Operating Instruction

for

Turbine-wheel Flow Meter

Model: DRB-...

1. Contents

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 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 with the prevailing regulation applying to 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 2 dangerous fluids

3. Instrument Inspection

These devices are checked before shipping and sent out in perfect condition. Should 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 during transit.

Scope of delivery:
- Turbine-wheel Flow Meter, Model: DRB

4. Regulation Use

The turbine-wheel flow meter, model DRB, is to be installed only in specified applications. Any usage which exceeds the specifications is considered to be no-specified, and would also invalidate the warranty. 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.

5. Operating Principle

The KOBOLD flow meter model DRB is used for measuring and monitoring liquids. The device works according the well-known paddle wheel principle.
The four-vane paddle wheel is retained radially in a high-quality sapphire bearing. The sensor is supplied ready-to-install with pipe fittings or with weld-on sleeves. The paddle wheel is set in motion by the flowing medium. Magnets are embedded hermetically sealed in the ends of the blades. The magnets generate electrical pulses in a Hall-effect sensor mounted outside the flow area. Various electronics units can be used to display and monitor the volumetric flow.

6. Mechanical Connection

6.1. Examine operating conditions:

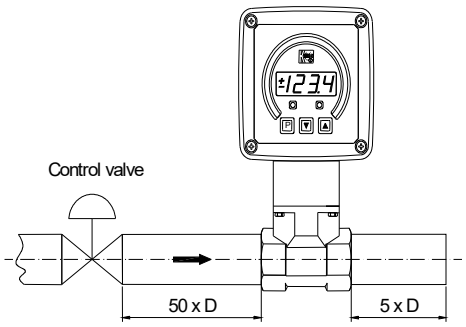
- Flow volume
- Max. operating pressure
- Max. operating temperature
  Ensure that they are all within the limits of the device

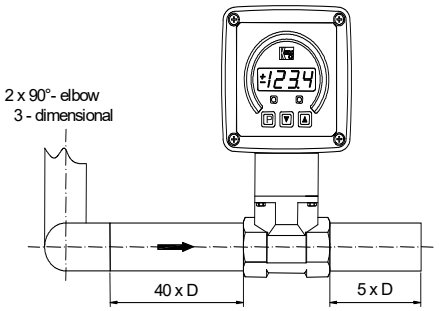
Attention! Over-ranging may cause bearing damage and considerable measurement errors.

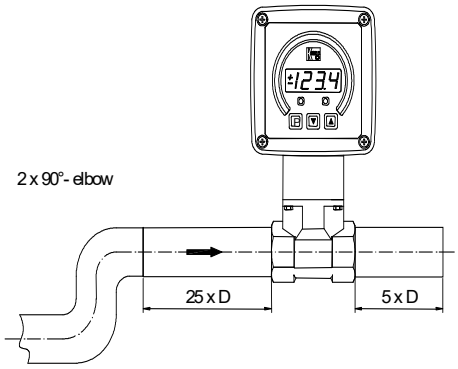
6.2. Installation

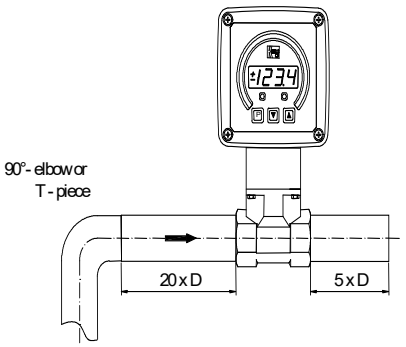
- Flow in the direction of the pointing arrow (position independent)
- Pressure and tensile loading should be avoided
- The inlet and outlet should be secured at a distance of 50 mm mechanically from the connection.
- Check the sealing of connections/joints

