

Operating Instructions for Differential Pressure Sensor

Model: PMP



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2. Note

Please read these operating instructions before unpacking and putting the unit into operation. Follow the instructions precisely as described herein.

The devices are only to be used, maintained and serviced by persons familiar with these operating instructions and in accordance with local regulations applying to Health & Safety and prevention of accidents.

When used in machines, the measuring unit should be used only when the machines fulfil the EWG-machine guidelines.

3. Instrument Inspection

Instruments are inspected before shipping and sent out in perfect condition.

Should damage to a device be visible, we recommend a thorough inspection of the delivery packaging. In case of damage, please inform your parcel service / forwarding agent immediately, since they are responsible for damages during transit.

Scope of delivery:

The standard delivery includes:

- Differential Pressure Sensor model: PMP
- Operating Instructions

4. Regulation Use

Any use of the Differential Pressure Sensor, model: PMP, which exceeds the manufacturer's specification may invalidate its warranty. Therefore, any resulting damage is not the responsibility of the manufacturer. The user assumes all risk for such usage.

5. Operating Principle

The differential pressure sensor PMP is used for controlling and measuring the differential pressure of air or non-corrosive gases. It is mainly used for the monitoring of filters and filter cartridges.

The devices are equipped as follows:

Differential Pressure Measurement

The differential pressure is shown on a four-digit LED display.

Limit Value Contact

The devices are provided with two programmable relays for monitoring the differential pressure. Thus, the magnetic valves for the cleaning cycles can be piloted or used for programming the alarm pressure.

Analogue Output

For a remote transmission, a 4 to 20 mA output signal is provided.

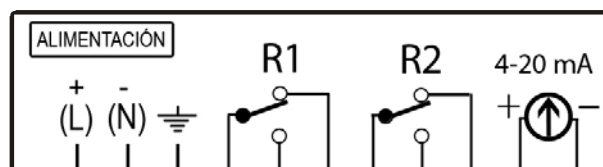
6. Mechanical Connection

Before installation:

- Make sure that the max. allowed operating pressures and service temperatures are not exceeded (see section Technical Information)
- Connect your tube to both screw connections.
The over-pressure side is marked with a “+” symbol, the low-pressure side with a “-“ symbol.

7. Electrical Connection

- Make sure that the supply wires are de-energised.
- Plug in the system according to the following connecting drawing.



- All connecting operations are completed, if the planned external devices are connected to both limit contacts and to the analogue output.
- The device can now be put into operation.
- The adjustment of the output signals is described in the following sections.

