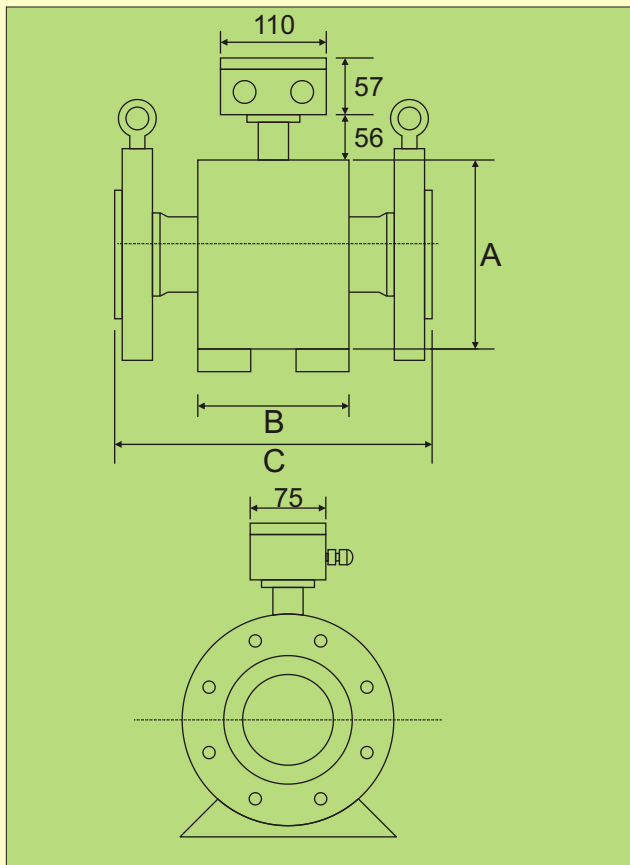


| Table for Meter Dimensions MEGA-SROAT(mm) | | | |
|---|------|------|------|
| DN(mm) | A | B | C |
| 400 | 600 | 325 | 600 |
| 450 | 635 | 415 | 650 |
| 500 | 700 | 500 | 700 |
| 600 | 810 | 550 | 800 |
| 700 | 850 | 700 | 900 |
| 750 | 910 | 750 | 950 |
| 800 | 1000 | 800 | 1000 |
| 900 | 1085 | 800 | 1100 |
| 1000 | 1200 | 800 | 1200 |
| 1200 | 1410 | 900 | 1400 |
| 1400 | 1600 | 1000 | 1400 |
| 1600 | 1840 | 1100 | 1600 |

- Note -**
1. All dimensions are in mm.
 2. Dimension 'C' is without earth rings.
 3. Dimensions are with terminal box.



DN 600 LN 02 EL 03 FCS 01 FM 01 BM 01 FTT 02 FT 02 02

ORDERING INFORMATION

| FLOW METER SIZE | |
|-----------------|---------------|
| DN 400 : 16" | DN 800 : 32" |
| DN 450 : 18" | DN 900 : 36" |
| DN 500 : 20" | DN 1000 : 40" |
| DN 600 : 24" | DN 1200 : 48" |
| DN 700 : 28" | DN 1400 : 56" |
| DN 750 : 30" | DN 1600 : 64" |

| LINER MATERIAL |
|-------------------------|
| LN-01 : Hard Rubber |
| LN-02 : Soft Rubber |
| LN-03 : Neoprene Rubber |

| ELECTRODE MATERIAL |
|---------------------|
| EL-01 : SS316 |
| EL-02 : SS316L |
| EL-03 : HASTELLOY'C |

| FLANGE /END CONNECTION STANDARDS |
|-------------------------------------|
| FCS-01 :AWWA : CLASS D |
| FCS-02 :ANSI : CLASS 150 |
| FCS-03 :BS-10 : TABLE F-UPTO DN 600 |
| FCS-04 : ANY OTHER |

| FLANGE MATERIAL |
|----------------------|
| FM-01 : Carbon Steel |
| FM-02 : Mild Steel |
| FM-03 : Any Other |

