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BROOKS® INSTRUMENT

X-CM-Quantim-QS-eng
PN: 541B134AAG/E
June, 2017

Quick Start Guide

Quantim® Coriolis Mass Flow Controllers & Meters

Coriolis Mass Flow

NEMA 1 / IP40
1/4" VCR

NEMA 4X / IP66
Weather-Proof

BROOKS® INSTRUMENT

⚠WARNING

- Read all instructions prior to installing, operating and servicing this product.
- Follow all warnings, cautions and instructions marked on and supplied with this product.
- Install your equipment as specified in the installation instructions in the appropriate instruction manual and per local and national codes. Connect all products to the proper electrical and pressure sources.
- Ensure that all equipment doors are closed and protective covers are in place, except when maintenance is being performed by qualified persons, to prevent electrical shock and personal injury.
- Do not operate this instrument in excess of the specifications marked on and supplied with this product. Failure to heed this warning can result in serious personal injury and/or damage to the equipment.
- Before operating the device, ensure all electrical connections have been properly terminated.
- If it becomes necessary to remove the device from the system, power to the device must be disconnected.
- If it becomes necessary to remove the device from the system after exposure to toxic, pryophoric, flammable or corrosive gas, purge the device thoroughly with a dry inert gas such as nitrogen before disconnecting the gas connections. Failure to correctly purge the device could result in fire, explosion or death. Corrosion or contamination of the device upon exposure to air may also occur.

⚠CAUTION

- Incorrect voltage will cause flowmeter damage or failure.
- QUANTIM is an input sinking device. Do not use a current sinking PLC output card.
- QUANTIM sources its own 4-20mA output signal. Do not source this output with an external supply.

This Quick Start Guide applies to the following Brooks product(s):

- QMB NEMA 1 IP40 Meter/Controller
- QMB NEMA 4X IP66 Weather-Proof Meter/Controller
- QMB IP66XP Explosion-Proof Meter/Controller

In an effort to be more eco-friendly, Brooks is no longer supplying printed instruction manuals with the product shipments to reduce our paper consumption.

For your product's complete instruction manual, please download it at *brooksinstrument.com/documentation*

Dear Customer,

Thank you for your purchase. We appreciate this opportunity to service your flow measurement and control needs with a Brooks instrument device. Brooks' award-winning meters and controllers consistently rank at the top of their category for accuracy, reliability and user preference, as judged by the audience that matters - real users of flow instrumentation, like you.

But Brooks' products are only half of the story. You are backed by Brooks' unsurpassed local technical expertise in virtually every corner of the planet. Your local Brooks product and application specialist is truly your "partner in flow". They have been extensively trained to help you select the optimal solutions for your flow measurement or control needs and offer years of experience solving application problems just like yours.

Should you require any additional information concerning Brooks' products and services, please contact your local Brooks Sales and Service office listed on the back cover of this guide.

Sincerely,
Brooks Instrument

Step 1: Location/Orientation

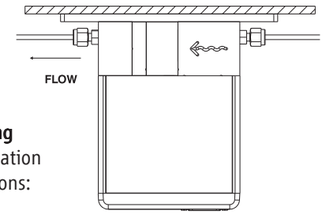
The instrument may be located anywhere in the process line, as long as the following conditions are met:

- Before operation, you must be able to stop flow through the meter. During the zeroing procedure, flow must be stopped completely, and the flow meter sensor tube must be full of process fluid to achieve an accurate zero.
- During operation, the flow sensor tube must be full of process fluid.
- Ambient temperature must remain between 0° and 65°C (32°F and 149°F).
- The instrument (cable connections, wiring compartments and/or conduit openings) should be accessible for service.

⚠CAUTION

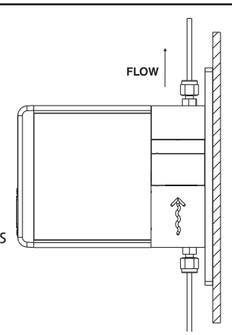
When installing the Mass Flow device, care should be taken to prevent foreign materials from entering the instrument's inlet or outlet. Internal passages are very small. It is recommended that an inlet filter be used to limit the chance of clogging. Do not remove the protective end-caps until the actual moment of installation. When used with reactive fluids (some of which may be toxic), contamination or corrosion may occur as a result of plumbing leaks or improper purging. Plumbing should be checked carefully for leaks.

