# Operating Instructions

# for

# Pressure Gauge

# with Built-in Pressure Transmitter

# Model: MAN-V

# 1. Contents



**Manufactured and sold by:**

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# 2. Note

## 2.1 General

Before unpacking and commissioning the device, the operating instructions and the “General Safety Instructions” document must be read and followed carefully. The general safety instructions, the operating instructions, the data sheet as well as approvals and further information can be downloaded via the QR code on the device or under the respective product on www.kobold.com.

Due to technical changes, the device documentation 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.

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.

The instrument's safety is guaranteed only if it is chosen correctly for the intended application, appropriately installed, and if the manufacturer's maintenance procedures are followed accurately.
Technicians in charge of the instrument selection, installation and maintenance should be able to understand if the instrument’s condition could affect its functioning and, thereby, lead to any premature damage or breaking.
It is essential that these procedures are included in the plants’ regulations and should be carried out by qualified staff. Any improper use could damage the instrument, causing breakage and hazards to the staff and the plant.
For an accurate choice of the instrument, it is highly recommended that you refer to the most recent data sheets available online at www.kobold.com

When used in machines, the device should be used only when the entire machine fulfils the EU machinery directive.

## 2.2 Hazard warnings

The following instructions are intended to ensure your personal safety and to prevent damage to the product described or connected devices. Safety instructions and warnings to prevent danger to the life and health of users or maintenance personnel, or to prevent damage to property, are highlighted in this documentation using the symbols defined here. *The symbols and terms used have the following meaning in the documentation itself:*

| Symbol | Explanation | Symbol | Explanation |
|---|---|---|---|
|  Note | Is important information about the product, the handling of the product or the respective part of the documentation to which particular attention should be drawn. |  Caution | Means that minor personal injury or minor property damage may occur if proper precautions are not taken. |
| Symbol | Explanation | Symbol | Explanation |
|  Warning | Indicates that serious personal injury or substantial property damage may occur if proper precautions are not taken. |  Danger | Means that death can occur if proper precautions are not taken. |
|  Warning | Attention: Hot surface! |  Warning | Warning: Dangerous electrical voltage |

## 2.3 As per PED 2014/68/EU

**MAN-V with overpressure value PS>200 bar: Category I, module A**

# 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:
- Pressure Gauge with Built-in Pressure Transmitter    model: MAN-V

# 4. Intended Use

Flawless operation of the device can only be guaranteed if all aspects in these operating instructions are adhered to.
The manufacturer assumes no responsibility for any damage resulting from improper use. The user assumes all responsibility for such usage.

The transmitter pressure gauge has a double function: to locally display an input pressure (gauge) and turn it into an electrical output signal (transmitter). The electrical signal changes proportionally on the input pressure value.

# 5. Safety Instructions

| | |
|---|---|
| Warning | - The manufacturer disclaims all responsibility in case of damages caused by the improper use of the product and by the non-respect of the instructions reported in this manual.<br>- Follow carefully the specific safety rules in case of measuring oxygen pressure, acetylene, inflammable or toxic gas or liquids.<br>- Disconnect the instruments only after the depressurisation of the system.<br>- The process fluids residuals in the disassembled instruments could affect people, the environment and the system. It is highly recommended to take proper precautions. |

| | |
|---|---|
| NOTE<br>Hinweis | - Before installation, be sure that the right instrument has been selected following the working conditions and, in particular, the range, the working temperature and the compatibility between the material used and the process fluid.<br>- This manual does not concern the instruments conforming to the standard 2014/34/UE (ATEX).<br>- The product warranty is no longer valid in case of non-authorized modifications and of wrong use of the product.<br>- The user is responsible for the instrument installation and maintenance.<br>- Handle and carefully stock the instrument used for toxic or inflammable liquids measurement |

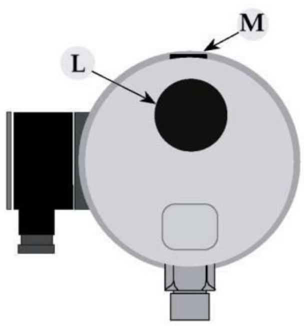
# 6. Operating Principle

**Application**
The KOBOLD all stainless steel pressure transducers are suitable for harsh conditions resulting from high demands on pressure measurement in production plants of the chemical or other comparable industries. The use of high quality stainless steel for both measuring system and housing guarantees resistance against aggressive media and environment. They can be used for liquid or gaseous substances which do not crystallize and which are not highly viscous.
All the pressure gauges comply with general international guidelines and take account of standard as well as application-specific requirements.

**Housing, installation and connection**
The stainless steel housing has a diameter of 100 mm. The gauges are most often installed straight into the customer's screw necks. For pressure gauges to be built into or onto control panels there are also variations with a mounting strip front or back. Gauges are supplied with a G ½ connecting thread as standard.
Diaphragm seals can be mounted for viscous, crystallising, aggressive materials or higher temperature materials to prevent the material being measured from penetrating into the measuring system. Other types of connection are available on request.

