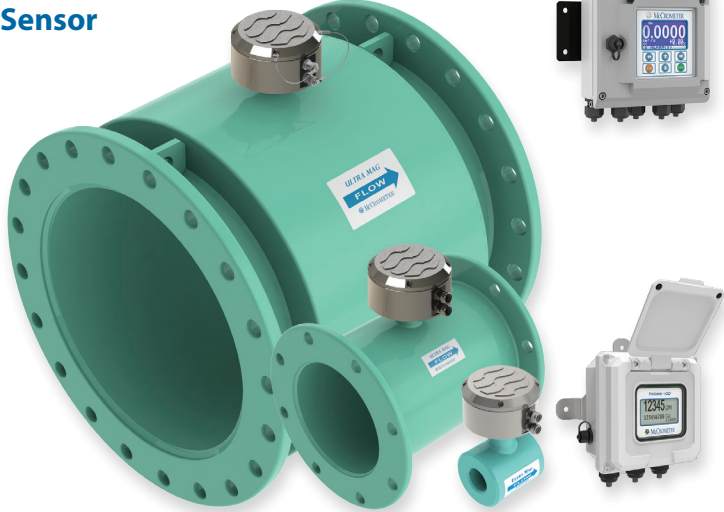




Ultra Mag® Sensor



Ultra Mag flow meters are manufactured to the highest standard available for mag meters.

The flanged end tube design permits use in a wide range of applications with up to 150 PSI working pressure.

The fabricated tube is stainless steel with steel or stainless steel flanges and is lined with UltraLiner™, an NSF approved, fusion bonded epoxy material.

Performance Advantages

- Flanged models need only 1 pipe diameter upstream of most flow disturbers
- No obstruction to the flow
- No moving parts to wear or break
- Maintenance free
- Accuracy +/- 0.5%
- Debris or solids will not clog the meter
- No head loss
- Bi-directional flow
- Empty pipe detection
- Unaffected by changes in density and viscosity
- No risk of liner delamination or separation
- Wide flow range
- Separated power and signal cables

Installation

Ultra Mag flow meter installation is similar to placing a short length of flanged end pipe in the line. The meter can be installed vertically, horizontally, or inclined on suction or discharge lines. The meter must have a full pipe of liquid for proper operation. Fluid must be grounded to both flanges of the sensor using McCrometer 316 SS grounding rings.

AVAILABLE ULTRA MAG END CONNECTIONS

UM-06

150 lb Flanges

- 4" - 48": Steel AWWA class "D" flat face flanges (150 psi)

Choice of Non Flanged Options

- 2" & 3": Steel wafer style
- Includes spool kit:
 - Steel AWWA CL D flat face flanges (150 psi)
 - Steel ANSI 150 lb RF flanges

TYPICAL APPLICATIONS

Industrial

- Raw Water
- Chilled Water
- Cooling Water
- Process Control
- Effluent Wastewater

Clean Water

- Well Water
- Potable Water
- Pump Stations
- Rate-of-Flow Control
- Raw Water Transmission

Wastewater

- Influent
- Effluent
- Reclaimed
- Lift Stations
- Waste Activated Sludge
- Return Activated Sludge

The meter needs to be located a minimum distance before and after flow disturbances, such as elbows, pumps, partially opened valves, and changes in pipe diameter. The uneven flow created by these obstructions can vary with each system.





The minimum distance is measured in pipe diameters (D). To ensure accuracy locate the sensor upstream and downstream of flow disturbances as follows:

2" & 3" Wafer style meters	3D upstream / 1D downstream
4" - 48" Steel flanged meters	1D upstream / 0D downstream

All blending and chemical injection should be done early enough so the flow media is thoroughly mixed prior to entering the measurement area.

ProComm Converter

The signal converter is the reporting, input and output control device for the sensor. The converter allows the measurements, functional programming, control of the sensor and data recording to be communicated through the display and inputs/outputs.

The microprocessor-based signal converter has a curve-fitting algorithm to improve accuracy, dual 4-20mA analog outputs, an optional RS485 communication port, an 8 line graphical backlit LCD display with 6-key touch programming, and a rugged enclosure that meets IP67.

