



Operating Instruction for Flow Transmitter

Model: DF-MA



1. Contents

1. Contents.....	2
2. Note	3
2.1. General	3
2.2. Hazard warnings.....	3
2.3. As per PED 2014/68/EU	4
3. Instrument Inspection	4
4. Regulation Use	5
5. Operating Principles.....	6
6. Mechanical Connection.....	6
7. Electrical Connection	8
8. Electrical Commissioning of the Instruments	8
9. Mechanical Commissioning of the Instrument.....	9
10. Maintenance	9
11. Technical Information.....	10
12. Order Codes	10
13. Dimensions	10
14. Recommended Spare Parts.....	10
15. Disposal	10
16. EU Declaration of Conformance	11

Manufactured and sold by:

Kobold Messring GmbH
 Nordring 22-24
 65719 Hofheim
 Tel.: +49(0)6192-2990
 Fax: +49(0)6192-23398
 E-Mail: info.de@kobold.com
 Internet: www.kobold.com

2. Note

2.1. General

Before unpacking and commissioning the device, the operating instructions and the “General Safety Instructions” document must be read and followed carefully. The general safety instructions, the operating instructions, the data sheet as well as approvals and further information can be downloaded via the QR code on the device or under the respective product on www.kobold.com.

Due to technical changes, the device documentation 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.

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 machines, the device should be used only when the entire machine fulfils the EU machinery directive.

2.2. Hazard warnings

The following instructions are intended to ensure your personal safety and to prevent damage to the product described or connected devices. Safety instructions and warnings to prevent danger to the life and health of users or maintenance personnel, or to prevent damage to property, are highlighted in this documentation using the symbols defined here. *The symbols and terms used have the following meaning in the documentation itself:*

Symbol	Explanation	Symbol	Explanation
 Note	Is important information about the product, the handling of the product or the respective part of the documentation to which particular attention should be drawn.	 Caution	Means that minor personal injury or minor property damage may occur if proper precautions are not taken.

Symbol	Explanation	Symbol	Explanation
 Warning	Indicates that serious personal injury or substantial property damage may occur if proper precautions are not taken.	 Danger	Means that death can occur if proper precautions are not taken.
 Warning	Attention: Hot surface!	 Warning	Warning: Dangerous electrical voltage

2.3. As per PED 2014/68/EU

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

	Pipe	
	Diagram 8 Group 1 dangerous fluids	Diagram 9 Group 2 no dangerous fluids
All DF-models except DF-xxG(H)R32 DF-xxG(H)R40	Art. 4, § 3	Art. 4, § 3
DF-xxGR32../DF-xxGR40	not deliverable	Art. 4, § 3
DF-xxHR32../DF-xxHR40..	Kat. II	Art. 4, § 3
DF-xxHF50..	Kat II	Art. 4, § 3

3. 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 during transit.

Scope of delivery:

- Flow Transmitter DF-MA

4. Regulation Use

The model DF-MA is installed to measure the flow of liquids.

The instrument provides the following facilities:

Analogue Output

For the remote transmission of measured flow rates, the instrument is provided with an analogue output (DIN IEC 381) with 0-20 mA or 4-20 (see label).

It is suitable for low viscosity fluids which have no effects on the instrument materials used. If using higher viscosity media large deviations will occur from the flow range as given in the catalogue. Long threads can lead to the seizure of the rotor. Likewise, ferritic particles can build up on the rotating vane and lead to faulty operation or destruction of the rotor. In cases of doubt, please contact the supplier.

Material Combinations

Standard version					High-pressure version	
Material combination	I	II	III	IV ¹⁾	VI ¹⁾	VII ¹⁾
Order code	..A..	..B..	..D..	..E..	..G..	..H..
Connection types	Pipe thread	Pipe thread	Pipe thread	Pipe thread flange	Pipe thread	Pipe thread flange
Case	Trogamide	Polysulfone	Brass nickel-plated	St.steel ⁴⁾	Brass nickel-plated	St.steel ⁴⁾
Cover	Trogamide	Polysulfone	Polysulfone	Polysulfone	Brass nickel-plated	St.steel ⁴⁾
Connection	Brass nickel-plated	St.steel ⁴⁾	Brass nickel-plated	St.steel ⁴⁾	Brass nickel-plated	St.steel ⁴⁾
Locking pins	Brass	Brass	Brass	-	-	-
O-rings	NBR	FPM	NBR	FPM	NBR	FPM
Vane	POM	PTFE	POM	PTFE	POM	PTFE
Axle ³⁾	St.steel ⁴⁾	St.steel ⁴⁾	St.steel ⁴⁾	St.steel ⁴⁾	St.steel ⁴⁾	St.steel ⁴⁾
Bearing ³⁾	PTFE	PTFE	PTFE	PTFE	PTFE	PTFE
Screen	PTFE ²⁾	PTFE ²⁾	PTFE ²⁾	PTFE ²⁾	PTFE ²⁾	PTFE ²⁾
Max. operating pressure	10 bar	10 bar	16 bar	16 bar	100 bar	100 bar flange PN 40
Max. operating temperature	60 °C	80 °C	80 °C	80 °C	80 °C	80 °C

