

Operating Instructions for Digital-Manometer

**Model: MAN-SD
MAN-LD**



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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 instruction manuals on our website www.kobold.com are always for currently manufactured version of our products. Due to technical changes, the instruction manuals available online may not always correspond to the product version you have purchased. If you need an instruction manual that corresponds to the purchased product version, you can request it from us free of charge by email (info.de@kobold.com) in PDF format, specifying the relevant invoice number and serial number. If you wish, the operating instructions can also be sent to you by post in paper form against an applicable postage fee.

Operating instructions, data sheet, approvals and further information via the QR code on the device or via www.kobold.com

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 MAN-LD / MAN-SD should be used only when the machines fulfil the EC-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:

- Digital Manometer with LCD-Display model: MAN-SD / MAN-LD
- only MAN-SD: 9 V –block battery (IEC 6 LR 61)

4. Regulation Use

The models MAN-LD /MAN-SD are used for the measuring, monitoring and remote transmission of pressure-dependent operating sequences in machines and installations.

These devices are equipped as follows:

- 4-digit LCD display
- three programming keys
- process connection made of stainless steel
- limit relays (option)
- peak value memory
- analogue output (option)
- only MAN-SD : power supply by 9 V –block battery
- only MAN-LD : power supply by 24 VDC external

When used in machines, the measuring unit MAN-LD / MAN-SD should be used only when the machines fulfil the EEC-machine guidelines.

5. Operating Principle

The pressure to be measured is sensed by a ceramic sensor and displayed by the electronics. As an option, an analogue output signal for remote transmission of the measured values and a relay output are available.

6. Mechanical Connection

Before installation:

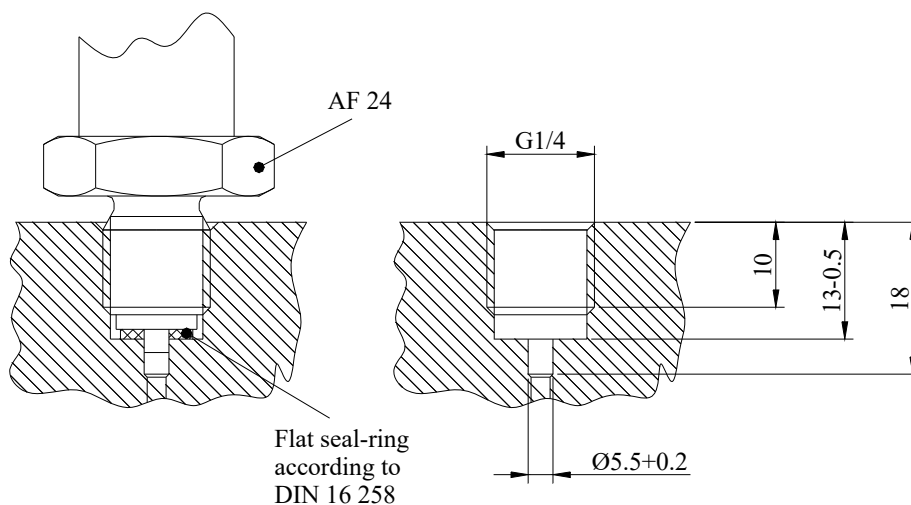
- Ensure that the max. pressure in your system is within the prescribed range of the digital manometer. The measuring range can be read from the nameplate label of the device.
- Make sure that the permitted max. operating temperature of the device is not exceeded.
- Remove all packing materials and ensure that no such materials remain in the device.

Installation:

- Ensure that the piping is fully depressurised.
- The digital manometer should be mounted just like a mechanical manometer.
- With standard thread connection, sealing is achieved by means of a suitable gasket (flat-seal or seal-ring according to DIN 16258).
- While threading in the device, install on the hexagonal screw (AF 24) and not the gauge housing. Only use a wrench for mounting!
- If possible, after the mechanical installation, pressure test the piping to determine whether the connection joint is adequately sealed.



