

PRELIMINARY

- ✓ Advanced sensing technology to measure as low as 0.05 mL/minute
- ✓ Stainless steel wetted parts for chemical compatibility
- ✓ Priced for OEM-type installations

DESCRIPTION

The Model M109 Micro Flo-Sensor will precisely measure flow rates of virtually any fluid, as low as 0.05 mL/minute or as high as 10 mL/minute. Repeatable results are achieved by utilizing a patented* thermal mass flow sensor, designed for use with liquid applications. This proven design provides reliable results for extremely low flow rates.

Stainless steel tube fittings provide easy connection and connect to all stainless steel wetted parts. This allows the M109 to be used with most fluids, including acids, solvents, and other corrosive chemicals. A pressure rating of 100 psig maximum allows for installation in higher-pressure systems.

The superior design of the thermal mass sensors and electronic technology used in the Model M109 results in its compact size. The footprint of the unit measures only 4.75" x 2.05" (without fittings), allowing the unit to be integrated into many existing OEM systems.

This advanced Micro Flo-Sensor is capable of measuring changes in flow as small as ± 0.005 mL/minute. It features very quick response times for real-time flow measurement..

COMMON APPLICATIONS

Chemical blend, dilution, and spike monitoring and feedback
Realtime flow rate input to HPLC systems or other liquid analyzers
Pharmaceutical manufacturing, quality control

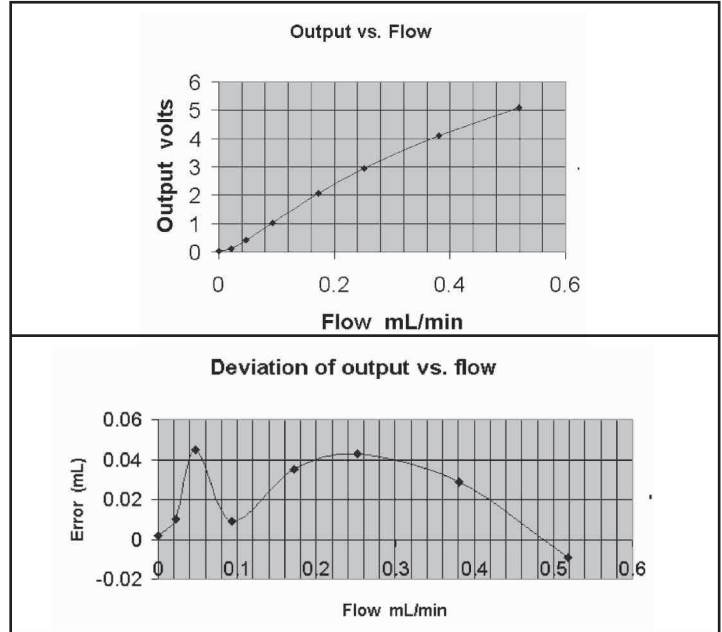
FLOW RANGES

M109-0050.05 to 0.50 mL/minute
 M109-0500.50 to 5.00 mL/minute
 M109-1001.00 to 10.00 mL/minute
 All units feature 1/8" stainless steel tube fitting connections.

OUTPUTS

VDC5.....0-5 VDC
 VDC10.....0-10 VDC
 MA.....4-20 mA
 Outputs should be added as suffix (i.e. M109-100-VDC10)

Sample output curves of an M109-005-VDC5 shown in graphs on right.



PRELIMINARY SPECIFICATIONS

WETTED MATERIALS:

304 Stainless Steel thinwall Hypo tubing sensor and flow path
 316 Stainless Steel 1/8" compression tube fittings

NON-WETTED MATERIALS:

Aluminum block, ABS plastic housing

FLOW MEASUREMENT ACCURACY, INCLUDING LINEARITY:

±0.05 mL/minute
 Calibrated using water

REPEATABILITY:

±0.02 mL/minute

RESPONSE:

5 seconds (time to travel between 0-90% flow with flow changes from 0-100% of rated flow)
 Minimum detectable flow change: ±0.005 mL/minute

PRESSURE RATING:

100 psig maximum working pressure.

TEMPERATURE RATINGS & SENSITIVITY:

10 to 50 degrees C operating temperatures
 ±0.1% per degree C temperature sensitivity (data obtained over an 8 degree C shift)

POWER REQUIREMENTS:

10-30 VDC. Power can be supplied to the flow sensor from system power through the cable or independently from a modular power adapter.
 Current required: 2.5W at full flow for M109-050, 6.0W at full flow for the M109-100.

SIGNAL CONFIGURATIONS:

Factory selectable analog output: 0-5 VDC, 0-10 VDC, or 4-20 mA

ELECTRICAL CONNECTIONS:

DB9 male 9-pin connector terminating a 5 foot cable.
 Alternate power connector: 5.5mm x 2.5 mm co-ax power jack (specify suffix "JCK")

OPTIONS:

- 1) Power adapter: 12 VDC @ 500 mA (P/N 80-PS-08 for USA, 80-PS-18 for Europe)
- 2) Model 250 Multi-function Display: Can be used to expand range and linearize output of M109. Optional output cards for alarm and analog outputs.
- 3) Enclosure: Enclosure houses flow sensor, Model 250 Display, and internal power supply for M109. Enclosure is desk or wall mount with DB9 (P/N M109-EDB9), watertight connectors (P/N M109-EWT), or conduit connection capable (P/N M109-ECDT). M109-EWT enclosure is rated IP65.

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