In addition to a menu-driven self-diagnostic test mode, the converter continually monitors the microprocessor's functionality. The converter will output rate of flow and total volume. The converter also comes standard with password protection and many more features.

Isolated Power and Signal

The power and signal between the converter and sensor are isolated and placed in separate cables giving superior resistance to electrical signal noise compared to single cable designs. An added benefit from the dual cable design is a maximum cable length of up to 500ft.



Ultra Mag with ProComm GO Converter Part Number Matrix

UM		1	S	R	B	3	--	2	1	---	---	---	---
Line Size													
2 in	02												
3 in	03												
4 in	04												
6 in	06												
8 in	08												
10 in	10												
12 in	12												
14 in	14												
16 in	16												
18 in	18												
20 in	20												
24 in	24												
30 in	30												
36 in	36												
42 in	42												
48 in	48												
Flange Connections													
AWWA Class D (150 psi Rating) (Standard)		1											
ANSI Class 150# (285 psi Rating)		2											
ANSI Class 300# (300 psi Rating)		3											
AWWA Class F (300 psi Rating)		4											
Wafer Style (2 & 3" Only)		N											
Electrode Material Options													
S316 Stainless Steel (Standard)		S											
Hastelloy		H											
Converter Mounting and Cable Connector Options													
Meter Mount Converter (Standard)													M
Strain Relief [25 ft Remote Mount]													R
Quick Connect [25 ft Remote Mount]													Q
Strain Relief [25 ft Remote Mount] (Potted)													P
Quick Connect [25 ft Remote Mount] (Potted)													C

continued on next page



Ultra Mag with ProComm GO Converter Part Number Matrix (cont.)

UM	-	1	S	R	B	3	--	2	1	-	---	-	---	-	---	-	---
Converter Power Options																	
Battery Power (Standard) B																	
Solar Power, Battery Backup S																	
A/C Power, Battery Backup E																	
DC Power, Battery Backup F																	
Converter Output Options																	
No Outputs (Standard) -																	
No Outputs, DC Cable Only 0																	
Two Digital Out 1																	
4-20mA Analog only 2																	
4-20mA Analog + Two Dig Out 3																	
AMI Smart Output only 4																	
AMI Smart Output + Two Dig Out 5																	
AMI Smart Output + 4-20mA Analog 6																	
AMI Smart Output + 4-20mA Analog + Two Dig Out 7																	
DC Power/ Analog Out Cable Options																	
No DC Power or Outputs (Standard) -																	
No Cable - Output Configured (Quick Conn) 0																	
6 ft (Open Leads) 1																	
25 ft (Open Leads) 2																	
50 ft (Open Leads) 3																	
Pulse Cable Length Options																	
No Outputs (Standard) -																	
No Cable - Output Configured (Quick Conn) 0																	
6 ft (Open Leads) 1																	
25 ft (Open Leads) 2																	
50 ft (Open Leads) 3																	
25 ft (7-Pin Male connector for Telemetry) 4																	
50 ft (7-Pin Male connector for Telemetry) 5																	
Output Cable Terminal Options																	
Strain Relief (Standard) 1																	
Quick Connect Cable Terminals (25 & 50 ft only) 2																	
Smart Output Protocol Options (*4 or 5 output option required)																	
No AMI Outputs -																	
Sensus Protocol (6ft cable, Nicor Connector hardwired only) SEN																	
Itron 6 digit Protocol (6ft cable, Nicor Connector hardwired only) IT6																	
Itron 9 digit [100W] Protocol (6ft cable, Nicor Connector hardwired only) IT9																	
Neptune Protocol (6ft cable, Nicor Connector hardwired only) NEP																	
ATT Wireless Telemetry System (RTU, Solar Panel, 15 ft 7 pin Cable) ATT																	
Verizon Wireless Telemetry System (RTU, Solar Panel, 15 ft 7 pin Cable) VZW																	
Non Standard Length Options																	
McCrometer Length (Standard) -																	
Competitor Replacement Length LS																	
Competitor Replacement Length LP																	
Custom Specified Length (Nominal Length) L(XX)																	
Color Options																	
McCrometer Green (Standard) -																	
Sky Blue SB																	
Dark Blue DB																	
Lavender LV																	
White WH																	
Hazardous Area Location																	
Class 1, Division 2, Groups A-D, T5 HL																	

