

# ADDMAS

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## Electro-Magnetic Flow Meters



**MODEL : S SERIES**



**MODEL : P SERIES**

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**REMOTE UNIT DISPLAY**

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## ELECMAGNETIC FLOWMETERS

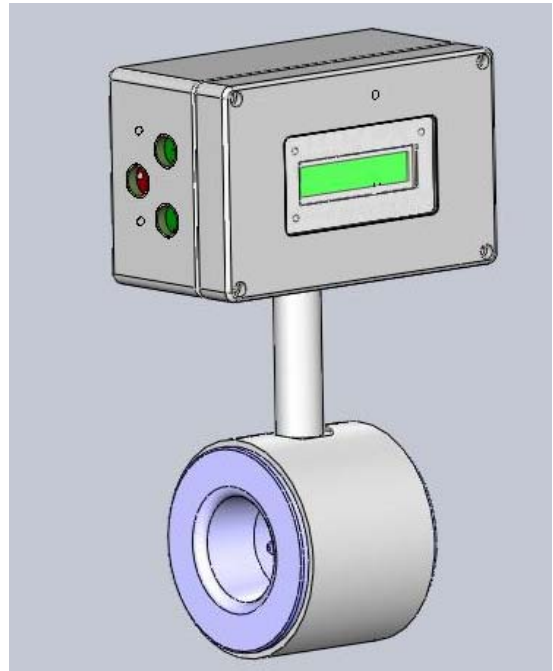
### INTRODUCTION

ADDMAS full bore flow meter is a cost effective flow meter for conductive liquids such as Raw Water, Chilled water, effluents, Potable water and industrial chemicals. Using time proven electromagnetic flow metering principle, ADDMAS flow meters are available for pipes from ½ “ NB to 6” NB. Since there are no moving parts, the flow meter gives years of maintenance free service. It's performance is independent of temperature, pressure, density and viscosity of medium. The flow meter is obstruction less and hence the pressure drop is almost negligible.

ADDMAS has all the features required in field mountable metering equipment. These include - weather proof / flame proof enclosure, RS485 communication option , with 4 to 20 mA isolated Current output for Flow signal transmission option for process control. The converter is available as field mounted-IP65 protection category. An optional batching controller also available on request.

#### FEATURES :

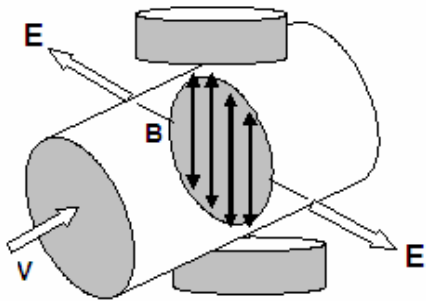
- High Accuracy Flow metering
- Optional Digital Transmission
- Isolated 4 to 20 mA current output
- IP 65 Field / Wall mounted Enclosure
- 2 Line Alpha numeric back lit display
- Flange / sandwich type mounting
- Easy maintenance as no moving part.
- Operates over wide range of Pressure and Temperature.
- Low cost against highest quality.



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**MEASURING PRINCIPLE**

The operating principle of Magnetic flow meters is based upon Faraday's Law of electromagnetic induction, "It states that a voltage will be induced in a conductor moving through a magnetic field".



Faraday's Law :

$E = kBDV$  where,

E = Induced Voltage,

B = Strength of the magnetic field,

D = Conductor Width

V = Velocity of the conductor

The magnitude of the induced voltage E is directly proportional to the velocity of the conductor width D, and the strength of the magnetic field B. Liquid acts as a conductor as it flows through pipes.

## **APPLICATION**

This Flowmeters find varied applications where the flowing medium is difficult to handle. Major advantage of these flowmeters are : zero pressure drop, No moving part and highest accuracy level at most affordable cost. Some of the major application can be described below

- Effluent Treatment plant
- Sewage Treatment plant.
- Water supply Schemes
- Pulp and Papers
- Sugar industries and distilleries
- Steel and Aluminums
- Chemical / Pharmaceuticals
- Food and Drugs.

## ADVANTAGES

- Tolerates High percentage of suspended solids  
Sludge, slurries, minerals, paper, sewage – flows with high level of solids which can not be measured other type of meters.
- Obstruction less measurements
- Nothing projects into the flow stream, no head loss, no parts to maintain.
- Suitable for corrosive liquid
- Acids, caustic and corrosive additives are isolated from the meter pipe by inert linings and compatible electrodes.
- Suitable for all types of electrically conductive liquids  
Liquid where conductivity is of sufficient level to induce measurable e.m.f..

