Data Sheet
D-FMP-10D1475J/S_1

Field^{IT}
Electro-Magnetic Flowmeters
MINI-MAG®
10D1475J/S

- Standard system accuracy is ±0.5% of rate from 2 to 100% of meter capacity. (±0.25% is optional).
- Extremely low power consumption.
- TEFZEL® liner provides superior chemical and abrasion resistance.
- Long term accuracy, stability and absolute zero stability by digital signal processing with pulsed DC excitation.
- Wafer design body mounts between ANSI Class 150 or 300# flanges and global flange designs available.
- Available in sizes 1/10" to 4".



MINI-MAG® J/S
Magnetic Flowmeters

MINI-MAG® J/S MAGNETIC FLOWMETER

The Mini-Mag® is the ideal flowmeter to meter liquids, pastes, or slurries with a specific minimum electrical conductivity. The flowmeter's accuracy, lack of moving parts, minimal pressure loss and resistance to abrasion and chemical corrosion make it suitable for a variety of applications. For many years, ABB magmeters have been successfully installed in and are the preferred meters in the chemical, pharmaceutical, food, municipal water and waste water industries.

The Series 10D1475J/S magmeter is a pulsed DC volumetric liquid flow rate detector. The coils of the meter primary are excited with pulsed DC current in order to establish a magnetic field. The standard converter is the microprocessor based converter. This is available integral - with the primary and converter as one unit, or remotely with the primary and converter as separate components.

Engineering Specifications

Minimum Liquid Conductivity: 5 µS/cm

Pressure Limits: 740 psi (5.10 Mpa) @ 100°F (38°C) or mating pipe flange if lower.

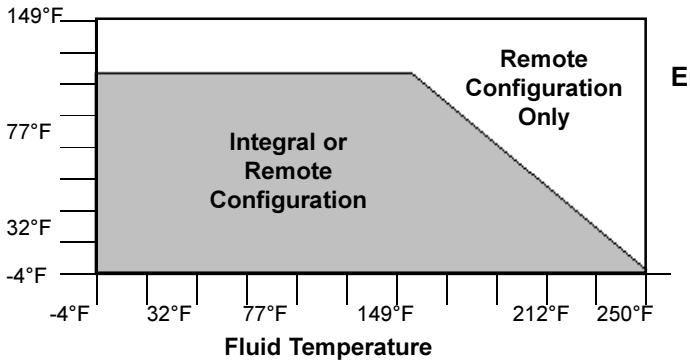
Vacuum Limits:

1/10" to 3"	-- Full Vacuum to 212°F (100°C)
4"	-- Full Vacuum to 176°F (80°C)

Temperature Limits:

Process: 250°F (121°C)
Ambient:
Remote Configuration: -40 to 149°F (-40 to 65°C)
Integral Configuration: -4 to 131°F (-20 to 55°C)
Storage: -40 to 160°F (-40 to 70°C)

Operating Conditions:



Vibration Limits: 5 to 14 Hz, 0.10 inch displacement, 14 to 2000 Hz, 1g.

Power Requirements:
115/230 VAC, +15/-10%, 50/60 Hz ±6%
24 VDC, -30/+30%, residual ripple -5%.

Power Consumption: 23VA (primary and converter)

Coil Excitation Frequency:
6-1/4, 12.5 Hz, or 25 Hz for 50 Hz power supply.
7-1/2, 15 Hz , or 30 Hz for 60 Hz power supply.

Empty Pipe Detector: Drives the outputs to a value when the electrodes become uncovered (0% or 130% of the limiting current value) and the Totalizer will stop incrementing. Minimum fluid conductivity 50 µS/cm.

Low Flow Cut-Off: 0 to 10%, software selectable.

Damping: 0.5 to 99.99 seconds, software selectable.

Current Output: Configurable 4-20 mA dc into 0-750Ω load, including split range capabilities w/o HART.

