

ProComm GO Electromagnetic Flow Meter Converter

Installation, Operation and Maintenance Manual



Standard Model

For use in non-hazardous locations

HL Model

For use in hazardous locations:

- Class I, Division 2, Groups A-D, T5
- Class I, Zone 2 IIC T5

30125-72 Rev. 1.2
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SAFETY

Safety Symbols

Throughout this manual are safety warning and caution information boxes. Each warning and caution box will be identified by a large symbol indicating the type of information contained in the box. The symbols are explained below:



This symbol indicates important safety information. Failure to follow the instructions can result in serious injury or death.



This symbol indicates important information. Failure to follow the instructions can result in permanent damage to the meter or installation site.

Safety Warnings

When installing, operating, and maintaining McCrometer equipment where hazards may be present, you must protect yourself by wearing Personal Protective Equipment (PPE) and be trained to enter confined spaces. Examples of confined spaces are manholes, pumping stations, pipelines, pits, septic tanks, sewage digesters, vaults, degreasers, storage tanks, boilers, and furnaces.



WARNING!

Incorrect installation or removal of mag meters can result in serious injury or death. Read the instructions in this manual on the proper procedures carefully.



WARNING!

Never enter a confined space without testing the air at the top, middle, and bottom of the space. The air may be toxic, oxygen deficient, or explosive. Do not trust your senses to determine if the air is safe. You cannot see or smell many toxic gases.



WARNING!

Never enter a confined space without the proper safety equipment. You may need a respirator, gas detector, tripod, lifeline, and other safety equipment.



WARNING!

Never enter a confined space without standby/rescue personnel within earshot. Standby/rescue personnel must know what action to take in case of an emergency.



WARNING!

Pressurized pipes should only be hot tapped, cut, or drilled by qualified personnel. If possible, depressurize and drain the pipe before attempting any installation.



WARNING!

Carefully read all safety warning tags attached to the meter.



At the end of its lifetime, this product shall be disposed of in full compliance with the environmental regulations of the state in which it is located.

1.0 CONVERTER OVERVIEW

Read this entire manual prior to installation and/or changing any settings. Retain this manual in your records, DO NOT DISCARD.

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.

2.0 INSTALLING THE CONVERTER AND CABLES



Installation to be in accordance with any applicable restrictions of the NEC for the US or CE Code, Part I for Canada, including issues such as routing, support and length of the wiring method.

2.1 Verify Serial Numbers

The converter and sensor are supplied as a matched system. Verify the meter serial numbers on both the converter and sensor match. This will ensure a properly calibrated system.

The serial number tag is located on the side or top of the converter (Figure 1). The tag has the converter model number, the converter serial number, the meter model number and the meter serial number. Examples are shown below (Figure 2 and Figure 3).



Figure 1. Serial number tag locations for meter mount and remote mount converters

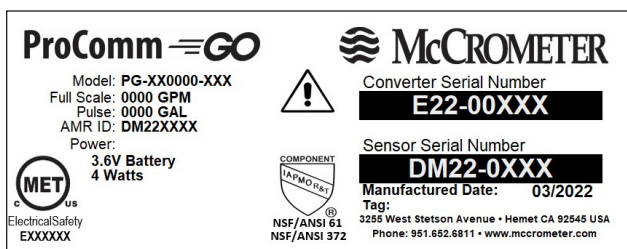


Figure 2. Serial number tag for standard model

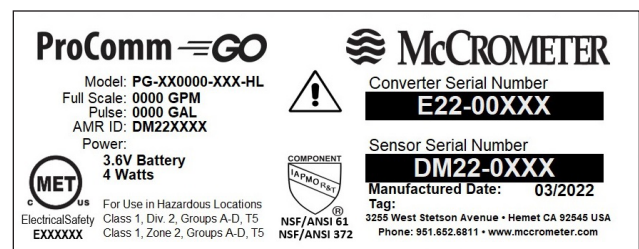


Figure 3. Serial number tag for hazardous location model

2.2 Example Remote Mount Configuration

After installing the sensor, mount the converter and connect the cable to the meter's junction box and the converter's external connection. Figure 4 below shows an example of a remote mount installation with an optional Smart Output connection.

You will need to prepare the location where you will install the remote converter. The location cannot be further from the flow meter than the length of the 25' cable. This must be planned in advance because **the cable cannot be lengthened**. Doing so will alter the calibration accuracy between the meter and the converter and void the warranty.

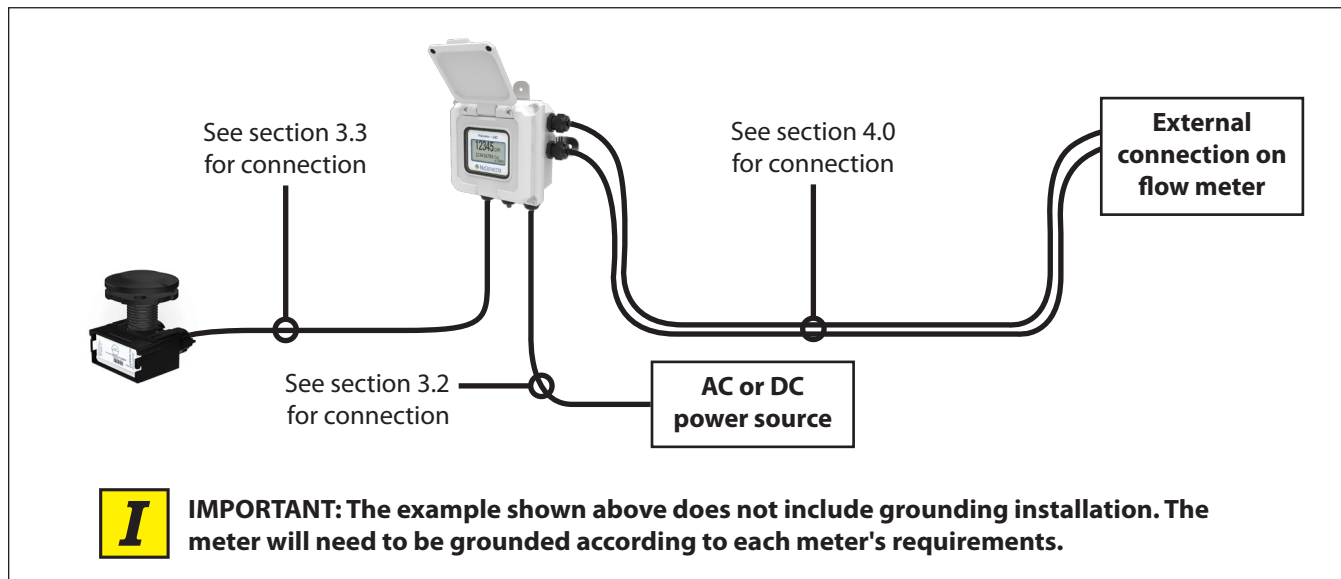


Figure 4. Example remote mount configuration

2.3 Mounting the Converter

Note: This applies to the remote mount converter only.

If possible, mount the converter in an electronics shed or environmental enclosure. The sun shield should be oriented in a direction to reduce sun damage and ensure readability. This electronic unit is rated IP67 for temporary flooding.

There is a stainless steel mounting plate attached to the back of the ProComm GO converter, which is used to mount the converter to a solid, flat surface using four bolts (Figure 5). Mounting plate feet are located at the top, bottom, left, and right sides.

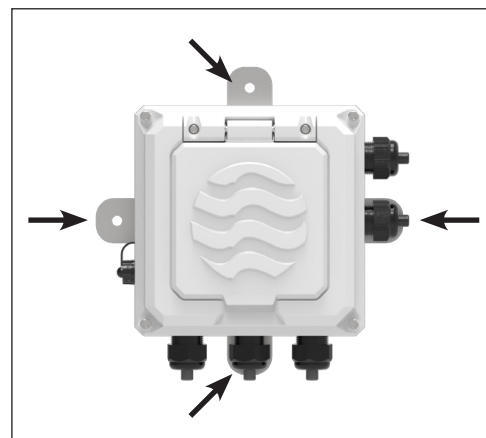


Figure 5. Mounting converter to solid surface

2.4 Installing Cables through Cable Glands and Conduit

All electrical cables enter the converter through compression fittings or optional customer-supplied conduit located on the side or bottom of the converter (Figure 6 and Figure 7). Ensure that all compression glands are properly tightened and all unused fittings are plugged so the case remains sealed.