## TECHNICAL SPECIFICATIONS

**1) Medium Conductivity** : >5 uS/cm

**2) Meter Sizes** : 1/2",1",2",3",4" ,6",8" NB Pipe flanges  
For Higher size consult Factory.

**3) Flow Tube Part** : S Series : SS 316  
P Series : Poly-Propylene

**4) Electrodes** : SS 316L or optionally Hastalloy 'C'

**5) Materials** :

- S series  
Flow Tube : SS 316 [ non magnetic]  
Electrodes : SS 316 / Hastalloy C / Platinum  
Lining : PTFE or Neoprene options  
Flanges : SS 304/SS316/SS 316L  
Sensor Housing : CS, Epoxy painted/ SS 304
- P series  
Flow Tube : Polypropylene  
Electrode : SS 316 / Hastalloy C

**6) Material of Housing** : Aluminum / Powder coated

**7) Flow Velocity** : **0.1 to 10 m/s in two ranges**

**8) Pressure Rating**..... : S series : standard Flanges - ASA150 options on request



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10 bar Standard, higher on request

: P series : 10 Bar at 55°C

**9) Operating Temperature Medium :**

S series : 0 to 150 Deg.C for PTFE lining  
0 to 60 DegC for Neoprene lining

P series : 0 to 55 °C

**10) Operating Temperature Ambient : 0 to 55 Deg. C**

**11) Temperature Drift** : +/- 0.016% / Deg.C

**12) Power Supply** ..... : 100 VAC TO 250 VAC

**13) Power Consumption** : 15VA max

**14) Outputs** ..... : 4 to 20 mA DC isolated in 500 ohms max Load  
: RS485 with Modbus RTU protocol (OPTIONAL)

**15) Accuracy** : +/- 0.5% of Flow +/- 3 mm /Sec from 0.5m/sec to 10 m/sec

**16) Repeatability** : +/- 0.2% of reading +/-3mm/sec

**17) Key Board and Display** : 3 Keys with  
2 lineX16 ch LCD- A/N display , back lit

**18) Flow parameter** : Programmable  
- Volume Units : ltrs, M3, ML, CF, BG  
- Time Units : sec, min, hrs

**19) Configurable Parameters** : F.S. for 4 to 20 mA range,  
%Low flow cut off,  
Communication Parameters  
Calibration Constant  
Damping (Filter)

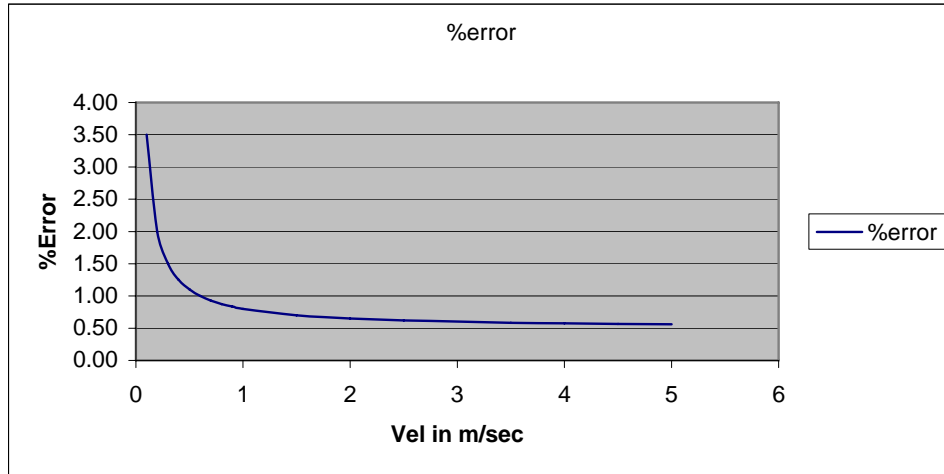
**20) Calibration** : Factory Calibrated on certified flow rig

**21) Cable Entries** : 4 nos. for Remote Converter  
up to 3 nos. for integrally mounted Converter

**22) Ingress protection** : IP 65

**23) Flame proof Version** : Please contact factory

## Typical error graph



## **TYPICAL FLOW RATE TABLE**

Pipe – Size (NB)	At velocity 0.5 m/sec in LPM	At Velocity 5 m/sec in LPM
15(1/2")	~5	~50
25 (1")	~15	~150
40 (1 1/2")	~37	~370
50 (2")	~60	~600
80 (3")	~150	~1500
100(4")	~235	~2350
150 (6")	~530	~5300
200(8")	~830	~8300

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Mfgr. By.

**ADDMAS** MEASUREMENTS

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