



Specification Sheet Dura Mag Flow Meter



McCrometer's Dura Mag is the easy choice for tough applications. With a 5-year meter warranty and a 5-year battery life, Dura Mag eliminates the need for AC power connection while providing the easiest installation possible for a flanged mag flow meter.

The meter is available to fit a common range of irrigation line sizes, from 1 1/2" to 12" diameter pipe. Dura Mag offers accuracy of $\pm 1\%$ with minimal upstream and downstream straight pipe required for most installations, all with the durability that customers have come to expect from McCrometer for over 65 years.

Standard and Hazardous Location Models

Dura Mag is designed to work in ordinary circumstances and in hazardous locations. Dura Mag is available as either the standard model or as a hazardous location (HL) model, which is certified by MET.

Certifications

Dura Mag currently has three certifications for quality and safety:

- 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

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

MET certification for HL models is described in greater detail in the meter specifications on page 6.

Installation

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.

AVAILABLE DURA MAG END CONNECTIONS

Nominal Line Size	AWWA CL D	AWWA CL F	ANSI 150#	ANSI 300#	Wafer
1.5 in			x		
2 in			x	x	x
2.5 in			x		
3 in			x	x	x
4 in	x		x	x	
6 in	x		x	x	
8 in	x		x	x	
10 in	x		x	x	
12 in	x		x	x	
14 in	x	x	x	x	
16 in	x	x	x	x	
18 in	x	x	x	x	
20 in	x	x	x	x	
24 in	x	x	x	x	

KEY APPLICATIONS

Agriculture

- Irrigation
- Center Pivot Systems
- Well Monitoring
- Water Distribution
- Dairy Lagoons
- Surface Water
- Chemigation
- Downstream
- Golf Course & Park Management
- Sandy Water

KEY FEATURES

- 5-year meter warranty
- 5-year battery warranty
- Lifetime liner guarantee
- Battery powered for easy installation – eliminate the hassle of cables or AC power
- Durable design – Proven in tough environments
- 10 minute DIY replaceable battery pack, keeps your meter running
- Made in the USA

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

Size	Upstream/ downstream
Flanged 1 1/2" to 3"	0 / 0
Wafer 2" & 3"	3 / 1
Flanged 4" to 24"	2 / 1



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

Dura 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 the downstream flange of the sensor either via internal grounding electrodes (2 - 12") or using McCrometer 316 SS grounding rings. For best performance, grounding rings are recommended for all sizes.

ProComm GO Converter

The integrated electronic converter is secured with tamper evident screws. The meter offers flow rate and totalizer with a 5-year battery warranty. Dura Mag features three 3.6V lithium-thionyl chloride (Li-SOCl₂) D size batteries, with two AA batteries serving as back-up power. The main power batteries are easily replaced in the field.

Pulse, 4-20mA, and AMI output are available for remote meter reading or SCADA. Dura Mag is compatible with McCrometer CONNECT wireless systems, which allows users to access flow data by simply logging on to the Internet. This eliminates costly manual meter reading.

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 multi-point curve-fitting algorithm to improve accuracy and a rugged enclosure that meets IP67. The microprocessor continually monitors the converter's functionality.

The converter will output rate of flow and total volume. The converter also comes many more features that is fully user-configurable using the configuration tool via the USB port and a laptop computer.

