

4-20mA MODULE

**FOR USE WITH ALL QSE MAG METERS
WITH QB ELECTRONICS and QSE Q9 COMPUTER**



Please save these instructions for future reference. Read carefully before attempting to assemble, install, operate or maintain the product described.

Protect yourself and others by observing all safety information. Failure to comply with instructions could result in personal injury and/or property damage.

Please refer to back cover for information regarding this product's warranty and other important information.

DO NOT RETURN THIS PRODUCT TO THE STORE!

Please contact Great Plains Industries, Inc.® before returning any product. If you are missing parts, or experience problems with your installation, contact our Customer Support Department. We will be happy to assist you.

Call: 888-996-3837 or 316-686-7361

Email: meters@gplains.com

SAVE FOR YOUR RECORDS

Model #: _____

Serial #: _____

Purch. Date: _____

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BEFORE YOU BEGIN

Usage Requirements

- This 4-20mA module is not FM Approved. Therefore, use of this module with an approved metering system voids FM Approval.
 - This 4-20mA module requires an input power of 8-32 volts DC (24 VDC is recommended).
 - This 4-20mA module is designed for use with all QSE meters that are equipped with QB electronics and QSE Q9 computer.
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UNPACKING/INSPECTION



Inspect

- After unpacking the unit, inspect carefully for any damage that may have occurred during transit. Check for loose, missing or damaged parts. Shipping damage claims must be filed with carrier.
- See General Safety Instructions, and all Cautions, Warnings, and Dangers as shown.



SPECIFICATIONS

	4-20mA MODULE
Mechanical	
Housing material:	Nylon 6/6
Strain relief:	Hubble PG7. Grip range (Cable outside diameter) 0.11-0.26 in. (2.8-6.6 mm)
Housing port thread:	Female 1/2-20 UNF-2B (Compatible with PG7)
Cable	Belden 9363 (22 AWG-3 conductor with drain wire and shield) <i>Note: The white wire conductor and drain wire are not used in this application and have been snipped off.</i>
Cable length	10 ft. (3m), provided
Operation temperature:	Please See "QSE Series Electromagnetic Meter" Owner's Manual
Storage temperature:	-40° to +180°F (-40° to +82°C)
Power:	
Type:	Loop powered ¹
Voltage minimum:	8 VDC
Voltage maximum:	32 VDC
Isolated:	No
Primary Output (4-20mA):	
Type:	Loop
Minimum:	4 mA
Maximum:	25 mA

¹ *The QSE meter and QSE Q9 computer cannot be powered using 4-20mA loop power. They require a customer supplied power supply and power cable (QSE meter powered via QB Electronics).*

Please see "QB Electronics for QSE Electromagnetic Meter" owner's manual for power supply wiring / configuration instructions.

NOTE: *Scaled Pulse Output is provided via QB Board. Please see "QB Electronics for QSE Electromagnetic Meter" owner's manual for wiring / configuration instructions.*

SPECIFICATIONS (Continued)

Dimensions	Length (A)	Height (B)	Width (C)	Strain Relief (D)
4-20mA Module	3.45 in. (88 mm)	0.90 in. (23 mm)	2.18 in. (55 mm)	0.86 in. (22 mm)

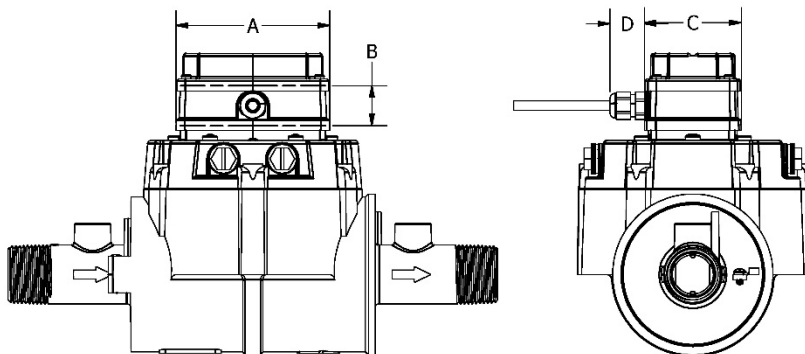


Figure 1

4-20mA Module shown installed on 1 inch QSE Meter.