8. Operation

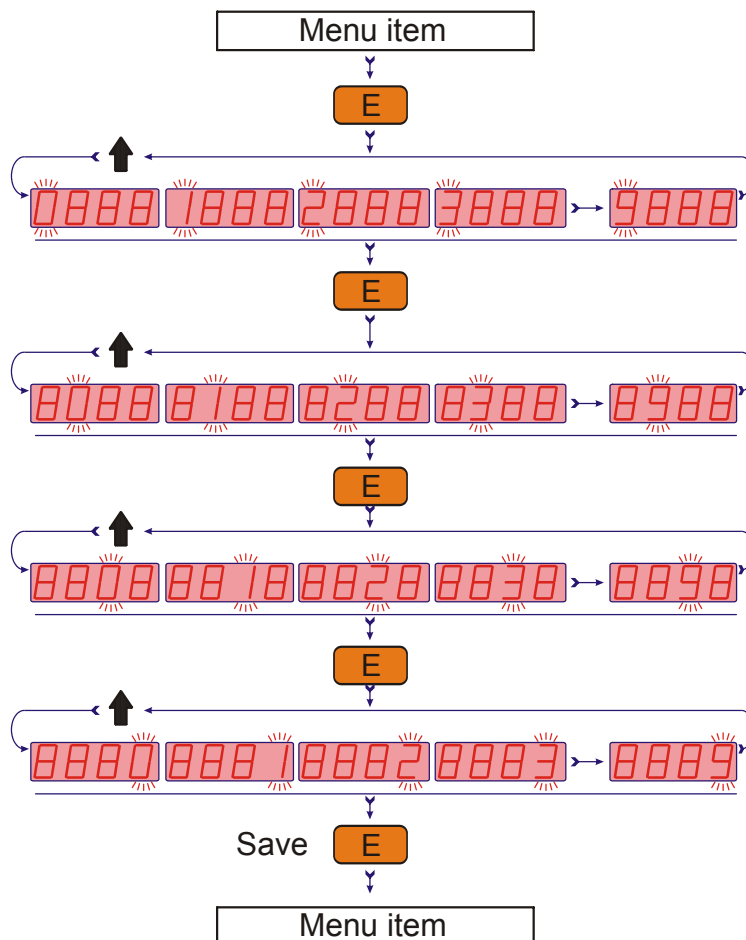
8.1 General

E-button: Change display value -> main menu item
Change main menu item -> main menu
Change menu item -> submenu item
Change menu item/submenu item -> value setting
Change of digit at value setting

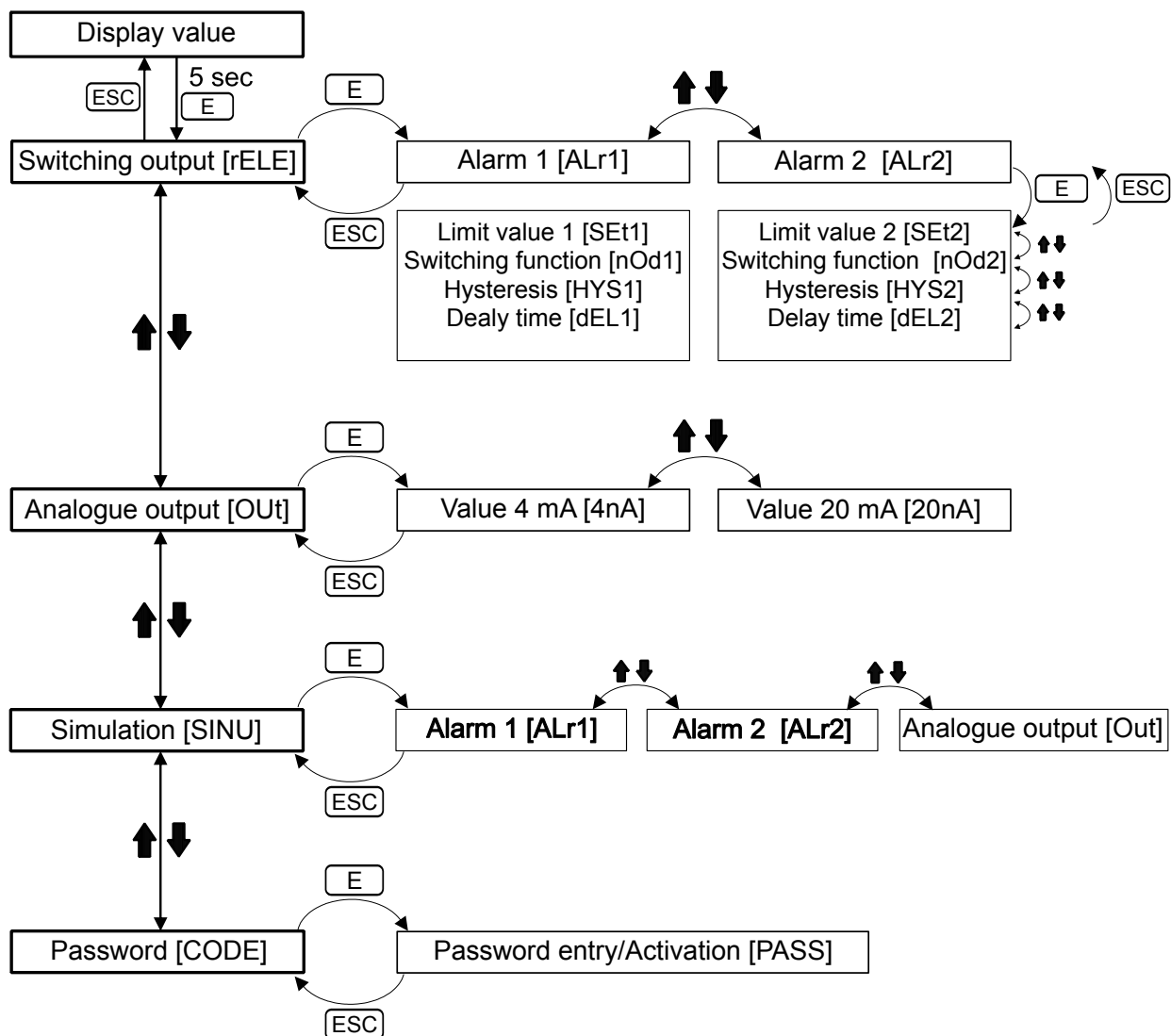
ESC-button: Change main menu item -> display value
Change menu item -> main menu item
Change submenu item -> menu item
Change value setting -> menu item/submenu item

