F to I / F to V Intelligent Frequency Converters

For Model 1100 Turbine Meters

Features

- Converts turbine pulse output into linearized analog output
- Choice of 4-20 mA or 0-5 VDC output
- Microprocessor-based device
- Enables integration with data acquisition devices
- Two mounting styles available for a variety of applications

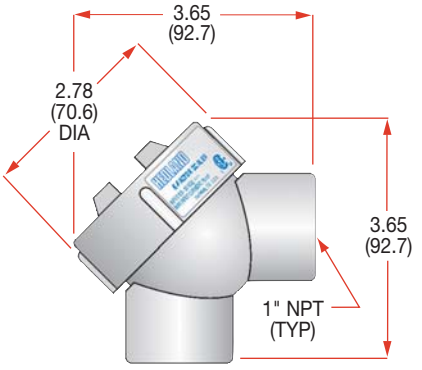
The Frequency-to-Current (F to I) and Frequency-to-Voltage (F to V) Intelligent Converters are state-of-the-art, microprocessor-based active sensors designed to provide enhanced features and greater flexibility for the Model 1100 turbine meter. The converters measure and calculate the flow rate of a turbine flow meter and produce an analog output proportional to the flow rate.

When a converter is ordered with a flow meter, the two components ship from the factory calibrated as a system. If the converter is a replacement or the turbine's K-factor has changed, then re-programming is possible with an optional Windows® -based software utility. Please consult factory for details.

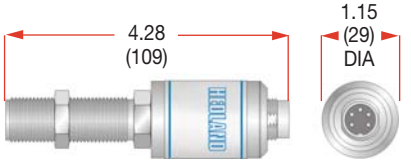
Specifications

	F to I	
Power:	10 to 30 VDC supply range Loop-powered, 6V insertion loss maximum	10 to 26 VDC supply range
Inputs:	Magnetic Pick-up	Magnetic Pick-up
Frequency	0 to 3500 Hz	0 to 3500 Hz
Trigger Sensitivity	30 mV peak-to-peak	30 mV peak-to-peak
Frequency Measurement Accuracy	±1%	±1%
Analog Output:	4 to 20 mA current loop	0 to 5 VDC
Resolution	1:4000	1:4000
Temperature Drift	50 ppm / °C (max)	50 ppm / °C (max)
Environmental:		
Ambient Temperature	-22 °F to +158 °F (-30 °C to +70 °C)	-22 °F to +158 °F (-30 °C to +70 °C)
Humidity	0-90% non-condensing	0-90% non-condensing
Enclosures:		
Cannister Model	Nickel-plated 6061-T6 aluminum Nickel-plated brass	Nickel-plated 6061-T6 aluminum Nickel-plated brass
Condulet Model	Killark® aluminum-capped elbow-Y3, CSA approved, Class I, Div 1 & 2, Groups C, D; Class II, Div 1 & 2, Groups E, F, G; and Class III	Killark® aluminum-capped elbow-Y3, CSA approved, Class I, Div 1 & 2, Groups C, D; Class II, Div 1 & 2, Groups E, F, G; and Class III

Dimensions-Inches (mm)



Condulet Model



Cannister Model

Ordering Information

Model No.	Description	Output
HB220-873	F to I in Aluminum Condulet	
HB220-874	F to V in Aluminum Condulet	
HB220-950 [1]	F to I in Canister (Includes Mag Pick-up)	
HB220-951 [1]	F to V in Canister (Includes Mag Pick-up)	

[1] *For mating cables, see page 8.*

Note: Flow meter and condulet model converter must be ordered separately.

Ordering Examples

HB110-750 **and** HB220-873	3/4" Model 1100 flow meter with 4-20 mA output in aluminum condulet
HB110-750-420	3/4" Model 1100 flow meter with 4-20 mA output in canister (includes HB110-750 and HB220-951)

K-Factor Scaler
For Model 1100 Turbine Meters

The Hedland K-Factor Scaler converts a low level frequency output (such as that from a Hedland turbine flow meter) into a scaled square wave output signal. This adjustable frequency divider converts or scales the turbine meter output into units of measurement needed for a particular application and recognized by almost any data collection device. The K-Factor Scaler also provides an amplified signal, even when a frequency conversion is not required. This signal is more immune to electrical noise and capable of transmission over longer distances than a raw turbine meter output.

Specifications

External Power:	
Input Voltage	8.5 to 30 VDC (diode protected)
Max Current Draw	18 mA (using internal resistor @ 30 VDC input)
Operating Temperature:	-22 °F to +158 °F (-30 °C to +70 °C)
Inputs:	Magnetic Pick-up
Frequency Range	0 to 4000 Hz
Trigger Sensitivity	30 mV to 30 V (peak-to-peak)
Output Signal:	
Max Voltage	30 VDC
Max Power	0.25 W
Pulse Type	
Using internal pull-up resistor	V_H = Power input voltage – 0.7 VDC V_L = Less than 0.4 V @ max input power
Using external pull-up resistor	V_H = Input voltage to external pull-up resistor V_L = (V_H / Selected resistor value + 47Ω) × 47Ω
Pulse Length:	150µs, 1ms, 25ms, 100ms, 500ms, 1s, or auto mode selectable
Internal Pull-up Resistor:	Jumper disable option 3.6KΩ
Enclosure Ratings:	
Model HB220-885	Killark® aluminum-capped elbow – Y3, CSA approved Class I, Div 1 & 2, Groups C, D; Class II, Div 1 & 2, Groups E, F, G; and Class III
Models HB220-880 & HB220-881	Appleton GR conduit outlet box GRL100-A & GRLB100A, CSA approved Class I, Groups B, C & D; Class II, Groups E, F, G; and Class III
Certifications:	CSA ordinary locations Pollution Degree 2, Overvoltage Category III

