Flow Meters

Curious about your actual flow rates?
Determine your true rates with a flow meter!

A New Age of Flow Meters

CorSolutions offers a stand-alone flow meter that can be placed in-line at any desired point, to accurately determine flow rates. This is a truly essential item for microfluidic experiments. Simply put this independent flow meter in-line with existing fluid delivery devices for accurate low flow monitoring.

This flow meter can be calibrated to measure flow rates of a wide range of liquids. The meter can hold up to four different calibrations at a time, and in addition, previously saved calibrations can be quickly downloaded to the meter. Meters come with a water calibration and can also be factory calibrated for a variety of common liquids. Alternatively, users can calibrate the flow meter for the desired liquid.

Connections to the flow meters are made using a variety of connectors and adapters, allowing meters to be used with capillary, 1/32-inch, 1/16-inch, 1/8-inch and metric tubing. Additionally barbed fittings are available for use with soft tubing. The flow meter can be placed at any location on a fluidic workstation or as a stand-alone unit, and it comes in four models to accommodate various flow rates.

Flow Meter Advantages
- Flow meter can save 4 calibrations for different liquids
- Meter comes with water calibration
- Factory calibration for common fluids is offered
- Users can also calibrate the meter themselves

Models Offered
- Nano ± 20-7000 nL/min
- Micro ± 0.1-50 microL/min
- Milli ± 30-1000 microL/min
- Milli+Five ± 0.2-5.0 mL/min

The flow meters operate accurately in the flow rate ranges provided. It is possible for a flow meter to operate outside its range with decreased accuracy. Flow meters can operate in both positive and negative directions.
Specifications for Flow Meters

<table>
<thead>
<tr>
<th></th>
<th>Nano</th>
<th>Micro</th>
<th>Milli</th>
<th>Milli +5</th>
</tr>
</thead>
<tbody>
<tr>
<td>Flow Rate Range</td>
<td>± 0 – 7000 nL/min</td>
<td>± 0 – 50 µL/min</td>
<td>± 0 – 1100 µL/min</td>
<td>± 0 – 5.0 mL/min</td>
</tr>
<tr>
<td>Standard Calibrated Flow Rate Range</td>
<td>± 20 – 7000 nL/min</td>
<td>± 0.1 – 50 µL/min</td>
<td>± 10 – 1000 µL/min</td>
<td>± 0.2 – 5.0 mL/min</td>
</tr>
<tr>
<td>Accuracy below full scale (% of full scale)</td>
<td>0.3%</td>
<td>0.15%</td>
<td>0.2%</td>
<td>0.2%</td>
</tr>
<tr>
<td>Repeatability below full scale (% of full scale)</td>
<td>0.05%</td>
<td>0.01%</td>
<td>0.02%</td>
<td>0.02%</td>
</tr>
<tr>
<td>Flow Detection Response Time</td>
<td>40 msec</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Operating Pressure</td>
<td>200 bar</td>
<td>100 bar</td>
<td>15 bar</td>
<td>15 bar</td>
</tr>
<tr>
<td>Operating Temperature</td>
<td>10 to 50°C</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Fluid Connector Type</td>
<td>UNF Taper 6-40</td>
<td></td>
<td>UNF ¼-28 Flat Bottom</td>
<td></td>
</tr>
<tr>
<td>Flow Sensor Materials</td>
<td>Quartz Glass, PEEK™, Teflon®, Tefzel®</td>
<td>Borosilicate Glass, PEEK™, Teflon®, Tefzel®</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Flow Sensor Inner Diameter</td>
<td>150 µm</td>
<td>430 µm</td>
<td>1.0 mm</td>
<td>1.8 mm</td>
</tr>
<tr>
<td>Flow Sensor Internal Volume</td>
<td>1.5 µL</td>
<td>5.1 µL</td>
<td>&lt; 30 µL</td>
<td>&lt; 90 µL</td>
</tr>
</tbody>
</table>

How the Flow Meter Works

**Integrated Components**
- Flow sensor
- Data smoothing
- Display screen and control buttons
- On-board microprocessor

**Communication**
- Links to data logging PC software or LabVIEW via USB cable
- No computer is required when operated in standalone mode
- Analog output and alarms
- Optional RS-232

**Control**
- Control from front display screen and buttons
- User-defined signal smoothing feature

**Data Logging**
- Digital output to data logging PC software or LabVIEW
- Ability to select the data logging rate

**Benefits**
- In-line, real-time flow rate measurement
- Real-time data logging via USB cable
- Fully adjustable data smoothing
- Compatible with a wide variety of tubing sizes ranging from 1/8-inch to 360 micron capillary
- Can save multiple calibrations for different liquids onboard
- Arrives calibrated for aqueous solutions
- Factory calibration for common fluids is available upon request
- User can calibrate meter

A screen capture of the flow meter software is shown.