NOTE: Module must always be installed with a QSE Q9 computer. Not all QSE models are compatible with the QSE Q9 computer / 4-20mA module combination. Refer to model number matrix to determine compatibility.

APPROVAL RATINGS

QSE Q9 Computer Electronics



WEEE DIRECTIVE



The Waste Electrical and Electronic Equipment (WEEE) directive (2002/96/EC) was approved by the European Parliament and the Council of the European Union in 2003. This symbol

indicates that this product contains electrical and electronic equipment that may include batteries, printed circuit boards, liquid crystal displays or other components that may be subject to local disposal regulations at your location. Please understand those regulations and dispose of this product in a responsible manner.

RoHS Compliant (2011/65/EU)

This product is in compliance with the RoHS Directive of the European Parliament and of the Council on the Restriction of the Use of Certain Hazardous Substances in Electrical and Electronic Equipment.

INSTALLATION

This manual specifically address the preparation and wiring of the QSE 4-20mA module only. Other meter and computer information and specifications are contained in their respective manuals that were received with the QSE meter.

The 4-20mA module was installed on your QSE meter and pre-wired at the factory. The module has had the zero set to the meter's minimum specified flow rate and the span has been set to the meter's maximum specified flow rate.

Refer to the QSE Q9 owner's manual for instructions on how to change the zero and span settings of your meter using the buttons on the QSE Q9 computer.

NOTE: The QSE meter and QSE Q9 computer cannot be powered using 4-20mA loop power. They require a customer supplied power supply and power cable (QSE meter powered via QB Electronics).

Please see "QB Electronics for QSE Electromagnetic Meter" owner's manual for power supply wiring / configuration instructions.

WIRING

NOTE: The ground of all QB electronics must be galvanically isolated from the 4-20mA loop ground (return). Please see "QB Electronics for QSE Electromagnetic Meter" Owner's Manual for more information.

Red Wire is the "+ 4-20 mA" Connection
Black Wire is the "- 4-20 mA" Connection

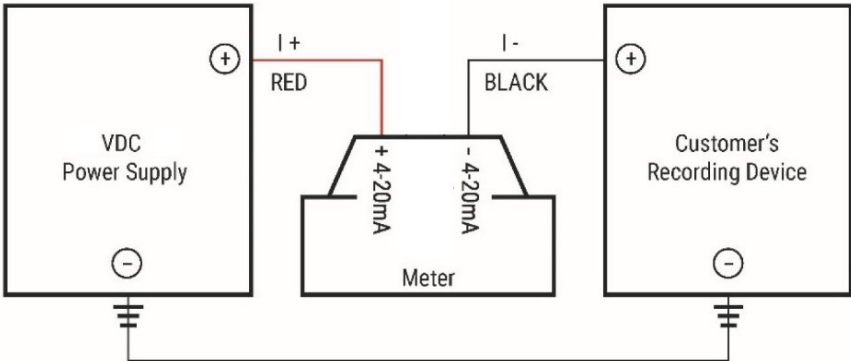


Figure 2

CABLE REPLACEMENT (4-20mA)

The 4-20mA module comes pre-wired at the factory with a 10 ft. 3-conductor cable with the white wire conductor and drain wire snipped off. Should this cable need to be replaced (longer cable, cable damage, etc.); the following instructions will assist you.

NOTE: If another 3-conductor cable is used, snip off the white wire conductor and drain wire to prevent electrical contact within the case.

If using a 2-conductor cable, it is recommended to use Belden 9501 (or equivalent): A shielded, 2-conductor of 24 AWG tinned copper, with a 24 AWG tinned copper drain wire, and PVC cable jacket with a diameter of .156 (6.0mm)

1. Loosen the (4) screws attaching the QSE Q9 computer and 4-20mA module to the cover plate. Using the screws to maintain alignment, lift the QSE Q9 computer and 4-20mA module from the meter **as a unit**, being careful of the 10-pin ribbon cable connecting the 4-20mA module to the cover plate PC board. (See Figure 6).

