Paddle Flow Sensor

for Liquids

measuring • monitoring • analyzing

DRG

- Economically Priced
- Perfect OEM Flow Sensor
- Five Material Combinations
- Flow Ranges 0.15...3 GPM to 3...37 GPM
- Frequency, 4-20 mA Transmitters or Compact Electronics
- All Plastic Versions Available

KOBOLD companies worldwide:

AUSTRALIA, AUSTRIA, BELGIUM, BULGARIA, CANADA, CHINA, CZECHIA, FRANCE, GERMANY, GREAT BRITAIN, HUNGARY, INDIA, INDONESIA, ITALY, MALAYSIA, MEXICO, NETHERLANDS, PERU, POLAND, REPUBLIC OF KOREA, RUSSIA, SPAIN, SWITZERLAND, THAILAND, TUNISIA, TURKEY, USA, VIETNAM

KOBOLD Instruments, Inc.
1801 Parkway View Drive
Pittsburgh, PA 15205
Main Office:
1.800.998.1020
1.412.788.4890
info@koboldusa.com
www.koboldusa.com

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Description

The KOBOLD series DRG has the winning combination of compact size, low cost, and versatility which makes it the perfect product for OEM flow measuring applications. It uses a Hall effect sensor to detect the passing of permanent magnets embedded in the rotating paddle. The DRG can be supplied with a frequency output, 4-20 mA output, or a versatile compact electronics package providing an LED display, 4-20 mA output or programmable setpoint switches. It is offered in six material combinations. An all plastic version is available which makes it suitable for use with high purity water and many types of aggressive chemicals.

Technical Details

Accuracy:	±3% of Full Scale.
Electrical Connection:	Micro-DC Plug,4-pin Male or DIN 43650 Plug
Sensor Press. Drop:	14.5 PSI at 100% Rated Flow
Protection:	IP65
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

Frequency Output with Frequency Divider (...F320,F340,F390)

Power Supply:	24 V_{DC} ± 20 %
Power Consumption:	15 mA
Pulse Output:	PNP, Open Collector, Max. 25 mA
Electrical Connection:	Plug Connector M12 x 1
Division Ratio:	1...$^{1}/_{128}$, factory set (1:2,1:4)

Analog Output (..L34x, ..L442)

Power Supply:	24 V_{DC} ± 20%
Output:	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:	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

No responsibility taken for errors;
subject to change without prior notice.

Material Combinations

Material Combinations	DRG-11	DRG-12	DRG-14	DRG-15	DRG-18	DRG-19
Housing	Brass	Brass	Stainless Steel*	Stainless Steel*	Polypropylene	Polypropylene
Housing Cover	Polysulfone	Brass	Polysulfone	316L SS	Polypropylene	Polysulfone
O-ring	NBR	NBR	FKM	FKM	NBR	NBR
Paddle	PTFE	PTFE	PTFE	PTFE	PTFE	PTFE
Axle	Ceramic	Ceramic	Ceramic	Ceramic	Ceramic	Ceramic
Axle Support	PTFE	PTFE	PTFE	PTFE	PTFE	PTFE
Max. Temp.	176 °F	176 °F	176 °F	176 °F	176 °F	176 °F
Max. Press.	230 PSIG	580 PSIG	230 PSIG	580 PSIG	100 PSIG	160 PSIG
Sensor Weight	1.28 LB	1.28 LB	1.06 LB	1.06 LB	0.26 LB	0.26 LB

*EN 1,3955 cast stainless steel, no direct AISI equivalent

Order Details (Example: **DRG-1150N1 F300**)

Please specify flow direction of meter configured with any Compact electronic option. See flow direction diagram on pg. 6 for details.

Flow Range (GPM)	Material Combination						Fitting (NPT)					Output
	DRG-11..	DRG-12..	DRG-14..	DRG-15..	DRG-18..	DRG-19	1/8"	1/4"	1/2"	3/4"	1"	
0.15...3	**..50..**	**..50..**	**..50..**	**..50..**	**..50..**	**..50..**	**..N1..**	-	-	-	-	**Frequency output** **..F300** = Frequency w/ Micro-DC Plug **..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** **..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 **Compact Electronics** **..C34P*** = Compact Electronic, 4-20mA + 1 PNP Switch **..C30R*** = Compact Electronic, 2 PNP Switches **..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
0.15...6.6	**..55..**	**..55..**	**..55..**	**..55..**	**..55..**	**..55..**	-	**..N2..**	-	-	-	
0.3...8	**..60..**	**..60..**	**..60..**	**..60..**	**..60..**	**..60..**	-	**..N2..**	**..N4..**	-	-	
0.6...12	**..65..**	**..65..**	**..65..**	**..65..**	**..65..**	**..65..**	-	-	**..N4..**	**..N5..**	**..N6..**	
1.5...23	**..70..**	**..70..**	**..70..**	**..70..**	**..70..**	**..70..**	-	-	**..N4..**	**..N5..**	**..N6..**	
1.5...37	**..75..**	**..75..**	**..75..**	**..75..**	**..75..**	**..75..**	-	-	-	**..N5..**	-	
3...37	**..80..**	**..80..**	**..80..**	**..80..**	**..80..**	**..80..**	-	-	-	-	**..N6..**	

