

Operating instructions

Pressure transducer | PrimAtü 10



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1 Introduction

1.1 Notes on operating instructions

This operating manual was created to ensure optimal device installation, commissioning, operation and maintenance, and must be read before carrying out the following procedures.

Keep this documentation handy and accessible for consultation by all users, whenever needed. Pass on this documentation to any future users of the product.

This manual contains descriptions of all necessary settings. Should any problems occur during commissioning or operation, please do not make any unauthorised modifications. By doing so, you could void your warranty.

In such cases, please contact us immediately:

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service@fsm.ag

1.2 Explanation of icons and symbols



Danger

Indicates a hazard that could lead to personal injury.



Notice

Indicates important information that could lead to e.g. material damage, if disregarded.

1.3 Intended use and foreseeable misuse

The PrimAtü₁₀ differential pressure transducer serves for the detection of low pressure variations and their conversion into a pressure-proportional measurement signal. The device may only be used in the specified Measurement range. The PrimAtü₁₀ may only be used for measurement differential pressure variations of non-aggressive gases.



Notice

Do not use the device in explosive atmospheres or for measurement of aggressive gases.

No liability is accepted for damages resulting from non-intended use. If so, any warranty claims shall be rendered void. It is prohibited to modify the construction of the device or to extend/alter it in any way

1.4 Functions

The PrimAtü₁₀ pressure transducer can detect and display differential pressure variations of up to 1000 hPa, depending on the selected measurement range. The pressure is measured by means of a piezoresistive silicon sensor, which converts the detected differential pressure into a pressure-proportional output signal.

As an output, one can optionally choose between a display for visual indication and a digital interface. The transducer can either be operated with a 24VDC/VAC or a 230VAC supply voltage, depending on the model.

It is possible to select the pressure unit between hPa, Pa, mbar and psi that is displayed and output via the interface.

The pressure transducer can be adjusted using two buttons. A button is used to adjust the zero-point, and another to adjust the amplitude.

2 Notes for your safety



Danger

In order not to endanger any person involved in the installation and commissioning of the device, such work should only be carried out by qualified and trained personnel.

Persons using the device must also:

- be conscious of the dangers present when working next to live parts.
- take measures to protect themselves against direct contact with live parts.
- have read and understood the operating manual.

3 Set up and installation

3.1 Scope of delivery

The following is included:

- 1 x PrimAtü₁₀ pressure transducer
- 2 x screws for concrete
- 2 x dowels
- 2 x self-tapping metal screws for sheet metal
- 1 x quick guide
- 1 x insulating sleeve (only for the 230VAC model)

3.2 Installation

Depending on the configuration and the corresponding scope of delivery, the pressure transmitter PrimAtü₁₀ can either be mounted on a wall or on a DIN top-hat rail mount.

A drilling template for direct wall mounting is illustrated in the quick guide. It helps you drill the corresponding holes in the wall and then attach the pressure transducer to the wall using the supplied dowels and screws.

To mount it on a top-hat, attach the pressure transducer to the corresponding DIN rail using the top-hat rail mount, which is supplied as an option.