Active Scaled Pulse Output (Optional): 24 VDC in to >150W load. Maximum scaled pulse output frequency is 4 kHz. The pulse multiplication factor may be set between 0.001 and 1000. The pulse width is adjustable from 0.1 ms to 2000 ms.

Isolation: Current and pulse outputs are galvanically isolated from the input circuit and from one another.

HART® Protocol Communications: 1200 Baud using frequency shift keying. Maximum cable length: 5000 ft (1667m).

Communications: 9600 Baud using frequency shift keying.

System Accuracy:
Frequency Output:
Flow > 2% of Cal. Factor = ±0.5% of rate
Flow < 2% of Cal. Factor = ±0.01% of Meter Capacity
Analog Output:
Same as frequency output but with an additional ±0.1% of span

Enclosure Classification:
Standard: NEMA 4X (IEC 529, IP65) suitable for indoor or outdoor installation
Optional: Accidental Submergence (IEC 529, IP67) in water up to a depth of 33 feet (10m) for up to 48 hours.
Optional: Continuous Submergence (IEC 529, IP68) in water up to a depth of 33 feet (10m).

SIZE		METER CAPACITY	CONFIGURABLE FLOW RANGE: 0 TO VALUE			
			MINIMUM		MAXIMUM*	
Inch	mm	gpm	gpm	l/min	gpm	l/min
1/10	3	1.06	0.021	0.08	1.06	4.0
5/32	4	2.12	0.042	0.16	2.12	8.0
1/4	6	5.28	0.11	0.40	5.28	20.0
3/8	10	11.9	0.24	0.90	11.9	45.0
1/2	15	26.4	0.53	2.00	26.4	100.0
1	25	52.8	1.06	4.00	52.8	200.0
1-1/2	40	158.5	3.17	12.0	158	600.0
				m^3/hr		m^3/hr
2	50	264.2	5.28	1.2	264	60.0
3	80	792.5	15.85	3.6	792	180.0
4	100	1057	21.14	4.8	1057	240.0

Flow Velocity (ft/s) = Operating GPM x 32.81 / Meter Capacity
*Maximum values listed are at 10 m/s velocity. Meter can be overranged to 1.5 x meter capacity with standard software.

TABLE 1.

Safety Classification:

Standard: General Purpose (No Approvals)
Optional: FM Approved - Nonincendive for Class I, Division 2, Groups A, B, C & D: Electrodes are intrinsically safe for Class I, Division 1, Groups A, B, C, & D: Dust-Ignition proof for Class II, Division 1, Groups E, F &G: Suitable for Class III, Division 1.
Optional: FM Approved - Explosionproof for Class I, Division 1, Groups B, C & D: Electrodes are intrinsically safe for Class I, Division 1, Groups A, B, C &D: Dust-Ignition proof for Class II, Division 1, Groups E, F & G: Suitable for Class II, Division 1.

Display: LCD dot matrix display, 2 lines x 16 digits. The internal flow totalizer integrates in both forward and reverse flow directions.

Data Security: All data is stored in a NV-RAM for a period of more than 10 years without requiring external power.

Materials of Construction

Meter Housing: All welded carbon steel construction with an epoxy finish

Electronics Housing: Epoxy painted cast aluminum

Electrical Connections: Cage-clamp terminals for wiring and 1/2 inch NPT internally threaded conduit fittings.

Liner: TEFZEL®

Electrodes: Hastelloy-C, Titanium, Platinum.

Meter Weight

Meter Size		Remote *Primary	Integral (Primary & Converter)	Remote - Explosion proof Design
in.	mm	lbs	lbs	lbs
1/10	3	4	9	5
5/32	4	4	9	5
1/4	6	4	9	5
3/8	10	4	9	5
1/2	15	4	9	5
1	25	4	10	5
1-1/2	40	5	11	6
2	50	7	12	8
3	80	10	16	11
4	100	16	22	17

** General Purpose or Cl 1, Div 2*

Model Number Designation for the 10D1475J/S

10D1475 N 2 9 _ _ _ _ _ _

Design Level
For use with 50XM1000 electronics
1/10" - 3/8" ..... S
1/2" - 4" ..... J