The power cable and wiring harnesses are each assigned specific cable glands where they will pass through into the converter. See section 2.6 for cable gland assignment for wiring harnesses and section 3.2 for wiring diagrams.

All cable compression glands must be properly tightened to prevent moisture intrusion and maintain the IP67 rating. To insure IP67 rating, use only round cable 0.24" to 0.47" in diameter.



Figure 6. Compression fittings

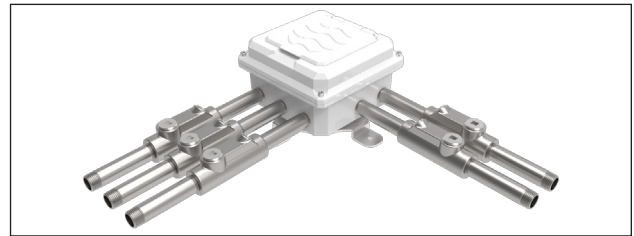


Figure 7. Remote mount converter with conduit pass-throughs



WARNING

Attaching conduit directly to the enclosure may introduce dangerous gasses and moisture into the enclosure creating a dangerous condition, and will remove the enclosure's IP67 rating. **Damage caused by attaching conduit to the enclosure or altering the enclosure in any way is not covered by the warranty.**



WARNING

EXPLOSION HAZARD. DO NOT REMOVE OR REPLACE LAMPS, FUSES OR PLUG-IN MODULES (AS APPLICABLE) UNLESS POWER HAS BEEN DISCONNECTED OR THE AREA IS FREE OF IGNITABLE CONCENTRATIONS.



WARNING

EXPLOSION HAZARD. DO NOT DISCONNECT WHILE THE CIRCUIT IS LIVE OR UNLESS THE AREA IS FREE OF IGNITABLE CONCENTRATIONS.



IMPORTANT: Do not cut or alter the cable length on power or signal cables!

Connections to the sensor must be made with cable supplied by McCrometer specifically for that purpose. Do not substitute the supplied cable with other types of cable, even for short runs. For repairs or added lengths of cable, the entire cable between the sensor and the converter must be replaced. (Consult factory for replacement cable.)

2.5 Pulling Sensor Cable Through Electrical Conduit

It is very important to protect the end of the sensor cable when pulling it through a conduit. Water can accumulate in low portions of conduit. Always use a cable cover, or similar method, to seal the end of the cable against water when pulling the cable through conduit (see Figure 8). This will ensure proper operation of the meter.

1. Tie a rope or cable-snake securely around the middle of the cable cover.
2. Carefully pull the rope or snake until the sensor cable end clears the conduit.
3. Bring the cable end to the converter location. If necessary, secure the cable so that it does not fall back through the conduit.
4. Remove the cable cover by pulling the rip wire. The cable cover will tear off (discard the cover).

NOTE Cable cover is not provided.

I CAUTION: Do not cut the cable cover off. Doing so may damage the sensor cable and adversely effect the calibration of the meter.

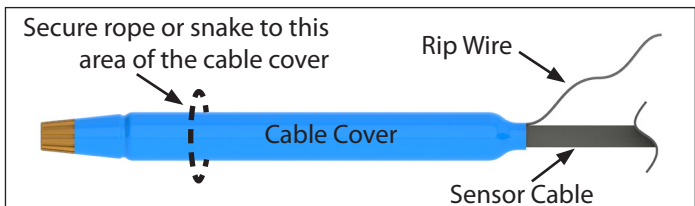


Figure 8. Cable cover

2.6 Cable Gland Assignment for Wiring Harnesses

Port assignment

- 1 - Outputs
- 2 - Outputs
- 3 - Power
- 4 - Coils
- 5 - Electrodes

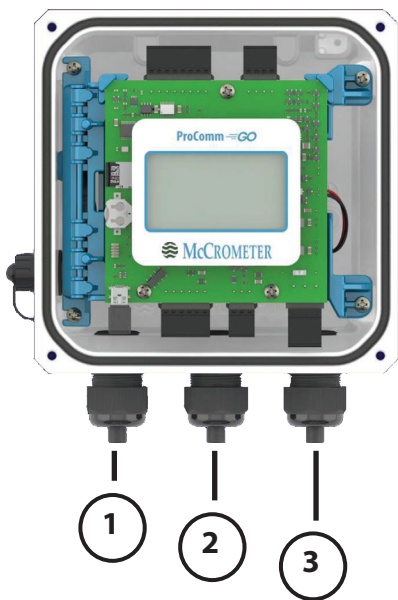


Figure 9. Meter mount view

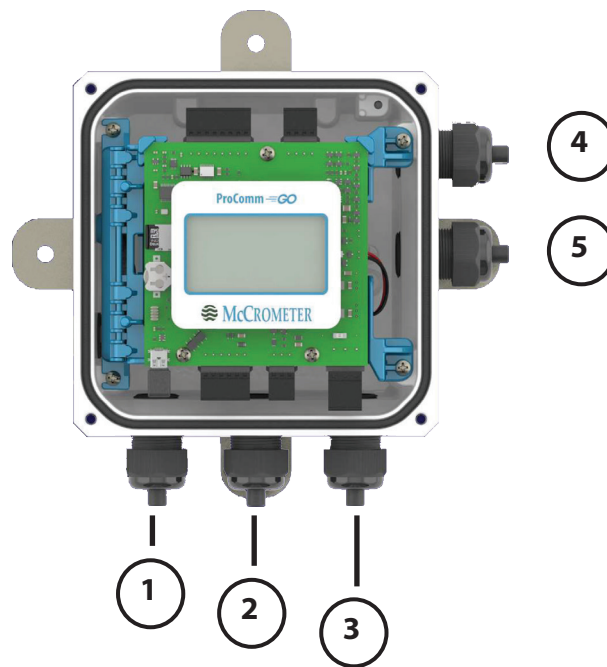


Figure 10. Remote mount view

3.0 INTERNAL WIRE CONNECTION

This section describes cable and wire harness connection inside the converter. Section 4.0 describes wire connection for all peripherals outside of the converter, including pulse output and external power options.

