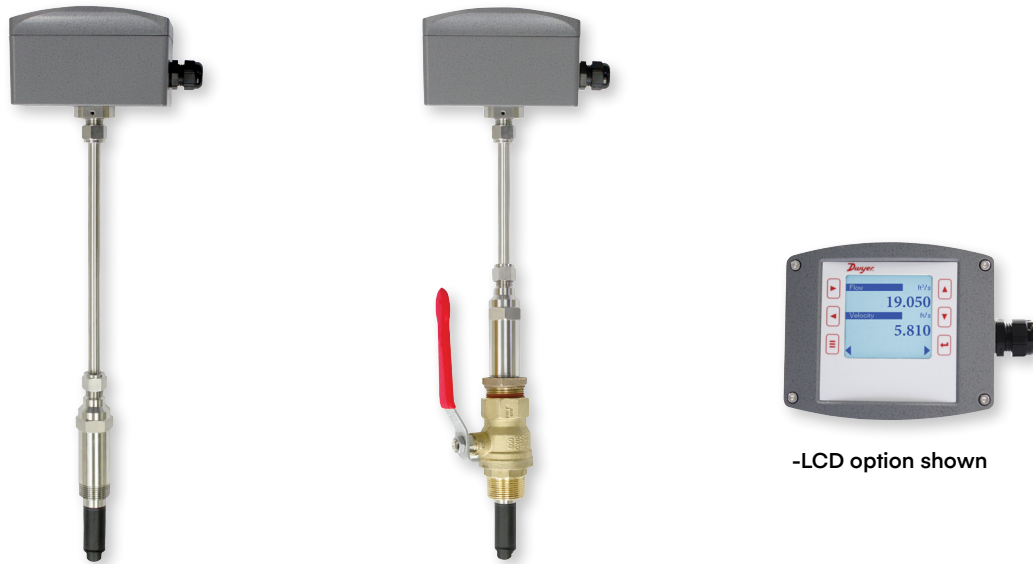


Series IEF

Insertion Electromagnetic Flow Transmitter



-LCD option shown

Shown with A-IEF-VLV-BR
accessory valve kit

Benefits/Features

- Meet application requirements with field configurable setup displays (-LCD integral option or remote accessory A-IEF-DSP), which accommodate 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
- Maintain system efficiency with high performance accuracy that is maintained through changes in temperature, density or viscosity
- Quick and easy ordering and set up with Setup Wizard and installation tool that are simple to use and allow for precise installation
- Save time with accessory setup kit A-IEF-KIT that ensures exact installation application depth with included thickness gage and measuring tape
- Reduced costs, long product life, and minimal maintenance requirements with no moving parts to wear or break and electrodes that discourage fouling
- Minimize installation costs with isolation valve accessory options to allow for installation in operational systems via hot-tap kit or easy removal without system downtime
- Required documents included with NIST traceable pass/fail verification certificate included standard for Carbon Steel Schedule 40 pipes sized 100 mm (4 in), 150 mm (6 in), 200 mm (8 in)

Description

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 100 mm to 900 mm (4 in to 36 in), 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.

Applications

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

Specifications

Humidity Measurement Range	0 % to 100 % humidity.
Service	Compatible clean or dirty non coating, conductive liquids.
Range	0 m/s to 3 m/s (0 ft/s to 10 ft/s), options up to 6 m/s (20 ft/s)*
Wetted Materials	Body shaft/fitting: 316 SS; Electrodes: 316 SS; Electrode cap: Polymer/polystyrene; O-ring: Silicone.
Accuracy	High accuracy units: ± 1 % of reading from 0.6 m/s to 6 m/s (2 ft/s to 20 ft/s); ± 0.006 m/s (± 0.02 ft/s) at < 0.6 m/s (2 ft/s); Standard accuracy units: ± 1 % FS.
Temperature Limits	Ambient: -29 °C to 71 °C (-20 °F to 160 °F); Process: -9 °C to 121 °C (15 °F to 250 °F); Storage: -40 °C to 85 °C (-40 °F to 185 °F).
Process Connection	1 in NPT or BSPT with accessory full port ball valve options.
Pressure Limits	27.6 bar (400 psi) @ 37.8 °C (100 °F).
Pressure Drop	< 0.006 bar (0.1 psi) at 3.7 m/s (12 ft/s) in 100 mm (4 in) and larger pipe.
Outputs	(1) Analog: 4 mA to 20 mA, 0 V to 5 V, 0 V to 10 V or 2 V to 10 V (display selectable); (1) Pulse/Frequency: 0 V to 15 V peak pulse, 0 Hz 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.
Output Resistance	Current Output: 650 Ω max; Voltage Output: min. load 1 k Ω
Power Requirements	12 Vdc to 42.4 Vdc, 12 Vac to 36 Vac, 1 A
Electrical Connection	Removable terminal blocks, model selectable 1/2 in female NPT conduit connection, PG 16 gland or PG 16 gland with (2) 3 m (10 ft) 9 conductor 22 AWG plenum rated cables, accessory cable lengths up to 61 m (200 ft) optional.
Display (-LCD option)	5.08 cm (2 in) x 5.08 cm (2 in) 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).
Compliance	BTL, CE.

*For max flowrates > 10 ft/s (3 m/s) order option -CC. 3-in-1 plane max flowrate is 3 m/s (10 ft/s).

