Operating Instructions

for

Flap Flow Meter

Model: DPR

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 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 measuring unit should be used only when the machines fulfil the EWG-machine guidelines.

as per PED 97/23/EG
In acc. with Article 3 Paragraph (3), "Sound Engineering Practice", of the PED 97/23/EC no CE mark.
Diagram 8, Pipe, Group 1 dangerous fluids

3. Instrument Inspection

All Instruments are inspected before shipping and sent out 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:
- Flap Flow Meter model: DPR
- Operating Instructions

4. Regulation Use

Any use of the Flap Flow Meter, model: DPR, which exceeds the manufacturer's specifications, may invalidate its warranty. Therefore, any resulting damage is not the responsibility of the manufacturer. The user assumes all risk for such usage.

4.1 Personnel Qualifications

Personnel responsible for the installation, operation, maintenance and inspection of the appliance must be in possession of suitable qualifications for the work they have to carry out. They must be aware of warnings and actions during start-up according to this manual.

4.2 Danger of non-compliance of Safety Rules

Non-compliance of safety rules, correct use of the appliance or application limitations shown in the technical specifications can lead to danger or harm of persons, the environment or the appliance itself. KOBOLD Messring shall not be liable for damages in such cases.

4.3 Safety Rules for Owners and Operators

All safety rules governing the correct operation of the appliance must be complied with. Owners must make them available to personnel responsible for installation, maintenance, inspection and operation.
Make sure that there is no danger caused by electricity or by released or escaping medium energy or by incorrect connection of the appliance.
For details, see the applicable regulations such as: DIN EN, Health and Safety at Work Regulations, and for branch-related use see DVGW, Explosion Protection, GL directives, etc., VDE Directives, and regulations issued by local utility companies.

4.4 Unauthorised Conversion

Only KOBOLD Messring should carry out all conversions or other changes of the appliance.

4.5 Notes regarding the Dangerous Substances Ordinance

Because, according to the Refuse Disposal Act of 27.08.1986 (AbfG. §11 Special Category Waste) the owner of special category waste is responsible for disposal, and because, according to the Refuse Disposal Act of 01.10.1986 (GefStoffV, §17 General Duty of Protection), employers also have a duty to protect their employees, we are obliged to point out that all flow measuring devices sent to KOBOLD Messring for repair must be delivered free of any dangerous substances (alkalis, acids, solvents, etc.).
Please ensure that the devices are thoroughly rinsed so that dangerous substances are neutralised. The DPR contains cavities that also have to be neutralised. See also section 12. Maintenance and cleaning.
When the devices are sent in for service or repair the aforementioned actions must be confirmed in writing.
The owner of the device will be billed for any costs for the disposal of dangerous substances that may incurred during repair.

5. Operating Principle

The new KOBOLD flow meter type DPR works according to the baffle plate principle. A very small mounting length of only 50 mm can be implemented with the sandwich construction. A plate (semi-circular) is fastened to a rotatable axis in the 50 mm sized ring. The angle between plate and ring changes according to the flow throughput. A permanently attached magnetic coupling transfers the motion to an external indicator. A torsion spring forces the baffle plate back to its original position when the flow throughput decreases. The devices can therefore be installed in any position.

6. Transport

The measuring instrument must be protected against impact and must only be transported in the packaging foreseen for transportation.

7. Service

All defective or deficient devices should be sent directly to our Repair Department. In order to arrange a proper handling of these affected units, and to ensure the best service, we ask that all equipment returns should be coordinated with Kobold Messring.

8. Waste Disposal

For the environment sake! Please help to protect our environment by disposing the work pieces used in accordance with the applicable regulations or by using them again.

9. Mechanical Connection

9.1 Before Installing:

- Check the inside diameter of the pipe-line and of the gaskets. Neither should be smaller than the inside diameter of the DPR. If they have a smaller inside diameter, they will cause blocking of the measuring flap.
- The straight unimpeded pipe length should measure 6 x DN upstream of the installation location and 4 x DN downstream.
- Check that the flanges at the mounting location agree with the details given in the order (standard and pressure rating).
- Provide a mounting location for flap valves downstream of the measuring device.
- Make sure that the distance between flanges is equal to the ring thickness plus 4 mm for the gaskets.
- Particularly in the case of devices made of elastomer materials, make sure that the flanges are in alignment and the sealing faces are parallel to each other.

9.2 Installation:

- When installing, take note of the flow direction indicated on the scale.
- Use gaskets made out of rubber or SIL; for plastic devices use only gaskets made of rubber with a Shore hardness A of approx. 65°.
- The gaskets should not project into the pipeline and the measuring device must be in line with the pipe axis, otherwise measurements would be falsified and/or the device would jam.
- Tighten threaded joints for the DPR made of PVC only with max. 75 Nm; higher torques will cause the flap spindle to jam and/or the device ring to break.

9.3 Installation in the Process:

- To be carried out only by authorised and qualified personnel.
- Drain the pipes before installing the device.
- Only for operation with suitable media.
- Take note of maximum pressure and maximum temperature levels.
- Only for mechanical process installation (model: see device nameplate)

10. Electrical Connection

Caution! Make sure that the voltage values of your system correspond with the voltage values of the measuring unit.