1-1



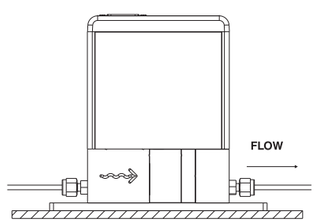
Horizontal Down Mounting
Preferred mounting orientation for most **LIQUID** applications:
- Sensor tube **DOWN**
- Horizontal pipeline

1-2



Vertical Mounting
Orientation for **LIQUID** applications where entrapped gas may occur:
- Flag mount
- Vertical pipeline

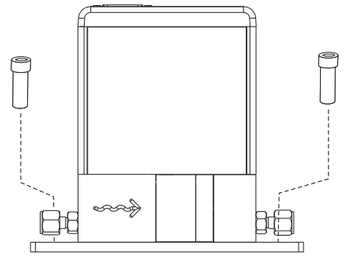
1-3



Horizontal Up Mounting
Preffered mounting for most **GAS** applications:
- Sensor tube **UP**
- Horizontal pipeline

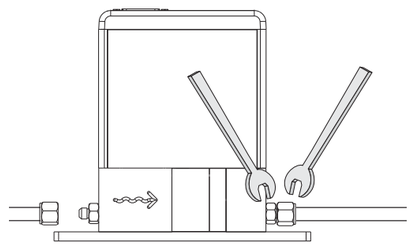
Step 2: Mounting the Quantim

2-1



Mount the device in the proper orientation and location for your process.

2-2



After mounting the device connect the process lines. Carefully tighten the process lines. Using two (2) wrenches to prevent rotation of the inlet/outlet fitting.

⚠WARNING

Any rotation of the inlet or outlet fitting during installation of a metal seal device may result in a leak. Always use two wrenches when attaching process line to prevent rotation.

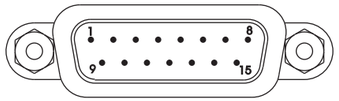
Step 3A: Electrical Connections NEMA 1 / IP40 Meter/Controller

D-Connector Functions Legends:
- • = Feature Available
- N/A = Not Available

NOTE: Chassis ground is available through the D-Connector back shell.

3-A1

D-Connector for QmB NEMA 1 / IP40
Pin Out Connections

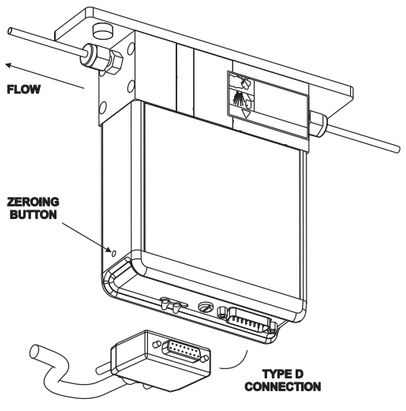


D-CONNECTOR PINOUTS

PIN #	FUNCTION	Controller	Meter
1	Setpoint Common	•	N/A
2	* 0-5 Vdc Flow Signal Output	•	•
3	Alarm Output		
4	* 4-20 mA Flow Signal Output	•	•
5	+14 Vdc to 27 Vdc Power Supply	•	•
6	Not Used		
7	*4-20 mA Setpoint Input (+)	•	N/A
8	0-5 Vdc Setpoint Input (+)	•	N/A
9	Power Supply Common	•	•
10	Signal Output Common	•	•
11	+5 Volt Reference Output		
12	Valve Override Input	•	N/A
13	* 4-20 mA or 0-5 Vdc Density or Temp.	•	•
14	Not Used		
15	Not Used		

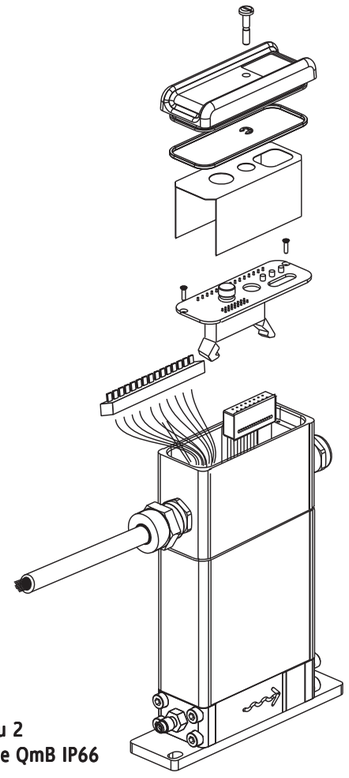
* DO NOT APPLY POWER TO THESE PINS

3-A2



Step 3B: Electrical Connections NEMA 4X / IP66 Weather-Proof Meter/Controller

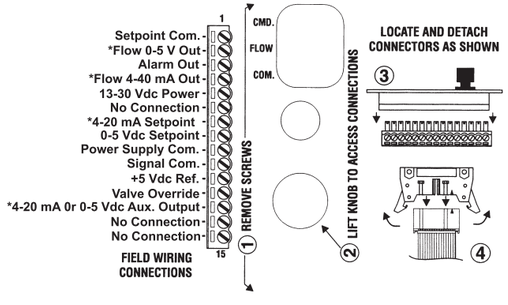
3-B1



Note:
Follow Steps 1 thru 2 for Mounting of the QmB IP66

Terminal Block Pin Out Connections
for QmB NEMA 4X / IP66

3-B2

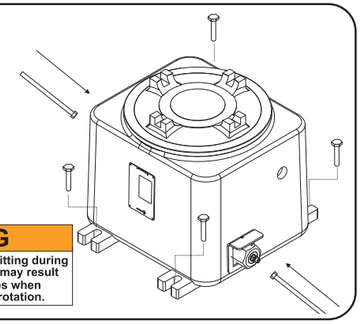


*DO NOT APPLY POWER TO THESE PINS

Step 3C: Mounting and Electrical Connections IP66XP Explosion-Proof Meter/Controller

