



Zertifiziertes  
QM-System  
DIN EN ISO 9001  
Zertifikat-Nr. 01017

## Turbine Wheel Flow Meter for Liquids



measuring  
•  
monitoring  
•  
analysing

DRB



- Measuring ranges:  
5-30...50-750 L/min water
- Measuring accuracy:  
±3% of full scale
- $p_{\max}$ : 16 bar;  $t_{\max}$ : 80 °C
- Connection:  
G $\frac{1}{2}$ ...G 3 female thread  
 $\frac{1}{2}$  NPT...3 NPT female thread  
weld-on sleeves:  
DN 25...DN 80
- Material:  
aluminum bronze,  
stainless steel
- Viscosity range:  
low viscous
- Output:  
pulses, 4-20 mA,  
LED display, contacts



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### Description

The KOBOLD flow meter model DRB is used for measuring and monitoring liquids. The device works according to the well-known blade wheel principle. The four vane blade wheel is retained radially in a high quality sapphire bearing. The sensor is supplied ready-to-install with pipe fittings or with weld-on sleeves.

The blade wheel is set in motion by the flowing medium. Magnets are embedded hermetically sealed in the ends of the blade wheels. The magnets generate electrical pulses in a Hall-effect sensor mounted outside the flow area. Various electronics units can be used to display and monitor the volumetric flow.



### Fields of application

- cooling water monitoring
- general mechanical engineering
- waste water treatment
- heavy goods industry
- chemical industry

### Technical Details

Measuring accuracy:  $\pm 3\%$  of full scale

Process temperature: max. 80 °C

Ambient temperature: max. 80 °C

Max. operating pressure: PN 16 / 20 °C

Max. pressure loss: DRB-...05: 0.05 bar  
 DRB-...10, DRB-...15: 0.03 bar  
 DRB-...20: 0.04 bar  
 DRB-...25: 0.02 bar  
 DRB-...30: 0.01 bar

Protection: IP65

### Materials

Housing: aluminum bronze  
 stainless steel 1.4581  
 stainless steel 1.3955 (DRB...W)

Seals: aluminum bronze version: NBR  
 stainless steel version: FPM

Turbine wheel: PVDF

Axle: hard metal (DRB-11... and DRB-12..) ceramic (DRB-1300..)

Bearing: ceramic (DRB-11... and DRB-12..) ceramic/PEEK (DRB-1300..)

### Electronics

#### ● Frequency output (..F300)

Power supply: 12 - 28 V<sub>DC</sub>  
 Power consumption: 10 mA  
 Pulse output: PNP, open collector, max. 25 mA  
 Electrical connection: plug connector M12x1

#### ● Frequency output with frequency divider

Power supply: 24 V<sub>DC</sub>  $\pm 20\%$   
 Power consumption: 15 mA  
 Pulse output: PNP, open collector, max. 25 mA  
 Electrical connection: plug connector M12x1  
 Division ratio: 1...1/128, factory set

#### ● Analogue output (plug-on display option)

Power supply: 24 V<sub>DC</sub>  $\pm 20\%$   
 Output: 0-20 mA or 4-20 mA, 2- or 3-wire  
 Max. load: 500  $\Omega$   
 Electrical connection: plug connector M12x1 or DIN 43 650  
 Option: plug-on display (with plug connec. DIN 43 650, 2-wire)

#### ● Compact electronics

Display: 3-segment LED  
 Analogue output: (0)4...20 mA adjustable, max. 500 W  
 Switching outputs: 1 (2) semiconductor PNP or NPN, factory set  
 Contact operation: N/C/N/O contact programmable with 2 buttons  
 Setting: 24 V<sub>DC</sub>  $\pm 20\%$ , 3-wire technology, approx. 100 mA  
 Supply: 24 V<sub>DC</sub>  $\pm 20\%$ , 3-wire technology, approx. 100 mA  
 Electrical connection: plug connector M12x1

