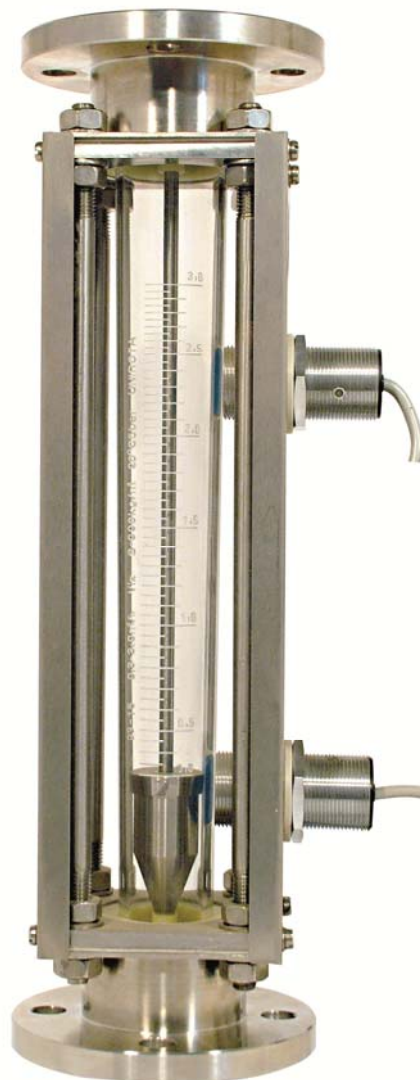


Operating instructions for  
Variable area flow meter  
Model **URK**



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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: URK
- Operating instructions
- Inductive switch (option)

## 4. Regulation use

Any use of the variable area flow meter, model: URK, 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 URK 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 URK 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:

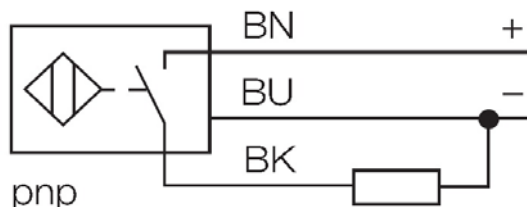
- Remove all transportation safety locks and ensure that no packing material remains within the unit.
- Be sure that the maximum allowable operating pressure and temperature is not exceeded (see Technical data).
- Install the by-pass level indicator at the side of the round containers, ensure the instrument 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.
- Make sure that the connections are in plain.

## 7. Electrical connection

### 7.1. Inductive switch (option)

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

### 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 URL 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 to top)
Accuracy class:	4 according to VDI
Max. temperature:	100°C (65°C for PVC)
Max. pressure:	03H...23H; 16 bar (with PN 16 flange) 25H...33H; 12 bar (with PN 16 flange) 35H...41H; 8 bar (with PN 16 flange) 01L...23L; 16 bar (with PN 16 flange) 25L...33L; 10 bar (with PN 16 flange) in all other cases 6 bar
Calibration conditions:	
water:	20°C, air: 20°C,
air pressure:	1.013 bar abs.
Contact (optional):	proximity switch: PNP open collector, n/o contact
Supply voltage:	12...24 VDC
Current consumption:	max. 10 mA
Cable:	2 m, PVC-insulated
Ambient temperature:	-25...+70°C
Protective category:	IP 67