3.1 Terminal Block Diagram and Grounding Lug

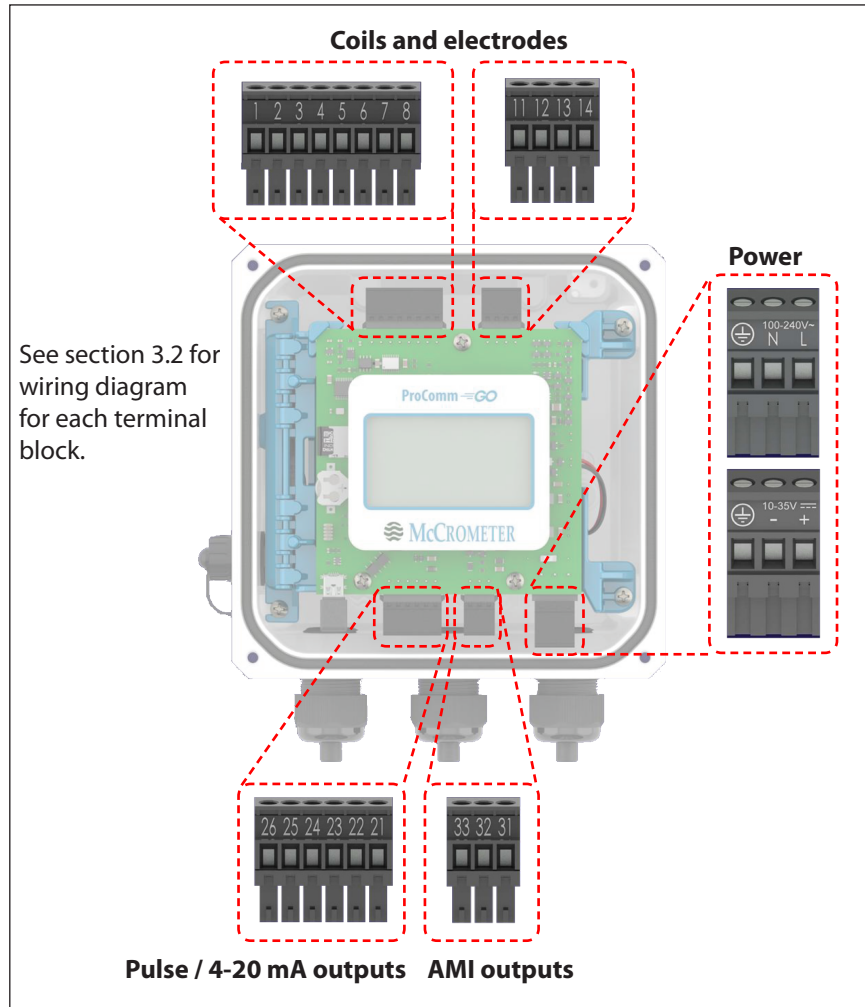


Figure 11. Terminal blocks

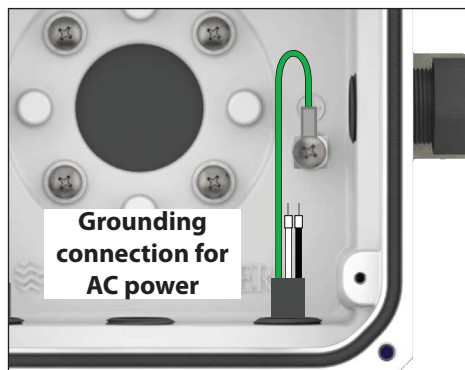
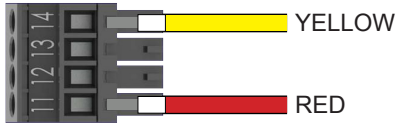


Figure 12. Grounding lug

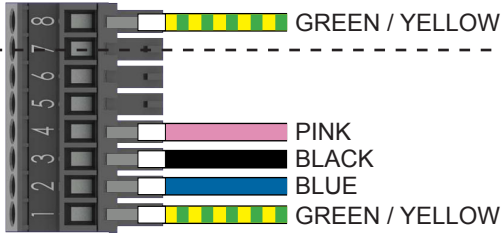
3.2 Wiring Diagrams

TERMINAL BLOCK ASSIGNMENTS

Coils Harness

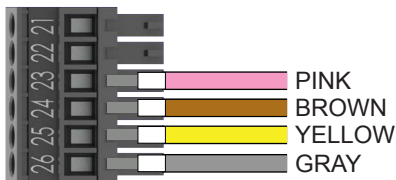


Terminal	Port	Wire Color
8	4	Green/Yellow
11	4	Red
14	4	Yellow



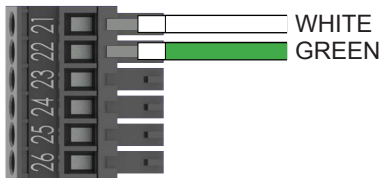
Electrodes Harness

Terminal	Port	Wire Color
1	5	Green/Yellow
2	5	Blue
3	5	Black
4	5	Pink



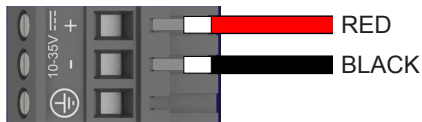
Pulse Output Harness

Terminal	Port	Wire Color
23	1	Pink
24	1	Brown
25	1	Yellow
26	1	Gray



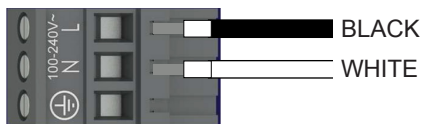
4-20 mA Output Harness

Terminal	Port	Wire Color
21	1	White
22	1	Green



DC Power Harness

Terminal	Port	Wire Color
Negative	3	Black
Positive	3	Red



AC Power Harness

Terminal	Port	Wire Color
Chassis lug	3	Green
Neutral	3	White
Load	3	Black

ATTACHES TO CHASSIS LUG GREEN

To complete AC power connection, connect green grounding lug to chassis as shown on previous page.

3.3 Optional Smart Output Hook Up

The converter comes pre-wired with an interconnection that should readily connect to most AMI transceivers. Where interconnective devices are not mechanically compatible or where non-standard wiring is encountered, the installer can opt to remove the connector from the end of the converter's interface cable and make direct connection via the wiring table shown at right. (Figure 13)

- Signals and associated wire colors in the McCrometer SmartOutput™ interface cable are identified together in the top row of the table at right.
- Corresponding wire colors for transceivers from each compatible AMI vendor are identified in the columns under the top row.

	Sensus	Itron	Badger	Neptune	Elster
31	Black	Green	Black	Green	Black
32	Red	Black	Red	Black	Green
33	Green	Red	Green	Red	Red

Figure 13. AMI interface pinout

4.0 EXTERNAL WIRE CONNECTION

4.1 Cable Gland Connections

10-35VDC Power/4-20mA Output And Pulse Output

The flow meter has one dedicated port and two optional ports on the back side of the electronics enclosure. The dedicated port (center) is used to download data logger information or for meter service and troubleshooting. The two optional ports are for:

1. Optional 10-35 VDC power and 4-20mA output
2. Optional pulse outputs (flow volume and alarms)
3. AMI output
4. 100-240 VAC power

The flow meter is configured at the factory for the optional outputs and requested by the customer at the time of order. The external cables attach through a permanent cable gland (standard, Figure 14) or through a screw locking-type waterproof connector (quick connect option, Figure 15 - see next section).



Figure 14. Standard cable gland

4.2 Quick Connect Cabled Ends (Optional)



IMPORTANT

Connections to the sensor must be made with cable supplied by McCrometer specifically for that purpose. Do not substitute the supplied cable with other types of cable, even for short runs. For repairs or added lengths of cable, the entire cable between the sensor and the converter must be replaced. (Contact factory for replacement cable.)

When quick connect cables are used both the meter and converter must have connector ports. See Figure 15, Figure 16, and Figure 17 for examples.

Quick Connect cable end fittings are optional. If selected at the time of order, follow the instructions below:

1. Remove the protective caps from both the receiving ports and the cable ends.
2. Insert the cable end into the port until fully seated, then turn the knurled collar on the cable to the right until the cable is tight.
3. With both cables properly attached to the meter, connect the meter-end protective cap to the cable-end protective cap. This insures that the protective caps remain free from dirt.

To remove cables:

1. Turn the knurled collar on the cable to the left until it is completely detached.
2. Replace the protective cap firmly on the connector port.



IMPORTANT

To connect sensor and converter via quick connect plugs and sockets, only use the supplied cable assemblies from McCrometer.

Do not position the meter in a manner that would make it difficult to disconnect from power supply.



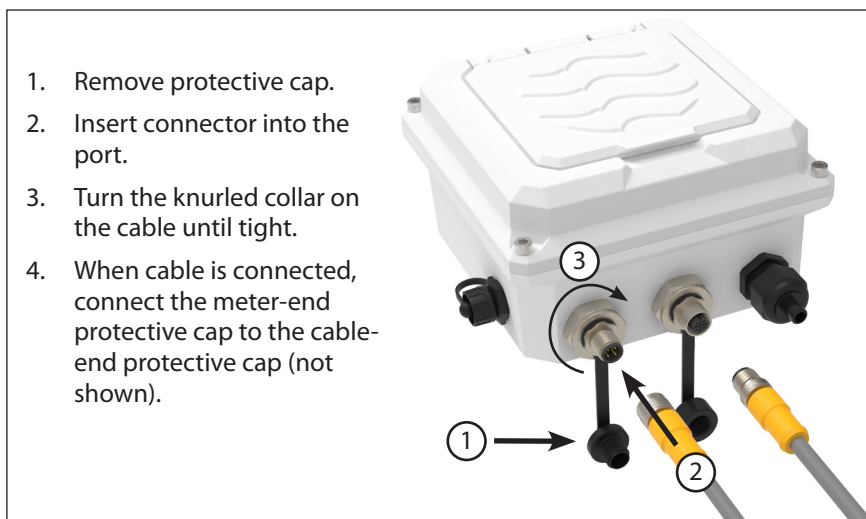
IMPORTANT

When not in use, always keep the attached cap firmly screwed into the connector to insure a water-tight seal. Also, keep the contacts in the cable connector clean and dry during assembly.



