

Note:
 •All dimensions are in mm
 •Dimensions 'C' is without earth rings
 •Dimensions are with terminal box

•Standard flanges used
 a. From DN400 to DN 800 : IS 1538
 b. From DN900 to DN1500 : AWWA class B
 *For DN1400 and : DIN EN 1092-1
 DN1600 only

Meter Dimensions (mm)

DN (mm)	A	B	C
400	600	325	600
450	635	325	600
500	670	325	600
600	780	325	600
700	895	400	700
750	960	400	750
800	1015	400	800
900	1170	450	900
1000	1290	450	1000
1200	1510	500	1200
1400	1630	600	1400
1600	1830	800	1600

ORDERING INFORMATION

Sample code explained: DN600-HR-SS316-IS1538-CS-CS-MS1010-2D-0L-RS4-RMT-U

DN 600	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 :	CS	Flange / End Connection Material Carbon Steel : CS Stainless Steel 304 : SS304 Any Other : ZZ	0L	Logging Normal Logging : 1L Extended Logging : 2L No Logging : 0L
HR	Liner Material Ebonite Hard Rubber : HR Soft Rubber : SR Neoprene : NE Any Other : ZZ	CS	Body Material Carbon Steel : CS Stainless Steel 304 : SS304 Stainless Steel 316 : SS316 Any Other : ZZ	RS4	Communication Facility RS 232 : RS2 RS 485 : RS4 No Communication : NA
SS316L	Electrode Material SS316L : SS316L Hastelloy C : HAST C Any Other : ZZ	MS1010	Flow Transmitter Type SROAT 1000A : SR1000A MS1010 : MS1010 SR1001AP : SR1001AP	RMT	Flow Transmitter Mounting Integral : INT Remote : RMT
IS1538	Flange / End Connection Standards IS1538 : IS1538 AWWA Class B : AWWA DIN EN 1092-1 : DIN EN Any Other : ZZ	2D	Flow Transmitter Blind : B Indication Display : 1D Indication and Totalisation : 2D	U	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 : Z



WE MEASURE
MEGA FLOW

MEGA SROAT

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Automation Private Limited

Exclusive Authorized Distributor, Stockist & Service Provider of



Fc-FBE-08_2 | EMF-6

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MEGA SROAT AND SROAT 1000A / MS1010

INTRODUCTION

Series MEGA SROAT is offering large sized electromagnetic flow meters introduced by Manas. The sizing ranges from 400 mm diameter to 1600 mm diameter. These flow 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 = 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 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 applications
- Measurement independent of un-dissolved solids
- Much better accuracy compared to other types of meters in its class
- No pressure drop across the sensor, being full bore construction
- Long lasting Ebonite rubber lining gives long life of sensor
- End connection flanges as per customer's requirements

