

ELECTRO-MAGNETIC WATER FLOW METER

IEF Series

DESCRIPTION

The **IEF Flow Transmitter** is a high accuracy adjustable insertion flowmeter featuring electromagnetic technology ideal for clean, glycol, waste or dirty water with no moving parts. It provides a pulse and multiple types of analog signals as well as optional BACnet (MSTP) or Modbus (RTU) RS485 communication. The unit is BTL and NSF approved and can NIST certified if needed

Construction is all 316 SS with a polymer protective cap. Each unit mounts into a 1" Thredolet and is adjustable to pipe sizes from 4" to 36" (102 to 914 mm) w/ Hot Tap accessories as needed. The enclosure is NEMA 6P or with a display is NEMA 4X. Field set-up is made easy using the Set-up Wizard install tool.



IEF Standard IEF w/Isolation VLV Enlarged Display Option
CE BTL NSF

FEATURES

- Accuracy $\pm 1\%$ full scale or Opt. 0.5% NIST @1 point
- Outputs Include Pulse & Analog 4-20mA, (0,2)-10V
- Mounting 1" NPT Insertion, 4" to 36" Pipes
- NEMA-6P Enclosure Standard, (30 ft submersion)
- RS485 (BACnet MS/TP or Modbus RTU)
- Easy field setup with the Set-up Wizard
- Optional Display (Local & Remote), NEMA 4X
- Optional Hot tap accessories available

APPLICATION

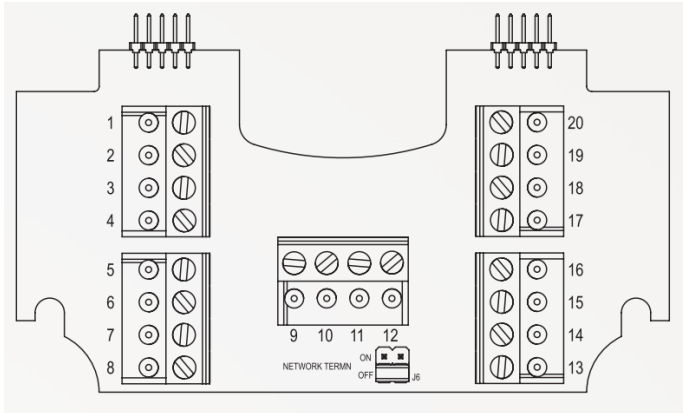
- Chilled water, Hot water or Cooling tower water flow
- Boiler or Cooling Tower Fill
- Domestic water Flow (NSF approved)
- Irrigation water or ground water flow
- Process water flow measurement
- Grey water flow measurement
- Municipal water flow distribution (NSF approved)
- PVC pipes require grounding rings

SPECIFICATIONS

Power	12 to 36 V (AC/DC), 250 mA, 10VA
Signal Output (STD)	
Pulse	Solid State N.O. 50V ac/dc @100mA max
Frequency	0-15 VDC, 0-500 Hz
Analog 1	4-20mA Sourcing, 536 Ω @24VDC
Analog 2	0-(5,10) or 2-10V @ 1.3K Ω
Contact (2)	Solid State N.O. 50V ac/dc @100mA max
Reverse Flow	Closes when flow reverses
Alarm	Closes on Low or High alarm
ALM Differential	Adj. 0-15 ft/s
Accuracy	$\pm 1\%$ Full Scale, $\pm 0.5\%$ @1-point w/NIST
NIST Cert.	Included w/Sch 40 (4", 6", 8", 10") pipe
NIST Cert.	Optional on all other sizes (1-pt.)
Sensor	Electro-Magnetic, Insertion
Conductivity	>20 μ -siemens
Range	0 to 20 fps (0 to 6 mps)
CC opt.	>0-10 fps (3 mps)
Pipe Size	Steel- (Sch. 5,10,40,80), 4" to 36" dia. Copper- (Type K,L,M), PVC-(Sch. 40, 80)
Communications Optional	
RS-485	BACnet MSTP, Modbus RTU
Indication (Opt.)	9 digit 2-row Backlit LCD, (English or SI) .315" H x 2" display & 6 buttons w/lockout
Engineering Units (with opt. display) * default	
Volume	Gallons*, Liters, Cubic-ft., Cubic-m
Velocity	(Ft*,m) per (Sec*, Min, Hrs, Days)

Ambient T.	-20° to 160°F (-29° to 71°C)
Ambient RH	10-90% non-condensing
Pressure	400 psig (27.6 bar) @100°F (37.8°C) max
Media Temp.	15 to 250°F (-9.5 to 121°C)
Construction	316SS probe w/polymer protective cap
Enclosure	Powder coated die cast aluminum
Media (Typ.)	Potable, Hot & Cold water, water w/glycol Waste water, Feed water, Ground water
Wetted Parts	
Probe	316SS Probe & Electrodes
Cap	Polymer/Polystyrene
Seals	Silicone O-Rings
Enclosure	
No display	NEMA 6P (IP68)
Display Opt.	NEMA-4X (IP66)
Mounting	1" NPT w/Thredolet
Best Result	Install in straight pipe (No bends) 10" pipe dia up & 5" dia down stream
Dimensions	
Probe w/encl.	$\approx 22"$ L x 5.9"W x 5.9"D, Probe = 0.95" dia
Remote display	5.9"W x 4.8"W x 3.25"D
Weight	≈ 10 lb. (4.54kg)
Approvals	NSF Listed, CE, BLT, (NIST available)
Warranty	2 Year