WARNING

EXPLOSION HAZARD. DO NOT CONNECT/DISCONNECT CONNECTORS OR WIRING OR REMOVE ENCLOSURE LID WHILE WITHIN AN ELECTRICALLY CLASSIFIED HAZARDOUS AREA.



1. Remove protective cap.
2. Insert connector into the port.
3. Turn the knurled collar on the cable until tight.
4. When cable is connected, connect the meter-end protective cap to the cable-end protective cap (not shown).

Note: Exact location of connectors may depend on converter configuration.

Figure 15. Converter optional quick connect cable ends

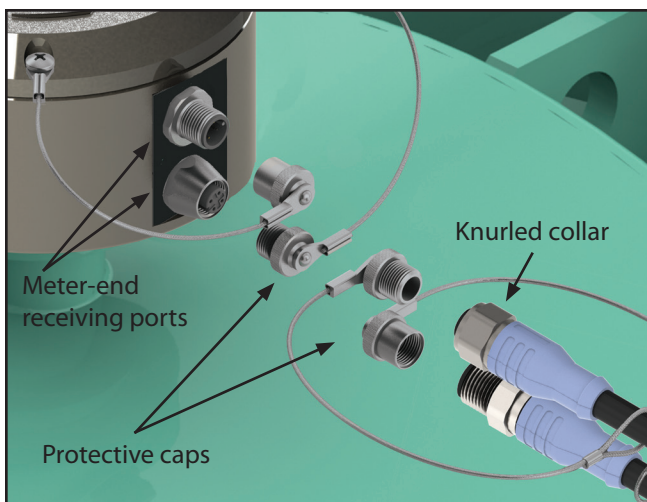


Figure 16. Ultra Mag and Dura Mag junction box with optional quick connect cable ends

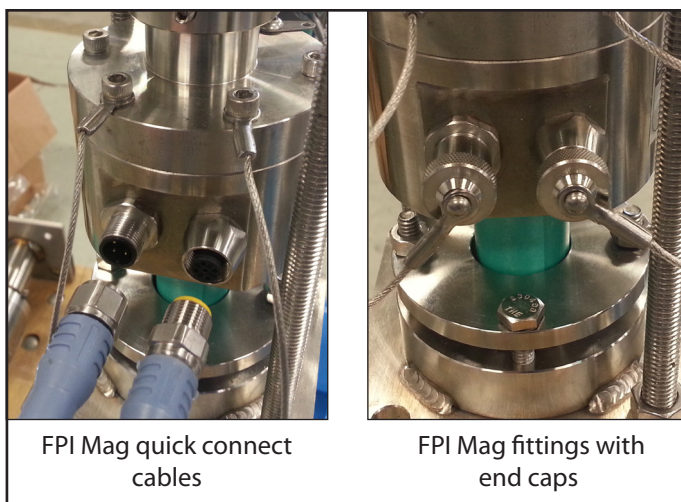


Figure 17. FPI Mag with quick connect cables

4.3 Power Options

Depending on output options and specific application position, you may choose to add additional power options to the battery powered converter. The 5W solar panel option (described in section 4.7) can extend battery life to 10-15 years. Additionally, you have the option of connecting external power of 10-32VDC or 100-240VAC.

4.4 DC Power Cable (Optional)

The cable contains wiring for both the optional 10-32VDC power to the meter, and the 4-20mA output from the meter. (Figure 18)

Note: Input power is for the converter only if that option was selected at time of purchase. The 4-20mA loop requires its own power supplied to the loop, not be used with red/black wires.



Figure 18. DC power cable

4.5 4-20mA Current Loop

Output type: 4-20mA current loop

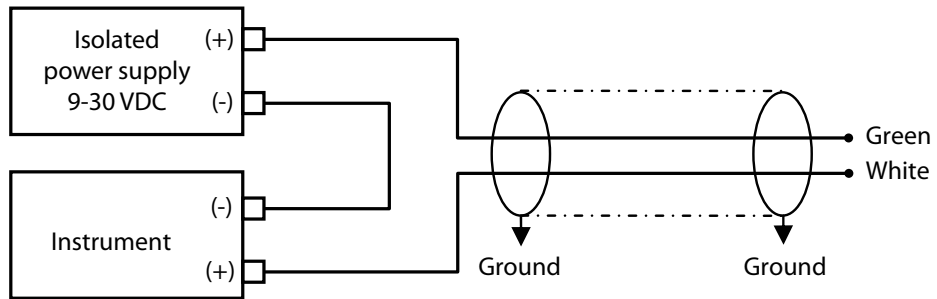


Figure 19. 4-20mA current loop

4.6 Pulse Output Cable (Optional)

The cable contains wiring for both pulse output 1 and pulse output 2. (Figure 20 and Figure 21)

	<p>Pink + Pulse Output 2 (Positive)</p> <p>Grey + Pulse Output 1 (Positive)</p> <p>Yellow - Pulse Output 1 & 2 (Negative)</p>	<p>Figure 20. Quick connect pulse output cable wiring color scheme (optional)</p>
	<p>Pink + Pulse Output 2 (Positive)</p> <p>Grey + Pulse Output 1 (Positive)</p> <p>Yellow - Pulse Output 1 (Negative)</p> <p>Brown - Pulse Output 2 (Negative)</p>	<p>Figure 21. Hard wired pulse output cable wiring color scheme (optional)</p>

4.7 Solar Panel Option (for use with standard model only)

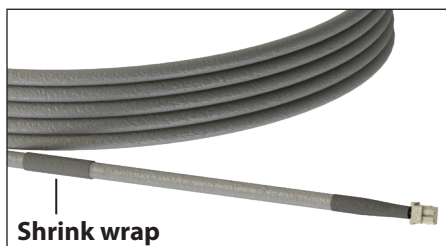
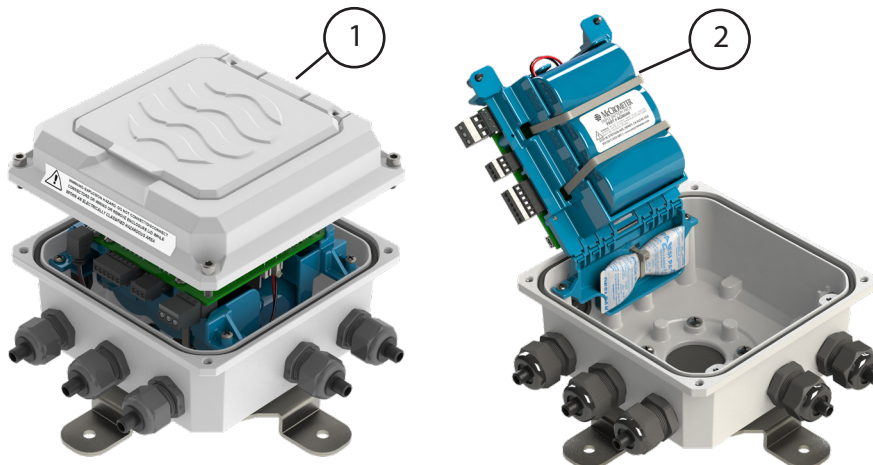
The solar panel provides power to the converter by converting sunlight into electrical energy to recharge the solar panels' rechargeable battery. Its nominal power output is 5W.

When the solar panel is installed and the cable has been run to the converter, connection inside the converter is the same as installing batteries. See Figure 22 below.

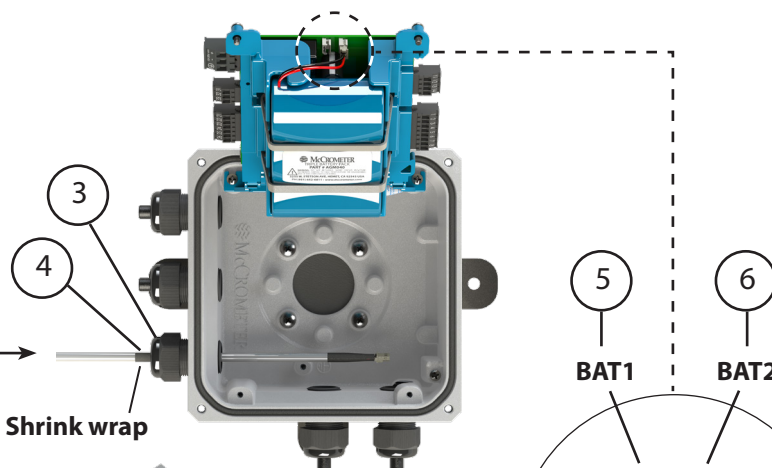
The solar panel comes complete with all accessories, except for the fixing rod.

