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
- Accuracy: ±3 % of full scale
- p_{max}: 16 bar; t_{max}: 80 °C
- Connection: G ½ ... G 3 female ½" ... 3" NPT female weld-on sleeves: DN 25 ... DN 80
- Material: brass, stainless steel
- Viscosity range: low viscous
- Output: pulses, 4 - 20 mA, LED display, contacts

S4

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Description

The KOBOLD flow meter model DRB is used for measuring and monitoring liquids. The device works according 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:	±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:	brass stainless steel 1.4581 stainless steel 1.3955 (DRB...W)
Seals:	brass 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_{DC}
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_{DC} ±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_{DC} ±20%
Output:	0-20 mA or 4-20 mA, 2- or 3-wire
Max. load:	500 Ω
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
Setting:	with 2 buttons
Supply:	24 V_{DC} ±20%, 3-wire technology, approx. 100 mA
Electrical connection:	plug connector M12x1

- **ADI electronics**

Display:	bargraph, 5-digit digital display
Analogue output:	(0)4...20 mA, 0-10 V_{DC}
2 switching outputs:	relay /changeover contact, max. 250 V_{AC}/5 A resistive load, max. 30 V_{DC} / 5 A
Setting:	with 4 buttons
Power supply:	100 ... 240 V_{AC} ± 10 % or 18 ... 30 V_{AC} / 10 ... 40 V_{DC}
Electrical connection:	pluggable terminal block via cable gland

- **DRB-...Exxx (Counter electronic)**

Display:	LCD, 2 x 8 digit, illuminated total, part and flow quantities units selectable
Analogue output:	0(4)...20 mA adjustable
Load:	max. 500 Ω
Switching output:	2 relays, max. 250 V / 5 A / 1000 VA
Settings:	via 4 buttons
Functions:	reset, Min. / Max. memory, flow monitor, monitoring for part and total quantity, language
Power supply:	24 V_{DC} ± 20 %, 3-wire
Power consumption:	approx. 170 mA
Electrical connection:	pluggable terminal block via cable gland

- **DRB-...Gxxx (Dosing electronic)**

Display:	LCD, 2 x 8 digit, illuminated total, part and flow quantities units selectable
Analogue output:	0(4)...20 mA adjustable
Load:	max. 500 Ω
Switching output:	2 relays, max. 250 V / 5 A / 1000 VA
Settings:	via 4 buttons
Functions:	dosing (relay S2), start, stop, reset, fine dosing, correction amount, flow switch, total quantity, language
Power supply:	24 V_{DC} ± 20 %, 3-wire
Power consumption:	approx. 170 mA
Electrical connection:	pluggable terminal block via cable gland

See data sheet ADI-1 for more technical details on ADI evaluating electronics.

No responsibility taken for errors;
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Order Details (Example: **DRB-1105 G4 F300**)

With pipe fittings

Measuring range max. 3 m/s		Flow rate max. ca. 10 m/s	Model		Connection	
[l/min water]	approx. frequency [Hz] f. s.	[l/min water]	Material brass	Material stainless steel	Standard female	Special female
5-30	40	100	**DRB-1105..**	**DRB-1205..**	**..G4..** = G ½	**..N4..** = ½" NPT
10-50	40	180	**DRB-1110..**	**DRB-1210..**	**..G5..** = G ¾	**..N5..** = ¾" NPT
20-80	65	230	**DRB-1115..**	**DRB-1215..**	**..G6..** = G 1	**..N6..** = 1" NPT
25-250	85	600	-	**DRB-1220..**	**..G8..** = G 1 ½	**..N8..** = 1 ½" NPT
30-350	80	1000	-	**DRB-1225..**	**..G9..** = G 2	**..N9..** = 2" NPT
50-750	70	1600	**DRB-1130..**	**DRB-1230..**	**..GB..** = G 3	**..NB..** = 3" NPT

