

# INSERTION ELECTROMAGNETIC FLOW TRANSMITTER

Field Configurable, High Accuracy, BACnet or Modbus® Protocol



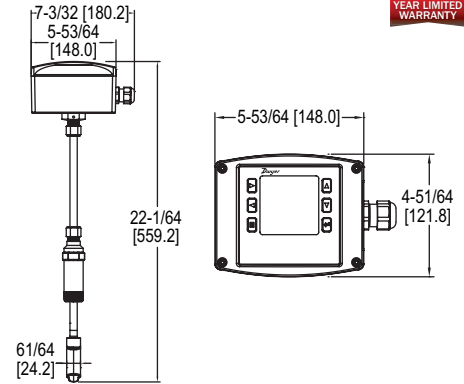
Shown with A-IEF-VLV-BR\*\* accessory valve



-LCD option shown



A-IEF-KIT



The Series IEF Insertion Electromagnetic Flow Transmitter is an adjustable insertion flowmeter featuring electromagnetic technology that accurately and reliably measures fluid velocity in addition to providing several continuous signal outputs. This series is specifically designed to offer superior performance paired with simple installation and use. One unit is adjustable to fit pipe sizes from 4 to 36" (102 to 914 mm), and offers several output options including selectable BACnet MS/TP or Modbus® RTU communications protocol over 2-wire RS-485 in addition to the standard analog, frequency and alarm outputs.

**FEATURES/BENEFITS**

- Field configurable setup displays (-LCD integral option or remote accessory A-IEF-DSP) allow for ultimate flexibility by accommodating a variety of application configurations with one model through multiple display configurations i.e. pipe size, pipe material, liquid type, analog output, pulse/frequency output, alarm outputs, communication outputs, damping, and calibration factor.
- High performance accuracy is maintained through changes in temperature, density or viscosity.
- Setup Wizard and installation tool are simple to use allowing for quick and precise installation.
- Accessory setup kit A-IEF-KIT ensures exact installation application depth with included thickness gage and measuring tape.
- Long Life Cycle and minimal maintenance requirements with no moving parts to wear or break and electrodes that discourage fouling.
- Isolation valve accessory options allow for installation in operational systems via hot-tap kit or easy removal without system downtime.
- NIST traceable pass/fail verification certificate included standard for Carbon Steel Schedule 40 pipes sized 4" (102 mm), 6" (150 mm), 8" (200 mm), and 10" (250 mm) with high accuracy option; 10" (250 mm) with standard option.

**APPLICATIONS**

- Boiler feed water
- Chilled water
- Open and closed loop condenser water
- Irrigation system
- Municipal water distribution
- Process and coolant flow
- Ground water remediation
- Chemical processing
- Pump protection
- Wastewater
- Mining

**SPECIFICATIONS**

**Service:** Compatible clean or dirty non coating, conductive liquids.  
**Range:** 0 to 20 ft/s (0 to 6 m/s).  
**Wetted Materials:** Body shaft/fitting: 316 SS; Electrodes: 316 SS; Electrode cap: Polymer/Polystyrene; O-ring: Silicon.  
**Accuracy:** IEF-HX-X: ±0.5% of reading at calibrated velocity; ±1% of reading from 2 to 20 ft/s (0.6 to 6 m/s); ±0.02 ft/s (±0.006 m/s) at < 2 ft/s (0.6 m/s). IEF-SX-X: ±1% FS.  
**Temperature Limits:** Ambient: -20 to 160°F (-29 to 71°C); Process: 15 to 250°F (-9 to 121°C); Storage: -40 to 185°F (-40 to 85°C).  
**Process Connection:** 1" NPT or BSPT with accessory full port ball valve options.  
**Pressure Limits:** 400 psi (27.6 bar) @ 100° F (37.8°C).  
**Pressure Drop:** < 0.1 psi at 12 ft/s in 4" (101.6 mm) and larger pipe.  
**Outputs:**  
 (1) Analog: 4 to 20 mA, 0 to 5 V, 0 to 10 V or 2 to 10 V (display selectable);  
 (1) Pulse/Frequency: 0 to 15 V peak pulse, 0 to 500 Hz or scalable pulse output (display selectable);  
 (2) Alarm: (1) Empty pipe detection or minimum/maximum velocity, (display selectable); (1) Reverse flow output indication.  
**Power Requirements:** 12 to 42.4 VDC, .25 A @ 24 VDC; 12 to 36 VAC.

