



# OPERATING INSTRUCTIONS

EN

Translation of the original instructions

## DPG 202 Controller

**PFEIFFER**  **VACUUM**

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# 1 About this manual

## 1.1 Validity

This operating manual is for customers of Pfeiffer Vacuum. It describes the functioning of the designated product and provides the most important information for safe use of the unit. The description follows applicable EU guidelines. All information provided in this operating manual refers to the current state of the product's development. The documentation remains valid as long as the customer does not make any changes to the product.

Up-to-date operating instructions can also be downloaded from [www.pfeiffer-vacuum.com](http://www.pfeiffer-vacuum.com).

## 1.2 Conventions

### Safety instructions

The safety instructions in Pfeiffer Vacuum operating instructions are the result of risk evaluations and hazard analyses and are oriented on international certification standards as specified by UL, CSA, ANSI Z-535, SEMI S1, ISO 3864 and DIN 4844. In this document, the following hazard levels and information are considered:

<b>DANGER</b>
<p><b>Imminent danger</b> Indicates an imminent hazardous situation that will result in death or serious injury.</p>
<b>WARNING</b>
<p><b>Possibly imminent danger</b> Indicates an imminent hazardous situation that can result in death or serious injury.</p>
<b>CAUTION</b>
<p><b>Possibly imminent danger</b> Indicates an imminent hazardous situation that can result in minor or moderate injury.</p>
<b>NOTICE</b>
<p><b>Command or note</b> Command to perform an action or information about properties, the disregarding of which may result in damage to the product.</p>

### Pictographs



Warning of a displayed source of danger in connection with operation of the unit or equipment



Command to perform an action or task associated with a source of danger, the disregarding of which may result in serious accidents

### Instructions in the text

→ Work instruction: here you have to do something.

**Abbreviations**

- CPT:** Digital Piezo gauge
- PPT:** Digital Pirani gauge
- RPT:** Digital Piezo/Pirani gauge
- HPT:** Digital Pirani/Bayard-Alpert gauge
- MPT:** Digital Pirani/Cold Cathode gauge
- DPG:** Control unit
- CC sensor:** Cold cathode sensor
- BA sensor:** Bayard-Alpert sensor

## 2 Safety

### 2.1 Safety precautions



**Duty to inform**

Each person involved in the installation or operation of the unit must read and observe the safety-related parts of these operating instructions.

→ The operator is obligated to make operating personnel aware of dangers originating from the unit or the entire system.



**Installation and operation of accessories**

Pfeiffer Vacuum pumps can be equipped with a series of adapted accessories. The installation, operation and maintenance of connected devices are described in detail in the operating instructions of the individual components.

→ For information on order numbers of components, see "Accessories".

→ Use original accessory parts only.

- Observe the safety and accident prevention regulations.
- Check regularly that all safety precautions are being complied with.
- The unit has been accredited with protection class IP 20. Take necessary measures when installing into ambient conditions, which afford other protection classes.
- Do not modify or alter the unit yourself.
- Ensure specified mains voltage.
- Note the shipping instructions, when returning the unit.
- Communicate the safety instructions to other users.

## 2.2 Proper use



### NOTICE

#### EC conformity

The manufacturer's declaration of conformity becomes invalid if the operator modifies the original product or installs additional components.

→ Following installation into a plant and before commissioning, the operator must check the entire system for compliance with the valid EU directives and reassess it accordingly.

- The DPG 202 controller is used exclusively for connecting DigiLine gauges, e. g. CPT 100/200, RPT 100/200, PPT 100/200, HPT 100/200 and MPT 100/200.

## 2.3 Improper use

Improper use will cause all claims for liability and warranties to be forfeited. Improper use is defined as usage for purposes deviating from those mentioned above, especially:

- connection to mains supplies, which do not confirm to the regulations IEC 61010 or IEC 60950
- connection to units which have exposed voltage-carrying parts
- connection to pumps or units which are not suitable for this purpose according to their operating instructions
- operation of the devices in areas with ionizing radiation

## 3 Transport and storage

Units without external protection must not come into contact with electrostatically chargeable materials and must not be moved within electrical or magnetic fields.

→ In rooms with moist or aggressive atmospheres, the unit must be airproof shrink-wrapped in a plastic bag together with a bag of desiccant.

## 4 Product description

The DPG 202 controller is used in conjunction with the Pfeiffer Vacuum DigiLine gauges for measurement and control total pressures. The unit is ready to connect the gauges CPT 100/200, RPT 100/200, PPT 100/200, HPT 100/200 and MPT 100/200.

### 4.1 Product identification

To correctly identify the product when communicating with Pfeiffer Vacuum, always have the information from the rating plate available.

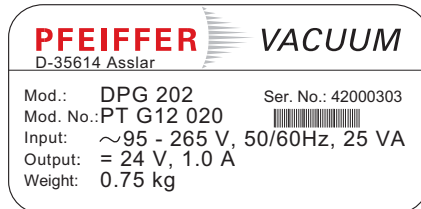


Fig. 1: Product identification on the rating plate

### Scope of delivery

The following positions are included in the delivery consignment:

- DPG 202
- Mating plugs for relay outputs
- Operating instructions
- Fixing screws for rack installation
- USB cable

