intervals.
- ► Recommendation: Establish a secure connection to the grounded conductor (PE); protection class I or Ⅲ.
- ► Never disconnect plug connections during operation.
- ► Keep lines and cables away from hot surfaces (> 70 °C).
- ► Do not carry out your own conversions or modifications on the unit.
- ► Observe the unit protection degree prior to installation or operation in other environments.

2.4 Limits of use of the product

Feature	OmniControl 200/300	OmniControl 400	OmniControl 001	OmniControl 001 Mobile
Installation location	weatherproof (indoors), Rack or table	weatherproof (indoors), Rack or table	weatherproof (indoors), Rack or table	weatherproof (indoors), Handheld device or profile rail
Air pressure	53 kPa to 106 kPa	53 kPa to 106 kPa	53 kPa to 106 kPa	53 kPa to 106 kPa

Feature	OmniControl 200/300	OmniControl 400	OmniControl 001	OmniControl 001 Mobile
Installation altitude	max. 5000 m	max. 2000 m	max. 5000 m	max. 5000 m
Rel. air humidity	max. 80 % at T ≤ 31 °C, up to max. 33% at T ≤ 50°C	max. 80 % at T ≤ 31 °C, up to max. 33% at T ≤ 50°C	max. 80 % at T ≤ 31 °C, up to max. 33% at T ≤ 50°C	max. 80 % at T ≤ 31 °C, up to max. 33% at T ≤ 50°C
Protection class	I	I	III	III
Protection degree	IP20	IP20	IP20	IP20
Ambient temperature	0 °C to +50 °C	0 °C to +50 °C	0 °C to +50 °C	0 °C to +50 °C
Overvoltage category	II	II	I	I
Degree of pollution	2	2	2	2

Tbl. 3: Permissible ambient conditions

2.5 Proper use

- OmniControl control units are used exclusively to control the electronic drive units of Pfeiffer Vacuum vacuum pumps and their accessories.
- The version with integrated power supply pack also supplies the operating voltage for the vacuum pump.

2.6 Foreseeable improper use

Improper use of the product invalidates all warranty and liability claims. Any use that is counter to the purpose of the product, whether intentional or unintentional, is regarded as improper use; in particular:

- Connection to the current supply that does not comply with the provisions of IEC 61010 or IEC 60950
- Operating modes that may result in hazardous situations with connected devices if unintentionally or automatically activated
- Operation with excessive irradiated heat output
- Use in areas with ionizing radiation
- Operation in potentially explosive areas
- Use of accessories or spare parts that are not listed in these instructions

3 Product description

3.1 Identifying the product

- ► To ensure clear identification of the product when communicating with Pfeiffer Vacuum, always keep all of the information on the rating plate to hand.
- ► Learn about certifications through test seals on the product or at www.certipedia.com with company ID no. 000024550.

3.2 Product features

Feature	OmniControl 200	OmniControl 300	OmniControl 400	OmniControl 001	OmniControl 001 Mobile
Power supply pack: AC in	yes	yes	yes	no	no
DC out	24 V ± 2 % 200 W	24 V ± 2 % 300 W	48 V ± 2 % 400 W	no	no
RS-485 with DC in/out	24 V 3 A	24 V 3 A	24 V 3 A	24 V ± 10 % 3 A	24 V ± 10 % 3 A
Number of options	0 - 1 Front 0 - 2 Rear	0 - 1 Front 0 - 2 Rear	0 - 1 Front 0 - 2 Rear	0 - 1 Front 0 - 3 Rear	0 - 1
Suitable for Pfeiffer Vacuum products	with integrated electronic drive unit, without power supply pack	with integrated electronic drive unit, without power supply pack	with integrated electronic drive unit, without power supply pack	with integrated electronic drive unit, with power supply pack	with integrated electronic drive unit, with power supply pack

Tbl. 4: Product features

3.3 Scope of delivery

- OmniControl control unit (optionally with table mount installed)
- Operating instructions

3.4 Function

The OmniControl is a control unit for Pfeiffer Vacuum vacuum pumps with integrated electronic drive unit. This device provides an overview of all control parameters for the electronic drive unit. In addition, a gauge may be connected if the “gauge/IO” option is available.

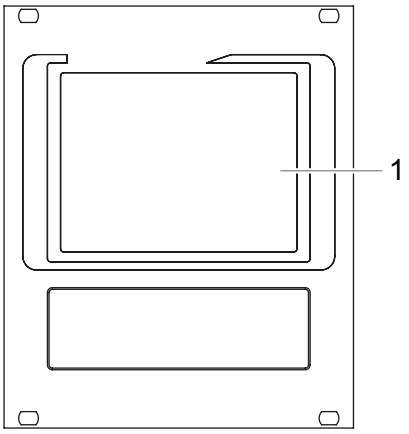


Fig. 2: OmniControl 200 front view

1 Touch display

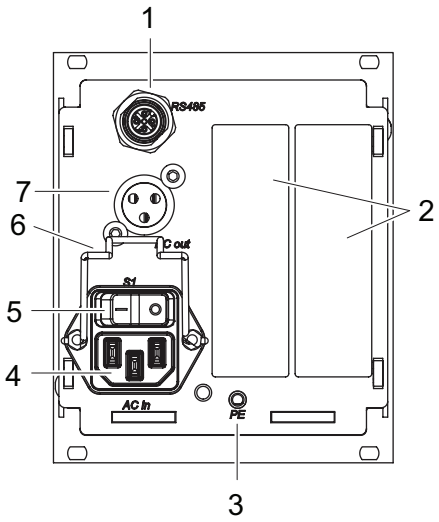


Fig. 3: OmniControl 200 rear view

1 Connecting socket RS-485
2 Placeholder options
3 Earthed conductor, M4
4 Power supply plug AC in, mains input
5 Mains switch S1
6 Mounting bracket for mains connection
7 Connecting socket DC out

4 Interfaces

4.1 Interface RS-485

⚠ DANGER

Danger to life from electric shock

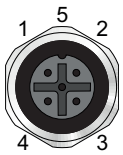
When establishing the voltages that exceed the specified safety extra-low voltage (according to IEC 60449 and VDE 0100), the insulating measures will be destroyed. There is a danger to life from electric shock at the communication interfaces.

► Connect only suitable devices to the bus system.

The interface designated “RS-485” is intended for connecting a Pfeiffer Vacuum electronic drive unit or a gauge. The connectors are isolated from the maximum occurring supply voltage in a galvanically safe way. The electrical connections are optically decoupled internally.

Designation	Value
Serial interface	RS-485
Baud rate	9600 Baud
Data word length	8 bit
Parity	none (no parity)
Start bits	1
Stop bits	1

Tbl. 5: Features of the RS-485 interface

	Pin	Assignment
	1	RS-485 D+
	2	+24 V output, ≤ 210 mA loading capacity
	3	GND
	4	RS-485 D-
	5	not connected

Tbl. 6: Terminal layout of the RS-485 connecting socket M12

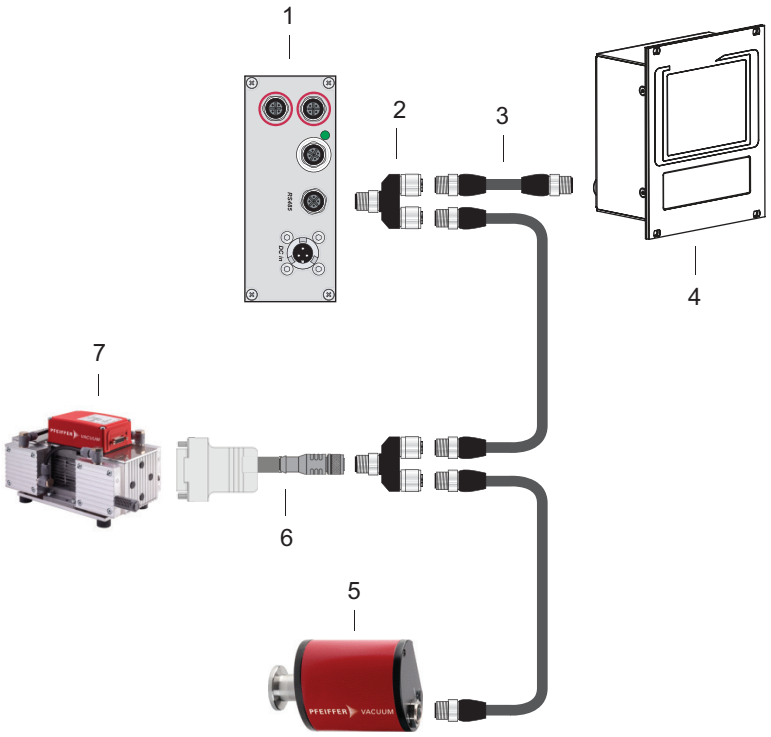


Fig. 4: Cross-linking an OmniControl in the RS-485 bus

1 TC 400/TM 700
2 Y-connector for RS-485
3 M12 to M12 extension cable
4 OmniControl 001
5 DigiLine xPT 200
6 Connection cable with 2 accessory ports, RS-485
7 MVP 010/015/030[1)]

Networking as RS-485 Bus

The group address of the electronic drive unit is 963.

1. Install the devices according to the specification for RS-485 interfaces.
2. Make sure that all devices connected to the bus have different RS-485 device addresses **[P:797]**.
3. Connect all devices to the bus with RS-485 D+ and RS-485 D-.

4.2 Gauge/IO option

Pressure measurement with the OmniControl

The OmniControl offers a precise pressure display with existing gauge/IO function.

The option designated “gauge/IO” in the OmniControl enables the connection of a Pfeiffer Vacuum pressure gauge. The connections in the OmniControl with integrated power supply pack are galvanically safe and are isolated from the maximum supply voltage for the OmniControl.

1) The example of an RS-485 bus does not represent a power supply for vacuum pumps connected.

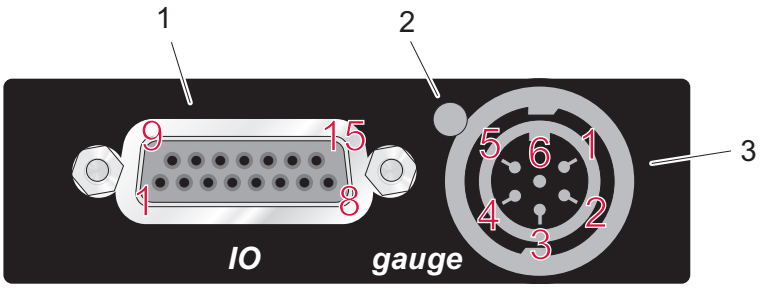


Fig. 5: Gauge/IO option

1 15-pin D-sub connector (IO)
2 LED at gauge socket
3 Gauge socket

You can find more information in the corresponding operating instructions at the Pfeiffer Vacuum Download Center.

