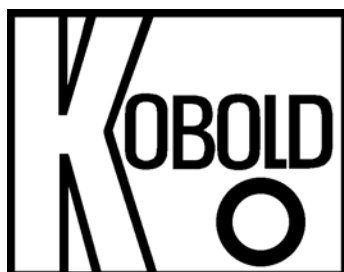


Operating Instruction
for
rotating vane flow meter
Model: DPM-...



1. Note

Please read and take note of these operating instructions before unpacking and setting the unit for operation, and 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 with the prevailing regulation applying to procedural safety and the prevention of accidents.

By usage in machines, the measuring unit should be used only then when the machines fulfil the EWG-machine guide lines.

PED 97/23/EG

In acc. with Article 3 Paragraph (3), "Sound Engineering Practice", of the PED 97/23/EC no CE mark.

Table 8, Pipe, Group 1 dangerous fluids

2. Contents

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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

3. Specific Application

The flow meter is to be installed only in the specified applications. Every usage which exceeds the specifications is considered to be non-specified. Any damages resulting therefrom are not the responsibility of the manufacturer. The user assumes all risk for such usage. The application specifications include the installation, start-up and service requirements specified by the manufacturer.

4. Operating Principles

The Kobold flow meter serves to measure and monitor liquids.
The instrument operates according to the well-known turbine wheel principle. The flowing medium causes the turbine wheel to rotate.
The rotary motion is sensed non-contacting by opto-electronic means and converted to a frequency signal or analog signal.

5. Instrument Inspection

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

Scope of delivery:

- Rotating Vane Flowmeter
- Operating Instructions

6. Mechanical connection

6.1. Check service conditions:

- Flow
- Max. operating pressures
- Max. service temperature

Important! 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. Electrical connection

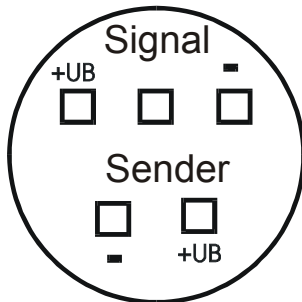
7.1. General

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

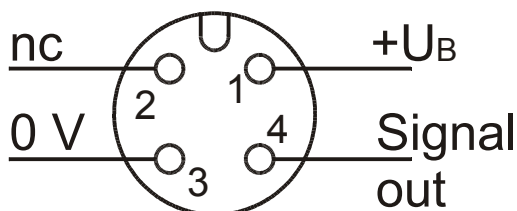
- Make sure that the electrical supply lines are dead.
- We recommend a power supply cable with cross sectional area of 0.25 mm².

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

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

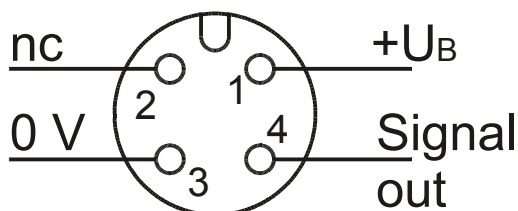


7.3. Electronic with Frequency output (..F300;..F320;..F340;..F380)

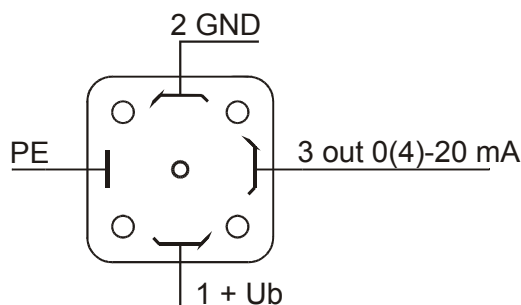


7.4. Electronic with analog output (..L..)

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



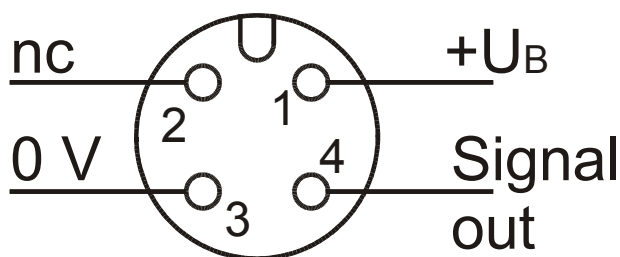
3-wire, DIN plug connector
(DPM-...L403; ...L443)