I These instructions apply only to McCrometer-supplied solar panels with a rechargeable battery. Connecting directly to a solar panel could damage the converter.

1. Remove lid from converter base.
2. Rotate battery tray open.
3. Route solar panel output cable through the bottom left strain relief.
4. Secure strain relief on the shrink wrap (Detail A) to avoid leaks.
5. Plug solar panel output cable into battery terminal 1 (BAT1).
6. Plug triple D battery pack into battery terminal 2 (BAT2).
7. Close battery tray.



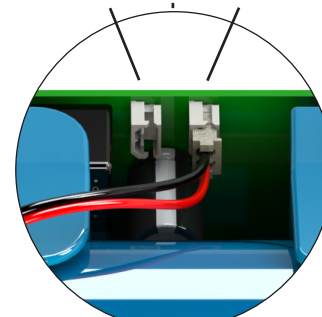
Detail A



Shrink wrap

BAT1

BAT2



Detail B

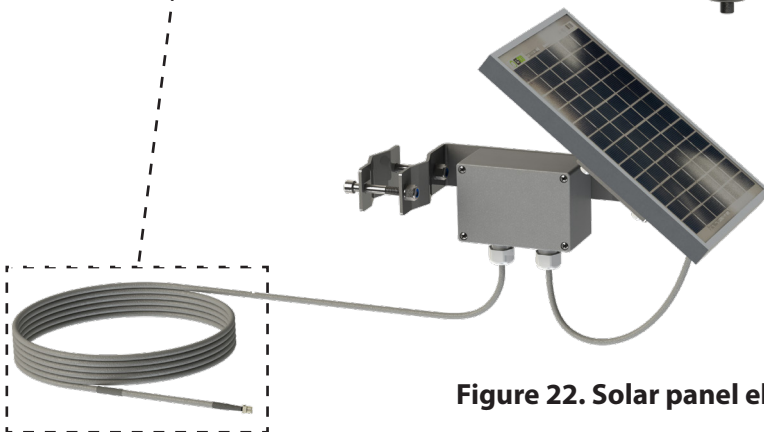


Figure 22. Solar panel electrical connection in converter

5.0 BATTERY INSTALLATION AND REPLACEMENT

This procedure applies to all flow meters with the ProComm GO converter. It describes how to install batteries in a new meter and how to replace batteries using the replacement battery kit PGK01.



WARNING
EXPLOSION HAZARD. DO NOT DISCONNECT WHILE THE CIRCUIT IS LIVE OR UNLESS THE AREA IS FREE OF IGNITABLE CONCENTRATIONS.

Before you begin:

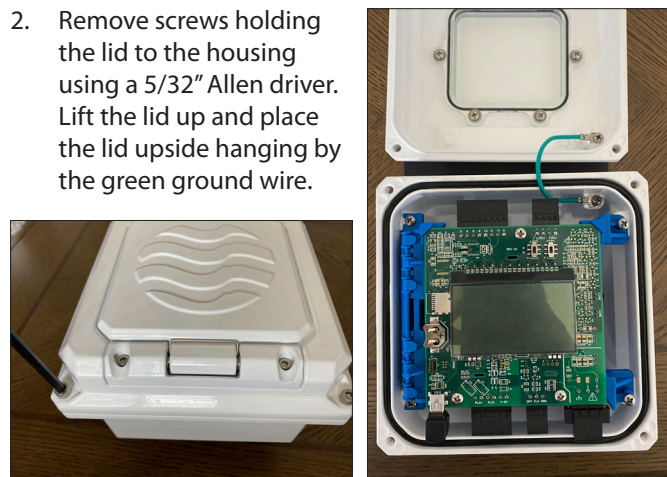
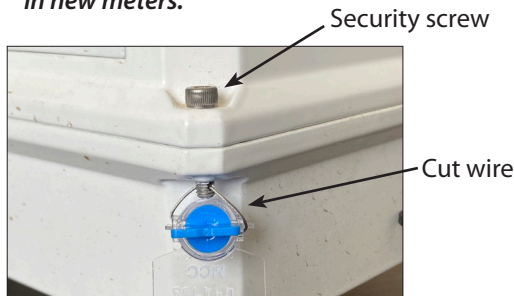
Check materials and tools to ensure you have everything you need.

Materials Provided (shown in order of use)

<p>One triple D battery pack</p>	<p>One double A battery pack</p>	<p>Replacement cover gasket</p>	<p>Molykote lubricant</p>
<p>Zip ties: • 2 large • 1 small</p>	<p>Dry pack</p>	<p>Tamper proof wire seal</p>	<p>Tool Required</p> <p>Wire cutters Phillips screwdriver 5/32" Allen driver</p>

I. Removing the cover

1. Cut off the tamper-proof seal and remove the wire from the security screw.
NOTE: This step is not required for battery installation in new meters.
2. Remove screws holding the lid to the housing using a 5/32" Allen driver. Lift the lid up and place the lid upside hanging by the green ground wire.

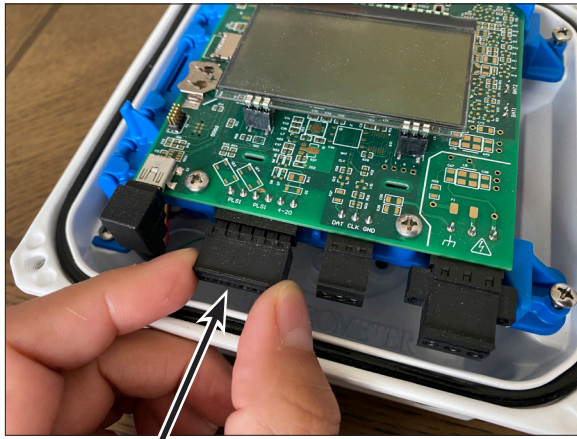


If you are replacing batteries with fresh batteries, continue to step 3.

If you are installing batteries in a new meter that does not have batteries already installed, go to step 9.

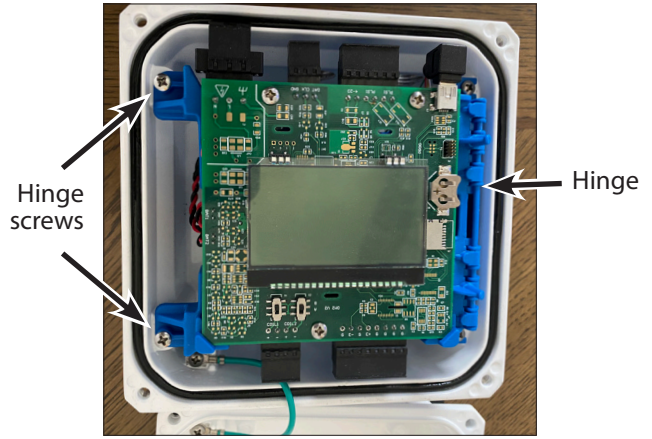
II. Removing the batteries

- Unplug tall connectors to sensor, outputs, and power.

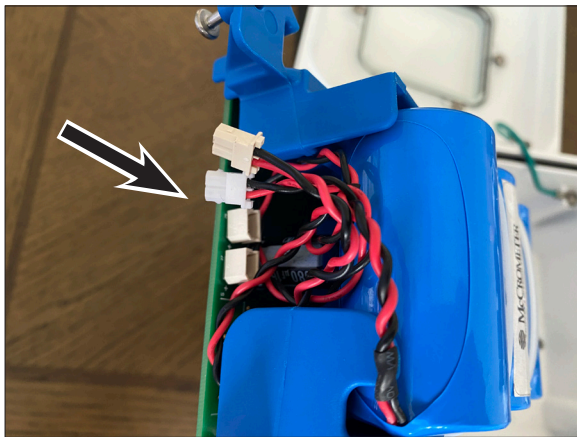


Connectors

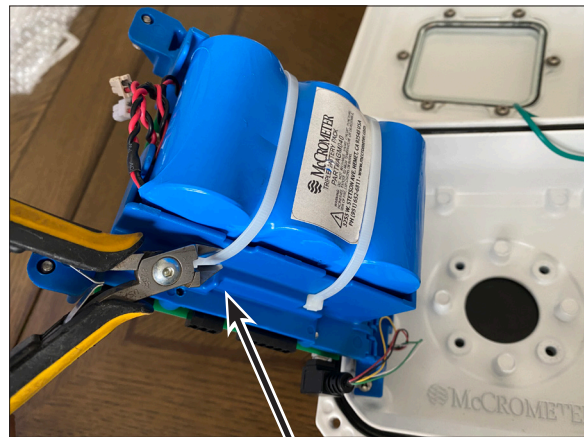
- Loosen the captive screws opposite of the hinge and lift the battery cover.