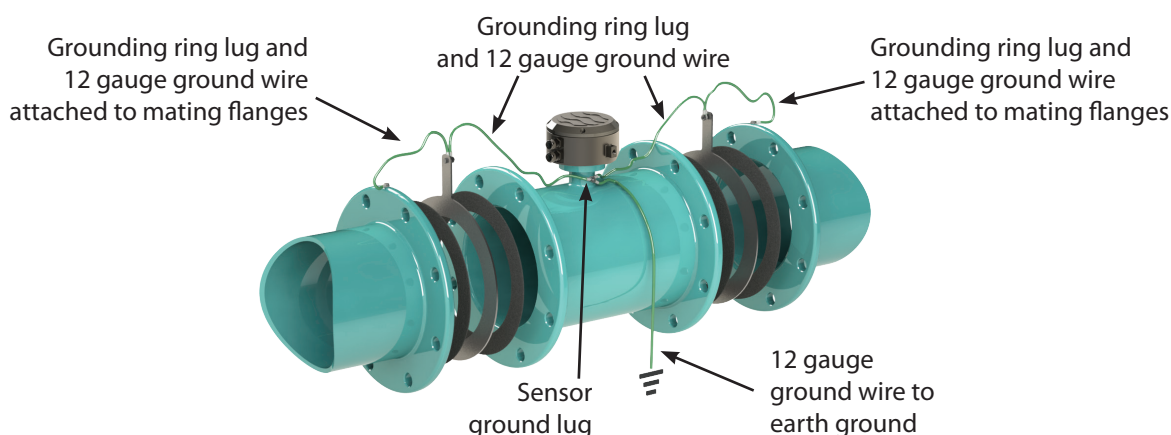
Dura Mag Sensor Grounding



Information For Grounding Ring Installations

- Gaskets must be used on either side of the grounding ring to provide a proper seal on the flanges.
- Rings & gaskets must align concentrically with the pipe so they do not obstruct or affect flow through the tube.
- The two grounding rings and four gaskets require an additional installation width of 0.5".

The grounding rings and gaskets must be used to ensure a positive seal at the flanges, and to ensure fluid is properly grounded to sensor. Attach the provided 12 gauge wire to the ground lug and an isolated grounding rod.



DURA MAG FLOW METER PART NUMBER STRUCTURE

DM	-	-	-	-	-	-	-	-	-	-	-	-
Line Size												
1.5 in	0C											
2 in	02											
2.5 in	0D											
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											
Flange Connections												
AWWA Class D (150 psi Rating) (Standard)	1											
ANSI Class 150# (285 psi Rating)	2											
ANSI Class 300# (300 psi Rating)	3											
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											
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											

[illegible]

PROCOMM GO PART NUMBER STRUCTURE

PG	-	-	-	-	-	-	-	-	-
Converter Mounting Options									
er Mount Converter (<i>Standard</i>)	M								
Remote Mount	R								
Converter Power Options									
Battery Power (<i>Standard</i>)	B								
Solar Power, Battery Backup	S								
A/C Power, Battery Backup	E								
DC Power, Battery Backup	F								
Converter Output Options									
No Outputs (<i>Standard</i>)	-								
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								
Smart Output + 4-20mA Analog + Two Dig Out	7								
DC Power/ Analog Out Cable Options									
No DC Power or Outputs (<i>Standard</i>)	-								
No Cable - Output Configured (Quick Conn)	0								
6 ft (Open Leads - Strain Relief)	1								
25 ft (Open Leads)	2								
50 ft (Open Leads)	3								
Pulse Cable Length Options									
No Outputs (<i>Standard</i>)	-								
No Cable - Output Configured (Strain Relief or 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 (<i>Standard</i>)	1								
Quick Connect (25 & 50 ft Cable length only)	2								
Smart Output Protocol Options (*4 - 7 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								
Hazardous Area Location									
Class 1, Division 2, Groups A-D, T5	HL								

DURA MAG FLOW METER SPECIFICATIONS




Physical Specifications

Directionality	Single direction and bidirectional
Pipe Sizes	Sizes in inches: 1.5", 2", 2.5", 3", 4", 6", 8", 10", 12", 14", 16", 18", 20", 24"
Body Style	Unflanged and flanged tube
Electrical Connections	Optional quick connect for easy installation

Performance and Operational Specifications

Operating Temperature	-4° to 140°F (-20° to 60°C)
Storage Temperature	-40° to 149°F (-40° to 65°C)
Operating Pressure	150 psi
Accuracy	+/- 1% of measured value ± 0.006 ft/s (± 0.0018 m/s) All Dura Mag meters are calibrated in a NIST traceable gravimetric test stand with a minimum straight run of 10D upstream and 2D downstream. A calibration certification report is provided with each Dura Mag meter certifying the specification accuracy in our laboratory test. Alternative piping configurations or electrical environments may impact the performance of the meter in the field.
Pipe Run Requirements	1½" to 3" Flanged style meters: 0D upstream / 0D downstream 2" and 3" Wafer style meters: 3D upstream / 1D downstream 4" to 24" Steel flanged meters: 2D upstream / 1D downstream

Certifications

Standard Model	<ul style="list-style-type: none">• ISO 9001:2015 certified quality management system• Certified by MET to UL 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 to UL 61010-1 and MET C22.2 No. 61010-1-04<ul style="list-style-type: none">• Class I, Division 2, Groups A B C D, T5• Class I, Zone 2, IIC T5• Certified to NSF / ANSI Standards*	
* Dura Mag is certified by IAPMO R&T to NSF/ANSI 61 for material safety and NSF/ANSI 372 for low lead content.		

