

# Turbine Flow Sensor and Flowmeter

for Liquids and Gases



measuring  
•  
monitoring  
•  
analyzing

KFF/KFG



## Series 1000: Flow Sensors

- Linear 0-5 VDC Output Signal
- Highly Repeatable
- Very Stable
- No Zero Drift
- Standard 12 V<sub>DC</sub> Input Power
- Liquid or Gas Versions



## Series 3000: Flowmeters

- All Features of the Series 1000 Flow Sensors
- Very Compact
- Power-Efficient LCD Display



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

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## Description

Our KOBOLD KFF/KFG 1000 Series Flow Sensors measure low flow rates for a wide variety of industrial, commercial and laboratory flow applications involving media transparent to the near-infrared spectrum. The Pelton-type turbine wheel and photodiodes generate an electrical signal linearly proportional to flow rate. This output signal (accessible via the included cable) can be either a 0–5 V<sub>DC</sub> analog output or pulse.

The KOBOLD KFF/KFG 3000 Series Flowmeter adds a compact, 0.4" LCD in-line display. Available in either brass or Rytan®, it is compatible with a variety of common media. An analog 0–5 V<sub>DC</sub> output is standard. Requiring only 35 mA at 12 V<sub>DC</sub>, this flowmeter can either be battery powered or connected to a 12 volt source with the included cable.



## Specifications: 1000 Series

Accuracy:	± 3% of full scale
Linearity:	± 3% of full scale
Repeatability	
Liquids (KFF):	± 0.2% of full scale
Gases (KFG):	± 1% of full scale

### Temperature Ratings

Range:	32...120 °F
Drift:	±0.1% / °F

### Maximum Pressure Ratings

Liquids (KFF)	
Ryton®:	100 PSIG
Brass:	500 PSIG
Gases (KFG)	
All Materials:	40 PSIG

Fittings:	Compression
Installation:	Horizontal

### Wetted Parts

#### Rytan Units

Housing:	60% Rytan / 40% Glass
Turbine:	60% Rytan / 40% Glass
Bearing:	Sapphire
Support:	316 Stainless Steel
Gaskets:	Viton®
Fittings:	Acetal

#### Brass Units

Housing:	Brass / Glass
Turbine:	60% Rytan / 40% Glass
Bearing:	Sapphire
Support:	316 Stainless Steel
Gaskets:	Viton®
Fittings:	Brass

Output Signal:	0–5 V <sub>DC</sub>
Option T:	0–5 V <sub>DC</sub> & pulse
Max. Frequency:	500 Hz
Power Requirements	
Voltage	11.5...15 V <sub>DC</sub>
Standard Units:	50 mA (typical)
Current:	

## Additional Specifications: 3000 Series

Repeatability	
Liquid:	± 0.2% of full scale
Gas:	± 0.5% of full scale
Display	
Type:	3 1/2 digit LCD
Character Height:	0.4"
Electrical Data	
Output Signal:	0–5 V <sub>DC</sub>
Power Requirements	
Voltage:	12.5 V <sub>DC</sub> ± 2 V <sub>DC</sub>
Current:	35 mA (typical)
Hook-Up:	Via supplied cable



### Order Details for KFF (for Water)

#### 1000 Series Sensor (Example: KFF-1003 C2)

Range ml/min	Pressure Drop (PSI)	Fittings (Tube)	Model Number	
			Ryton®	Brass
13...100	15	1/8"	KFF-1003	KFF-1103
20...200	15	1/8"	KFF-1004	KFF-1104
50...500	10	1/4"	KFF-1005	KFF-1105
100...1000	7	1/4"	KFF-1006	KFF-1106
200...2000	7	1/4"	KFF-1007	KFF-1107
500...5000	10	3/8"	KFF-1008	KFF-1108
1000...10000	10	3/8"	KFF-1009	KFF-1109

#### 3000 Series Flowmeter (Example: KFF-3108 C2)

Range ml/min	Pressure Drop (PSI)	Fittings (Tube)	Model Number	
			Ryton®	Brass
13...100	10	1/8"	KFF-3003	KFF-3103
20...200	10	1/8"	KFF-3004	KFF-3104
50...500	10	1/4"	KFF-3005	KFF-3105
60...1000	6	1/4"	KFF-3006	KFF-3106
100...2000	6	1/4"	KFF-3007	KFF-3107
200...5000	6	3/8"	KFF-3008	KFF-3108
1000...10000	9	3/8"	KFF-3009	KFF-3109

### Order Details for KFG (for Air)

#### 1000 Series Sensor (Example: KFG-1008 C1)

Range	Pressure Drop (Inches H <sub>2</sub> O)	Fittings (Tube)	Model Number
			Ryton®
20...100 ml/min	20	1/8"	KFG-1003
40...200 ml/min	10	1/8"	KFG-1004
100...500 ml/min	3	1/8"	KFG-1005
200...1000 ml/min	2	1/8"	KFG-1006
400...2000 ml/min	2	1/4"	KFG-1007
1...5 L/min	2	1/4"	KFG-1008
2...10 L/min	2	1/4"	KFG-1009
4...20 L/min	2	3/8"	KFG-1010
10...50 L/min	2	3/8"	KFG-1011
20...100 L/min	2	1/2"	KFG-1012
40...200 L/min	2	1/2"	KFG-1013
100...500 L/min	3	1/2"	KFG-1014

#### 3000 Series Flowmeter (Example: KFG-3008 C1)

Range	Pressure Drop (Inches H <sub>2</sub> O)	Fittings (Tube)	Model Number	
			Ryton®	Brass
20...100 ml/min	20	1/8"	KFG-3003	KFG-3103
40...200 ml/min	10	1/8"	KFG-3004	KFG-3104
100...500 ml/min	3	1/8"	KFG-3005	KFG-3105
200...1000 ml/min	3	1/8"	KFG-3006	KFG-3106
400...2000 ml/min	3	1/4"	KFG-3007	KFG-3107
1...5 L	3	1/4"	KFG-3008	KFG-3108
2...10 L	3	1/4"	KFG-3009	KFG-3109
4...20 L	2	3/8"	KFG-3010	---
10...50 L	3	3/8"	KFG-3011	---
20...100 L	3	1/2"	KFG-3012	---
40...200 L	5	1/2"	KFG-3013	---
100...500 L	20	1/2"	KFG-3014	---

Options	Suffix
18.0...25.0 VDC Power (Not available with option T)	..B2
Brass Compression Fittings	..C1
Stainless Steel Compression Fittings	..C2
EPDM O-rings in place of the standard FKM	..OR3
Frequency Output (Models KFF only) (Not available with option B2)	..T

Accessories	Item Number
110 VAC Power Adapter for 12 VDC Models	KF-8000
230 VAC Power Adapter for 12 VDC Models	KF-8100