FLOW METER SPECIFICATIONS

Pipe Sizes

2", 3", 4", 6", 8", 10", 12", 14", 16", 18", 20", 24", 30", 36", 42", 48"

Flow Direction Measurement

Forward and reverse flow indication and forward, reverse, net totalization are standard with all meters

Accuracy

- Standard: +/- 0.5% of measured value ± 0.006 ft/s (± 0.0018 m/s)
- Optional: +/- 0.2% of measured value ± 0.006 ft/s (± 0.0018 m/s)
- **Battery powered: 1% of measured value ± 0.006 ft/s (± 0.0018 m/s)**

IMPORTANT NOTICE ON FLOW METER ACCURACY: The flow meter, the cable and the electronics are factory calibrated for accuracy as a single unit. Changing the cable length with the Splice Kit changes the accuracy of the meter and invalidates the calibration certificate.

Accuracy Tests

Multiple point wet flow calibration of every complete flow tube with its signal converter. If desired, the tests can be witnessed by the customer. The McCrometer test facilities are traceable to the National Institute of Standards & Technology. Uncertainty relative to flow is $\pm 0.15\%$.

Pipe Run Requirements

2" & 3" wafer style	3D upstream / 1D downstream
4" and larger flanged	1D upstream / 0D downstream

Repeatability

$\pm 0.05\%$ or ± 0.0008 ft/s (± 0.25 mm/s), whichever is greater

Conductivity

5 μ s/cm

Liner

UltraLiner NSF approved, fusion bonded epoxy

Electrodes

Type 316 stainless steel, others optional

Electrical Connections

- Compression gland seals
- Quick-Connect

Sensor Cable Lengths

→ Standard	25' McCrometer supplied submersible cable with each remote mount unit.
Optional	25' max for battery powered.
Quick Connect	Available in standard cable lengths: Feet: 25, 50, 75, 100, 125, 150, 175, 200, 500 Meters: 7.6, 15.25, 22.5, 30.5, 38.1, 45.75, 53.3, 61, 152.4 Custom cable lengths at additional cost.

FLOW METER SPECIFICATIONS (CONT.)

IP Rating

→ Standard model	<ul style="list-style-type: none"> Quick Connect (NEMA 6P/IP68 with remote converter) Compression gland seals (NEMA 6P/IP68 with remote converter)
HL model	<ul style="list-style-type: none"> Quick Connect (IP67) Compression gland seals (IP67)

Sensor Submersibility Depth

→ With standard strain relief cable	9 m (30 ft.)
With optional quick connect cable	1.8 m (6 ft.)

Head Loss

None. No obstruction in line and no moving parts

Warranty

Meter	2 year warranty
Liner	Lifetime guarantee

Pressure Range

→	AWWA Class D (150 psi Rating) (Standard) ANSI Class 150# (285 psi Rating) ANSI Class 300# (300 psi Rating) AWWA Class F (300 psi Rating)
---	--

Velocity Range

.2 to 32 FPS

Temperature Range

Sensor Operating: -10 to 60°C (14 to 140°F)
 Sensor Storage: -15 to 60°C (5 to 140° F)

Certifications and Approvals

→ Standard Model	<ul style="list-style-type: none"> ISO 9001:2015 certified quality management system Certified by MET to UL 61010-1 / CSA C22.2 No. 61010-1 Certified to NSF / ANSI Standards* 	
HL Model	<ul style="list-style-type: none"> ISO 9001:2015 certified quality management system Certified by MET: Safety: UL61010-1 / CSA C22.2 No. 61010-1, Third Edition: Safety of Electrical Equipment For Measurement, Control, and Laboratory Use Certified by MET: Standards: ANSI / ISA12.12.01 / CSA C22.2 No. 213, Nonincendive Electrical Equipment <ul style="list-style-type: none"> Class I and II, Division 2 Class III, Divisions 1 and 2 Hazardous (Classified) Locations Certified to NSF / ANSI Standards* 	

Available System Options

- Hastelloy® electrodes
- Additional sensor cable up to 475'
- Annual verification / calibration
- Stainless steel ID tag

* Ultra Mag is certified by IAPMO R&T to NSF/ANSI 61 for material safety and NSF/ANSI 372 for low lead content.



