



Electromagnetic Flow Meter

Best Suited for Conductive Liquids, Acids, Alkalies, Water, Pulps, and Slurries



The Accumax's Electromagnetic Flow Meter is a highly advanced and dependable instrument, specifically designed to accurately measure flow rates in conductive liquids, acids, alkalies, water, pulps, and slurries. For various industrial applications, the flow meter provides a maintenance-free solution with an unparalleled blend of performance, flexibility, and cost-effectiveness. Its non-intrusive design makes it perfect for applications where contamination is a problem because it doesn't require any contact with the fluid. It also has a high degree of accuracy, typically within 0.5% of full scale.

Working Principle: In Electromagnetic Flow Meter, 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. The induced voltage is perpendicular to both the liquid flow direction and the electromagnetic field direction.

Key Features

- **High precision:** Often within 0.5% of the reading.
- **Broad Measuring Range:** With a measuring range of 0.2 m³/h to 1300 m³/h, this device is suitable for a wide range of applications.
- **No moving parts:** Non-invasive measurement techniques guarantee excellent dependability.
- **Universal Power Supply:** 85 V AC-270 V AC, 50 Hz-60 Hz/ 24 V DC.
- **Bidirectional measurements:** Measurements that can be made in both directions—forward and backward.
- Designed for tough settings and highly corrosive or abrasive liquids, this material is **resistant to wear and tear**.
- **Unaffected by fluid characteristics:** The flow meter's measurement accuracy is unaffected by variations in the temperature, pressure, density, or viscosity of the fluid.
- **Flameproof** (IS/IEC 60079-1:2007)/ **Weatherproof/ Can function in Potentially Explosive Atmosphere** (IS/IEC 60079-0: 2004)
- **Empty pipe alert**

Benefits

- **No Pressure Drop:** Electromagnetic flow meters **use less energy** since they don't cause a pressure drop, in contrast to conventional flow meters.
- **Low total cost** of ownership due to low maintenance requirements and **lengthy operational life**.
- **Versatility:** Due to its great **flexibility** and broad measuring range, it is appropriate for a diverse variety of applications like acidic chemicals, corrosive liquids, wastewater, cold/warm/hot water; and industries like food processing, pharmaceuticals, power generation industries, textile industries, pulp and paper industries, etc.
- **Eliminates the risk of contamination.**
- **Outstanding value relative to performance**



TECHNICAL SPECIFICATIONS

Measurement Principle	Electromagnetic
Line Size Options	15 NB To 350 NB (½ inches to 14 inches)
Types Available	Integral/ Remote (Up to 10 m Cable Length)
Flow Measuring Range	0.2 m ³ /h to 1300 m ³ /h
Measured Variables	Volume flow, mass flow
Accuracy (or Max. Measurement error)	0.5% of F. S. (or ±0.5%)
Repeatability	±0.1%
Protection Class	Flow Sensor Unit: IP66/ IP67/ IP68 Transmitter/ Display Unit: IP65/ IP66
Liner	PTFE (Teflon)
Process Connection	Flange End
Flange Material	MS / CS / SS304 / SS316
Flange Class	#150
Coil Housing Material	MS / CS / SS304 / SS316
Flow Tube	SS304/ SS316
Electrode Material	SS316L/ Hastelloy C22
Media	Conductive Liquid
Flow Direction	Forward & Reverse (Reverse flow indicated with (-) sign before flow rate)
Electrical Conductivity of Liquid	>5 µS/cm
Process Pressure	20 bar or 20 kg/cm ²
Operating Temperature Range (Medium Temperature Range)	-10 (0) °C to +100 °C -10 (0) °C to +200 °C (Remote display) PTFE: up to 230 °C
Ambient Temperature Range	-25 °C to +60 °C
Relative Humidity	0-95%
Display Unit	
Display	Standard 16*2 LCD
Display Resolution/ Smallest Division	Flow-rate: 0.01 L/min or 0.01 m ³ /h Totalizer: 9 digits Totalizer

