Operating Instructions

for

Pulse Generator

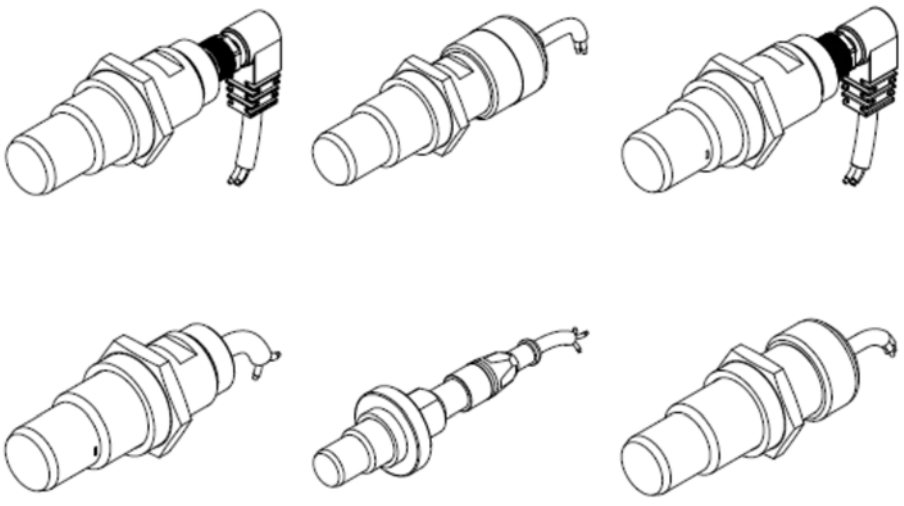
for series OM…

Model:

OM…/43

OM…/44

OM…/45



We don’t accept warranty and liability claims neither upon this publication nor in case of improper treatment of the described products.

The document may contain technical inaccuracies and typographical errors. The content will be revised on a regular basis. These changes will be implemented in later versions. The described products can be improved and changed at any time without prior notice.

1. Contents

Manufactured and sold by:

Kobold Messring GmbH
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D-65719 Hofheim
Tel.: +49(0)6192-2990
Fax: +49(0)6192-23398
E-Mail: info.de@kobold.com
Internet: www.kobold.com

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.

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 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:

- Pulse generator model: OM…/43/44/45

4. Regulation Use

Any use of the device, 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.
Only use the Kobold pulse generator within the operating limits specified in the "Technical Data" chapter. Deviating operating data can lead to damage. If in doubt, consult the manufacturer.

5. Operating Principle

The rotor of the screw-type volumetric flow meter rotates at a precisely defined distance in front of the pulse generator. The pulse generator generates a pulse for every pole that moves past it.
The screw-type volumetric flow meter is checked and delivered with a built-in dry sleeve. The transmitter insert for the pulse generator can be replaced online in a full line, without having to re-adjust the clearance to the rotor.

6. Safety Information

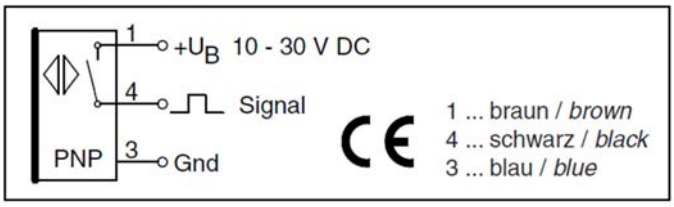
The following safety instructions must be observed:

- Implement all the supply lines without faults.
- The pick up system (puck up, transducer and lines) may not be located in the area of strong, high-frequency electromagnetic fields, such as those emitted e.g. from power lines, electric motors, frequency converters, etc. This can result in erroneous measurements of the pick up system.
- In case of systems with an increased potential of danger to humans and/or machines the failure of a pick up may not lead to injuries or damage to property.
    - Always equip systems with an increased potential of danger with alarm equipment.
    - Maintain and check the protective/alarm equipment regularly.
- The pumped liquids can be dangerous (e.g. hot, dangerous to health, poisonous, combustible). Observe the safety conditions for handling dangerous materials.
- Pumped liquids can be subject to pressure and can cause damage and/or personal injury should leaks occur.
- Depending on operating conditions, the service life of the pick ups is limited due to vibrations, temperature influences or deterioration. The operator-owner is responsible for regular inspection.
    - All parts which jeopardize safe operation must be replaced regularly.
    - Abnormal operating mode or visible damage prohibits further use.

