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” (100 to 900 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, integral or remote displays allow for ultimate flexibility by accommodating a variety of applications through multiple display configurations
- High performance accuracy is maintained through changes in temperature, density, and viscosity
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- NIST calibration certificate included standard for Carbon Steel Schedule 40 pipes sized 4˝ (100 mm), 6˝ (150 mm), 8˝ (200 mm), and 10˝ (250 mm) with high accuracy option

**APPLIED TO**
- 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

**APPLICATIONS**

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**ORDER ONLINE TODAY!**
dwyer-inst.com/Product/SeriesIEF

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<td>1-1/4˝ full port isolation valve 316 SS</td>
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<td>A-IEF-PA</td>
<td>4C wall adapter</td>
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*Brass fittings and pipe are not to be used with NSF Certified models. Brass valves are non-RoHS compliant.
### SPECIFICATIONS

**Service**
- Compatible clean or dirty non-coating, conductive liquids.

**Range**
- 0 to 20 ft/s (0 to 6 m/s).

**Wetted Materials**
- Body: 316 SS; Electrodes: 316 SS; Electrode cap: Polymer/Polystyrene; O-ring: Silicone.

**Accuracy**
- High accuracy units: ±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 (±0.06 m/s) at < 2 ft/s (0.6 m/s).
- Standard accuracy units: ±1% FS.

**Temperature Limits**
- Ambient: -20 to 160°F (-29 to 71°C); Process: -50 to 250°F (-40 to 121°C); Storage: -40 to 185°F (-40 to 85°C).

**Process Connection**
- 1/2 to 2 1/2 bar (100 to 700 kPa).

**Pressure Limits**
- 40 psi (276 kPa) at 100°F (37°C).

**Pressure Drop**
- ≤ 0.1 psi at 12 ft/s in 4” (100 mm) and larger pipe.

**Outputs**
- (1) Analog: 4-20 mA, 0-5 V, 0-10 V or 2-10 V (display selectable).
- (2) Alarm: (1) Empty pipe detection or minimum/maximum velocity, (display selectable); (2) Reverse flow output indication.

**Power Requirements**
- 12-42.4 VDC, 0.25 A @ 24 VDC; 12-36 VAC.

**Electrical Connection**
- Removable terminal block, non-metallic NPT 3/4” female NPT conduit connection, PG 16 gland or PG 16 gland with (2) 10 ft (3 m) conductor 22 AWG plenum rated cables, accessory cable lengths up to 20 ft (6 m) optional.

**Display**
- 3.60 cm x 2 cm 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 pending.

**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**
- 4”-36” (100 to 900 mm), model dependent. See model chart.

**Diameter Length Requirements**
- >5 upstream, >7 downstream.

**Glycol**
- 0 to 100% display selectable.

**Brass fittings and pipe are not to be used with NSF certified models.**

### 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.

**Applicable Pipe Material**
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### DIMENSIONS

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<th>Length Requirements</th>
</tr>
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<td>&gt;10 upstream</td>
<td>&gt;5 downstream</td>
</tr>
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- >5 upstream, >7 downstream.

**Glycol**
- 0 to 100% display selectable.

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### WIRING DIAGRAM

**Cables**
- Supplied cables - shown

**Terminal #**
- A1, A2, A3, A4

**Wire Color**
- Red, Black, Shield, Violet

**Description**
- Power Supply Positive, Power Supply Common, Earth/Chassis Ground, Connect to +24 VDC or VAC transformer, Connect to 24 VDC/VAC common, If used - Application Dependant, If used - Application Dependant

**Note**
- Connect to +24 VDC or VAC transformer, Connect to 24 VDC/VAC common, If used - Application Dependant, If used - Application Dependant

**Reverse Flow**
- Isolated solid state output N.O.

**Alarm**
- Isolated solid state output N.O.

**Pulse**
- Isolated solid state output N.O.

**No Connection**
- Do not connect

**Agency Approvals**
- BTL, CE, NSF/ANSI 61 and 372 pending.

**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**
- 4”-36” (100 to 900 mm), model dependent. See model chart.

**Diameter Length Requirements**
- >10 upstream, >5 downstream.

**Glycol**
- 0 to 100% display selectable.

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- >5 upstream, >7 downstream.