Compliances/ Certifications



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TECHNICAL SPECIFICATIONS

Transmitter Unit

Power Supply	85 V AC-270 V AC, 50 Hz-60 Hz/ 24 V DC
Optional power supply	1. Solar powered with 30 hours uninterrupted operation through 24 V rechargeable battery pack, in absence of sunlight 2. 3.7 V Rechargeable Li-ion Battery operated
Output	4-20 mA/ RS485/ Pulse (All three outputs available for non-telemetry flow-meter) (In Inbuilt Telemetry- None available externally as Gateway by-default uses RS-485 In External Telemetry- Gateway connects with RS-485 and 4-20 mA/ Pulse outputs remain available)
Power Consumption	<10 VA
Isolation	1.4 kV between Input, Output & Power Supply
Alarm Output	Low & High Flow Alarm (Open Drain)
Transmitter Housing Material	Die-cast Aluminum

Configuration functions/parameters

Configuration Data	3 Tactile Membrane Keys for Data Configuration
Flow Totalizer Reset	Totalizer Reset Facility by Password Protection
Units of Measurement	L, m ³ , kg, kL (User Configurable)
Low Flow Cut-Off	User Configurable- 0 to 10%
Damping Time	User Configurable
Security	Password Protection for Configuration of Data

Special Function (As Optional Accessories)

Batching Facility	Available
Data Logging	Available
Telemetry	Available

Certifications and Warranty

Meteorological Approvals and Certificates	Calibration performed on accredited calibration facilities (acc. To ISO/IEC 17025) (NABL Calibration) (provided at extra cost)
Other Approvals	CE , ISO 4064:2014
Warranty	1 Year

Name plate and warning inscription: The name-cum-warning inscription plate and rating plate made of Brass/ SS is permanently fixed on the cover of enclosure by hammer driven rivets leaving min. 3 mm material thickness around the rivets.

The warning inscription shall read as "DO NOT OPEN WHEN ENERGIZED".



***We retain the prerogative to effect modifications or adjustments, without prior notification, at our discretion.**

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ELECTROMAGNETIC FLOW-METER WITH TELEMETRY

All specs as mentioned above for Non-Telemetry , +

Communication Types	GPRS / GSM or LAN Gateway
Telemetry System	Inbuilt - GPRS / GSM, External - GPRS / GSM or LAN Gateway
Cloud Application	
Dashboard	<input checked="" type="checkbox"/> Compatible on PC/ Mobile Phone/ iPad
Reports	<input checked="" type="checkbox"/> Real-Time Data Access
Multi-User Login	<input checked="" type="checkbox"/>
Group Allocation	<input checked="" type="checkbox"/>
Alerts	<input checked="" type="checkbox"/> Temper Alert and Power Failure Alert
Subscription	Yearly via Payment Gateways

Dashboard View:



Demo link:

<http://live.accumaxinstruments.com>

User Id: demo@accumax

Password: 123456

Date - Time	Totaliser (M³)	Cumulative Sum (M³)
14-09-2023	87666.621	163.952
13-09-2023	87502.669	274.448
12-09-2023	87228.221	400.192
11-09-2023	86828.029	391.992
10-09-2023	86436.037	236.040
09-09-2023	86199.997	232.000
08-09-2023	85967.997	319.512
07-09-2023	85648.485	206.968
06-09-2023	85441.517	234.048
05-09-2023	85207.469	270.720



