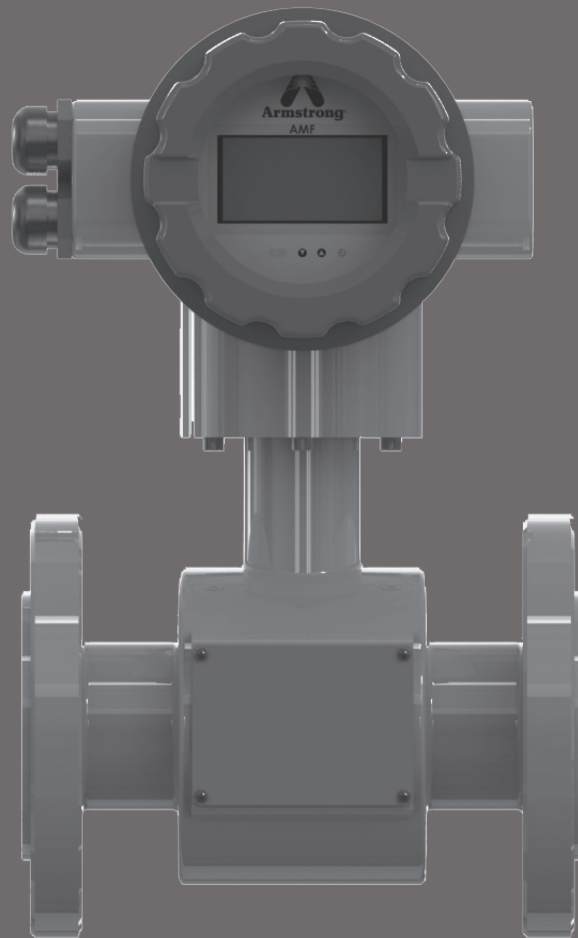


shopvalves.com

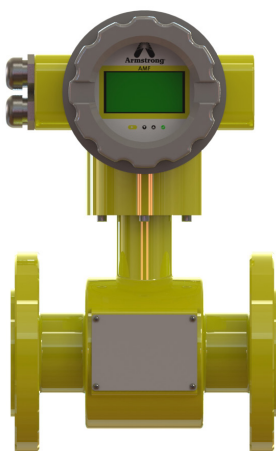


ARMSTRONG ELECTROMAGNETIC FLOWMETER



Introduction

The high-performance Armstrong Electromagnetic Flowmeter (AMF) accurately measures the volumetric flow of any conductive liquids, such as water, salt water, sewage, pulps, slurry, acid, alkali, or any mixture of liquids and solids that have a minimum conductivity of $5\mu\text{S/cm}$.



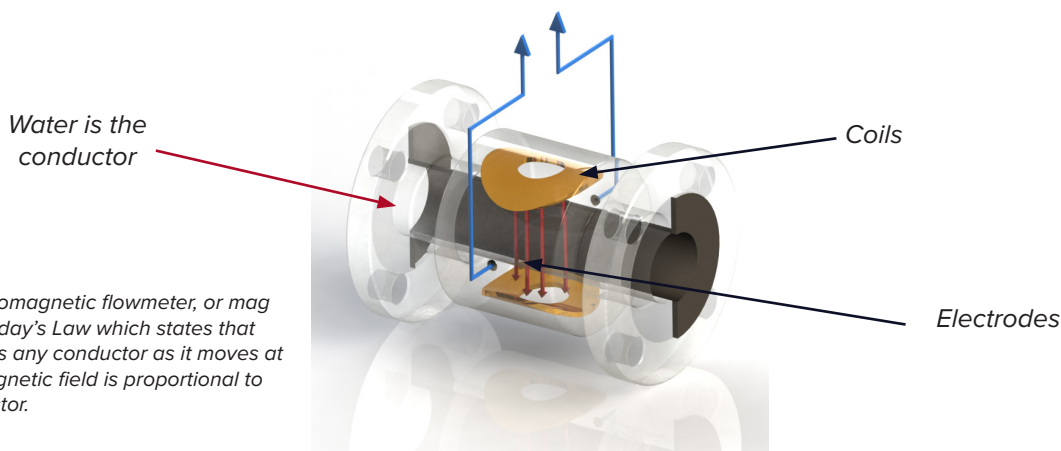
Integral Mount



Remote Mount

How it Works

An electromagnetic flowmeter is an induction type flow instrument based on Faraday's Law, often used to measure the volumetric flowrate of a conductive fluid in closed pipelines.



