

ELMAG 200

MAINS / 24V DC POWERED ELECTROMAGNETIC FLOW METER



Features

- Universal Power Supply 90 to 250V AC / 24V DC / Solar Powered
- Suitable for conductive liquids
- Full bore type
- Empty pipe indication
- Material of construction in accordance to process parameters
- Local Indication through LCD Display
- Inbuilt Relay Status output (High / Low / Batch)
- HART Compatible
- Optional pressure measurement along with flow
- Optional in built pressure measurement



Description

Electronet series ELMAG®-200 are micro-controller based full bore type electromagnetic flow meters specially used for various industrial applications. These flow meters accurately measure the flow rate of conductive liquids and slurries in closed pipes. Due to its simple and rigid design, the flow meter is an obstruction less and maintenance-free instrument in place of conventional mechanical flow measuring devices. The use of 'Pulsed DC' technology offers highest ability and better measuring accuracy in the form of electrical signal 4-20 mA DC linearly proportional to volumetric flow. The instrument is based on Faraday's law of electromagnetic 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.

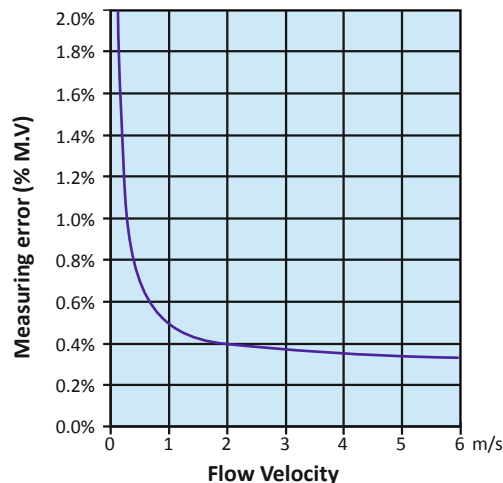
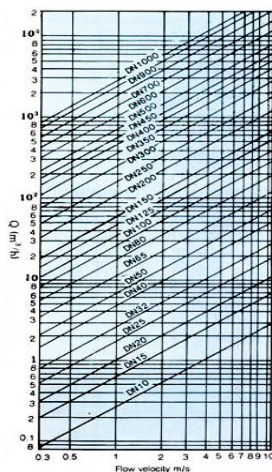
Technical Specifications

Media	Liquid (Conductive)	
Conductivity	> 5 $\mu\text{S}/\text{cm}$	
Viscosity	200 cp max	
Line Size	15 NB to 1000 NB	
Excitation	Pulsed DC	
Type of Output	Output : 1 (Any one)	1) 4 to 20mA DC 2) 4 to 20mA DC with HART (Generic)
	Output : 2	Pulse (Open Collector Type)
	Output : 3	2 Relay Outputs
Communication Output	Output : (Any one)	RS485 supporting MODBUS RTU Protocol / GSM / GPRS / Dual SIM GPRS / Ethernet MODBUS TCP
Display	LCD Display - 6 Digit for Flow Rate & 8 Digit for Totalizer Flow	

Technical Specifications

Velocity	0.3 m/s - 2.5m/s upto Max. 10m/s
Engineering Unit	User Programmable (m3/hr by default)
Calibration	Wet Calibrated at IEC/ISO/EN17025 Accredited Calibration Laboratory.
Accuracy	< ± 0.5% of M.V. +(± 5mm /sec) for Velocity Range 0.3 m/s to 6 or 12 m/s
Linearity	+/- 0.5% of M.V.
Repeatability	+/- 0.2% of M.V.
Temperature Coefficient	+/- 0.05% per °C
Process Temperature	-20 to 85°C max for Rubber Lining & -20 to 220°C for PTFE & PFA Lining
Process Pressure	16 kg/cm2 max (Higher on request)
Material of construction	1) Lining - Neoprene / Ebonite Rubber, PFA, PTFE, PU, CERAMIC
	2) Flange - MS, CS, SS316, SS304
	3) Electrode - SS316L, Hastelloy C, Platinum, Tantalum, Titanium
	4) Coil Housing - SS304
Power Supply	Option 1 : 90 - 250 V AC, 50 Hz Option 2 : 24 V DC (+/- 10%)
Power Consumption	< 10 VA
Inline Pressure Sensor	Pressure Sensor 16 Kg/cm ²
Isolation	1.4 KV between Input, Output & Power Supply
Response Time	Less than 1 Sec.
Electronics	Integral (Local) / Remote
Electronic Protection Class	Field Mount Weather Proof IP-67 (NEMA 6), Field Mount Weather Proof IP-68 (NEMA 6P), DIN Standard (IP 54) (NEMA 3), Flameproof (CMRI IIA IIB Certified), ATEX Ex d
Sensor / Flow Tube Protection class	Weather Proof IP-67, IP-68
Process Connections	ANSI150 flanged, as per table B 16.5 (Other On Request)
Mounting	In-Line Horizontal / Vertical
Ambient Conditions	Temperature -20 to 70°C / Humidity 5 to 95% non condensing
Certification	CE

