

# ***ELECTROMAGNETIC FLOWMETER***

***FlowMag 900 Series***



**FLOWTECH**

## Product Description

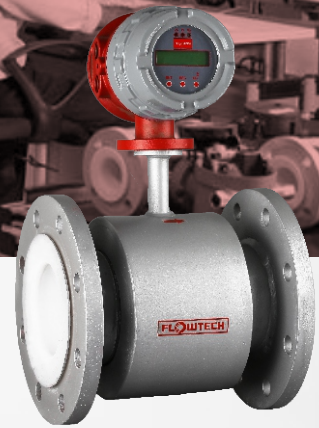
Flowtech series FlowMag®900 are micro-controller based full bore type electromagnetic flow meters specially used for various industrial applications. These flow meters accurately measure the flow rate of conductive liquids and slurries in closed pipes.

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.

## Features:

- Universal Power Supply 90 to 250V AC / 24V DC / Solar Powered / In-built Battery Operated
- 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



**FlowMag S-630**



**FlowMag 900 - BP**



**FlowMag S-630 BP**



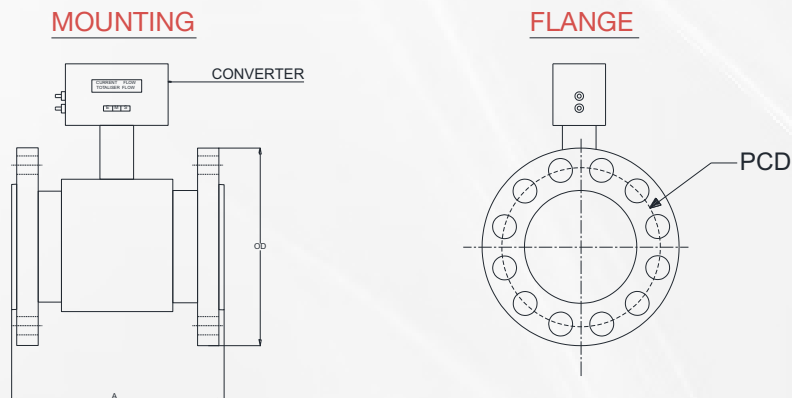
**FlowMag 900**

## Technical Specifications

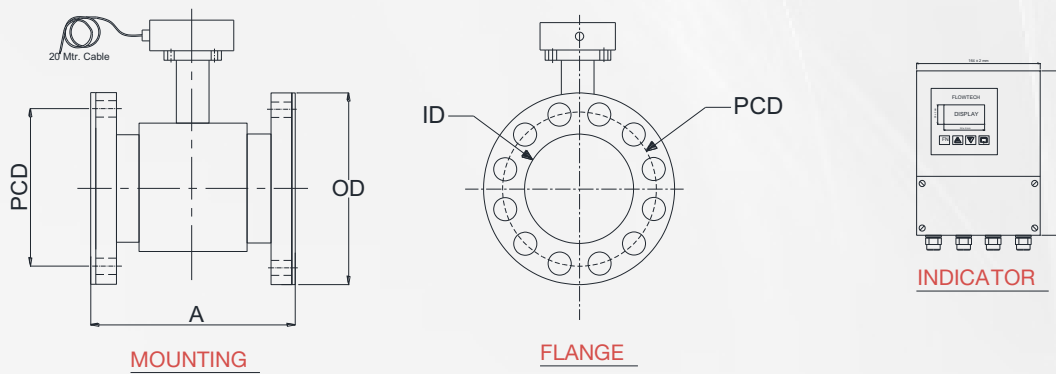
Media	Liquid (Conductive)	
Conductivity	> 5 $\mu$ S/cm	
Viscosity	200 cp max	
Line Size	15 NB to 2000 NB	
Excitation	Pulsed DC	
Type of Output	Output : 1(Any one)	1) 4 to 20mA DC 2) 4 to 20mA DC with HART (Compatible)
	Output : 2(Any one)	Pulse (Open Collector Type)
Communication Output	RS485 supporting MODBUS RTU Protocol	
Display	LCD Display - 6 Digit for Flow Rate & 8 Digit for Totalizer Flow	
Engineering Unit	User Programmable (m <sup>3</sup> /hr by default)	
Calibration Standard	1) IEC/ISO/EN17025 Standard 2) ISO 4185 Standard	
Accuracy	< $\pm$ 0.5% for Velocity Range 0.3 m/s to 5 ( <i>Accuracy may change for velocity above 5 m/s</i> )	
Linearity	+/- 0.5% of M.V.	
Repeatability	+/- 0.2% of M.V.	
Temperature Coefficient	+/- 0.05% per $^{\circ}$ C	
Process Temperature	-20 to 85 $^{\circ}$ C max for Rubber Lining & -20 to 220 $^{\circ}$ C for PTFE Lining	
Process Pressure	16 kg/cm <sup>2</sup> 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 - MS, SS304, SS316	
Power Supply	Option 1 : 230 VAC	
	Option 2 : 24 V DC	
	Option 3 : Solar Powered 24V DC	
	Option 4 : In-Built Battery Powered (3.6V Lithium Ion)	
Power Consumption	< 10 VA	
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 Flameproof (CMRI IIA IIB IIC Certified)	
Sensor / Flow Tube Protection class	Weather Proof IP-67, IP-68	
Process Connections	1) Option 1 : Flange End	
	2) Option 2 : Wafer Connection	
	3) Option 2 : Tri-Clover Connection	
Mounting	In-Line Horizontal / Vertical	
Ambient Conditions	Temperature -20 to 75 $^{\circ}$ C / Humidity 5 to 95% non-condensing	
Certification	1) CE Certified 2) ISO 9001:2015 3) ISO 14001:2015 4) ISO 45001:2018 5) Type Test Certificate (IP Testing) 6) EMI Interface and Protection Testing 7) Weights & Measures Approval	