↶ Tabular view

↷ Chart view

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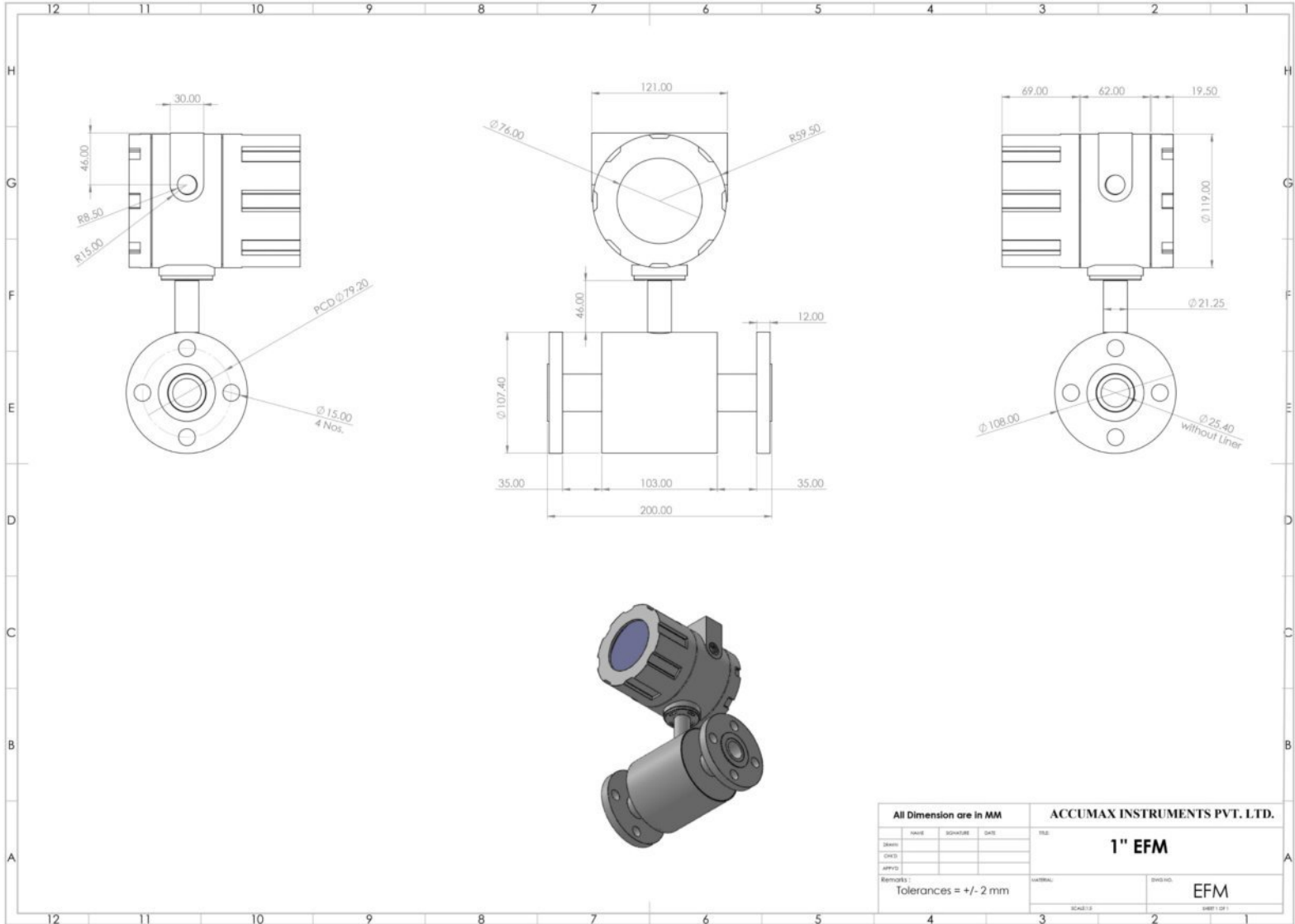
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Dimensional Drawings

Integral display EFM



Note: The dimensional drawings provided are of 1" meters with integral and remote display respectively, are added in here for illustration purposes only. The buyers can ask for the ones specific to their purchased line size/s.