### 4.2 Function

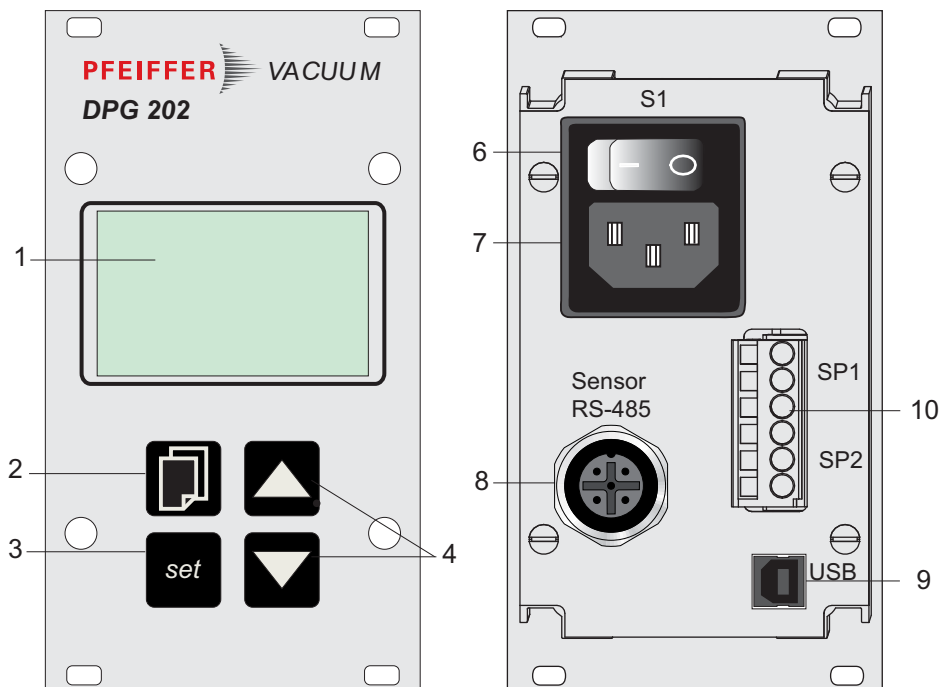


Fig. 2: Frontpanel and rear view DPG 202

- |   |  |   |                  |    |                         |
|---|--|---|------------------|----|-------------------------|
| 1 | Display for pressure values (mbar, bar, mTorr, Torr, hPa, Pa), | 4 | Up-/Down keys    | 9  | USB port                |
| 2 | Menu key   | 6 | Mains switch S1  | 10 | Relay output (SP1, SP2) |
| 3 | Set key  | 7 | Mains connection |    |                         |
|   |  | 8 | Gauge input      |    |                         |

### 4.3 Range of application

The unit DPG 202 must be installed and operated in the following ambient conditions:

Installation location	weather protected (indoor)
Protection class	IP 20
Installation altitude	max. 2000 m
Ambient temperature	+5°C to +50°C
Relative humidity	5 ... 85 %, non-condensing
Atmospheric pressure	860 hPa - 1060 hPa

## 5 Installation

### 5.1 Assembly



<b>NOTICE</b>
<p><b>Ensure free convection</b>                      Incorrect installation can cause damage by over-heating or create a fire hazard.</p> <ul style="list-style-type: none"> <li>→ Maintain a minimum distance of 50 mm from cooling vents to adjacent components or boundaries.</li> <li>→ Install the device upright.</li> </ul>

#### Rack installation

The unit is fitted in a casing that is suitable for installation in 19"/3HE rack modules.

- Insert the unit in the guiderails of a 19"/3HE rack and screw on the front panel securely with four fixing screws provided as part of the scope of supply.

### 5.2 Connecting to the mains power supply

The DPG 202 is equipped with an universal power supply with an input voltage range of **95 ... 265 V AC**.



<b>CAUTION</b>
<p><b>Excess voltage!</b>                      Danger of destroying the unit.</p> <ul style="list-style-type: none"> <li>→ Power connections must comply with local regulations. Voltage information given on the rating plate must correspond to the mains voltage values.</li> <li>→ Use only cable with protective earth conductor.</li> <li>→ To protect the electronics and the power supply cable in case of failure provide an appropriate network safety device.</li> </ul>



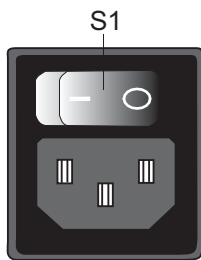
<b>WARNING</b>
<p><b>Danger of unsafe electrical installation</b>                      Safe operation after installation is the responsibility of the operator.</p> <ul style="list-style-type: none"> <li>→ Do not independently modify or change the pump and electrical equipment.</li> <li>→ Make sure that the system is integrated in an emergency off safety circuit.</li> <li>→ Consult Pfeiffer Vacuum for special requirements.</li> </ul>



<b>WARNING</b>
<p><b>Danger of electric shock</b>                      In case of defect, the parts connected to the mains supply are under voltage.</p> <ul style="list-style-type: none"> <li>→ Always keep the mains connection freely accessible so you can disconnect it at any time.</li> </ul>



## Mains connection socket



If the unit is installed in a rack, the mains voltage must be supplied via a switched power distributor.

- Order the mains cable separately (see "accessories").
- Switch off switch **S1** on the power pack (position "0").
- Connect the mains cable to the mains.
- Always ensure a safe connection to the protective earthing conductor (PE, protection class III).

## 5.3 Connections



### NOTICE

#### Damage to the product

Only connect cables when de-energized.

- Never establish a connection using a live cable.

Communication is effected via Serial Interface RS-485 (address settable from 1...2).

## Setting the address selection switch

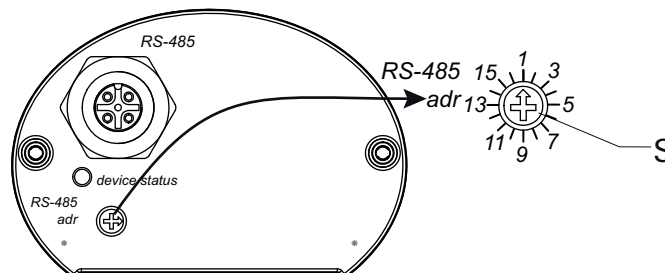


Fig. 3: Setting the address selection switch

- Remove the rubber plug (not shown in the illustration) from the address selector switch, and set the required address according to the relevant connection situation.
- Reinsert the rubber plug.

### Connecting the gauge to the DPG 202 controller

- Set the address selector switch at the gauge to the required address (default setting: "1").
- Connect the gauge to the control unit using the connection cable.
- Switch on the control unit.

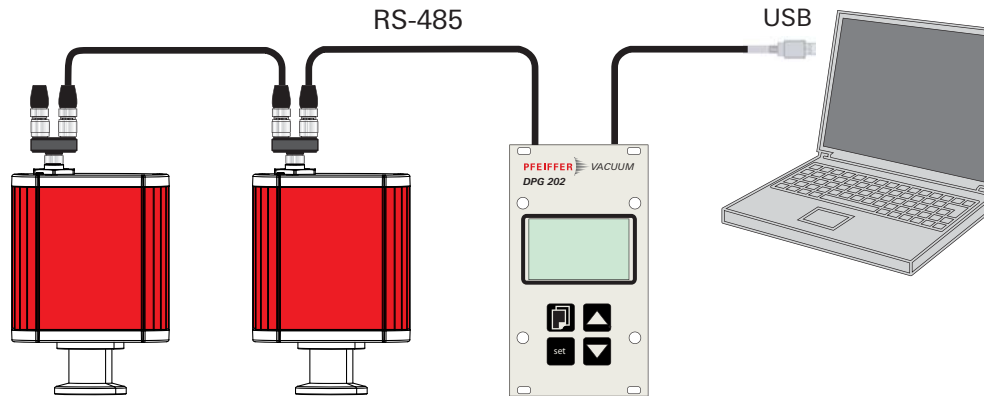


Fig. 4: Connections diagram gauge/DPG 202

- Connect unit interface to the PC's USB interface.

**Note!** Drivers and installation instructions can be downloaded from [www.pfeiffer-Vacuum.com](http://www.pfeiffer-Vacuum.com).