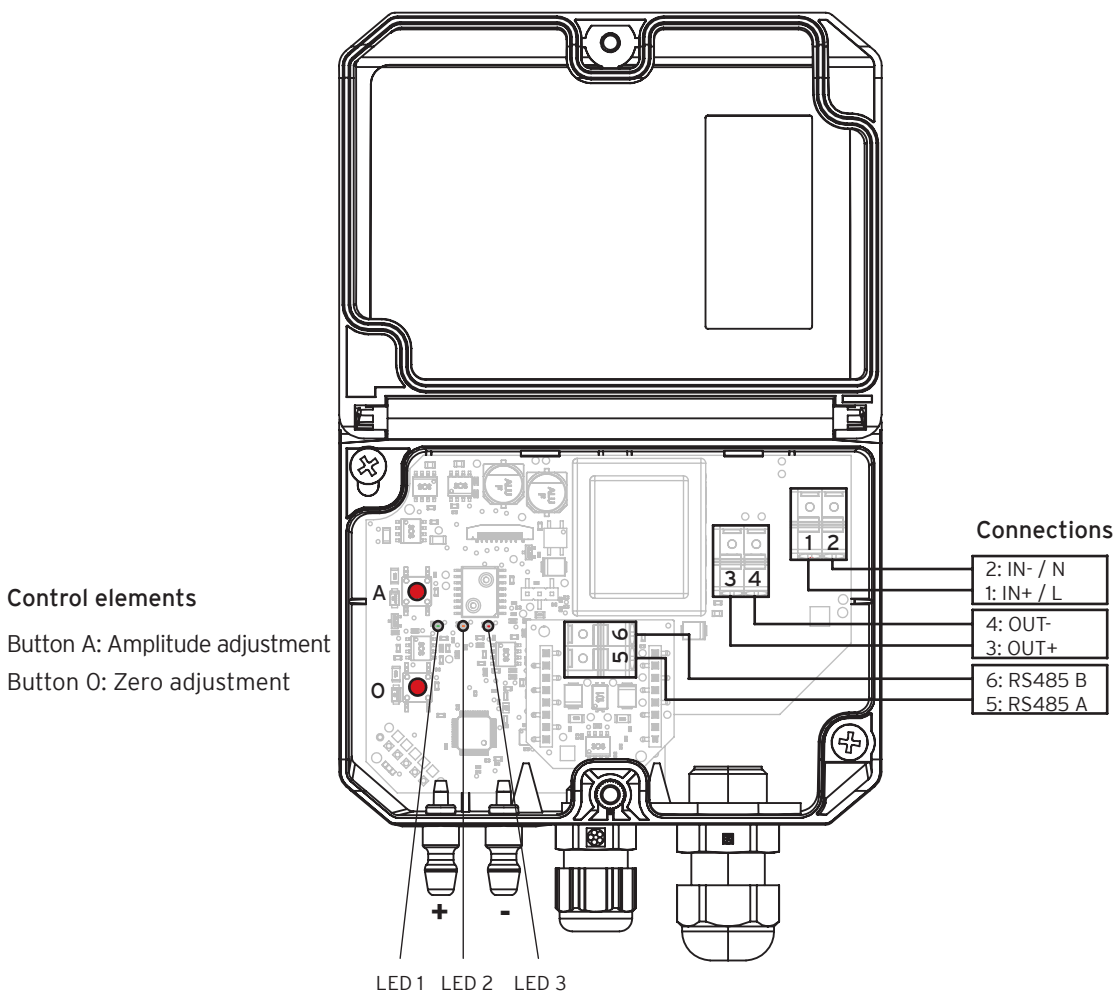


Notice

- Attach the device to a vertical, smooth surface
- Mount the device horizontally with the process connections facing downwards
- Do not install the device close to sources of interference and heat

3.3 Connections and operating elements

3.3.1 Connections, control and display elements



Display elements

- LED 1: lights up green during operation
- LED 2: flashes yellow during communication via interface
- LED 3: lights up red if overpressure or underpressure is detected

Connect the supply voltage and the output wiring according to the wiring diagram. To do this, route the cables through the cable glands that are attached to the housing and clamp them on the specifically provided spring-loaded terminals.



Notice

For operating the pressure transducer at 230-volt, an insulating tube is supplied. To avoid any disruption of the electric output signal, all wires of the supply line must be routed through this tube and clamped on the spring-loaded terminal. Connect the pressure tube to the pressure connections. When doing so, please pay special attention to applying positive nominal pressure to the left pressure connection (+).

3.3.2 Digital interface

The pressure transducer can optionally be equipped with a digital interface in addition to the analogue output and display. It is thus possible to read measured values from the interface and to take over control and regulating functions. Should you require information on the corresponding drivers and interface protocols, please send an email to vertrieb@fsm.ag.

