

Paddle Wheel Flow Sensor



measuring
•
monitoring
•
analyzing

DRH



- Compact Size
- 7 Material Combinations
- Flow Range: 0.05...0.2 GPM to 0.66...13.2 GPM
- Frequency, 4-20 mA Transmitters or Compact Electronics
- Operating Pressures to 580 PSIG



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Description

The KOBOLD DRH series paddle flow sensor offers seven material combinations, enabling it to stand up to virtually any liquid or aggressive chemical. Its compact design employs permanent magnets embedded in a rotating paddle wheel. A Hall effect sensor detects the magnet passing and provides an output which is proportional to flowrate. The DRH can be supplied with a frequency output, 4-20 mA output, or a versatile compact electronics package that provides an LED display, 4-20mA output, or programmable setpoint switches. The DRH is ideal for industrial or OEM applications.

Specifications

- Accuracy:** ±2.5% of Full Scale
- Output**
- Frequency:** PNP, 25 mA max.
14-28 V_{DC}
- Analog:** 4-20 mA, 2-wire or 3-wire,
24 V_{DC} Power, RL < 500 ohms
- Electrical Protection:** NEMA 4X
- Electrical Connection:** Micro-DC Plug, 4-pin Male or
DIN 43650 Plug
- Sensor Pressure Drop:** 14.5 PSI at 100% Rated Flow
- Flow Orientation:** Horizontal

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 M12 x 1



Analog Output (..L34x, ..L442)

- 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 M12 x 1
or DIN 43 650
- Option:** Plug-on Display (with Plug Connector
DIN 43 650 and 4-20 mA Output
Only), 2 Wire

Compact Electronics (..C3xx)

- Display:** 3-segment LED
- Analog Output:** (0)4-20 mA Adjustable,
Max. 500 Ω
- Switching Output:** 1 (2) Semiconductor PNP
or NPN, Factory Set
- Contact Operation:** N/C, N/O Contact, Frequency
Programmable
- Setting:** With 2 Buttons
- Supply:** 24 V_{DC} ± 20 %, 3-Wire
Technology, Approximately 100 mA
- Electrical Connection:** Plug Connector M12 x 1



Electronic Weight

Electronics	Weight [LB]
Frequency Output	app. 0.08
Analog Output (..L3..)	app. 0.08
Analog Output (..L4..)	app. 0.22
Compact Electronics	app. 1.43



Material Combinations

Material Combinations	DRH-11	DRH-12	DRH-14	DRH-15	DRH-17	DRH-18	DRH-19
Housing	Brass	Brass	316L SS	316L SS	POM	POM	PVDF
Housing Cover	Acrylic	Brass	Acrylic	316L SS	Acrylic	POM	PVDF
O-ring	NBR	NBR	FKM	FKM	NBR	NBR	FKM
Paddle	PTFE	PTFE	PTFE	PTFE	PTFE	PTFE	PTFE
Axle	Ceramic	Ceramic	Ceramic	Ceramic	Ceramic	Ceramic	Ceramic
Axle Support	PTFE	PTFE	PTFE	PTFE	PTFE	PTFE	PTFE
Max. Temperature	176 °F	176 °F	176 °F	176 °F	176 °F	176 °F	176 °F
Max. Pressure	230 PSIG	580 PSIG	230 PSIG	580 PSIG	230 PSIG	230 PSIG	230 PSIG
Weight (3/8")	1.87 LB	2.20 LB	1.98 LB	2.31 LB	0.55 LB	0.55 LB	0.66 LB
Weight (1")	3.53 LB	4.41 LB	3.53 LB	4.41 LB	0.88 LB	0.88 LB	1.10 LB

Order Details (Example: **DRH-1460N6 L343**)

Flow Range (GPM)	Fitting (NPT)	Material Combination							Output
		DRH-11...	DRH-12...	DRH-14...	DRH-15...	DRH-17...	DRH-18...	DRH-19...	
0.05...0.2	3/8"	..55N3..	..55N3..	..55N3..	..55N3..	..55N3..	..55N3..	..55N3..	..F300 = Frequency w/ Micro-DC Plug ..L342 = 4-20 mA, 2-wire Micro-DC Plug ..L343 = 4-20 mA, 3-wire Micro-DC Plug ..L442 = 4-20 mA, DIN 43650 Plug ..C34P* = Compact Electronic, 4-20mA, + 1 PNP Switch ..C30R* = Compact Electronic, 2 PNP Switches
0.05...0.53	1"	..60N6..	..60N6..	..60N6..	..60N6..	..60N6..	..60N6..	..60N6..	
0.08...0.75	3/8"	..65N3..	..65N3..	..65N3..	..65N3..	..65N3..	..65N3..	..65N3..	
0.07...1.3	1"	..70N6..	..70N6..	..70N6..	..70N6..	..70N6..	..70N6..	..70N6..	
0.13...1.6	3/8"	..75N3..	..75N3..	..75N3..	..75N3..	..75N3..	..75N3..	..75N3..	
0.26...4.0	1"	..80N6..	..80N6..	..80N6..	..80N6..	..80N6..	..80N6..	..80N6..	
0.26...4.2	3/8"	..85N3..	..85N3..	..85N3..	..85N3..	..85N3..	..85N3..	..85N3..	
0.26...6.8	3/8"	..90N3..	..90N3..	..90N3..	..90N3..	..90N3..	..90N3..	..90N3..	
0.53...9.5	1"	..95N6..	..95N6..	..95N6..	..95N6..	..95N6..	..95N6..	..95N6..	
0.66...13.2	1"	..98N6..	..98N6..	..98N6..	..98N6..	..98N6..	..98N6..	..98N6..	