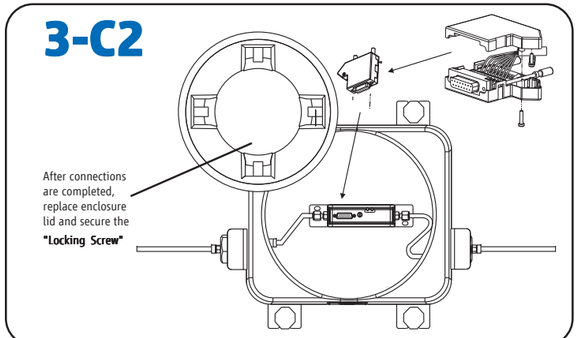
⚠ WARNING
Lifting hazard. Single person lift could cause injury. Use assistance when moving or lifting.

3-C1



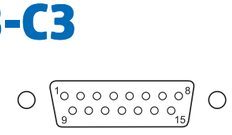
⚠WARNING
Any rotation of the inlet or outlet fitting during installation of a metal seal device may result in a leak. Always use two wrenches when attaching process line to prevent rotation.

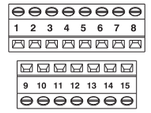
3-C2



Pin Out Connections
for QmB IP66XP Explosion Proof

3-C3





IP66 XP Terminal Block

PIN #	FUNCTION	Controller	Meter
1	Setpoint Common	•	N/A
2	* 0-5 Vdc Flow Signal Output	•	•
3	Alarm Output		
4	* 4-20 mA Flow Signal Output	•	•
5	+14 Vdc to 27 Vdc Power Supply	•	•
6	Not Used		
7	*4-20 mA Setpoint Input (+)	•	N/A
8	0-5 Vdc Setpoint Input (+)	•	N/A
9	Power Supply Common	•	•
10	Signal Output Common	•	•
11	+5 Volt Reference Output		
12	Valve Override Input	•	N/A
13	* 4-20 mA or 0-5 Vdc Density or Temp.	•	•
14	Not Used		
15	Not Used		

* DO NOT APPLY POWER TO THESE PINS

Step 4: Zeroing Procedure

To assure measurement accuracy, the instrument must be zeroed to the operational installation conditions:

- Apply power to instrument for approximately 45 minutes to reach a stable thermal condition prior to applying flow.
- Flow the process fluid into the instrument and allow sufficient time for the sensor to reach normal operating temperature.
- Close the shutoff valve downstream to eliminate any pressure differential across the instrument.
- After confirming a NO flow condition, press the zeroing button for at least 3 seconds
  - Zeroing button is located on the outlet side of the instrument's housing.
- The zeroing process takes approximately 30 seconds. Status light will flash red.
- A solid Green LED means a successful zero.
- A solid Red LED means an unsuccessful zero.
  Note: If a solid Red LED is indicated, recycle power and repeat zeroing proceedure or contact the Technical Services at Brooks Instrument.

Note: The top cover must be removed to gain access to the LEDs in the NEMA 4X / IP66 and the Explosion Proof IP66XP package options.

For information on the proper wiring for HART communication refer to the X-CM-QmB-eng instruction manual.

Step 5: Operation

After the flowmeter or flow controller has been installed in the system it is ready for operation.

Meter: The meter will provide a flow signal proportional to the full scale flow of the device as indicated on the device label.

Controller: You must provide a setpoint/command signal to the controller. The controller will read the setpoint signal and will automatically adjust the valve to the appropriate position to acheive the desired flow and will provide a flow signal proportional to the full scale flow of the device as indicated on the device label.

Equipment Receipt and Return Procedures

Receipt of Equipment

When the equipment is received, the outside packing case should be checked for damage incurred during shipment. If the packing case is damaged, the local carrier should be notified at once regarding his liability. A report should be submitted to the nearest Brooks Instrument location listed on the Global Service Network page on our website: *brooksinstrument.com/service-support*

Remove the envelope containing the packing list. Carefully remove the instrument from the packing case. Make sure spare parts are not discarded with the packing materials. Inspect for damaged or missing parts.

Return Shipment

Prior to returning any instrument to the factory for any reason, visit our website for instructions on how to obtain a Return Materials Authorization Number (RMA #) and complete a Decontamination Statement to accompany it: *brooksinstrument.com/service-support* All instruments returned to Brooks also require a Material Safety Data Sheet (MSDS) for the fluid(s) used in the instrument. Failure to provide this information will delay processing of the instrument.

Instrument must have been purged in accordance with the following:

⚠ WARNING
Before returning the device, purge thoroughly with a dry inert gas such as Nitrogen before disconnecting process connections. Failure to correctly purge the instrument could result in fire, explosion or death. Corrosion or contamination may occur upon exposure to air.