

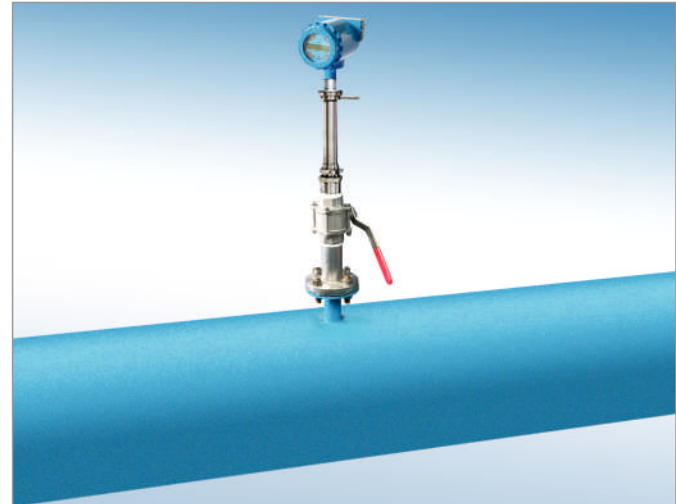
ELMAG 100

INSERTION TYPE ELECTROMAGNETIC FLOW METER



Features

- Insertion type
- Suitable for conductive liquids
- Material of construction in accordance to process parameters
- Local Indication through LCD display
- Universal Power Supply 90 to 250V AC, Optional 24V DC
- Simple & cost effective construction
- Programmable unit conversion
- Communication port
- Inbuilt Relay Status output (High / Low / Batch)



Description

Electronet series ELMAG®-100 are micro-controller based insertion type electromagnetic flow meters specially used for various industrial applications. These flow meters accurately measure the flow rate of conductive liquids & slurries in closed pipes. Due to its simple & rigid design, the flow meter is an obstruction-less & maintenance-free instrument in place of conventional mechanical flow measuring devices. The use of 'Pulsed DC' technology offers highest ability & better measuring accuracy in the form of electrical signal 4-20mA DC linearly proportional to volumetric flow. The instrument is based on Faraday's law of electro-magnetic induction. A magnetic field is generated by the instrument in the flow tube. The fluid flowing through this magnetic field generates a voltage that is proportional to the flow velocity. Corresponding electrical output is provided with respect to measuring flow range. This meter is available in Hot Retractable and Fixed Insertion type.

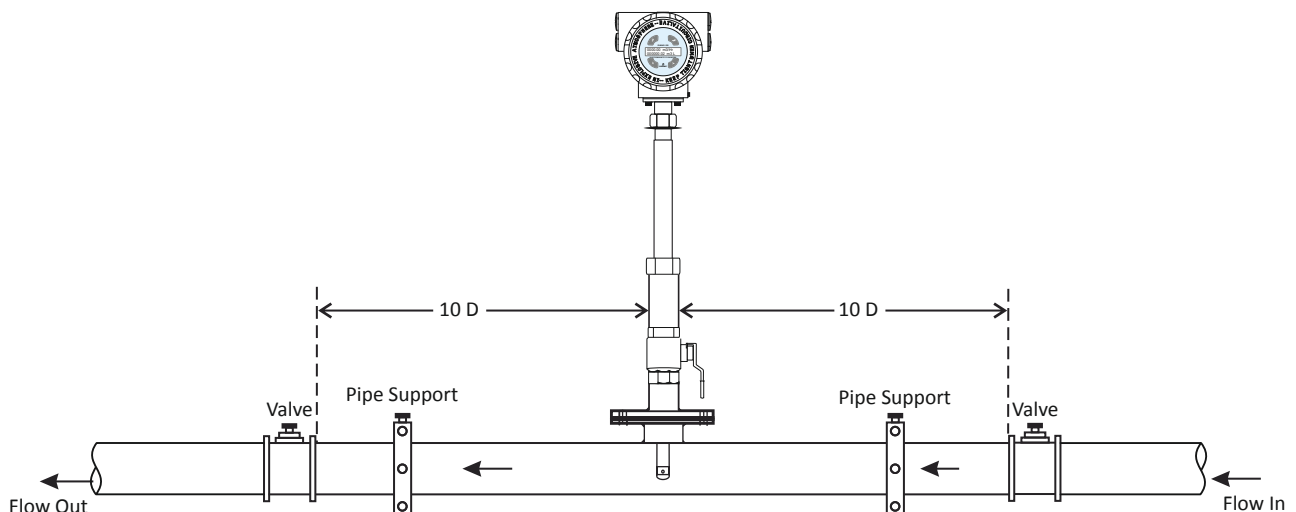
Technical Specifications

Model Type	1) Mains Operated / 24V DC
	2) Two wire
	3) Battery Operated
Media	Liquid (Conductive)
Conductivity	> 5 μ S/cm
Viscosity	200 cp max
Line Size	200 NB to 3000 NB
Excitation	Pulsed DC
Display	LCD Display - 6 Digit for Flow Rate, 8 Digit for Totalizer Flow & 4 Digit for Pressure
Calibration Range	As per requirement
Accuracy	< $\pm$ 1% of F.S. +($\pm$ 5mm /sec) for Velocity Range 0.5 m/s to 6 or 12 m/s
Linearity	+/- 1% of F.S.
Repeatability	+/- 0.5% F.S.
Temperature Coefficient	+/- 0.05% per $^{\circ}$ C