**Glycol**
- 0 to 100% display selectable.

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SPECIFICATIONS

Service: Compatible clean or dirty non-coating, conductive liquids.
Range: 0 to 20 ft/s (0 to 6 m/s) ±1%
Wetted Materials: Body shaft/fitting: 316 SS; Electrodes: 316 SS; Electrode cap: Polymer/Polystyrene; O-ring: Silicone.
Accuracy: High accuracy units: ±0.5% of reading at calibrated velocity; ±1% of reading from 2 to 20 ft/s (0.6 to 8 m/s); ±0.02 ft/s (±0.006 m/s) at < 2 ft/s (0.6 m/s)
Temperature Limits: Ambient: -20 to 160°F (-29 to 71°C); Process: 15 to 250°F (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: 40 psig (278 bar) @ 100°F (37.8°C).
Pressure Drop: < 0.1 psi @ 12 ft/s in 4” (100 mm) and larger pipe.
Outputs: (1) Analog: 4-20 mA, 0-5 V, 0-10 V or 2-10 V (display selectable); (2) Alarm: (1) Empty pipe detection or minimum/maximum velocity, (display selectable); (1) Reverse flow output indication.
Power Requirements: 12.4-42.4 VDC; 0.25 A @ 24 VDC; 12.36 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: 2.0” (5.08 cm) x 2.0” (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 pending.

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

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

WIRING DIAGRAM

WIRING DIAGRAM

<table>
<thead>
<tr>
<th>Cable #</th>
<th>Terminal #</th>
<th>Wire Color</th>
<th>Description</th>
<th>Note</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>1</td>
<td>Red</td>
<td>Power Supply Positive</td>
<td>Connect to +24 VDC or VAC transformer</td>
</tr>
<tr>
<td></td>
<td>2</td>
<td>Black</td>
<td>Power Supply Common</td>
<td>Connect to 24 VDC/VAC common</td>
</tr>
<tr>
<td></td>
<td>13</td>
<td>Shield</td>
<td></td>
<td>If used - Application Dependant</td>
</tr>
<tr>
<td></td>
<td>14</td>
<td>Shield</td>
<td></td>
<td>If used - Application Dependant</td>
</tr>
<tr>
<td></td>
<td>External</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Earth/Chassis Ground</td>
</tr>
<tr>
<td></td>
<td>B</td>
<td>3</td>
<td>(+) Analog current output</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>4</td>
<td>(-) Analog output common</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>5</td>
<td>(+) Analog voltage output</td>
<td>May be configured; 0-10 V, 0-5 V, 2-10 V, etc.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>6</td>
<td>(-) Analog output common</td>
<td>Voltage output common</td>
</tr>
<tr>
<td></td>
<td>C</td>
<td>7</td>
<td>(+) Frequency output</td>
<td>0 to 500 Hz output (@ 0/15 VDC output level)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>8</td>
<td>(-) Analog output common</td>
<td>Frequency output common</td>
</tr>
<tr>
<td></td>
<td></td>
<td>9</td>
<td>Reverse Flow</td>
<td>On board short for daisy chain connection</td>
</tr>
<tr>
<td></td>
<td></td>
<td>10</td>
<td></td>
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</tr>
<tr>
<td></td>
<td>D</td>
<td></td>
<td>Alarm</td>
<td></td>
</tr>
<tr>
<td></td>
<td>E</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>F</td>
<td></td>
<td>Pulse</td>
<td></td>
</tr>
<tr>
<td></td>
<td>G</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>H</td>
<td></td>
<td>No Connection</td>
<td></td>
</tr>
</tbody>
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*Supplied cables - shown
**SERIES IEF**

**Insertion electromagnetic flow transmitter**

**ACCURACY**

- **L:** Standard accuracy <10˝ (250 mm) pipe; 1% FS
- **G:** Standard accuracy >10˝ (250 mm) pipe; 1% FS
- **S:** Standard accuracy 4 to 36˝ (100 to 900 mm) pipe; 1% FS
- **F:** High accuracy 4˝ (100 mm) pipe; 1% of reading
- **I:** High accuracy 6˝ (150 mm) pipe; 1% of reading
- **E:** High accuracy 8˝ (200 mm) pipe; 1% of reading
- **T:** High accuracy 10˝ (250 mm) pipe; 1% of reading
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**PROCESS CONNECTION**

- **N:** 1˝ NPT
- **B:** 1˝ BSPT

**OPTIONS**

- **LCD:** Integral LCD
- **COM:** BACnet or Modbus® communication protocol (display selectable)
- **FC:** Multiple point NIST traceable calibration certificate
- **PD:** Factory calibration certificate for 0.5% of reading at single point
- **NIST:** Custom configured for specific installation
- **NW:** NSF certified

**ELECTRICAL HOUSING CONNECTOR**

- **CND:** 1/2˝ female NPT without cable
- **PG:** PG 16 gland without cable
- **10:** PG 16 gland with (2) 10´ (3 m) plenum rated cables

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**HOW TO ORDER**

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

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