FLOW METER SPECIFICATIONS (CONT.)

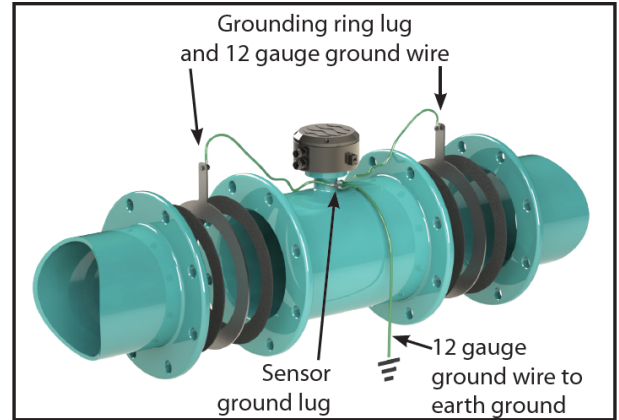
Available Meter Options

- | | |
|--|---|
| <ul style="list-style-type: none">• DC powered converter (10-35 VDC, 21 W)• Meter mounted converter• Extended warranty• Hastelloy® electrodes• ANSI or DIN flanges• Special lay lengths, including ISO standard lay lengths | <ul style="list-style-type: none">• Quick Connect cable fittings• Converter sun shield• HART® Converter• Smart Output™ (Sensus or Itron compatible)• Battery or battery-solar powered converter |
|--|---|

METER GROUNDING RECOMMENDATIONS

Grounding the meter body for safety according to national (NEC) or local electrical codes is recommended on ALL meter installations.

Grounding the fluid column is always recommended. Grounding rings should be installed to establish a connection to earth ground. See the Ultra Mag IOM Manual, Lit. # 30119-03, for more information on grounding configurations using grounding rods and grounding rings.



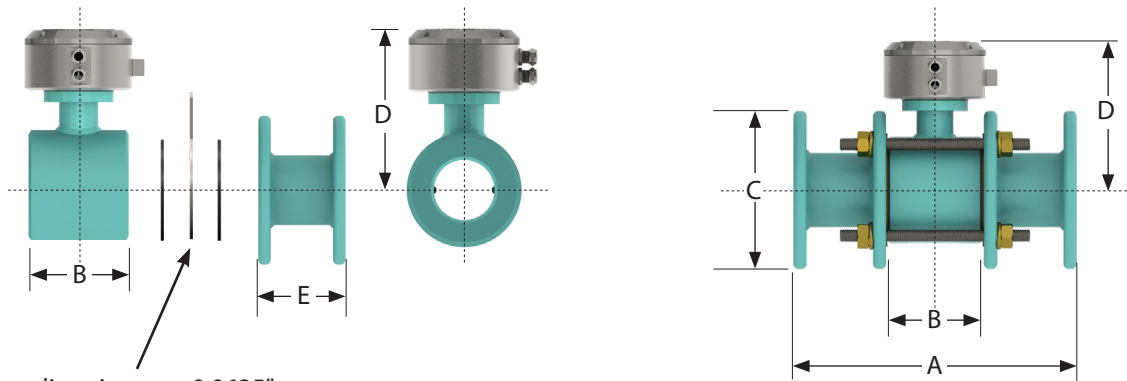
DIMENSIONS AND WEIGHTS

2" and 3" Models Body Style

Use model shown below for dimensions.

