Operating Instructions

for

Rotating Vane Flow Meter

Model: DRH-...

Typ: DRH-...E/...G

Typ: DRH-...L

Typ: DRH-...C

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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 machinery, the flow meter should only be placed in operation if the machine in use complies with the EEC machinery guidelines.

According to PED guideline 2014/68/EU

No CE marking, see Article 4, Section 3 "Sound engineering practice",
Guideline 2014/68/EU
Diagram 8, Piping systems, Group 1 Hazardous fluids

3. Instrument Inspection

Instruments are inspected before shipping and sent away 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:

- Rotating Vane Flow Meter model: DRH-...

4. Regulation Use

Any use of the DRH which exceeds the manufactures 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 Principle

KOBOLD Rotating Vane Flow Meters series DRH are used for measuring and monitoring low viscous liquids.
Series DRH flow meters are working according the well-known rotating vane principle. A magnet fitted in the vane and hermetically sealed from the medium transfers non-contacting the rotary motion to a Hall-effect sensor mounted in the housing. The sensor converts the rotary motion which is proportional to the flow to a frequency signal. A series-connected electronics unit converts the signal to an analogue output, limit contacts or display.
These devices can be adapted to prevailing plant conditions with the 360° rotatable screw connections.

6. Mechanical Connection

6.1. Check service conditions:

- Flow rate
- Maximum operating pressures
- Maximum operating temperature

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

6.2. Installation

- It must be ensured that the instrument housing is continuously filled with the flow medium, especially for flows from top to bottom. No straight lengths are necessary at inlet and outlet connections.
- Check that flow is in the direction of the arrow on the front of the unit, and that the face of the unit is aligned in the vertical plane (axle in horizontal plane)
- Avoid pressure and tensile loads
  Mechanically secure the inlet and outlet lines 50 mm from the connection
- Check connections for leaks.

7. Electrical Connection

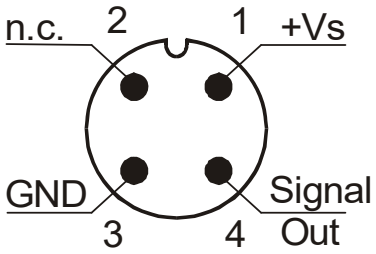
7.1. General

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

- Make sure that all electrical supply lines are de-energised.
- Connect supply voltage and output signal to the plug connector pins as shown below.
- We recommend a power supply cable with diameter 0.25 mm².

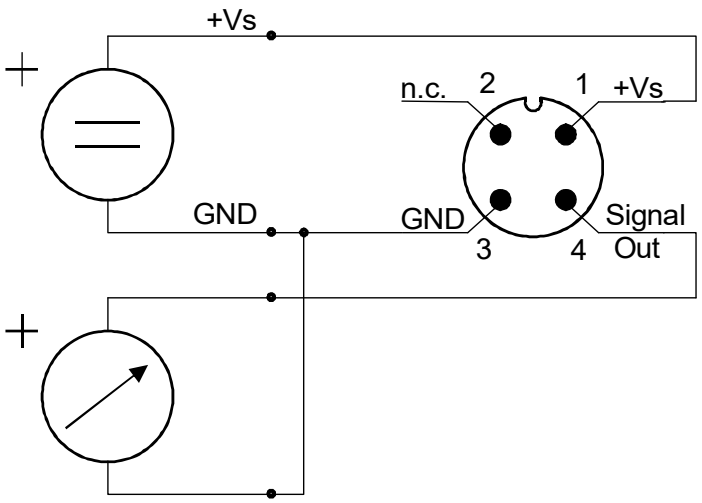
Attention! The instrument electronics may be damaged if the cable connections are assigned incorrectly.