#### RS-485

M12 socket with screw coupling for the connection of a DigilLine gauge. The use of a Y-connector enables the connection of a second gauge.



Pin	Assignment
1	RS-485: D+
2	+24 V
3	GND
4	RS-485: D-
5	not connected

### Relay output

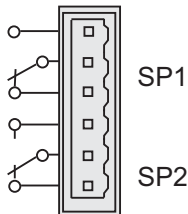
The relay output provides two switching functions for external control.



**NOTICE**

**Damage to the product**  
 Only connect cables when de-energized.  
 → Never establish a connection using a live cable.

Representation of the contacts in a state of rest, i.e.: Switch function = "off"



Pin	Assignment
SP1	Relay output 1/max. 2 A
SP2	Relay output 2/max. 2 A



Table 1: Phoenix Combicon, 6 pole (male)


## 5.4 Configuring the data exchange

- 9600 baud
- 8 data bits
- 1 stop bit
- no parity

## 5.5 Pfeiffer Vacuum Protocol for "RS-485"

### Telegram frame

The telegram frame of the Pfeiffer Vacuum protocol contains only ASCII code characters [32; 127], the exception being the end character of the message  $C_R$ . Basically, a master  (e.g. a PC) sends a telegram, which is answered by a slave  (e.g. electronic drive unit or gauge).

a2	a1	a0	*	0	n2	n1	n0	l1	l0	dn	...	d0	c2	c1	c0	$C_R$
a2 - a0		Unit address for slave  – Individual address of the unit ["001";"015"]														
*		Action														
n2 - n0		Pfeiffer Vacuum parameter numbers														
l1 - l0		Data length dn ... d0														
dn - d0		Data in data type concerned														
c2 - c0		Checksum (sum of ASCII values of cells a2 to d0) modulo 256														
$C_R$		Carriage return (ASCII 13)														

### Telegrams

#### Data request ⇨ ?

a2	a1	a0	0	0	n2	n1	n0	0	2	=	?	c2	c1	c0	$C_R$
----	----	----	---	---	----	----	----	---	---	---	---	----	----	----	-------

#### Control command ⇨ !

a2	a1	a0	1	0	n2	n1	n0	l1	l0	dn	...	d0	c2	c1	c0	$C_R$
----	----	----	---	---	----	----	----	----	----	----	-----	----	----	----	----	-------

#### Data response / control command understood ⇨ ✓

a2	a1	a0	1	0	n2	n1	n0	l1	l0	dn	...	d0	c2	c1	c0	$C_R$
----	----	----	---	---	----	----	----	----	----	----	-----	----	----	----	----	-------

#### Error message ⇨ ✗

a2	a1	a0	1	0	n2	n1	n0	0	6	N	O	_	D	E	F	c2	c1	c0	$C_R$	
											_	R	A	N	G	E				
											_	L	O	G	I	C				

NO_DEF	The parameter n2 - n0 does not exist
_RANGE	Data dn - d0 are outside the permitted range
_LOGIC	Logic access violation

**Telegram examples**

**Read actual pressure value (data query)**

(Parameter [P:740], Slave device address: "001")

☐⇒○?	0	0	1	0	0	7	4	0	0	2	=	?	1	0	6	C <sub>R</sub>				
ASCII	48	48	49	48	48	55	52	48	48	50	61	63	49	48	54	13				
○⇒☐✓	0	0	1	1	0	7	4	0	0	6	1	0	0	0	2	3	0	2	5	C <sub>R</sub>
ASCII	48	48	49	49	48	55	52	48	48	54	49	48	48	48	50	51	48	50	53	13

**Activate/send parameter for atmospheric pressure (high pressure) (control command)**

Atmospheric pressure adjustment (Parameter [P:741/740], Slave device address: "001")

☐⇒○?	0	0	1	1	0	7	4	1	0	3	0	0	1	1	3	0	C <sub>R</sub>
ASCII	48	48	49	49	48	55	52	49	48	51	48	48	49	49	51	48	13
○⇒☐✓	0	0	1	1	0	7	4	1	0	3	0	0	1	1	3	0	C <sub>R</sub>
ASCII	48	48	49	49	48	55	52	49	48	51	48	48	49	49	51	48	13

**Activate/send parameter for low pressure (control command)**

Low pressure adjustment (Parameter [P:741/740], Slave device address: "001")

☐⇒○?	0	0	1	1	0	7	4	1	0	3	0	0	0	1	2	9	C <sub>R</sub>
ASCII	48	48	49	49	48	55	52	49	48	51	48	48	48	49	50	57	13
○⇒☐✓	0	0	1	1	0	7	4	1	0	3	0	0	0	1	2	9	C <sub>R</sub>
ASCII	48	48	49	49	48	55	52	49	48	51	48	48	48	49	50	57	13

**Activating the keyboard lock [P:008]**

The keyboard lock for the **set** key can be activated/deactivated using the parameter [P:008].

➔ Send telegram according table " Telegram examples" to the DPG 202. The unit address of the DPG 202 is factory set to 016 and cannot be changed.

Handling	Telegram to DPG 202	Telegram from DPG 202	Unit address
Keyboard lock "on"	01610000806111111028 <sup>C<sub>R</sub></sup>	01610000806111111028 <sup>C<sub>R</sub></sup>	016
Keyboard lock "off"	01610000806000000022 <sup>C<sub>R</sub></sup>	01610000806000000022 <sup>C<sub>R</sub></sup>	016

Table 2: Telegram examples

**Reading the software version [P:312]**

The software version can be read from the connected device using parameter 312:

- Example: 010100

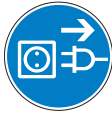
**Reading the component names [P:349]**

Parameter 349 contains a token of the component name:

- DPG 202

## 6 Operation

### 6.1 Switching on



#### WARNING

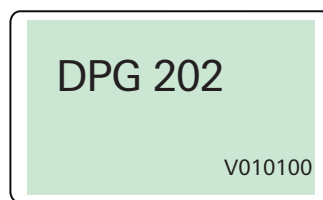
##### Maintain safe work conditions

The device described here is operated with mains voltage.

→ Before opening the device, cut off the voltage supply and secure it to prevent it from being switched on unintentionally.

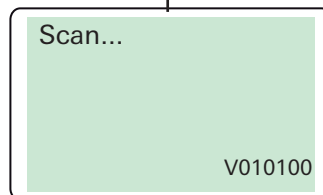
After switching on the power supply, the connected gauge is ready for operation. It is advisable to wait for a stabilization period of 5-10 minutes before measurement. Operate the gauge during the measurement continuously independent of the applied pressure.

→ Switch on power supply using switch **S1** on the mains pack.