Attention! The mounting of the device has to be carried out within a metallic fitting or vessel which must be connected to a potential equalisation. This action is necessary in order to fulfil the EMV-guideline.



7. Electrical Connection



Attention!

Incorrect wiring will lead to damage of the unit's electronics.

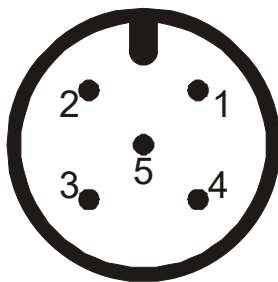
7.1 Connection for MAN-LD

- Make sure that the supply wires are de-energized.
- Plug in the system according to the connecting diagrams.
- Power supply conductor (area of cross-section) min. 0.34 mm².

Pin assignment

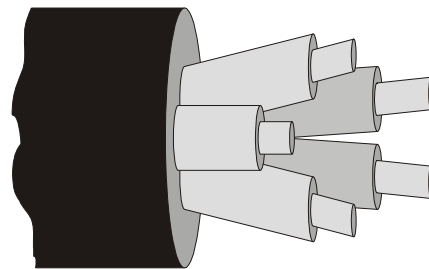
Contact-No.	MAN-LD1...	MAN-LD2...	MAN-LD3...	Cable colour
1	+V _S / 24 V _{DC}	+V _S / 24 V _{DC}	+V _S / 24 V _{DC}	brown
2		N/O contact		white
3	GND	GND	GND	blue
4			analogue output 4-20 mA	black
5		N/O contact		grey

Plug M12x1



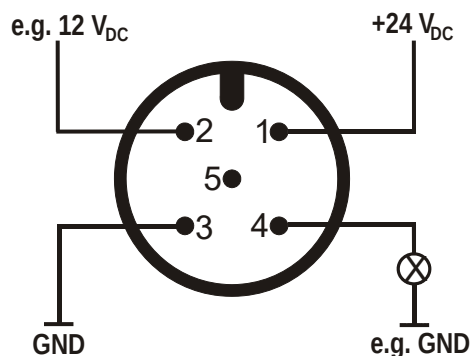
View on plug
contacts

5-core Cable.



Cable wires
colour-coded

Connection example



The N/O contact is a potential-free relay which can be operated within its maximum switching values.

The shown assignment of 12 V_{DC} (connection 2) and GND (connection 5) is only to be understood as an example.

7.2 Connection for MAN-SD

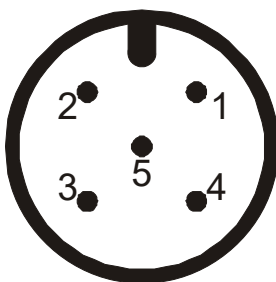


Attention! Please ensure that you use a 9 V – alkali-manganese-block battery (IEC 6 LR 61).

- Make sure that the supply wires are de-energized.
(Only with option limit contact or analogue output)
- Open the battery enclosure on the back-side of the unit and connect the 9V block battery with the connection plug.
- Place the 9V block battery in the enclosure and close it with the lid.
- Terminate the connection wires on the plug (cable), as shown in the illustration below. (Only with option limit contact or analogue output.)
- Power supply conductor (area of cross-section) min. 0.34 mm².

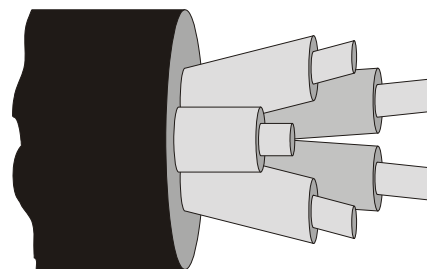
Contact-No.	MAN-SD2...	MAN-SD3...	Cable colour
1			brown
2	N/O contact		white
3		GND (0 V reference)	blue
4		analogue output 0-2 V _{DC}	black
5	N/O contact		grey

Plug M12x1



View on plug
contacts

5-core Cable.