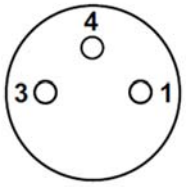
7. Electrical Connection

OM…/43:

Terminal diagram

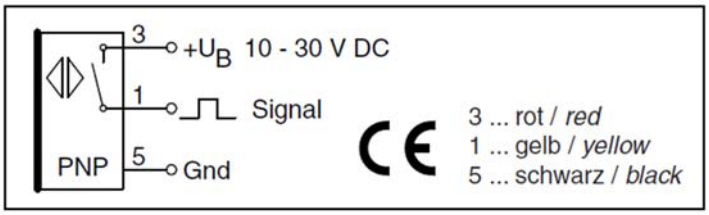


Plug assignment



1 Brown
4 Black
3 Blue

OM…/44:

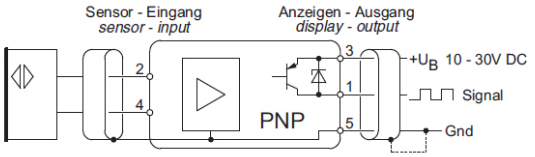


OM /45:

Terminal diagram

45 Sensor *sensor*

13 Meßumformer *measurement transducer*



Kabeldosenbelegung (Lötseite)
flit plug assignment (solder side)

Limit values Q_{lim} when Q_{min} not reached					
		OMG 15 OMH 15	OMG 20 OMH 20	OMG 25 OMH 25	OMG 40 OMH 40
Q_{lim}	[l/min]	0.05	0.2	0.53	2.0
f_{lim}	[Hz]	6	8	9	10
		OMG 50 OMH 50	OMG-1H OMH-1H	OMG-1F	
Q_{lim}	[l/min]	5.4	2.1	5.5	
f_{lim}	[Hz]	15	2	2	

8. Assembly and Disassembly

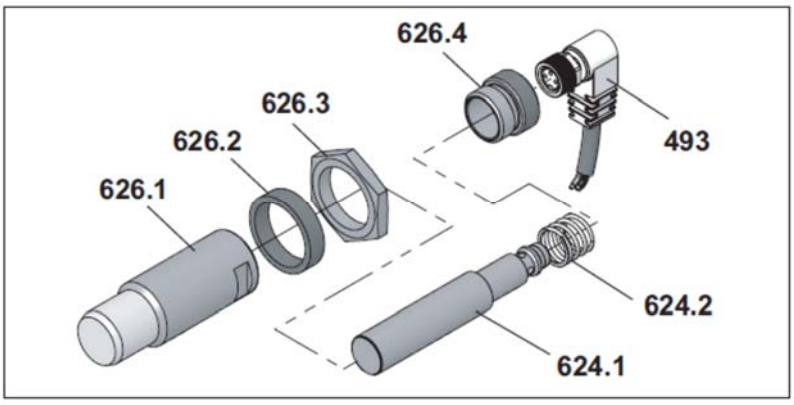
The pick up system (puck up, transducer and lines) may not be located in the area of strong, high-frequency electromagnetic fields. This can result in erroneous measurements of the pick up system.

- The connecting lines of the pick up connections are to be shielded and laid separately from the supply lines.
- Ensure that the supply voltage is correct.

Installing the pick up
By default, flowmeters are supplied with a premounted pick up or premounted dry sleeve respectively.

Be sure to observe the following instruction:
When replacing the pick up insert it is not necessary to change the position of the dry sleeve. Damage to the red sealing point shows that the dry sleeve has been repositioned. In this case the guarantee for the flowmeter becomes null and void.

