Pressure Measurement & Control

Temperature Measurement & control

≤150°C Cable 80 kg/cm²

Process Control Instrument

Flow Measurement & Control

Conductive liquid / Slurry

10 µm/cm²

Flameproof

Simplex

VALUE OF WORDS

aavad©
INSTRUMENT

Duplex

RTD Pulsed DC

ss 316 L ss304

K Type

Pt 100

Triclover

Relay

Portable Instruments

Hastelloy C

Electromagnetic Flowmeter with Telemetry system

Working Principle

Electromagnetic Flowmeters are based on Faraday's Law of Electromagnetic Induction. In an Electromagnetic Flowmeter, the magnetic field is generated by a set of coils. As the conductive liquid passes through the electromagnetic field, an electric voltage is induced in the liquid which is directly proportional to its velocity. This induced voltage is perpendicular to both, the liquid flow direction and the electromagnetic field direction. The voltage sensed by the electrodes is further processed by the transmitter to give standardized output signal or displayed in appropriate engineering unit. The electromagnetic flow meter accurately measures the flow rate of conducting liquids or slurries flowing in closed pipes. It is obstruction less and hence does not add pressure drop to the process. Absence of moving parts eliminates the need for maintenance. The performance of the instrument is not affected by the properties of the material such as corrosiveness, viscosity and density.

Features

- Empty Pipe Detection
- Low Flow Cut off
- Display in User Selectable units
- Programmable Pulse on-time
- Adjustable Damping
- Digital Output
- Full bore type
- Suitable for conductive liquids
- Maintenance free
- Simple & cost effective construction
- Flow measurement in forward and reverse direction

Technical Specifications

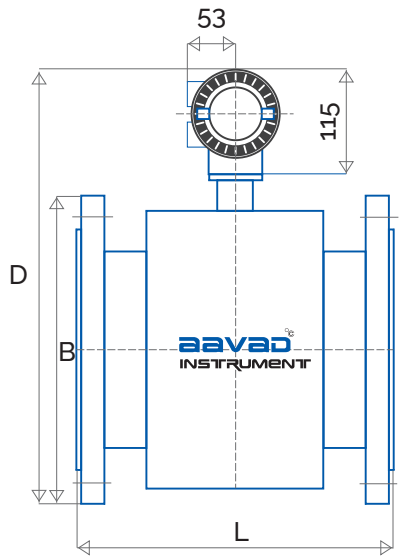
Model	AMAG-I / AMAG-R / AMAG-O	**Flanged std**	ANSI 150
Media	Conductive liquid / Slurry	**End connection**	Flanged
Line size	15 NB to 500 NB, Customised	**Accuracy**	0.5 % of the reading
Conductivity	>10 µS/cm	**Display**	LED/LCD
Excitation	Pulsed DC	**Display unit**	M3, ltr, Gallen all standard engineering unit
Working pressure	10 kg/cm2	**Power supply**	85 to 230 v ac,50 Hz / 24 V dc
Working temperature	70˚c for rubber , 120˚c for PTFE	**Out put**	4-20 mA, Pulse, Relay (Optional)
Velocity	0.3 to 10 m/s	**Communication**	RS 485, RS 232, HART (Optional)
Sensor housing	MS/SS/CS	**Protection class for sensor**	Std 65, Optional IP 68 for remote
Measuring tube	ss304	**Protection class for transmitter**	IP 67
Electrode	ss 316 L / Hastelloy C	**Transmitter MOC**	Aluminum Die cast

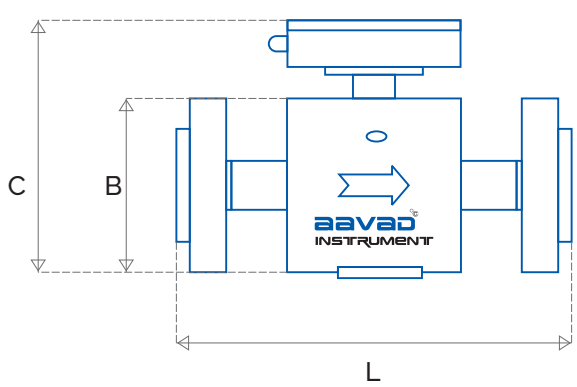
Industry Served

- Food Industry
- Chemical Industry
- Energy
- OEM Industry
- Automation Industry
- Thermal Power Energy
- Process Industry
- Waste Water Managment