4.3 Data option

The option designated “data” in OmniControl is intended for the connection of a USB stick and a micro SD card. You can record values acquired by the OmniControl on these storage media devices.

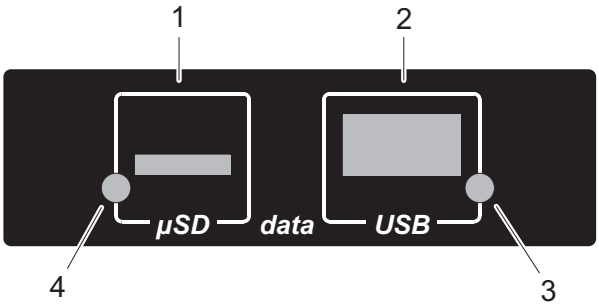


Fig. 6: Data option

1 µSD socket
2 USB socket
3 LED at USB socket
4 LED at µSD socket

You can find more information in the corresponding operating instructions at the Pfeiffer Vacuum Download Center.

5 Installation

5.1 Preparing for installation

General comments regarding installation

- ► Choose a site for installation where access to the product and to supply lines is possible at all times.
- ► Install the device upright.
- ► Respect the ambient conditions stated for the area of use.
- ► A minimum distance of 50 mm from the upper cooling vents to adjacent components must be maintained.
- ► Ensure adequate cooling options, e.g., in the control cabinet.

5.2 Installing the device in a rack

NOTICE

Damage caused by overheating

The ambient temperature must not exceed the permissible operating temperature of the device.

- ► Make sure there is unobstructed circulation of air when installing the device.
- ► Periodically check and clean the installed air filter, if necessary.

The device is suitable for installation in a 19" mounting rack 3HE in accordance with DIN 41494.

Installing the device in a rack

1. Install guide rails in the rack as required.
2. Push the device upright into the rack all the way to the front panel.
3. Secure the front panel with 4 collar screws and plastic nipples included in the shipment.

5.3 Connecting the electrical supply

⚠ DANGER

Danger to life from electric shock

Touching exposed and voltage-bearing elements causes an electric shock. Improper connection of the mains supply leads to the risk of touchable live housing parts. There is a risk to life.

- ► Before the installation, check that the connection leads are voltage-free.
- ► Make sure that electrical installations are only carried out by qualified electricians.
- ► Provide adequate grounding for the device.
- ► After connection work, carry out an earthed conductor check.

⚠ WARNING

Risk of fatal injury due to electric shock on account of incorrect installation

The device's power supply uses life-threatening voltages. Unsafe or improper installation can lead to life-threatening situations from electric shocks obtained from working with or on the unit.

- ► Ensure safe integration into an emergency off safety circuit.
- ► Do not carry out your own conversions or modifications on the unit.

⚠ WARNING

Risk of danger to life through missing mains disconnection device

The vacuum pump and electronic drive unit are **not** equipped with a mains disconnection device (mains switch).

- ► Install a mains disconnection device according to SEMI-S2.
- ► Install a circuit breaker with an interruption rating of at least 10,000 A.

Dimensions of connection lead

- Cross section: min. **AWG 18** or **1 mm²**
- Length: max. **3 m**

Pfeiffer Vacuum recommends the use of original accessory parts.

- Information and ordering options for approved range of accessories for the OmniControl can be found online.

5.3.1 Connection diagram

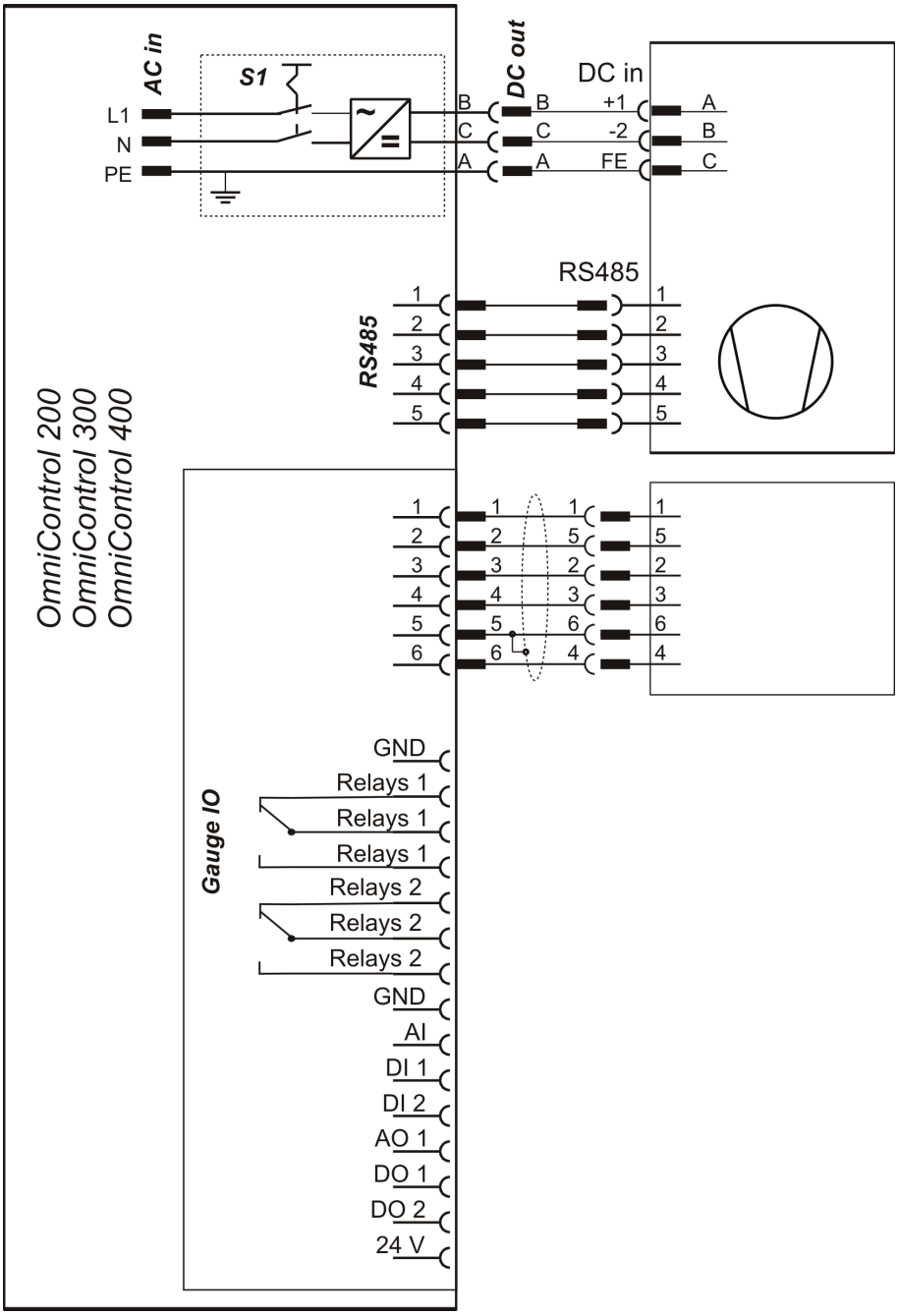


Fig. 7: Connection diagram for the OmniControl with integrated power supply pack

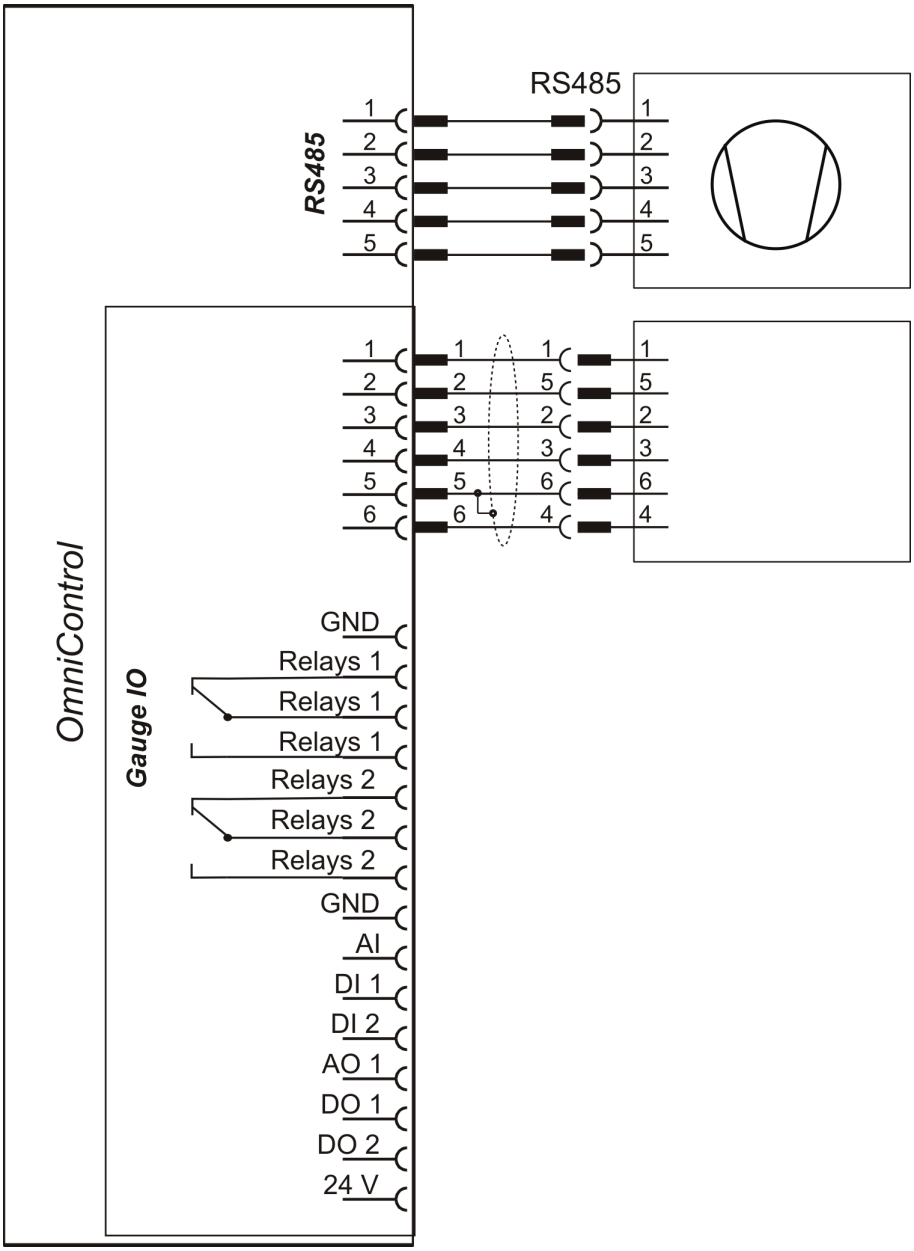


Fig. 8: Connection diagram for the OmniControl with gauge/IO option

5.3.2 Earthing the device

Dimension of grounding cable

- Cross section: min. **1.5 mm²**
- Length: max. **5 m**

- The ground terminal is obligatory for OmniControls with integrated power supply pack.
- Pfeiffer Vacuum recommends connecting a suitable grounding cable to the OmniControl 200, 300 and 400 to discharge applicative interferences.
- Alternatively, the OmniControl 200, 300 and 400 is grounded following installation in a rack.

