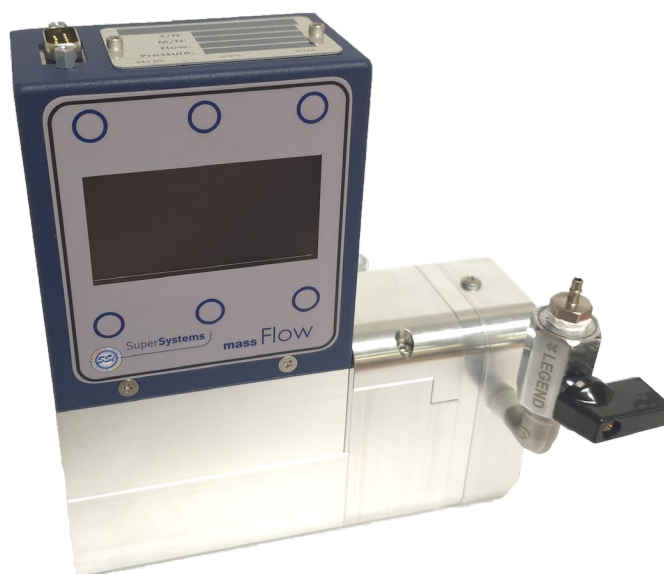




SuperSystems
incorporated

Mass Flow Meter



OPERATIONS MANUAL

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Safety Information

Observe the following safety requirements when configuring, operating, servicing, or maintaining the Mass Flow instrumentation. If the device is used in a manner not specified in this manual, protection provided by the equipment may be impaired.

WARNING!

The Mass Flow instrument is NOT guaranteed to provide media shutoff, nor is it designed to do so. For reliable media shutoff, incorporate a valve that provides positive media shutoff. Ensure that all media flow equipment is in compliance with National Fire Protection Agency (NFPA) requirements, including those found in NFPA 86. Failure to follow these requirements could result in flammable media leaks into the unit.

Ensure that the air and gas/liquid mixture ratio settings are within the specifications provided in this manual. Exceeding specified values could result in hazardous conditions.

Specifications

The specifications for the eFlo instrument are as follows.

Weight (Including Electronics Housing)	5.4 lb (2.5 kg)
Power Required	24 VDC @ 1 A
Accuracy	4%
Repeatability	2%
Turndown Ratio	6:1
Medium Temperature Limits	32°F to 120°F (0°C to 49°C)
Ambient Temperature Limits	32°F to 120°F (0°C to 49°C)
Maximum Altitude	N/A
Flow Output Signal (Linear)	4-20 mA
Maximum Output Signal Load	750Ω
Input Control Signal (Linear)	4-20 mA
Communications	RS485
Communication Protocol	Modbus RTU
Pressure Drop @ 100% Capacity	1 psi – standard liquid & gas <i>(5 psi optional when required)</i>
Flow Meter Pressure Limits <i>The pressure will be calibrated to user-specified requirements.</i> <i>See the Calibration Report included with your product for more details.</i>	5 psig gas & liquid – minimum allowable 50 psig gas – maximum allowable

Mass Flow Specifications

Installation Procedure

Installing the Mass Flow unit consists of a mechanical installation and an electrical installation. The mechanical installation includes mounting as well as inlet and outlet piping. The Mass Flow unit will be assembled prior to shipment. Before beginning installation:

- Ensure that all fittings and connections are tightly secured prior to beginning installation.
- Ensure that all expected components are present. Contact SSi at (513) 772-0060 if you have questions.

Mechanical Installation

Clearance

When installing the device, leave enough room on either side (3" is recommended) to allow users to adjust, remove, and replace the existing fittings. Also ensure that the device is installed in a location that allows for easy access to the power connection.

Mounting

Proper mounting is essential for the successful operation of the Mass Flow instrument. The main body of the Mass Flow contains four (4) threaded holes for mounting to a panel. The holes are 1/4"-20 threaded and approximately 3/8" deep positioned in a row (see dimensional drawings in [Appendix 1](#)). The Mass Flow assembly can also be supported by inlet & outlet piping without using the mounting holes if desired. However, ensure that the pipe is rigid enough to support the weight of the meter assembly if mounting in this manner.