NOTE: If needed for ease of wiring, the right angle 10-pin ribbon cable connector can be temporarily detached from the 10-pin socket connector on the PC board inside the cover plate.

2. Disconnect the (2) wires from the 4-20mA PC board terminal block, loosen the dome nut of the strain relief and remove old cable. (See Figure 7). Reverse this procedure to install the new cable.
3. Reconnect the right angle 10-pin connector, if detached, and reinstall the QSE Q9 computer and 4-20mA module to the cover plate. Ensure 4-20mA module seal is seated and tighten the (4) screws.

NOTE: Keep track of your wire colors and their QSE connections to ensure proper routing to your process instrumentation.

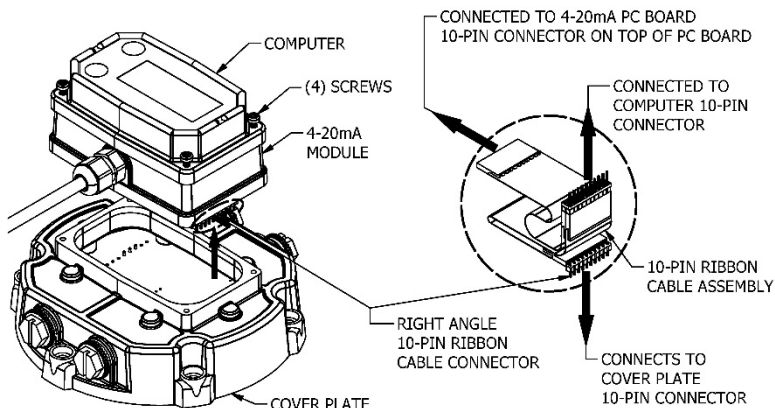


Figure 3

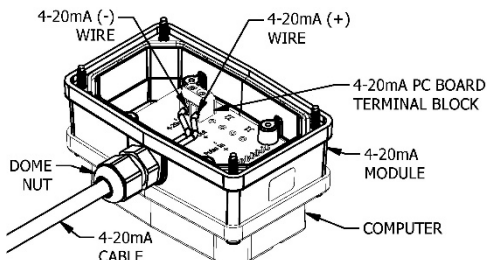


Figure 4

CALIBRATION

Adjusting ZERO and SPAN

To set or adjust ZERO and SPAN settings, refer to the QSE Q9 Owner's Manual Configuration Mode (Daughter Board Options) and Calibration Mode Section for further instructions.

NOTE: *The QSE Q9 Computer controls the 4-20mA settings. It is recommended to verify and set (if necessary) the most optimal Calibration Method of the QSE Q9 Computer (see QSE Q9 Owner's Manual referenced above) before adjusting 4-20mA settings.*

Visit flomecmeters.com to download owner's manuals and other technical documents.

TROUBLESHOOTING

Symptom	Possible Cause(s)	Corrective Action
A. No 4-20mA output signal.	<ol style="list-style-type: none"> 1. Incorrect or no input power. 2. Not wired correctly. 3. Broken connection. 4. Defective PC board connector. 5. Defective unit. 	<ol style="list-style-type: none"> 1. Supply correct power requirements. 2. Check owner's manual for correct installation. 3. Check resistance to determine location of break. 4. Contact distributor or factory for replacement 5. Contact distributor or factory for replacement.
B. Signal not between 4-20mA when fluid is flowing.	<ol style="list-style-type: none"> 1. ZERO and SPAN not set correctly on the QSE Q9 computer. 2. 4-20 mA Module output signal "ZERO" and "SPAN" does NOT match customer's recording device "ZERO" and "SPAN" settings. 3. QSE Q9 computer calibration is NOT optimized for best results. 	<ol style="list-style-type: none"> 1. Check QSE Q9 owner's manual for instructions on how to set ZERO and SPAN for meter. 2. Reconfigure 4-20mA Module output signal "ZERO" and "SPAN" to match Customer's recording device "ZERO" and "SPAN" (or vice versa). 3. Verify QSE Q9 computer value is giving correct flowrate.
C. QSE Q9 computer value not giving correct Flowrate.	<ol style="list-style-type: none"> 1. QSE Q9 computer showing velocity or volume totals instead of flowrate. 2. QSE Q9 computer calibration is not optimized for best results. 	<ol style="list-style-type: none"> 1. Press "top button" of QSE Q9 computer until flowrate is displayed (see Operation Section in QSE Q9 owner's manual). 2. If "1" above is not the Issue, See Calibration Section of this manual