Make sure that the supply wires are de-energized

General Wiring

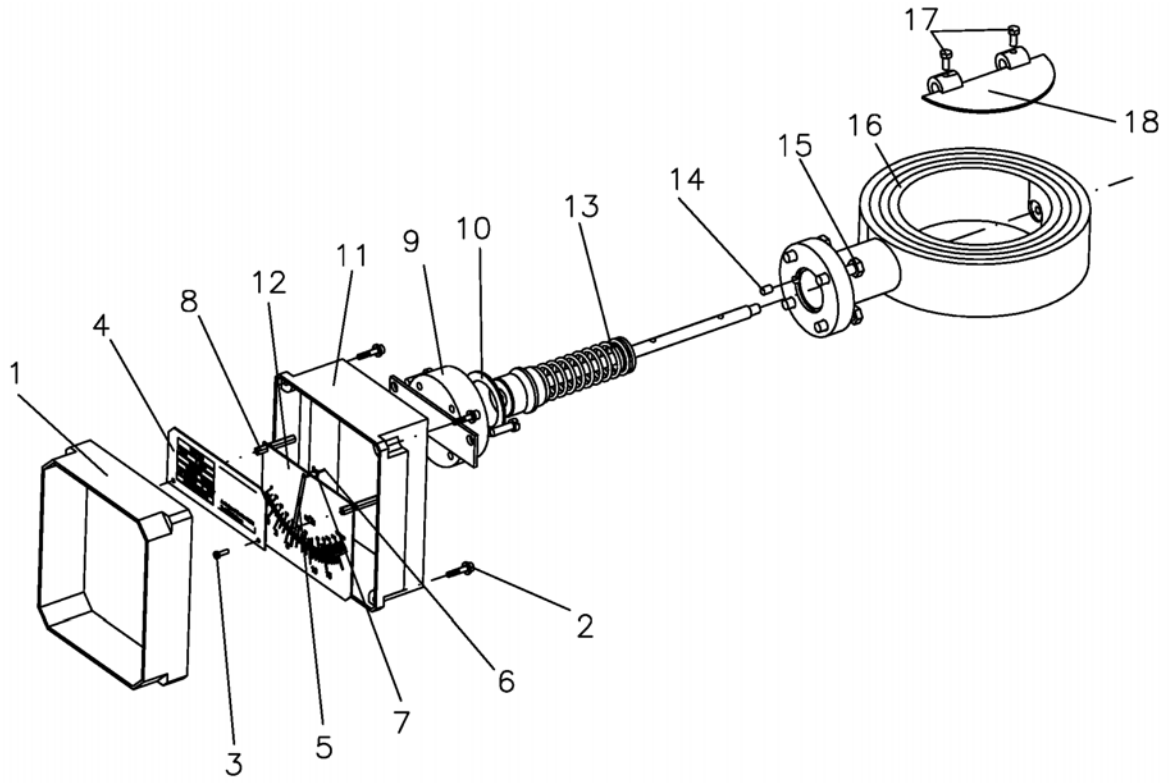
Before starting the electrical installation, make sure that the cable gland of the connector is the right size for the cable to be used. This will guarantee that the instrument is perfectly sealed (it is recommended to use shielded pair wires with an exterior diameter between 5 and 8 mm. The section of the cables inside will be 0,25 or 0,5 mm²).

Attention! Before connecting the power supply, you must be sure that the supply voltage is correct for the installation.

11. Commissioning

- Ensure that the device has been properly installed before starting up.
- Check all device connections.
- Pressurise the pipeline.
- Check for leakage, if necessary re-tighten screws/bolts.

12. Maintenance



Item	qty	description
1	1	cover (transparent)
2	4	allen screw
3	2	phillips screw
4	1	nameplate
5	1	pointer
6	1	pointer spindle
7	1	locating screw
8	2	stud bolt 8 mm
9	1	magnet casing

Item	qty	description
10	1	gasket
11	1	dial gauge case
12	1	scale
13	1	spindle with magnet and spring
14	1	alignment pin
15	4	screw M8
16	1	ring
17	1-2	screw
18	1	flap

12.1 Cleaning

The device is maintenance-free. Should the device become soiled, it will need to be removed from the pipeline for cleaning purposes. Remove the device in the reverse order described in 9.2 Installation:.

Required tools: 1x open-jawed spanner, size 13 mm, 1x socket spanner, 7 mm
Spares needed: 2x gasket

In case of contacts the cables must be deengergized!

Instructions:

- Depressurise the pipeline.
- Drain pipelines.
- Dismantle the device.
- Detach the dial gauge with magnet casing from the neck of the device by removing the four M8 screws (Item 9 and 15).
- Unscrew the spindle/flap fastening screw(s) (17).
- Remove spindle with magnet casing and spring assembly (13).
- Clean all parts with appropriate cleaning agents.
- Assemble parts in reverse order, paying special attention to the position of the flap.
- The prick-punched bearing must point towards the spring.
- The flap points downwards for horizontal flow and to the right for vertical flow.