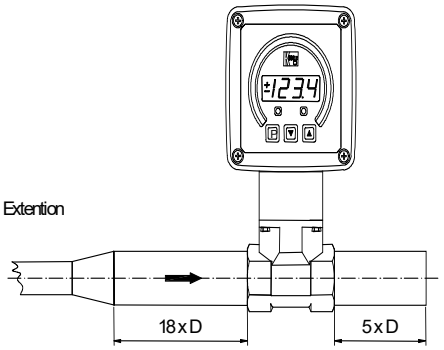
6.3. Inlet and outlet path straight piping requirements

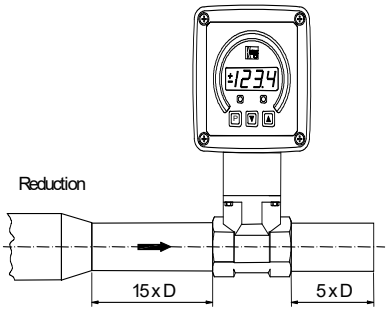




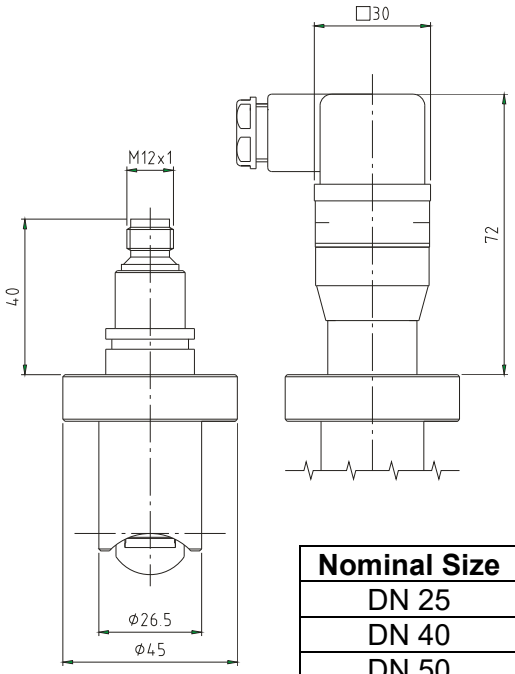


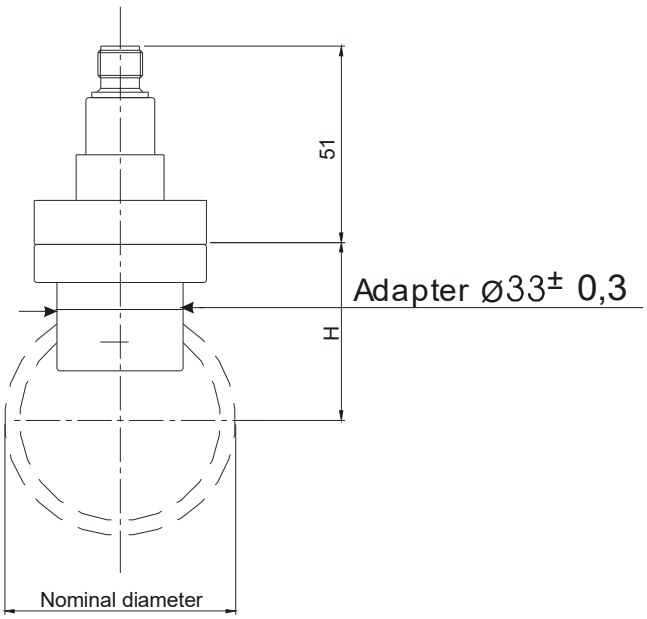






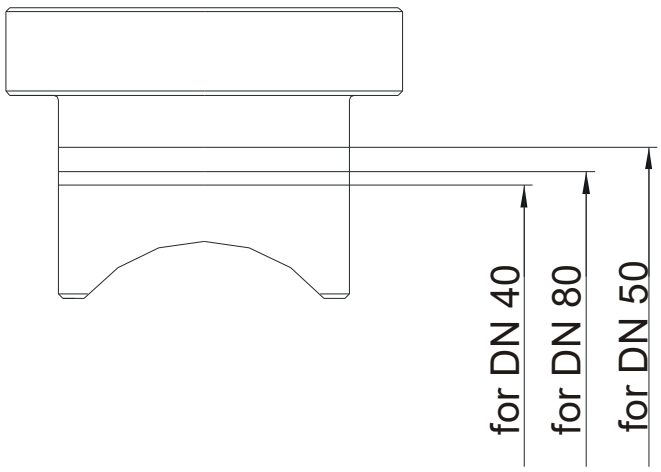
Version with weld-on mounting adapter
Weld the mounting adapter in the piping according to the sketch given below.





Nominal Size	H
DN 25	30
DN 40	44
DN 50	46
DN 80	63

Position and weld-in the mounting adapter according to the nominal diameter suitable marking. The marking on the adapter must be in line with the outer diameter of the pipe. Also