PARTS LIST

Part Number	Description
901002-52	O-ring

PARTS & SERVICE

For warranty consideration, parts, or other service information, please contact your local distributor. If you need further assistance, contact the GPI Product Support Department in Wichita, Kansas, during normal business hours.

A toll free number is provided for your convenience.

1-888-996-3837

To obtain prompt, efficient service, always be prepared with the following information:

- The model number of your meter.
- The serial number or manufacturing date code of your meter.
- Part descriptions and numbers.

For warranty work, always be prepared with your original sales slip or other evidence of purchase date.

IMPORTANT: Please contact GPI before returning any parts. It may be possible to diagnose the trouble and identify needed parts in a telephone call.

⚠ CAUTION

Do not return this product without prior approval from the GPI Product Support Department. Due to strict government regulations, GPI cannot accept parts unless they have been drained and cleaned.



FLOMEC® TWO-YEAR LIMITED WARRANTY

Great Plains Industries, Inc. 5252 E. 36th Street North, Wichita, KS USA 67220-3205, hereby provides a limited warranty against defects in material and workmanship on all products manufactured by Great Plains Industries, Inc. This product includes a 2-year warranty. Manufacturer's sole obligation under the foregoing warranties will be limited to either, at Manufacturer's option, replacing or repairing defective Goods (subject to limitations hereinafter provided) or refunding the purchase price for such Goods theretofore paid by the Buyer, and Buyer's exclusive remedy for breach of any such warranties will be enforcement of such obligations of Manufacturer. The warranty shall extend to the purchaser of this product and to any person to whom such product is transferred during the warranty period.

The warranty period shall begin on the date of manufacture or on the date of purchase with an original sales receipt. This warranty shall not apply if:

- A. the product has been altered or modified outside the warrantor's duly appointed representative;
- B. the product has been subjected to neglect, misuse, abuse or damage or has been installed or operated other than in accordance with the manufacturer's operating instructions.

To make a claim against this warranty, or for technical assistance or repair, contact your FLOMEC distributor or contact FLOMEC at one of the locations below.

In North or South America contact

Great Plains Industries, Inc.
5252 East 36th St. North
Wichita, KS 67220-3205
USA

888-996-3837

www.flomecmeters.com
(North America)

Outside North or South America contact

GPI Australia
(Trimec Industries Pty. Ltd.)
12/7-11 Parraweena Road
Caringbah NSW 2229
Australia

+61 02 9540 4433

www.flomec.com.au

The company will step you through a product troubleshooting process to determine appropriate corrective actions.

GREAT PLAINS INDUSTRIES, INC., EXCLUDES LIABILITY UNDER THIS WARRANTY FOR DIRECT, INDIRECT, INCIDENTAL AND CONSEQUENTIAL DAMAGES INCURRED IN THE USE OR LOSS OF USE OF THE PRODUCT WARRANTED HEREUNDER.

The company herewith expressly disclaims any warranty of merchantability or fitness for any particular purpose other than for which it was designed.

This warranty gives you specific rights and you may also have other rights which vary from U.S. state to U.S. state.

NOTE: In compliance with MAGNUSON MOSS CONSUMER WARRANTY ACT – Part 702 (governs the resale availability of the warranty terms).

Wichita · Sydney



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