#### ● Pointer indicator with analogue output

Housing: Aluminium  
 Display: moving-coil instrument, 240° display  
 Power supply: 24 V<sub>DC</sub>  $\pm 20\%$   
 Output: 4-20 mA or 0-20 mA/0-10 V, 3-wire  
 Max. load: 250  $\Omega$   
 Electrical connection: plug connector M12x1

#### ● ADI electronics

Display: bargraph, 3.5-digit digital or combination display; batching system  
 Analogue output: 4...20 mA  
 2 switching outputs: relay/changeover contact max. 115/230 V<sub>AC</sub>, 5A resistive load max. 30 V<sub>DC</sub>/5 A or 2 open collector 5-50 V<sub>DC</sub>, I<sub>total</sub>= 50 mA with 3 buttons  
 Setting: with 3 buttons  
 Power supply: 230/115/48/24 V<sub>AC</sub>, 24 V<sub>DC</sub>  
 Electrical connection: pluggable terminal block via PG cable gland

See brochure Z2 for more technical details on ADI evaluating electronics.



Order Details (Example: DRB-1105 G4 F300)

Measuring range max. 3 m/s		Flow rate max. ca. 10 m/s	Model		Connection		<b>Evaluating electronics</b> <b>Frequency output</b> ..F300 = frequency output, plug connector M12 x 1 ..F320 = frequency divider 1: 2, plug connector M12 x 1 ..F340 = frequency divider 1: 4, plug connector M12 x 1 ..F390 = frequency divider 1...1/128, plug connector M12x 1 <b>Analogue output</b> ..L303 = 0-20 mA output, 3-wire, M12 x 1 plug connector ..L342 = 4-20 mA output, 2-wire, M12 x 1 plug connector ..L343 = 4-20 mA output, 3-wire, M12 x 1 plug connector ..L442 = 4-20 mA output, 2-wire, plug connector DIN EN 175301 <b>Compact electronic*</b> ..C30R = LED-display, 2 x open collector, PNP, plug connector M12 x 1 ..C30M = LED-display, 2 x open collector, NPN, plug connector M12 x 1 ..C34P = LED-display, 4-20 mA, 1 x open collector PNP, plug connector M12 x 1 ..C34N = LED-display, 4-20 mA, 1 x open collector NPN, plug connector M12 x 1 <b>Zeigeranzeige, 240**</b> ..Z300 = 240°-pointer indication, 0-20 mA, plug connector M12x1 ..Z340 = 240°-pointer indication, 4-20 mA, plug connector M12x1
[L/min water]	approx. frequency [Hz] f. s.	[L/min water]	Material aluminium bronze	Material st. steel	Standard female thread	Sonder female thread	
5-30	40	100	DRB-1105..	DRB-1205..	..G4.. = G 1/2	..N4.. = 1/2 NPT	
10-50	40	180	DRB-1110..	DRB-1210..	..G5.. = G 3/4	..N5.. = 3/4 NPT	
20-80	65	230	DRB-1115..	DRB-1215..	..G6.. = G 1	..N6.. = 1 NPT	
25-250	85	600	DRB-1120..	DRB-1220..	..G8.. = G 1 1/2	..N8.. = 1 1/2 NPT	
30-350	80	1000	DRB-1125..	DRB-1225..	..G9.. = G 2	..N9.. = 2 NPT	
50-750	70	1600	DRB-1130..	DRB-1230..	..G3.. = G 3	..NB.. = 3 NPT	