The advantages of Armstrong's electromagnetic flowmeter are reliable performance, high accuracy, and exceptional ease of use due to the microprocessor and exclusive integrated circuit. High accuracy is achieved with only 7D total straight pipe run: 5D upstream and 2D downstream, where D is pipe diameter. The high speed CPU and advanced signal processing technology ensure a wide measuring range (-39 to 39 ft/s). The two line LCD display makes the readings and parameter settings comprehensive and convenient.

Armstrong Electromagnetic Flowmeter

Advantages

- No moving parts to wear and tear
- Minimal straight run required, thus, suitable for any desired installation location (5D up, 2D down)
- All parameters are pre-configured at the factory. Plug and Play
- High Accuracy: Standard Accuracy to $\pm 0.5\%$. Improved accuracy to $\pm 0.3\%$ available for sizes $\frac{1}{2}$ " to 12"
- Large Operable Range (-39 to 39 ft/s)
- Bidirectional flow capable
- Reliable and accurate measurement over widely varying flow rates, including minimal flow rates, which occur in typical water distribution networks at night time
- Wide size selection from (1/2"-80")
- Multiple liner and electrode materials for different applications
- No permanent pressure loss
- Standard output: 4-20 mA, pulse, RS232, or RS485/MODBUS
- Optional BACnet HART or PROFIBUS communication interface
- Self-diagnosing capability to minimize operational downtime
- All meters come with certificate of calibration and are wet calibrated at the factory.
- Available BTU system with insert/clamp on 1000 ohm, platinum, matched RTD's
- Integral/Remote displays

Industries

- Higher Education
- Healthcare
- Hospitality
- Government
- Power Supply
- Municipal
- Waste Water Treatment
- Irrigation
- Chemicals
- Industrial Liquid Processes

Specific Target Applications Include:

- HVAC
- Chilled water/Hot water/ Wastewater
- Condensate and heating water circuits
- Boiler feed water
- Thermal storage, geothermal system, solar hot-water system
- District energy management and billing
- Commercial building tenant billing
- LEED/Green building verification, green credit application
- Energy consulting
- Power plant efficiency monitoring
- Facility management in shopping malls, campuses, industrial parks, hospitals, commercial buildings, government buildings, airports
- Flow monitoring and control in desalination plants, steel
- Water supply and drainage
- Plants, power plants, machining plants, pump stations

BTU Measurement (see Fig. 1)

Thermal energy meters, also called BTU meters, are the best way to accurately measure the amount of energy transferred in a hydronic system. These meters use a matched pair of RTD's, one on the supply and the other on the return lines reporting temperatures to the electronics. The BTU measurement is then calculated using the measured flowrate and the temperature differential. BTU meters are typically used for submetering as well as plant and chiller optimization.