pay attention to the later position of the rotating vane (shaft of the vane shifted by 90° to the direction of flow).



7. Electrical connection

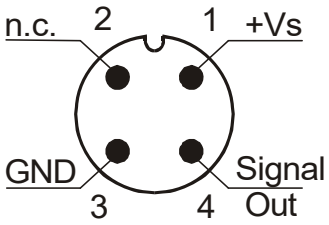
7.1. General

Attention! Make sure that the power supply voltage corresponds with the voltage requirement of the flow meter.

- Ensure that power supply is de-energized
- Connect the power supply and the output signal to the plug-pins, as shown below.
- We recommend a cross-section of 0.25 mm² for the power supply cable.

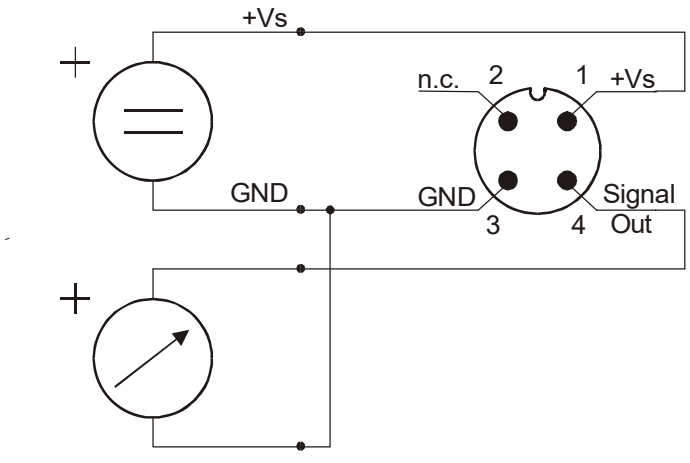
Attention! Incorrect wiring may cause permanent damage to the sensor.

