Bison
Chemicals & Engineers Pvt. Ltd
(Conserve Water-Conserve Life)

www.bisan.in

For the Perfect Flow Measurement

Bison
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Register Office : Plot No-23, Sector-16, Rajeshivajinagar, Chinchwad, Pune-411019.
Factory Address : Gat no-73, Jyotibanager, Near Poona Forge, Talawade MIDC, Pune-411062.
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INTRODUCTION

The Bisan make Electromagnetic flow meter called as virtually approaches the ideal flow meter suitable for wide range of liquid flow measurements even when very low conductivities. The meter offers no resistance to flow hence the pressure drop is always negligible. The measurement is based on faradays' law of electromagnetic induction, independent of viscosity, density, pressure & temperature of flowing medium. The measurement is not affected by solid impurities as long as the min. conductivity of 5μs/cm is available. It is true volumetric flow measurement. We offer various materials of construction of meter lining & electrodes to cover majority of corrosive liquids. The technique called as "Pulsed DC" is used which offer very high zero stability & accuracy of measurement. The standard current output of 4-20mA DC is provided which is linearly proportional to volumetric flow rate & additional frequency output is also provided.

PRINCIPLE OF OPERATION

The method of flow measurement is based of Faraday's law of electromagnetic induction. when a conductor moves within a magnetic field, voltage is induced in it which Is proportional to the velocity of conductor.

In this case the conductor is flowing media. The equation is as below.

E = B.v.D where,

E	=	Induced voltage [proportional to velocity
B	=	Magnetic flux density.
v	=	Mean velocity of the media
D	=	Distance between the sensing electrodes

For a given size of flow tube & compatible amplifier the flux density 'B' is constant, the distance between the electrodes is constant. Hence, the induced voltage is proportional to the velocity of the flowing media. Thus, the unit can be calibrated in terms of volumetric flow rate by knowing the cross - sectional area of the Tube.

APPLICATIONS

This meter is more suitable with those fluids which present difficulties in handling. Fluids such as effluents, slurries, pulps, brines & other highly corrosive liquids, acids & bases, fermented wash, molasses etc.

Following industries can find lot of application of this flow measurement technique.

- Effluent Treatment Plants
- Water Supply Schemes.
- Sugar Industries & Distilleries.
- Chemical & Pharmaceutical.
- Food & Drugs.
- Sewage Treatment Plants.
- Steel & Aluminum,
- Pulp & Paper.
- Petrochemicals & Fertilizers.

FULL BORE AND INSERTION TYPE ELECTROMAGNETIC FLOW METER

Meter Size	:	DN 10 to DN 1000 for higher sizes consult factory
Media Pressure	:	Up to DN 80 - PN 40From DN 100 to DN 200 - PN 16 to DN 350 - PN 10DN
Media Temperature	:	PFA Liner 0- 200° C max. PTFE Line 0- 150°C max. Rubber Liner 0- 90°C max.
Ambient Temperature Range	:	0-50°C
Materials : Pipe	:	S.S. 304 [non-magnetic]
Electrodes	:	S.S. 316 L/ Hastelloy / Titanium and other
Liner	:	PTFE/ Neoprene/ Soft Rubber/Hard Rubber/ PFA.
Flanges	:	C.S./M.S./ S.S. 316/ 304.
Coil Housing	:	Carbon Steel,Epoxy Painted / S.S. 316 / 304.
Flange End Connection	:	ANSI/ DIN/ PN/ SMS/ Tri-clamp
Power Supply to Field coils	:	Pulsed DC

PRINCIPAL ADVANTAGES

- Use of pulsed DC magnetization & auto zero technique offers excellent long term zero stability.
- Measurement independent of velocity profile across the diameter of the pipe-line.
- Measurement results are independent of density, viscosity, pressure, temperature, solid-impurities & conductivity variations [Above 5μ Siemens per cm]
- No additional pressure drop across the meter which relieves the process designer while sizing his pumping requirements. Simple to install as no special precautions of straight pipe lengths required.
- Compatible with virtually all corrosive / non - corrosive liquids.
- Protection class offered IP 65.
- Reasonably higher ratio of Return on Investment to Investment