Other Specifications

Options and Accessories	<ul style="list-style-type: none"> Bidirectional Annual verification / calibration Stainless Steel ID tag
Warranty	Meter: 5-year warranty Battery: 5-year warranty Liner: Lifetime guarantee

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.
Power	Battery: Standard: three 3.6V lithium-thionyl chloride (Li-SOCl ₂) D size batteries with two AA backup batteries 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					
Units	5 Rate, 9 Total					
	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		





Specification Sheet Dura 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	<ul style="list-style-type: none">• 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	<ul style="list-style-type: none">• IEC 61010-1, Pollution Degree II• Overvoltage protection Category III

Certifications

Standard Model	<ul style="list-style-type: none">• ISO 9001:2015 certified quality management system• Certified by MET to UL 61010-1	 
	<ul style="list-style-type: none">• ISO 9001:2015 certified quality management system• Certified by MET to UL 61010-1 and MET C22.2 No. 61010-1-04<ul style="list-style-type: none">• Class I, Division 2, Groups A B C D, T5• Class I, Zone 2 IIC T5	

DIMENSIONS AND WEIGHTS

Wafer Mag Models

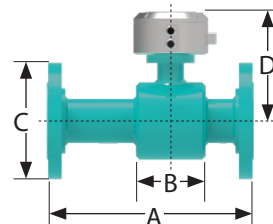
Pipe Size (Nominal)	Flow Ranges (0.2 to 32 FPS) Min-Max GPM	DIMENSIONS (Lay Lengths)		Est. Shipping Weight (lbs.)*
		A	B	
2"	1.29-200	4.5	6.5	9.6
3"	3.25-510	4.5	7.0	11.3

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

1½" to 3" Models

Pipe Size (Nominal)	Flow Ranges (0.2 to 32 FPS) Min-Max GPM	DIMENSIONS (Lay Lengths)							Est. Shipping Weight (lbs.)*	
		A		B	C		D		CL150 ANSI 150#	CL300 ANSI 300#
		CL150 ANSI 150#	CL300 ANSI 300#		CL150 ANSI 150#	CL300 ANSI 300#	CL150 ANSI 150#	CL300 ANSI 300#		
1 ½"	1.29-200	11	not offered	4.5	5.0	not offered	6.5	not offered	45	not offered
2"	1.29-200	11	14	4.5	6.0	6.5	6.5	7.25	45	70
2 ½"	3.25-510	13.4	not offered	4.5	7.0	not offered	7.0	not offered	50	not offered
3"	3.25-510	13.4	15.5	4.5	7.5	8.25	7.0	7.75	55	80

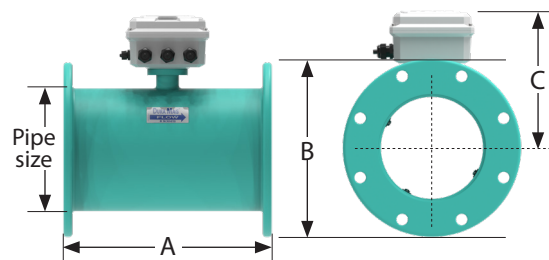
* For remote mount meters, add 4 lbs for ProComm converter.



4" to 12" Models

Pipe Size (Nominal)	Flow Ranges (0.2 to 32 FPS) Min-Max GPM	DIMENSIONS (Lay Lengths)									Est. Shipping Weight (lbs.)*		
		A			B			C					
		AWWA		ANSI	AWWA		ANSI	AWWA		ANSI	AWWA		ANSI
		150# Class D	150# CL150	300# CL300	150# Class D	150# CL150	300# CL300	150# Class D	150# CL150	300# CL300	150# Class D	150# CL150	300# CL300
4"	6.97-1110	13.4	13.4	13.4	9.0	9.0	10.0	9.25	9.25	9.25	70	108	108
6"	16.1-2560	14.6	14.6	14.6	11.0	11.0	12.5	10.25	10.25	10.25	80	138	138
8"	29.2-4670	16.1	17.25	17.25	13.5	13.5	15.0	11.25	11.25	11.25	115	195	195
10"	46.3-7400	18.5	18.5	18.5	16.0	16.0	17.5	12.5	12.5	12.5	140	247	247
12"	67.3-10760	19.7	19.7	19.7	19.0	19.0	20.5	13.5	13.5	13.5	190	342	342