13. Technical Information

Material:

Display case:	aluminium, PA
Ring:	PVC or stainless steel
Baffle plate / axis:	stainless steel 1.4571
Connection:	intermediate flange DN 32 to DN 100 for mounting between welding neck flanges DIN 2501 (ANSI upon request)
Max. temperature:	PVC 0 - 20 °C at 10 bar (0 to +40 °C 6 at bar) stainless steel -70 to 200 °C 10 bar (the medium should not freeze)
Max. pressure:	PN 6/10
Mounting position:	any
Accuracy:	±5% f.s.

Contact:

Bistable reed contacts as N/C or N/O contact

Electrical load:	max. 140 V_{AC} / 200 V_{DC}
Switching current:	max. 0.25 A
Switching capacity:	max. 5 VA / 3W
Max. ambient temperature:	-25 to 105 °C

Inductive contact as N/C or N/O contact

Power supply:	8 V_{DC}
Active surface free:	≥ 3.2 mA
Active surface covered:	≥ 1 mA
Max. ambient temperature:	-25 to 70 °C

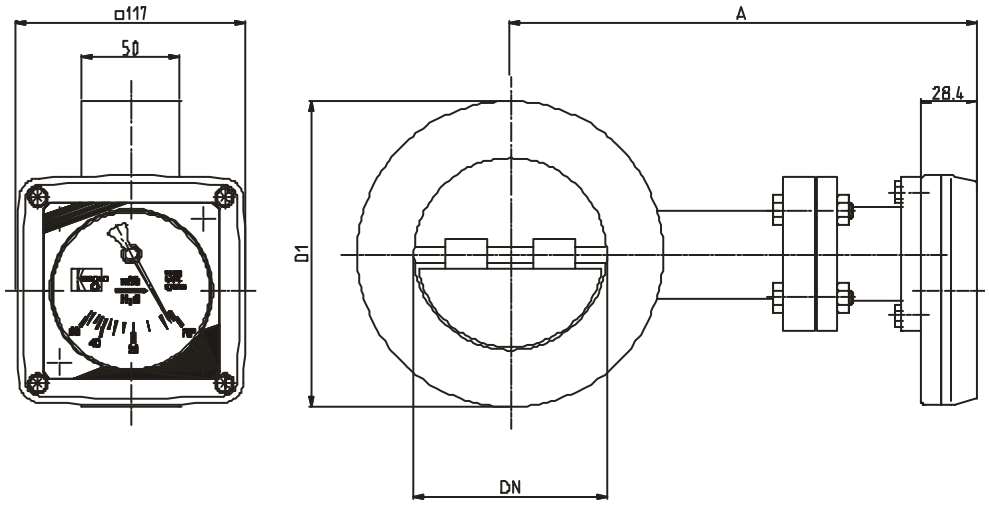
Relay required for operation: **REL-6010/6005**

14. Order Codes

Example: **DPR-1308H F32 L S1**

Measuring range m^3/hwater	Pressure loss (mbar)	Model		Intermediate flange		Direction of flow	Contacts
		Material PVC	Material stainless steel	DIN	ANSI		
0.8-8	10	**DPR-1308H**	**DPR-1408H**	**F32**=DN 32	**A32**=1 1/4"	**horizontal** **..L** = from the left **..R** = from the right **vertical** **..T** = from top **..B** = from bottom	**00** =without **Reed contact** **..S1**=1N/O **..C1**=1N/C **Inductive contact** **..I1**=1 inductive contact N/O **..N1**=1 inductive contact N/C
1.0-10	10	**DPR-1310H**	**DPR-1410H**	**F40**=DN 40	**A40**=1 1/2"		
1.3-13	10	**DPR-1313H**	**DPR-1413H**	**F32**=DN 32	**A32**=1 1/4"		
2.5-25	10	**DPR-1325H**	**DPR-1425H**	**F40**=DN 40	**A40**=1 1/2"		
3.0-30	10	**DPR-1330H**	**DPR-1430H**	**F50**=DN 50	**A50**=2"		
4.5-45	10	**DPR-1345H**	**DPR-1445H**	**F50**=DN 50	**A50**=2"		
5.0-50	13	**DPR-1350H**	**DPR-1450H**	**F65**=DN 65	**A65**=2 1/2"		
6.0-60	14	**DPR-1360H**	**DPR-1460H**	**F80**=DN 80	**A80**=3"		
7.0-70	14	**DPR-1370H**	**DPR-1470H**	**F65**=DN 65	**A65**=2 1/2"		
8.0-80	13	**DPR-1380H**	**DPR-1480H**	**F1H**=DN100	**A1H**=DN 4"		
10-100	15	**DPR-131HH**	**DPR-141HH**	**F80**=DN 80	**A80**=DN 3"		
15-150	14	**DPR-13H5H**	**DPR-14H5H**	**F1H**=DN100	**A1H**=DN 4"		

15. Dimensions



Dimensions in mm, design PN 10

DN	32	40	50	65	80	100
D1	78	88	102	122	138	158
A	207	207	216	224	231	241
k	-	-	-	-	-	-
d3	-	-	-	-	-	-