Dimension Chart

DN	L (mm)	B (mm)	C (mm)	D (mm)	PCD of Flange
DN 15	191	89.9	193.9	253.9	60.5
DN 20	191	98.4	293.4	263.4	70.0
DN 25	191	107.9	212.9	272.9	79.5
DN 32	191	117.5	222.5	282.5	89.0
DN 40	191	127.0	232.0	292.0	98.5
DN 50	192	152.4	257.4	317.4	120.5
DN 65	192	177.8	282.8	342.8	139.5
DN 80	192	190.5	295.5	355.5	152.5
DN 100	237	228.6	333.6	393.6	190.5
DN 125	240	254	359.0	419.0	216.0
DN 150	240	279.6	384.6	444.6	241.5
DN 200	310	342.9	447.9	507.9	298.5
DN 250	362	406.9	511.9	571.9	362.0
DN 300	412	482.6	587.6	647.6	432.0
DN 350	412	533.4	638.4	698.4	476.0
DN 400	515	596.4	701.4	761.4	539.5
DN 450	515	635.0	740.4	800.4	578.0
DN 500	516	698.5	803.5	663.5	635.0

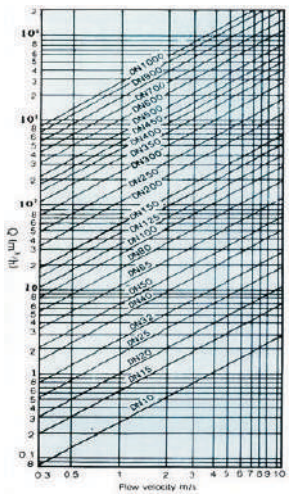


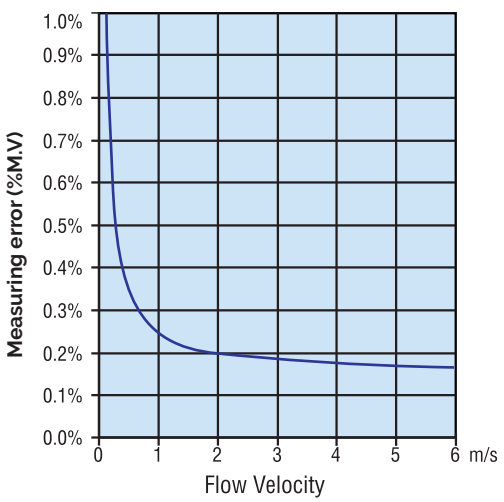


Minimum - Maximum Flow Table

Size in mm	Flow Range (m^3 / hr) at 0.3 to 10 M/S	
	MINIMUM	MAXIMUM
15	0.19	6.35
20	0.34	11.34
25	0.53	17.66
32	0.87	29.93
40	1.36	45.21
50	2.12	70.65
65	3.58	119
80	5.42	180
100	8.48	282
125	13.25	441
150	19.08	635
200	33.92	1130
250	53.01	1766
300	76.34	2543
350	103.91	3461
400	135.72	4521
450	171.77	5722
500	212.06	7065

Flow Nomograph



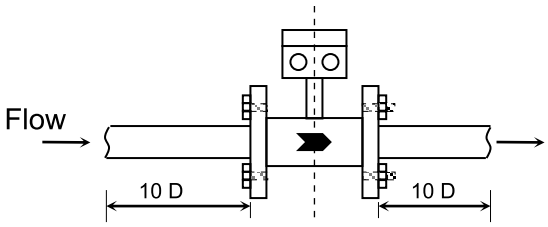


Installation Guide

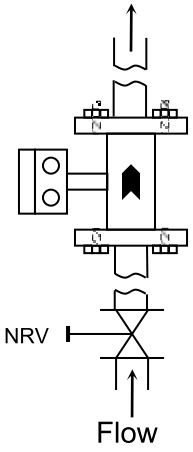
The Primary Flow Tube can be installed at any point in the pipe run either horizontal or vertical provided the following conditions are met:

The **direction of flow** through the pipe is same as indicated on the primary flow tube by a red arrow.

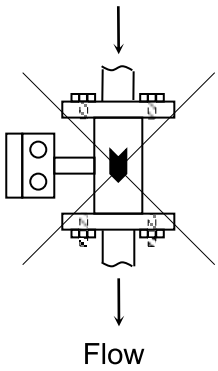
Straight lengths of maximum 10 D on upstream and minimum 10 D on down-stream as shown. If disturbances like cork screwing or vortex flow conditions are present straight lengths should be increased or flow straighteners should be used. Flaps, slidegates, valves etc should be arranged at a distance of at least 5D downstream of primary flow tube.



