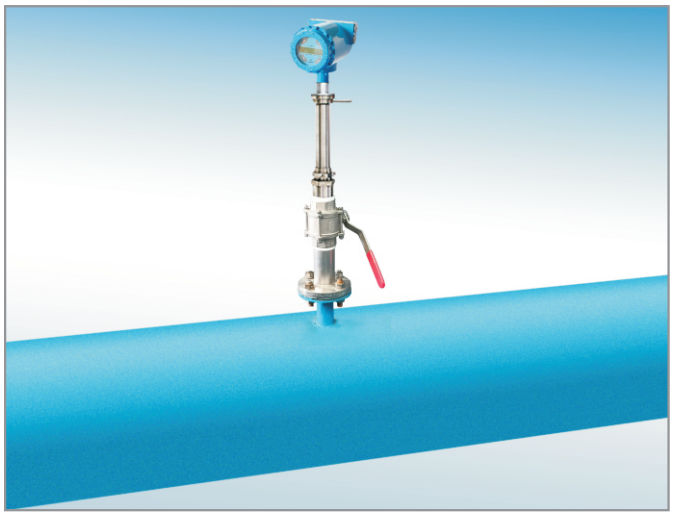
ELMAG® 100

ELECTRONET™

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

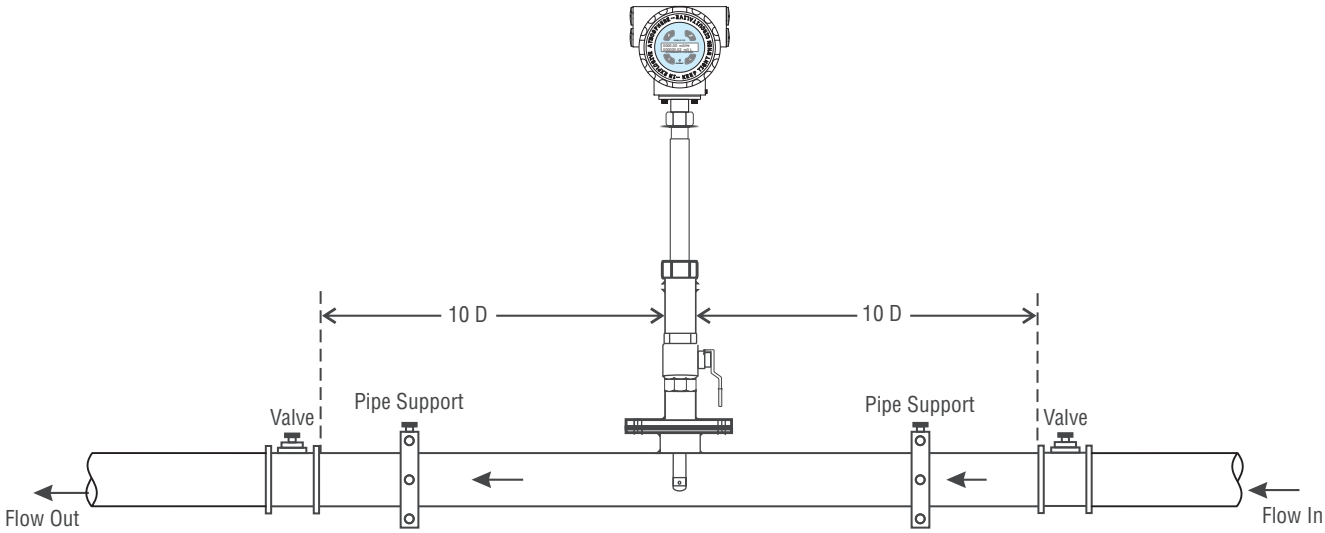
Electronet series ELMAG®–100 are micro–controller based insertion type electromagnetic flow meters specially used for various industrial applications. These flow meters accurately measure the flow rate of conductive liquids & slurries in closed pipes. Due to its simple & rigid design, the flow meter 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