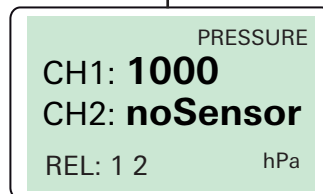


The DPG 202 carries out a self test and the following appears on the display:

- software version number,
- the connected total pressure gauges are automatically identified,
- the start menu **PRESSURE** with the actual pressure value appears in the display.



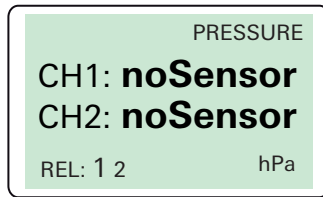
- The current gauge parameters are imported.



DPG 202 is ready

- On channel 1, a gauge has been detected and a pressure of 1000 hPa is displayed.
- On channel 2, no gauge has been detected.

**More possible displays**

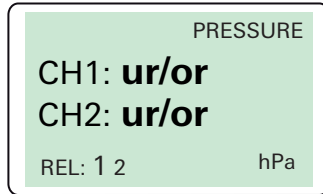


**noSensor**

The unit was not able to communicate with a gauge.

Possible causes:

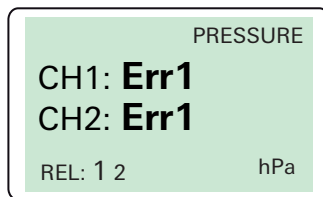
- No gauge is connected.
- The address selection switch of the gauge has not been set on a RS-485 address 1 or 2.
- The data line between the DPG 202 and gauge is not correctly connected or is faulty.
- The serial interface in the DPG 202 is defective.



**ur/or**

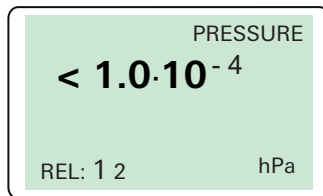
The measured pressure is outside the measurement range of the gauge.

- *ur* = under range; pressure lower than lowest limit
- *or* = overrange; pressure higher than highest limit



**Err1**

The connected gauge is defective.

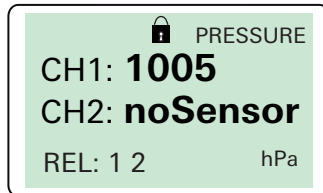


**< 1·10<sup>-4</sup>**

This display indicates the filament of the BA sensor or the CC sensor is switched off in case of the HPT or MPT gauge, respectively.

The measured pressure with the Pirani sensor is currently <math><1.0 \cdot 10^{-4}</math> (*ur* of the Pirani sensor). If the pressure rises up to the Pirani sensors measuring range, the value is measured and displayed.

**Switching off**



**Switching off**

The DPG 202 can be switched off in any operating mode.

The keyboard lock is activated (indicated with a lock sign) until the DPG 202 is switched off.

## 6.2 Measuring mode

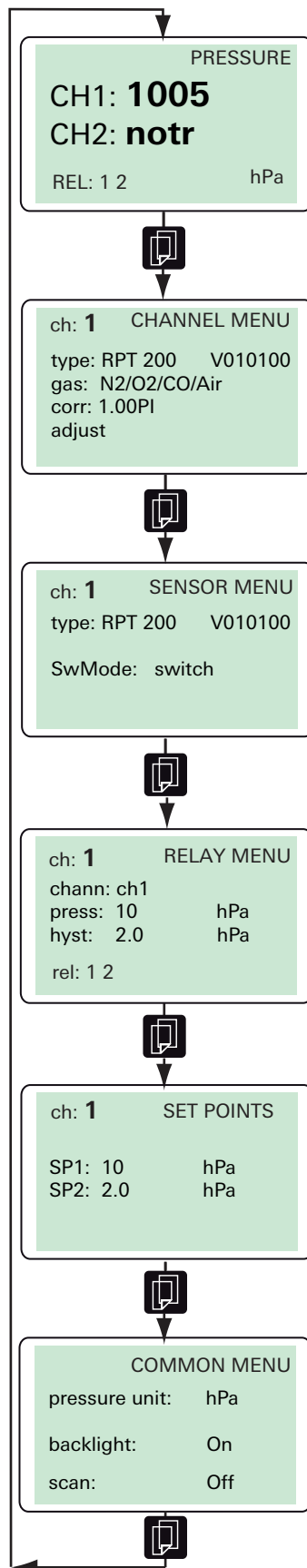
In measuring mode the DPG 202 shows the pressure of the connected gauge currently being measured. The display appears, depending on the measurement range, either in fixed-point or exponential notation. The switch outputs are controlled in accordance with the set point parameters and actual pressure.

If the communication is interrupted, **noSensor** appears on the display.

→ In such a case reinitialize the unit by a scan (COMMON MENU).

### 6.3 Menu overview

Press the Menu key to access the configuration mode. The following menus can be selected:



**PRESSURE MENU**

After switching on, the DPG 202 is in the start menu **PRESSURE**. Here, the pressure value with the respective channel number, the pressure unit and the status of the two switching relays are displayed.

**CHANNEL MENU**

This menu shows specific data for the selected channel (gauge type, gas type and correction factor). In addition there is also the function to select **adjust** for the respective sensors.

**SENSOR MENU**

Here the specific sensor data of the current channel is displayed (type of gauge, sensor setup and the crossover setting of the combi gauges). The function **degas** is only possible on total pressure gauges using the hot cathode sensor.

**RELAY MENU**

This menu shows the respective parameters for the selected relay (channel assignment, set value and hysteresis with pressure unit). The current setting of the two switching relays is also displayed.

- big digit = relay on
- small digit = relay off

**SET POINTS**

In this menu the two set points for the connected gauge can be set. This menu is only active when a transmitter with analog/relay option is connected.

**COMMON MENU**

Here the pressure unit can be selected. In addition, there is the option to switch on and off the display backlight (the lighting is always activated when the unit is switched on). In *AutoOff* mode the display backlight is automatically switched off if no key is pressed for 20 s.

By **scan On** a new recognition of the connected gauges can be forced. During the scan the status of the relays does not change, until the pressure values have been updated.



## 6.4 Configuration mode



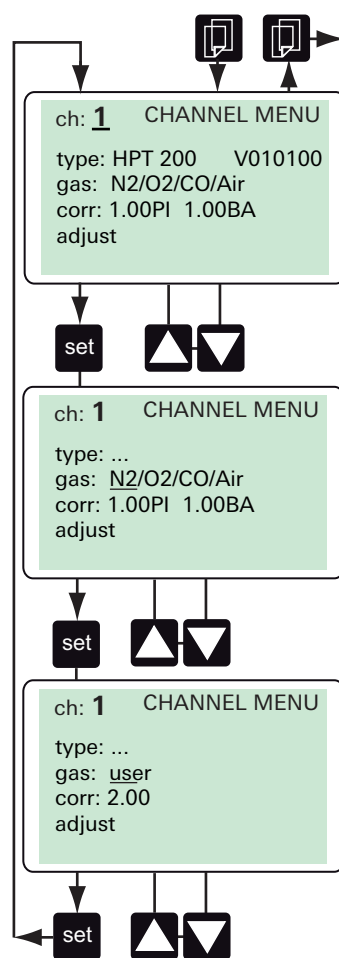
**set** key: Settings are accepted, cursor jumps to next parameter.

