

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_{DC} 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:

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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



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 pulse or 0-5 V_{DC} analog output. They are available in Ryton®, brass, or PTFE. Our most economical option replaces the standard PTFE fittings on the KFF/KFG-1500 series with PVDF.

The KOBOLD KFF/KFG 3000 Series Flowmeter adds a compact, 0.4" LCD in-line display. Available in either brass or Ryton®, it is compatible with a variety of common media. An analog 0-5 V_{DC} output is standard. Requiring only 35 mA at 12 V_{DC}, 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**
 - Liquid:** ± 0.2% of full scale
 - Gas:** ± 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
 - PTFE:** 60 PSIG
 - Gases (KFG)**
 - All Materials:** 40 PSIG
- Fittings:** Compression
- Installation:** Horizontal

Wetted Parts

Ryton Units

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

Brass Units

- Housing:** Brass & glass
- Turbine:** 60% Ryton / 40% Glass
- Bearing:** Sapphire
- Support:** 316 Stainless Steel
- Gaskets:** Viton®
- Fittings:** Brass

PTFE Units

- Housing:** PTFE
- Turbine:** PTFE
- Bearing:** Sapphire
- Support:** PTFE
- Gaskets:** Kalrez®
- Fittings:** PFA
- Output Signal:** 0-5 V_{DC}
- Option T:** 0-5 V_{DC} & pulse
- PTFE Units:** 0-5 V_{DC} & pulse
- Max. Frequency:** 500 Hz
- Power Requirements**
 - Voltage**
 - Standard Units:** 11.5...15 V_{DC}
 - PTFE Units:** 11.5...15 V_{DC}
 - Current:** 50 mA (typical)

Additional Specifications: 3000 Series (Not available in PTFE)

- 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_{DC}
 - Power Requirements**
 - Voltage:** 12.5 V_{DC} ± 2 V_{DC}
 - 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 | PTFE |
| 13...100 | 15 | 1/8" | KFF-1003 | KFF-1103 | KFF-1503 |
| 20...200 | 15 | 1/8" | KFF-1004 | KFF-1104 | KFF-1504 |
| 50...500 | 10 | 1/4" | KFF-1005 | KFF-1105 | KFF-1505 |
| 100...1000 | 7 | 1/4" | KFF-1006 | KFF-1106 | KFF-1506 |
| 200...2000 | 7 | 1/4" | KFF-1007 | KFF-1107 | KFF-1507 |
| 500...5000 | 10 | 3/8" | KFF-1008 | KFF-1108 | KFF-1508 |
| 1000...10000 | 10 | 3/8" | KFF-1009 | KFF-1109 | KFF-1509 |

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 ₂ 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 ₂ 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 |