Meter Type	Pipe Size (Nominal)	Meter Pipe ID	Flow Ranges GPM Standard .2 to 32 FPS Min - Max	DIMENSIONS (Lay Lengths)								Est. Shipping Weight (lbs.)*		
				A		B	C		D		E		CL150 AWWA Class D	CL300 ANSI #300
				CL150 AWWA Class D	CL300 ANSI #300	CL150 AWWA Class D	CL300 ANSI #300	CL150 AWWA Class D	CL300 ANSI #300	CL150 AWWA Class D	CL300 ANSI #300			
Wafer style	2"	1.625	2 - 310	11	14	4.5	6.0	6.5	6.5	7.25	3.15	4.69	9.6	10.1
	3"	2.625	5 - 700	13.4	15.5	4.5	7.5	8.25	7.0	7.75	4.35	5.44	11.3	11.8

* For remote mount meters, add 4 lbs for ProComm converter.



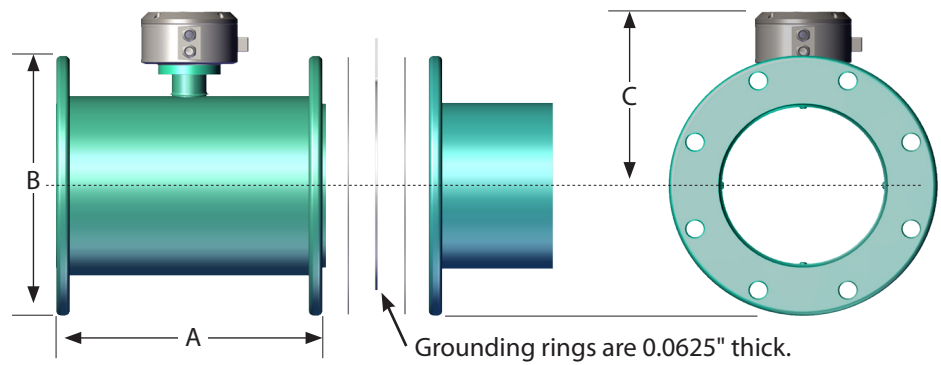
Grounding rings are 0.0625" (1.5875 mm) thick.

DIMENSIONS AND WEIGHTS (CONT.)

4" to 12" Models Body Style

Pipe Size (Nominal)	Meter Pipe ID		Flow Ranges GPM Standard .2 to 32 FPS Min - Max	DIMENSIONS (Lay Lengths)					Est. Shipping Weight (lbs.)*	
	CL150 AWWA Class D	CL300 ANSI #300		A		B		C	CL150 AWWA Class D	CL300 ANSI #300
				CL150 AWWA Class D	CL300 ANSI #300	CL150 AWWA Class D	CL300 ANSI #300			
4"	3.834	3.76	8 - 1,140	13.40	13.40	9.00	10.00	7.28	78	108
6"	5.782	5.732	19 - 2,660	14.60	14.60	11.00	12.50	8.25	82	138
8"	7.782	7.732	33 - 4,870	16.10	17.25	13.50	15.00	9.25	115	195
10"	9.782	9.732	52 - 7,670	18.50	18.50	16.00	17.50	10.5	144	247
12"	11.782	11.732	74 - 11,180	19.70	19.70	19.00	20.50	11.5	193	342

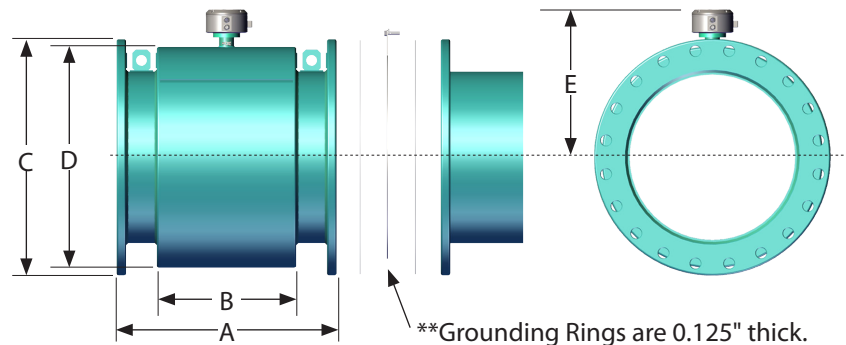
* For remote mount meters, add 4 lbs for ProComm converter.