The direction of flow through the meter is critical since the pressure transducer has a high pressure and low pressure side specifically required. The meter is designed for flow as indicated in [Appendix 1](#).

SSi recommends mounting the Mass Flow vertically with the media flow direction upwards. If another orientation is required, please contact SSi prior to mounting.

Plumbing

The media inlet and outlet openings have 1/2" NPT connections. The locations of these connections are shown in [Appendix 1](#). Use of bushings or reducers at these connections is acceptable as long as the smallest pipe diameter is not smaller than the installed orifice plate. See certification for that meter to determine actual orifice diameter. Contact SSi at (513) 772-0060 for questions about pipe sizing.

Thread Sealants:

Teflon or natural gas-rated pipe tape or pipe dope is acceptable for non-corrosive gases. For corrosive gases, pipe tape is not recommended, unless the manufacturer specifies that it is rated for the gas being flowed through the meter.

NOTE: When installing the device, ensure that excessive tape or dope does not fall into the meter, as this can damage sensors, plug sensor lines, prevent flow through the meter, and prevent the device from functioning properly.

Connection Tightness:

After thread sealant is applied, tighten all connections by hand (3.5-6 turns, depending on pipe size), then use the following Turn Past Finger Tightness guide to complete the tightening process:

NPT Fitting Size	TPFT (Turns Past Finger Tightness)
1/8"	1.5-2.5
1/4"	1.5-2.5
3/8"	1.5-2.5
1/2"	1.5-2.5
3/4"	1.5-2.5
1"	1-2.5
1 1/4"	1-2.5
1 1/2"	1-2.5
2"	1-2.5

TPFT Guide

NOTE: Never loosen a fitting for correct alignment. Doing so will prevent the thread from maintaining a proper seal.

CAUTION: Do not overtighten the connection. Overtightening can damage threads, pipes, fittings, and the Mass Flow device.

Leak Checking

Before operation, all plumbed components should be leak checked. To avoid damage to sensors and other components, check with SSi for the maximum pressure for the sensor in your Mass Flow device.

IMPORTANT!

Ensure that the inlet pressure is within specified parameters for your Mass Flow unit.

Mass Flow Meter Operations Manual

Electrical Installation

The Mass Flow meter requires a 9-pin D-Sub connector and cable for power and communications. The Mass Flow is supplied with a 20 ft cable. The wires are color-coded per the table below. Contact SSi for a longer cable is required.

9-Pin D-Sub Pin Number	Wire-In Color	Signal Type	Description
1	Red	+ VDC	Power Supply (24 VDC @ 1 A)
2	Black	- VDC	
3	Green	+ mA	Analog Out - Output Flow Signal (4 - 20 mA)
4	White	- mA	
5	Orange	+ mA	Analog In - Input Setpoint Signal (4 - 20 mA)
6	Blue	- mA	
7	Brown	+ RS485	Communications Signal Provided by Modbus Over Serial
8	Yellow	- RS485	
9	Purple	N/C	N/A

[Electrical Connections](#)

Warranty

Limited Warranty for Super Systems Products:

The Limited Warranty applies to new Super Systems Inc. (SSI) products purchased direct from SSI or from an authorized SSI dealer by the original purchaser for normal use. SSI warrants that a covered product is free from defects in materials and workmanship, with the exceptions stated below.

The limited warranty does not cover damage resulting from commercial use, misuse, accident, modification or alteration to hardware or software, tampering, unsuitable physical or operating environment beyond product specifications, improper maintenance, or failure caused by a product for which SSI is not responsible. There is no warranty of uninterrupted or error-free operation. There is no warranty for loss of data—you must regularly back up the data stored on your product to a separate storage product. There is no warranty for product with removed or altered identification labels. SSI DOES NOT PROVIDE ANY OTHER WARRANTIES OF ANY KIND, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OR CONDITIONS OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE. SOME JURISDICTIONS DO NOT ALLOW THE LIMITATION OF IMPLIED WARRANTIES, SO THIS LIMITATION MAY NOT APPLY TO YOU. SSI is not responsible for returning to you product which is not covered by this limited warranty.

