



Operating instructions for variable area flow meter with needle valve

Model: **UMR/UXR/URA**



UMR/UXR/URA

1. Contents

1. Contents	2
2. Note	3
3. Instrument inspection.....	3
4. Regulation use.....	3
5. Operating principle.....	3
6. Mechanical connection	4
7. Electrical connection	4
7.1. Inductive switch (option)	4
8. Operation	5
9. Maintenance	5
10. Technical information.....	5
11. Order codes	7
12. Dimensions	8
13. Declaration of conformance	9

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.

3. Instrument inspection

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:

- Variable area flow meter: UMR/UXR/URA
- Operating instructions
- Inductive switch – only for model UXR(option)

4. Regulation use

Any use of the variable area flow meter, model: UMR/UXR/URA, which exceeds the manufacturers 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

The Kobold UMR/UXR/URA model flowmeter/monitor works on the basis of the suspended float principle. It is used for measuring the flow rates in closed pipe line systems.

The medium flows from below through a glass measuring cone that gets wider on top. Thus, the float is raised and indicates the respective flow rate on the scale provided on the measuring cone. To monitor flow rate limits, the UMR/UXR/URA meters can be optionally furnished with “open collector” proximity switches. These structures are produced both furnished with needle valve and without needle valve.

By its special design, this model is particularly suitable for applications where only very small operating pressures are available. Another advantage is offered by the very large sight glass which optically allows direct flow observation.

6. Mechanical connection

Before Installation:



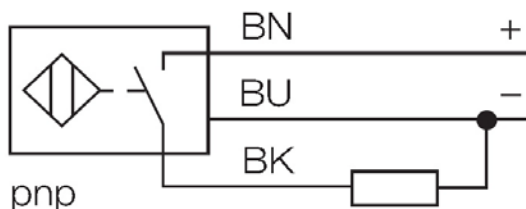
- Remove all transportation safety locks and ensure that no packing material remains within the unit.
- Be sure that the maximum allowable operating pressure and temperature is not exceeded (see Technical data).
- Install the flow meter in the piping system, ensure the instrument is under no mechanical stress/tension (install support bracing if necessary).
- Protect the measuring tube from external damage.
- Avoid pressure peaks in the measuring tube, e.g. from sudden surges or stoppage of flow.
- If possible, immediately after making mechanical connections, check whether the connections are properly sealed with no evidence of leakage

7. Electrical connection

7.1. Inductive switch – only for model UXR (option)

- Disconnect the sensor from the power supply.
- Screw on a screw nut (enclosed) with the sensor.
- Screw on the sensor into the sensor holder which is in the side of the flowmeter.
- Loose the screw of the sensor holder at the rod.
- Slide the sensor holder up or down until the reference edge coincides with the desired switch point scale reading.
- Cockle the screw of the sensor holder at the rod.
- Cockle the screw nut of the sensor.
- Wire the sensor to the electricity according to the following diagram.

Wiring diagram



8. Operation

In order to initialize the inductive switch function, it is essential that the float activates the contact once in each direction.

Adjustment of limit-values

The switch-point can be adjusted to the desired levels by using.

Reference edge: approx. the middle of the sensor.

- Loose the screw of the sensor holder at the rod.
- Slide the switch housing up or down until the reference edge coincides with the desired switch-point scale reading.
- Cockle the screw of the sensor holder at the rod.

Over-ranging

With non-pulsating flow, the maximum flow rate can be exceeded. Only an increase in pressure loss will result (max. permissible operating pressure must not be exceeded!)

9. Maintenance

If the medium to be measured is clean, the series UMR/UXR/URA is virtually maintenance-free. If deposits form on the inner housing or parts, periodic cleaning of the unit is recommended. Remove the units from the piping with a suitable tool; clean the flow meter with a suitable cleaning agent or make use of an ultrasonic bath.