Automatic return to displayed value after 1 min without keypress!

8.2 Value setting



8.3 Function matrix



9. Adjustment


9.1 Switching outputs [rELE]

In the menu item Alarm 1 [Alr1] and Alarm [Alr2] the following items are adjustable:

Submenu item [Set1] + [Set2]: limit value

- value setting 0...500,0 mmH₂O
- at this value the relay changes its status (active/passive)
- factory setting: [200.00]

Submenu item [nOd1] + [nOd2]: switching function

- [Hi] or [LO] changeable with 
- [Hi] = The relay 1 or 2 is active, if the displayed value has been reached.
- [LO] = The relay 1 or 2 is inactive, if the displayed value has been reached.
- factory setting: [Hi]

Submenu item [HYS1] + [HYS2]: hysteresis

- value setting 0...500,0 mmH₂O
- shift-in point is related to the limit value
shift-in point relay 1 = [Set1] – [HYS1]
shift-in point relay 2 = [Set2] – [HYS2]
condition: hysteresis value less than limit value
- factory setting: [000.0]

Submenu item [dEL1] + [dEL2]: delay time

- value setting 0...999,9 sec
- The relay output activates when the limit value is exceeded after this time.
The shift-in is carried out immediately.
- factory setting: [000.0]

9.2 Analogue output [Out]

Menu item [4nA]: display value at 4 mA

- factory setting 0...500,0 mmH₂O
- factory setting: [000.0]

Menu item [20nA]: display value at 20 mA

- factory setting 0...500,0 mmH₂O
- factory setting: [500.0]

The 4 mA and 20 mA – value of the analogue output can be related to any differential pressures.

Condition: [4nA] < [20nA]


Factory setting: 4mA = 000,0; 20 mA = 500,0

9.3 Simulation [SINU]


The main menu Simulation is used to test the switching of the relays and the analogue output 4-20mA is adjusted manually to the current. During installation, this simplifies the testing of the connection to the downstream analysing unit in the control cabinet or master display.

Menu item [Alr1]: simulation Alarm 1

Menu item [Alr2]: simulation Alarm 2

- Value setting: [OFF] or [ON] (OFF/ON changeable with )
Press ESC-button to finish.
- Basic setting: [OFF]

Menu item [Out]: simulation analogue output

- Value setting: [4, 5, 6, 7 ...20] mA changeable with )
Press ESC-button to finish.
- Basic setting: [4] mA



When leaving the main menu item Simulation [SINU] the menu item Alarm 1 [ALr1], Alarm 2 [ALr2] and Analogue Output [OUT] are reseted to the basic setting and the outputs behave according the display.