1) Connection cannot be rotated 2) Stainless St. for model DF 0.5

3) Special version upon request

4) Stainless St. 1.4571, 1.4404

5. Operating Principles

A plastic rotating vane rotates on an axle when a flow throughput occurs. A ring-shaped magnet hermetically sealed in the rotating vane transmits this rotary motion to a Hall sensor mounted outside of the instrument housing. The electronics mounted on the housing converts the frequency signal into an analogue output.

6. Mechanical Connection

Before installation

Please ascertain whether the actual flow throughput matches the flow range of the instrument. The flow range may be obtained from the label.

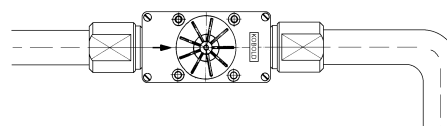
Type DF-MA		
LN $\frac{3}{8}$ "	PN 16	12 l/min F ₂ O
IP 65		



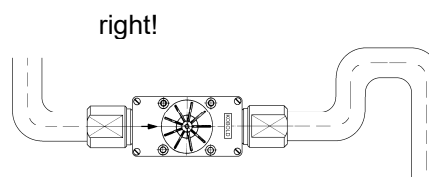
Caution

Warning! If the measuring range is exceeded by more than 20%, bearing damage may occur.

- Please ascertain whether the allowable maximum operating pressure and operating temperature of the instruments will not be exceeded.
- Make sure that the electrical supply to the instrument conforms with the equipment operating data.
- Remove all transport packing and ascertain that no packing material is left in the instrument.
- The instrument may be installed in any position. However, the flow must always take place in the direction of the arrow, while the front face of the instrument must always be in the vertical plane.
- It must be ensured that the instrument housing is continuously filled with the flow medium, especially for flows from top to bottom. No straight pipe lengths are necessary at inlet and outlet connections.
- Sealing of the connection threads should be carried out with PTFE tape or similar.
- During installation of the instrument, it must be checked that no stress is applied to the connections. We recommend that the inlet and outlet pipes are mechanically fixed approximately 50 mm from each instrument connection.
- When using material combination IIB,IV,V,VI and VII the instrument connections may not be rotated.



wrong!



right!

- Check that the connection thread to pipe is fully sealed.



Caution

Warning! The threaded connections of the instrument must be tightened with a suitably sized open-ended spanner. Otherwise, the housing may be stressed which could lead to breakage of the equipment.



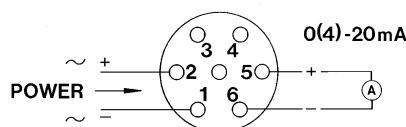
Caution

Warning! The material polysulfone (order code B) tends to cause stress cracks if unsuitable cleaning or sealing agents are used. Only agents suitable for polysulfone may be used during assembly or cleaning.

7. Electrical Connection

 Caution	Warning! Make sure that the supply voltage to the instrument conforms with the value given on the equipment label.
--------------------	---

- Ensure that the power is disconnected during connection of the cable.
- For equipment with plug connection solder the ends of your supply cables in accordance with the connection plan supplied with the coupling plug.
- For equipment with cable connection simply connect the instrument cable to your supply cable. Supply cable cross-section: 0.75 mm².



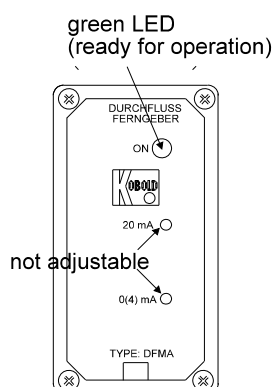
Cable connection:

- No.1 :Power supply (-)
- No.2:Power supply (+)
- No.5:Analogue output (+)
- No.6:Analogue output (-)

 Caution	Warning! Incorrect wiring of the connection in the coupling plug or incorrect wiring of the connection cable can lead to the electronics being destroyed.
--------------------	--

- Plug the coupling plug in the socket provided on the equipment (in the case of instruments with plug connections).
- After connection of your external equipment at the connection points the instrument is ready for operation.