# Assembly Overview:

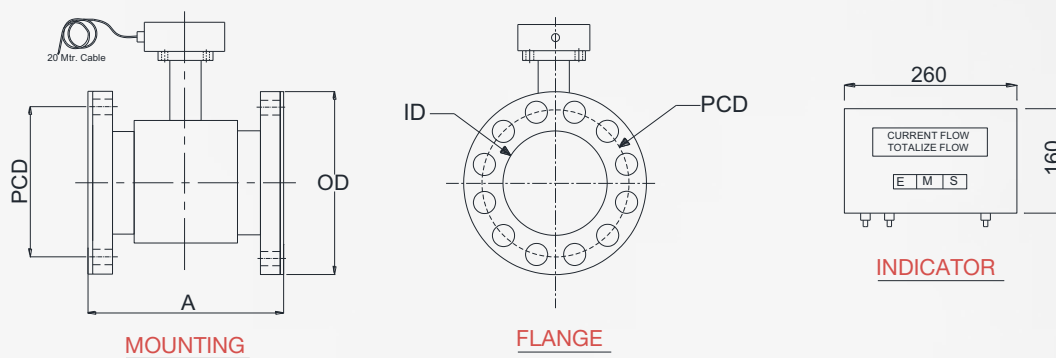
## 1. Integral Mounting Assembly Drawing



## 2. Remote/Field Mounted – Regular Power Supply



## 3. Remote/Field Mounted – In-built Battery Operated



# Flow-to-Velocity Table

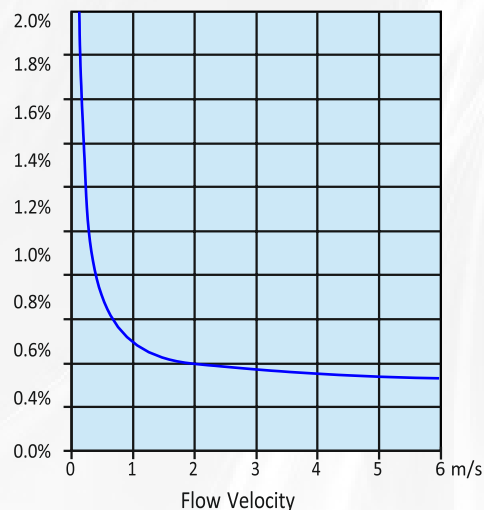
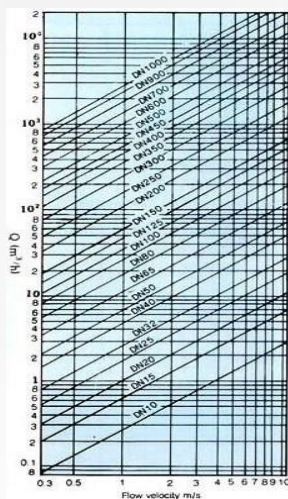
Line Size (NB)	Dimension Flanged Type (In MM)	M3/Hr							
		Min. Flow Velocity @0.3 m/sec	Flow Velocity @2 m/sec	Flow Velocity @2.5 m/sec	Flow Velocity @3 m/sec	Flow Velocity @3.5 m/sec	Flow Velocity @4 m/sec	Flow Velocity @4.5 m/sec	Max. Flow Velocity @5 m/sec
15	142	0.2	1.3	1.6	1.9	2.2	2.5	2.9	3
25	142	0.5	3.5	4.4	5.3	6.2	7.1	8.0	9
40	200	1.4	9.1	11.3	13.6	15.8	18.1	20.4	22
50	200	2.1	14.1	17.7	21.2	24.7	28.3	31.8	35.6
65	200	3.6	23.9	29.9	35.8	41.8	47.8	53.8	60
80	250	5.4	36.2	45.3	54.3	63.4	72.4	81.5	90
100	250	8.5	56.6	70.7	84.8	99.0	113.1	127.3	141
125	250	13.3	88.4	110.5	132.6	154.7	176.8	198.9	220
150	300	19.1	127.3	159.1	190.9	222.7	254.5	286.4	318
200	350	33.9	226.3	282.8	339.4	395.9	452.5	509.1	565.2
250	400	53.0	353.5	441.9	530.3	618.7	707.0	795.4	883.1
300	500	76.4	509.1	636.3	763.6	890.9	1018.1	1145.4	1271.7
350	500	103.9	692.9	866.1	1039.3	1212.6	1385.8	1559.0	1730.9
400	600	135.8	905.0	1131.3	1357.5	1583.8	1810.0	2036.3	2260.8
450	600	171.8	1145.4	1431.8	1718.1	2004.5	2290.8	2577.2	2861.4
500	600	212.1	1414.1	1767.6	2121.1	2474.6	2828.2	3181.7	3532.5
550	600	256.7	1711.0	2138.8	2566.6	2994.3	3422.1	3849.8	4275
600	600	305.4	2036.3	2545.3	3054.4	3563.5	4072.6	4581.6	5086.8
700	700	415.7	2771.6	3464.5	4157.4	4850.3	5543.2	6236.1	6900
800	800	543.0	3620.0	4525.1	5430.1	6335.1	7240.1	8145.1	9050
900	900	687.2	4581.6	5727.0	6872.4	8017.8	9163.2	10308.6	11430
1000	1000	848.4	5656.3	7070.4	8484.5	9898.6	11312.6	12726.7	14140