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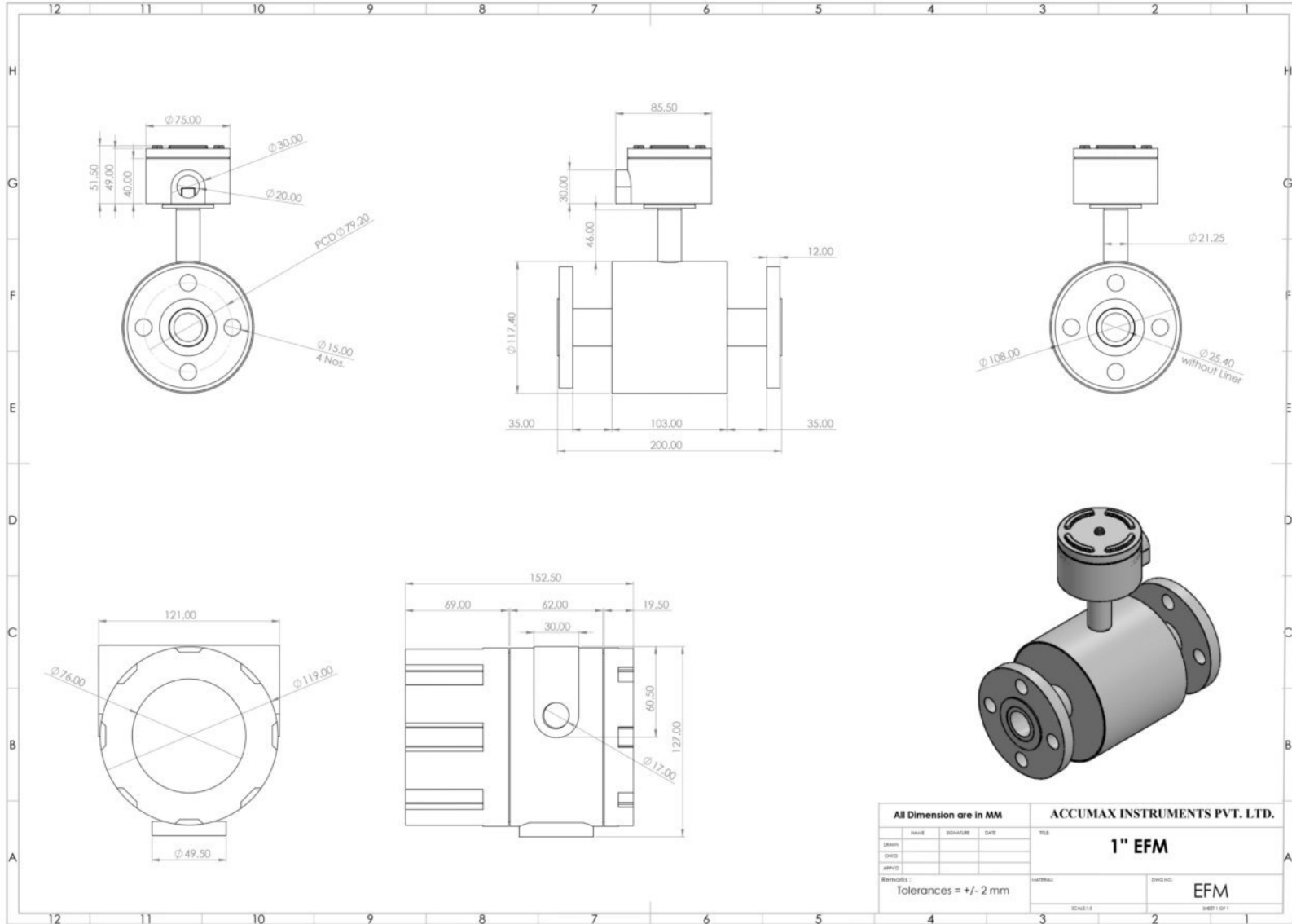
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Remote display EFM



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Application Areas

- Water & Wastewater Treatment
- Food & Beverage Industry
- Chemical & Pharmaceutical Industries
- Paper & Pulp Industry
- Mining & Metallurgical Industries
- Oil and gas
- Power generation (Cooling stations)
- Effluent Treatment Plants
- Textile Industry
- Ceramic Industry
- Marine Industry
- Nuclear Industry (Cooling stations)
- Sustainable Energies Industry