Replacing OM…/43

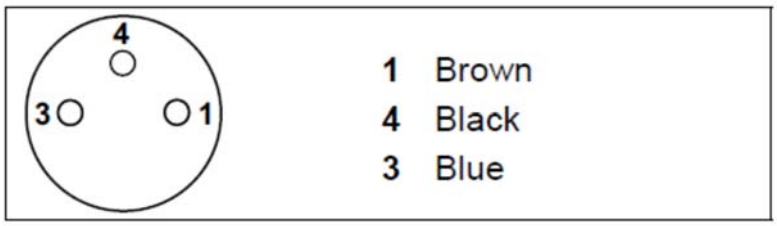


493	Pick up plug
624.1	Pick up insert
624.2	Spring
626.1	Pressure housing
626.2	Spacer
626.3	Hexagon nut
626.4	Sleeve

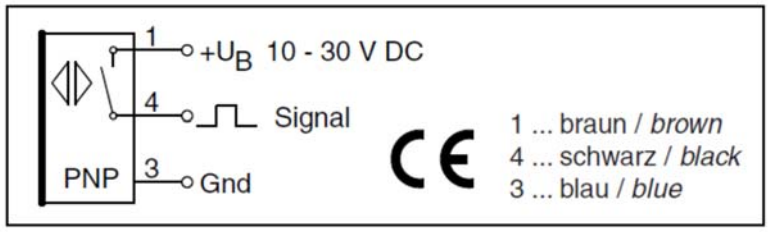
Removing OM…/43

1. Loosen the knurled nut of the pick up plug 493 and pull out the plug.
2. Loosen the hexagon nut 626.3, spacer 626.2 and sleeve 626.4.
3. Pull out the pick up insert 624.1 with spring 624.2.
4. Turn out the pressure housing 626.1.

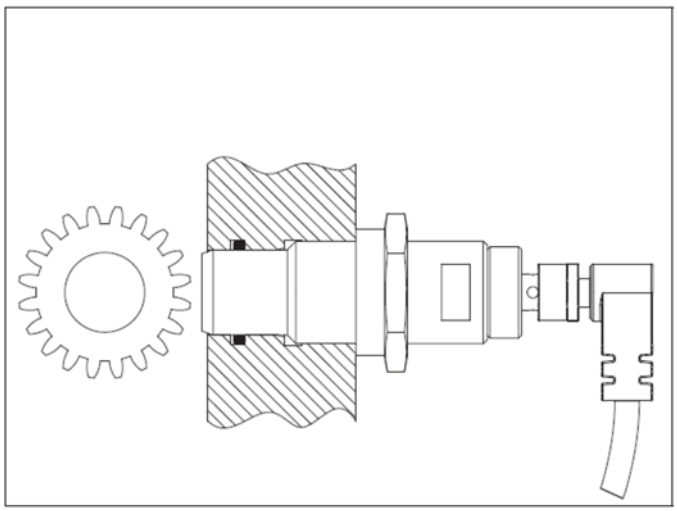
Installing and connecting OM…/43



Plug assignment



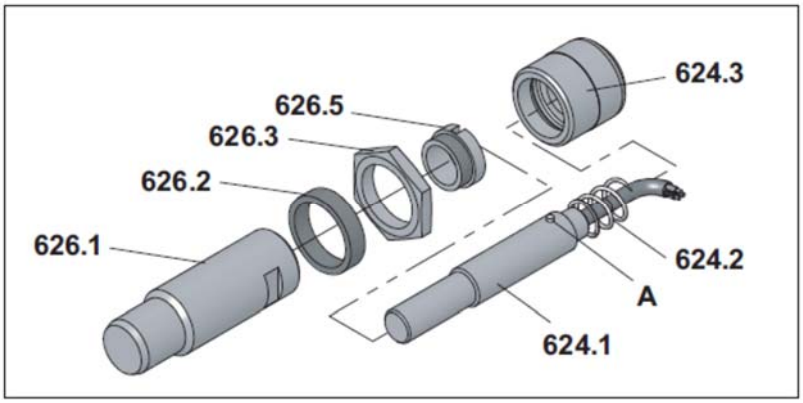
Terminal diagram



Installation position

1. Clean the pick up hole. At flowmeters of the OMG and OMH series check the inserted O-ring.
2. Screw the pressure housing 626.1 into the pick up hole up to a distance of 0.5 mm (43D) respectively 1.0 mm (46D) from the outer diameter of the pole wheel. (One rotation corresponds to 1 mm.)
3. Lock with the spacer 626.2 and hexagon nut 626.3.
4. Slide the pick up insert 624.1 and spring 624.2 into the pressure housing 626.1. Fasten with sleeve 626.4.
5. Connect the pick up plug 493. Observe the terminal diagram.

