

Operating Instructions for Low Volume Rotating Vane Flow Meter

Model: DPM-...



1. Contents

1. Contents	2
2. Note	3
3. Instrument Inspection	3
4. Regulation Use	4
5. Operating Principles	4
6. Mechanical Connection	4
6.1. Check service conditions:	4
6.2. Installation.....	4
7. Electrical Connection	5
7.1. General	5
7.2. DPM...0000 (OEM without cable)	5
7.3 Evaluation electronics: Frequency output (..F300; ..F320;..F340;..F380).....	6
7.4. Evaluation electronics: Analogue output (..L..).....	6
7.5 Cable outlet with M12x1 angle plug electronic options F3x and L3x	7
7.6. Compact electronics: (..C30R, ..C30M, ..C34P, ..C34N) 7	
8. Operating – Evaluation Electronics.....	8
8.1. Frequency output.....	8
8.2. Analogue output.....	8
8.3. Compact electronics	8
9. Maintenance	9
10. Technical Information	9
11. Order Codes	9
12. Dimensions	9
13. Disposal.....	10
14. EU Declaration of Conformance	11
15. UK Declaration of Conformity	11

Manufactured and sold by:

Kobold Messring GmbH
Nordring 22-24
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 and take note of these operating instructions before unpacking and putting the unit in operation, and 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 with the prevailing regulation applying to procedural safety and the prevention of accidents.

When used in machines, the measuring unit should be used only then when the machines fulfil the EC-machine guide lines.

PED 2014/68/EU

In acc. with Article 4, Paragraph (3), "Sound Engineering Practice", of the PED 2014/68/EU no CE mark.

Table 8, Pipe, Group 1 dangerous fluids

3. Instrument Inspection

These devices are checked before dispatch and shipped in perfect condition. Should damage to a device be visible, we recommend a thorough inspection of the delivery packaging. In case of signs of damage to the packaging, please inform your parcel service/forwarding agent immediately, since they are responsible for damages during transit.

Scope of delivery:

- Low Volume Rotating Vane Flow Meter model: DPM

4. Regulation Use

Any use of the Rotating Vane Flow Meter, model DPM, which exceeds the manufacturers 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 Principles

KOBOLD model DPM flow meters are used for measuring and monitoring liquids. Due to its compact construction the measuring instrument is suitable for use with machines with minimum available space. The system can be used in a wide variety of applications because the output pulses can be analysed in many different ways.

The medium flows through a specially shaped housing nozzle and causes a vane to rotate. This rotary motion is sensed by optoelectronics in a non-contacting manner, and converted to a pulse frequency signal or an analogue signal. A frequency divider with pulse output is available as an option. The frequency is proportional to the flow velocity. The vane is sapphire-supported, this ensures a high degree of linearity and long service life.

6. Mechanical Connection

6.1. Check service conditions:

- flow
- max. operating pressures
- max. service temperature

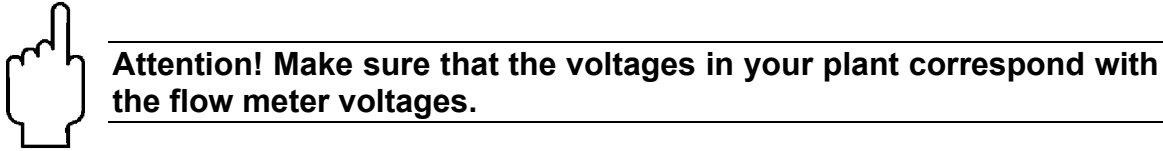


Attention! Overrange can cause damage to bearings and major measuring errors

6.2. Installation

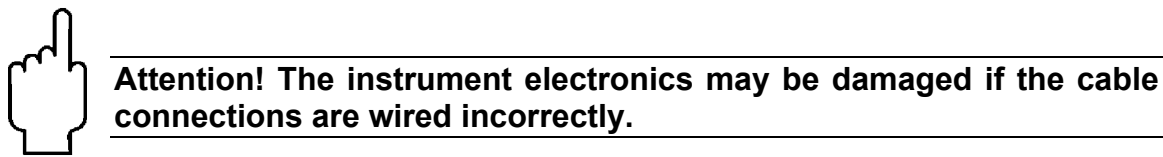
- flow in direction of arrow (universal)
- avoid pressure and tensile loads, mechanically fix inlet and outlet lines at distances of 50 mm from the connections
- check connections for leaks