- Unplug the batteries.



- Cut the two zip ties securing the batteries.



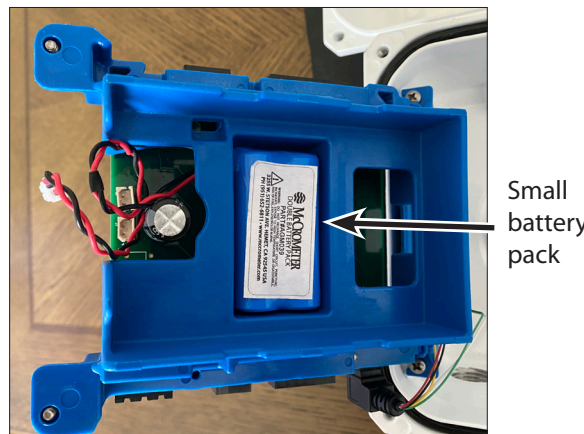
Zip ties

- Remove the large battery pack.



Large battery pack

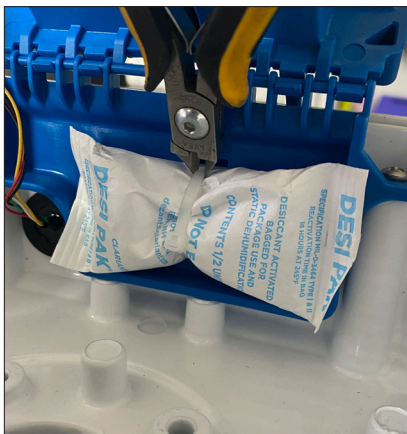
- Remove the small battery pack located underneath. Pull the wires carefully from underneath the battery tray.



Small battery pack

III. Installing the batteries and restoring the power

9. Cut the zip tie holding the dry pack to the hinge on the converter base.



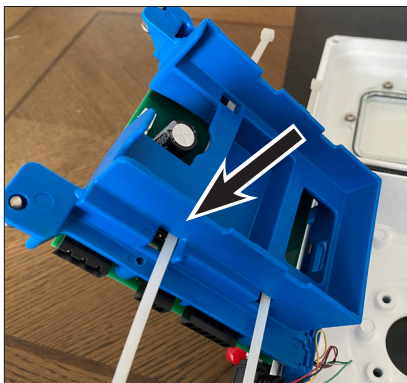
10. Pass the new zip tie through the slots in the internal hinge.



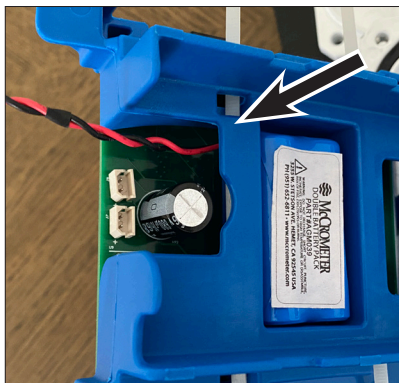
11. Wrap the new zip tie around the new dry pack and cut off the excess.



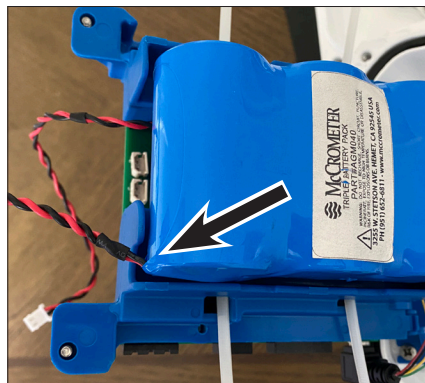
12. Pass the two large zip ties through the slots in the internal tray holder.



13. Place the small battery pack in the center pocket, making sure the wire leads go out through the opening.



14. Place the large battery pack on the internal tray with wire leads passing through the slot.

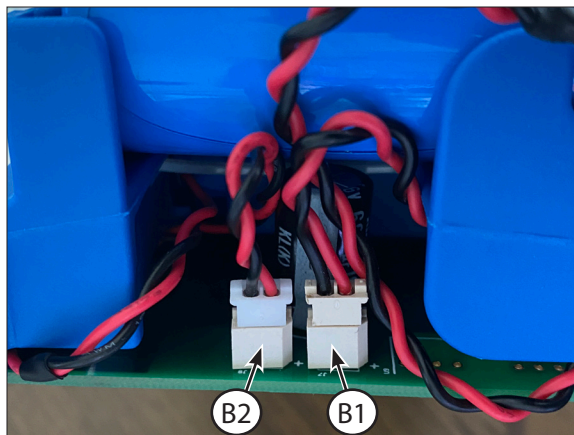


15. Secure the battery packs to the internal tray with the two large zip ties. Cut off the excess of each of the zip ties.

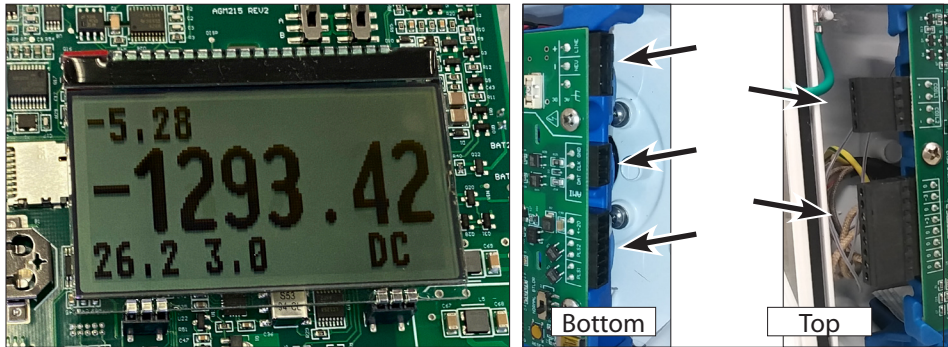


16. Plug the batteries into the circuit board.

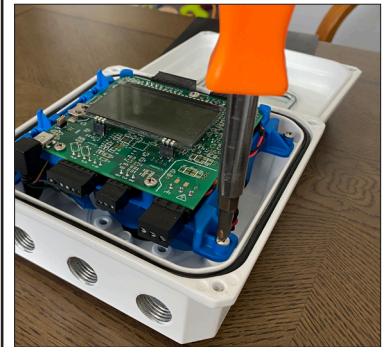
- The large battery pack goes to connector B1.
- The small battery pack goes to connector B2.



17. Set the hinged LCD/internal battery cover back in place to see the display. The unit will start to power up. Plug in all of the connectors to the board. Ensure that the unit is powered normally and there are no alarms.



18. Replace the two screws that hold the LCD/battery cover in place.

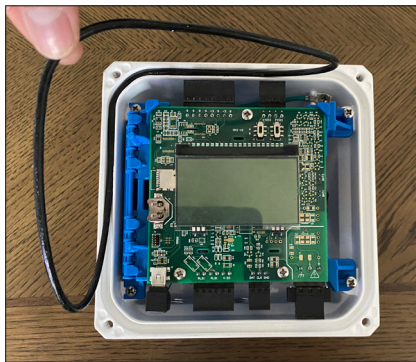


IV. Replacing the gasket

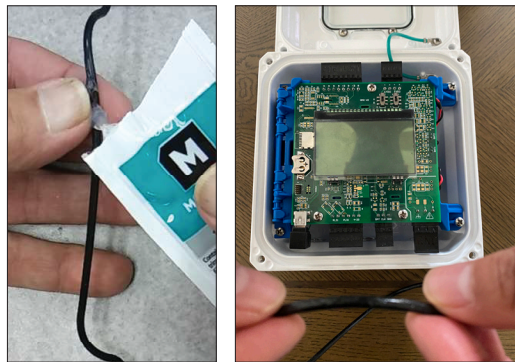
If you installed replacement batteries, we recommend that you replace the gasket.