**Up/Down** keys: Values are selected.

**Menu** key: Next menu will be displayed.

### Gas type correction factor

For total pressure gauges employing a measuring method which is dependent on the type of gas, a correction factor can be assigned to the gauge. This will ensure, for a selected gas, the pressure display is corrected in a broad pressure range. On a combi-gauge such as the HPT 200 and the MPT 200 with two different measurement methods two correction factors are necessary (see the operating instructions for the gauge).



#### CHANNEL MENU

**ch: 1:** Channel number  
**type:** Identified gauge type on channel 1 (e.g. HPT 200)  
**gas:** Set gas type for the selected gauge  
**corr:** Preset correction factor for the selected gauge  
**adjust:** Adjustment of range limits

#### CHANNEL MENU

1. Preprogrammed gas types:  
 The relevant correction factor will be displayed automatically at the parameter **corr**:  
**gas:** N2/O2/CO/Air, CO2, H2, He, Ar, user  
 ⇒ Select the required gas type with **Up/Down** at the parameter **gas**.  
 ⇒ Confirm with **set** key.

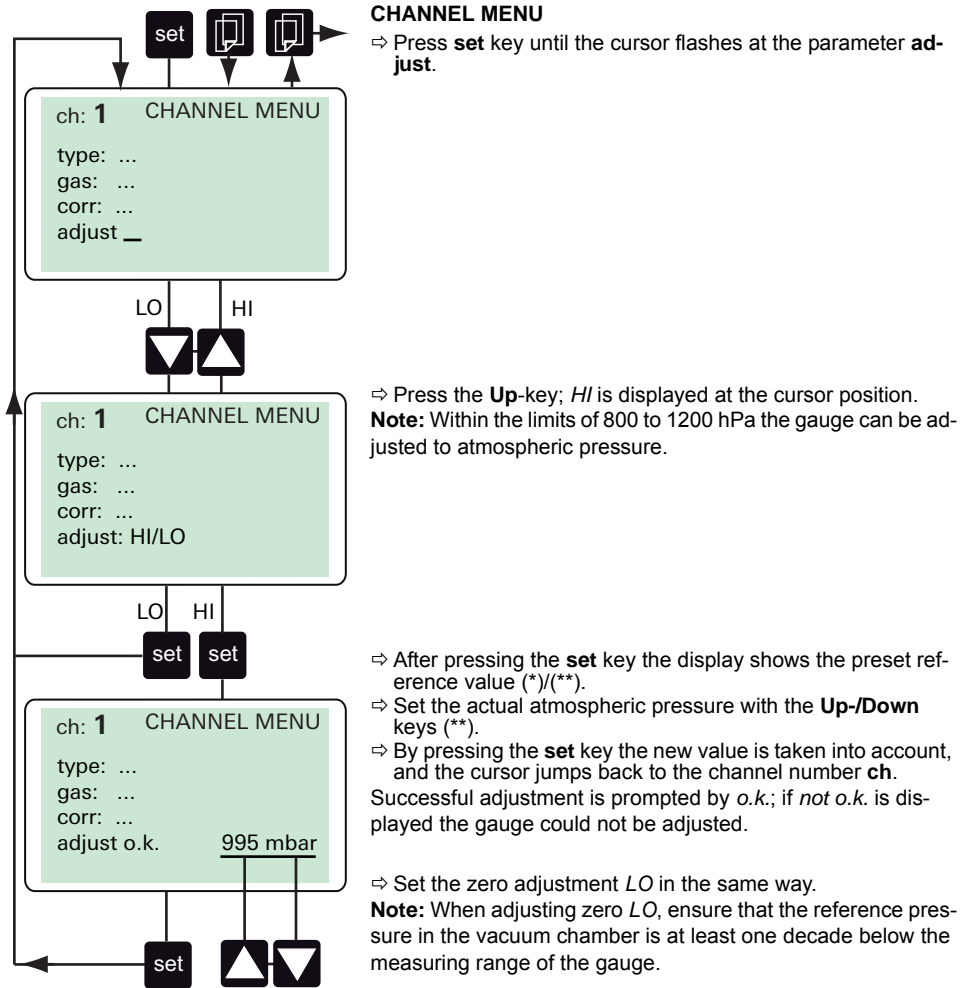
#### CHANNEL MENU

2. Individual correction factor:  
 ⇒ Select user specific correction factor with **Up/Down** at the parameter **corr**. After altering a preset correction factor at the parameter **gas** the display will change to *user*.  
 ⇒ To set a gas specific correction factor, enter a value in the range of 0.2 – 8.0.

## Re-adjusting

For zero adjustment, ensure the pressure in the vacuum chamber is at least one decade below the measuring range of the gauge and is not subject to large pressure fluctuations.

→ Bring gauge up to operating temperature (≥ 5 minutes).



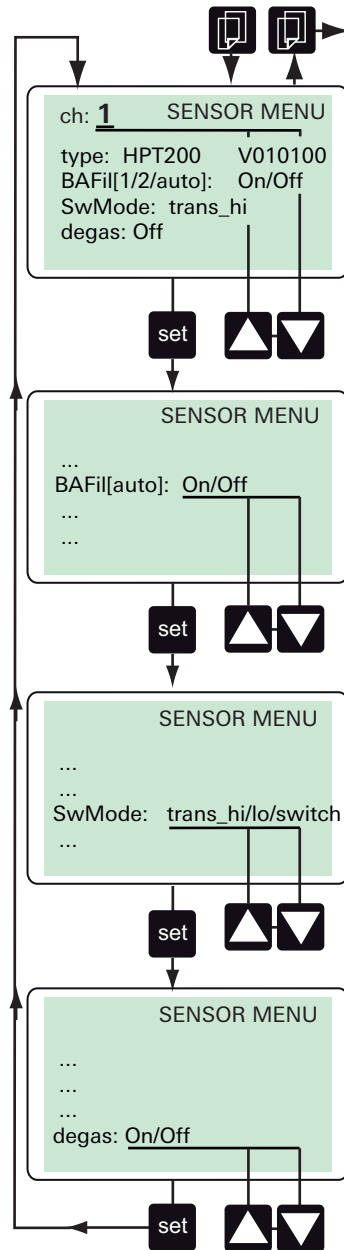
(\*) The reference pressure can only be entered in the measurement units mbar, hPa or Torr. If, for example the unit bar is selected, for reference pressure input purposes there is a temporary switch over to mbar, with mTorr to Torr and with Pa to hPa. When adjustment has been completed the originally selected pressure unit is again active.