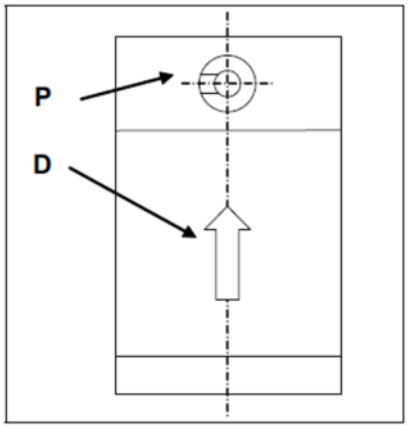
Removing OM…/44



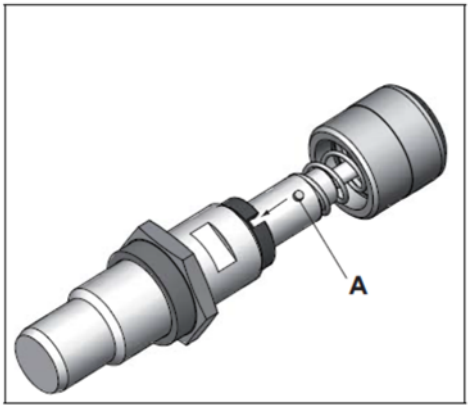
624.1	Pick up insert
624.2	Spring
624.3	Threaded cover
626.1	Pressure housing
626.2	Spacer
626.3	Hexagon nut
626.5	Indexing sleeve
A	Positioning pin

1. Separate the pick up cable from the supply voltage.
2. Loosen threaded cover 624.3. Pull the pick up insert 624.1 and spring 624.2 out of the pressure housing 626.1.
3. Loosen the hexagon nut 626.3 and spacer 626.2.
4. Turn out the pressure housing 626.1 with indexing sleeve 626.5.