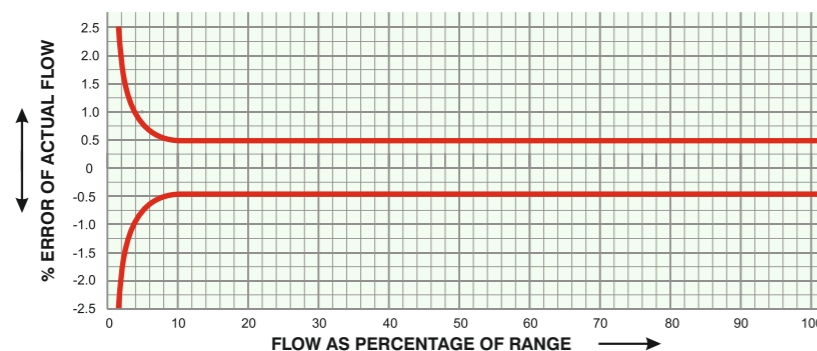
APPLICATIONS

Extremely useful for large water supply schemes

Suitable for sewage management

Municipal water measurement schemes

ERROR DIAGRAM



SPECIFICATIONS*

METERING TUBE: SROAT 1000

Meter Size	: DN 400 to DN 1600
Media Pressure	: PN 10
Media Temperature	: 0 - 80°C
Operating Ambient Temperature	: 0 - 60°C
Material of construction	: Pipe : SS 304 (non-magnetic)
Electrode	: SS 316/ SS 316L / or others as per compatibility with service liquid
Liner	: Hard Ebonite Rubber / Neoprene
Flanges	: CS / SS304 / SS316 / SS316L
Coil Housing	: MS / CS Polyurethane Painted / SS 304 without paint / or others as per compatibility with service liquid
Earth Electrodes	: SS 316 / SS 316L / Hastelloy C or others as per compatibility with service liquid
Flange Standard	: IS 1538 / AWWA / DIN or others as per compatibility with service liquid
Power Supply to field coils	: Pulsed DC
Ingress Protection	: IP 68

TRANSMITTER SROAT 1000A / MS1010

TRANSMITTER SPECIFICATIONS

Common Specs. to both transmitters

Type	: Remote mounted (Std) Integral mounted (On request)
Accuracy	: ±0.5% ±1 mm/sec of actual flow rate between 100% to 10% of calibrated range
Ref Conditions	: Power supply nominal 230V ac ±10% Temperature 27°C ±2°C
Repeatability	: ±0.2% of reading
Ambient Temperature	: 0 - 50°C
Signal Output	: 4-20 mA DC isolated in max 600 ohms

TRANSMITTER SR1000A

Min. Media Conductivity	: ≥ 5 μS / cm
Flow Velocity Range	: 0.1 m/s to 10 m/s
Display	: a) 3½ digit, ½" LCD for flow rate b) 8 digit LCD for totalisation
Damping	: Adjustable from 5 to 30 secs.
Power Supply	: 230V ac, single phase, 50Hz ±10% 110V ac, single phase 50Hz ±10% 12V dc / 24V dc, ±10%
Temperature Drift	: 0.015% / °C max. of full scale
Humidity	: 90% R.H. max. non condensing
Material of Housing	: Al. Die cast
Cable Entries	: Max. 6 no. for Remote mounting Max. 4 no. for Integral mounting
Ingress Protection	: IP-67

TRANSMITTER MS1010

Min. Media Conductivity	: ≥ 20 μS / cm
Flow Velocity Range	: 0.3 m/s to 10 m/s
Display	: 16 characters X 2 rows LCD Display (for instantaneous Flow rate, Totaliser, Engg. units, Fault messages, etc.)
Common Port	: RS485 (default) / RS232 (on request), MODBUS RTU compatible
Power Supply	: 85 to 256V ac, 50Hz, single phase, or 24V dc ±20%

ADDITIONAL FEATURES IN SR1001AP

Communication Port	: RS485 (standard) RS232 (on request)
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FLOW RATE TABLE (Flow rate at v = 1 m/s)

DN	M3/Hr.	LPM	LPS	MLD
400	452.389	7539.816	125.664	10.8
450	572.555	9542.580	159.043	13.7
500	706.858	11780.960	196.349	16.9
600	1017.875	16964.590	282.743	24.4
700	1385.441	23090.690	384.845	33.2
750	1590.430	26507.430	441.786	38.1
800	1809.556	30159.26	502.654	43.429
900	2290.219	38170.32	636.172	54.965
1000	2827.431	47123.85	785.398	67.858
1200	4071.501	67858.34	1130.972	133.002
1400	5541.765	92362.75	1539.379	133.002
1600	7238.223	120637.1	2010.678	173.717

HOW TO CALCULATE VELOCITY

Please 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 1 to 3 meters/sec. This also is suitable velocity range because Manas meters work comfortable up to 1m/sec. full scale velocity.

SAMPLE CALCULATION FOR VELOCITY IN FLOW TUBE

Please 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 meters/sec.

Given flow rate by customer : 3000 m3/hr (Say)

Expected velocity through flow meter : 2.5m/sec. (Approx.)

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 DN800 flow meter, V=3000m3/hr / 1809.556 = 1.658/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. This is near to our requirement of 1.5 meters/sec. This way you may find the velocity in the given line/flow meter for given flow rate. Or you may find suitable line size / or flow meter size for given flow rate.