7.2. Output electronics: Frequency output (..F300;..F320, ..F340)

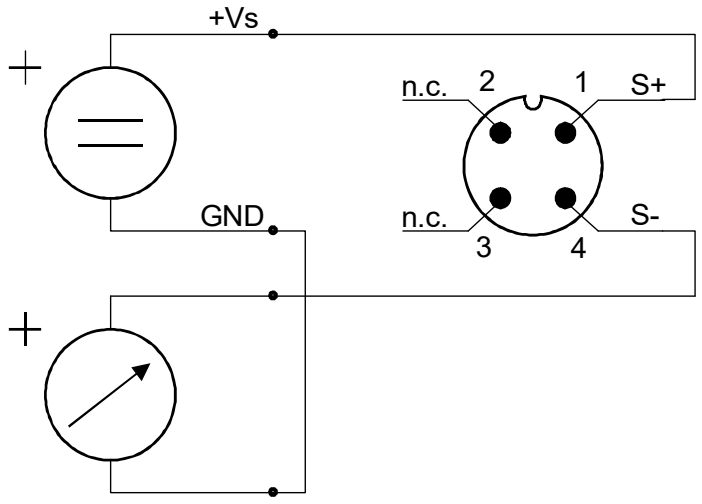


7.3. Output electronics: Analogue output (..L303, ..L342, ..L343, ..L442)

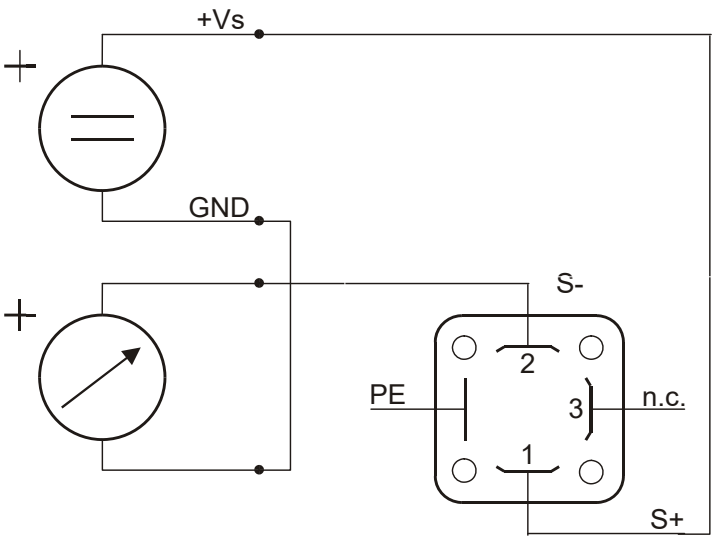
3-wire (..L303, ..L343)



2-wire (..L342)

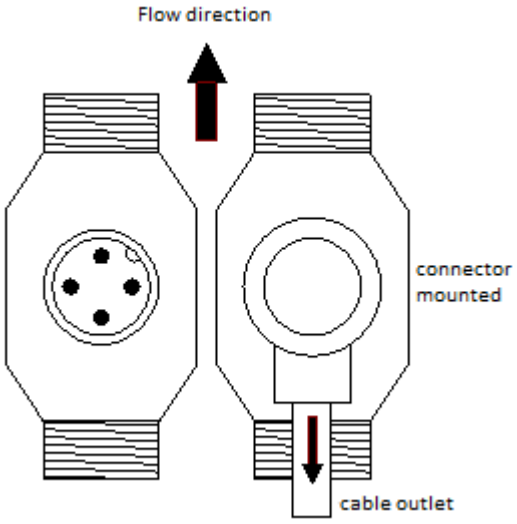


2-wire, DIN plug connector (..L442)



7.4. 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.



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

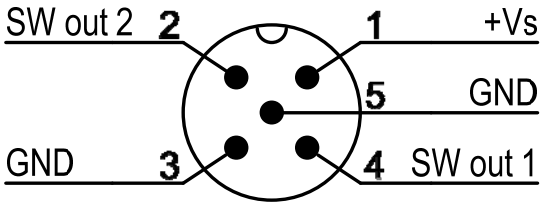
7.5.1. General

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

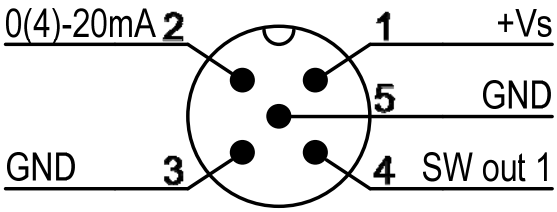
- Make sure that all electrical supply lines are de-energised.
- Connect supply voltage and output signal to the plug connector pins as shown below.
- We recommend a power supply cable with diameter 0.25 mm².

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

7.5.2. Compact electronics: (..C30R, ..C30M)



7.5.3. Compact electronics: (..C34P, ..C34N)



The clamps 3 and 5 are short-circuited and can therefore be used optional for the output signal or power supply.

8. Commissioning – Output electronics

8.1. General

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

8.2. Setting - compact electronics

See
Operating instructions supplement
for compact electronics with frequency output

9. Maintenance

If the medium to be measured is clean, the Model DRH is virtually maintenance-free. It is particularly important to guard against contamination by ferritic (iron metal) contaminants. These can be eliminated by using e.g. the KOBOLD magnetic filter, model MFR.
However, if the sensor must be cleaned, it can be opened to gain access to the internal parts. Make sure that the sensor and, especially, the blades are not damaged during this procedure. When re-assembling, be certain that the vane is carefully positioned and oriented correctly.
Work on the sensor and electronics should only be carried out by the manufacturer, 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

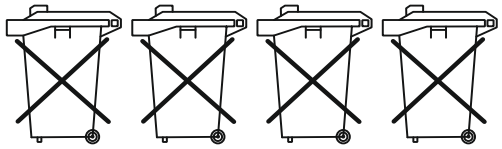
13. Disposal

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

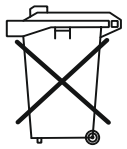
Batteries containing pollutants are marked with a sign consisting of a crossed-out garbage can and the chemical symbol (Cd, Hg, Li or Pb) of the heavy metal that is decisive for the classification as containing pollutants:



Cd[1] Hg[2] Pb[3] Li[4]

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, Nordring 22-24, 65719 Hofheim, Germany, declare under our sole responsibility that the product

Rotating Vane Flow Meter **model: DRH -...**

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 devices 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 devices with frequency output ..F…, analogue output ..L…, counter electronics ..E… and dosing electronics ..G…:

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, 22 Sept. 2023

H. Volz
General Manager

J. Burke
Compliance Manager

15. UK Declaration of Conformity

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

Rotating Vane Flow Meter **model: DRH -...**

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 devices with compact electronics ...C…:

S.I. 2016/1091 Electromagnetic Compatibility Regulations 2016

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

Additionally for devices with frequency output ..F…, analogue output ..L…, counter electronics ..E… and dosing electronics ..G…:

S.I. 2016/1091 Electromagnetic Compatibility 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

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