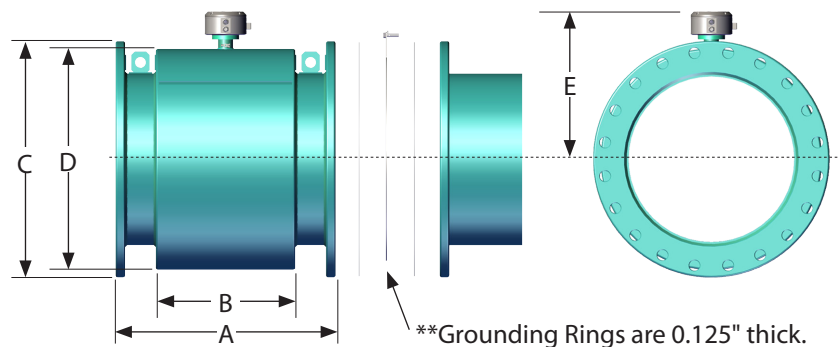
*Shipping weights are estimated and may change due to specific order packaging



14+" Models Body Style

Pipe Size (nom.)	Flow Ranges (0.2 to 32 FPS) Min-Max GPM	DIMENSIONS												Est. Shipping Weight (lbs.)*			
		A				B	C				D	E					
		AWWA		ANSI			AWWA		ANSI				AWWA		ANSI		
		150# Class D	300# Class F	150# CL150	300# CL300		150# Class D	300# Class F	150# CL150	300# CL300			150# Class D	300# Class F	150# CL150	300# CL300	
14"	90.1-14410	21.70	22.75	22.75	22.75	11.875	21.00	23.00	21.00	23.00	20.135	14.56	380	480	480	480	
16"	117-18670	23.60	25.25	25.25	25.25	14.25	23.50	25.50	23.50	25.50	21.635	15.32	448	500	500	639	
18"	149-23820	23.60	25.25	25.25	25.25	14.25	25.00	28.00	25.00	28.00	23.635	16.32	469	600	600	600	
20"	186-29600	25.60	28.25	28.25	28.25	16.06	27.50	30.50	27.50	30.50	25.6975	17.35	588	725	725	725	
24"	269-43040	30.70	35.75	35.75	35.75	21.75	32.00	36.00	32.00	36.00	29.51	19.25	763	1,430	1,430	1,430	

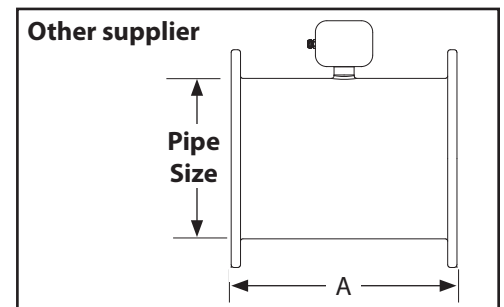
*Shipping weights are estimated and may change due to specific order packaging



Dura Mag meters are available in lay lengths compatible with products from other meter suppliers. See the tables below for matched lay length options.

Pipe Size (Nominal)	Other Supplier Dimensions*		LS Series Dimensions	
	L (in.)	Weight (lbs.)	L (in.)	Weight (lbs.)
4"	10.24	34	10.24	70
6"	12.27	50	12.27	80
8"	14.24	71	14.24	115
10"	18.18	130	18.18	140
12"	19.68	170	19.68	190

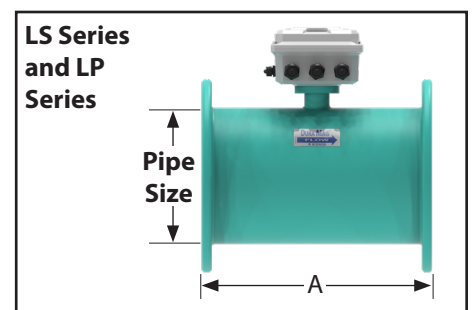
* Seametrics Electromagnetic Meters (Ag3000/Ag3000P or iMag4700 series); Seametrics® is a registered trademark of their respective owners.