10. Technical information

Installation position:	vertical, flow from bottom
Accuracy class:	4 acc. to VDI/VDE 3513
Max. Temperature:	100°C (70°C with contact)
Max. Pressure:	16 bar
Ambient temperature:	0...+100°C (70°C with contact)
Protective category:	IP 65
Connection:	¼"NPT, G" ¼ (female backward) Option: hose nozzle for 8-10-12mm hose
Materials	
Fitting:	stainless steel (1.4301, 1.4404) or POM-C
Measuring tube:	borosilicate glass
Float stop:	PTFE
Float:	stainless steel (1.4301, 1.4404), PVC, PTFE
Gasket:	FPM, EPDM, NBR
Valve:	stainless steel (1.4301, 1.4404)
Limit switch:	supply voltage: 12...24 V _{DC} Current consumption: 10 mA max. Cable: 2 m, PVC-insulated

UMR/UXR/URA

Material combinations

Code	Housing	Connection	Valve	Float	Gasket	Tube
0	POM-C	POM-C (for I2) Nikkel plated brass (for H2, H3, H4)	1.4301	Aluminium PVC PP 1.4301 1.4404	Viton NBR EPDM silicone	borosilicate glass
3	1.4301	1.4301	1.4301	1.4301	Viton	
5	1.4404	1.4404	1.4404	1.4404	Viton	
9*	POM-C 1.4301 1.4404	POM-C (for I2) Nikkel plated brass (for H2, H3, H4) 1.4301 1.4404	1.4301 1.4404	Aluminium PVC PP 1.4301 1.4404	Viton NBR EPDM silicone	

*Special material combination on request

11. Order codes

Order Details Liquids (Example: UMR-0 S 10H 0 I2 0)

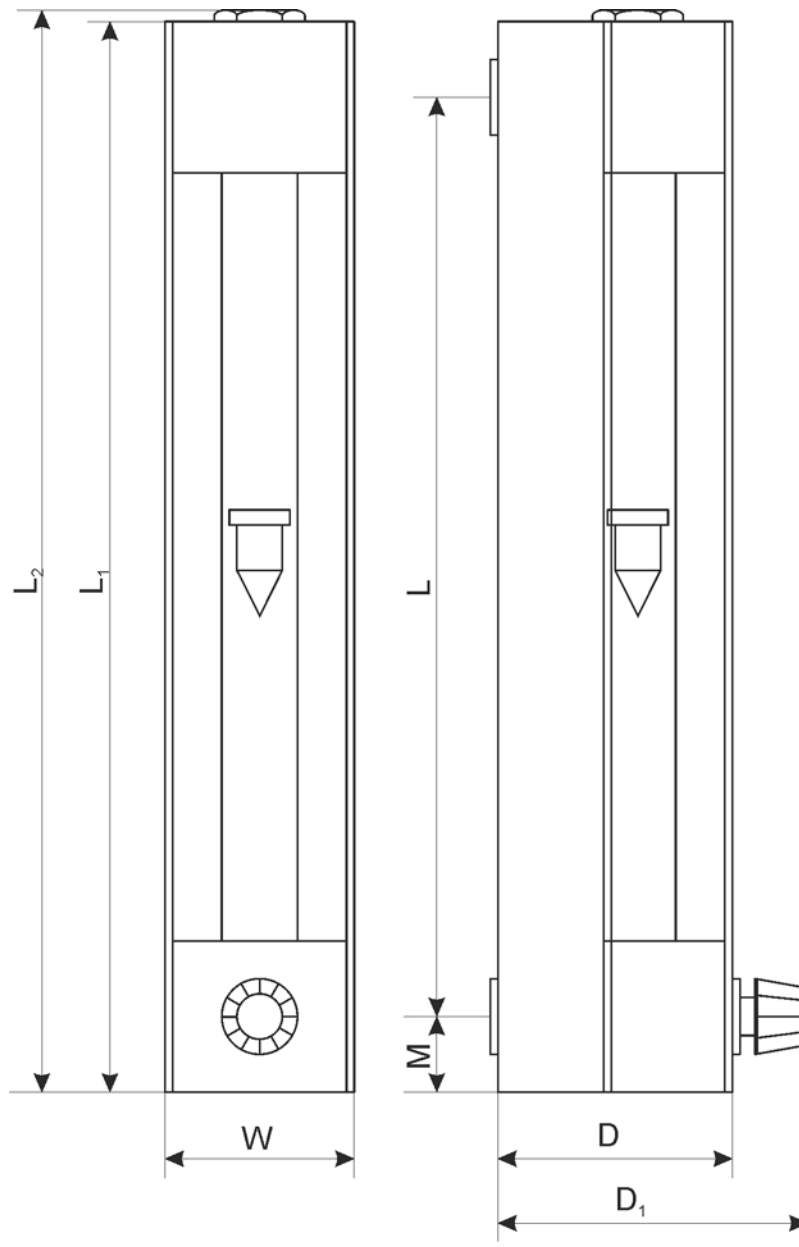
Model	Length	Measuring range water [l/h]	Needle valve	Connection	Switch	Other			
UMR-0	S= 90mm* L= 127mm	10H= 1...10	0= without 1= with	I2= G" ¼ N2= ¼"NPT H2= hose pipe ¼" H3= hose pipe 3/8"	0= none	Y= miscellaneous options. Please specify in clear text			
UMR-3		12H= 1,6...16							
UMR-5		14H= 2,5...25							
UMR-9		16H= 4...40							
UXR-0	S= 190mm L=250mm	10H= 1...10			0= without 1= with		I2= G" ¼ N2= ¼"NPT H2= hose pipe ¼" H3= hose pipe 3/8"	0= none P= 1 PNP	Y= miscellaneous options. Please specify in clear text
UXR-3		12H= 1,6...16							
UXR-5		14H= 2,5...25							
UXR-9		16H= 4...40							
		18H= 6,3...63							
		20H= 10...100							
	21H= 13...130								
URA-0	S= 190mm L= 250mm	10H= 1...10						0= without 1= with	
URA-3		12H= 1,6...16							
URA-5		14H= 2,5...25							
URA-9		16H= 4...40							
		18H= 6,3...63							
	20H= 10...100								