9.4 Password [CODE]

The adjusted parameters can be protected by a password.

Menu item [PASS]: Password entry/activation

- Value setting activation: [YES] and [nO]
- Value setting password: [0000...9999]
- Value setting: [nO] + [0000]

Password activation

Menu item [PASS] -> -> display: [nO] -> -> display: [YES]
-> -> display is e.g. password: [0000] ->

Password deactivation

Menu item [PASS] -> -> display e.g. password: [0000] ->
Menu item [PASS] -> -> display: [YES] -> -> display: [nO] ->



Attention: If the password is activated, all setting functions are locked (password query for changing display mode -> set-up mode)! In case of losing the password, please contact your responsible KOBOLD office.

10. Commissioning

When used in machines according the guideline 89/392/EEC, the commissioning is forbidden until the machine fulfils the regulations of the guideline.



Attention! The max. allowable pressure of 750 mbar is not allowed to be exceeded.

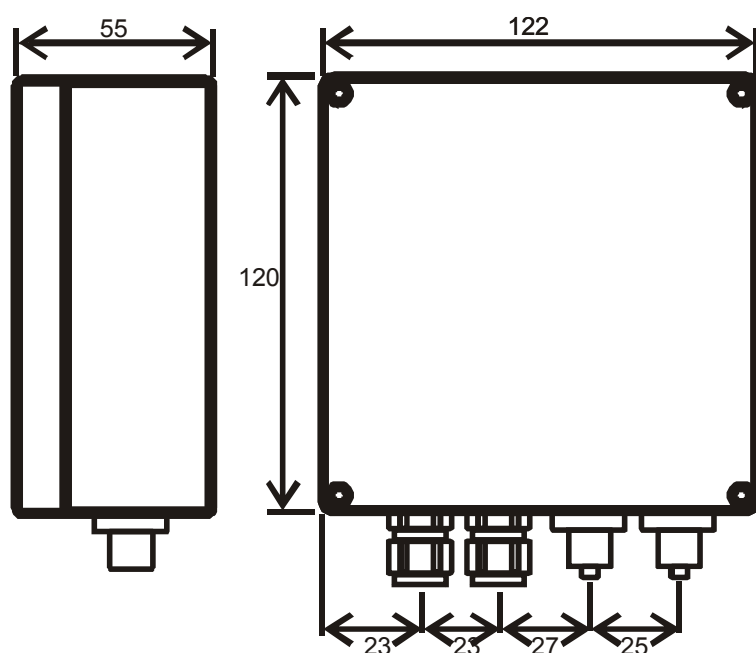
11. Maintenance

In case the medium to be measured is not polluted, the unit PMP is maintenance-free.

12. Technical Information

Measuring range:	0 ... 500 mm H ₂ O (50 mbar)
LED-indication:	4 digits, 15 mm high
2 relay outputs:	max. 230 V _{AC} , 0,5 A
Output:	4-20 mA (load max. 500 Ω)
Power supply:	24, 110, 230 V _{AC} 50/60 Hz or 24 V _{DC}
Max. power consumption:	4 VA
Max. pressure:	750 mbar, one-sided or two-sided
Ambient temperature:	-10 to +60 °C
Housing:	polycarbonate
Protection:	IP65
Max. cable cross section:	2,5 mm ²
2 hose connectors:	for hose 6 x 8 mm

13. Dimensions



14. Declaration of Conformance

We, KOBOLD Messring GmbH, Hofheim-Ts, Germany, declare under our sole responsibility that the product:

Differential Pressure Sensor Model: PMP

to which this declaration relates is in conformity with the standards noted below:

EN 61000-6-1	2002
EN 61000-6-3	2002
EN 61010-1	2001/2003

Also the following EEC guidelines are fulfilled:

2004/108/EC	EMC Directive
93/68/EEC	

Hofheim, 16. Jan. 2007



H. Peters
General Manager



M. Wenzel
Proxy Holder