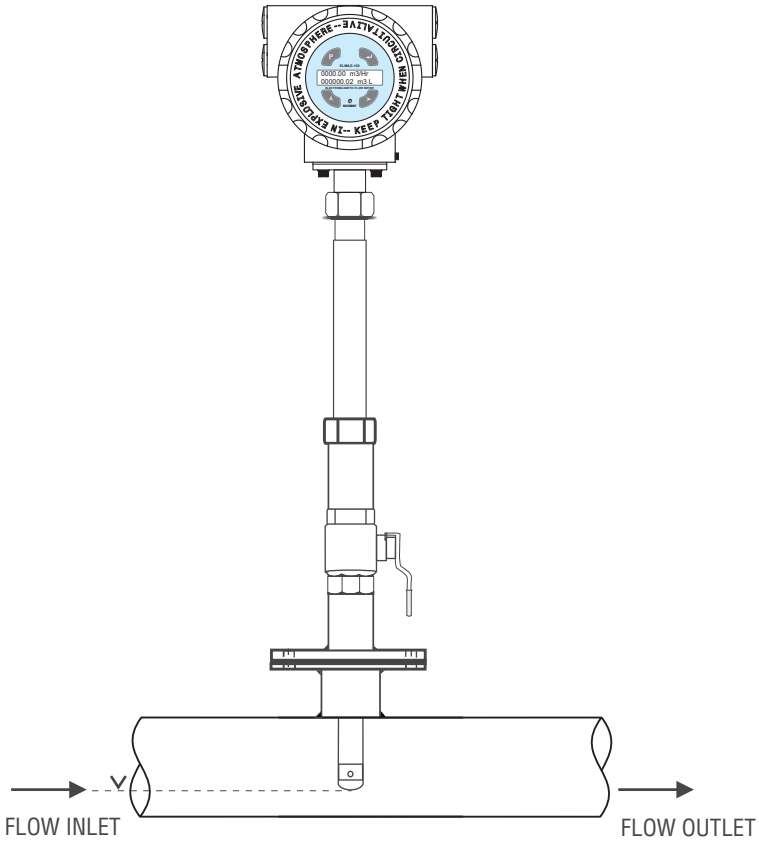
Model Type	1) Mains Operated / 24V DC 2) Two wire 3) Battery Operated			
Media	Liquid (Conductive)			
Conductivity	> 5 µS/cm			
Viscosity	200 cp max			
Line Size	200 NB to 3000 NB			
Excitation	Pulsed DC			
		Mains Operated / 24 VDC	Two Wire	Battery Operated
Type of Output	1) 4 to 20mA DC	✓	✓	×
	2) 4 to 20mA DC with HART (Generic)	✓	×	×
	3) Pulse (Open Collector Type)	✓	×	✓
	4) Frequency (0 to 1 KHz)	✓	×	✓
	5) Pulse (Active TTL)	✓	×	✓
Power Supply	1) 90 – 250 VAC	✓	×	×
	2) 24V DC (+/– 10%)	✓	×	×
	3) Battery Operated	×	×	✓
	4) Solar Powered	×	×	✓
	5) 24V DC Two Wire Loop Powered	×	✓	×

Display	LCD Display – 6 Digit for Flow Rate, 8 Digit for Totalizer Flow & 4 Digit for Pressure
Calibration Range	As per requirement
Accuracy	< ± 1% of F.S. +(± 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 °C
Process Temperature	85°C max
Process Pressure	16 kg/cm^2 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.
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 75°C / Humidity 5 to 95% non condensing
Communication Output (Please refer ordering code)	1) RS485 supporting MODBUS RTU Protocol
	2) GSM, GPRS, Ethernet, MODBUS TCP

Installation Drawing



Dimensional Details



Flow Rate Calibration Chart

Line Size (NB)	Flow Min. (m^3/hr) for Velocity 0.5 m/s	Flow Normal (m^3/hr)	Flow Max. (m^3/hr) for Velocity 6 m/s
200	5.66	113.10	565.50
250	8.84	176.71	883.55
300	12.72	254.47	1272.35
350	17.32	346.36	1731.80
400	22.62	452.39	2261.95
500	35.34	706.86	3534.30
600	50.89	1017.88	5089.40
700	69.27	1385.44	6927.20
800	90.48	1809.56	9047.80
900	114.51	2290.22	11451.10
1000	141.37	2827.43	14137.15
1200	203.58	4071.50	20357.50
1400	277.09	5541.76	27708.80
1600	361.91	7238.22	36191.10
1800	458.04	9160.88	45804.40
2000	565.49	11309.72	56548.60

Note :

- Standard factory calibration for 0.5 to 6 m/s velocity
- Velocity Range can be upto 10 m/s as per requirement
- For Line Sizes above 2000 NB, Please consult Factory for Calibration Range.