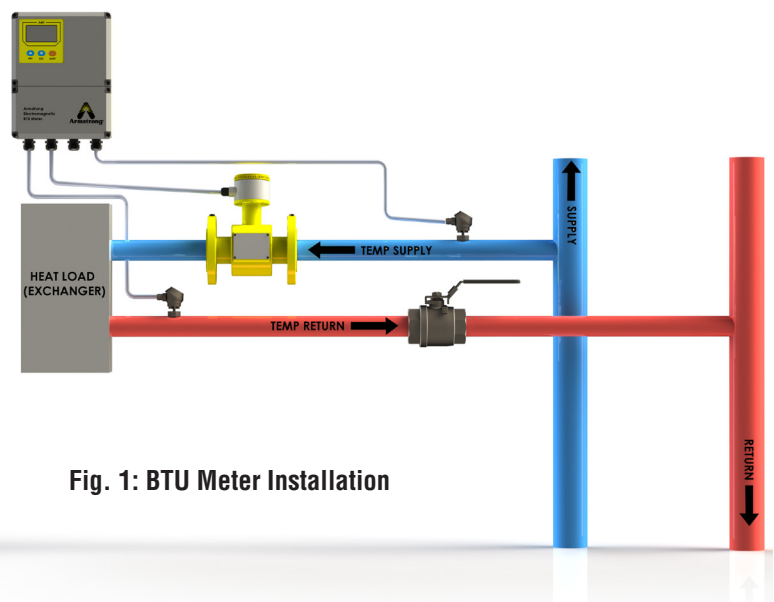


Fig. 1: BTU Meter Installation



Armstrong Electromagnetic Flowmeter - Specifications

Accuracy Class	+/- 0.3% of reading for meter sizes 1"-12"	
	+/- 0.5% of reading for meter sizes 1/2"-24"	
	+/- 1% of reading for meter sizes greater than 26"	
Repeatability	+/- .1%	
Display	Large LCD display with backlight. Displays the instantaneous flow, total flow, and alarm.	
Totalizers	Three built-in totalizers: forward flow, reverse flow and net	
Outputs	Analog	Bi-directional, isolated 0-10mA – 4-20mA
		Load resistor: 0~1.5KΩ for 0~10mA, 0~750Ω for 4~20mA
	Frequency	Forward & reverse flow output with a frequency range of 1~5000Hz. The external voltage must be lower than 35V and the max output current must be 250mA when the transistor is turned on.
	Alarm	Alarm output: Two isolated open collector transistor (OCT) outputs for alarm signals.
Flow Direction Indication	The meter is capable of measuring both forward and reverse flow and recognizing flow direction.	
Communication	RS232, RS485/MODBUS, PROFIBUS or HART Communication selectable. GPRS wireless telemetry available upon request.	
	BACnet	
Protection Class	Display enclosure rating: IP 65 (outdoor) or IP 67 (optional)	
	Meter enclosure type: IP 65 (outdoor) or IP 68 (submersible, only available for remote type)	
Nominal Pressure Limit	(1/2" ~4"): 2.5MPa (362psig)	
	(5" ~10"): 1.6MPa (232psig)	
	(12" ~40"): 1.0MPa (145psig)	
	(48" ~80"): 0.6MPa (87psig)	
	Higher pressure rating is available upon request	
Liner Material	Rubber, PTFE, Polyurethane, PFA	
Electrode Type	316SS, Hastelloy B, Hastelloy C, Titanium, Tantalum	
Sensor Material	Measuring tube: Stainless steel	
	Meter Housing: Carbon steel as standard offer. Stainless steel available upon request	
	Flange: Carbon steel as standard offer. Stainless steel available upon request	
Pipe Connection	ASME/ANSI flange 150#, 300#	
Fluid Temperature Limits	Integral type - (14°F~176°F)	
	Remote type	Neoprene & Polyurethane Liner - (14°F~176°F)
		PTFE Liner - (14°F~302°F)
		PFA Liner - (14°F~400°F)
		Ambient Temperature - (-13°F~140°F)
Ambient Humidity	5~95%RH (relative humidity)	
Measurement Range	+/- 39 ft/s	
Fluid Electrical Conductivity	≥ 5μS/cm	
Power Supply	16~36VDC or 85~250VAC, <20W	
Meter Types	Integral, remote, submersible	
RTD and Thermowell	RTD: 4 wire, platinum, matched	
	Thermowells: 316SS, sized based on pipe	

Independent Flow Lab Testing Data

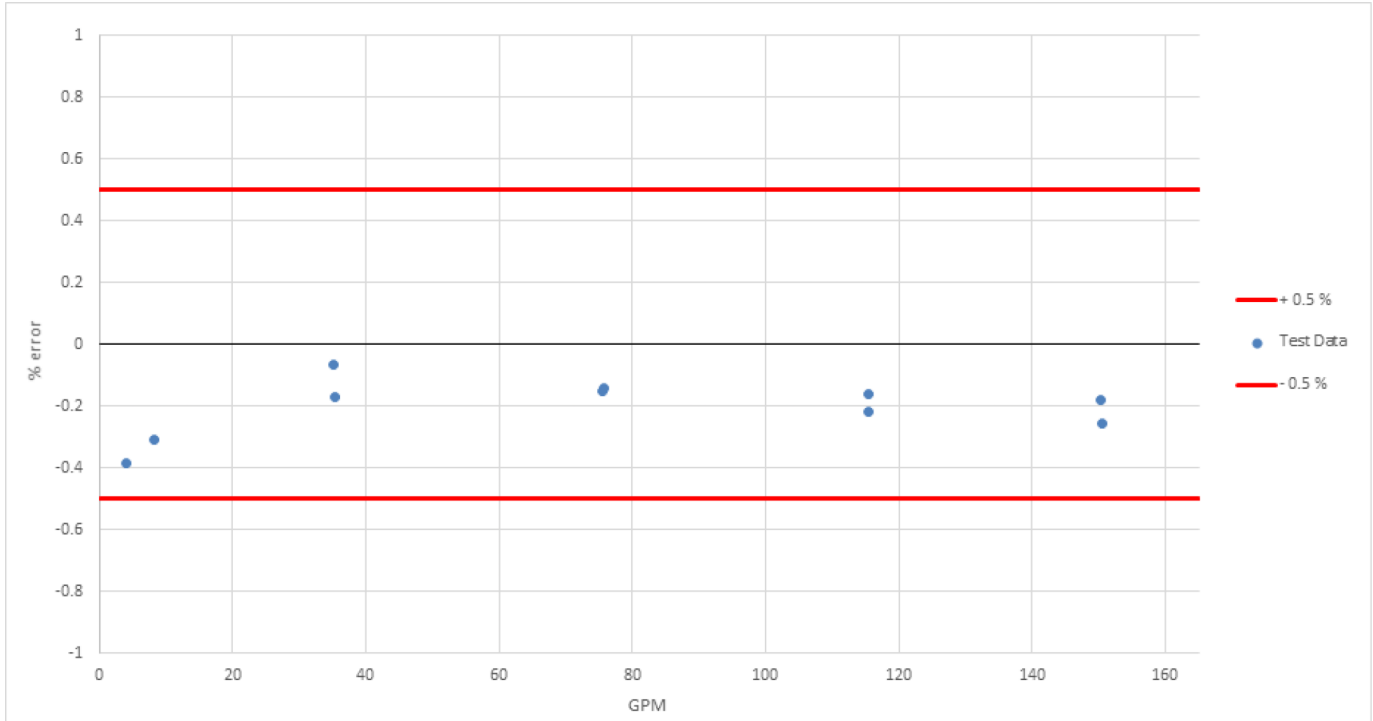
Test Location: Colorado Engineering Experiment Station