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

See Operating instructions supplement
for compact electronics with frequency output

7.6. Electronic with pointer indication (..Z300, ..Z340)



8. Operating / Configuration / Adjustments

8.1. Frequency output

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

8.2. Analog output

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

8.3. Compact electronics

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

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

8.4. Needle indication (..Z300, ..Z340)

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

9. Technical Data

9.1. Sensor data

Measuring accuracy:	
DPM..000:	2.5% f. s.
DPM...F, ...L, ...C, ...Z:	1% f. s.
Linearity:	1% f. s.
Repeatability:	0.5%
Medium temperature:	-40 to +80°C
Ambient temperature:	-30 to +60°C
Max. operating pressure:	16 bar
Protection:	IP 65
Materials:	
Case:	brass nickel-plated or stainless steel 1.4404
Upper part:	brass nickel-plated or stainless steel 1.4404
Union nut:	brass nickel-plated or stainless steel 1.4405
Nozzle:	stainless steel 1.4405
Axle:	sapphire
Vane:	polypropylene
Vane mount:	polysulfone

9.2. Electronic

Frequency output (OEM)

Power supply:	4.5-16 VDC
Supply current:	typically 7 mA
Pulse output:	NPN, open collector, max. 10 mA
Signal amplitude high:	approximately power supply
Signal amplitude low:	≤ 0.2 V
Cut-off voltage transmitter:	3 V max.

Supply current transmitter: 15 mA-25 mA
Output loss: max. 2.5 mWatt
Electrical connection: solder pins

Frequency output (frequency divider option)

Power supply: 24 VDC $\pm 20\%$
Supply current: 40-50 mA
Pulse output: PNP, open collector, max. 20 mA
Signal amplitude high: power supply level approximately
Signal amplitude low: ≤ 0.2 V
Output loss: max. 2.5 mWatt
Electrical connection: plug connector M12x1
Division ratio (option): 1:2, 1:4 or 1:8

Analog output (plug-on display option)

Power supply: 24 V_{DC} $\pm 20\%$
Output: 0-20 mA or 4-20 mA, 3-wire
Max. load: 500 ohm
Electrical connection: plug connector M12x1 or DIN 43 650
Option: plug-on display
(with plug connector DIN 43 650
and 4-20 mA output only)

Pointer indication with analog output

Case: aluminium
Display: potentiometer instrument, 240° display
Power supply: 24 V_{DC} $\pm 20\%$
Output: 0-20 mA or 4-20 mA, 3-wire
Max. load: 250 ohm
Electrical connection: plug connector M12x1

10. Maintenance

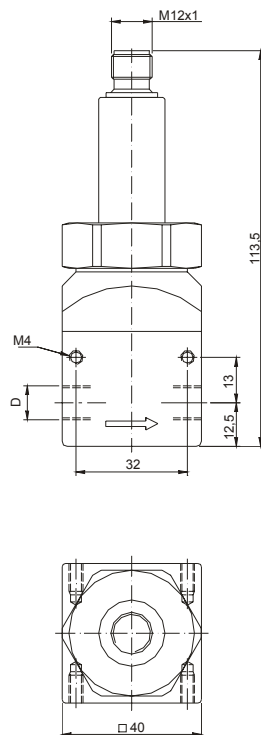
The measuring instrument requires no maintenance if the measured medium is not soiled. To prevent soiling, we recommend that a filter is installed, for example the magnetic filter, model MFR.

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.

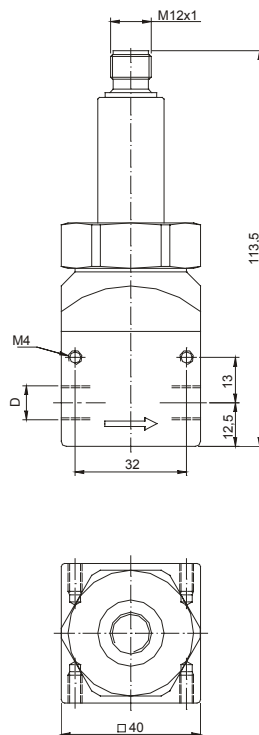
Work on the sensor and electronics should only be carried out by the supplier, otherwise the guarantee is nullified.