**Electrical Connection:** Removable terminal blocks, model selectable 1/2" female NPT conduit connection, PG 16 gland or PG 16 gland with (2) 10 ft (3 m) 9 conductor 22 AWG plenum rated cables, accessory cable lengths up to 200 ft (61 m) optional.  
**Display (-LCD option):** 2" (5.08 cm) x " (5.08 cm) graphic LCD with backlight.  
**Conductivity:** >20 microsiemens.  
**Enclosure Material:** Powder coated die cast aluminum.  
**Enclosure Ratings:** NEMA 6P (IP68) (Non display models); NEMA 4X (IP66) (-LCD option).  
**Agency Approvals:** BTL, CE, NSF/ANSI 61 and 372.

**COMMUNICATIONS (-COM OPTION)**  
**Type:** BACnet MS/TP or Modbus® RTU communication protocol (default disabled, display selectable).  
**Supported Baud Rates:** 9600, 19200, 38400, 57600, 76800, or 115200 bps (display selectable).  
**Device Load:** 1/8 unit load.

**ADDITIONAL SPECIFICATIONS**  
**Applicable Pipe Material:** Most popular plastic and metal pipes; i.e. Carbon steel, SS, copper, UPVC/PVDF, galvanized steel, mild steel, and brass.  
**Applicable Pipe Size:** IEF-HX-X: 4 to 10" (101 to 254 mm); IEF-SX-X: 4 to 36" (101 to 914 mm).  
**Diameter Length Requirements:** >10 upstream; >5 downstream.  
**Glycol:** 0 to 100% display selectable.

\*For max flowrates >10 ft/s (3 m/s) order option -CC.  
 \*\*Brass fittings and pipe are not to be used with NSF Certified models.

**MODEL CHART**

Example	IEF	-H	N	-CND	-LCD	IEF-HN-CND-LCD
<b>Series</b>	IEF					Insertion electromagnetic flow transmitter
<b>Application</b>		H F X E T S G L				High accuracy; 1% of reading High accuracy 4" pipe (100 mm)* pipe; 1% of reading High accuracy 6" (150 mm)* pipe; 1% of reading High accuracy 8" (200 mm) pipe; 1% of reading High accuracy 10" (250 mm) pipe; 1% of reading Standard accuracy; 1% FS Standard accuracy >10" (25.4 mm) pipe; 1% FS Standard accuracy <10" (25.4 mm) pipe; 1% FS
<b>Process Connection</b>			N B			1" male NPT 1" male BSPT
<b>Housing Electrical Connection</b>				CND PG 10		1/2" female NPT conduit connection without cable PG gland without cable PG gland with 10' cable
<b>Options</b>					LCD COM NIST FC CC	Integral LCD BACnet or Modbus® communication protocol (display selectable) Six point NIST traceable calibration certificate Factory calibration certificate for 0.5% of reading at single point Custom configured for specific installation

**Note:** For CC option, must provide completed configuration paperwork.

**ACCESSORIES**

Model	Description
A-IEF-KIT	Setup kit (includes setup display, thickness gage and measuring tape), and universal power adapter
A-IEF-DSP	Setup display
A-IEF-CBL-50	Plenum rated cable 50 ft (15.2 m)
A-IEF-VLV-BR	1-1/4" full port isolation valve brass**
A-IEF-VLV-SS	1-1/4" full port isolation valve 316 SS
A-IEF-INGD	Installation alignment kit
A-IEF-PA	AC wall adapter

\*\*Brass fittings and pipe are not to be used with NSF Certified models. Brass valves are non-RoHS compliant.