If you installed new batteries, you must set the gasket in place before replacing the cover and closing up the unit.

19. If your unit has a gasket, remove it.



20. Apply a light coating of Molykote to the replacement gasket.



21. Place the gasket in the groove and press it in.

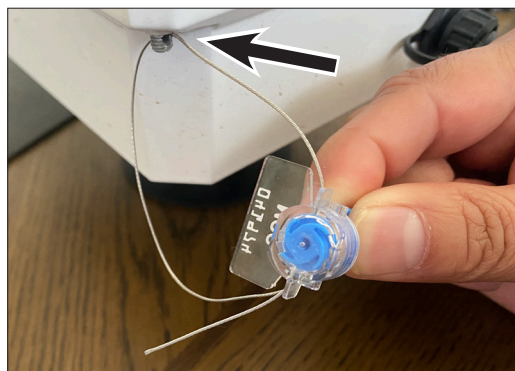


V. Replacing the cover

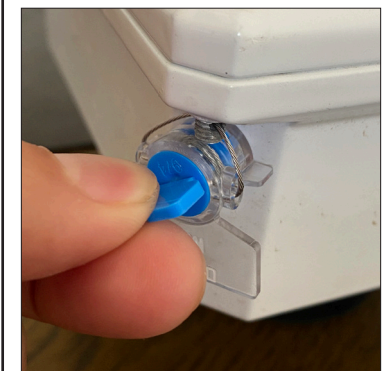
22. Place the converter lid onto the housing. Tighten the screws firmly. Be careful not to pinch any wires between the lid and the base.



23. Fasten the tamper proof seal as follows:
 a. Guide the wire through the hole in the screw.
 b. Thread the wire through the body of the tamper proof seal.



24. Rotate the blue part on the tamper proof seal to bring in the wire and secure the seal close to the screw.



6.0 OPERATION

6.1 General

The flow meter comes pre-configured from the factory based on the installation parameters provided to McCrometer at the time of order. Other than activating the display, there is nothing required of the user for the basic operation of the flow meter.

6.2 Activating the Display

The display is activated when the lid is opened. (Figure 23) The display will remain active for 30 seconds.

The various parts of the interface screen is shown below. (Figure 24) Depending on how the converter is configured with the configuration tool (see section 7.0) the display will show either single direction or bidirectional total flow quantities. Bidirectional flows are represented as either positive (POS) or negative (NEG), as shown at right.



Figure 23. Lift lid to activate display

I CAUTION: If the lid is broken off, contact the Factory for a lid replacement kit. In the meantime, set the lid on the meter in its proper position and use the boot to hold it in place.

NOTE The converter display is light activated and requires a minimum amount of light to appear. Environments where light is low, such as in dimly lit buildings or outdoors after sundown may prevent the display from appearing when the lid is raised.
There is an optical sensor embedded in the display located under the McCrometer “swirl” logo at the lower left. If the display does not appear, a flashlight will provide sufficient light to bring it up.

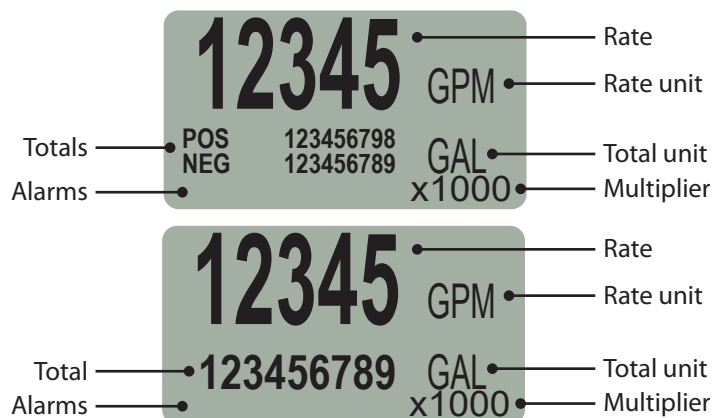


Figure 24. Interface screen, bidirectional and single direction flow

6.3 Converter Boot

The boot simply slips over the electronics enclosure. When installing the boot, insure the corners of the boot fit snugly over the lip of the enclosure. See Figure 25. To remove the boot, grip two corners and pull them away from the lip of the enclosure and then pull upwards. See Figure 26.

NOTE It is HIGHLY recommended that converter is covered by the boot at all times when the meter is not being read. The boot adds protection to the converter.

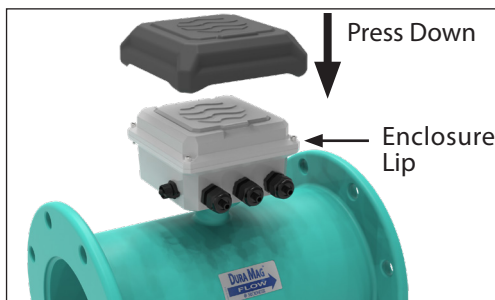


Figure 25. Boot installation

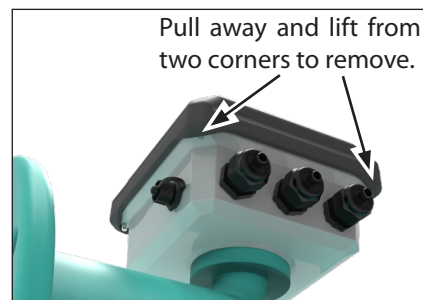



Figure 26. Boot removal

7.0 CONVERTER CONFIGURATION

The converter can be programmed to customize how the data is measured and stored. The configuration tool runs only on Windows 7, 8, or 10 and requires a computer with a USB port.

To access the converter's USB port, unscrew the cap at the left side of the converter. You will need a cable with a mini USB type B connector. (Figure 27)



WARNING
EXPLOSION HAZARD. DO NOT CONNECT/DISCONNECT CONNECTORS OR WIRING OR REMOVE ENCLOSURE LID WHILE WITHIN AN ELECTRICALLY CLASSIFIED HAZARDOUS AREA.

You must have your flow meter's serial number before you begin. There are no installation files. The program and support files can be copied or unzipped into a folder and run from there.

This is only a summary of the configuration tool's functionality. The software has complete set-up and operation instructions included. The software can be downloaded from the McCrometer Web site.

Software Operation

1. Remove the cap that protects the USB port and plug in a mini USB type B cable. (Figure 28) Connect the other end to a laptop computer.
2. Start the software. Follow the instructions shown before setting up your customized configuration. (Figure 29)
3. When you have set up your configuration file, you can change the settings listed below. Using the configuration tool is mostly self-explanatory.
 - Flow rate unit of measure
 - Totalizer unit of measure
 - Multiplier
 - Totalizer presets
 - Forward/reverse pulse enable: 1 pulse per x per unit of measure
 - Pipe ID
 - Clock time and date
 - Pulse output
 - Automated meter reading

When configuration is complete, remove the USB connector and replace the protective cap.



Figure 27. Mini USB type B connector



Figure 28. Plug in mini-USB cable

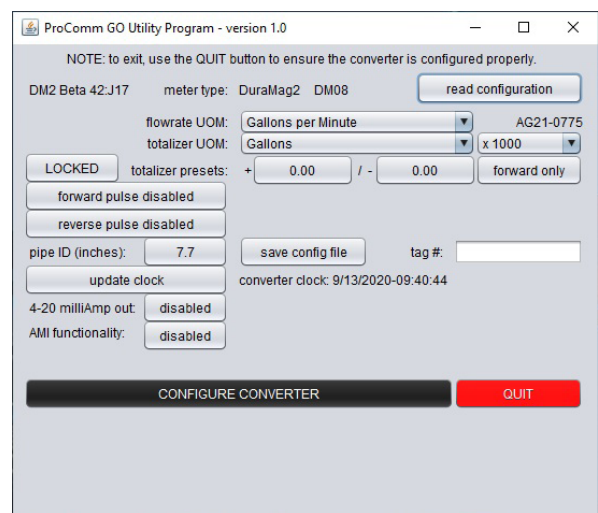


Figure 29. Configuration tool interface

8.0 ERROR MESSAGES FOR TROUBLESHOOTING

DISPLAY MESSAGE	Troubleshooting
BAT LOW	Battery replacement Kit is needed to replace batteries. The batteries Should last approximately 6-9 months from the time the warning is shown.
420 ERR	The 4-20 circuit is not wired correctly. Check the wiring diagram and ensure 9-30VDC power is supplied to the circuit. The output is not source powered.
COIL XCT	There is an issue with the electro magnetic coils. Check that the internal wiring is correct in the converter for the coil wires.
ADC CLIP	The meter signal exceeds the limit of the converter, likely due to noise. Check the meter grounding meets the IOM guidelines and identify any sources of noise.
HIGH HUM	Humidity inside converter housing has exceeded limits. Check for any loose connections on converter housing that could be creating a leak.
COIN LOW	Datalogger time backup battery is low. This is part of the battery replacement kit and should be replaced with the main battery packs.