With installation adapter

not available with compact / ADI electronics

Meas. range [m/s]	approx. frequency [Hz] at max. value	max. flow rate [m/s]	Model		Connection for nominal pipe size
			Material 1.3955 Hart metal axle	Material 1.3955 Ceramic axle	
0.7 - 3	**50** (at DN 25)	10	**DRB-1200..**	**DRB-1300..**	**..W6..** = DN 25 **..W7..** = DN 40 **..W8..** = DN 50 **..WB..** = DN 80
0.3 - 3	**85** (at DN 40)				
0.3 - 3	**80** (at DN 50)				
0.2 - 3	**70** (at DN 80)				

Evaluating electronics

Frequency output

..**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

Analogue output

..**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 43 650

Compact electronic*

..**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

Counter electronics

..**E34R** = LCD, 0(4)-20 mA, 2 x relays

Dosing electronics

..**G34R** = LCD, 0(4)-20 mA, 2 x relays

ADI-electronics*

Display	Supply	Output	Contacts
K = Bar-graph/ Digital display	**0** = 100-240 $V_{AC/DC}$ **3** = 18-30V_{AC}, 10-40 V_{DC}	**0** = without **4** = 0(4)-20 mA, 0-10 V	**2** = 2 change-over contacts

* Please specify flow direction in writing.

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

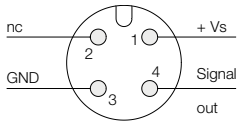
Description	Order number
4-digit LED, connector DIN 43650, 2-wire, supply through analogue output	**AUF-1000**
as above however with additional open collector output	**AUF-1001**

Weights

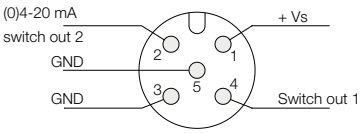
Sensor		Electronics	
Model	**Weight**	**Model**	**Weight**
½"	approx. 750 g	Frequency output	25 g
¾"	approx. 1050 g	Analogue output	25 g
1"	approx. 900 g	Compact electronic	approx. 600 g
2"	approx. 1500 g	ADI electronics	1400 g
3"	approx. 3000 g	E/G electronics	1400 g

Electrical connection

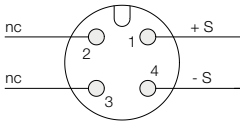
DRB-..F.., DRB-..Z.., DRB-..L3..3-wire



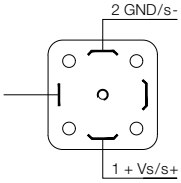
DRB-..C..