Liner Material
TEFZEL (ETFE) ..... N

Meter Size - inches (mm)
- ■ 1/10 (3) 01
- ■ 5/32 (4) 02
- ■ 1/4 (6) 04
- ■ 3/8 (10) 06
- ■ 1/2 (15) 07
- 1 (25) 09
- 1-1/2 (40) 11
- 2 (50) 12
- 3 (80) 14
- 4 (100) 15

Flange Standard & Pressure Rating
ANSI Class 150 ..... P
ANSI Class 300 ..... Q
Not required *(must select an X in Character 25)* X

Electrode Material
Hastelloy-C ..... D
Titanium ..... F
Platinum(1/10" - 3/8") ..... M
Platinum (1/2" - 4") ..... M

Electrode Type
Flush 2

Flange Material
Wafer Design w/riveted SST tag 9

Safety Classification
FM Approved - Cl. I, Div. 2, Groups A, B, C & D Standard ..... K
FM Approved - Cl. I, Div. 1, Groups B, C, and D Explosionproof (Remote Primary only) L

Power Requirements
Integral Mount Signal Converter
220/230/240 Vac, 50/60 Hz ..... A
110/115/120 Vac, 50/60 Hz C
24 Vdc ..... H
Remote Converter
Separate Model Number ..... Y

Enclosure Classification
IEC 529 IP67, Accidental Submersion in water to 33 ft for 48 hours 5
IEC 529, IP68, Continuous Submergence in water to 33 ft (with remote only) 4

Fluid Temperature Range
to 65ºC (149ºF) Intergral Converter 1
to 121ºC (250ºF) Remote Converter 2

■ *1/2 inch and smaller sizes are designed for use with 1/2 inch size flanges*

Model Number Designation for the 10D1475J/S

10D1475 — — — — — — — — — — — — — — —

Output Current
- No output (remote converter) ..... A
- 4-20 mA dc C

Output Options
- No Output Signal (Remote Converter) 1
- Active scaled pulse forward and zero return 2
- Active scaled pulse forward and reverse 4
- Data link RS232C 5
- Data link RS485 6

Communication Mode
- None (Remote Converter) 1
- ASCII 2
- HART® Protocol 4

Coil Drive Frequency (Line Frequency)
- 7-1/2 Hz, (60 Hz), (Standard) 1
- 15 Hz, (60 Hz) 2
- 15 Hz, (DC) 3
- 6-1/4 Hz, (50 Hz) 4
- 12-1/2 Hz, (50 Hz) 5
- 12-1/2 Hz, (DC) 7

Additional Options
- Empty Pipe Detector * Enable 1
- Empty Pipe Detector (Disabled) 2
- HART® Protocol & Empty Pipe Detector* (Enabled) 3
- HART® Protocol & Empty Pipe Detector (Disabled) 4

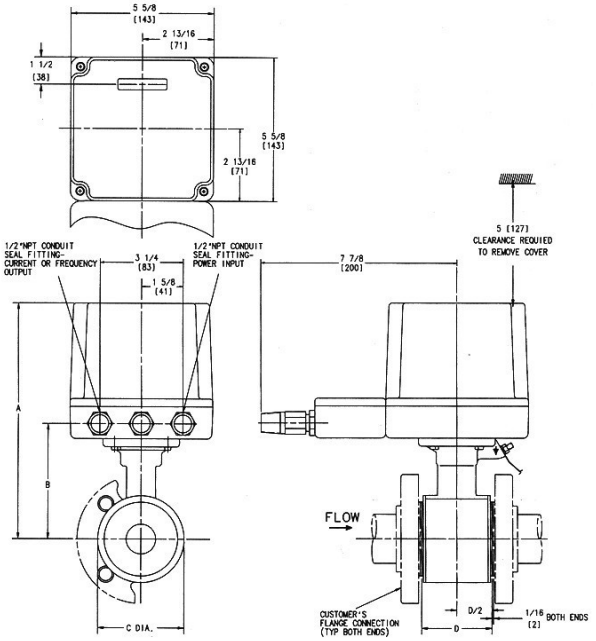
Mounting Hardware Kit
- Standard Kit: Steel bolts & nuts, centering device, Klinger Sil, C4401 gaskets C
- Optional Kit: Steel bolts & nuts, centering device, Teflon gaskets ..... E
- Standard Kit: Not required X