7.1. General



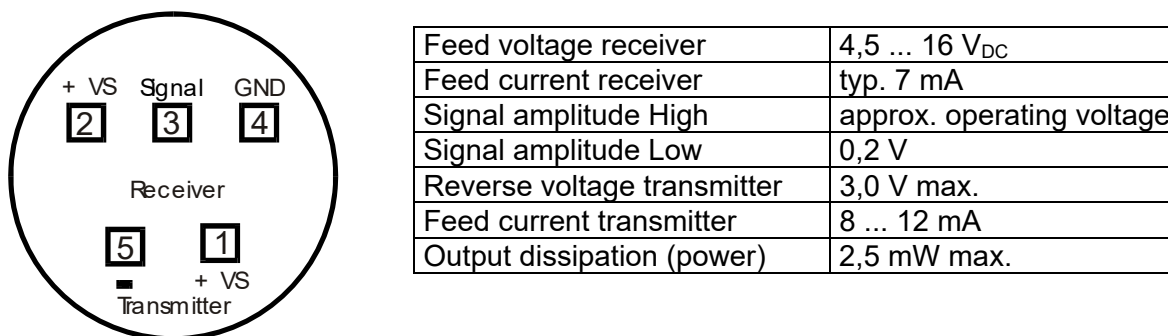
Attention! Make sure that the voltages in your plant correspond with the flow meter voltages.

- Make sure that the electrical supply lines are dead.
- We recommend a power supply cable with cross sectional area of 0.25 mm².

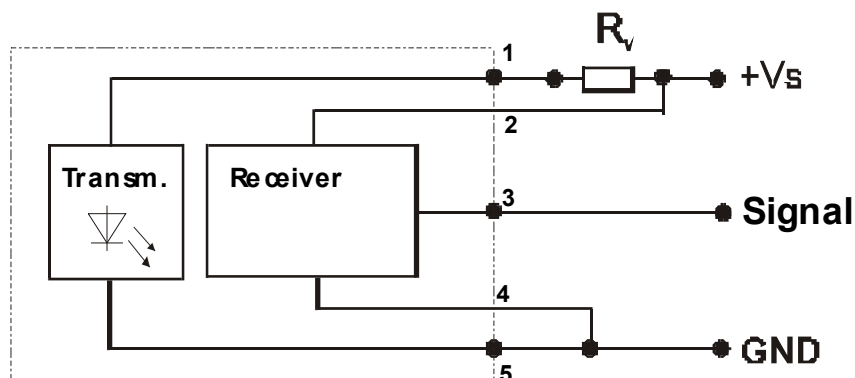


Attention! The instrument electronics may be damaged if the cable connections are wired incorrectly.

7.2. DPM...0000 (OEM without cable)



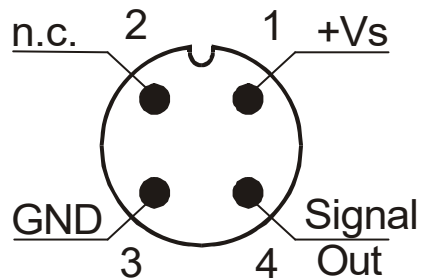
Feed voltage receiver	4,5 ... 16 V _{DC}
Feed current receiver	typ. 7 mA
Signal amplitude High	approx. operating voltage
Signal amplitude Low	0,2 V
Reverse voltage transmitter	3,0 V max.
Feed current transmitter	8 ... 12 mA
Output dissipation (power)	2,5 mW max.



V_s	R_V^*
5 V	470 Ω / 0,25 W
8 V	820 Ω / 0,25 W
12 V	1300 Ω / 0,25 W

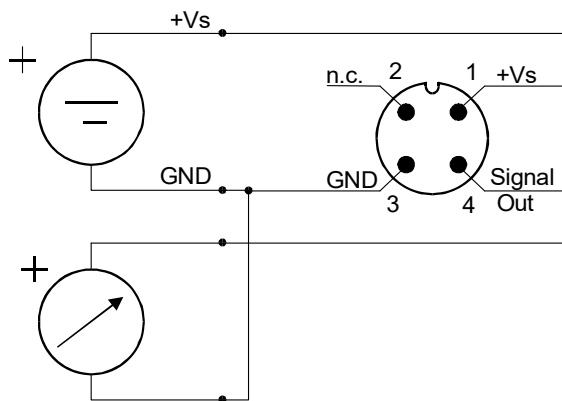
* Not included in delivery.

7.3. Evaluation electronics: Frequency output (..F300;..F320;..F340;..F380)

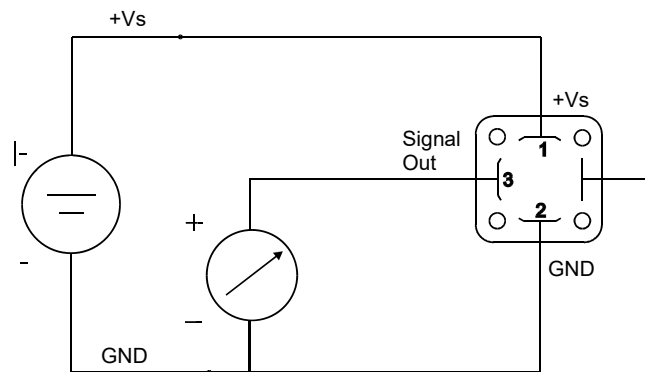


7.4. Evaluation electronics: Analogue output (..L..)

3-wire (DPM-..L303, ..L343)