14+\" Models Body Style

Pipe Size (Nominal)	Meter Pipe ID	Flow Ranges GPM Standard .2 to 32 FPS Min - Max	DIMENSIONS (Lay Lengths)						Est. Shipping Weight (lbs.)*		
			CL150 AWWA Class D	CL300 ANSI #300	B	C		D	E	CL150 AWWA Class D	CL300 ANSI #300
						CL150 AWWA Class D	CL300 ANSI #300				
14"	13.63	90 - 16,070	21.70	22.75	11.875	21.00	23.00	20.135	14.56	321	476
16"	15.50	118 - 20,900	23.60	25.25	14.25	23.50	25.50	21.635	15.32	390	645
18"	17.50	150 - 26,480	23.60	25.25	14.25	25.00	28.00	23.635	16.32	446	750
20"	19.50	185 - 32,720	25.60	28.25	16.06	27.50	30.50	25.6975	17.35	588	874
24"	23.50	270 - 47,180	30.70	35.75	21.75	32.00	36.00	29.51	19.25	769	1,568
30"	29.25	420 - 73,620	35.80	41.75	25.25	38.75	43.00	35.6975	22.35	1,261	2,317
36"	35.25	610 - 105,930	46.10	46.10	28.63	46.00	50.00	42.76	25.88	1,696	2,915
42"	41.25	830 - 144,370	48.05	***	36.25	52.75	***	48.135	28.57	***	***
48"	47.25	1,080 - 188,430	50.00	***	36.25	59.50	***	54.135	31.57	***	***

* For remote mount meters, add 4 lbs for ProComm converter.





PROCOMM GO CONVERTER SPECIFICATIONS

Physical Specifications

Electronic Housing	Diecast aluminum, powder coated enclosure w/ tamper resistant seal, 6½" x 6½" x 43/8" tall
Converter Dimensions	See "Dimensions" section for meter mount and remote mount converter dimensions.
Battery:	Standard: three 3.6V lithium-thionyl chloride (Li-SOCl ₂) D size batteries with two AA backup batteries
Power	AC Power: 100-240VAC/45-66Hz (4W) DC Power: Linear power supply 10-35VDC (4 W)
Electrical Connections	<ul style="list-style-type: none"> Optional shielded cable for 10-32VDC/4-20 mA output Optional shielded cable for pulse out

Performance and Operational Specifications

Battery Life	Five-year expected battery life, five-year battery warranty
Location	Indoor or outdoor use
Altitude	Operating: 2000 meters Storage: 12,000 meters
Operating Temperature	-4° to 140° F (-20° to 60° C)
Storage Temperature	-4° to 140° F (-20° to 60° C)
Relative Humidity	0% to 100%
IP Rating	IP67 Die cast aluminum converter
Outputs	Digital output: Digital pulse (open collector) output for volumetric - Two isolated digital pulse (open collector) outputs for volumetric - AMI output Analog output: 4-20mA: Galvanically Isolated, 16 Bit resolution. All power configurations (including battery). ***** Note: 9-30 VDC loop power required (not supplied via converter)