Customer Credentials



Date: **TO WHOMSOEVER IT MAY CONCERN**

Satisfactory performance certificate for ACCUMAX make Digital Water Meter

This is to certify that ACCUMAX Make Electromagnetic Flow Meter with Telemetry System manufactured and supplied by M/s Accamax Instruments Pvt Ltd at our Manufacturing Facility, Order No: /U220Y-01488, dated 19-02-2021, was found to have satisfactory performance. The product was successful in fulfilling our requirements and was as per CGWA Norms.

It is also certified that the above work orders were successfully completed.

Ankit Pulp & boards Pvt. Ltd.

Director (Tech)



Registered & Factory Address:

392, Bhilajon, Kanyesh Road, Post- Khairi, Dist: Nagpur, Maharashtra - 440026 (INDIA) | Email: rajesh@ankitboards.com
Website: www.ankitboards.com | Phone: +91 712 204 3300 / 204 3301 | Fax: +91 712 2080201

Courier Address: 602, Pitalka, Plot No-193, Shivaji Nagar, Cement road, Nagpur, Maharashtra - 440010 (INDIA)
CIN: U21108MH1988PTC040007



TO WHOMSOEVER IT MAY CONCERN

Satisfactory performance certificate for ACCUMAX make Electromagnetic Flow Meter with Telemetry System

This is to certify that ACCUMAX Make Electromagnetic Flow Meter with Telemetry System manufactured and supplied by M/s Accamax Instruments Pvt Ltd at our CDET Explosive Industries Pvt. Ltd., N.H. 6, 98 KMS., Nagpur Amraoti Road, Telegaon (SP), Tal : Ashti, Dist : Wardha. Maharashtra, INDIA, Order No: U121Y-00039, dated 26/08/2021, was found to have satisfactory performance. The product was successful in fulfilling our requirements and was as per CGWA Norms.

It is also certified that the above work orders were successfully completed.



Purchase Department,

Mr. Sumil Atale

CDET Explosive Industries Pvt. Ltd.,

N.H. 6, 98 KMS., Nagpur Amraoti Road, Telegaon (SP), Tal : Ashti, Dist : Wardha, Maharashtra, INDIA

Date : 11/11/21

2015316



Dear Sir,

We have evaluated your performance during the period from April 2021 to March 2022. Your deliveries have been evaluated based on quality (70 marks) & timely delivery (30 marks).

Please find the Yearly Rating of Apollo Limda Plant.

Supplier: ACCUMAX INSTRUMENTS PRIVATE LIMITED

Supplier code: 2015316

No. Of Order: 8

Delay Delivery: 1

Rejections:

Yearly rating: 96

Yearly Performance: **Excellent**

Rating criteria is as under

> 90% Excellent 81% – 89% Good 71% - 80 Satisfactory

< 70% Unsatisfactory

Observations:

1. If you are falling under excellent category then continue the same performance for the next year.
2. If you are falling under Good category then improve your performance for the next year.
3. If you are falling under Satisfactory category then you must work hard to improve your performance.
4. If you are falling under unsatisfactory category then must submit the letter for improvement on the next year. Ensure to submit the action plan along the corrective's actions for improvement in your Rating within a week time after receipt of the mail.

This rating is for the year of 2021 to 2022.

Congratulations for supporting us for the complete fiscal year. Hoping to see the same and improved pace for the next Fiscal year

apollotyres.com

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LINE SIZE/ MINIMUM AND MAXIMUM FLOW RATE CHART

PIPE SIZE	PIPE ID	MIN FLOW (m ³ /h) (in general, 5% of Max Flow)	MAX FLOW (m ³ /h)
0.5"	15	0.2	4
0.75"	20	0.3	6
1"	25	0.45	9
1.25"	32	0.7	14
1.5"	40	1.1	22
2"	50	1.8	36
2.5"	65	3	60
3"	80	4.5	90
4"	100	6.05	121
5"	125	10	200
6"	150	15.9	318
8"	200	22.5	450
10"	250	30	600
12"	300	42.5	850
14"	350	65	1300

Note: Responsibility for the choice of the lining and electrode materials (abrasion and corrosion resistance) lies with the purchaser; the effect of any change in the process medium during the operation of the meter should be considered. Incorrect selection of the lining and/or electrode could lead to a failure of the meter.

