## WE MEASURE FLOW



SROAT 1000

We are certified with

ISO/IEC 17025:2017 | ISO 9001:2015 ISO 14001:2015 | OHSAS 45001:2018



## **ELECTROMAGNETIC FLOW METER SROAT - 1000**

#### INTRODUCTION

The Manas Make electromagnetic flow meter called as SROAT-1000 virtually approaches the ideal flow meter suitable for wide range of liquid flow measurements even with very low conductivities. The meter offers no resistance to flow hence the pressure drop is almost negligible. The measurement being based on Faraday's law of

electromagnetic induction, is independent of viscosity, density, pressure and 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 a true volumetric flow measurement. We offer various materials of construction for meter lining and electrodes to cover majority of corrosive liquids.

The technique called as "Pulsed DC" is used which offers very high zero stability and accuracy of measurement. The standard current output of 4-20 mA DC is provided which is linearly proportional to volumetric flow rate.

#### PRINCIPLE OF OPERATION

The method of flow measurement is based on 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 and 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.

#### PRINCIPAL ADVANTAGES

- Use of pulsed DC magnetization and auto zero technique offers excellent long term zero stability
- Measurement is independent of velocity profile across the diameter of the pipe-line
- Measurement results are independent of density, viscosity, pressure, temperature, solid - impurities and conductivity variations [above 5 µs / 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 68 for flow sensor. IP 67 for transmitter
- · Reasonably higher ratio of Return on Investment to Investment

#### **APPLICATIONS**

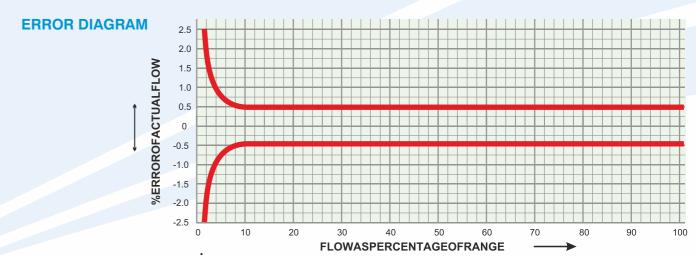
This meter is more suitable with those fluids which present difficulties in handling. Fluids such as effluents, slurries, pulps. brines and other highly corrosive liquids, acids and bases, fermenter- wash, molasses etc.

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

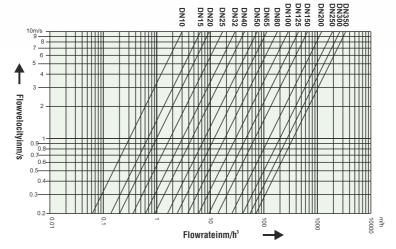
- Effluent Treatment Plants
- Sewage Treatment Plants
- Water Supply Schemes
- Steel and Aluminium
- · Sugar Industries and Distilleries
- Pulp and Paper
- Chemical / Pharmaceutical
- Petrochemicals / Fertilizers
- Food and Drugs

#### FLOW RATE TABLE (Flow rate at v = 1 m/s)

DN	M3/Hr.	LPM	LPS
10	0.282	4.712	0.078
15	0.636	10.602	0.176
20	1.130	18.849	0.314
25	1.767	29.452	0.490
32	2.895	48.254	0.804
40	4.523	75.398	1.256
50	7.068	117.809	1.963
65	11.945	199.098	3.318
80	18.095	301.592	5.026
100	28.274	471.238	7.853
125	44.178	736.310	12.271
150	63.617	1060.287	17.671
200	113.097	1884.955	31.415
250	176.714	2945.243	49.087
300	254.469	4241.150	70.685
350	346.356	5772.608	96.210



#### **FLOW NOMOGRAPH**



#### **SPECIFICATIONS\***

#### **METERING TUBE: SROAT 1000**

Meter Size : DN 10 to DN 350

for higher sizes consult factory

Media Pressure : Up to DN 80- PN 40

From DN 100 to DN 200 - PN 16

DN 250 to DN 350 - PN 10

Rubber Liner: 0 - 90°C max.

Media Temperature: PFA Liner: 0 - 200°C max. PTFE Liner: 0 - 150°C max.