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

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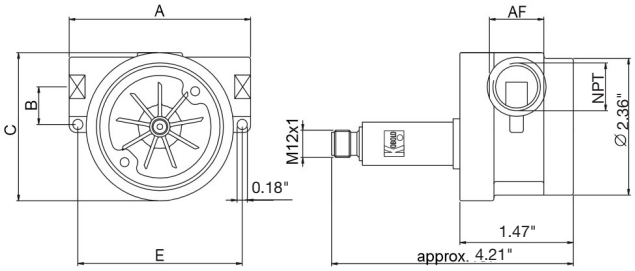
Order Details: Plug-on Display (for Model DRG-..L442)

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**

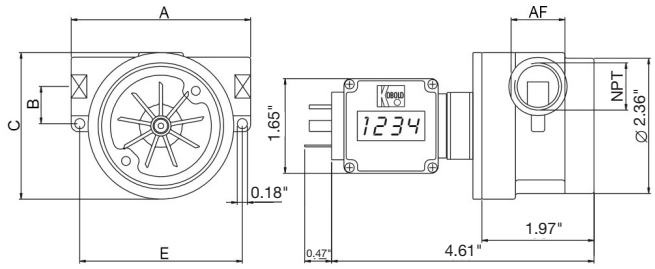
Dimensions

DRG-..F3XX (Frequency Output), DRG-..L34x (Analog Output)



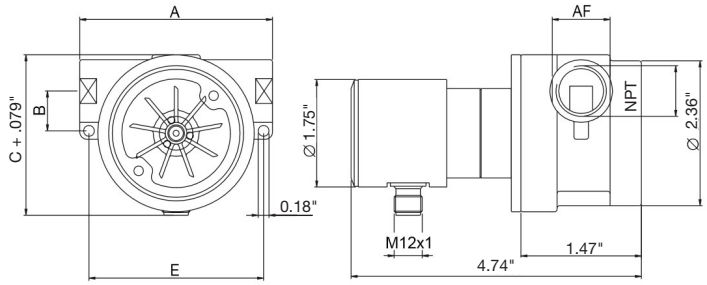
NPT	A	B	C	E	AF
1/8"	3.15"	0.65"	2.48"	2.85"	0.94"
1/4"	3.15"	0.65"	2.48"	2.85"	0.94"
1/2"	3.15"	0.65"	2.48"	2.85"	0.94"
3/4"	3.93"	0.98"	2.73"	3.54"	1.49"
1"	3.93"	0.98"	2.73"	3.54"	1.49"

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



NPT	A	B	C	E	AF
1/8"	3.15"	0.65"	2.48"	2.85"	0.94"
1/4"	3.15"	0.65"	2.48"	2.85"	0.94"
1/2"	3.15"	0.65"	2.48"	2.85"	0.94"
3/4"	3.93"	0.98"	2.73"	3.54"	1.49"
1"	3.93"	0.98"	2.73"	3.54"	1.49"

DRG-..C3xx (Compact Electronics)



NPT	A	B	C	E	AF
1/8"	3.15"	0.65"	2.48"	2.85"	0.94"
1/4"	3.15"	0.65"	2.48"	2.85"	0.94"
1/2"	3.15"	0.65"	2.48"	2.85"	0.94"
3/4"	3.93"	0.98"	2.73"	3.54"	1.49"
1"	3.93"	0.98"	2.73"	3.54"	1.49"

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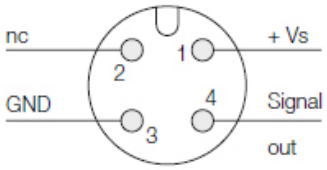
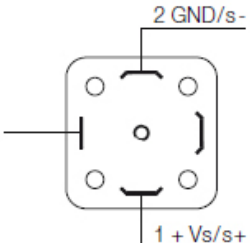
Electrical Connection