*Can be customized.

Options and Customization:

- Lining Material: Options for various lining materials are available to meet a range of application requirements (e.g., PTFE, hard rubber, polyurethane).
- Process Connection: Numerous flange choices are available for various process connections/ Multiple electrode materials are available to suit different process fluids.
- Display Options: Local/Integral or remote displays are offered depending on the installation requirements.
- Output Options: Multiple output options are available, including 4-20 mA, pulse, and RS485.



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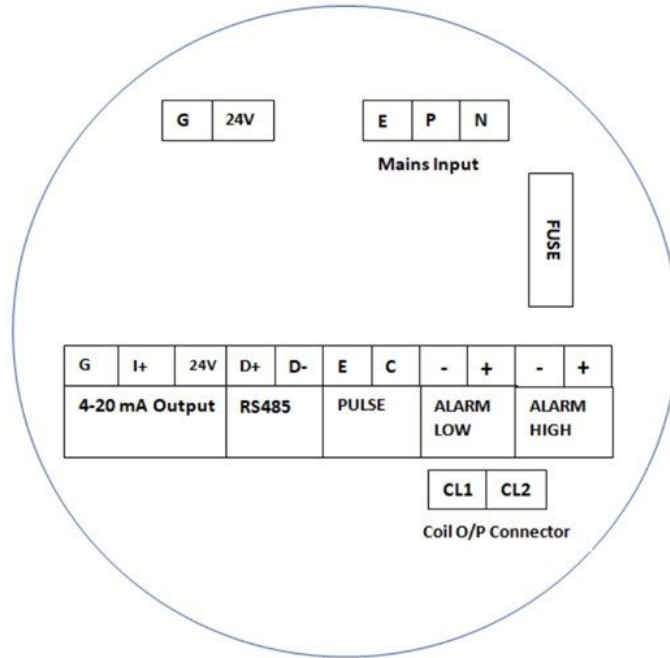
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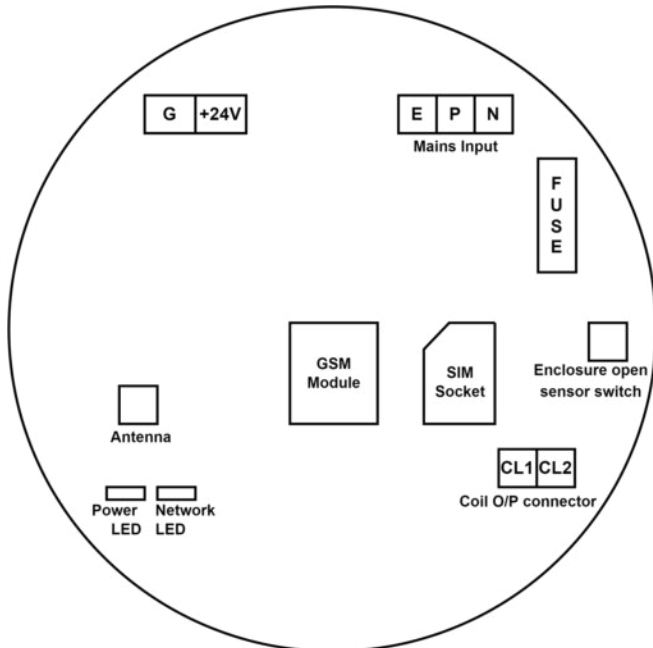
Visual Representation of the Connection Ports and User Interface