Product Ordering Information :

Order Code for Flow Transmitter

Sample Order Code : TX 1 | A2 | B2 | C1 | D2 | E2 | F2 | G1 | H2

Parameter		Code	Description	Mains Operated 24V DC	Two Wire	Battery / Solar Powered
TX	Electronics Transmitter	TX 1	Field Mount Weather Proof IP67	✓	✓	✓
		TX 2	Field Mount Weather Proof IP68	✓	✓	✓
		TX 3	DIN Standard (IP 54)	✓	✓	✓
		TX 4	Flameproof CMRI IIA IIB	✓	✓	✓
A	Power Supply	A1	90 to 250V AC	✓	×	×
		A2	24V DC	✓	✓	×
		A3	Battery Operated	×	×	✓
		A4	Solar Powered 24V DC	✓	×	×
		A5	Solar Powered 3.6V DC	×	×	✓
B	MOC Electronics Enclosure	B1	Aluminium Die Cast	✓	✓	✓
		B2	SS316	✓	✓	✓
		B3	ABS Plastic	×	×	✓
C	Electrical Connection	C1	M20 X 1.5 (F)	✓	✓	✓
		C2	½" NPT (F)	✓	✓	✓
		CY	Other	✓	✓	✓
D	Output 1 (Any One)	D1	4 to 20 mA	✓	✓	×
		D2	4 to 20 mA with HART (Generic)	✓	✓	×
		DX	NA	✓	✓	×
E	Output 2 (Any One)	E1	Pulse (Open Collector Type)	✓	×	✓
		EX	NA	✓	×	✓
F	* Alarm or Relay Output (Max 2 Alarms or 2 Relays)	F1	1 Relay Output	✓	×	×
		F2	2 Relay Outputs	✓	×	×
		FX	NA	✓	×	×
G	Communication Output 1 (Any One)	G1	RS485 (MODBUS RTU)	✓	×	✓
		GX	NA	✓	×	✓
H	Communication Output 2 (Any One)	H1	GSM	✓	×	✓
		H2	GPRS	✓	×	✓
		HX	NA	✓	×	✓

Note :
- Due to our continuous product revisions, design specification and model numbers are subject to change without notice.
- To be used for industrial applications. - Accuracy defined at Lab Conditions. - For other requirement please consult factory.
- Relay & Alarms are programable. Relay 1 is programmable for High / Low / Batch.
- In case of flameproof version only electronics enclosure is flameproof certified.

Order Code for Flow Tube

Sample Order Code :

FT 200 to 3000	J2	K2	L2	M6	S2	T1

Parameter		Code	Description	Mains Operated 24V DC	Two Wire	Battery / Solar Powered
FT	Flow Tube	FT 200 to 3000	200 to 3000 NB	✓	✓	✓
J	Electronics Location	J1	Integral (Local)	✓	✓	✓
		J2	Remote	✓	✓	✓
K	Remote Cable Length	K1	5 Meter	✓	✓	✓
		K2	10 Meter	✓	×	×
		K3	15 Meter	✓	×	×
		K4	25 Meter	✓	×	×
		KX	NA	✓	✓	✓
L	Flow Tube Protection Class	L1	IP–67	✓	✓	✓
		L2	IP–68	✓	✓	✓
M	Process Connection	M6	Insertion type 50 NB Flanged	✓	✓	✓
		M7	Insertion type 50 NB Threaded	✓	✓	✓
S	Material of construction – Electrode	S1	SS316L	✓	✓	✓
		S2	Hastelloy C	✓	✓	✓
		S3	Platinum	✓	✓	✓
		S4	Tantalum	✓	✓	✓
		S5	Titanium	✓	✓	✓
T	Insertion Flow Sensor Installation	T1	Fixed Inline	✓	✓	✓
		T2	Hot Retractable	✓	✓	✓

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*Relay & Alarms are programable. Relay 1 is programmable for High / Low / Batch.

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Not applicable for trade custody transfer applications.