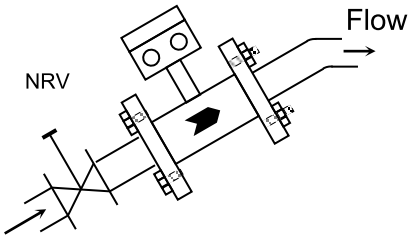
Ensure that primary **flow tube remains completely filled** by the fluid under measurement even under no flow condition. This ensures trouble free and reliable operation of the Flow Meter. Select a location on the pipe, which will always run full of liquid. For vertical installations the direction of flow against Gravity ensures full pipe. Some of the recommended installations are as under :



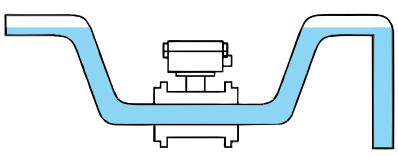
Recommended



Not Recommended



Recommended



For partially filled pipes or pipes with download flow and free outlet the flow meter should be located in a U-tube.

Telemetry System

Rev. : January 22, 2020

Product Overview

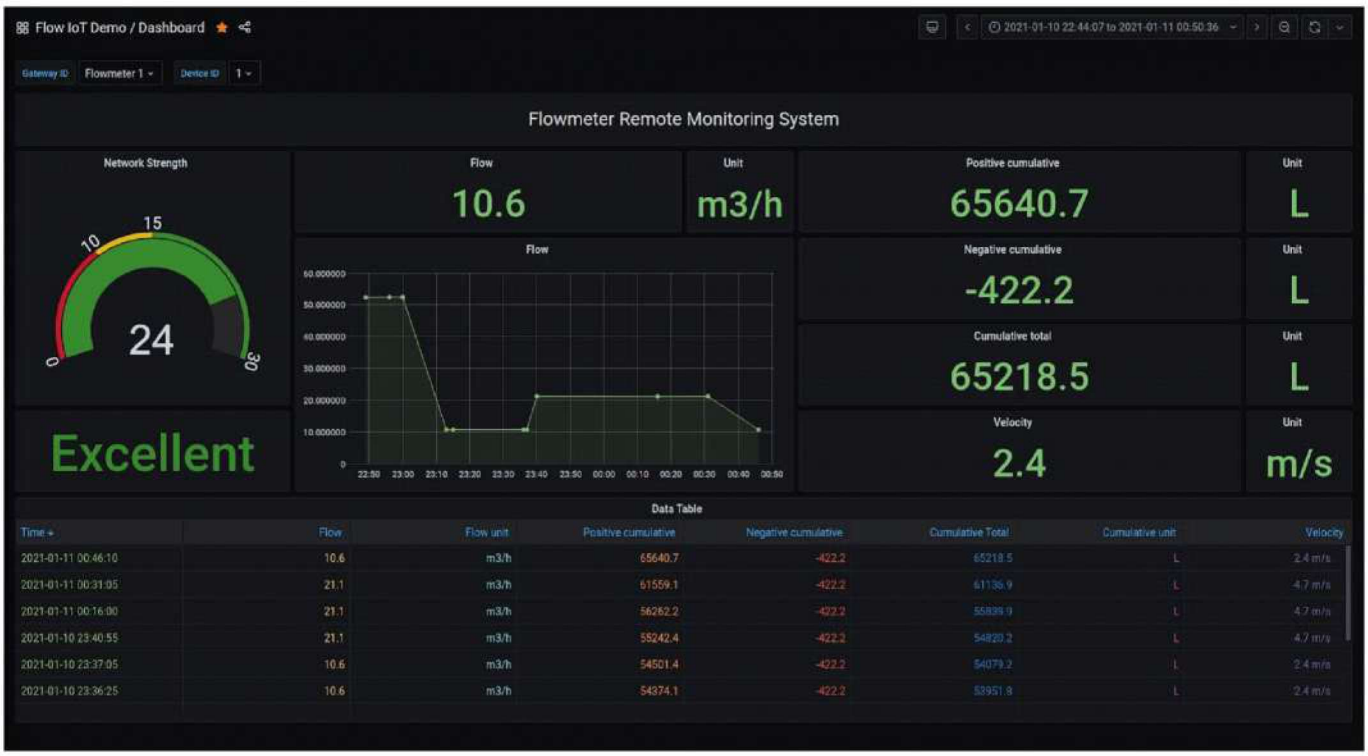
With our Telemetry System you can collect flow meter data directly from RS485 Enabled flow meter andmake this data into actionable insights through user-friendly cloud based dashboarding so you can make better decisions based on facts.