8. Electrical Commissioning of the Instruments



The instrument is delivered ready to operate. The electronics are matched and calibrated against the signal transmitter. The calibration screws ('ZERO' and 'RANGE') found behind the adhesive foil must not be adjusted by the customer. If they are adjusted, a re-calibration will be required involving new calculations. Should the electronics be opened, any warranty will become invalid.

As soon as the external power supply to the instrument is switched on, a green LED will indicate that the unit is ready for operation.

9. Mechanical Commissioning of the Instrument

To avoid pressure surges, the flow medium should be slowly introduced into the instrument.



Caution

Warning! Pressure surges from solenoid valves, ball valves or similar may lead to breakage of the instrument (water hammer). In the operating condition it must be checked that the instrument housing is continuously filled with the flow medium.



Caution

Warning! Large air bubbles in the instrument housing may lead to measuring errors or destruction of the bearings.

10. Maintenance

For measured media without contamination, the DF-MA instrument is almost maintenance-free. As the rotating vane contains magnets, any ferritic particles present in the medium may lead to problems. In order to avoid such problems, we recommend the installation of a magnet filter e.g.: model filter MF-R.

Should cleaning of the instrument become necessary, the housing cover may easily be removed to provide access to the internals. After cleaning, the instrument may just as easily be reassembled. Any work on the electronics may only be undertaken by the supplier; otherwise, the warranty will become invalid.

11. Technical Information

Operating instructions, data sheet, approvals and further information via the QR code on the device or via www.kobold.com

12. Order Codes

Operating instructions, data sheet, approvals and further information via the QR code on the device or via www.kobold.com

13. Dimensions

Operating instructions, data sheet, approvals and further information via the QR code on the device or via www.kobold.com

14. Recommended Spare Parts

- 1.1) Rotating vane PTFE
- 1.2) Rotating vane POM
- 1.3) Rotating vane PTFE with sapphire bearings
- 2.1) Stainless Steel axle / PTFE bearings
- 2.2) Ceramic axle / PTFE bearings
- 2.3) Sapphire axle with sapphire bearings (only for rotating vane 1.3)
- 3.1.) Cover for instrument housing, Trogamide, including seal
- 3.2.) Cover for instrument housing, Polysulphone, including seal
- 4.1.) Transparent cover for electronics housing
- 5.1) Set of NBR O-rings
- 5.2) Set of FPM O-rings

For spare part ordering we need the serial no. of the instrument.

15. Disposal

See "General Safety Instructions" - via the QR code on the device or via www.kobold.com

16. EU Declaration of Conformance

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

Flow Monitor / Transmitter: DF-MA

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

2014/30/EU	EMC Directive
2011/65/EU	RoHS (category 9)
2015/863/EU	Delegated Directive (RoHS III)

Additional for **DF-xxHR32../DF-xxHR40/DF-xxHF50..**

2014/68/EU	PED
	• Category II, piping, Diagram 8, group 1 dangerous fluids • Module A2

Additionally for Option 0+1:

2014/35/EU	Low Voltage Directive
-------------------	------------------------------

Also, the following standards are fulfilled:

EN 61000-4-4:2012 Electromagnetic compatibility (EMC) - Part 4-4: Testing and measurement techniques - Electrical fast transient/burst immunity test, Burst 2 kV

EN 61000-4-6:2014 Electromagnetic compatibility (EMC) - Part 4-6: Testing and measurement techniques - Immunity to conducted disturbances, induced by radio-frequency fields, HF coupling 10 V

EN 61000-4-3:2011 Electromagnetic compatibility (EMC) - Part 4-3: Testing and measurement techniques - Radiated, radio-frequency, electromagnetic field immunity test, HF irradiation 10 V/m

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

Additional for **DF-xxHR32../DF-xxHR40/DF-xxHF50..**

AD 2000 Pamphlets

Hofheim, 08. Jan. 2026

A handwritten signature in blue ink, appearing to be 'H. Volz'.

H. Volz
General Manager

A handwritten signature in blue ink, appearing to be 'J. Burke'.

J. Burke
Compliance Manager