

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.

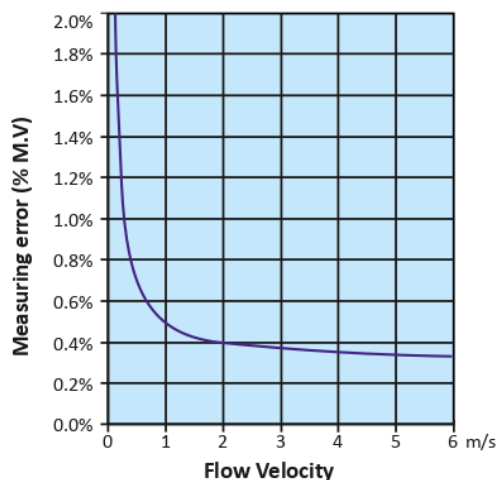
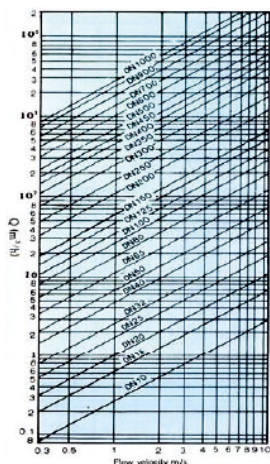
Technical Specifications

Media	Liquid (Conductive)	
Conductivity	> 5 μ S/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	

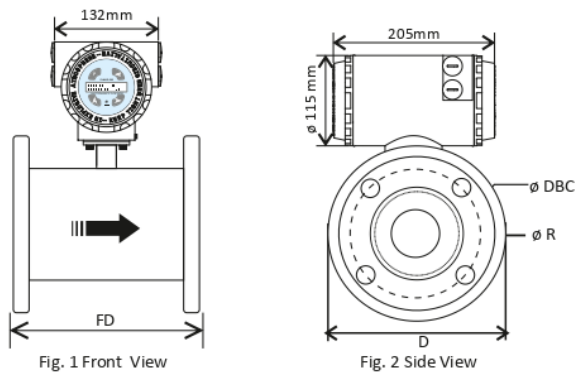
Technical Specifications

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	$< \pm 0.5\%$ of M.V. $+(\pm 5\text{ mm/sec})$ for Velocity Range 0.3 m/s to 6 or 12 m/s
Linearity	$\pm 0.5\%$ of M.V.
Repeatability	$\pm 0.2\%$ of M.V.
Temperature Coefficient	$\pm 0.05\%$ per $^{\circ}\text{C}$
Process Temperature	-20 to 85°C max for Rubber Lining & -20 to 220°C for PTFE & PFA Lining
Process Pressure	16 kg/cm ² 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 ($\pm 10\%$)
Power Consumption	$< 10\text{ VA}$
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	