| BODY MATERIAL |
|--------------------|
| BM-01 : Mild Steel |
| BM-02 : SS304 |
| BM-03 : SS316 |
| BM-04 : SS316L |

| FLOW TRANSMITTER TYPE |
|-----------------------|
| FTT-01 : Blind |
| FTT-02 : With Display |

| FLOW TRANSMITTER MOUNTING |
|---------------------------|
| FT-01 : Integral |
| FT-02 : Remote (wall) |

| POWER SUPPLY |
|---------------------------|
| 01 : 110 VAC ± 10%, 50 Hz |
| 02 : 230 VAC ± 10%, 50Hz |

manas

a name that spells trust....
AN ISO 9001: 2008 COMPANY



We Measure Flow
MEGA SROAT

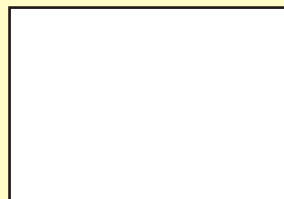


Crownsp @ vsnl.com feb 2009-1000

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

manas microsystems pvt. ltd.

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WEBSITE : www.manasmicro.com, www.flowmeterindia.in



Catalog No : Fc - FBE- 08

SERIES: MEGA SROAT AND SROAT 1000A / 1000 A+

INTRODUCTION :

Series MEGA SROAT is offering large sized electromagnetic flow meters introduced by manas. The sizing ranges from 400mm diameter to 1600mm diameter. These flow meters are very accurate (Typically 0.5% of actual flow rate). Hard ebonite rubber lining makes these meters suitable for measurement of Raw Water containing even abrasive sand and quartz particles, mud etc. and still delivering long life. This Series is also suitable for sewage applications.

PRINCIPLE OF OPERATION:

The MEGA SROAT series of electromagnetic flow meters work on FARADAY'S LAW OF ELECTROMAGNETIC INDUCTION. It, in brief, states; "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:

$E = B \cdot v \cdot d$

Where

E = Induced voltage [proportional to velocity]

B = Magnetic flux density

v = Mean velocity of the media

d = Diameter of flow-sensor (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 flowing media. Thus the meter can be calibrated in terms of volumetric flow rate by knowing the cross-sectional area of the tube.

PRINCIPAL ADVANTAGES:

- Robust, rugged, welded steel/stainless steel construction withstanding to IP68.
- Very much suitable for submerged or buried application.
- No Pressure Drop across the sensor, being full bore construction.

- Measurement independent of un-dissolved solids.
- Long lasting Ebonite rubber lining gives long life of sensor.
- End connection flanges as per customer's Requirements.
- Much better accuracy compared to other types of meters in its class.

APPLICATIONS :

- 1) Extremely useful for large water supply schemes.
- 2) Suitable for Sewage measurements
- 3) Municipal water measurement schemes.

TECHNICAL SPECIFICATIONS:

A) PRIMARY FLOW SENSOR :- Mega Sroat

1. Meter Size : DN 400 to DN 1600
2. Media Pressure : PN 10
3. Media Temperature : 0-80°C max
4. Operating Ambient : 0-60 °C Temperature

5. **Material of construction**

- Pipe : SS304 [non magnetic]
- Electrodes : SS 316/SS 316L/ or others as per compatibility with service liquid.
- Liner : Hard Ebonite rubber
- Flanges : CS/SS 316/SS 304/SS 316L
- Coil Housing : CS (Polyurethane Painted) / SS304/SS 316
- Earth Electrodes : SS 316/SS 316L / Hastalloy C / or others
- Body Material : CS/SS 316/SS 304
- 6. Flange Standard : ANSI /BS/AWWA/Any other as per customer's Specs.
- 7. Power Supply to Field Coils : Pulsed DC

TRANSMITTER SROAT 1000A PLUS / SROAT 1000A

Common Specs. to both transmitters :