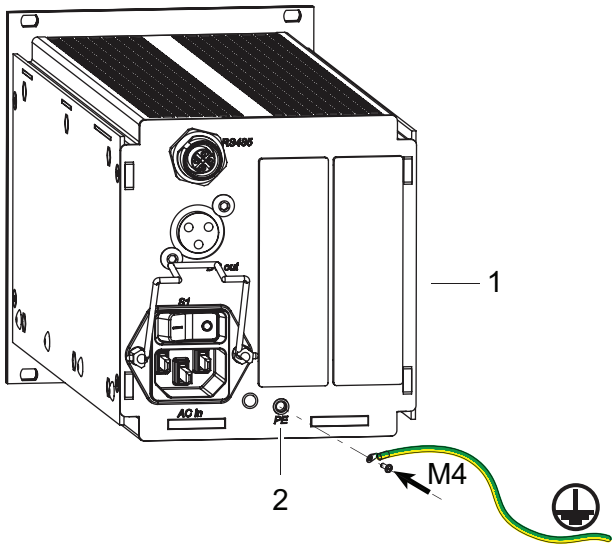


Fig. 9: Connection of the grounding cable to the OmniControl with integrated power supply pack

1 Rear of housing 2 Ground terminal

Connecting the grounding cable to the OmniControl with integrated power supply pack

1. Use the grounding connection at the back of the device (M4 internal thread).
2. Route the connection in accordance with locally applicable provisions.

5.3.3 Connecting the OmniControl to a vacuum pump

⚠ DANGER

Danger to life from electric shock

Power supply packs that are not specified or are not approved will lead to severe injury to death.

- ► Make sure that the power supply pack meets the requirements for double isolation between mains input voltage and output voltage, in accordance with IEC 61010-1 IEC 60950-1 and IEC 62368-1.
- ► Make sure that the power supply pack meets the requirements in accordance with IEC 61010-1 IEC 60950-1 and IEC 62368-1.
- ► Where possible, use original power supply packs or only power supply packs that correspond with the applicable safety regulations.

Observe the command control acceptance for the electronic drive unit interfaces

DIL switches in the connection cable or bridges in the mating plug for the D-Sub connector for the electronic drive unit enable operation of the pump without control unit. This may cause priority conflicts with the RS-485 interface.

- Disconnect the mating plug from the "remote" connection prior to connecting an OmniControl to electronic drive unit TC 400, TC 1200 or TM 700.
- Switch off the command control acceptance (DIL switch S1/S2 = OFF) prior to connecting an OmniControl to the electronic drive unit TC 110.

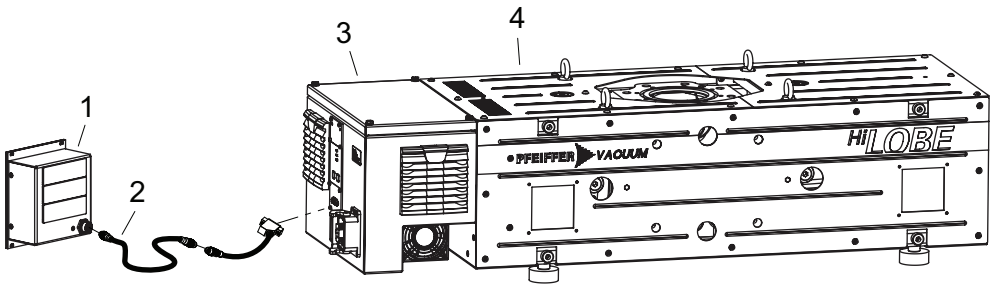


Fig. 10: Example: Connection of an OmniControl to a vacuum pump

1 OmniControl
2 Interface cable M12
3 Electronic drive unit
4 HiLobe roots pump

Connecting the OmniControl

The OmniControl receives the supply voltage via the electronic drive unit interface. The RS-485 serial interface of the OmniControl is used exclusively to control the electronic drive unit of a vacuum pump. The interface protocol is described in the operating instructions of the respective electronic drive unit.

1. Connect the "RS-485" OmniControl connection with the electronic drive unit of the vacuum pump.
2. Use an M12 interface cable.

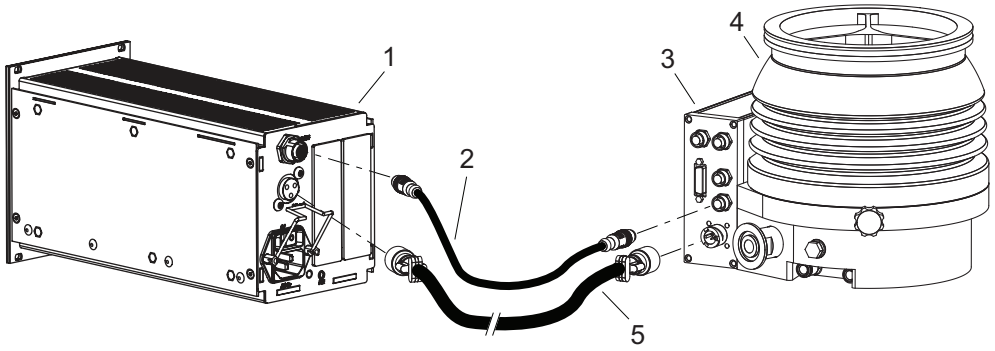


Fig. 11: Example: Connection of an OmniControl with integrated power supply pack to a vacuum pump

1 OmniControl 200
2 RS-485 interface cable (M12)
3 Electronic drive unit TC 400
4 Turbopump HiPace 700
5 "DC" voltage supply cable

Connecting an OmniControl with integrated power supply pack

1. Make sure that the power supply pack main switch is off prior to connection.
2. Always ensure a secure connection to the earthed conductor (PE), protection class I or Ⅲ.
3. Connect the "RS-485" OmniControl connection with the electronic drive unit of the vacuum pump.
4. Use an M12 interface cable.
5. Connect the "DC out" connection of the OmniControl with the electronic drive unit of the vacuum pump as prescribed in the connection diagram, or with a cable from the Pfeiffer Vacuum accessories.

5.3.4 Connect OmniControl to multiple vacuum pumps

⚠ DANGER

Danger to life from electric shock

Power supply packs that are not specified or are not approved will lead to severe injury to death.

- ► Make sure that the power supply pack meets the requirements for double isolation between mains input voltage and output voltage, in accordance with IEC 61010-1 IEC 60950-1 and IEC 62368-1.
- ► Make sure that the power supply pack meets the requirements in accordance with IEC 61010-1 IEC 60950-1 and IEC 62368-1.
- ► Where possible, use original power supply packs or only power supply packs that correspond with the applicable safety regulations.

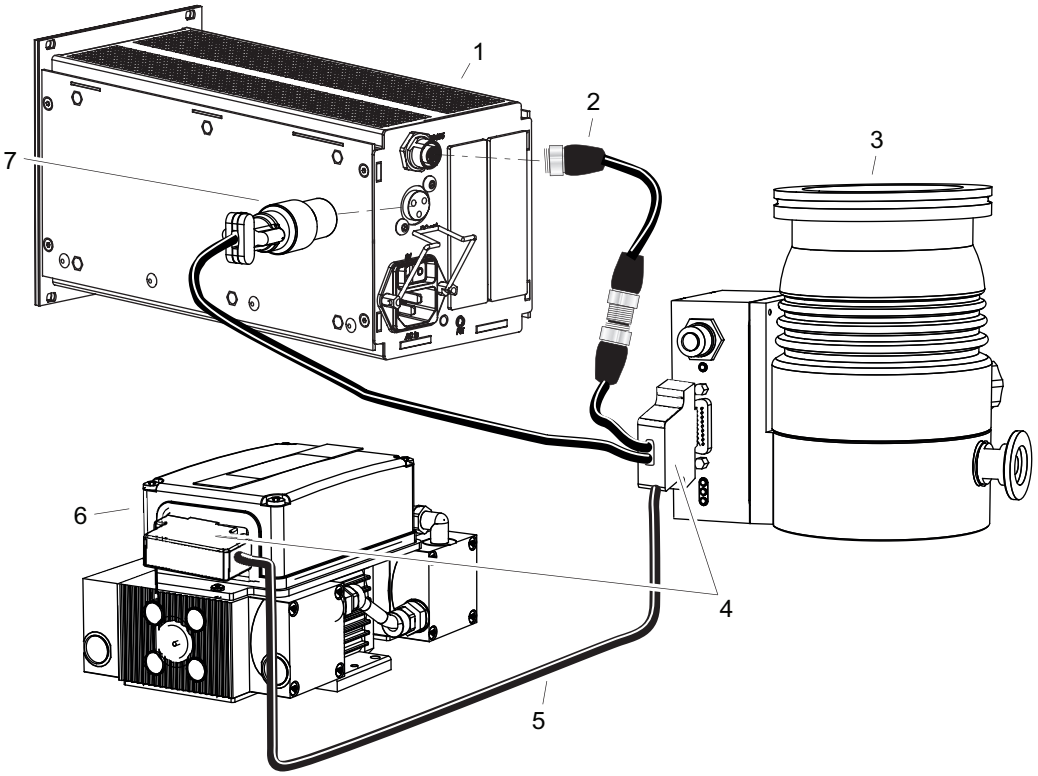


Fig. 12: Example: Connect OmniControl with integrated power supply pack to multiple vacuum pumps

1 OmniControl with integrated power supply pack
2 "RS-485" power supply plug
3 Turbopump
4 D-sub plug
5 Connection cable
6 MVP
7 "DC out" power supply plug

Connect OmniControl to multiple vacuum pumps

1. Ensure the correct supply voltage.
2. Make sure that the “S1” power supply pack master switch is off prior to connection.
3. Plug the 15-pin D-Sub connectors on the connection cable into the "remote" connectors on the electronic drive units and secure the connectors.
4. Plug the connecting socket with bayonet catch into the “DC out” connection on the OmniControl with integrated power supply pack and lock it.
5. Connect the "RS-485" connector to the OmniControl.