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

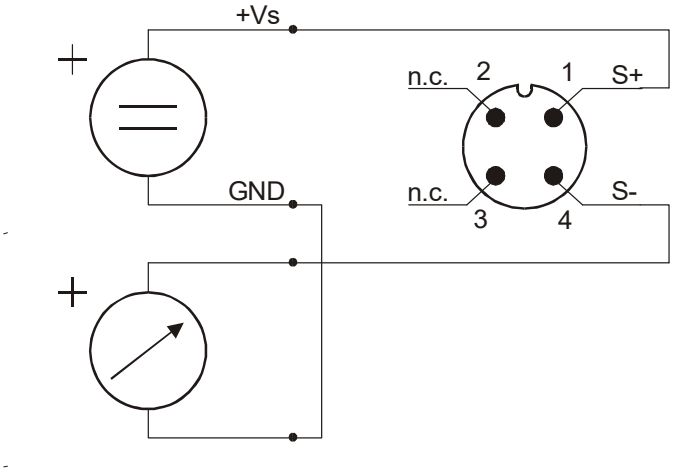


7.3. Output Electronics: Analogue output (..L303, ..L342, ..L343, ..L442)

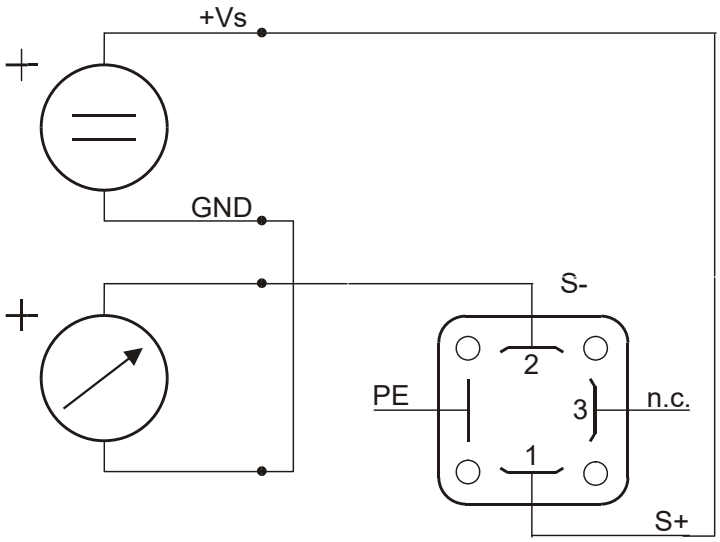
3-wire (..L303, ..L343)



2-wire (..L342)



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



7.4. Compact Electronics: (..C30R, ..C30M, ..C34P, ..C34N)

see
Instruction Manual-Supplement
for Compact Electronics

7.5. ADI electronics

see
Instruction Manual-Supplement
for ADI-electronics

8. Commissioning – Evaluation Electronics

8.1. General

The measuring units are preset at factory and are ready for operation after the electrical connections are made.

8.2. Adjustment – Compact electronics

see
Instruction Manual-Supplement
for Compact electronics with Frequency output

8.3. Adjustment – ADI display/controller

see
Instruction Manual-Supplement
for ADI-series display/controller

9. Maintenance

The measuring unit is maintenance-free if the medium to be measured does not cause deposition of impurities. In order to avoid problems, we recommend installation of a filter, such as magnet filter, model MFR.
Should cleaning of the sensor becomes inevitable, after opening the sensor the inner parts may be accessed. Note the direction that the turbine points during removal and re-install in the same direction. Please be careful to avoid any damage to the sensor and in particular, to the turbine blades. Repair work regarding electronics may only be carried out by the supplier. Any access or work on the electronics voids the warranty.

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

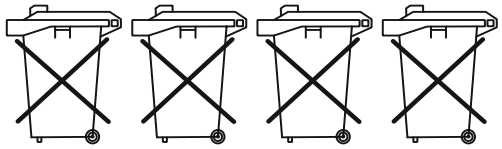
13. Disposal

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

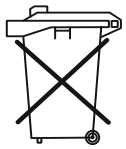
Batteries containing pollutants are marked with a sign consisting of a crossed-out garbage can and the chemical symbol (Cd, Hg, Li or Pb) of the heavy metal that is decisive for the classification as containing pollutants:



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

Turbine-wheel flow meter Model: DRB -...

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

2011/65/EU **RoHS**
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

Additionally for devices with ADI electronics:

2014/35/EU Low Voltage Directive
2014/30/EU **EMC Directive**

EN 61010-1:2010 + A1:2019 + A1:2019/AC:2019 Safety requirements for electrical equipment for measurement, control and laboratory use - Part 1: General requirements

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

Hofheim, 13 March 2024

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:

Turbine-wheel flow meter Model: DRB -...

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

Additionally for devices with ADI electronics:

S.I. 2016/1101 **Electrical Equipment (Safety) Regulations 2016**
S.I. 2016/1091 Electromagnetic Compatibility Regulations 2016

BS EN 61010-1:2010+A1:2019
Safety requirements for electrical equipment for measurement, control, and laboratory use. General requirements

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

Hofheim, 13 March 2024

H. Volz
General Manager

J. Burke
Compliance Manager