Cable wires
colour-coded

8. Function Keys

For the selection of menu options, the following functions keys are available:

for MAN-LD

↓	next menu option
↑	previous menu option
↓ → P	jump to the function

for MAN-SD

↓	next menu option
↑	previous menu option
P	1 x press to switch-on
P	1 x press to switch-off
↓ → P	jump to the function

Adjustments and function:

↑	Value-adjustment upwards
↓	Value-adjustment downwards
P	Enter value and jump to next menu option
↑ & ↓	Reject input, return to menu option

9. Adjustment

Possible adjustments of the device:

1. zero point

Prior to commissioning or at regular intervals, the zero point must be set in the pressureless state, even if the display shows "0". Drifting into the minus range cannot be ruled out despite the zero display.

Instructions for zero point setting on inside battery cover

2. password (factory pre-set: 5)
3. peak value memory
4. relay (option) with settable hysteresis
5. (factory pre-set: switching point on 50% of measuring range)

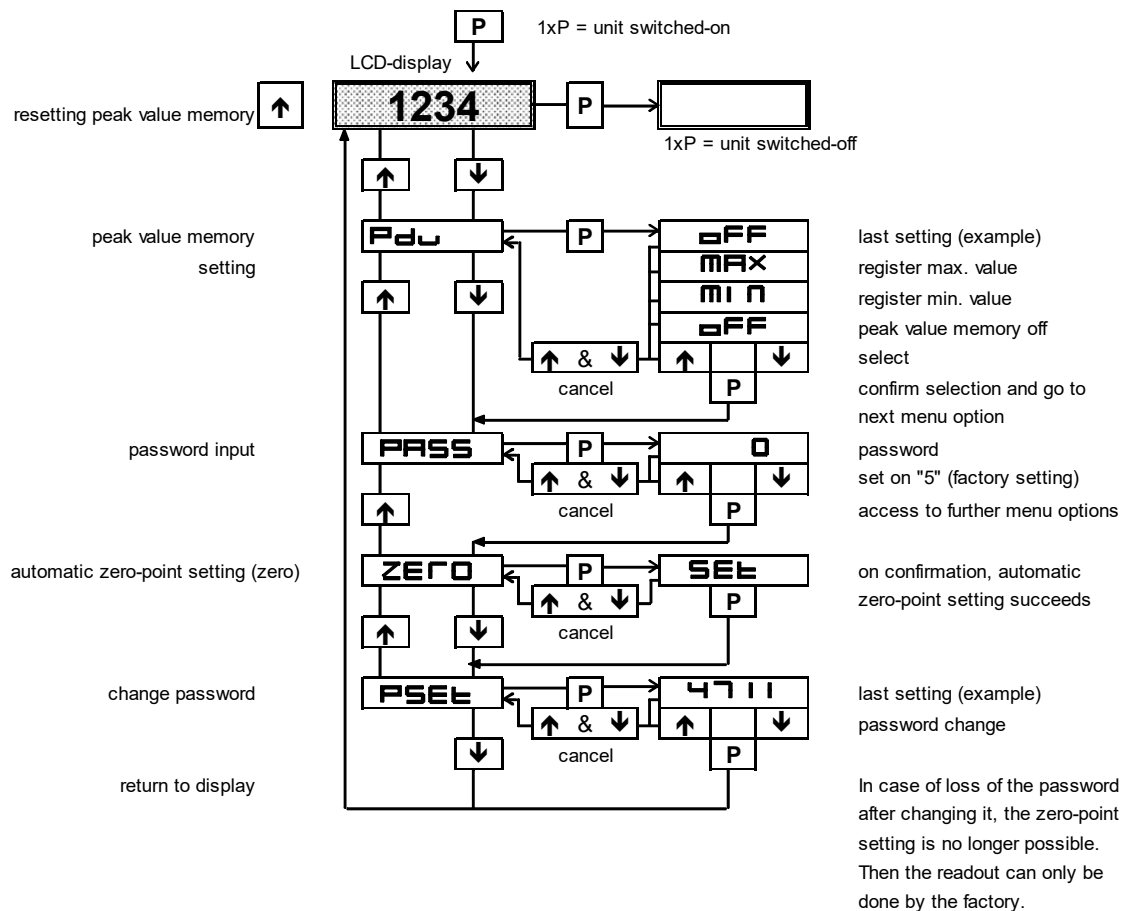
Factory pre-sets:

for MAN-LD

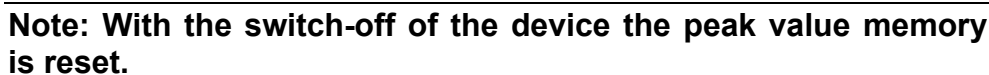
1. sampling rate (default: 5 measurements per second)
2. analogue output linear zum Messbereich 4...20 mA (option)

for MAN-SD

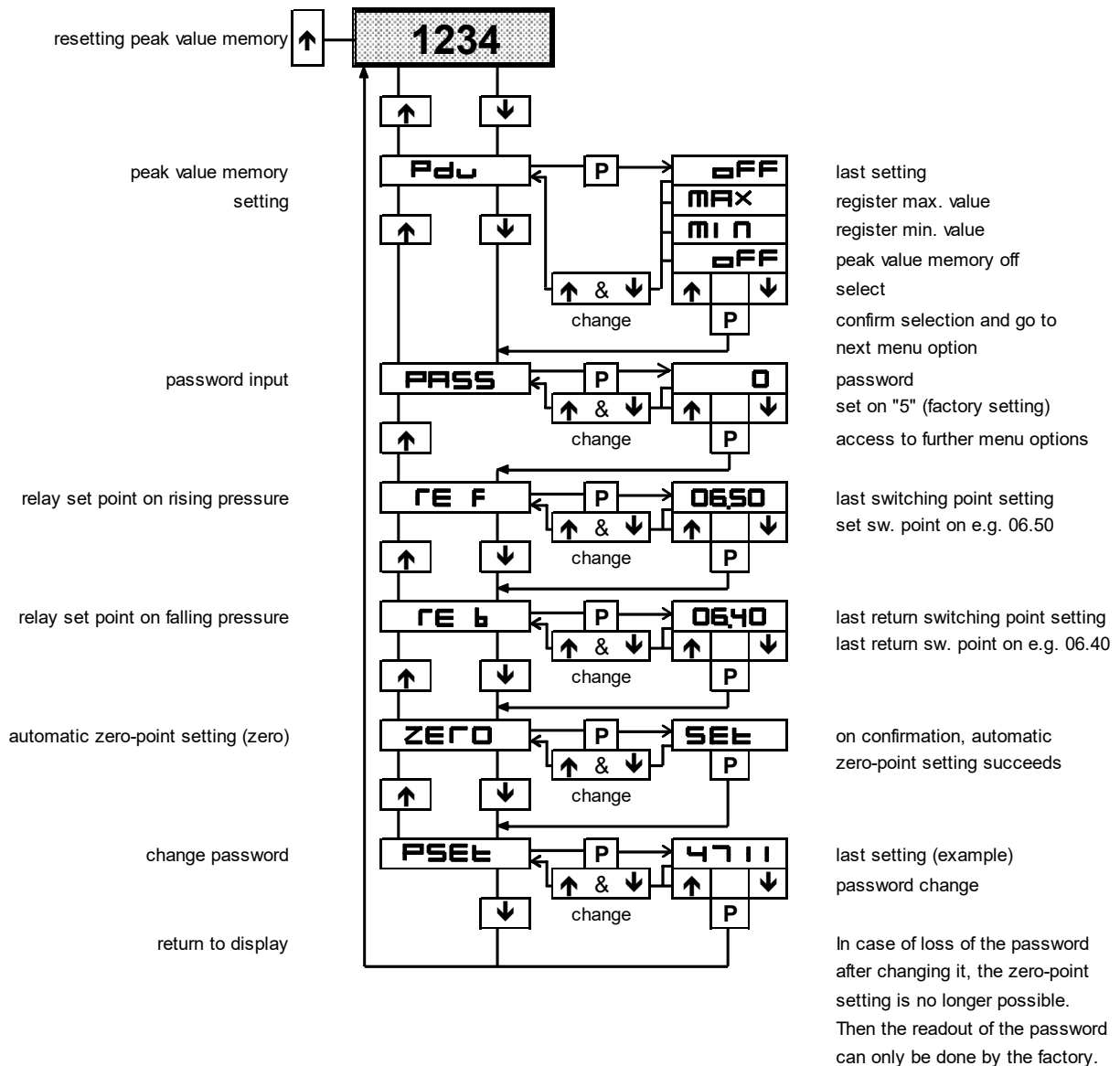
1. battery symbol on: voltage under 6,5 V
2. switch-off delay (default: 0 = inactive)
3. sampling rate (default: 5 measurements per second)
4. analogue output (linear) within measuring range 0...2 VDC (option)