Use of OmniControl without integrated power supply pack

You additionally need an external power supply pack to connect multiple vacuum pumps to an OmniControl without an integrated power supply pack.

Suitable power supply packs are available as Pfeiffer Vacuum accessories.

5.3.5 Connecting to the mains power suppy

Only applicable for configurations with integrated power supply pack (OmniControl 200, 300 and 400). The OmniControl 200, 300 and 400 receives the supply voltage via the electronic drive unit RS-485 interface.

Establishing mains connection for OmniControl

1. Make sure that the “S1” power supply pack main switch is off prior to connection.
2. Always ensure a secure connection to the earthed conductor (PE), protection class I or Ⅲ.
3. Insert the mains connector cable (not included in the shipment) in the "AC in" power supply plug at the rear side of the device.
4. Secure the connection with the mounting bracket.
5. Connect the mains cable to the mains power supply on the back of the device.

5.4 Connecting gauges

Restrictions when you connect gauges

The following restrictions apply when you connect gauges to OmniControl:

- OmniControl 200/300/400: max. 2 DigiLine gauges and, if an OmniControl with gauge/IO option is used, one ActiveLine gauge for each installed option
- OmniControl 001 and OmniControl 001 Mobile: only one DigiLine or ActiveLine gauge with a rated input of < 5 W

You can find more information on connecting gauges to the gauge/IO option in the corresponding operating instructions. You can find this document in the Pfeiffer Vacuum Download Center. Use of further gauges is only permitted on request. Contact Pfeiffer Vacuum Service.

The RS-485 interface and the connecting socket designated "gauge" on the gauge/IO option are used to connect a Pfeiffer Vacuum gauge.

Gauge	Display [P:738]	Rated input < 5 W
RPT 200	RPT 200	×
PPT 200	PPT 200	×
MPT 200	MPT 200	×
CPT 200	CPT 200	×
CCT 371, CCT 372, CCT 373, CCT 374, CCT 375	CCT 37x	
CCT 361, CCT 362, CCT 363, CCT 364, CCT 365	CCT 36x	×
HPT 200	HPT 200	

Tbl. 7: Available Pfeiffer Vacuum DigiLine gauges for connecting to an OmniControl

Connecting gauges

1. If required, connect a gauge to the RS-485 interface or the “gauge” interface of an OmniControl gauge/IO option.
2. The corresponding connection cable is available as a Pfeiffer Vacuum accessory.

5.5 Install/remove table mount

Prerequisites

- Table mount available
- OmniControl switched off
- All connection cables removed

Required tool

- Small slot-head screwdriver

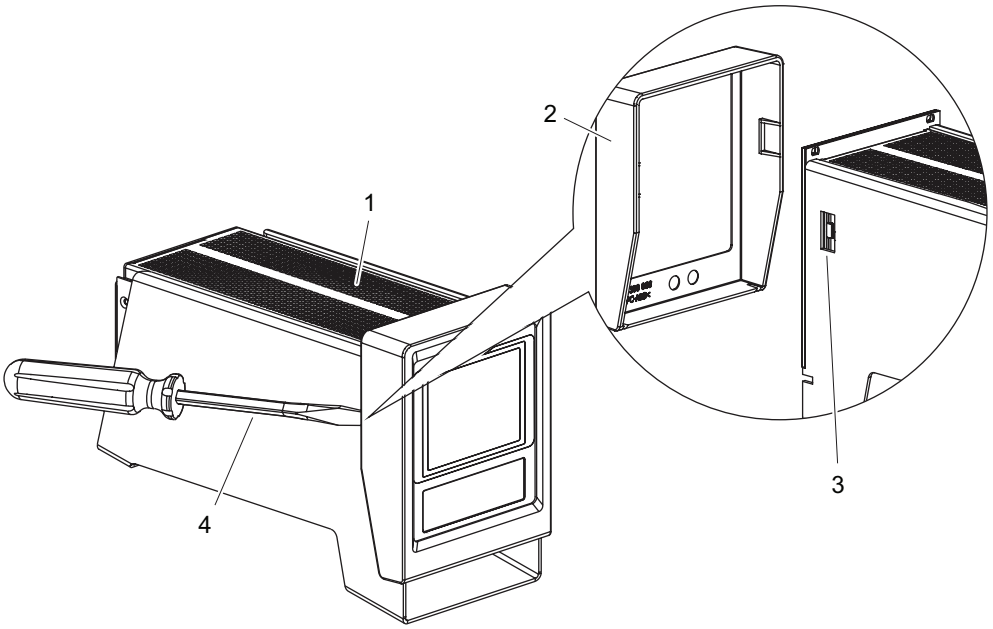


Fig. 13: Remove plastic cover

1 OmniControl with power supply pack
2 Plastic cover
3 Clip in table mount
4 Small slot-head screwdriver

Remove plastic cover

► Carefully lever the plastic cover off the table mount on both sides using a small slot-head screwdriver.

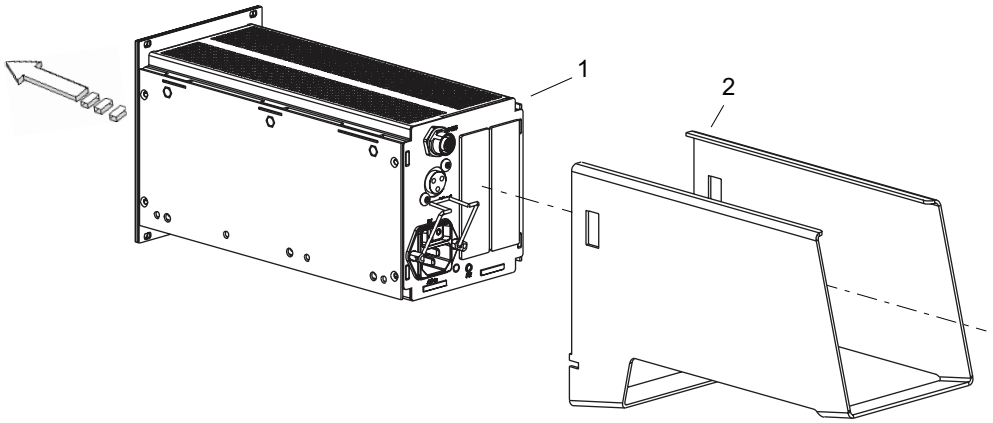


Fig. 14: Remove table mount

1 OmniControl with power supply pack
2 Table mount

Remove table mount

► Pull the OmniControl forward and out of the table mount.

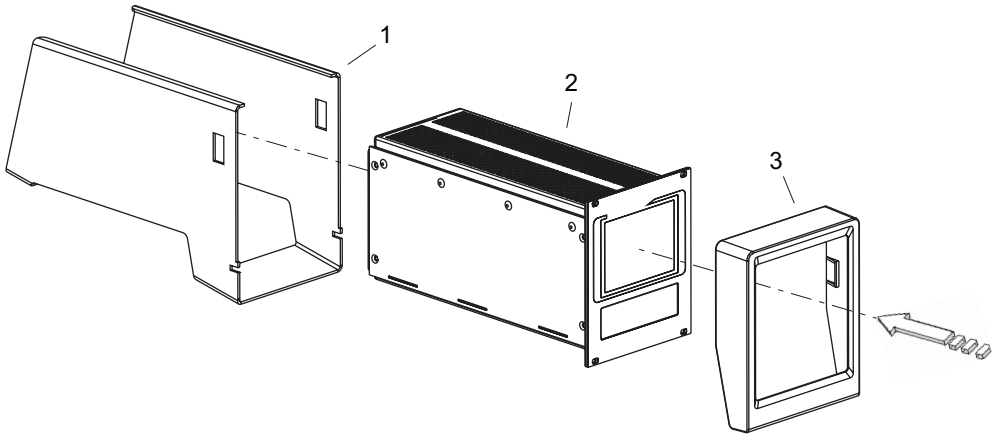


Fig. 15: Install table mount

1 Table mount
2 OmniControl
3 Plastic cover

Install table mount

1. Insert the Omnicontrol into the table mount from the front.
2. Push the plastic cover onto the table mount until the clips engage on both sides.

6 Operation

⚠ WARNING

Danger to life due to incorrect operation

The OmniControl and its options are not designed as safety-related controllers. Manual misuse of the OmniControl or options, or automatically executed programming of the OmniControl's auto control function may result in damage relating to materials, the environment, health, or life.

- ► Only use the OmniControl, options, or auto control function to control functions that will not cause damage.
- ► To ensure correct settings, ensure that the operating instructions are available to qualified personnel and operators.

6.1 Introduction screens

The introduction screens appear automatically when you switch on the OmniControl. They explain the basic functions of operation, the data view, the tools menu, the device settings and the device information.