ELECTROMAGNETIC FLOW METER SPECIFICATION

1. Type	: Integral mounted [standard] Remote Mounted [on request]
2. Min. Media Conductivity	: 5 µs / cm [for lower conductivities consult factory]
3. Signal Output	: 4-20 mA dc isolated in max. 600 ohms
Additional option	: Pulsed Output with adjustable count rate from 1 count / Hr to 10^5 Counts /Hr. [Open collector with 100 mA / 24 V dc capacity]
4. Coil Excitation Frequency	: Selectable DIP switch. (a) 25Hz (b) 12.5 Hz (c) 6.25 Hz (d) 3.125 Hz
5. Local Display	: a) 4 digit LED/LCD calibrated in % or engineering units for flow rate indication b) 9 digit LED/LCD non resettable type for totalised quantity.
6. Flow Velocity Range	: 0.3 m/s to 12 m/s
7. Accuracy	: ± 0.5% of reading [at ref. conditions] between 100% to 10 % of calibrated range ± 0.75% of reading for flow rate between 10% to 5%
8. Ref. Conditions	: Power Supply nominal. Temperature 27°C ± 2°C
9. Repeatability	: ± 0.2% of reading
10. Ambient Temperature	: 0-50°C, Teflon Lining 125°C Max, Rubber Lining 80°C Max
11. Temperature Drift	: ± 0.015% per °C max
12. Humidity	: 90 % R.H. max. non condensing
13. Material of Housing	: Al. Die cast
14. Power Supply	: 230 V AC / 110 V AC, 50 Hz / 24 V DC
15. Damping	: Adjustable from 5 to 30 Seconds
16. Cable Entries	: 4no. for remote amplifier 2 no. for integral amplifier, PG 7 / PG 9
17. Ingress Protection	: IP-65 / 67 / Flame Proof

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ELECTROMAGNETIC FLOW METER FULL BORE INTEGRAL MOUNTING

BCE FT 001

FIT LED Display and 4-20ma O/P
Teflon Lining with Integral Mounting

BCE FT 002

FIT LCD Display RS 485 modbus O/P and 4-20ma O/P, Teflon Lining with Integral Mounting

BCE FT 003

FIT LED Display and 4-20ma O/P
Rubber Lining with Integral Mounting

BCE FT 004

FIT LED Display and 4-20ma O/P
Teflon Lining with Integral Mounting

ELECTROMAGNETIC FLOW METER FULL BORE REMOTE MOUNTING

BCE FT 005

FIT LED Display and 4-20ma O/P
Rubber Lining with Remote Mounting

BCE FT 006

FIT LED Display and 4-20ma O/P
Teflon Lining with Remote Mounting

BCE FT 007

FIT LCD Display RS 485 modbus O/P and
4-20ma O/P, Teflon Lining with Remote Mounting

Model FT 08 - ELECTROMAGNETIC FLOW METER (INSERTION TYPE)

An Ideal solution for water flow measurements in large diameter pipes. Suitable for different line sizes from 200 mm to 2000 mm. Measurement results are independent of density, viscosity, pressure, temperature, solid impurities & conductivity variations(above 5y Siemens/cm) Excellent long term stability using pulsed DC magnetization & auto zero technique. Light in weight and easy to install. Accuracy is typically ±1% of actual flow rate. Best suited for irrigation & water supply departments, public services & utility departments.

METER SIZE FULL SCALE RANGE Q100% IN M3/HR

DN	Inch	V=0.3m/s Min	V=1m/s	V=12m/s Max	DN	Inch	V=0.3m/s Min	V=1m/s	V=12m/s Max
15	½	0.190	0.636	7.634	125	5	13.26	44.18	530.1
20	¾	0.3393	1.131	21.20	150	6	19.09	83.62	763.1
25	1	0.5302	1.767	21.20	200	8	33.93	113.1	1357
32	1¼	0.8886	2.895	34.74	250	10	53.02	176.7	2120
40	1½	1.358	4.524	54.28	300	12	76.35	254.5	3053
50	2	2.121	7.068	84.82	350	14	103.9	364.4	4156
65	2.5	3.584	11.95	143.3	400	16	135.8	452.4	5428
80	3	5.429	18.90	217.1	500	20	212.1	706.9	8482
100	4	8.483	28.2	339.2	600	24	305.4	1018	12215