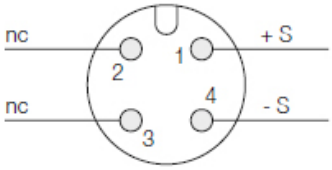
DRG-..F300, DRH-..L34x 3-wire



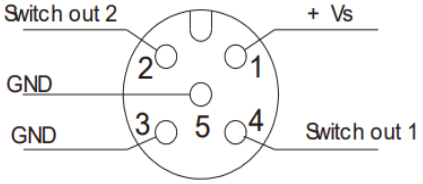
DRG-..L442



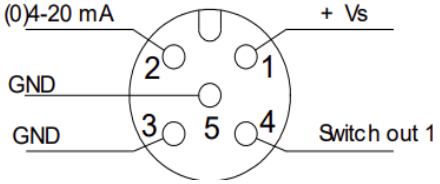
DRG-..L342 2-wire



Compact Electronics: (..C30R, ..C30M)



Compact Electronics: (..C34P, ..C34N)



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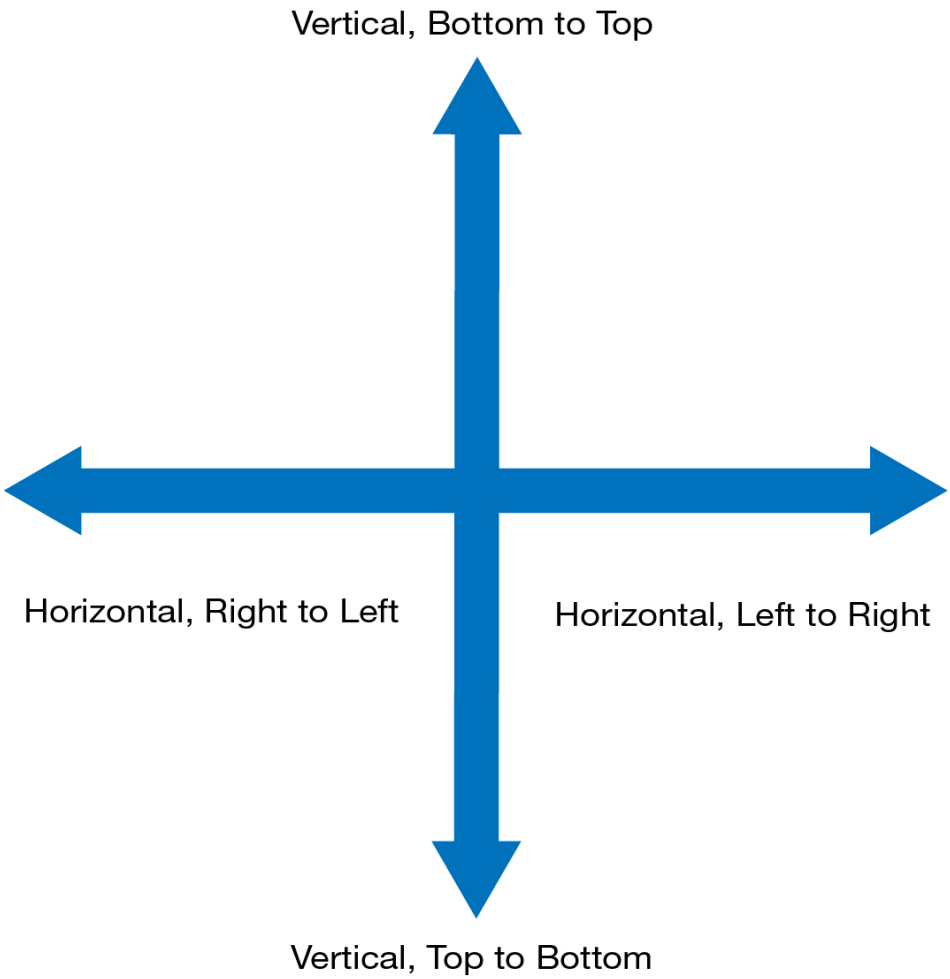
Flow Direction Diagram



Flow is in the direction of the arrow. Orientation is indicated as directly facing the flowmeter with flow direction aligned with the diagram. The meter must be installed with the rotor axle in the horizontal plane, consider this when specifying the unit. For horizontal flows, the display is on the side of the meter.

Example: Vertical flow, bottom to top

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