1. Type : Integral mounted [std.]
Remote Mounted [on request]
2. Min. Media Conductivity : $\geq 5 \mu s/cm$ [for lower conductivities consult factory]
3. Flow Velocity Range : 0.1 m/s to 10 m/s
4. Accuracy : $\pm 0.5\%$ of reading [at ref. conditions] between 100% to 10% of calibrated range.
 $\pm 0.75\%$ of reading for flow rate between 10 to 5% [refer accuracy graph]
6. Ref. Conditions : Power supply nominal. Temperature 27°C \pm 2°C
7. Repeatability : $\pm 0.2\%$ of reading
8. Ambient Temperature : 0 - 50°C
9. Temperature Drift : $\pm 0.015\%$ per °C max.
10. Humidity : 90 % R. H. max. non condensing
11. Material of Housing : Al. Die cast.
12. Power Supply : 230 V ac/ 110 V ac 50 Hz/24 Vdc.
13. Damping : Adjustable from 5 to 30 Secs.
14. Cable Entries : 4 no. For remote amplifier
2 no. For integral amplifier
1/2" NPT / 1/2" BSP / PG11 [Female]
15. Ingress Protection : IP-65

TRANSMITTER : SROAT 1000 A plus

- 1 Display(Optional) : 16 Character x 2line LCD for instantaneous flow rate and cumulative flow.
- 2 Pulse Output : 1 pulse per hour to 100,000 pulses \ hour, (Open collector 3 Wire), programmable.
- 3 Comm. Port : RS 232 or RS 485 with MODBUS RTU compatible to serial printer.
- 4 Data Logging : Up to 5000 readings can be stored on real time base. These readings can be viewed latter using a keyboard or may be printed.

TRANSMITTER : SROAT 1000 A

1. Signal Output : 4-20 mA dc isolated in max. 600 ohms
2. Coil Excitation Frequency : 12.5Hz/6.25 Hz
3. Local Display : a) 3 1/2 digit LCD calibrated in % or engineering units for flow rate indication
b) 8 digit LCD non resettable type for totalised quantity.

FLOW RATE TABLE :

Flow rate at v = 1m/s

| DN | m3/Hr. | LPM | LPS | MLD | DN | m3/Hr. | LPM | LPS | MLD |
|-----|----------|-----------|---------|------|------|----------|----------|----------|---------|
| 400 | 452.389 | 7539.816 | 125.664 | 10.8 | 800 | 1809.556 | 30159.26 | 502.654 | 43.429 |
| 450 | 572.555 | 9542.580 | 159.043 | 13.7 | 900 | 2290.219 | 38170.32 | 636.172 | 54.965 |
| 500 | 706.858 | 11780.960 | 196.349 | 16.9 | 1000 | 2827.431 | 47123.85 | 785.398 | 67.858 |
| 600 | 1017.875 | 16964.590 | 282.743 | 24.4 | 1200 | 4071.501 | 67858.34 | 1130.972 | 97.716 |
| 700 | 1385.441 | 23090.690 | 384.845 | 33.2 | 1400 | 5541.765 | 92362.75 | 1539.379 | 133.002 |
| 750 | 1590.430 | 26507.170 | 441.786 | 38.1 | 1600 | 7238.223 | 120637.1 | 2010.618 | 173.717 |

Sample Calculation for Velocity in flow Tube :

PI. Refer the velocity Table where flow rates at 1 meter/sec. velocity through different sizes of flow meter are given. In general through large size of meters the velocity taken is between 2 to 3 m/sec.

Given flow rate by customer :3000 m3/hr. (Say)
 Expected Velocity through Flow meter : 2.5 m/sec. (Approximately)
 Flow rate at 1 meter/sec. velocity : 3000/2.5= 1200 m3/hr.
 Referring Velocity table, DN700 is having 1385.441 m3/hr. flow rate at 1 m/sec. velocity.
 We get velocity for given flow rate through DN700 : 3000/1385.441 =2.165 m/sec.
 This is suitable velocity. Thus in this case DN700 is suitable meter.

Alternately, Suppose the given line size is 800 NB. Flow rate is 3000 m3/Hr. Velocity through DN 800 flow meter, $V = 3000 \text{ m}^3/\text{hr} / 1809.556 = 1.658 \text{ m/s}$. Where, 1809.556 is the flow rate in m3/hr., specified for 1 meter velocity through DN800 meter as per the above velocity table.

ERROR DIAGRAM