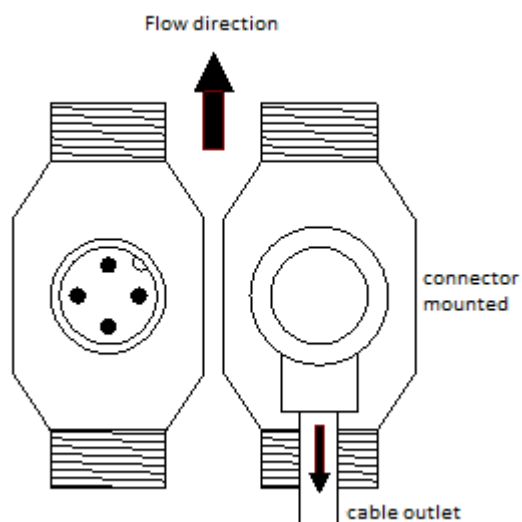


3-wire, DIN 43650 plug connector
(DPM-..L403, ..L443)



7.5. Cable outlet with M12x1 angle plug electronic options F3x and L3x

When using a pre-assembled M12x1 connection cable with angled plug, the cable outlet is always aligned opposite to the flow direction.



7.6. Compact electronics: (..C30R, ..C30M, ..C34P, ..C34N)

See supplement Operating Instructions
for compact electronics with frequency output

8. Operating – Evaluation Electronics

8.1. Frequency output

The measuring instruments are ready for operation after electrical connection.

8.2. Analogue output

The measuring instruments are ready for operation after electrical connection.

8.3. Compact electronics

The measuring instruments are factory programmed and ready for operation after electrical connection.

(To change the settings, see Operating Instructions supplement for compact electronics with frequency output)

9. Maintenance

The measuring instrument requires no maintenance if the measured medium is clean. To prevent coating the sensor optics, we recommend that a filter is installed, for example the magnetic filter, model MFR.

If the sensor has to be cleaned, then it can be opened to gain access to the inside parts. Make sure that the sensor and especially the blades are not damaged. When re-assembling, make sure that the vane is positioned and oriented correctly.

Work on the sensor and electronics should only be carried out by the supplier, otherwise the guarantee is nullified.

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

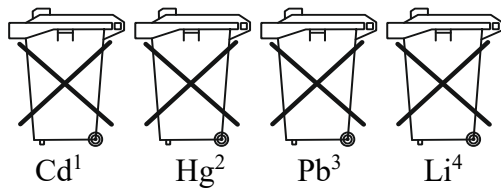
13. Disposal

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.

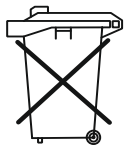
Batteries

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



14. EU Declaration of Conformance

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

Low Volume Rotating Vane Flow Meter model: DPM-...

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

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

Also, the following standards are fulfilled:

EN IEC 63000:2018

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

Additionally for products with compact electronics ..C...:

2014/30/EU EMC Directive

EN IEC 61326-1:2021

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

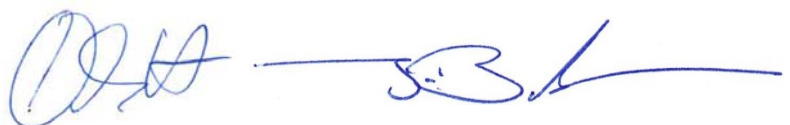
Additionally for products with frequency output ..F... and analogue output ..L...:

2014/30/EU EMC Directive

EN IEC 61326-1:2021

Electrical equipment for measurement, control and laboratory use - EMC requirements - Part 1: General requirements, industrial area, Measurement of interference immunity to HF fields up to 1 GHz

Hofheim, 21 Sept. 2023



H. Volz
General Manager

J. Burke
Compliance Manager

15. UK Declaration of Conformity

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

Low Volume Rotating Vane Flow Meter model: DPM-...

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

S.I. 2012/3032 The Restriction of the Use of Certain Hazardous Substances in Electrical and Electronic Equipment Regulations 2012

Also, the following standards are fulfilled:

BS EN IEC 63000:2018

Technical documentation for the assessment of electrical and electronic products with respect to the restriction of hazardous substances.

Additionally for products with compact electronics ...C...:

S.I. 2016/1101 Electrical Equipment (Safety) Regulations 2016

BS EN IEC 61326-1:2021 Electrical equipment for measurement, control and laboratory use. EMC requirements. General requirements, Industrial area

Additionally for products with frequency output ..F... and analogue output ..L...:

S.I. 2016/1101 Electrical Equipment (Safety) Regulations 2016

BS EN IEC 61326-1:2021 Electrical equipment for measurement, control and laboratory use. EMC requirements. General requirements, Industrial area, Measurement of interference immunity to HF fields up to 1 GHz

Hofheim, 21 Sept. 2023



H. Volz
General Manager



J. Burke
Compliance Manager