Technical Specifications

		Mains Operated / 24 VDC	Two Wire	Battery Operated
Type of Output	1) 4 to 20mA DC	✓	✓	✕
	2) 4 to 20mA DC with HART (Generic)	✓	✕	✕
	3) Pulse (Open Collector Type)	✓	✕	✓
Power Supply	1) 90 - 250 VAC	✓	✕	✕
	2) 24V DC (+/- 10%)	✓	✕	✕
	3) Battery Operated	✕	✕	✓
	4) Solar Powered	✕	✕	✓
Process Temperature	85°C max			
Process Pressure	16 kg/cm2 max			
Material of construction	1) Electrode - SS316L, Hastelloy C, Platinum, Tantalum, Titanium			
	2) Retractable Assembly - MS / SS316			
	3) Wetted Parts - SS316			
Material of construction - Flange	SS316			
Material of construction - Sensor Rod	SS316			
Power Consumption	< 10 VA			
Response Time	< 2 Sec for TX 200 and TX 600 Transmitter & <10 sec for TX 22 Transmitter			
Electronic Protection Class	Field Mount Weather Proof IP-67, Flameproof (CMRI IIA IIB Certified)			
Sensor / Flow Tube Protection class	Weather Proof IP-67, IP-68			
Process Connections	2" ASA150 flanged, as per table B 16.5			
Mounting	Insertion type			
Ambient Conditions	Temperature -20 to 70°C / Humidity 5 to 95% non condensing			
Communication Output (Please refer ordering code)	1) RS485 supporting MODBUS RTU Protocol			
	2) GSM, GPRS, Dual SIM GPRS, Ethernet MODBUS TCP			