Display and Measurement

Display	<ul style="list-style-type: none"> 2-Line LCD display (no backlight) Non-volatile memory Anti-reverse totalizer (standard) Total (to 9 digits of precision) 	<ul style="list-style-type: none"> Flow rate and velocity (to 5 digits of precision) Two alarms: low battery and empty pipe (optional) Opening lid activates display 																								
Digits	5 Rate, 9 Total																									
Units	<table border="0"> <tr> <td>GPM Gallons per minute</td> <td>IGM Imperial gal per minute</td> <td>CFM Cubic feet per minute</td> </tr> <tr> <td>MGD Mega gal per day</td> <td>MI9 Miners inch (9G)</td> <td>B5M Barrels per minute (55G)</td> </tr> <tr> <td>CFS Cubic feet per second</td> <td>MI1 Miners inch (11.22G)</td> <td>B5H Barrels per hour (55G)</td> </tr> <tr> <td>MLD Megaliters per day</td> <td>APD Acre feet per day</td> <td>B5D Barrels per day (55G)</td> </tr> <tr> <td>LPS Liters per second</td> <td>KLH Kiloliters per hour</td> <td>B4M Barrels per minute (42G)</td> </tr> <tr> <td>CMH Cubic meters per hour</td> <td>LPH Liters per hour</td> <td>B4H Barrels per hour (42G)</td> </tr> <tr> <td>LPM Liters per minute</td> <td>CMM Cubic meters per minute</td> <td>B4D Barrels per day (42G)</td> </tr> <tr> <td>GPH Gallons per hour</td> <td>CFM Cubic feet per minute</td> <td></td> </tr> </table>		GPM Gallons per minute	IGM Imperial gal per minute	CFM Cubic feet per minute	MGD Mega gal per day	MI9 Miners inch (9G)	B5M Barrels per minute (55G)	CFS Cubic feet per second	MI1 Miners inch (11.22G)	B5H Barrels per hour (55G)	MLD Megaliters per day	APD Acre feet per day	B5D Barrels per day (55G)	LPS Liters per second	KLH Kiloliters per hour	B4M Barrels per minute (42G)	CMH Cubic meters per hour	LPH Liters per hour	B4H Barrels per hour (42G)	LPM Liters per minute	CMM Cubic meters per minute	B4D Barrels per day (42G)	GPH Gallons per hour	CFM Cubic feet per minute	
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Specification Sheet Ultra Mag Flow Meter

Totalizer Units	GAL	Gallons	B42	Barrel (42G)	MH1	Miners Inch Hour (11.22G)
	CUF	Cubic Feet	B46	Barrel (46G)	MD1	Miners Inch Day (11.22G)
	AFT	Acre Feet	B55	Barrel (55G)	MH9	Miners Inch Hour (9G)
	CUM	Cubic Meters	IMG	Imperial Gallon	MD9	Miners Inch Day (9G)
	LIT	Liters	AIN	Acre Inch	KGL	Kilo Gallons
	MML	Megaliter	TON	Ton (Short)	MGL	Mega Gallons
	MTT	Metric Ton (KL)	MM1	Miners Inch Minute (11.22G)	IN3	Cubic Inch
	B31	Barrel (31G)	MM9	Miners Inch Minute (9G)		

Data Logger Standard with all models, minimum of five years of data stored

Other Specifications

- Options and Accessories**
- Data Logger - included as standard with five years of data storage at default (12hr) interval. (Cable sold separately)
 - ~~AC, DC, and battery powered with battery backup powered available~~
- Safety**
- IEC 61010-1, Pollution Degree II
 - Overvoltage protection Category III