Meas. range [m/s]		approx. frequency [Hz] at max. value	max. flow rate [m/s]	Model		Connection for nominal pipe size	ADI electronics*			
				Material 1.3955/ axle hard metal	Material 1.3955/ axle ceramic		Display	Supply	Output	Contacts
0.7 - 3	50 (at DN 25)					..W6.. = DN 25	..B.. = Bargraph	..0.. = 230 V <sub>AC</sub>	..0.. = without	..0 = without
0.3 - 3	85 (at DN 40)		10	DRB-1200..	DRB-1300..	..W8.. = DN 40/ DN 50/	..D.. = Digital	..4.. = 115 V <sub>AC</sub>	..F.. = scalable frequency**	..2 = 2 changeover contacts
0.3 - 3	80 (at DN 50)					..WB.. = DN 80	..K.. = Bargraph/ Digital display	..1.. = 48 V <sub>AC</sub>	..1.. = 0-10 V	..6 = 2 open collector
0.2 - 3	70 (at DN 80)						..A.. = batching system	..2.. = 24 V <sub>AC</sub>	..2.. = 0-20 mA	
								..3.. = 24 V <sub>DC</sub>	..4.. = 4-20 mA	

\*Please specify flow direction in writing. \*\* for ADI-K electronics only

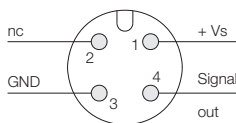
Plug-on display

for model DRB...L442 (2-wire, 4-20 mA output and DIN connector)

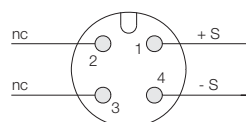
Description	Order number
4-digit LED, connector DIN 43650, 2-wire, supply through analogue output	<b>AUF-1000</b>
as above however with additional open collector output	<b>AUF-1001</b>

Electrical connection

DRB-..F.., DRB-..Z.., DRB-..L3..3-wire



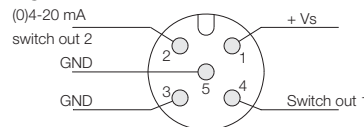
DRB-..L342 2-wire



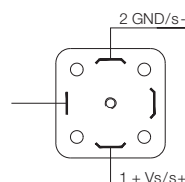
Weights

Sensor		Electronics	
Model	Weight	Model	Weight
1/2"	approx. 750 g	Frequency output	25 g
3/4"	approx. 1050 g	Analogue output	25 g
1"	approx. 900 g	Compact electronic	approx. 600 g
1 1/2"	approx. 1200 g	Pointer indication	450 g
2"	approx. 1500 g	ADI electronics 230 V	1950 g
3"	approx. 3000 g	ADI electronics 24 V	1400 g

DRB-..C..