Order Details Gases (Example: UMR-0 L 20L 0 I2 0)

Model	Length	Measuring range air [Nm³/h]	Needle valve	Connection	Switch	Other			
UMR-0	S= 90mm* L= 127mm	10L= 0,01...0,1	0= without 1= with	I2= G" ¼ N2= ¼"NPT H2= hose pipe ¼" H3= hose pipe 3/8"	0= none	Y= miscellaneous options. Please specify in clear text			
UMR-3		12L= 0,016...0,16							
UMR-5		14L= 0,025...0,25							
UMR-9		16L= 0,04...0,4							
		18L= 0,063...0,63							
		20L= 0,1...1							
		22L= 0,16...1,6							
	23L= 0,2...2								
UXR-0	S= 190mm L=250mm	10L= 0,01...0,1			0= without 1= with		I2= G" ¼ N2= ¼"NPT H2= hose pipe ¼" H3= hose pipe 3/8"	0= none P= 1 PNP	Y= miscellaneous options. Please specify in clear text
UXR-3		12L= 0,016...0,16							
UXR-5		14L= 0,025...0,25							
UXR-9		16L= 0,04...0,4							
		18L= 0,063...0,63							
		20L= 0,1...1							
	22L= 0,16...1,6								
	24L= 0,25...2,5								
URA-0	S= 190mm L= 250mm	10L= 0,01...0,1	0= without 1= with	I2= G" ¼ N2= ¼"NPT H2= hose pipe ¼" H3= hose pipe 3/8"		0= none P= 1 PNP		Y= miscellaneous options. Please specify in clear text	
URA-3		12L= 0,016...0,16							
URA-5		14L= 0,025...0,25							
URA-9		16L= 0,04...0,4							
		18L= 0,063...0,63							
	20L= 0,1...1								
	22L= 0,16...1,6								
	24L= 0,25...2,5								

*Just made from stainless steel

12. Dimensions



code	L	L ₁	L ₂	M	W	D	D ₁
UMR-x S	90	114,5	119	11	30	40	75 ~ 83
UMR-x L	127	151,5	156	11	30	40	75 ~ 83
UXR-x S	190	218,0	222,5	14	40	43	78 ~ 86
UXR-x L	250	278,0	282,5	14	40	43	78 ~ 86
URA-x S	190	218,0	222,5	14	40	43	78 ~ 86
URA-x L	250	278,0	282,5	14	40	43	78 ~ 86

13. Declaration of conformance

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

Bypass Level Indicator Model: UMR/UXR/URA

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

EN 61000-6-2:2011

Immunity industrial environment

EN 61000-6-3:2011

Emission residential, commercial

EN61326-1:2013

Electrical equipment for measurement, control and laboratory use - EMC requirements

EN 61010-1:2011

Safety requirements for electrical measuring, control and laboratory devices

EN 60529:2014

Degrees of protection provided by enclosures (IP code)

Also the following EC guidelines are fulfilled:

2014/30/EU Electromagnetic Compatibility (EMC)

2011/65/EU RoHS (category 9) industrial monitoring and control instruments, compliant, no CE-marking for the transitional period until 2017

Hofheim, 17. Feb. 2016



H. Peters
General Manager



M. Wenzel
Proxy Holder