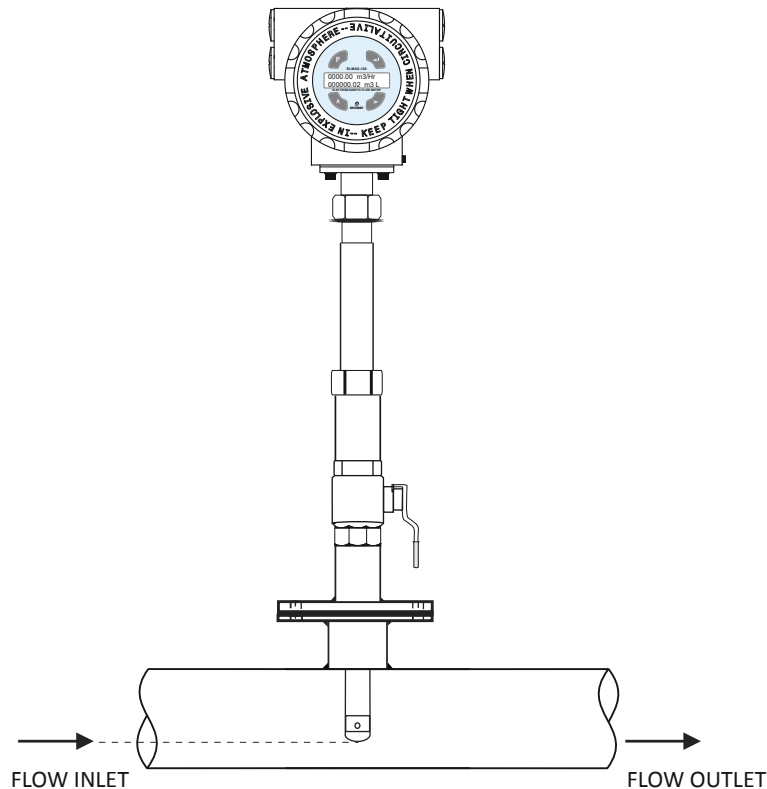
Installation Drawing



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Assembly Overview



Line Size		Flow Range (m ³ /Hr)			
Inch	NB	Velocity 0.3m/s	Velocity 2.5m/s	Velocity 6m/s	Velocity 10m/s
8"	200	33.93	282.74	678.584	1130.97
10"	250	53.01	441.79	1060.28	1767.15
12"	300	76.34	636.17	1526.81	2544.69
14"	350	103.91	865.9	2078.16	3463.61
16"	400	135.72	1130.97	2714.33	4523.89
18"	450	171.77	1431.39	3435.33	5725.55
20"	500	212.06	1767.15	4241.15	7068.58
24"	600	305.36	2544.69	6107.25	10178.76
28"	700	415.63	3463.61	6650.12	13854.42
32"	800	542.87	4523.89	7481.39	18095.47
36"	900	687.07	5725.55	8312.65	22902.21
40"	1000	848.23	7068.58	16964.6	28274.33
48"	1200	1221.45	10178.76	24429.02	40715.04
64"	1600	2171.47	18095.57	43429.37	72382.29
72"	1800	2748.27	22902.21	54965.3	91608.94
80"	2000	3392.92	28274.33	67858.4	113097.34
84"	2100	3740.69	31172.45	74813.89	124689.81
88"	2200	4105.43	34211.94	82108.67	136847.78
92"	2300	4487.14	37392.81	89742.74	149571.23
96"	2400	4885.8	40715.04	97716.1	162860.16
100"	2500	5301.44	44178.65	106028.75	176714.59
104"	2600	5734.03	47783.62	114680.7	191134.5
108"	2700	6183.6	51529.97	125671.94	206110.89
112"	2800	6650.12	55417.69	133002.47	221670.78
116"	2900	7133.61	59446.79	142672.29	237787.15
120"	3000	7634.07	63617.25	152681.4	254469

Note : Flange to flange distance (FD) Tolerance : 8"(200NB) to 120"(3000NB) : +/-5mm

- All dimensions are in 'mm'
- For dimensions of line size above 300NB, please consult factory.
- Typical mounting dimensions are for reference only.
- Wet Calibrated at IEC/ISO/EN17025 Accredited Calibration Rig.
- Flow meter should be selected with the help of Nomograph (recommended full scale velocity).

Ordering Information of Transmitter

Sample Order Code: ELMAG 100-TX 200-A1-B1-C1-D1-E1-F1-G1-H1-I1-J1-K1-L1

Parameter		Code	Value	TX 200	TX 600	TX 22	Parameter	Code	Value	TX 200	TX 600	TX 22	
TX	Transmitter Type	TX 200	24V DC Powered	✓			G	Electrical Output1 (Current)	G1	4 to 20 mA	✓		✓
		TX 600	Battery Powered		✓				G2	4 to 20 mA with HART	✓		✓
		TX 22	Loop Powered			✓			GX	NA	✓		
A	Transmitter Mounting	A1	Integral (local)	✓	✓	✓	H	Electrical Output 2 (pulse)	H1	Pulse (OC)	✓	✓	
		A2	Remote (Max. 5 mtr.)	✓	✓	✓			HX	NA	✓	✓	
B	Power Supply	B1	24 VDC	✓			I	Electrical Output 3 (Alarm / Relay)	I1	One Alarm	✓	✓	
		B2	230 VAC	✓					I2	Two Alarm	✓	✓	
		B3	Battery Operated		✓				IX	NA	✓	✓	
		B4	3.6V Solar operated		✓								
C	Enclosure MOC	C1	Aluminium die Cast	✓	✓	✓	J	Alarm Type	J1	Open Collector	✓	✓	
		C2	SS316	✓	✓	✓			J2	Potential Free	✓	✓	
		CY	Other	✓	✓	✓			J3	PNP Output	✓	✓	
D	Enclosure IP Rating	D1	IP54	✓	✓	✓			JX	NA	✓	✓	
		D2	IP67	✓	✓	✓	K	Comm-unication Output 1	K1	RS-485 (MODBUS RTU)	✓	✓	
		D3	IP68	✓	✓	✓			KX	NA	✓	✓	
E	Hazardous Certification	E1	ATEX	✓	✓	✓	L	Comm-unication Output 2	L1	GPRS	✓	✓	
		E2	FF(CMRI 2A ,2B)	✓	✓	✓			L2	GSM	✓	✓	
		EX	NA	✓	✓	✓			L3	Dual SIM GPRS	✓	✓	
F	Electrical Connection	F1	M20	✓	✓	✓			L4	MBUS	✓	✓	
		F2	1/2 NPT	✓	✓	✓			LX	NA	✓	✓	
		FY	Other	✓	✓	✓							
Note : ▪ In case of flameproof version only electronics enclosure is flameproof certified. ▪ Accuracy defined at Lab Conditions. ▪ Relay & Alarms are programmable. Relay 1 is programmable for High / Low / Batch.													

Ordering Information of Flow Tube

Sample Order Code: ELMAG 100-FT1-N1-O1

Parameter		Code	Value
FT	Flow Tube	FT 1	200 NB to 600NB
		FT 2	700NB to 1000 NB
		FT 3	1100 NB to 3000 NB
Note: ▪ Due to our continuous product revisions, design specification and model numbers are subject to change without notice. ▪ Accuracy defined at Lab Conditions. ▪ For other requirement please consult factory. ▪ This product is meant for laboratory/Process application only & not for custody transfer application.			

Parameter		Code	Value
N	Mounting Type	N1	Fixed inline
		N2	Hot Retractable
O	Process Connection	O1	Threaded (15 to 50 NB)
		O2	Flanged (200 to 3000 NB)