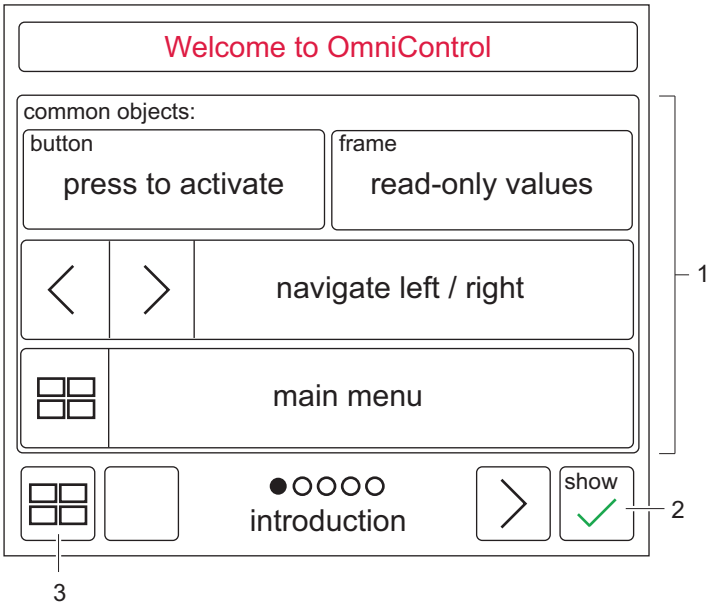


Fig. 16: Introduction screen example

1 Basic functions
2 Displaying/hiding introduction screens
3 Main menu

Permanently hiding introduction screens

- ► Click on "show ✓ " on any introduction screen.
  - – The tile shows "skip ✗ ".
- ► Alternatively:
  - – Click on the device settings in the main menu.
  - – Click on "show intro ✓ " in the device settings.
    - – The tile shows "skip intro ✗ ".

Displaying introduction screens again

1. Click on the device settings in the main menu.
2. Click on "skip intro ✗ " in the device settings.
   - – The tile shows "show intro ✓ ".

6.2 Main menu

The main menu appears after the introduction screens, or automatically after switching on the Omni-Control and deactivating the introduction screens. From this menu, you can access the data view, the tools menu, the device settings, and the device information.

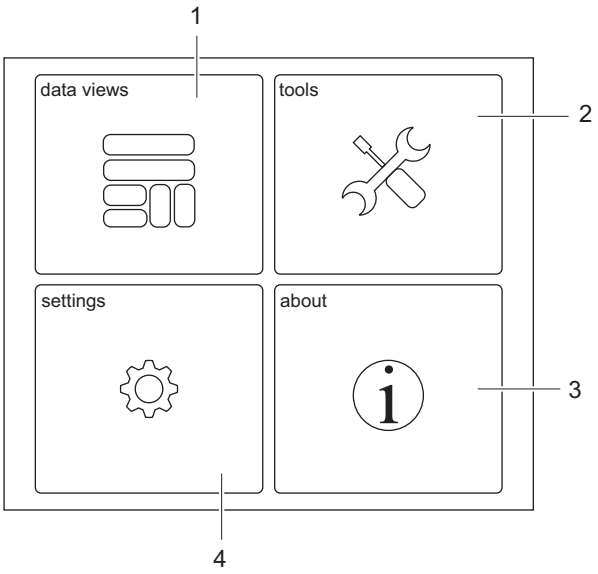


Fig. 17: Main menu

1 Data views
2 Tools menu
3 Device information
4 Device settings

6.3 Data views

Go to the data view to view or change various process data, depending on available options and connected vacuum pumps, gauges, storage media etc.

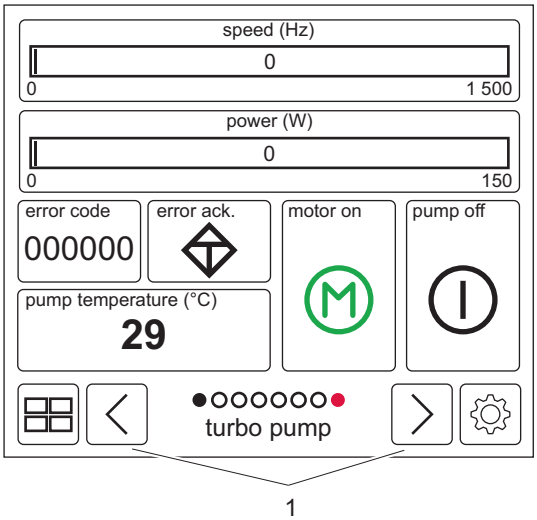


Fig. 18: Data view example

1 Arrow keys

Navigation in the data view

► Press the arrow keys to switch between views.

6.3.1 Default views

In the default views you will find 7 views created ex factory. The 8th "direct access" view in red enables device-specific access to the Pfeiffer Vacuum parameter set and to the available options.

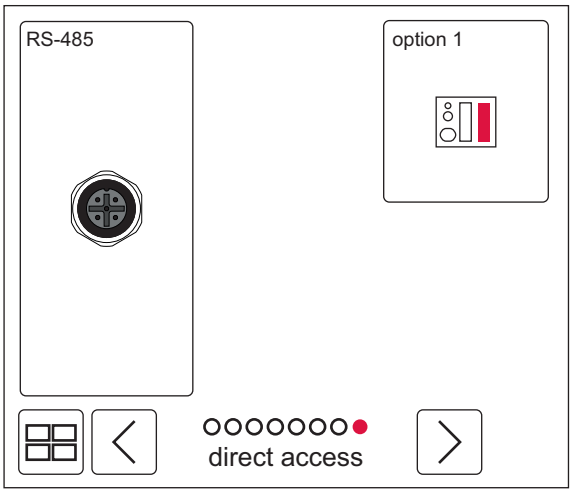


Fig. 19: Direct access example

You can select 1 to 7 further preconfigured templates in the data view.

Examples of preconfigured template categories

- Device templates
- Empty grid templates
- Application templates

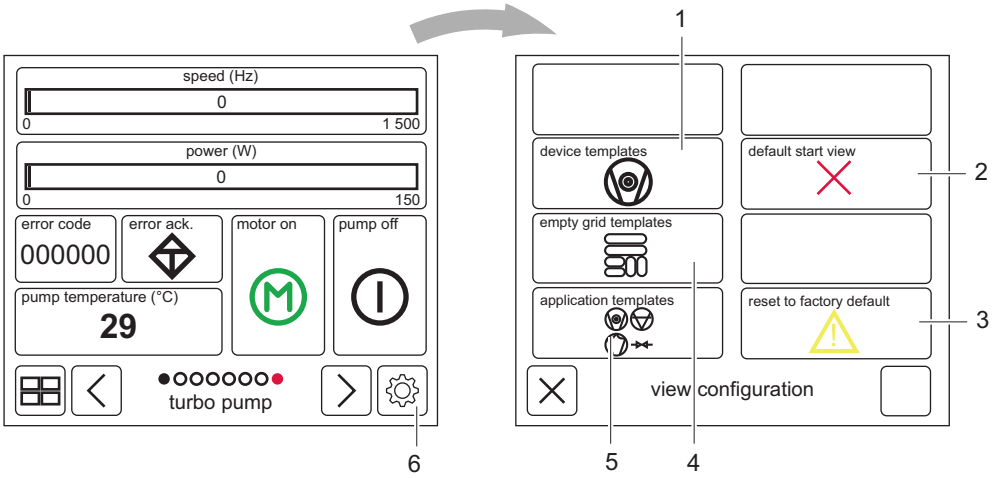


Fig. 20: Selecting preconfigured templates

1 Device templates
2 Default start view
3 Reset to factory settings
4 Empty grid templates
5 Application templates
6 Gear wheel

Selecting preconfigured templates

1. In one of the default views created ex factory, press the gear wheel at the bottom right edge of the screen to open the templates menu (view configuration).
2. Select a template category.
3. Select a preconfigured template.

Overwriting a default view

If you select a preconfigured template, it overwrites the default view where you made the setting.

6.3.2 Device templates

In the device templates, you will find preconfigured data views that are adapted to various Pfeiffer Vacuum products.

Preconfigured device templates

- For turbopumps (turbopump)
- For backing pumps (backing pump)
- For roughing pumps (roughing pump)
- For DigiLine gauges (DigiLine gauge)
- For ActiveLine gauges (ActiveLine gauge)
- For the OmniControl

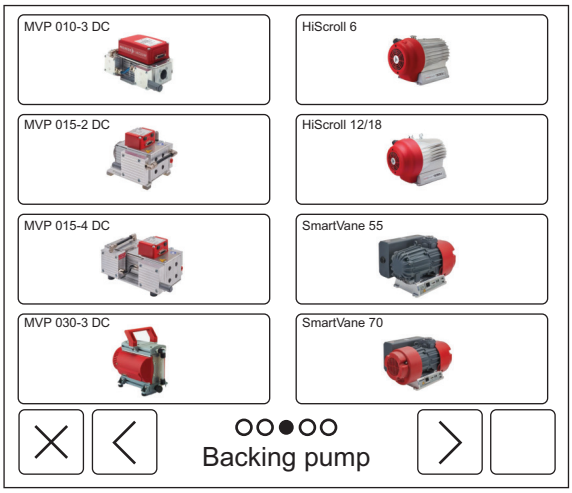


Fig. 21: Example of device templates

6.3.3 Application templates

In the application templates, you will find preconfigured data views that are adapted to various applications with multiple Pfeiffer Vacuum products.

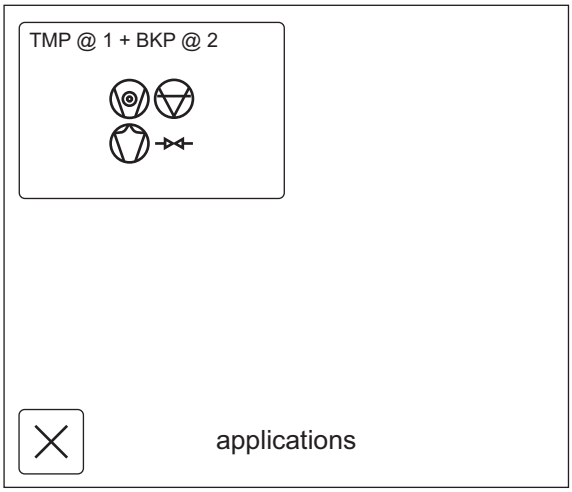


Fig. 22: Application templates menu

6.3.4 Empty grid templates

In the empty grid templates, you can select from various grid combinations and configure the individual tiles according to type, source, format and appearance.

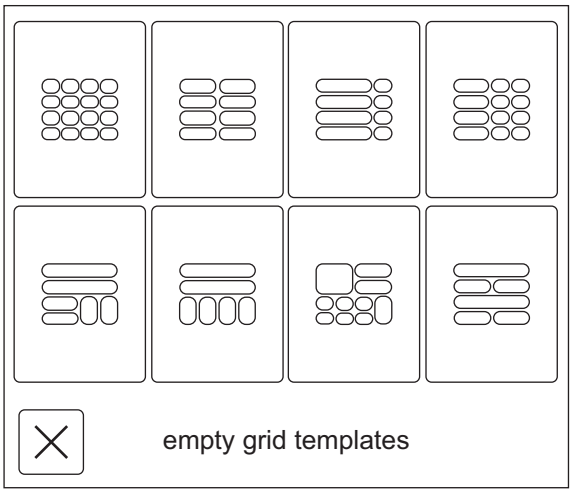


Fig. 23: Grid templates menu

6.3.5 Configuring tiles

You can configure any tiles in the data view according to type, source, format and appearance.