If the peak value memory is activated, the peak value can be reset by pressing the left arrow key.



Unit with switching output + peak value memory MAN-LD2S...



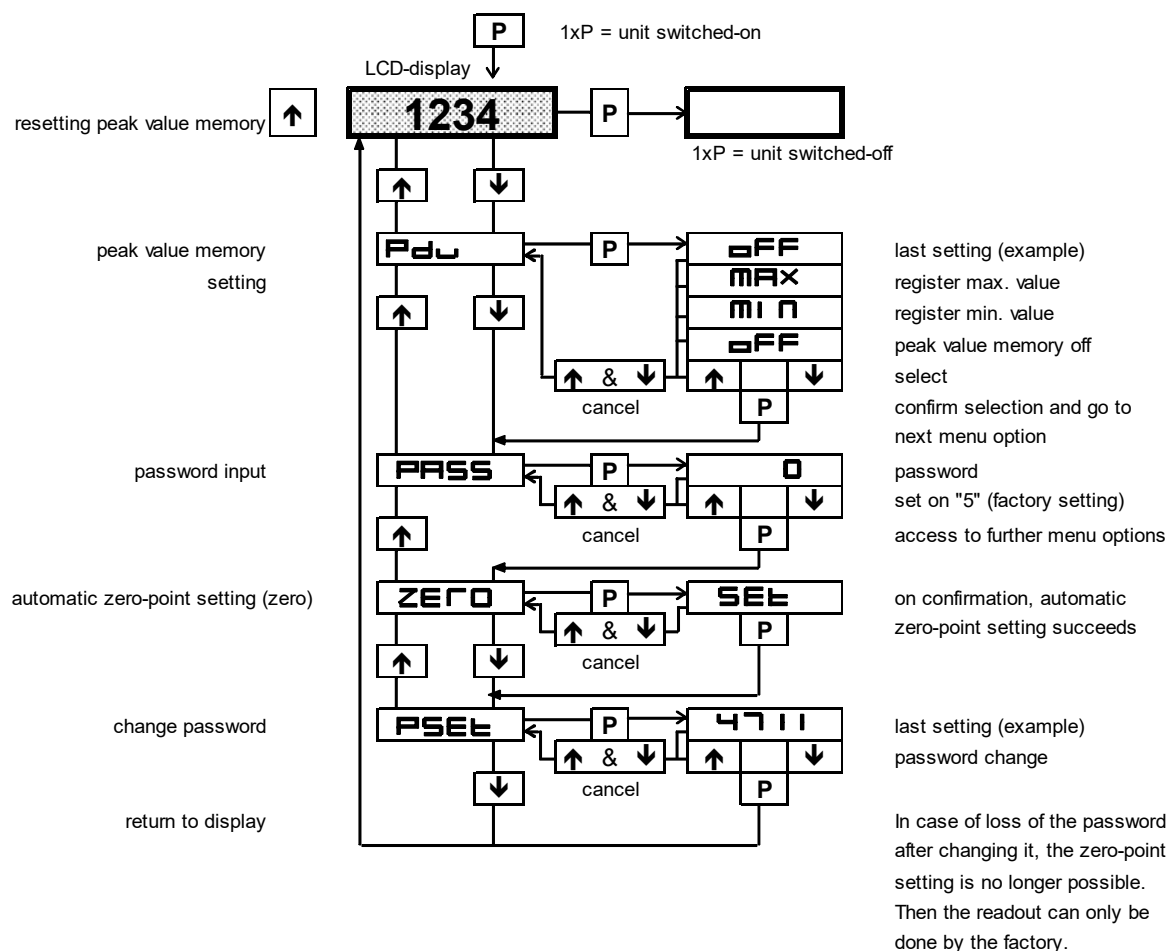
If the peak value memory is activated, the peak value can be reset by pressing the left arrow key.