Installing and connecting OM…/44

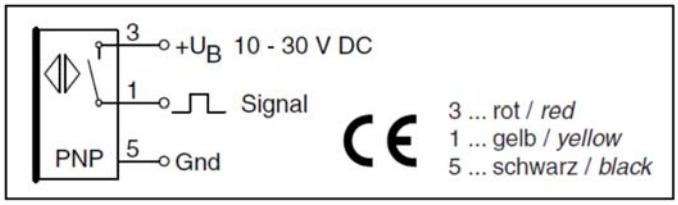


Position flowmeter at pick up installation

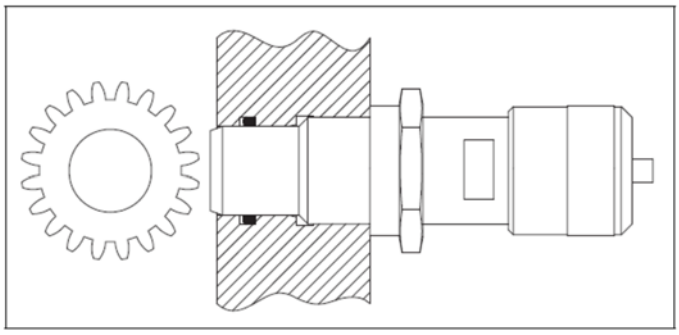


A	Positioning pin
D	Flow direction
P	Groove position

Positioning pin latching in



Terminal diagram

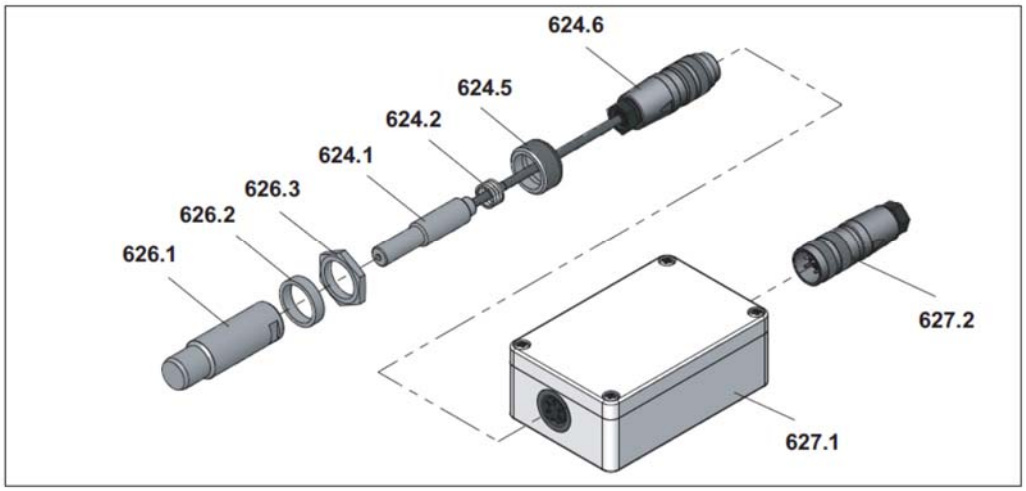


Installation position

Replacing OM…/44

1. Clean the pick up hole. At flowmeters of the OMG and OMH series check the inserted O-ring.
2. Screw the pressure housing 626.1 into the pick up hole up to a distance of 0.25 mm from the outer diameter of the pole wheel. (One rotation corresponds to 1 mm.)
3. Lock with the spacer 626.2 and hexagon nut 626.3.
4. Position the flowmeter see Fig. Position flowmeter at pick up installation
5. Press the indexing sleeve 626.5 while making sure that the position is correct, see Fig. Position flowmeter at pick up installation
   The correct position of the groove is rotated by 90° to the left in the flow direction, max. angle error+/- 10°.
6. Slide in the pick up insert 624.1 and spring 624.2 while ensuring that the sleeve is clean and the position of the positioning pin A is correct. This must be latched in the groove of the indexing sleeve 626.5, see Fig. Positioning pin latching in. Screw tight the threaded cover 624.3. Connect the pick up. Observe the terminal diagram, see Fig. Terminal diagram

Replacing OM…/45

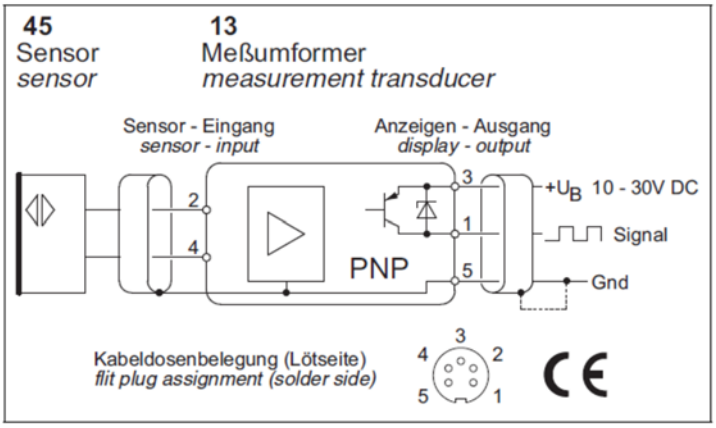


624.1	Pick up insert	**626.2**	Spacer
624.2	Spring	**626.3**	Hexagon nut
624.5	Threaded cover	**627.1**	Amplifier
624.6	Plug	**627.2**	Box
626.1	Pressure housing		