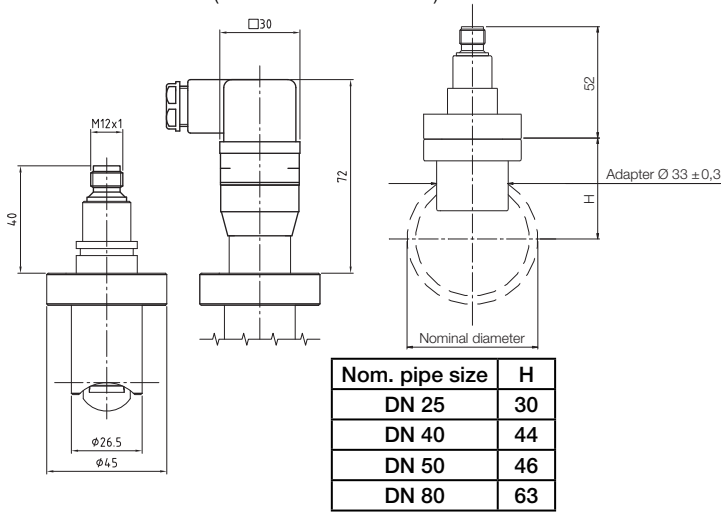


DRB-..L442

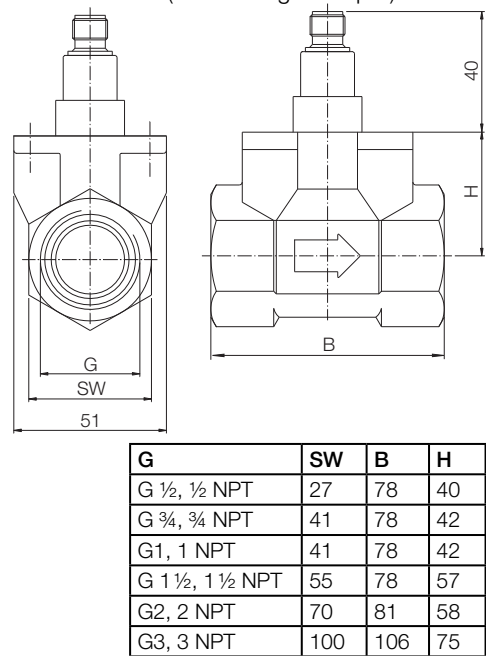


**Dimensions**

**Model: DRB-...W...** (with weld-on sleeves)

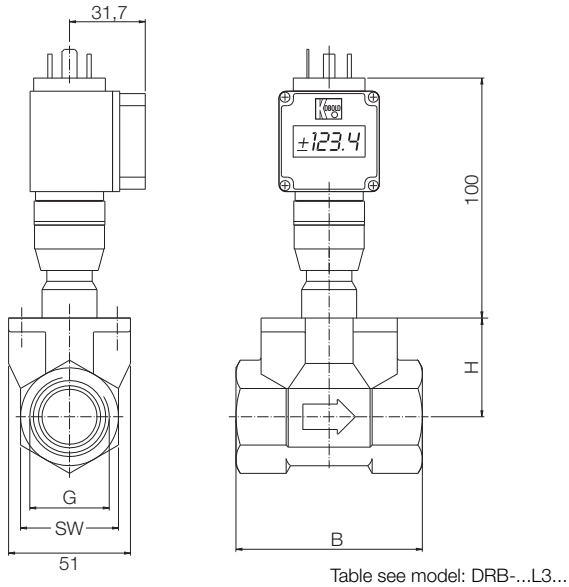


**Model: DRB-...L3...** (with analogue output)

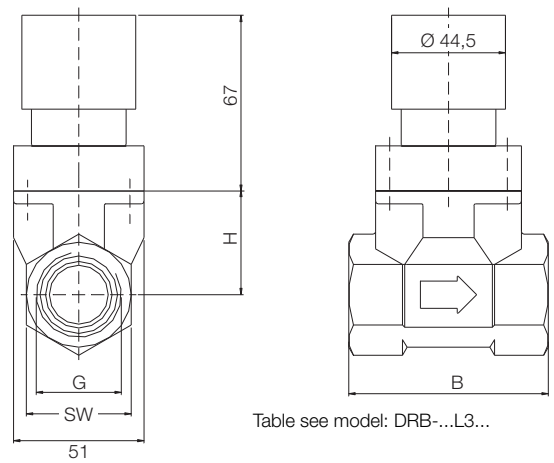


**Model: DRB-...L4...**

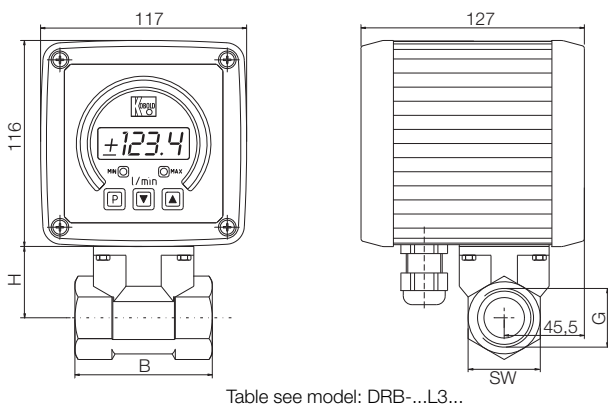
(with analogue output and plug-on display option)



**Model: DRB-...C...** (with compact electronics)



**Model: DRB-..B., ..D., ..K., ..A..** (with ADI electronics)



**Model: DRB-...Z...** (with pointer indication)