Note: With the switch-off of the device the peak value memory is reset.

10.2 Control function for MAN-SD

Unit with peak value memory MAN-SD1S... and
unit with peak value memory + analogue output MAN-SD3S...

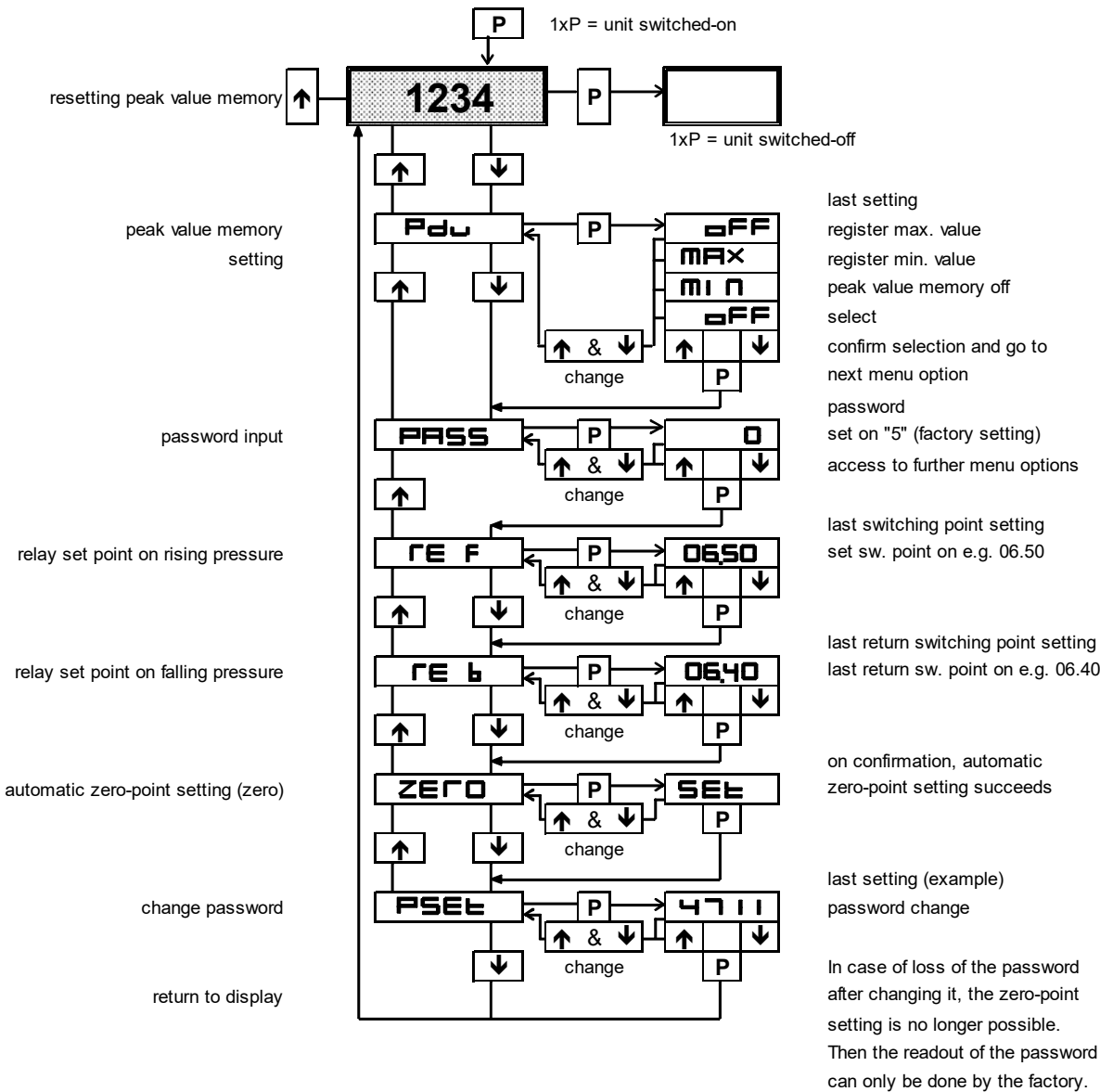


If the peak value memory is activated, the peak value can be reset by pressing the left arrow key.



Note: With the switch-off of the device the peak value memory is reset.

Unit with switching output + peak value memory MAN-SD2S...



If the peak value memory is activated, the peak value can be reset by pressing the left arrow key.



Note: With the switch-off of the device the peak value memory is reset.

11. Maintenance

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

12. Technical Information

Operating instructions, data sheet, approvals and further information via the QR code on the device or via www.kobold.com

13. Order Codes

Operating instructions, data sheet, approvals and further information via the QR code on the device or via www.kobold.com

14. Dimensions

Operating instructions, data sheet, approvals and further information via the QR code on the device or via www.kobold.com

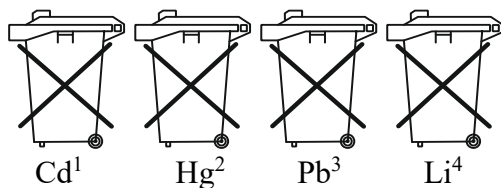
15. Disposal

Note!

- Avoid environmental damage caused by media-contaminated parts
- Dispose of the device and packaging in an environmentally friendly manner
- Comply with applicable national and international disposal regulations and environmental regulations.

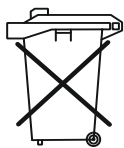
Batteries