: 0 -50°C

Temperature Range

Ambient

Materials: Pipe : SS 304 (non-magnetic)

Electrode: SS 316/SS316L/Hastelloy C/Ta/Ti

: PTFE/Neoprene/Soft Rubber/

Hard Ruber/PFA

Flanges : CS/SS 316/SS 316L/SS 304

: Carbon Steel, P.U. painted/ Body Material SS 304/SS316

: ANSI/DIN/BS/SMS/Triclamp Flange Standard

: Pulsed DC

Power Supply to

field coils

Ingress Protection : For Integral : IP 67

For Remote: IP 68

#### **TRANSMITTER SROAT 1000 A**

Mounting Integral mounted (on request) Remote mounted (standard) Min. Media  $5 \mu S / cm$  (for lower Conductivity conductivities consult factory) Signal Output 4-20 mA dc isolated in max. Additional Option 600 ohms Pulsed output with adjustable

count rate from 1 count / Hr to 10<sup>5</sup> counts/Hr. (open collector with 100mA/24 V dc capacity)

: a) 3 1/2 digit LCD calibrated in % Local Display or in engineering units for flow rate indication

> b) 8-digit LCD non resettable type for totalized quantity

Flow Velocity Range : 0.1 m/s to 10 m/s

 $\pm 0.5\%$  of reading (at ref. Accuracy

conditions) between 100% to 10% of calibrated range

 $\pm 0.75\%$  of reading for flow rate between 10% to 5% (Refer accuracy graph)

**Ref Conditions** Power supply nominal Temperature 27°C ±2°C

Repeatability : ±0.2% of reading

Ambient Temperature : 0 - 50°C

Temperature Drift : ±0.015% per °C max.

: 90% R.H. max. non condensing Humidity

Material of Housing : Al. Die cast

Damping

Ingress Protection

: 230V ac/110V ac. 50Hz/24V dc Power Supply : Adjustable from 5 to 30 secs

Cable Entries : 4 no. For Remote Amplifier

2 no For Integral Amplifier

PG11/½" NPT/½" BSP/(Female) IP-67

#### **ADDITIONAL FEATURES IN SR1001AP**

Communication Port RS 485 (standard) RS 232 (on request)

Data Logging Available

#### $80 \pm 1$ 田 $57.5 \pm 1$ 111 ± 2 Eye Bolt -0 Earth Bush 0 0 $A \pm 2$ 0 $\bigcirc$ Support 0 0 Rod $B \pm 2$ $C \pm 5$

#### **Meter Dimensions** (mm)

Α	В	С
134	78	200
112	110	200
121	100	200
131	105	200
156	99	200
181	92	200
194	89	200
232	135	250
258	135	250
283	170	300
347	205	350
410	240	400
486	290	500
539	290	550
	134 112 121 131 156 181 194 232 258 283 347 410 486	134     78       112     110       121     100       131     105       156     99       181     92       194     89       232     135       258     135       283     170       347     205       410     240       486     290

 Production standard flanges: ANSI B 16.5, class150 upto DN350

#### Note:

- All dimensions are in mm
- Dimensions are with ANSI B 16.5, class 150 flanges, with terminal box

### ORDERING INFORMATION

Sample code explained: DN25-PTFE-SS316L-ANSI 150-CS-SS304-SR1000A-1D-1L-RS4-RMT-2

DN 25	Flow Meter Size		
	DN 10 : 3/8"	DN 80 :	3"
	DN 15 : 1/2"	DN 100 :	4"
	DN 20 : 3/4"	DN 125 :	5"
	DN 25 : 1"	DN 150 :	6"
	DN 32 : 1 1/4"	DN 200 :	8"
	DN 40 : 11/2"	DN 250 :	10"
	DN 50 : 2 "	DN 300 :	12"
	DN 65 : 2 1/2"	DN 350 :	14"

# ANSI 150 Flange / End Connection Standards DIN : DIN ANSI 150 : ANSI 150 AS 4087 : AS 4087 Any Other : ZZ



Normal Logging

Extended Logging

: 1L

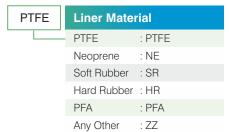
: 2L

: RS2

: RS4

Display

1D



Connection Material		
Mild/Carbon Steel	: MS/CS	
Stainless Steel 304	: SS304	
Stainless Steel 316	: SS316	
Stainless Steel 316L	: SS316L	

Flange / End

MS/CS

SS304

SR1000A

	No Logging	: 0L
RS4	Communication	Facility

RS 232

RS 485

SS316L		Elecrode Mat	erial
		SS316	: SS316
		SS316L	: SS316L
	Hastelloy B	: HAST B	
		Hastelloy C 276	: HAST C 276
		Tantalum	: TAN
		Titanium	: TIT

Any Other

	Body Material	
	Mild / Carbon Steel	: MS/CS
_	Stainless Steel 304	: SS304
	Stainless Steel 316	: SS316
	Stainless Steel 316L	: SS316L

RMT		Transmitter Mounting	
		Integral	: INT
		Remote	: RMT
		Remote 2	: Pipe Mounting - RMT P

Transmitter Ty	pe
SROAT 1000A	: SR1000A
SROAT 1000AP	: SR1000AP

2 Power Supply

110 V AC ± 10%, 50 Hz : 1

230 V AC ± 10%, 50 Hz : 2

24 V DC : 3

85-265 V AC, 50 Hz : U

Any Other

Due to continuous development specifications are subject to change without prior notice.



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: ZZ

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