# 7. Mechanical Connection

Before installing an electrical instrument safely and securely into a plant or a system, it is recommended to verify that the installation is performed correctly according to the particular design features. After installation, the instrument should not be subject to any heat source that could exceed the established ambient temperature limits.
Secure the instrument's thread through a special key/wrench on the process connection hexagon without grasping the case by hands (20…30Nm) without grasping the case by the hands. The correct torque depends on the process connection type and the seal type used (form and material).
As for those process connections with a cylindrical thread (Gas-Metric), a head gasket compatible with the measurement gas or fluid should be used.
If the connection thread is conical, the instrument is tightened through a simple screwing on the plug. To improve the thread tightness, placing a PTFE layer on the male thread is recommended.




If the instrument is equipped with a fluid diaphragm seal, the connection should be clamped on the diaphragm; otherwise, the calibration could be compromised. If a remote mounting capillary is mounted between the instrument and the pressure switch, verify that during the mounting operations, the capillary does not twist and break and that any curving angles do not compress the passage hole of the pressure transmission fluid.
The blow-out vents in the gauge case (blow-out vent L and filling cap M) should not be closed or tightened. In instruments with a scale range up to 16 bar, the filling cap M should be drilled.

Disassemble the connector as in fig.1 and connect the cable as in fig.2. Reassemble the connector and fix it on the transmitter.

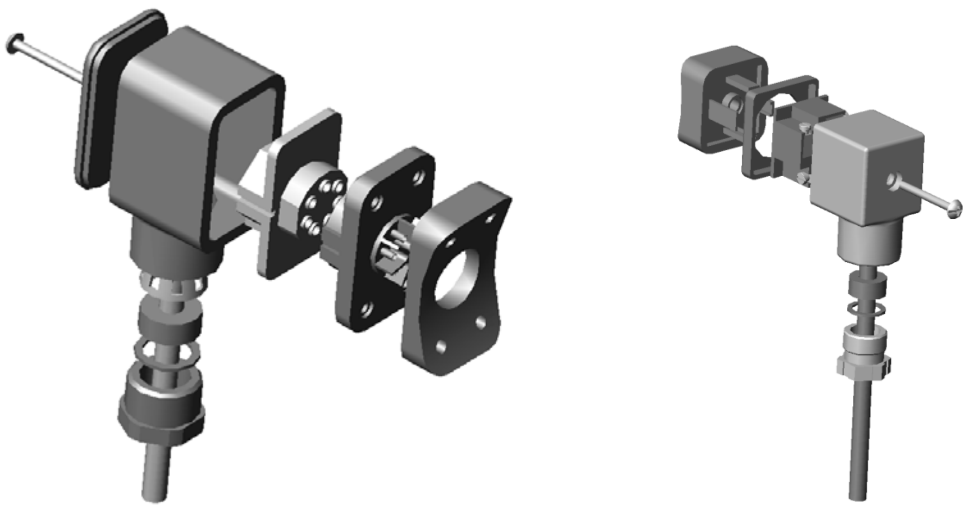


**Figure 1** – Exploded view of the connector

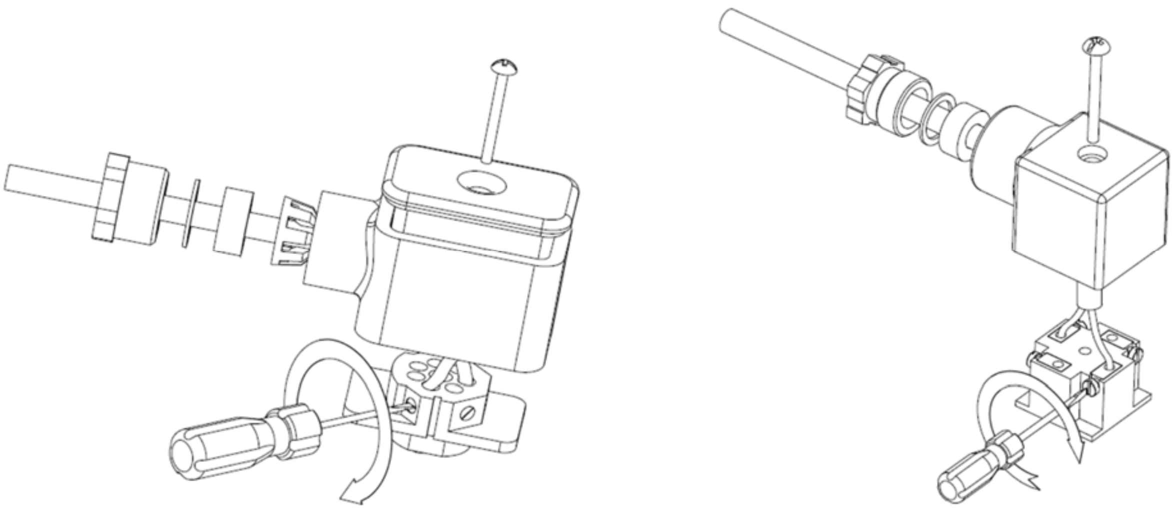
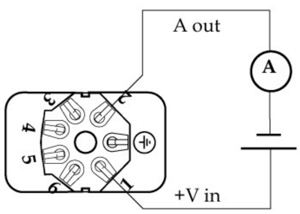
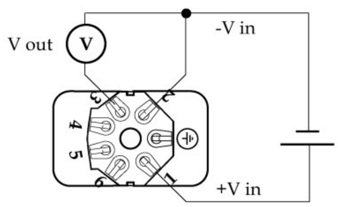