WIRING



Base Unit Wiring Terminals

WIRING DIAGRAM				
Cable*	Terminal #	Wire Color	Description	Note
A	1	Red	Power Supply Positive	Connect to +24VDC or VAC transformer
A	2	Black	Power Supply Common	Connect to 24VDC/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 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 to 10 V, 0 to 5 V, 2 to 10 V, etc.
B	6	White	(-) Analog output common	Voltage output common
Frequency Output				
B	8	Violet	(+) Frequency output	0 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 V AC/VDC @ 100 mA maximum
A	16	Blue	Isolated solid state output N.O.	50 V AC/VDC @ 100 mA maximum
Alarm				
A	17	Green	Isolated solid state output N.O.	50 V AC/VDC @ 100 mA maximum
A	18	White	Isolated solid state output N.O.	50 V AC/VDC @ 100 mA maximum
Pulse				
A	19	Orange	Isolated solid state output N.O.	50 V AC/VDC @ 100 mA maximum
A	20	Yellow	Isolated solid state output N.O.	50 V AC/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	-

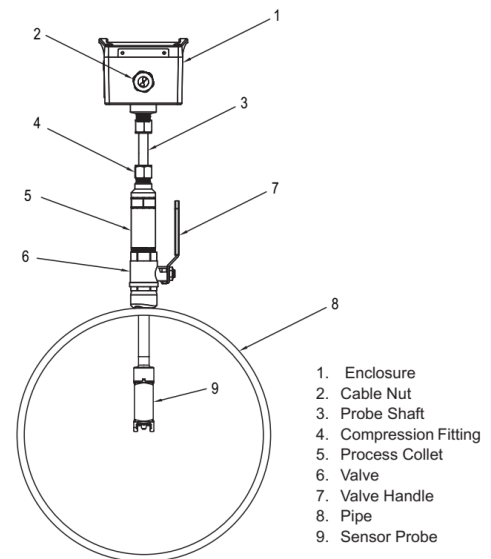
*Supplied cables - shown

Terminal Designations Shown on Left

ORDERING

IEF	Electro-Magnetic Flow Meter Base Number							
Accuracy Standard								
-H	High accuracy (1% of the reading)							
-S	Standard accuracy (1% Full scale)							
Pipe Insertion Size (Thredolet)								
N	1" NPT (National Pipe Tapered)							
B	1" BSPT (British Straight Pipe Thread)							
Electrical Housing Connector								
-CND	1/2" Female NPT							
-PG	PG 16 Cable Gland							
-10	PG 16 Cable Gland w/two 10' (3m) plenum rated cable							
Display (opt. part delete if not needed)								
-LCD	Full Function LCD w/6 buttons built on top of the probe							
Communication card (opt. part delete if not needed)								
-COM	BACnet MSTP and MODBUS RTU							
Multi-Point NIST Certificate (opt. part delete if not needed)								
-NIST	Six Point NIST Traceable certificate (.5, 1.2, 2.5, 4.0, 7.0, 10 Ft/s)							
One Point Calibration Certificate (opt. part delete if not needed)								
-FC	Factory 1-point calibration to 0.5% accuracy							
Custom Configuration (opt. part delete if not needed)								
-CC	Pre-configured for specific applications							
Potable Water Option (opt. delete if not needed)								
NW	Optional NSF Certified							
Example:								
IEF	-S	N	-CND	-LCD	-COM		-FC	
IEF-SN-CND-LCD-COM-FC								
Flow meter for 1" NPT pipe insertion w/Comm and LED								

Mounting (Hot Tap Version)



Mount $\pm 90^\circ$ from Vertical

Note: For Non-Metallic Pipes connect a grounding ring wire to the transmitter housing collet ground lug.

ACCESSORIES

A-IEF-KIT

Install set-up kit (Includes- Display, Power adapter, Ultrasonic thickness gage and Measuring tape)

A-IEF-DSP

Set-up display, 24V (AC/DC) adapter and hook-up cable

A-IEF-FDSP-RM

Full Function remote display

A-IEF-IDSP-RM

Indicating Function only (Remote display)

A-IEF-CBL-50

Plenum rated cable 50' (15.2m) for remote display (longer lengths available on request)

A-IEF-PA

Display wall power adaptor, 108-240 VAC/24 VDC, 19.2VA/800mA, 50/60 Hz. (Part of A-EEF-KIT)

A-IEF-VLV-BR

1-1/4" NPT, full port isolation valve brass (Not for NSF or RoHS configurations)

A-IEF-VLV-SS

1-1/4" NPT full port isolation Stainless Steel (SS) valve (NSF configuration)

A-IEF-INGD

Installation Alignment KIT (Included with the IEF flow transmitter)

UTG

Ultrasonic thickness gage (Used for fine adjustment calibration)

RELATED PRODUCTS

Thread-O-Let

1" NPT Through thread.

Grounding ring

Required for plastic pipe

Note: By others per pipe size.

By others per pipe size.