(\*\*) These points are only required for atmospheric pressure adjustment of CPT100/200 and the RPT100/200.

## Sensor menu

Total pressure gauges with hot cathode sensor (e.g. HPT 200 ) may need baking in ultra high vacuum to desorp the gasload from surfaces. The degas process lasts for three minutes by default but can be stopped manually at any time. Pressure reading with reduced accuracy is possible during degas, the **PRESSURE** menu shows **degas** for the concerned channel as long as the operation proceeds.

In the sensor menu the type dependent functions of the combination gauges RPT 100/200, HPT 100/200, and MPT 100/200 can be selected. The settings are described here under taking the HPT 200 as an example.



### SENSOR MENU

The high vacuum sensors of the combined gauges HPT 200 and MPT 200 can be switched manually:

- **BAFil** = Filament of the BA sensor
- **CCSens** = Cold cathode sensor
- ⇒ Press **set** key until the cursor flashes at the parameter **BAFil**; the status of the function will be displayed (*On* or *Off*).
- ⇒ Switch filament *On* or *Off* using the **Up/Down** keys.
- ⇒ Confirm with **set** key.

For the HPT 200 gauge the value in brackets define the selected filament:

- ⇒ Select *1*, *2* or *auto*.
- ⇒ Confirm with **set** key.

If *auto* is selected, an automatic switchover to the other filament takes place when necessary (in case of wear).

For the MPT 200 gauge **CCSens** appears instead of **BAFil**.

- ⇒ Switch sensor on or off using the **Up/Down** keys.
- ⇒ Confirm with **set** key.

### Select switching mode for combination gauges:

- ⇒ Press **set** key until the cursor flashes at the parameter **SwMode**; the status of the function will be displayed (*trans\_Hi*, *trans\_Lo* or *switch*, depending on the type of gauge).
- ⇒ Use **Up/Down** key to select the desired function.
- ⇒ Confirm with **set** key.

### Activate the degas function:

The function **degas** is only possible for total pressure gauges with hot cathode sensor (HPT 100/200).

- ⇒ Press **set** key until the cursor flashes at the parameter **degas**. The status of the degas function will be displayed (*Off* or *On*).
- ⇒ Use the **Up** key to select degas *On*.
- ⇒ Start the degas process with the **set** key.

The degas process can be manually deactivated at any time by switching the degas function to *Off*.

- ⇒ Press the **set** key until the cursor flashes at the parameter **degas**.
- ⇒ Select the function *Off* with the **Down** key.
- ⇒ Switch off the degas process with the **set** key.

Relay menu

Set the threshold and hysteresis values

The two relays are controlled by the two set points SP1 and SP2 (parameter **press**) and associated hysteresis H1 and H2 (parameter **hsyt**), as depicted in the illustration.

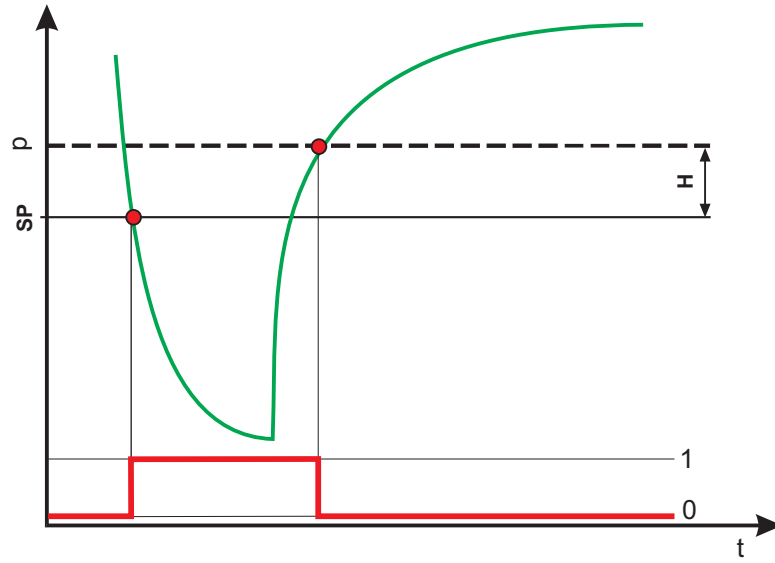
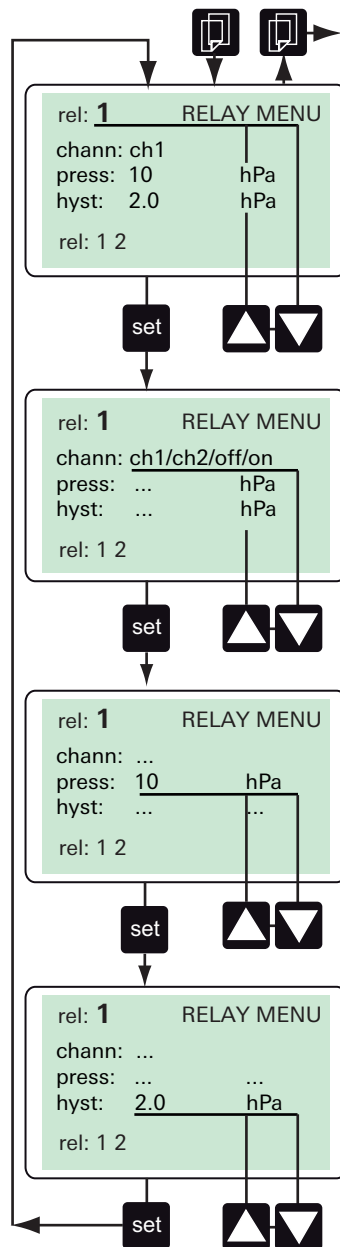


Fig. 5: Pressure and relay status curves illustrating threshold values and hysteresis



**RELAY MENU**

After selection of this menu via the **Menu** key the cursor flashes on the position **rel:** (relay number).

- ⇒ Select the required relay number with the **Up/Down** keys.
- ⇒ Confirm relay number with the **set** key.

⇒ Assign channel number with **Up/Down** keys at the parameter **chann:**

- *ch1/ch2:* Relay switches according to the pressure value of the selected channel.
- *off:* Relay switches off independently of the set/actual comparison.
- *on:* Relay switches on independently of the set/actual comparison.

⇒ Confirm channel setting with **set** key.

**Note:** Each relay can be assigned to each of both gauge channels. It is also possible to link both relays with only one channel.

⇒ Alter the required set point with the **Up-/Down** keys in the menu **press.**

⇒ Confirm set point with **set** key.