11. Dimensions (mm)

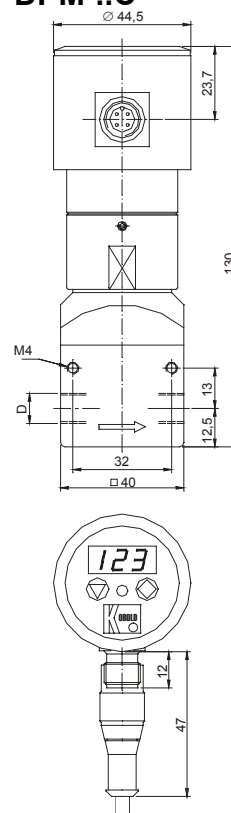
DPM-...F



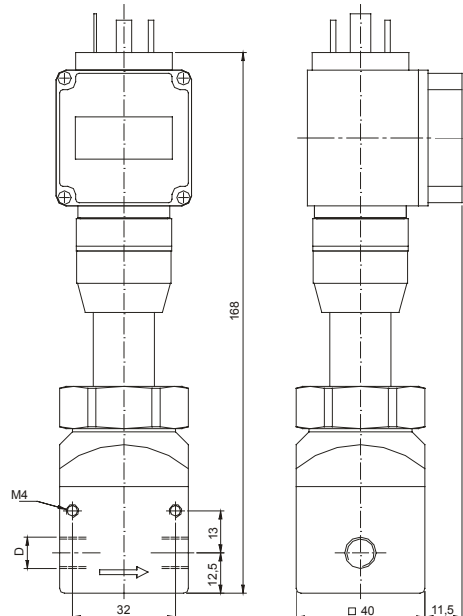
DPM-..L3



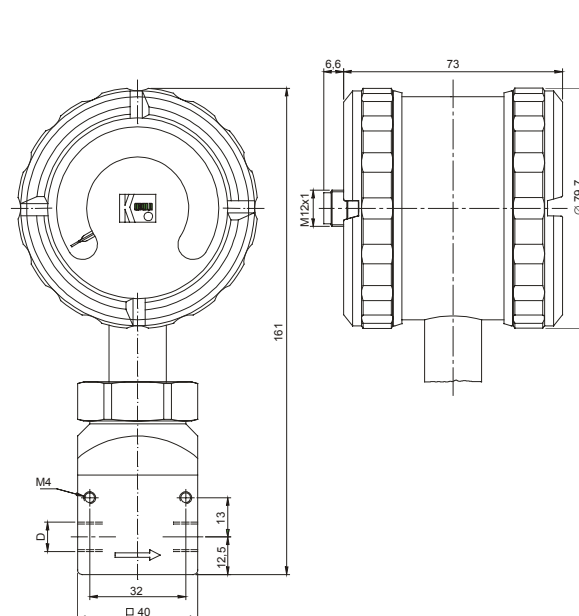
DPM-..C



DPM-..L4 with AUF-3000



DPM-..Z



12. Declaration of Conformance

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

Rotating vane flow meter model: DPM-...

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

EN 50081-2 3/1994

Basic Specification Emitted Interference in industry

EN 61000-6-2 3/2000

Basic Specification Noise Immunity in industry

DIN EN 61010-1 1994-03

Safety requirements for electrical measuring, control and laboratory instruments

DIN VDE 0470-1 1992-11

Protection type through case (IP code)

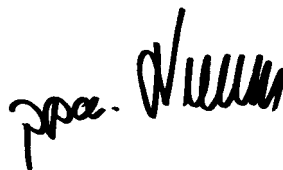
in accordance with the general requirements of the guideline

73/23 EWG Low voltage guideline

Signed:



H. Peters



M. Wenzel

Date: 22/06/01