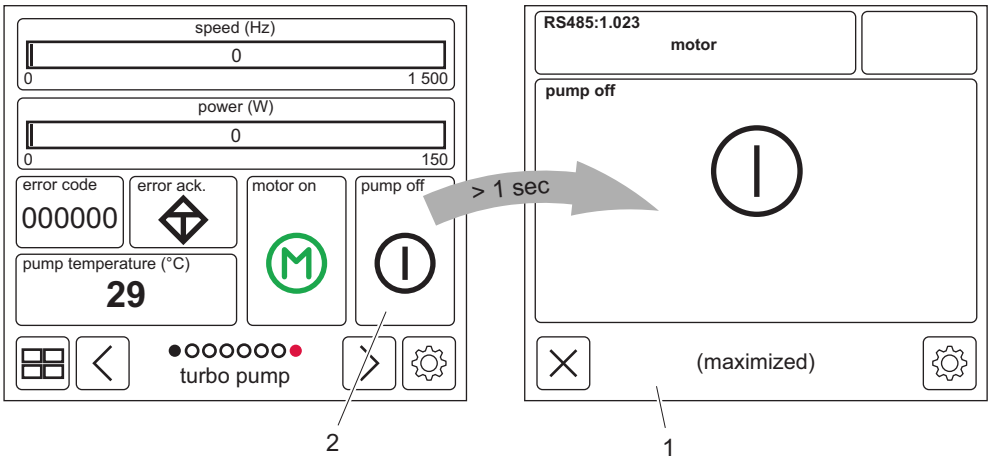


Fig. 24: Example of opening a detailed view

1 Detailed view 2 Tile

Open detailed view

► Press on a tile in the data view for **> 1 second** to maximize it.

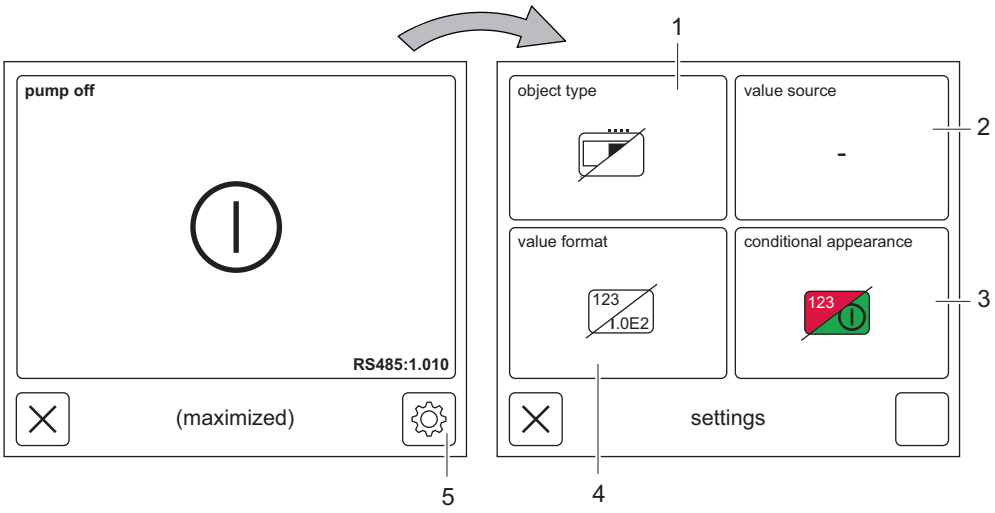


Fig. 25: Configure tile

1 Type
2 Source
3 Appearance
4 Format
5 Gear wheel

Configure tile

1. In the detailed view of a tile, tap on the gear wheel at the bottom right of the screen to open the configuration menu.
2. Configure the tile with regard to type, source, format, and appearance.

Configuration menu for tiles

- Type (object type): Change view, e.g. bar graph, numeric, button
- Source (value source): Select address and parameters to be displayed for connected unit
- Appearance (conditional appearance): Configure value-dependent color highlighting
- Format (value format): Select numeric format, e.g. linear, logarithmic, decimal places

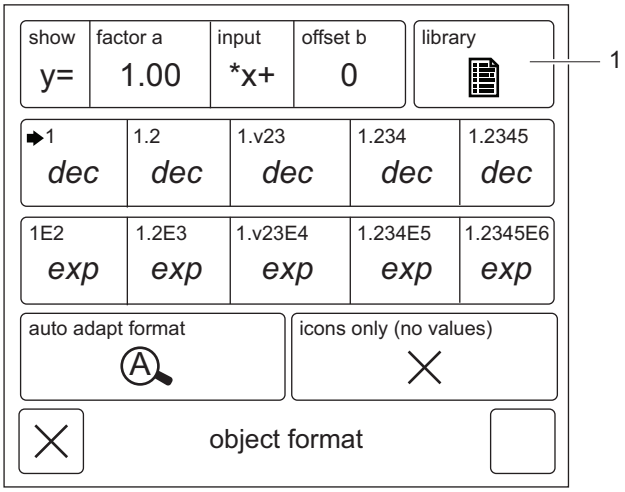


Fig. 26: Converting units

1 Library

Converting units

1. In the detailed view of a tile, tap on the gear wheel at the bottom right of the screen to open the configuration menu.
2. Select the format tile (value format) in the configuration menu.
3. Select the library tile to access the scaling menu.
4. In the scaling menu, select a fitting unit for various categories.

Scaling menu for categories

- Pressure
- Temperature
- Speed (speed)
- Electrical unit (electric)
- Time

6.4 Tools menu (Tools)

The Tools menu provides a range of helpful functions and setting options.

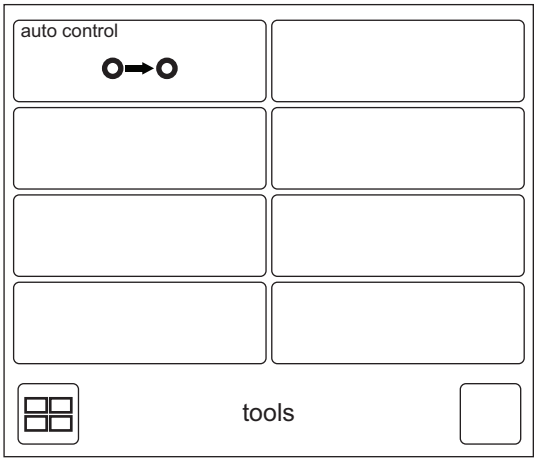


Fig. 27: Tools menu example

The auto control function is for configuring one or more value dependencies. A defined value dependency is indicated by the symbol at the bottom right edge of the tool menu tile or the tile in the data view that is influenced by the value dependency.

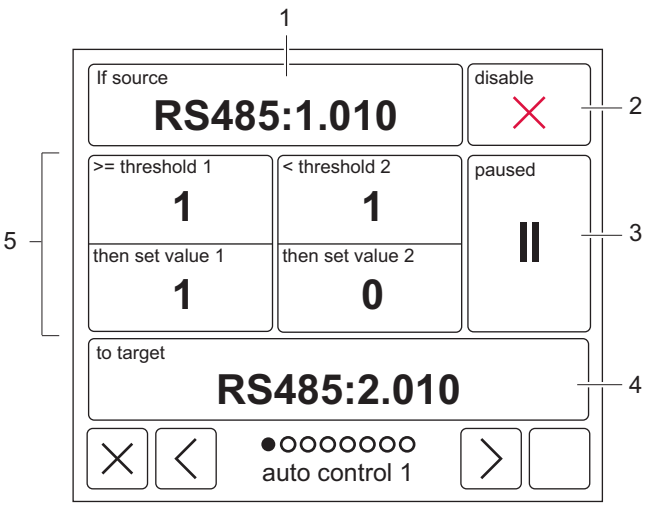


Fig. 28: Auto control view example

1 Source
2 Disable
3 Pause
4 Target
5 If/then values (threshold/value)

Configure auto control

1. Select auto control function in Tools menu to configure one or more value dependencies.
2. Enter the source, the threshold/value values, and the target of the value dependency.
3. If desired, disable the corresponding value dependency via the tile at the top right edge of the screen.

Auto control example

The “Auto control view example” figure shows the dependency of two devices controlled by the OmniControl: If you switch on device 1 (RS485:1), device 2 starts at the same time (RS485:2). The relevant control parameter in the example is [P:010]. The dependency behavior is the same when switching off.

6.5 Device settings (Settings)

Go to device settings to make changes to OmniControl and installed options.

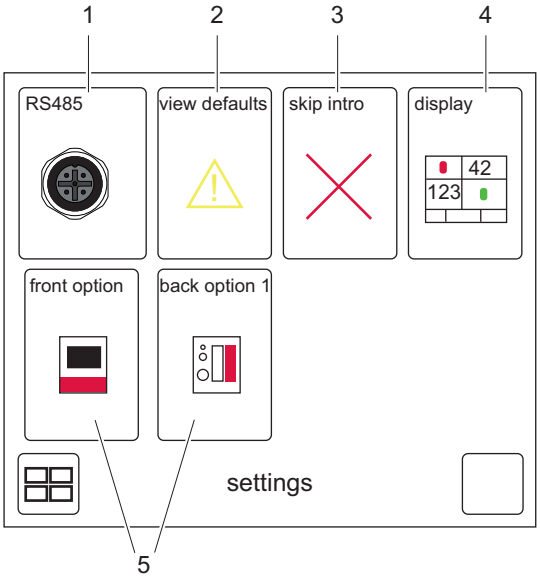


Fig. 29: Device settings

1 RS-485 operating mode
2 Factory configuration
3 Hide introduction screen
4 Display
5 Installed options

Device settings

- Factory configuration (defaults): Reset OmniControl to factory settings
- Hiding introduction screens (skip intro)
- Installed options (option/back option): Configure options; display varies depending on the OmniControl variant and installed options
- RS-485 operating mode (RS485 host/listen only/device): Configure RS-485 interface operating mode

Reset OmniControl to factory settings

Resetting the OmniControl to the factory settings will delete data views you created or adapted yourself.

6.6 Device information (About)

Go to device information to see the OmniControl code number, installed options, and their hardware and firmware versions.

