

**Operating instructions
for
Variable area flow meter
Model URM**



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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 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 EC-machine guidelines.

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.

pipeline filled with		
gas	liquids	
group 2	group 1	group 2
table 7	table 8	table 9

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: URM
- Operating instructions
- Inductive switch (option)

4. Regulation use

Any use of the variable area flow meter, model: URM, 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 URM 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 URM meters can be optionally furnished with "open collector" proximity switches.

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:



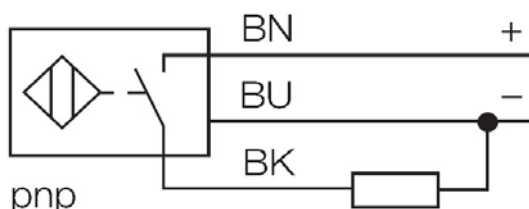
- Remove all transportation safety locks and ensure that no packing material remains within the unit.
- Be sure that the maximum allowable operating pressure and temperature is not exceeded (see Technical data).
- Install the flow meter in the piping system, ensure the instrument is under no mechanical 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 (option)

- Make sure that the supply wires are de-energized.
- housing.

Wiring diagram



8. Operation

In order to initialise 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.

Slide the switch housing up or down until the reference edge coincides with the desired switch-point scale reading.

Overranging

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 URM 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
Accuracy class:	4 acc. to VDI
Max. temperature:	100°C (65°C for PVC)
Max. pressure:	6 bar
Calibration conditions:	water: 20°C, air: 20°C, air pressure: 1.013 bar abs.
Ambient temperature:	-25...+70°C
Protective category:	IP 67
Contact (optional):	proximity switch: PNP
open collector,	n/o contact
supply voltage:	12...24 VDC
current consumption:	10 mA max.
cable:	2 m, PVC-insulated

URM

Material combinations

Ordering code	Connection	Float	Seal	Ring	Measuring cone	Housing
33	1.4301	1.4301	NBR	PVC	borosilicate glass	st.st. 1.4301
55	1.4404	1.4404	FPM	PTFE		
99*	1.4301 1.4404	1.4301 1.4404 aluminium PTFE PVC PP	NBR EPDM FPM PTFE	PVC PTFE 1.4301		

* Customer specification on request

11. Order codes

Model	Material combination	Instrument length	Measuring range		Pressure loss [mbar]	Thread connection		Contacts
			water [L/h]	air [Nm ³ /h]		female	male	
URM-	33 55 99**	210 mm	01H = 0.25...2.5	01L = 0.0032...0.032	6	I2 = G ¼ I3 = G ¾	G3 = G ¾ G4 = G ½	0 = no contact
			03H = 0.4...4	03L = 0.008...0.08	6			
			05H = 0.63...6.3	05L = 0.02...0.2	8			
			07H = 1...10	07L = 0.032...0.32	10			
			09H = 1.6...16	09L = 0.05...0.5	10			
		360 mm	-	11L = 0.02...0.2	10	I2 = G ¼ I3 = G ¾	G3 = G ¾ G4 = G ½	
			13H = 1...10	13L = 0.032...0.32	10			
			15H = 1.6...16	15L = 0.05...0.5	10			
			17H = 2.5...25	17L = 0.08...0.8	12			
			19H = 4.0...40	19L = 0.13...1.3	12			
		360 mm	22H = 6.3...63	22L = 0.2...2.0	17	I3 = G ¾ I4 = G ½	G3 = G ¾ G4 = G ½ G5 = G ¾	0 = no contact P* = 1 PNP normally open R* = 2 PNP normally open
			24H = 10...100	24L = 0.32...3.2	24			
			26H = 16...160	26L = 0.5...5.0	28			
			28H = 25...250	28L = 0.8...8.0	25			
		360 mm	33H = 40...400	33L = 1.3...13	36	I4 = G ½ I5 = G ¾	G4 = G ½ G5 = G ¾ G6 = G 1	
			35H = 63...630	35L = 2.0...20	34			
			37H = 100...1 000	37L = 3.2...32	43			
		440 mm	43H = 100...1 000	43L = 3.2...32	43	I5 = G ¾ I6 = G 1	G5 = G ¾ G6 = G 1 G7 = G 1 ¼ G8 = G 1 ½	
			45H = 160...1 600	45L = 5.0...50	48			
			47H = 250...2 500	47L = 8.0...80	51			
		440 mm	53H = 400...4 000	53L = 13...130	51	I6 = G 1 I7 = G 1 ¼ I8 = G 1 ½	G6 = G 1 G7 = G 1 ¼ G8 = G 1 ½ G9 = G 2	
			55H = 630...6 300	55L = 20...200	57			
			57H = 1 000...10 000	-	70			
		600 mm	63H = 1 600...16 000	63L*** = 25...250	93	-	G8 = G 1 ½ G9 = G 2 GA = G 2 ½ GB = G 3	
			65H = 2 500...25 000	65L*** = 32...320	102			