Batteries containing pollutants are marked with a sign consisting of a crossed-out garbage can and the chemical symbol (Cd, Hg, Li or Pb) of the heavy metal that is decisive for the classification as containing pollutants:



1. „Cd" stands for cadmium
2. „Hg" stands for mercury
3. „Pb" stands for lead
4. „Li" stands for lithium

Electrical and electronic equipment



16. EU Declaration of Conformance

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

Digital Manometer **model: MAN-xD...**

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

EN 50581:2012 Technical documentation for the assessment of electrical and electronic products with respect to the restriction of hazardous substances

Additional Model: MAN-LD...

EN 61326-1:2013

EMC requirements - Electrical equipment for measurement, control and laboratory use – Part 1: General requirements

EN 61010-1:2011

Safety requirements for electrical measuring, control and laboratory use – Part 1: General requirements

Additional Model: MAN-SD...

EN 6100-6-3:2011

Electromagnetic compatibility – Part 6-3: general standards – Emission standard for residential, commercial and light-industrial environments

EN 61326-1:2013

EMC requirements - Electrical equipment for measurement, control and laboratory use – Part 1: General requirements

EN 61010-1:2011

Safety requirements for electrical measuring, control and laboratory use – Part 1: General requirements

Also, the following EEC guidelines are fulfilled:

2014/30/EU

EMC Directive

2014/68/EU

PED

Category I, Diagram 1, Vessel, Gases,
Group 1 dangerous fluids

2011/65/EU

RoHS (category 9)

2006/66/EC

Directive Batteries and Accumulators

Hofheim, 06 May 2022



H. Volz
General Manager



M. Wenzel
Proxy Holder