Certifications

Standard Model

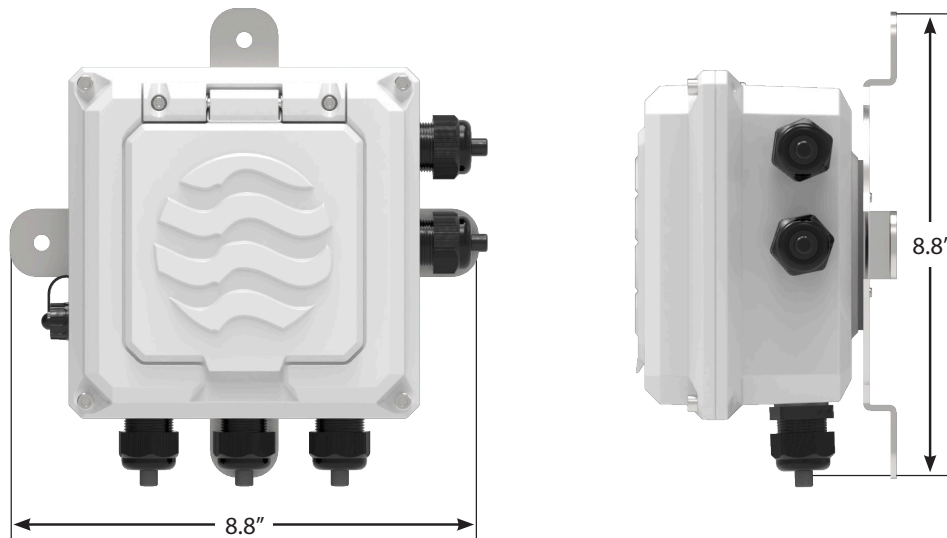
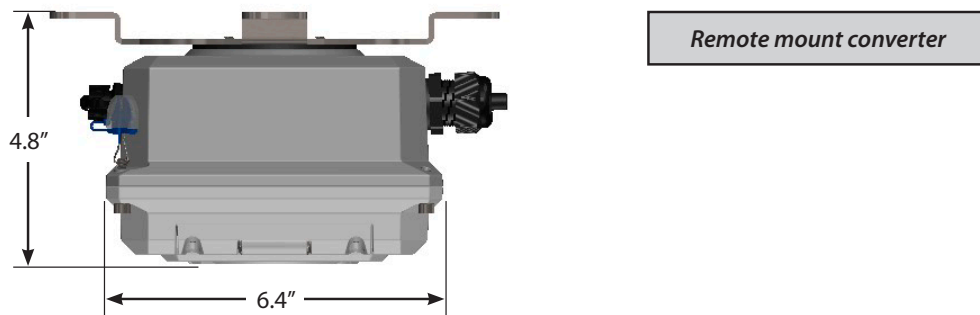
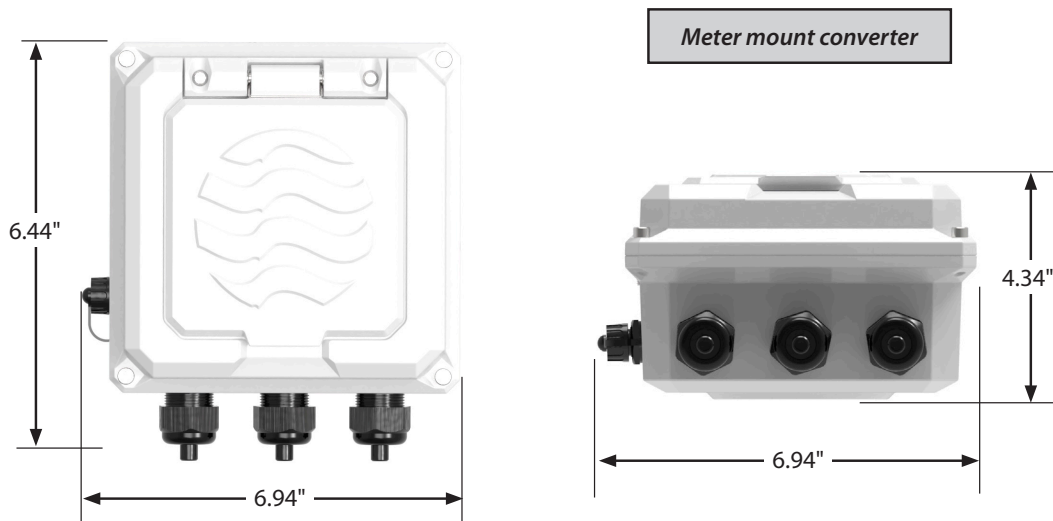
- ISO 9001:2015 certified quality management system
- Certified by MET to UL 61010-1 / CSA C22.2 No. 61010-1

HL Model

- ISO 9001:2015 certified quality management system
- Certified by MET: Safety: UL61010-1 / CSA C22.2 No. 61010-1, Third Edition: Safety of Electrical Equipment For Measurement, Control, and Laboratory Use
- Certified by MET: Standards: ANSI / ISA12.12.01 / CSA C22.2 No. 213, Nonincendive Electrical Equipment
 - Class I and II, Division 2
 - Class III, Divisions 1 and 2 Hazardous (Classified) Locations



PROCOMM GO CONVERTER DIMENSIONS



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