Converter
- Required 1
- Not required (Primary only) 2

Options & Accessories: See Price List 10D9000

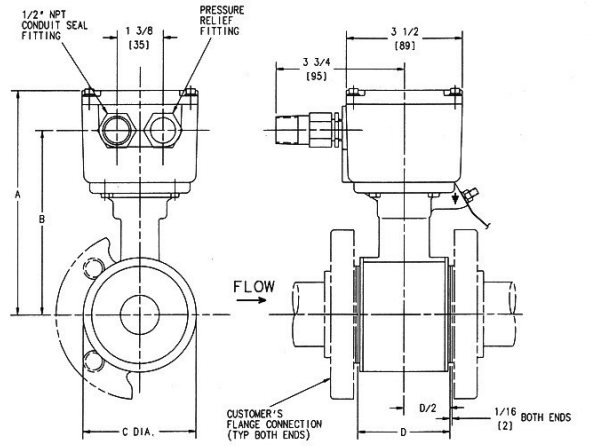
Instruction Manual *(One copy supplied with order at no charge)* PN24940

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METER AND FLANGE SIZES	CUSTOMER FLANGE TYPE AND RATING	A	B	C DIA	D
1/10 (3) – ½ (15)	ANSI CLASS 150 ANSI CLASS 300 BS 10 TBL D.E.F. DIN PN 10, 16, 25 & 40	7-11/16 (95)	3-3/4 (95)	1-7/8 (48)	2-5/32 (55)
1 (25)		8-1/16 (205)	4-1/8 (105)	2-5/8 (87)	2-5/32 (55)
1-1/2 (40)		8-7/16 (214)	4-1/2 (114)	3-3/8 (86)	2-3/4 (70)
2 (50)		8-3/4 (222)	4-13/16 (122)	4 (102)	3-11/32 (85)
3 (80)		9-3/8 (238)	5-7/16 (138)	5-1/4 (133)	4-23/32 (120)
4 (100)		10 (254)	6-1/16 (154)	6-1/2 (165)	5-29/32 (150)

NOTES:
1. Dimensions are in inches. Dimensions in brackets [ ] are in millimeters.
2. Dimensions guaranteed only if this print is certified
3. All dimensions subject to Manufacturing tolerance of ±1/8 inch (3mm)
4. Meter must be completely filled with liquid to insure accuracy
5. Flow must be in same direction as flow arrow. 1/2 NPT conduit connections in housing indicate “upstream” end of meter.
6. Meter mounts between customer’s pipline flanges. Types and ratings listed in table of dimensions.
7. This drawing is third angle projection as shown



METER AND FLANGE SIZES	CUSTOMER FLANGE TYPE AND RATING	A	B	C DIA.	D
1/10 (3) – ½ (15)	ANSI CLASS 150 ANSI CLASS 300 BS 10 TBL D.E.F. DIN PN 10 16, 25 & 40	5-23/32 (145)	4-21/32 (118)	1-7/8 (48)	2-5/32 (55)
1 (25)		63/32 (155)	5-1/32 (128)	2-5/8 (67)	2-5/32 (55)
1-1/2 (40)		6-15/32 (164)	5-13/32 (137)	3-3/8 (86)	2-3/4 (70)
2 (50)		6-25/32 (172)	5-23/32 (145)	4 (102)	3-11/32 (85)
3 (80)		7-13/32 (188)	6-11/32 (161)	5-1/4 (133)	4-23/32 (120)
4 (100)		8-1/16 (205)	8-1/16 (205)	6-1/2 (165)	5-29/32 (150)

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