Accessories:

Part Number **807.037** = Mating 4-PIN Micro-DC Plug with 6ft. Cable for Output F300, L342, & L343

Part Number **807.007** = Mating 5-PIN Micro-DC Plug with 6ft. Cable for Output C34P and C30R

* Please specify flow direction when ordering

Order Details: Plug-on Display (Model DRH-..L442)

Description	Model Number
4 Digit LED DIN 43 650 Connector 2-Wire Supply Through Analog Output	AUF-1000
Same Specs as Above Additional Open Collector Output	AUF-1001

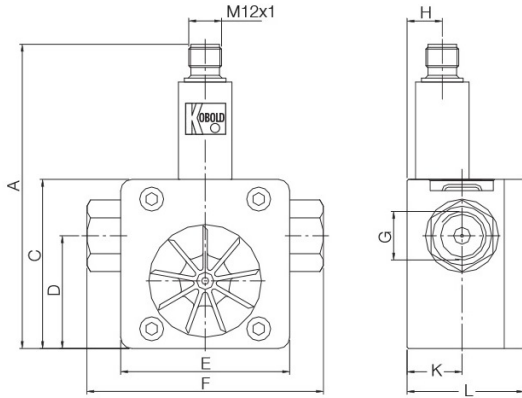




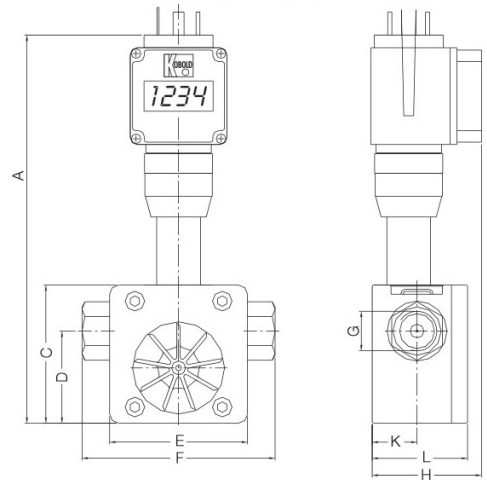
Paddle Wheel Flow Sensor Model DRH

Dimensions

DRH-..F300, DRH-..L34x (Analog Output)



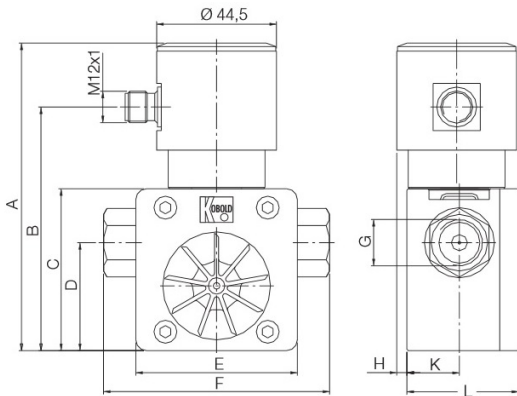
DRH-..L442 (Analog Output and Plug-on Display)



NPT	A	C	D	E	F	H	K	L
3/8"	4.26"	2.37"	1.58"	2.37"	3.30"	0.50"	0.77"	1.64"
1"	4.65"	2.76"	1.66"	2.76"	4.33"	0.63"	0.89"	2.09"

NPT	A	C	D	E	F	H	K	L
3/8"	6.64"	2.37"	2.37"	1.58"	2.37"	1.87"	0.77"	1.64"
1"	7.03"	2.76"	2.76"	1.66"	2.76"	1.87"	0.89"	2.09"

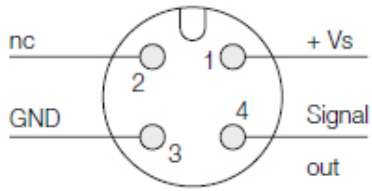
DRH-..C3xx (Compact Electronics)



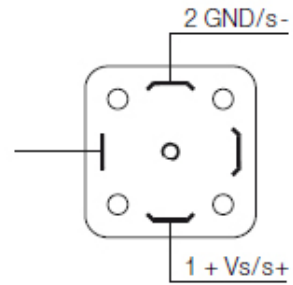
NPT	A	B	C	D	E	F	H	K	L
3/8"	4.49"	3.56"	2.37"	2.37"	1.58"	2.37"	0.15"	0.77"	1.64"
1"	4.89"	3.94"	2.76"	2.76"	1.66"	2.76"	0.07"	0.89"	2.09"

Electrical Connection

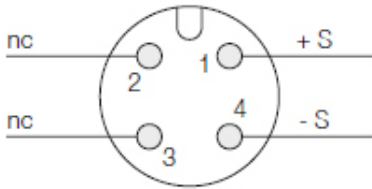
DRH-..F300, DRH-..L34x 3-wire



DRH-..L442



DRH-..L342 2-wire



DRH-..C3xx