9.0 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	5 Rate, 9 Total	
Units	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	

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

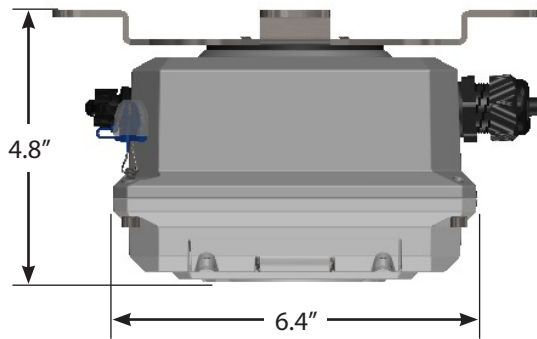
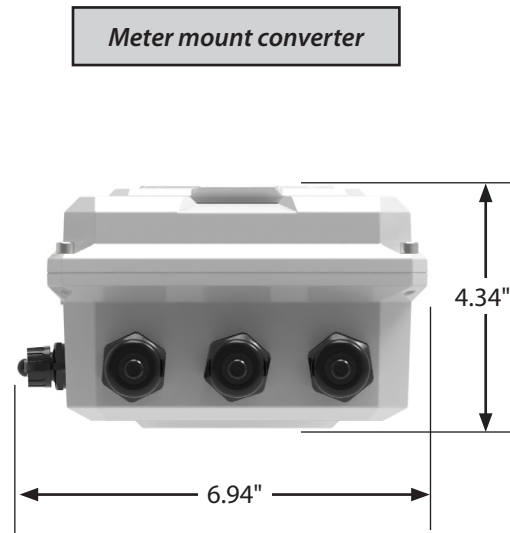
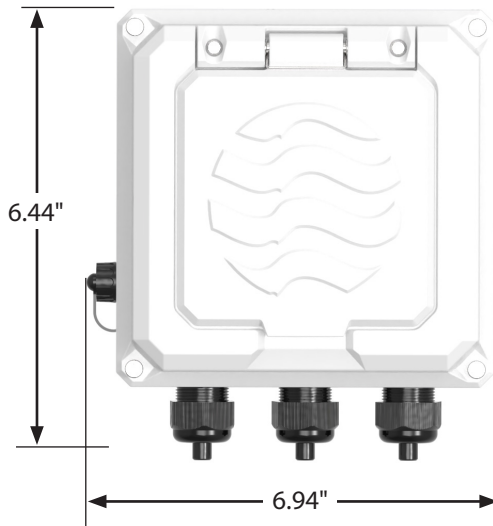
HL Model

- 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
- Certified to NSF / ANSI Standards*

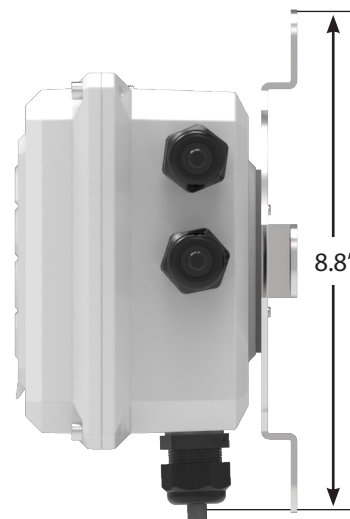
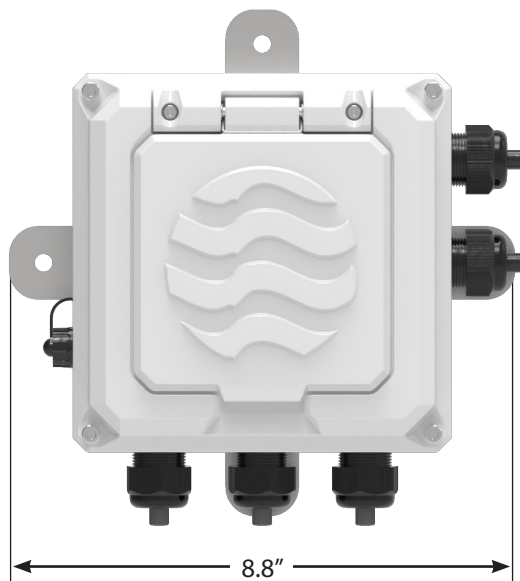


* Certified by IAPMO R&T to NSF/ANSI 61 for material safety and NSF/ANSI 372 for low lead content.

10.0 DIMENSIONS



Remote mount converter



11.0 RETURNING A UNIT FOR REPAIR

If the unit needs to be returned to the factory for repair, please do the following:

- Prior to calling for a return authorization number, determine the model number, serial number (located inside the front panel of converter), and reason for return.
- Call the McCrometer Customer Service Department at 1-800-220-2279 and ask for a Return Authorization (RA) number.
- Ship the meter in the original packaging, if possible. Do not ship manuals, power cords, or other parts with your unit unless required for repair.
- Please make sure the meter is clean and free from foreign debris prior to shipping.
- Write the RA number on the outside of the shipping box. All return shipments should be insured.
- Address all shipments to:

McCrometer, Inc.
RMA #
3255 W. Stetson Avenue
Hemet, CA 92545

WARRANTY STATEMENT

McCrometer warrants that this product will be free from defects in material and workmanship for a period 12 months from the date the equipment was first installed, but in no event longer than 18 months from the date the equipment was first shipped by McCrometer. Repairs shall be warranted for 12 months or, if the repair is performed under this warranty, for the remainder of the original warranty period, whichever is less.

Buyer shall report any claimed defect in writing to McCrometer immediately upon discovery and in any event, within the warranty period. McCrometer shall, at its sole option, repair the equipment or furnish replacement equipment or parts thereof, at the original delivery point.

McCrometer shall not be liable for costs of removal, reinstallation, or gaining access. If Buyer or others repair, replace, or adjust equipment or parts without McCrometer prior written approval, McCrometer is relieved of any further obligation to Buyer under this Article with respect to such equipment.

No equipment furnished by McCrometer shall be deemed to be defective by reason of normal wear and tear, failure to resist erosive or corrosive action of any fluid or gas (unless otherwise specified in Quotations/ Purchase Order Specifications), Buyer's direct or indirect failure (or the failure of its agents or contractors) to properly store, install, operate, or maintain the equipment in accordance with good industry practices or specific recommendations of McCrometer, or Buyer's failure to provide complete and accurate information to McCrometer concerning the operational application of the equipment.

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Purchaser's sole remedy and manufacturer's sole obligation for alleged product failure, whether under warranty claim or otherwise, shall be the aforesaid obligation of manufacturer to repair or replace products returned within twenty-four months after date of original shipment. The manufacturer shall not be liable for, and the purchaser assumes and agrees to indemnify and save harmless the manufacturer in respect to, any loss or damage that may arise through the use by the purchaser of any of the manufacturer's products.

McCrometer does not authorize any person or entity (including, without limitation, McCrometer agents and employees) to make any representations (verbal or written) contrary to the terms of this limited warranty or its exclusions. Such terms of this limited warranty and its exclusions can only be effectively modified in writing and only by the President of McCrometer.

OTHER McCROMETER PRODUCTS INCLUDE:

Propeller Flow Meters



Differential Pressure Flow Meters



Magnetic Flow Meters



Connected Solutions



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