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Flow Meter Model
Model FT 01
Model FT 02
Model FT 03
Model FT 04
Model FT 05
Model FT 06
Model FT 07
Model FT 08

Liner Material
Teflon (PTFE)
Neoprene
Soft Rubber
Hard Rubber
PFA
Any Other

Flange / End Connection Material
Carbon Steel
Stainless Steel 304
Stainless Steel 316
Stainless Steel 316 L

Flow Transmitter
Integral
Remote, Wall mounting

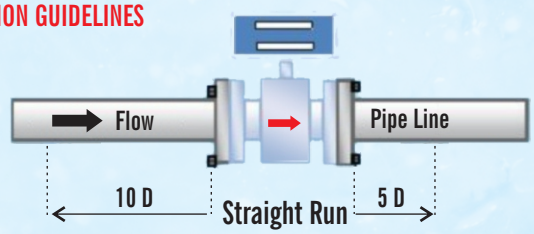
Flange / End Connection Standards
DIN PN 40
DIN PN 25
DIN PN 16
ANSI 300
ANSI 150
BS 10, Table F
BS 10, Table D

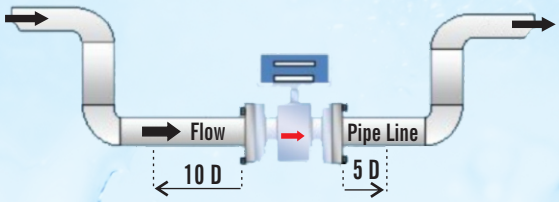
Electrode Material
Stainless Steel 316
Stainless Steel 316 L
Hastelloy C
Tantalum
Titanium
Any Other

Body Material
Mild Steel
Stainless Steel 304
Stainless Steel 316
Stainless Steel 316 L

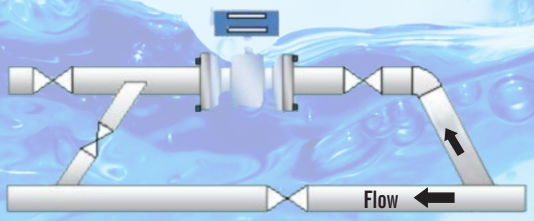
Power Supply
110 to 230V Ac. 50 HZ
24 VDC ±10%

INSTALLATION GUIDELINES





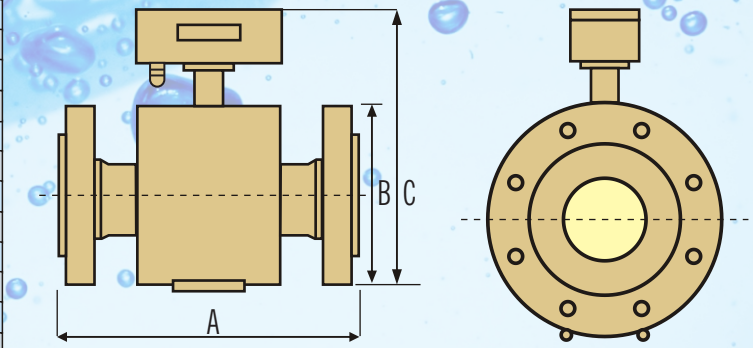
Installation in Open Pipe



Installation in Bypass

FLOW METER DIMENSIONS

DN(mm)	A	B	C
15	200	88.9	235.9
20	200	98.4	245.4
25	200	107.9	254.9
32	200	117.5	264.5
40	200	127.0	274.0
50	200	152.4	299.4
65	200	177.8	324.8
80	200	190.5	337.5
100	250	228.6	375.6
125	250	254.0	401.0
150	250	279.4	426.4
200	300	342.9	489.9
250	350	406.4	553.4
300	350	482.6	629.6



Note:

- All dimensions are in mm.
- dimensions are with ANSI B 16.5, class 150 Flanges, with terminal box.
- dimensions 'A' is without earth rings.
- Standard flanges ANSI B 16.5, Class 150 and onwards.

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