# 11. Order codes

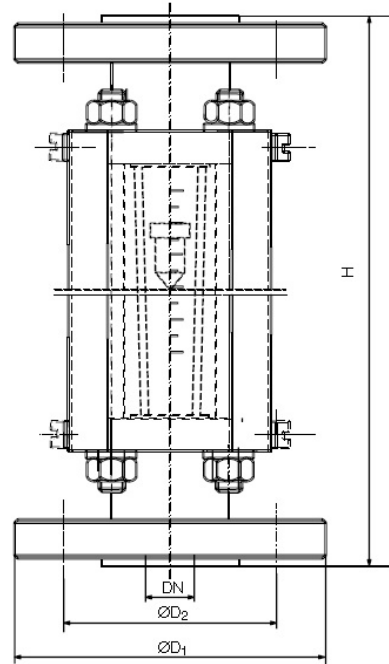
Model	Material combination	Measuring range		Pressure loss [mbar]	Flange			Contacts
		water [L/h]	air [m <sup>3</sup> <sub>N</sub> /h]		DIN 2526. Form C. PN 6	DIN 2526. Form C. PN 16	ANSI 150 lbs	
URK-	73 33 55 99**		01L = 0.02...0.2	10	F4 = DN 15 F5 = DN 20	B4 = DN 15	A4 = ½" A5 = ¾"	0 = no contact P* = 1 PNP normally open R* = 2 PNP normally open
		03H = 1...10	03L = 0.032...0.32	10				
		05H = 1.6...16	05L = 0.05...0.5	10				
		07H = 2.5...25	07L = 0.08...0.8	12				
		09H = 4.0...40	09L = 0.13...1.3	9				
		11H = 6.3...63	11L = 0.2...2.0	17				
		13H = 10...100	13L = 0.32...3.2	24				
		15H = 16...160	15L = 0.5...5	28	F6 = DN 25	B5 = DN 20 B6 = DN 25	A6 = 1" A7 = 1 ¼"	
		17H = 25...250	17L = 0.8...8	28				
		19H = 40...400	19L = 1.3...13	36				
		21H = 63...630	21L = 2.0...20	34				
		23H = 100...1 000	23L = 3.2...32	43	F7 = DN 32	B7 = DN 32	A8 = 1 ½"	
		25H = 160...1 600	25L = 5...50	48				
		27H = 250...2 500	27L = 8...80	48				
		29H = 400...4 000	29L = 13...130	51	F8 = DN 40	B8 = DN 40	A9 = 2"	
		31H = 630...6 300	31L = 20...200	57				
		33H = 1 000...10 000	33L*** = 25...250	70	F9 = DN 50	B9 = DN 50	AA = 2 ½" AB = 3"	
		35H = 1 600...16 000	35L*** = 32...320	93	FA = DN 65	BA = DN 65		
		37H = 2 500...25 000	37L*** = 40...400	102				
		39H = 10 000...40 000	39L*** = 50...500	95	FB = DN 80	BB = DN 80	-	
41H = 15 000...50 000		102						

\*Other switching functions on request

\*\*Customer specification on request

\*\*\* 33L; 35L; 37L and 39L air ranges only available with aluminum or PTFE float

## 12. Dimensions



Model	H [mm]	DIN					ANSI			
		DN	PN6		PN16		Size	Class 150 RF		
			D <sub>1</sub> [mm]	D <sub>2</sub> [mm]	D <sub>1</sub> [mm]	D <sub>2</sub> [mm]		D <sub>1</sub> [mm]	D <sub>2</sub> [mm]	
URK-..4x	380	15	80	55	95	65	½"	88.9	60.5	
URK-..5x	390	20	90	65	105	75	¾"	98.6	69.9	
URK-..6x	390	25	100	75	115	85	1"	108.0	79.2	
URK-..7x	400	32	120	90	140	100	1¼"	117.3	88.9	
URK-..8x	410	40	130	100	150	110	1½"	127.0	98.6	
URK-..9x	410	50	140	110	165	125	2"	152.0	120.7	
URK-..Ax	550	65	160	130	185	145	2½"	177.8	139.7	
URK-..Bx	560	80	190	150	200	160	3"	190.5	152.4	

### Material combination URK

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

\*\* Customer specification on request

## 13. Declaration of conformance

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

**Variable area flow meter                      Model: URK**


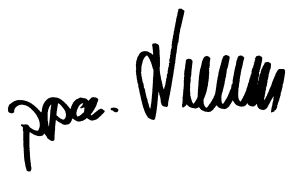
to which this declaration relates is in conformity with the standards noted below:

- 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

Hofheim, 16. August 2017

   
H. Peters                      M. Wenzel  
General Manager                      Proxy Holder