Ordering Information

Model No.	Enclosure	No. of Digits	Range	K-factor Entry
HB220-880	Conduit Outlet Box - Side Entry	8	1 to 99,999,999	Rotary Switch
HB220-881	Conduit Outlet Box - Bottom Entry	8	1 to 99,999,999	Rotary Switch
HB220-885	Aluminum - Capped Elbow	9	1 to 999,999,999	Electronic Input

Ordering Examples

HB110-110 **and** HB220-885 — 1" Model 1100 flow meter and K-Factor Scaler with electronic input in aluminum - capped elbow

Killark is a registered trademark of Hubbell Incorporated.

Features

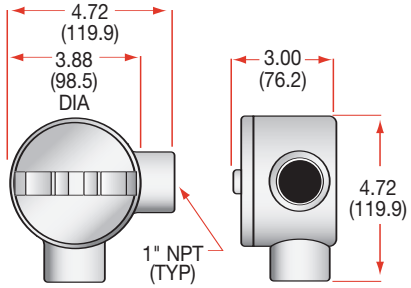
- Scales turbine meter output to desired engineering units
- Amplifies turbine meter pulse output
- Converts frequency outputs into recognizable units for PLCs and other devices
- Switch-selectable or programmable versions available

HB220-880

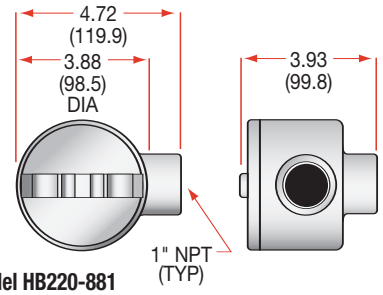
HB220-881

HB220-885

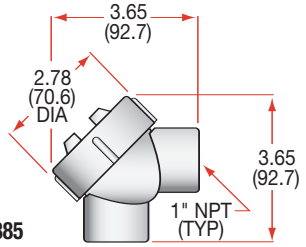
Dimensions-Inches (mm)



Model HB220-880



Model HB220-881



Model HB220-885

Accessories
For Model 1100 Turbine Meters

Cable & Connector Options

Part Number[1]	Description	Length	For Use With
HB220-220	Cable with 2-pin MS 90° Connector	10 ft (3m)	HB111-109 Standard Magnetic Pick-up
HB220-221	Cable with 2-pin MS Straight Connector	10 ft (3m)	HB111-109 Standard Magnetic Pick-up
HB220-219	Cable with 3-pin Straight Connector	10 ft (3m)	HB220210 Magnetic Pick-up with Pre-Amplifier
HB220-090	High Temp Cable with Straight Connector	10 ft (3m)	HB220111 High Temp Magnetic Pick-up
HB220952-15	Cable with 5-pin Straight Connector	15 ft (4.6m)	HB220-950 & HB220-951 Active Pick-ups
HB220952-6	Cable with 5-pin Straight Connector	6 ft (1.8m)	HB220-950 & HB220-951 Active Pick-ups
HB220086	Amphenol 3-pin Straight Connector	–	HB220210 Magnetic Pick-up with Pre-Amplifier

[1] Additional cable lengths available, consult factory

Hedland's family of products includes:

- **Variable Area In-line Flow Meters**
  Complete line of variable area flow meters, Flow-Alerts™ and flow transmitters for petroleum-based fluids, phosphate esters, water and water-based fluids, as well as air and compressed gases
- **Transit Time Ultrasonic Flow Meters**
  Non-intrusive, clamp on design for liquid measurement in pipe sizes from 1/2" through 100"
- **Positive Displacement Flow Meters**
  Flow meters for applications requiring accurate low flow measurement of liquids with a wide range of viscosities
- **Flo-tech™ Portable Hydraulic Testers**
  Compact, self-contained portable testers designed for fast diagnostic troubleshooting of all types of mobile or stationary hydraulic systems
- **Flo-tech™ Turbine Flow Meters for Hydraulic Fluids**
  Turbine flow meters available in a variety of configurations for measuring flow, as well as temperature and pressure, of hydraulic fluids or other compatible fluids
- **Digital Readouts**
  Readouts available for analog or voltage inputs for measuring flow, pressure and temperature

HEDLAND®
www.hedland.com

MAILING ADDRESS
P.O. Box 081580
Racine, WI 53408-1580 USA

TELEPHONE
262-639-6770
800-HEDLAND
800-433-5263

E-MAIL
hedlandsales@racinefed.com

SHIPPING ADDRESS
8635 Washington Ave.
Racine, WI 53406-3738 USA

FAX
262-639-2267
800-CHK-FLOW
800-245-3569

DISTRIBUTED BY:

Form No. 268 6/05 Printed in USA