Flow Nomograph

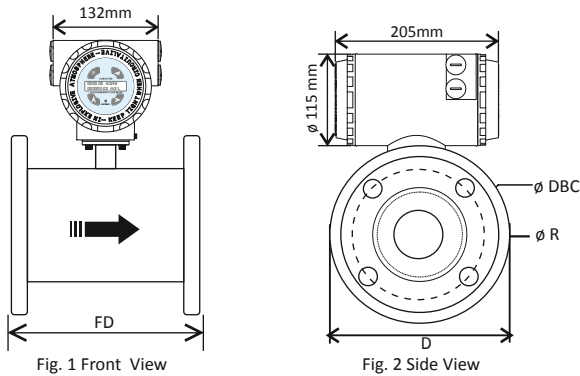


ELMAG 200

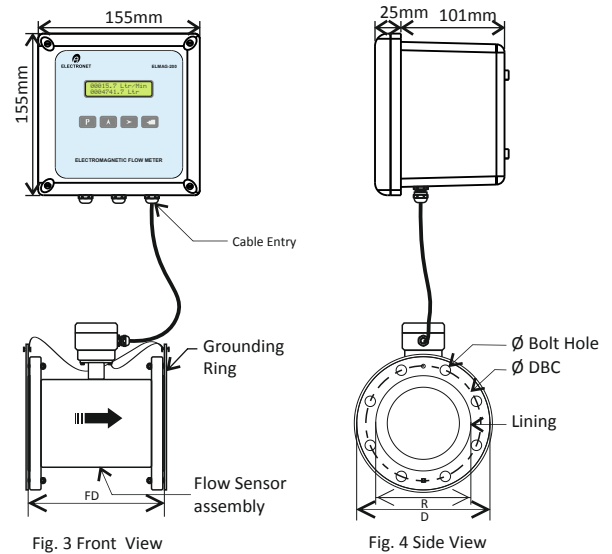
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Assembly Overview - Integral



Assembly Overview - Remote



Line Size		Flange To Flange Distance	Flow Range (m ³ /Hr)			
Inch	NB		Velocity 0.3m/s	Velocity 2.5m/s	Velocity 6m/s	Velocity 10m/s
1/2"	15	200	0.19	1.59	3.81	6.36
3/4"	20	200	0.34	2.83	6.785	11.31
1"	25	200	0.53	4.42	10.602	17.67
1 1/4"	32	200	0.87	7.24	17.371	28.95
1 1/2"	40	200	1.36	11.31	27.143	45.24
2"	50	200	2.12	17.67	42.4115	70.69
2 1/2"	65	200	3.58	29.86	71.675	119.46
3"	80	200	5.43	45.24	108.573	180.96
4"	100	250	8.48	70.69	169.646	282.74
5"	125	250	13.25	110.45	265.071	441.79
6"	150	300	19.09	159.04	381.703	636.17
8"	200	350	33.93	282.74	678.584	1130.97
10"	250	450	53.01	441.79	1060.28	1767.15
12"	300	500	76.34	636.17	1526.81	2544.69
14"	350	550	103.91	865.9	2078.16	3463.61
16"	400	600	135.72	1130.97	2714.33	4523.89
18"	450	600	171.77	1431.39	3435.33	5725.55
20"	500	600	212.06	1767.15	4241.15	7068.58
24"	600	600	305.36	2544.69	6107.25	10178.76
28"	700	700	415.63	3463.61	6650.12	13854.42
32"	800	800	542.87	4523.89	7481.39	18095.47
36"	900	900	687.07	5725.55	8312.65	22902.21
40"	1000	1000	848.23	7068.58	16964.6	28274.33

Note : Flange to flange distance (FD) Tolerance : 1) 1/2"(15NB) to 6"(150NB) : +/-3mm 2) 8"(200NB) to 40"(1000NB) : +/-5mm

- All dimensions are in 'mm'
- For dimensions of line size above 1000NB, 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 200-TX-A1-B1-C1-D1-E1-F1-G1-H1-I1-J1-K1-L1-M1

Parameter	Code	Value	Parameter	Code	Value		
A	Transmitter Mounting	A1	Integral (Local)	G	Electrical	G1	4 to 20 mA
		A2	Remote		Output 1 (Current)	G2	4 to 20 mA with HART
B	Power Supply	B1	24 VDC		GX	NA	
		B2	230 VAC	H	Electrical	H1	Pulse (OC)
C	Enclosure MOC	C1	Aluminium Die Cast		Output 2 (pulse)	HX	NA
		C2	SS316	I	Electrical	I1	One Alarm
		CY	Other		Output 3 (Alarm /Relay)	I2	Two Alarm
D	Enclosure IP Rating	D1	IP54		IX	NA	
		D2	IP67	J	Alarm Type	J1	Open Collector (Passive)
		D3	IP68			J2	Potential Free
E	Hazardous Certification	E1	ATEX			J3	PNP Output (Active)
		E2	FF(CMRI 2A ,2B)			JX	NA
EX	NA	K	Communication Output 1	K1	RS-485		
F	Electrical Connection			F1	M20	KX	NA
		F2	1/2 NPT	L	Communication Output 2	L1	GPRS
		FY	Other			L2	GSM
Note :	<ul style="list-style-type: none"> 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. 	M	Pressure Sensor			M1	16 Kg /cm ²
						MX	NA