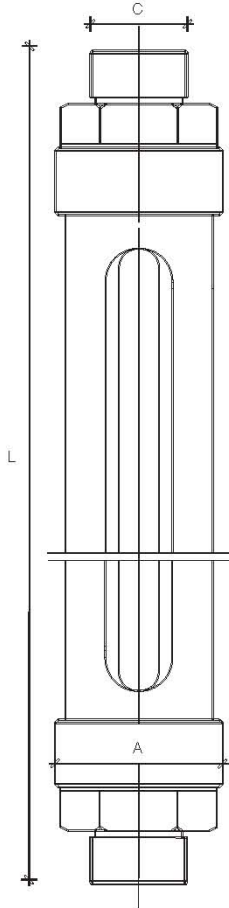
*Other switching functions on request

**Customer specification on request

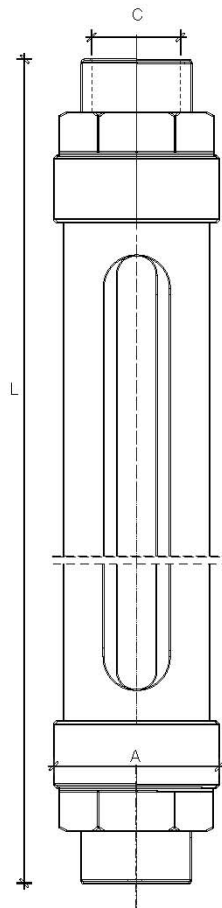
***63L and 65L air ranges only available with aluminum or PTFE float

12. Dimensions

URM with male thread



URM with female thread



URM with male thread						
Model	L [mm]	A [mm]	C [mm]			
URM-xx 0	210	29.5	3/8"	1/2"	-	-
URM-xx 1			3/8"	1/2"	-	-
URM-xx 2	360	40.0	3/8"	1/2"	3/4"	-
URM-xx 3		49.0	1/2"	3/4"	1"	-
URM-xx 4	440	62.0	3/4"	1"	1 1/4"	1 1/2"
URM-xx 5		82.0	1"	1 1/4"	1 1/2"	2"
URM-xx 6	600	122.0	1 1/2"	2"	2 1/2"	3"

URM with female thread						
Model	L [mm]	A [mm]	C [mm]			
URM-xx 0	210	29.5	1/4"	3/8"	-	-
URM-xx 1			1/4"	3/8"	-	-
URM-xx 2	360	40.0	3/8"	1/2"	-	-
URM-xx 3		49.0	1/2"	3/4"	-	-
URM-xx 4	440	62.0	3/4"	1"	-	-
URM-xx 5		82.0	1"	1 1/4"	1 1/2"	-

13. EU Declaration of conformance

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

Variable area flow meter Model: URM

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

EN 61000-6-2:2006 Immunity industrial environment

EN 61000-6-3:2011 Emission residential, commercial

EN 55011:2009+A1:2010 ISM ratio-frequency equipment

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

EN 61010-1:2011 Safety requirements for electrical measuring, control and laboratory devices

Also the following EC guidelines are fulfilled:

2014/30/EU **EMC Directive**

2011/65/EU **RoHS (category 9)**

EN 50581:2012 Technical documentation for the assessment of electrical and electronic products with respect to the restriction of hazardous substances



H. Peters
General Manager



M. Wenzel
Proxy Holder

Hofheim, 16. August 2017