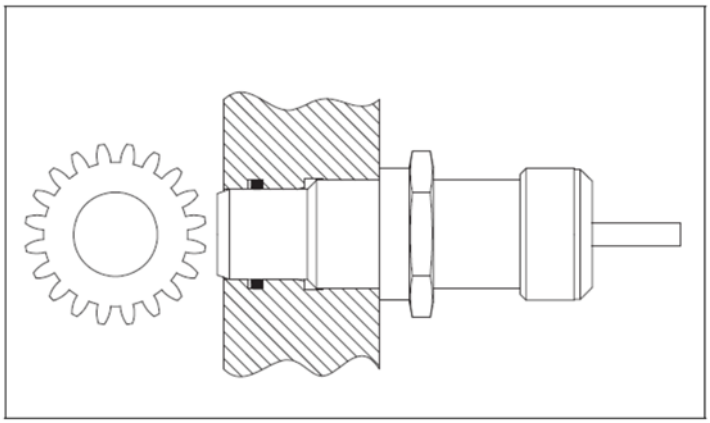
Removing OM…/45

1. Loosen the plug 624.6 from the amplifier 627.1.
2. Loosen the hexagon nut 626.3, spacer 626.2 and threaded cover 624.5.
3. Pull out the pick up insert 624.1 with spring 624.2.
4. Turn out the pressure housing 626.1.

Installing and connecting OM…/45



Terminal diagram



Installation position OM…/45

1. Clean the pick up hole. At flowmeters of the OMG and OMH series check the inserted O-ring.
2. Screw the pressure housing 626.1 into the pick up hole up to a distance of 0.25 mm from the outer diameter of the pole wheel. (One rotation corresponds to 1 mm.)
3. Lock with the spacer 626.2 and hexagon nut 626.3.
4. Slide the pick up insert 624.1 and spring 624.2 into the pressure housing 626.1. Fasten with threaded cover 624.5.
5. Fasten the plug 624.6 to the amplifier 627.1.
6. Connect the amplifier. Observe the terminal diagram, see Fig. Terminal diagram.

9. Possible faults

Faults can have different causes. The following tables list the symptoms of a fault, the possible causes and measures for troubleshooting.

Fault	Cause/Remedy
☐ No signal	1, 2, 3, 4, 5, 6, 8
☐ Incorrect signal	1, 2, 6, 7

Troubleshooting

No.	Cause	Remedy
1	Pick up/pick up insert defective	► Screw out the pick up/pick up insert and check: A functioning pick up/pick up insert sends a pulse when approaching a ferromagnetic part. If it exists, this can be checked with LED. 44: The pick up insert must be brought close to a magnet to test it. ► Replace the pick up insert.
	Pick up mounted incorrectly	► Check the pick up insert mounting, see "Installation, removal and connection", chapter 8.
3	Incorrect connection	► Check connections.
4	Flowmeter does not work	► Check and actuate the flowmeter, see the corresponding operating instructions of the flowmeter.
5	Incorrect power supply	► Adjust electronic device, see the corresponding operating instructions of the
6	Corroded contacts	► Check and clean contacts.
7	Interference from outside	► Lay cables accordingly, see "Safety instructions on installation, removal and connection", chapter 8.
8	No flow	► Check the pipe system.

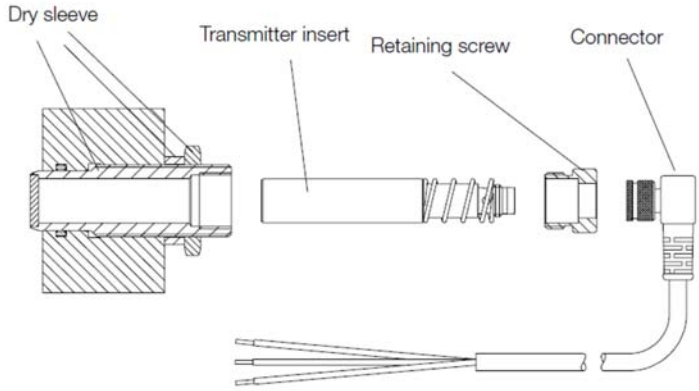
10. Technical Information

Model	System	Voltage	t_{max}	p_{max} face	Material dry sleeve	Electrical connection	Protection
43	inductive PNP	10…30 V_{DC}	-20…+100 °C (-25…+90 °C)[1)]	250 bar	arcap/ ceramic	right-angle plug with LED and 3 m cable	IP 65
44	Hall-effect PNP	10…30 V_{DC}	-40…+150 °C	420 bar	arcap	3 m PTFE cable	IP 67
45	Magnetic PNP	10…30 V_{DC}	-40…+250 °C (0…+50 °C)[2)]	420 bar	arcap	incl. transmitter/ cable box with 1 m PTFE cable	IP 65