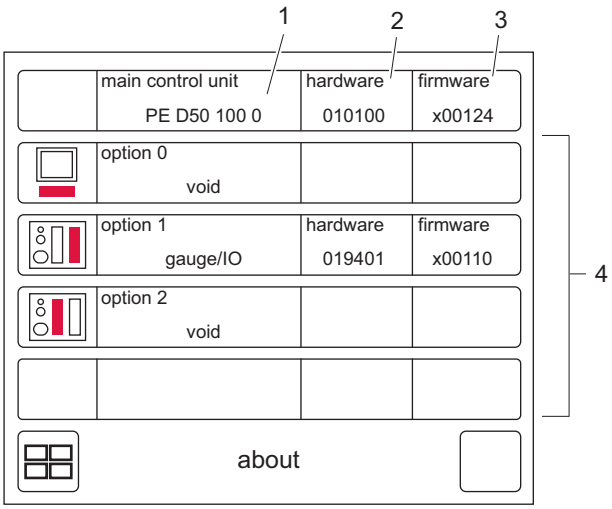


Fig. 30: Device information example

1 Numeric code for OmniControl
2 Hardware version
3 Firmware version
4 Installed options

7 Maintenance

⚠ WARNING

Danger to life from electric shock during maintenance and service work

The device is only completely de-energized when the mains plug has been disconnected and the vacuum pump is at a standstill. There is a danger to life from electric shock when making contact with live components.

- ► Before performing all work, switch off the main switch.
- ► Wait until the vacuum pump comes to a standstill (rotation speed =0).
- ► Disconnect all connection cables.
- ► Remove the mains plug from the device.
- ► Secure the device against unintentional restarting.

The control unit cannot be repaired. In the event of a defect, replace the entire device.

8 Recycling and disposal

⚠ WARNING

Health hazard through poisoning from toxic contaminated components or devices

Toxic process media result in contamination of devices or parts of them. During maintenance work, there is a risk to health from contact with these poisonous substances. Illegal disposal of toxic substances causes environmental damage.

- ► Take suitable safety precautions and prevent health hazards or environmental pollution by toxic process media.
- ► Decontaminate affected parts before carrying out maintenance work.
- ► Wear protective equipment.

Environmental protection

You **must** dispose of the product and its components in accordance with all applicable regulations for protecting people, the environment and nature.

- Help to reduce the wastage of natural resources.
- Prevent contamination.

8.1 General disposal information

Pfeiffer Vacuum products contain materials that you must recycle.

- ► Dispose of our products according to the following:
  - – Iron
  - – Aluminium
  - – Copper
  - – Synthetic
  - – Electronic components
  - – Oil and fat, solvent-free
- ► Observe the special precautionary measures when disposing of:
  - – Fluoroelastomers (FKM)
  - – Potentially contaminated components that come into contact with media

8.2 Disposing of the power supply pack

Electronic components and their housings contain material that must be recycled.

- ► Dispose of electronic components in a safe manner according to locally applicable regulations.

9 Malfunctions

⚠ WARNING

Danger to life from electric shock in the event of a fault

In the event of a fault, devices connected to the mains may be live. There is a danger to life from electric shock when making contact with live components.

► Always keep the mains connection freely accessible so you can disconnect it at any time.

Vacuum pump and electronic drive unit malfunctions always result in a warning or error message. With the corresponding configuration, these messages can be shown on the display. The LED on the electronic drive unit lights up in the corresponding status.

No display

- Absence of the display is possibly an indication that attachment of the connection cable is faulty:
  - "DC out"
  - "RS-485"
  - "AC in"

10 Service solutions by Pfeiffer Vacuum

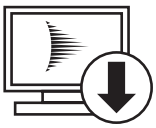
We offer first-class service
High vacuum component service life, in combination with low downtime, are clear expectations that you place on us. We meet your needs with efficient products and outstanding service.

We are always focused on perfecting our core competence – servicing of vacuum components. Once you have purchased a product from Pfeiffer Vacuum, our service is far from over. This is often exactly where service begins. Obviously, in proven Pfeiffer Vacuum quality.

Our professional sales and service employees are available to provide you with reliable assistance, worldwide. Pfeiffer Vacuum offers an entire range of services, from original replacement parts to service contracts.

Make use of Pfeiffer Vacuum service
Whether preventive, on-site service carried out by our field service, fast replacement with mint condition replacement products, or repair carried out in a Service Center near you – you have various options for maintaining your equipment availability. You can find more detailed information and addresses on our homepage, in the Pfeiffer Vacuum Service section.

You can obtain advice on the optimal solution for you, from your Pfeiffer Vacuum representative.
For fast and smooth service process handling, we recommend the following:

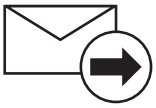


1. Download the up-to-date form templates.
   - Explanations of service requests
   - Service requests
   - Contamination declaration

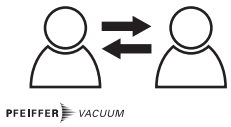
a) Remove and store all accessories (all external parts, such as valves, protective screens, etc.).
b) If necessary, drain operating fluid/lubricant.
c) If necessary, drain coolant.



2. Complete the service request and contamination declaration.

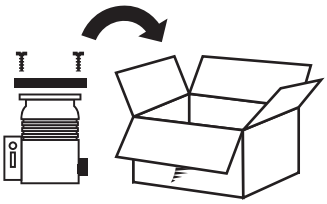


3. Send the forms by email, fax, or post to your local Service Center.

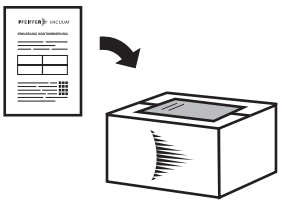


4. You will receive an acknowledgment from Pfeiffer Vacuum.

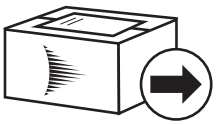
Submission of contaminated products
No microbiological, explosive, or radiologically contaminated products will be accepted. Where products are contaminated, or the contamination declaration is missing, Pfeiffer Vacuum will contact you before starting service work. Depending on the product and degree of pollution, **additional decontamination costs** may be incurred.



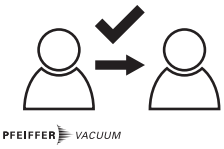
5. Prepare the product for transport in accordance with the provisions in the contamination declaration.
a) Neutralize the product with nitrogen or dry air.
b) Seal all openings with blind flanges, so that they are airtight.
c) Shrink-wrap the product in suitable protective foil.
d) Package the product in suitable, stable transport containers only.
e) Maintain applicable transport conditions.



6. Attach the contamination declaration to the **outside** of the packaging.



7. Now send your product to your local Service Center.



8. You will receive an acknowledgment/quotation, from Pfeiffer Vacuum.

Our sales and delivery conditions and repair and maintenance conditions for vacuum devices and components apply to all service orders.

11 Accessories

11.1 Accessory information

Mains cable
Various mains cables ensure a secure connection. Different lengths on request.

11.2 Ordering accessories

Description	Order number
Mains cable 230 V AC, CEE 7/7 to C13, 3 m	P 4564 309 ZA
Mains cable 115 V AC, NEMA 5-15 to C13, 3 m	P 4564 309 ZE
Mains cable 208 V AC, NEMA 6-15 to C13, 3 m	P 4564 309 ZF
Connection cable, angled, with RS-485 interface and two accessory ports from TC 80/110/120 to power supply pack, 1 m	PM 071 655 -T
Connection cable for HiPace with TC 400/TM 700 to power supply pack TPS/DCU 310/311/400/401	PM 061 352 -T
Connection cable MVP-TC-TPS, 3 m	PE 100 013 -T
Interface cable, M12 m straight / M12 m straight, 3 m	PM 061 283 -T
Y-connector M12 for RS-485	P 4723 010
Measurement cable, 3 m	PT 448 250 -T
Measurement cable DigiLine xPT 200 AR/CCT 3xx AR to TPG 3xx, 3 m	PT 348 250 -T

Tbl. 8: Accessories

12 Technical data and dimensions

12.1 Technical data

Selection field	OmniControl 200, rack unit with integrated power supply pack
Order number	Rack: PE D5x xx0 xxx
	Table: PE E5x xx0 xxx
Mains connection: Voltage (range)	100 – 240 V AC ± 10 %
Mains connection: Frequency (range)	47 – 63 Hz
Mains connection: Power consumption	300 W
Output current	11.4 A
Output voltage	24 V DC
Protection degree	IP20
Ambient temperature	0 °C to +50 °C
Weight	approx. 2.1 kg

Tbl. 9: OmniControl 200

Selection field	OmniControl 300, rack unit with integrated power supply pack
Order number	Rack: PE D6x xx0 xxx
	Table: PE E6x xx0 xxx
Mains connection: Voltage (range)	100 – 240 V AC ± 10 %
Mains connection: Frequency (range)	47 – 63 Hz
Mains connection: Power consumption	411 W
Output current	15 A
Output voltage	24 V DC
Protection degree	IP20
Ambient temperature	0 °C to +50 °C
Weight	approx. 2.5 kg

Tbl. 10: OmniControl 300

Selection field	OmniControl 400, rack unit with integrated power supply pack
Order number	Rack: PE D7x xx0 xxx
	Table: PE E7x xx0 xxx
Mains connection: Voltage (range)	100 – 240 V AC ± 10 %
Mains connection: Frequency (range)	47 – 63 Hz
Mains connection: Power consumption	522 W
Output current	8.33 A
Output voltage	48 V DC
Protection degree	IP20
Ambient temperature	0 °C to +50 °C
Weight	approx. 2.25 kg

Tbl. 11: OmniControl 400

Selection field	OmniControl 001, rack unit without integrated power supply pack
Order number	Rack: PE D4x xx0 xxx
	Table: PE E4x xx0 xxx

Selection field	OmniControl 001, rack unit without integrated power supply pack
Connection	24 V DC
Power consumption	72 W
Protection degree	IP20
Ambient temperature	0 °C to +50 °C
Weight	approx. 200 g

Tbl. 12: OmniControl 001

Selection field	OmniControl 001 Mobile, handheld device without integrated power supply pack
Order number	PE D2x 000 xxx
Connection	24 V DC
Power consumption	18 W
Protection degree	IP20
Ambient temperature	0 °C to +50 °C
Weight	approx. 300 g