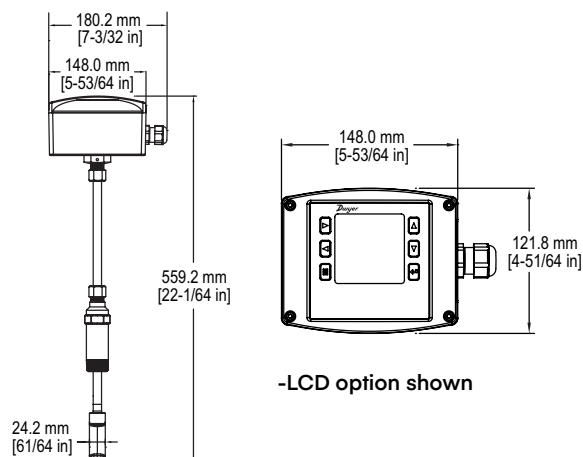
Communications Specifications (-COM option)

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.

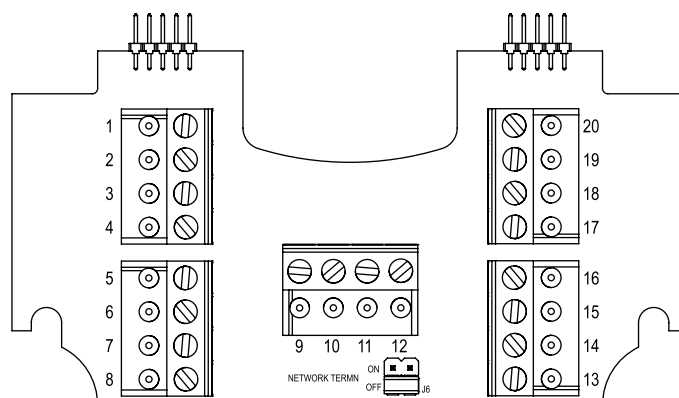
Additional Specifications (-COM option)

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	100 mm to 900 mm (4 in to 36 in), model dependent. See model chart.
Diameter Length Requirements	> 10 upstream, > 5 downstream.
Glycol	0 % to 100 % display selectable.

Dimensions



Wiring Diagram



Wiring Diagram

Cable*	Terminal #	Wire Color	Description	Note
A	1	Red	Power Supply Positive	Connect to +24 Vdc or Vac transformer
A	2	Black	Power Supply Common	Connect to 24 Vdc/Vac common
A	13	Shield	-	If used - Application Dependant
B	14	Shield	-	If used - Application Dependant
External	-	-	Earth/Chassis Ground	-
Analog Current Output				
B	3	Brown	(+) Analog current output	4 mA to 20 mA process output
B	4	Blue	(-) Analog output common	Current output common
Analog Voltage Output				
B	5	Green	(+) Analog voltage output	May be configured; 0 V to 10 V, 0 V to 5 V, 2 V to 10 V, etc.
B	6	White	(-) Analog output common	Voltage output common
Frequency Output				
B	8	Violet	(+) Frequency output	0 Hz to 500 Hz output (@ 0/15 Vdc output level)
B	7	Grey	(-) Analog output common	Frequency output common
RS-485 Communication (optional)				
B	11,12	Orange	RS-485 (+)	On board short for daisy chain connection
B	9,10	Yellow	RS-485 (-)	On board short for daisy chain connection
Reverse Flow				
A	15	Brown	Isolated solid state output N.O.	50 Vac/Vdc @ 100 mA maximum
A	16	Blue	Isolated solid state output N.O.	50 Vac/Vdc @ 100 mA maximum
Alarm				
A	17	Green	Isolated solid state output N.O.	50 Vac/Vdc @ 100 mA maximum
A	18	White	Isolated solid state output N.O.	50 Vac/Vdc @ 100 mA maximum
Pulse				
A	19	Orange	Isolated solid state output N.O.	50 Vac/Vdc @ 100 mA maximum
A	20	Yellow	Isolated solid state output N.O.	50 Vac/Vdc @ 100 mA maximum
No Connection				
B	-	Red	Do not connect	-
B	-	Black	Do not connect	-
A	-	Violet	Do not connect	-
A	-	Grey	Do not connect	-

*Supplied cables - shown

How to Order

Use the **bold** characters from the chart below to construct a product code.

	IEF	-H	N	-CND	-LCD
Series				Options*	
IEF: Insertion electromagnetic flow transmitter				-CC: Custom configured for specific installation -COM: BACnet or Modbus® communication protocol (display selectable) -FC: Factory calibration certificate for 0.5 % of reading at single point -LCD: Integral LCD -NIST: Multiple point NIST traceable calibration certificate	
Accuracy				Electrical Housing Connector	
-L: Standard accuracy 100 mm to 250 mm (4 in to 10 in) pipe; 1 % FS -G: Standard accuracy > 250 mm to 900 mm (> 10 in to 36 in) pipe; 1 % FS -S: Standard accuracy 100 mm to 900 mm (4 in to 36 in) pipe; 1 % FS -F: High accuracy 100 mm (4 in) pipe; 1 % of reading -I: High accuracy 150 mm (6 in) pipe; 1 % of reading -E: High accuracy 200 mm (8 in) pipe; 1 % of reading -T: High accuracy 250 mm (10 in) pipe; 1 % of reading -H: High accuracy 100 mm to 250 mm (4 in to 10 in) pipe; 1 % of reading				-CND: 1/2 in female NPT without cable -PG: PG 16 gland without cable -10: PG 16 gland with (2) 3 m (10 ft) plenum rated cables	
Process Connection				* -CCE option available for orders require 3-in-1 plane configuration or special configuration requirements. Contact sales to place order.	
N: 1 in NPT B: 1 in BSPT					

Accessories

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

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