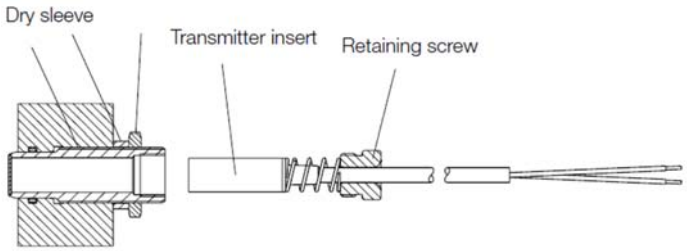
[1)] Connector
[2)] Transmitter

11. Dimensions

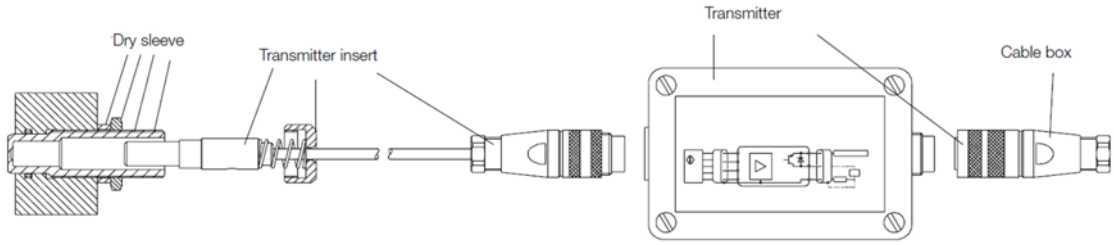
OM…/43



OM…/44



OM…/45



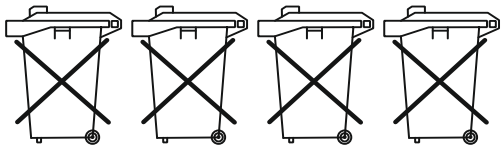
12. Disposal

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.

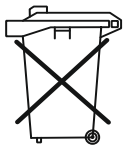
Batteries

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



13. EU Declaration of Conformance

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

Sensor **Model: OM.../43/44/45**

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

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

Also, the following EC guidelines are fulfilled:

2011/65/EU **RoHS** (category 9)
2015/863/EU Delegated Directive (RoHS III)

Additional for pulse generator **OM…/43:**

The product is in conformity with the standards noted below:

EN 55011:2016+A1:2017, EN 55011:2016/A11:2020 (Gruppe 1, Klasse B) Industrial, scientific and medical equipment - Radio-frequency disturbance characteristics - Limits and methods of measurement

EN 60947-5-2:2007+A1:2012, Abs. 8.6 Low-voltage switchgear and controlgear - Part 5-2: Control circuit devices and switching elements - Proximity switches

Also, the following EC guidelines are fulfilled:

2014/30/EU **EMC Directive**

Additional for pulse generator **OM…/44**:

The product is in conformity with the standards noted below:

EN 61326-1:2013 Electrical equipment for measurement, control and laboratory use - EMC requirements - Part 1: General requirements

Also, the following EC guidelines are fulfilled:

2014/30/EU **EMC Directive**

Additional for pulse generator **OM…/45**:

The product is in conformity with the standards noted below:

EN 61000-6-2:2005/AC:2005 Electromagnetic compatibility (EMC) - Part 6-2: Generic standards - Immunity for industrial environments

EN 61000-6-4:2007/A1:2011 Electromagnetic compatibility (EMC) - Part 6-4: Generic standards - Emission standard for industrial environments

Also, the following EC guidelines are fulfilled:

2014/30/EU **EMC Directive**

Hofheim, 29 Nov. 2022

H. Volz
General Manager

M. Wenzel
Proxy Holder