1. For Non-Telemetry

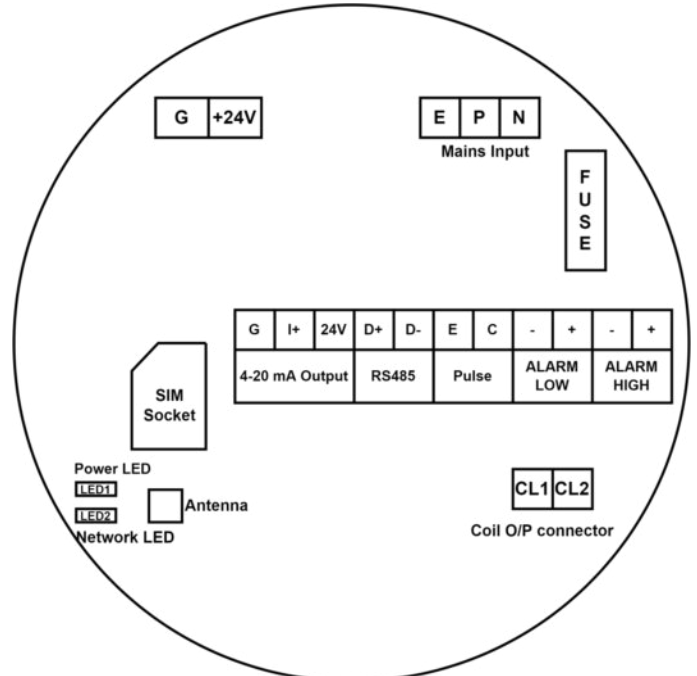


2. For Telemetry

2. a. Inbuilt Telemetry



2. b. External Telemetry



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Within Telemetry

a. Inbuilt Telemetry



b. External Telemetry



b.1. GSM Gateway

OR



b.2. LAN Gateway

Installation Instructions:

The application and the customer's requirements will determine the precise installation procedure.

- Orientation: The flow-meter can be put in any direction, although for optimal results, horizontal installation is advised. **U-bend** is ideal for these flow-meters. Refer to the installation manual for details.
- Pipe Conditions: For precise measurements, make sure the pipe is continually filled with liquid.
- These meters are also susceptible to damage from lightning strikes if installed outside without canopy.

Upkeep and calibration:

- Maintenance: Because there aren't any moving parts, little maintenance is needed. The only maintenance typically required is cleaning the electrodes and sensor. Nonetheless, it is advised to perform regular check-ups on the electronic components. However, deposits developing on the electrodes, air in the liquid, turbulence, and to some extent water pounding can all influence the accuracy of electromagnetic meters (Pressure transients).
- Calibration: Regular calibration guarantees the best results. To find out the recommended calibration intervals, contact the manufacturer.



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Ordering details:

Product Code: Use this special product code to order this model.

Identifying the data plate (Selecting the model):

EFM-A-B-C-D-E-F-G-H-I-J-K

- A: Line Size (NB)
 - B: Lining Material (PTFE, Rubber)
 - C: Electrode Material (SS316L, Hastelloy 'C')
 - D: Flange and Coil Housing (MS, SS)
 - E: Class of Flange (Class 150, 300, 600)
 - F: Special Paint (No (Siemens Grey), Mention Color)
 - G: Output 4-20 mA (No: 0, Yes: 1)
 - H: Output RS485 (MODBUS) (No: 0, Yes: 1)
 - I: Display (Integrated: I, Remote: R)
 - J: Pulse Output (No: 0, Yes: 1) (Pulse 0 for Telemetry)
 - K: Supply Voltage (220V AC, 110V AC, 24V DC)
- E.g.: EFM-50-PTFE- SS316L-MS-150-NO-1-1-I-0-220V

Included Accessories: L-clamp and power cable in *remote* type EFM.

Optional Accessories: Available upgrades or extra features that can be purchased separately are considered optional accessories.



Batch Controllers



Ethernet LAN Device



GSM Gateway



Solar panel with 24 V rechargeable battery pack



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