With our cloud based dashboarding, we can help you to bring more insights of liquid (water, chemical etc.) usage in the plants and machines in a single platform eliminating the complex multi software, expensive software thus bringing down the IT capital costs.

Features:

- 1 x RS-485 port for Modbus
- OTA (Over The Air) Firmware support.
- LED Indicator provides Power, Network, Cloud and Communication status.
- Keep Alive command to maintain socket connection
- Robust Industrial Design & Easy to install and integrate
- Visualize the collected data on a dashboard
- Analyze incoming data to derive actionableinsights
- Store data for reporting and historical analysis
- Automatic reports generation with defined time intervals and to configure mails

Sample Dashboard :



Dashboard Parameters :

- Flow
- Positive cumulative total
- P+N cumulative total
- Dynamic units change as per the flow meter settings.
- Velocity
- Negative cumulative total
- Network strength & RSSI signal quality
- historical flow data

SMS Features :

- 1 Admin + 3 Users access
- Auto Status Message two times in a day
- SMS Accepted only from the authorized number
- Date and Time stamp in the message
- Automatic time aqasion from the network
- Instantaneous status can be inquired

Technical Specifications

Input voltage	24V DC, 2A
Indication	4nos LED - Power, Network, Cloud and, Communication
Network Type	GSM, Low Power 2G (Quad-band 850/900/1800/1900MHz)
Cloud Communication	MQTT Protocol
Communication Channel	RS-485
Data update frequency	15 Min to 1 Day - step interval Settable from dashboard
Historic data storage	Last 3 Months
SMS Communication	Available
Daily SMS Alert	Available to maximum 3 Users ,2 times in a day
Daily SMS Alert Time	Settable from SMScommand
Instantaneous flow meter status SMS	Available
Mounting	DIN Rail Mount
Mounting Type	Snap In
Enclosure Material	ABS (IP20)
Operating Temperature	0 to 70 Degree C
Operating Humidity	95% RH
Dimension (W x H x D)	Width: 90 mm, Height: 105mm, Depth: 52mm
Weight	Approx. 100g

Ordering Code

AMAG-	O	P1	1	C1	Y	015	A	1	E1	L1	F4

Transmitter type
I : integral
R : Remote
O : LED Display

Power Supply
P1 : 85 to 250V AC
P2 : 24V DC

Output
1 : 4-20 mA
2 : Pulse
3 : Combine Both

Communication
C1 : RS 485 (Mod Bus RTU)
C2 : HART
C3 : GSM (External)

Data logger
y : External
n : Not Requ.

Sensor Size
015 (1/2")
020 (3/4")
025 (1")
032 (1.25")
040 (1.5")
050 (2")
065 (2.5")
080 (3")
100 (4")
125 (5")
150 (6")
200 (8")
250 (10")
300 (12")
350 (14")
400 (16")
450 (18")
500 (20")

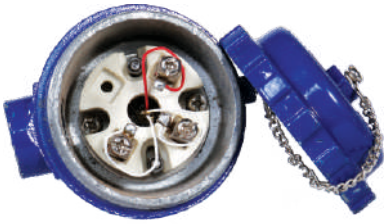
Transmitter Housing
A : Aluminum
F : Flame Proof
G : Any Other

Coil Housing
1 : MS
2 : CS
3 : SS 304
4 : SS 316

Electrode
E1 : SS 316 L
E2 : Hastalloy c
E3 : Any Other

Lining
L1 : Hard Rubber
L2 : Neoprene
L3 : PTFE
L4 : PFA

Flanged Material
F1 : MS
F2 : CS
F3 : SS 304
F4 : SS 316



HEAD TYPE SENSOR

WIRE TYPE SENSOR

CERAMIC TYPE SENSOR

THERMOWELL

Aavad Product Basket

CABLE

PRESSURE GAUGE

TEMPERATURE GAUGE

TEMPERATURE INDICATOR

AAVAD INSTRUMENT :

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GSTIN : 24AHZPG7088C1ZY | **PAN No.** : AHZPG7088C | **MSME No.** : GJ01A0024728

Bank : Kotak Mahindra Bank LTD | **A/c Name :** Aavad Instrument | **A/C No. :** 1411117509 | **IFSC Code :** KKBK0000839