Test Date: February 25, 2019

Fluid: Water

Meter Size: 2 inch

Serial Number: 1807682





AMF Ordering Information

Model	Armstrong Electromagnetic Flowmeter												
AMF	Armstrong Electromagnetic Flowmeter												
	Code	Meter Type											
	F	Flow Only											
	B	BTU Meter											
	Code	Flange Rating											
	150	ANSI 150# Flange - (Standard)											
	300	ANSI 300# Flange - (Flow Only)											
	Code	Tube Size						Code	Tube Size Continued				
	05	1/2 inch						6	6 inch				
	75	3/4 inch						8	8 inch				
	1	1 inch						10	10 inch				
	125	1.25						12	12 inch				
	150	1 1/2 inch						14	14 inch				
	2	2 inch						16	16 inch				
	250	2 1/2 inch						18	18 inch				
	3	3 inch						20	20 inch				
	4	4 inch						24	24 inch				
	5	5 inch							Above 24" consult factory				
	Code	Liner											
	1	PTFE (14 - 302° F) - (Standard)											
	2	Neoprene Rubber (14 - 176° F)											
	3	Polyurethane (14 - 176° F)											
	4	PFA (14 - 400° F)											
	Code	Electrode Material											
	A	316 SS - (Standard)											
	B	Hastelloy B											
	C	Hastelloy C											
	D	Titanium											
	E	Tantalum											
	Code	Input Power											
	1	20 - 36 VDC - (Standard)											
	2	85 - 250 VAC											
	Code	Outputs											
	A	Pulse & 4-20 mA											
	B	Pulse, 4-20 mA, MODBUS - (Standard)											
	C	HART											
	D	BACnet MSTP											
	E	BACnet IP											
	Code	Accuracy											
	1	1% (>24")											
	2	.5% (.5" - 24") - (Standard)											
	3	.3% (1-12")											
	Code	Meter Housing Type											
	A	Integral, CS Housing and Flange (Flow Only) - (Standard)											
	B	Remote, CS Housing and Flange (Standard)											
	C	Remote, 304SS Housing and Flange (1/2" - 24")											
	D	Remote, 316SS Housing and Flange (1/2" - 24")											
	E	Remote Submersible Housing											
	Code	Display Enclosure Rating											
	1	IP65 - (Standard)											
	2	IP67											
	Code	Display Enclosure Cable											
	50	50 feet - (Standard)											
	100	100 Feet											
	150	150 Feet											
	xx	None (Integral Mount)											
	Code	Temperature Sensor Type											
	ITA	Insert matched pair RTD with Thermowells (1-2")											
	ITB	Insert matched pair RTD with Thermowells (3")											
	ITC	Insert matched pair RTD with Thermowells (4-6")											
	ITD	Insert matched pair RTD with Thermowells (8-10")											
	ITE	Insert matched pair RTD with Thermowells (12-18")											
	ITF	Insert matched pair RTD with Thermowells (20"+)											
	CT	Clamp on matched pair RTD											
	XX	None (Flow Only)											
	Code	Temperature Sensor Cable Length											
	50	50 Feet - (Standard)											
	100	100 Feet											
	150	150 Feet											
	XX	None (Flow Only)											
AMF	F	150	4	1	A	2	A	2	A	1	XX	XX	XX

[illegible]



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