Tbl. 13: OmniControl 001 Mobile

12.2 Dimension drawings

All dimensions in mm

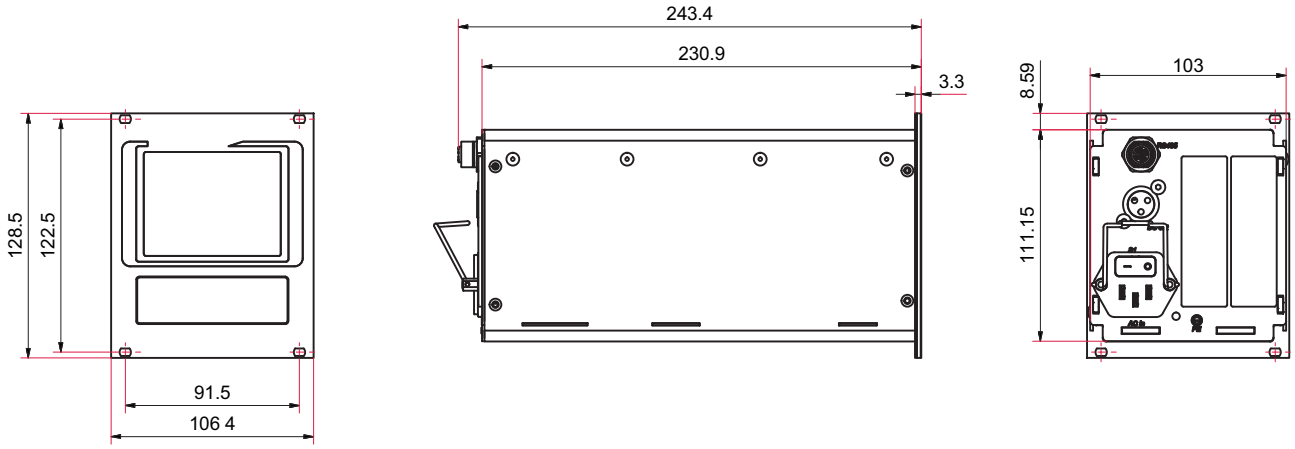


Fig. 31: Dimensions OmniControl 200/300/400

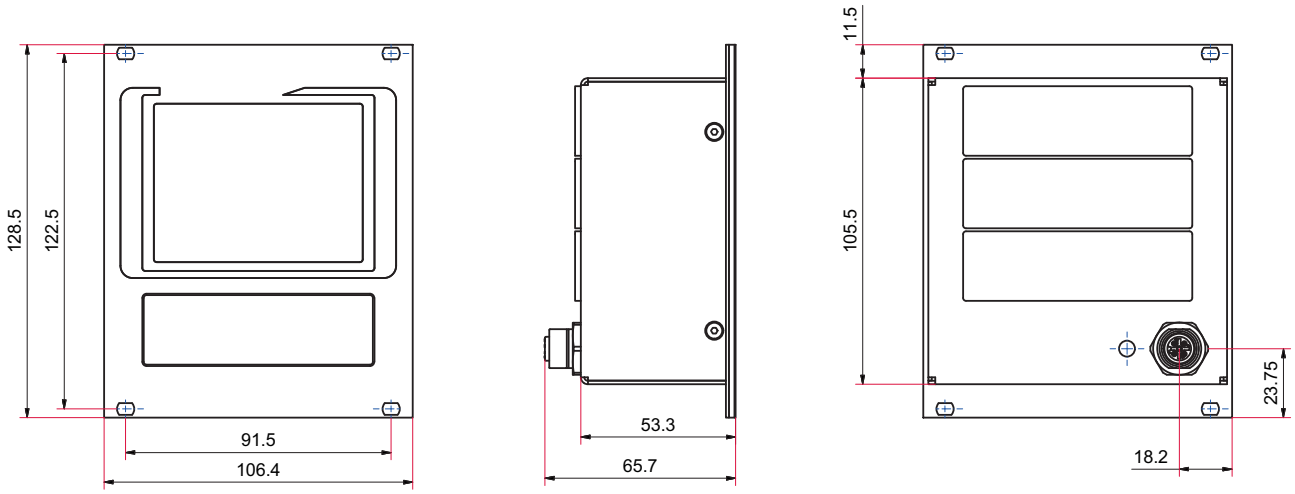


Fig. 32: Dimensions OmniControl 001

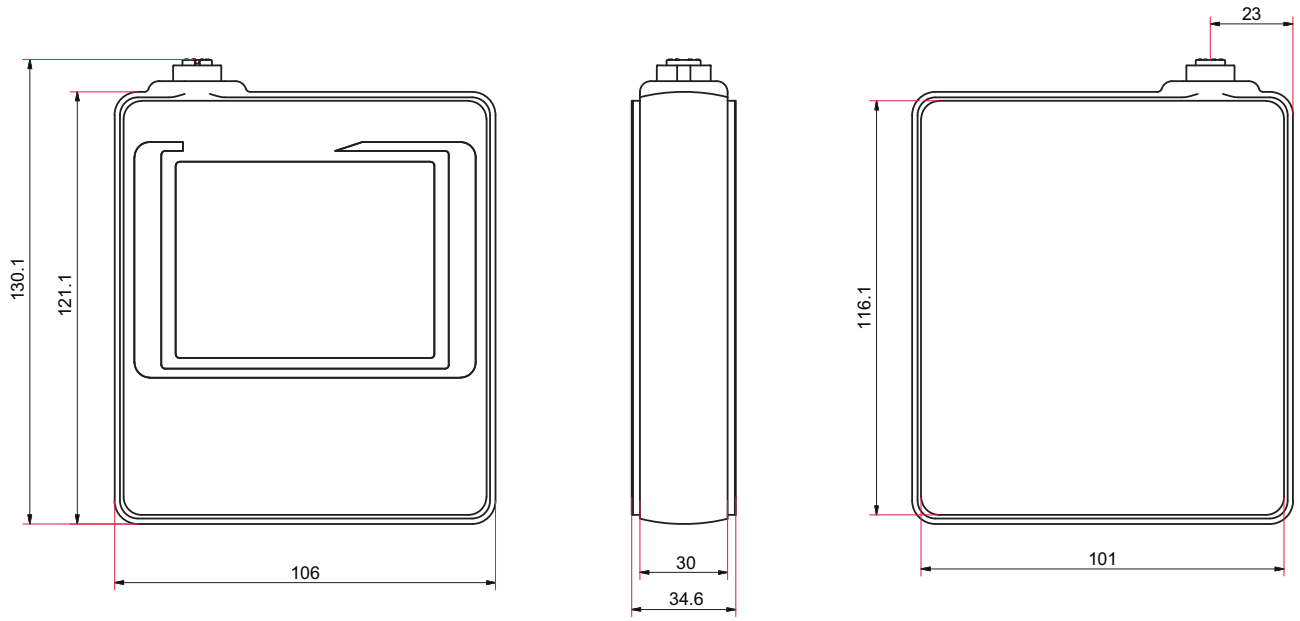


Fig. 33: OmniControl 001 Mobile dimensions

EU Declaration of conformity

This declaration of conformity has been issued under the sole responsibility of the manufacturer.

Declaration for product(s) of the type:

Control device

OmniControl 200 | 300 | 400

OmniControl 001

OmniControl 001 Mobile

We hereby declare that the listed product satisfies all relevant provisions of the following **European Directives**.

Low voltage 2014/35/EU

Electromagnetic compatibility 2014/30/EU

Restriction of the use of certain hazardous substances 2011/65/EU

Restriction of the use of certain hazardous substances, delegated directive 2015/863/EU

Harmonized standards and applied national standards and specifications:

DIN EN 55011 : 2022	DIN EN 61000-4-11 : 2021
DIN EN 61000-3-3 : 2020	DIN EN 61000-6-1 : 2019
DIN EN 61000-4-2 : 2009	DIN EN 61000-6-2 : 2019
DIN EN 61000-4-3 : 2021	DIN EN 61000-6-3 : 2022
DIN EN 61000-4-4 : 2013	DIN EN 61000-6-4 : 2020
DIN EN 61000-4-5 : 2019	DIN EN 61010-1 : 2020
DIN EN 61000-4-6 : 2014	DIN EN IEC 63000 : 2019

Signature:



Pfeiffer Vacuum GmbH
Berliner Straße 43
35614 Asslar
Germany

(Daniel Sälzer)
Managing Director

Asslar, 2023-07-19

CE

PFEIFFER VACUUM

UK Declaration of Conformity

This declaration of conformity has been issued under the sole responsibility of the manufacturer.

Declaration for product(s) of the type:

Control device

OmniControl 200 | 300 | 400

OmniControl 001

OmniControl 001 Mobile

We hereby declare that the listed product satisfies all relevant provisions of the following **British Directives**.

Electrical Equipment (Safety) Regulations 2016

Electromagnetic Compatibility Regulations 2016

The Restriction of the Use of Certain Hazardous Substances in Electrical and Electronic Equipment Regulations 2012

Applied standards and specifications:

EN 55011 : 2016	EN IEC 61000-4-11 : 2020
EN 61000-3-3 : 2013	EN IEC 61000-6-1 : 2019
EN 61000-4-2 : 2009	EN IEC 61000-6-2 : 2019
EN IEC 61000-4-3 : 2020	EN IEC 61000-6-3 : 2021
EN 61000-4-4 : 2012	EN IEC 61000-6-4 : 2019
EN 61000-4-5 : 2014	EN 61010-1 : 2010
EN 61000-4-6 : 2014	EN IEC 63000 : 2018

The manufacturer's authorized representative in the United Kingdom and the authorized agent for compiling the technical documentation is Pfeiffer Vacuum Ltd, 16 Plover Close, Interchange Park, MK169PS Newport Pagnell.

Signature:



Pfeiffer Vacuum GmbH
Berliner Straße 43
35614 Asslar
Germany

(Daniel Sälzer)
Managing Director

Asslar, 2022-12-09

UK CA

PFEIFFER VACUUM

VACUUM SOLUTIONS FROM A SINGLE SOURCE

Pfeiffer Vacuum stands for innovative and custom vacuum solutions worldwide, technological perfection, competent advice and reliable service.

COMPLETE RANGE OF PRODUCTS

**From a single component to complex systems:
We are the only supplier of vacuum technology that provides a complete product portfolio.**

COMPETENCE IN THEORY AND PRACTICE

**Benefit from our know-how and our portfolio of training opportunities!
We support you with your plant layout and provide first-class on-site service worldwide.**

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Are you looking for a perfect vacuum solution? Please contact us

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PFEIFFER VACUUM