3.4 Set up

After connecting the device to the power supply a corresponding output signal is available. The pressure transducer requires a warm-up time of approx. 30 min. After the warm-up time has elapsed, a zero-point correction should be carried out to adjust it to the ambient pressure. (see 4.1 Zero correction)

4 Operation

To ensure optimum long-term stability, the zero point and the amplitude of the pressure transmitter should be adjusted at regular intervals.

Please open the cover of the device to access the buttons on the circuit board (see 3.3.1 Connections, control and display elements). Use the „0“ button to adjust the zero point and the „A“ button to adjust the amplitude.



Danger

When working on the open device, always interrupt the supply voltage or take suitable protective measures before touching electrically conductive parts.

4.1 Zero adjustment

Before performing the zero adjustment, both process connections must be de-pressurised, so that the applied pressure is identical on both connections. Press the zero correction button „0“ (see 3.3.1 Connections, control and display elements) to correct a possible zero point deviation. If green LED lights up for 2 seconds, Zero adjustment was successful. If red LED lights up for 2 seconds, Zero adjustment was not successful. Please find potential causes of failure as well as a troubleshooting guide in **section 6: Troubleshooting guide**.

4.2 Amplitude adjustment

An upstream correction of the zero point is necessary before performing an amplitude correction (see 4.1 Zero correction).

If you have a bidirectional pressure transducer, both the positive and the negative amplitude must be corrected. To do this, you have to start by applying positive nominal pressure on the pressure connections of the PrimAtü₁₀. Press the amplitude correction button „A“ to adjust the positive amplitude. This is performed analogously with the negative nominal pressure. By pressing the button, the sensor detects any negative pressure and compensates the corresponding amplitude automatically. If you have a unidirectional pressure transducer, you only need to apply the positive nominal pressure accordingly to correct the amplitude.

If green LED lights up for 2 seconds, amplitude adjustment was successful. If red LED lights up for 2 seconds, amplitude adjustment was not successful. Please find potential causes of failure as well as a troubleshooting guide in **section 6: Troubleshooting guide**.

5 Maintenance and service

5.1 Maintenance and cleaning

To clean the housing, you can use a damp cloth.
Remove any external dirt on the housing, terminals, and display.



Notice

Do not use sprays, solvents, alcohol cleaners or abrasive cleaners to dampen the cloth.
Remove soiling on housing, connections and display.

5.2 Repairs



Notice

Repairs should only be carried out by the manufacturer or by authorised and qualified personnel. The warranty is voided if you make any modifications yourself to the device.