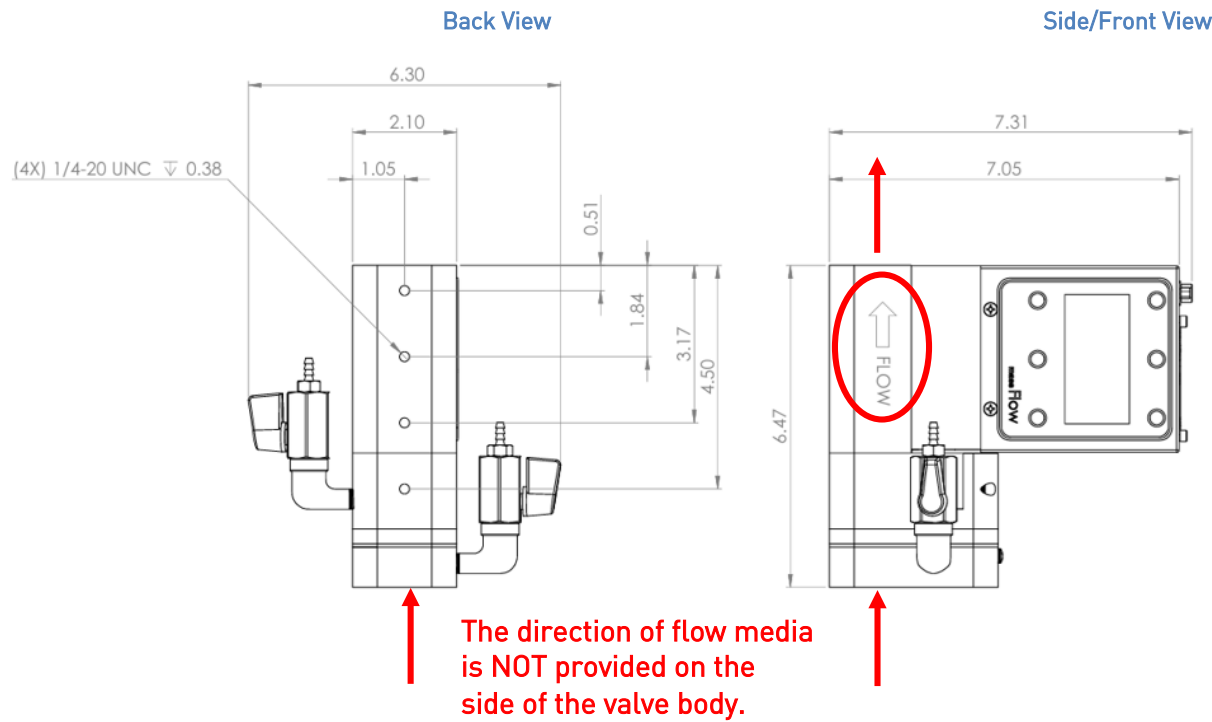
If you are having trouble with a product, before seeking limited warranty service, first follow the troubleshooting procedures that SSI or your authorized SSI dealer provides.

SSI will replace the PRODUCT with a functionally equivalent replacement product, transportation prepaid after PRODUCT has been returned to SSI for testing and evaluation. SSI may replace your product with a product that was previously used, repaired and tested to meet SSI specifications. You receive title to the replaced product at delivery to carrier at SSI shipping point. You are responsible for importation of the replaced product, if applicable. SSI will not return the original product to you; therefore, you are responsible for moving data to another media before returning to SSI, if applicable. Data Recovery is not covered under this warranty and is not part of the warranty returns process. SSI warrants that the replaced products are covered for the remainder of the original product warranty or 90 days, whichever is greater.

Revision History

Rev.	Description	Date	MCO #
-	First Release	9/1/2026	2383

Appendix 1: Overall Dimensions of Assembled Meter



End View