**Figure 2** – Wires connections

| | |
|---|---|
| NOTE<br>Hinweis | The IP grade according to standard CEI EN 60529 is guaranteed only if the female connector, equipped with a connection cable, is mounted on the instrument and all the other components are assembled correctly. |

## 8. Electrical Connection

| **Output signal** | 4...20 mA | **Output signal** | 0…5 Vdc | 0…10 Vdc |
|---|---|---|---|---|
| **N° of wires** | 2 | **N° of wires** | 3 | 3 |
| **Charge (Ohm)** | $R_L – (V_{in}-10)/0{,}02$ | **Charge (Ohm)** | min. 5 Kohm | min.10 Kohm |
| **Input: +Vin** | 10…30 | **Input: +Vin** | 8…30 | 14…30 |
|  | |  | | |

The transmitter metal case should always be connected to the ground through the process connection thread to protect it from disturbances due to electromagnetic fields or electrostatic charges.
If it is impossible, connect the transmitter to the ground through the connector and the cable screen.

# 9. Recalibration and maintenance

In order to perform the instrument zero adjusting, please proceed as follows:

1. Disconnect the connector from the transmitter;
2. Remove the filling cap to reach the ZERO trimmer (figure1);
3. Connect the sensor to the measurement circuit (PLC-PC board or millimeter);
4. If the input pressure is at zero, adjust the output signal value to 4 mA together with the corresponding ZERO trimmer placed inside the instrument (figure 2).
5. Reinstall the filling cap.

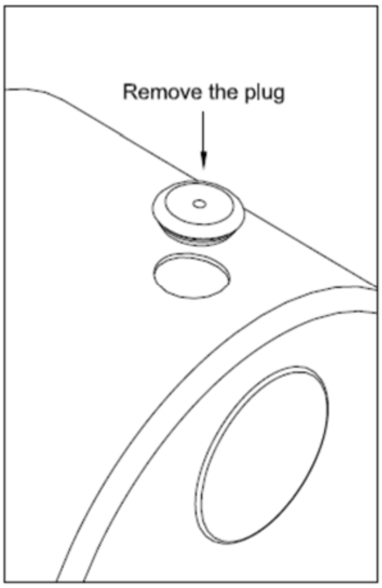



**Figure 1**

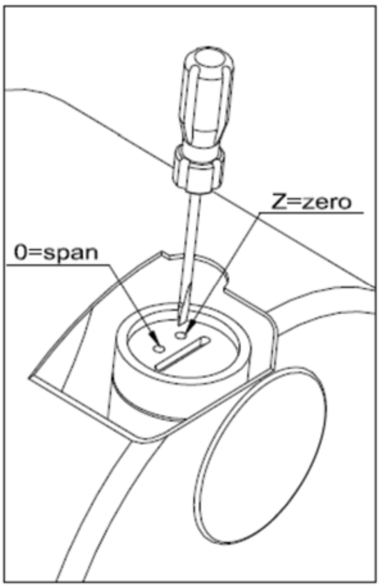



**Figure 2**

**In case a complete recalibration is necessary, please contact Kobold.**

# 10. Technical Information

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

# 11. Order Codes

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

# 12. Dimensions

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

# 13. Disposal

See “General Safety Instructions” - via the QR code on the device or via www.kobold.com

# 14. EU Declaration of Conformance

We, KOBOLD Messring GmbH, Nordring 22-24, 65719 Hofheim, Germany, declare under our sole responsibility that the product:

**Pressure Gauge with Built-in Pressure Transmitter model: MAN-V**

to which this declaration relates is in conformity with the following EU directives stated below:

| | |
|---|---|
| **2014/30/EU** | **EMC Directive** |
| **2011/65/EU** | **RoHS** (category 9) |

**for MAN-V with overpressure value PS>200 bar:**

**2014/68/EU** **PED**
- Category I, module A

Also, the following standards are fulfilled:

**EN IEC 61326-1:2021**
Electrical equipment for measurement, control and laboratory use - EMC requirements - Part 1: General requirements

**EN IEC 61326-2-3:2021**
Electrical equipment for measurement, control and laboratory use - EMC requirements - Part 2-3: Particular requirements - Test configuration, operational conditions and performance criteria for transducers with integrated or remote signal conditioning

**EN IEC 63000:2018** Technical documentation for the assessment of electrical and electronic products with respect to the restriction of hazardous substances

Hofheim, 21 Jan. 2025

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