5.3 Calibration instructions

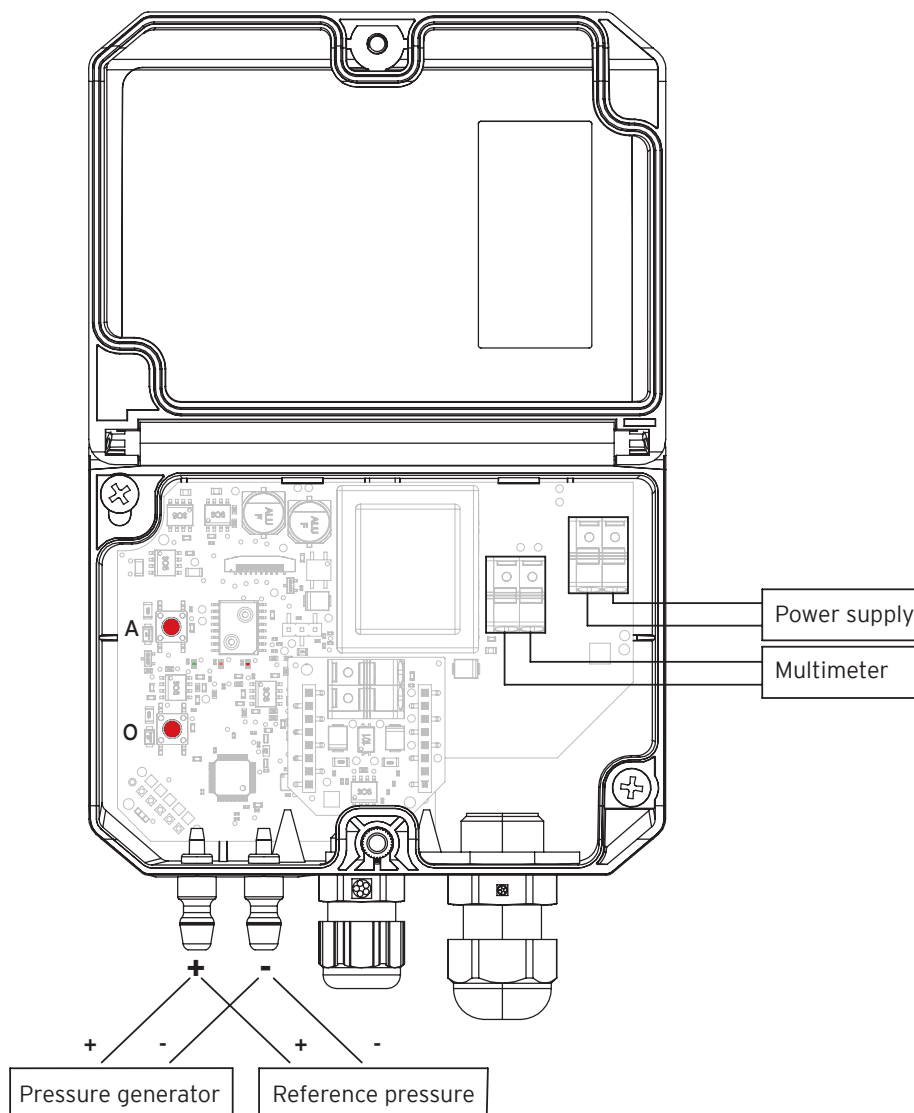
The following tools are required for a documented calibration:

- Pressure generator
- Reference pressure measurement device
- Power supply
- Multimeter for voltage and current measurement

Calibration procedure:

1. Connect the power supply (see 4.3.1 Connections, control and display elements)
2. Connect the multimeter (see 4.3.1 Connections, control and display elements)
3. Carry out the zero correction (see 4.1 Zero correction)
4. Set the pressure generator to the desired measured values
5. Compare the pressure reference display to the display of the PrimAtü 10

Calibration installation:



6 Troubleshooting guide

If a fault occurs during installation or operation, you can use the following table to identify and rectify it.
If the error is not listed, please contact FSM AG as soon as possible or send the device for repair together with a meaningful description of the error.

Error indication	Error description	Error rectification
LED 3 lights up red	The sensor detects overpressure or underpressure	Adjust system pressure
Display „Err“ + arrow pointing up	The sensor detects overpressure	Adjust system pressure
Display „Err“ + Pfeil nach unten	The sensor detects underpressure	Adjust system pressure
Accuracy not as specified	The measured value is outside the specified tolerance	Perform zero/amplitude correction
Zero adjustment not successful (LED 3 lights up red for 2 seconds)	Measured value is outside the specified tolerance	Perform zero/ amplitude adjustment
Amplitude adjustment not successful (LED 3 lights up red for 2 seconds)	Pressure measuring range differs from adjusted zero-point	Apply identical pressure to both pressure connections
No function	The pressure transducer does not appear to function at all and does not provide measured values	Check the power supply Check system pressure Check fuse

7 Accessories and spare parts

The included accessories may vary according to the ordered version. **Section 3.1 Scope of delivery** contains all possible accessories. Spare parts must be acquired from the manufacturer. Spare parts may only be replaced by the manufacturer or an authorised technician.

8 Technical data

Technical data can be found in the corresponding data sheet, which is available at www.fsm.ag, or can be downloaded using the QR code below.



9 Disposal



Danger

Incorrect disposal can lead to environmental hazards.

Equipment components and packaging materials must be disposed of in an environmentally sound manner in accordance with the local regulations on waste treatment and disposal.