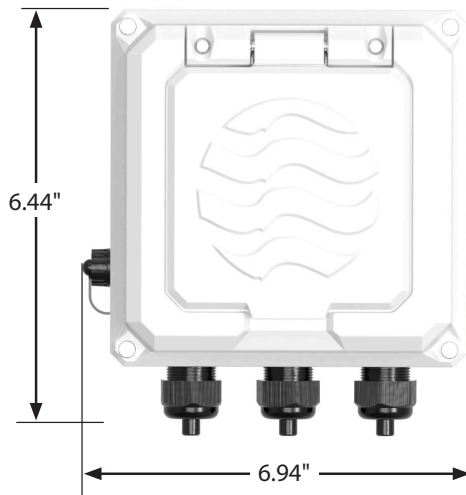
Pipe Size (Nominal)	Other Supplier Dimensions**				LP Series Dimensions			
	150 lb psi		300 lb psi		150 lb psi		300 lb psi	
	L (in.)	Weight (lbs.)	L (in.)	Weight (lbs.)	L (in.)	Weight (lbs.)	L (in.)	Weight (lbs.)
4"	6	55	6	***	6.25	50	6.25	***
6"	13.38	75	14.88	***	13.38	65	14.88	***
8"	13.38	105	15.40	***	13.38	120	15.40	***
10"	18.15	155	20.55	***	18.15	130	20.55	***
12"	19.40	235	21.78	***	19.40	170	21.78	***

** Sparling Instruments (TigerMag EP FM656); Sparling® is a registered trademark of their respective owners.

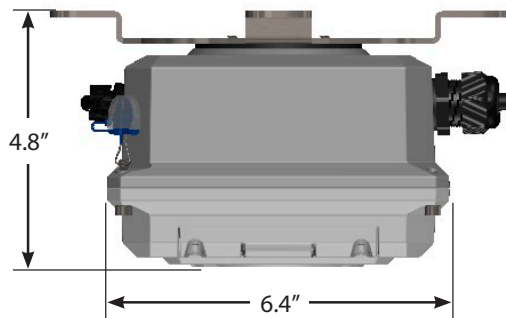
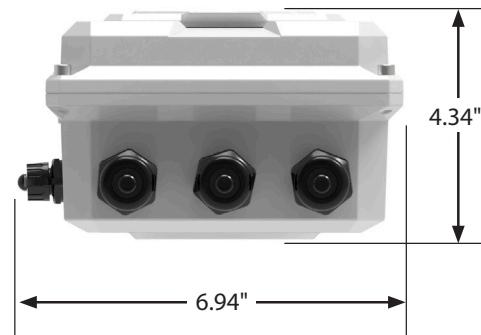
*** Contact factory for weight.



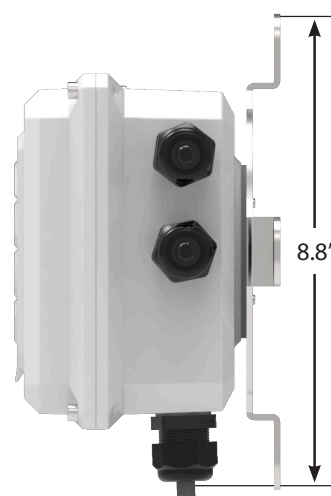
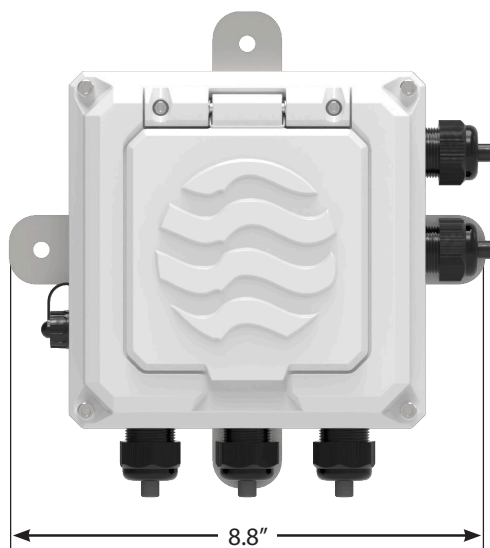
PROCOMM GO CONVERTER DIMENSIONS



Meter mount converter



Remote mount converter



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