Note : Flange to flange distance (FD) Tolerance : 1) 1/2"(15NB) to 6"(150NB) : +/-3mm 2) 8"(200NB) to 24"(600NB) : +/-5mm

All dimensions are in 'mm'  
For dimensions of line size above 600NB, please consult factory.  
Typical mounting dimensions are for reference only.

Wet Calibrated at IEC/ISO/EN17025 Accredited Calibration Laboratory.  
Flow meter should be selected with the help of Nomograph (recommended full scale velocity).  
Flow indication of 6 digit max. up to 999999.

## Flow Nomograph:



## Applications:

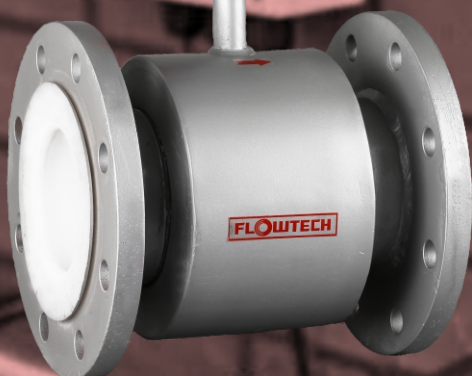
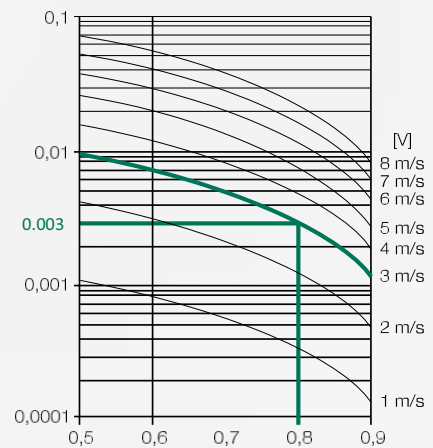


## Pressure Loss:

The pressure loss can easily be determined, if the nominal pipe diameter is greater than the Flowtech flow sensor. See the diagram below.

### Pressure loss graph

The diagram illustrates that decreasing the internal diameter from 100 mm (DN) to 80 mm (DO) will cause a pressure loss of 0.003 Bar @3 m/s.



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## Product Ordering Information

### Order Code for Flow Transmitter

Connection Type	Code	Description
	F	Flanged ANSI
	W	Wafer
	T	Tri-Clover JT
O	Others	

Connection Material	Code	Description
	C	Carbon Steel
	S1	SS 304
	S2	SS 316
OT	Others	

Lining Material	Code	Description
	RL	Rubber
	PL	PTFE
	PA	PFA
L-OT	Others	

Electrode Material	Code	Description
	EL 1	SS 316
	EL 2	SS 316L
	EL 3	Hastalloy 'C'
EL 4	Tantalum	

Transmitter Mounting	Code	Description
	I	Integral
RE	Remote	

Power Supply	Code	Description
	AC 1	230 VAC
	AC 2	110 VAC
	DC	24 VDC
BS	Battery Operated (3.6V Lithium Battery)	

Communication Output	Code	Description
	M	4-20 mA
	P	Pulse
	CR	RS 485
H	HART V 7.6	

Electronics Enclosure	Code	Description
	WP	Weather Proof Aluminium Die Cast
FLP	Flameproof IIA, IIB, IIC	

#### 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.

**FLOWTECH**

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