⇒ Proceed in the same manner for the parameter **hyst.**

**Note:** The hysteresis is asymmetric to the set point, i.e. the relay switches on at the set point and off at set point+hysteresis. Altering the set point will cause the related hysteresis to be matched automatically by a percentage relation to the new set point. The preset value can be altered at will.

**Example**

Previous setting SP1:

- press = 20 hPa (set point "on" 20 hPa)
- hyst = 2 hPa (set point "off" 22 hPa)

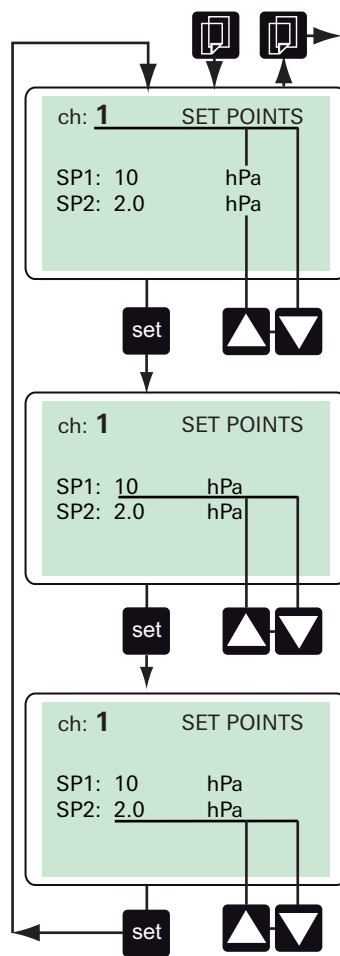
new set point SP1:

- press = 400 hPa (set point "on" 400 hPa)
- hyst = 40 hPa (set automatically to 10 % of the threshold value)

**Set Point menu**

**Setting the set points using DPG 202**

The two relays are controlled by the two presettable set points SP1 and SP2. The hysteresis H is fixed at 15% of the threshold values (see Fig. 5).



**SET POINTS**

After selecting this menu using the **Menu** key, the cursor flashes at the position **ch:** (measurement channel).

- ⇒ Select the required channel number with the **Up/Down** keys.
- ⇒ Use the **set** key to apply the channel number.

The cursor jumps to the pressure value for **SP1**.

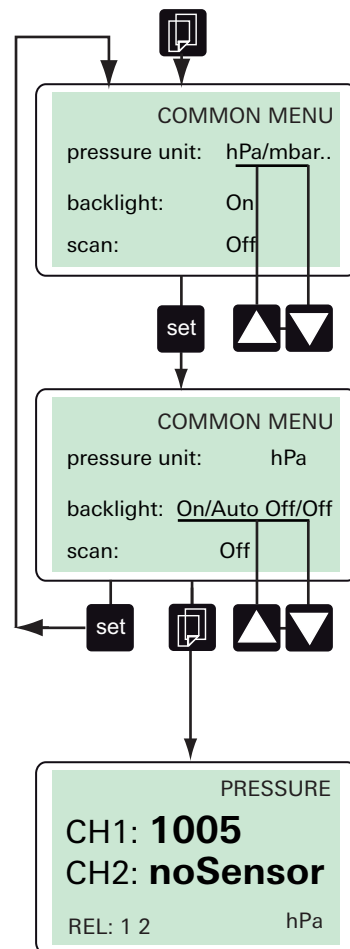
- ⇒ Select the required pressure value for **SP1** with the **Up/Down** keys.
- ⇒ Confirm with the **set** key.

The cursor jumps to the pressure value for **SP2**.

- ⇒ Select the required pressure value for **SP2** with the **Up/Down** keys.
- ⇒ Confirm with the **set** key.

## COMMON menu

This menu offers the possibility to select the pressure unit and to switch on and off the backlight (the backlight is always activated when the unit is switched on). The settings in this menu are independent of the channel.



### COMMON MENU

#### Pressure unit

The pressure unit of the display is shown on the right hand side of the display. The settable pressure units are: *hPa, mbar, bar, mTorr, Torr, Pa*.

- ⇒ Press **set** key until the cursor flashes at the parameter **pressure unit**.
- ⇒ Change to the desired unit using the **Up-/Down** keys.
- ⇒ Confirm with **set** key; the cursor jumps to the next parameter.

#### Backlight

The backlight is always activated when the DPG 202 is switched on.

- ⇒ Press **set** key until the cursor flashes at the parameter **backlight**.
- ⇒ Select the desired backlight setting between *On/Auto Off/Off* using **Up-/Down** keys.
- ⇒ Confirm with **Menu** key; the display changes to the screen **PRESSURE**.

In the **Auto Off** mode, the backlight is switched off if no key is pressed for 20 s. By pressing any key again the backlight is automatically switched on again.

#### Perform scan:

By **scan On** a new recognition of the connected gauges can be forced. During the scan the status of the relays does not change, until the pressure values have been updated.

# 7 Malfunctions



DANGER
<p><b>Voltage-bearing elements!</b>                      Danger to life from electric shock.</p> <p>→ Work on electrical installations may be carried out by trained and authorised electricians only.</p> <p>→ Disconnect the power supply and secure it against being switched back on.</p>

## 7.1 Rectifying malfunctions

Errors	Possible cause:	Remedy
No display	<ul style="list-style-type: none"> <li>• No power supply</li> <li>• Mains voltage absent or to high/low</li> </ul>	⇨ Check mains cable. ⇨ Check mains voltage.
The unit has not been able to communicate with a gauge. Display: "noSensor"	<ul style="list-style-type: none"> <li>• No gauge is connected</li> <li>• The address selection switch on the gauge has not been set to the correct address (1 or 2)</li> <li>• The connected gauge or the serial interface on the DPG 202 is defective</li> <li>• The data line between the DPG 202 and the gauge is not correctly connected or is faulty</li> </ul>	⇨ Check connection. ⇨ Check setting. ⇨ Exchange gauge. ⇨ Exchange unit.
Display: "ur" or "or":	<ul style="list-style-type: none"> <li>• The measured pressure is outside the measuring range of the gauge</li> </ul>	⇨ Use suitable gauge.
Display: "Err1"	<ul style="list-style-type: none"> <li>• The connected gauge is defective.</li> </ul> <p><b>Note:</b> If the error "Err1" occurs because of the defective BA filament of the HPT, "ur" briefly appears in the display. Afterwards "Err1" is displayed</p>	⇨ Reset the error by disconnecting from the mains. The Pirani sensor of the HPT gauge is then again ready for measurement.