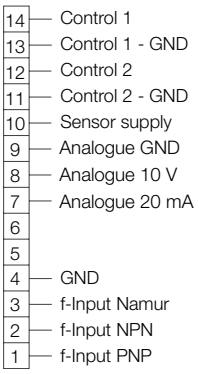


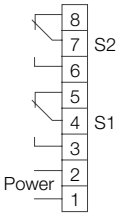
DRB-..L342 2-wire



DRB-..L442





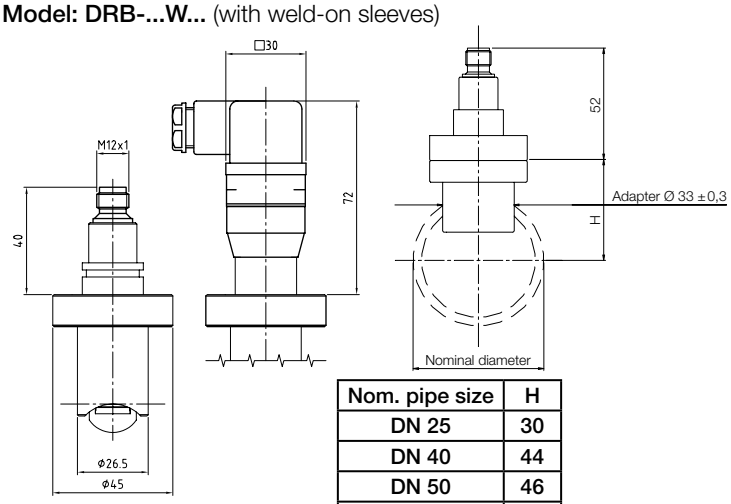


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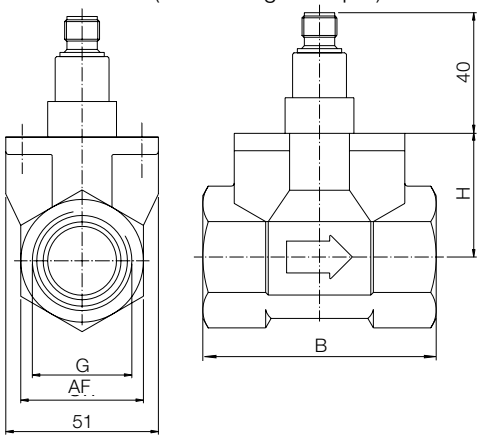
Dimensions

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



Nom. pipe size	H
DN 25	30
DN 40	44
DN 50	46
DN 80	63

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



G	AF	B	H
G ½, ½ NPT	27	78	40
G ¾, ¾ NPT	41	78	42
G1, 1 NPT	41	78	42
G 1½, 1½ NPT	55	78	57
G2, 2 NPT	70	81	58
G3, 3 NPT	100	106	75

Model: DRB-...L4...
(with analogue output and plug-on display option)

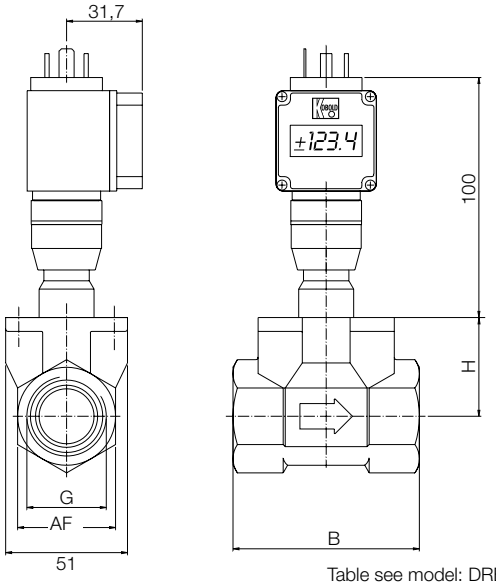


Table see model: DRB-...L3...

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

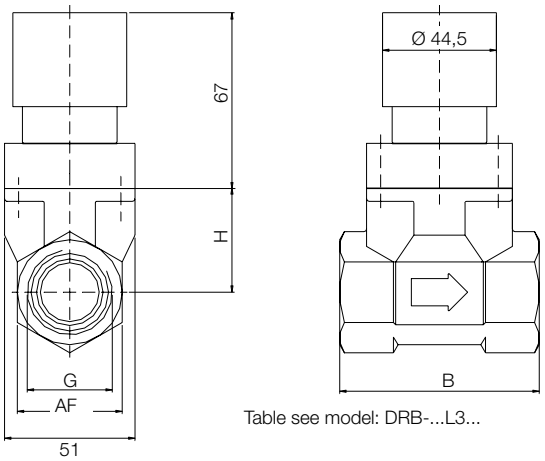


Table see model: DRB-...L3...

Model: DRB-..K.., ..G.., ..E..
(with ADI evaluating electronic, counter or dosing electronic)

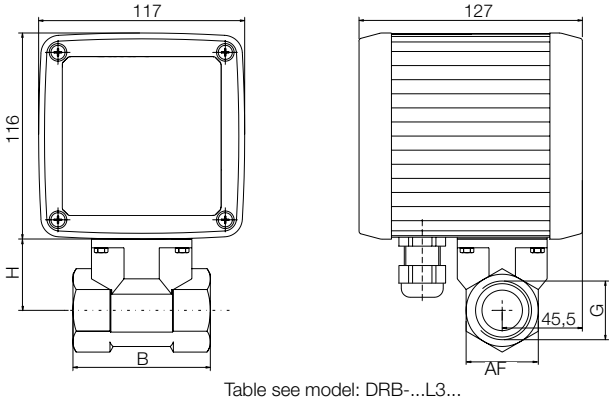


Table see model: DRB-...L3...

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