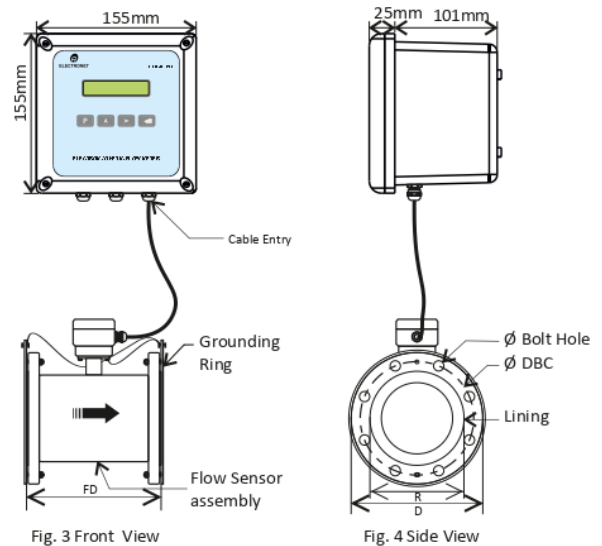
Flow Nomograph



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
½"	15	200	0.19	1.59	3.81	6.36
¾"	20	200	0.34	2.83	6.785	11.31
1"	25	200	0.53	4.42	10.602	17.67
1¼"	32	200	0.87	7.24	17.371	28.95
1½"	40	200	1.36	11.31	27.143	45.24
2"	50	200	2.12	17.67	42.4115	70.69
2½"	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
A	Transmitter Mounting	A1	Integral (Local)
		A2	Remote
B	Power Supply	B1	24 VDC
		B2	230 VAC
C	Enclosure MOC	C1	Aluminium Die Cast
		C2	SS316
		CY	Other
D	Enclosure IP Rating	D1	IP54
		D2	IP67
		D3	IP68
E	Hazardous Certification	E1	ATEX
		E2	FF(CMRI 2A ,2B)
		EX	NA
F	Electrical Connection	F1	M20
		F2	1/2 NPT
		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.			

Parameter	Code	Value	
G	Electrical Output 1 (Current)	G1	4 to 20 mA
		G2	4 to 20 mA with HART
		GX	NA
H	Electrical Output 2 (pulse)	H1	Pulse (OC)
		HX	NA
I	Electrical Output 3 (Alarm /Relay)	I1	One Alarm
		I2	Two Alarm
		IX	NA
J	Alarm Type	J1	Open Collector (Passive)
		J2	Potential Free
		J3	PNP Output (Active)
		JX	NA
K	Communication Output 1	K1	RS-485
		KX	NA
L	Communication Output 2	L1	GPRS
		L2	GSM
		L3	Dual SIM GPRS
		L4	MBUS
		LX	NA
M	Pressure Sensor	M1	16 Kg /cm ²
		MX	NA

Ordering Information of Flow Tube

Sample Order Code: ELMAG 200- FT 15-N1-O1-P1-Q1-R1-S1-T1-U1

Parameter		Code	Value	Code	Value	Parameter		Code	Value
FT	Flow Tube	FT 15	15NB	FT 250	250NB	R	Flange Standard	R1	ASA150 B 16.5
		FT 20	20NB	FT 300	300NB			R2	ASA 300 B 16.5
		FT 25	25NB	FT 350	350NB			R3	ASA 600 B 16.5
		FT 32	32NB	FT 400	400NB			R4	DIN PN 10 EN 1092-1
		FT 40	40NB	FT 450	450NB			R5	DIN PN 16 EN 1092-1
		FT 50	50NB	FT 500	500NB			R6	DIN PN 25 EN 1092-1
		FT 65	65NB	FT 600	600NB			R7	DIN PN 40EN 1092-1
		FT 80	80NB	FT 700	700NB			R8	IS1538
		FT 100	100NB	FT 800	800NB			RY	Other
		FT 125	125NB	FT 900	900NB			RX	NA
		FT 150	150NB	FT 1000	1000NB				
		FT 200	200NB						
N	Electronics Location	N1	Integral (local)		S	Lining Material	S1	Hard /Ebonite Rubber	
		N2	Remote				S2	Neoprene Rubber	
O	Remote Signal Cable Length	O1	5 Meter				S3	PFA	
		O2	10 Meter				S4	PTFE	
		O3	15 Meter				S5	Ceramic	
		O4	25 Meter				S6	PEEK (Up To 50 NB)	
		OX	NA						
P	Process Connection	P1	Threaded (15 to 50 NB)		T	Electrode Material	T1	SS316L	
		P2	Flanged (15 To 1000 NB)				T2	Hastelloy C	
		P3	Triclover (15 to 100 NB)				T3	Platinum	
		P4	SMS Union (25 to 100 NB)				T4	Tentalum	
		P5	Compact Wafer (15 to 100 NB)		U	Pressure Sensor	M1	16 Kg /cm²	
		MX	NA						
Q	Flange MOC	Q1	MS		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.				
		Q2	CS						
		Q3	SS304						
		Q4	SS316						
		QX	NA						

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