## 8 Service

Do make use of the Pfeiffer Vacuum service facilities. In the event that repairs are necessary a number of options are available to ensure any system down time is kept to minimum:

- Repair in the nearby Service center
- Send unit and have it replaced with a new unit

### **Sending of units (Service Request)**

For a quick and smooth handling of the service process, Pfeiffer Vacuum recommends the following steps:

- Download the forms "Service Request" and "Declaration on Contamination".<sup>1)</sup>
- Fill out the "Service Request" form and send it by fax or e-mail to your local Pfeiffer Vacuum service contact.
- Include the confirmation on the "Service Request" from Pfeiffer Vacuum with your shipment.
- Fill out the "Declaration of Contamination" and include it in the shipment. This document is mandatory to protect our service engineers.
  - Fill out and send one declaration for each device.
- If possible, send unit in the original packaging.

In the absence or incompleteness of the "Declaration on Contamination" and/or the use of unsuitable transport packaging, Pfeiffer Vacuum reserves the right to make a decontamination and/or to send the product back at the shipper's expense.

### **Service orders**

All service orders are carried out exclusively according to our repair conditions for vacuum units and components. Detailed information, addresses and forms at:

<http://www.pfeiffer-vacuum.com/service/repair-services/container>.

<sup>1)</sup> Forms under [www.pfeiffer-vacuum.com](http://www.pfeiffer-vacuum.com)

## 9 Accessories

Designation	DPG 202
Y-Connector M12 to RS-485	P 4723 010
Termination resistor for RS-485	PT 348 105 -T
M12 m plug 4-pole with screw terminals RS-485	PT 348 106 -T
Interface cable, M12 m straight/M12 m straight, 3 m	PM 061 283 -T
Connector M12 to RS-485	PM 061 270 -X
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, U.K. plug, 2.5 m	P 4564 309 Y1
Mains cable, Swiss plug, 2.5 m	P 4564 309 YR
Software DokuStar, 2 channels	PT 882 500

## 10 Technical data and dimensions

### 10.1 General

Conversion table: pressure units

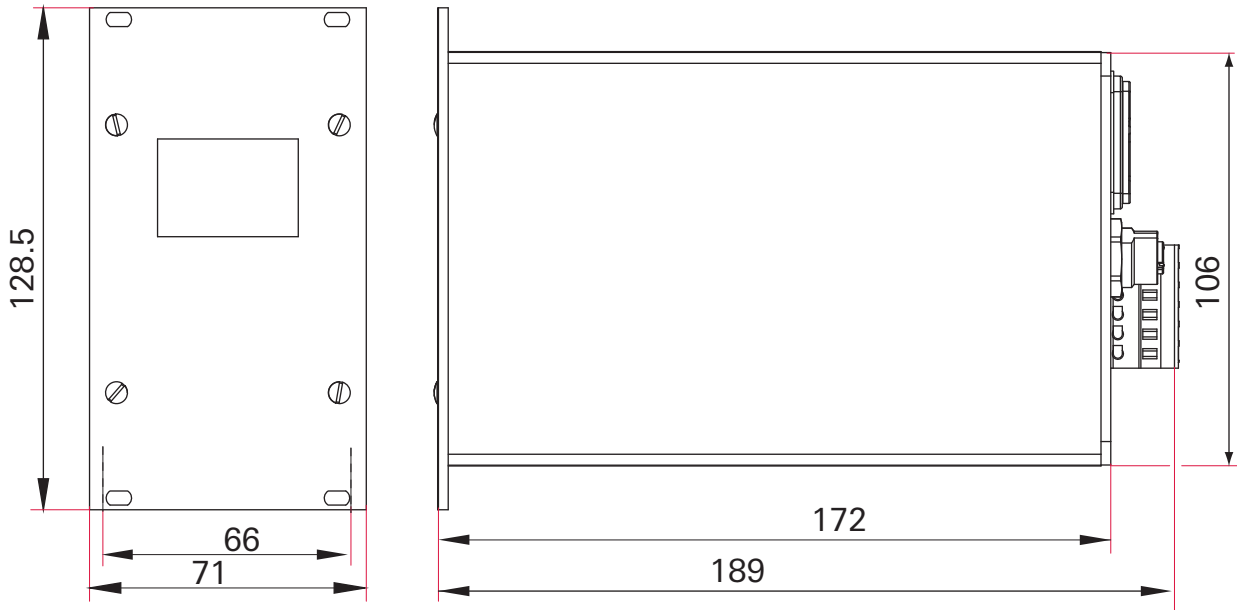
	mbar	bar	Pa	hPa	kPa	Torr mm Hg
mbar	1	$1 \cdot 10^{-3}$	100	1	0.1	0.75
bar	1000	1	$1 \cdot 10^5$	1000	100	750
Pa	0.01	$1 \cdot 10^{-5}$	1	0.01	$1 \cdot 10^{-3}$	$7.5 \cdot 10^{-3}$
hPa	1	$1 \cdot 10^{-3}$	100	1	0.1	0.75
kPa	10	0.01	1000	10	1	7.5
Torr mm Hg	1.33	$1.33 \cdot 10^{-3}$	133.32	1.33	0.133	1

1 Pa = 1 N/m<sup>2</sup>

### 10.2 Technical data

Parameter	DPG 202
[eng] Beschreibung	The controller DPG 202 with integrated power supply can be used to connect up to two Digiline gauges
Dimensions w x h x d	(19"-rack, 14TE/3HE); 71 x 128 x 178 mm
Connection for gauge	M12
Protection category	IP20
Power consumption	max. 25 (gauges included) W
Mains requirement: frequency (range)	50/60 Hz
Mains requirement: voltage (range)	95-265 V AC
Display	LCD, backlit
Display rate	2 Hz
Feature	USB
Weight	0.75 kg
Unit of measure	mbar, bar, Pa, hPa, mTorr, Torr
Measuring channel	2
Measurement rate	10 Hz
Set point: Voltage max.	250 V AC, 4 A; 45 V DC, 2 A
Set point: Changeover contact, potential-free	2 pieces
Temperature: Operating	5-50 °C
Temperature: Storage	-20-+60 °C

### 10.3 Dimensions





# Declaration of conformity

We hereby declare that the product cited below satisfies all relevant provisions according to the following **EC directives**:

- **Electromagnetic Compatibility 2014/30/EU**
- **Low Voltage 2014/35/EU**
- **Restriction of the use of certain Hazardous Substances 2011/65/EU**

**DigiLine**  
**DPG 202**

Harmonised standards and national standards and specifications which have been applied:

EN 61326-1: 2013 Group 1 / Class B  
EN 50581: 2012  
EN 61010-1: 2010

Signature:

Pfeiffer Vacuum GmbH  
Berliner Straße 43  
35614 Asslar  
Germany

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(Dr. Ulrich von Hülsen)  
Managing Director

2016-05-30







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info@pfeiffer-vacuum.de

[www.pfeiffer-vacuum.com](http://www.pfeiffer-vacuum.com)

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