





# MITOS SENSOR UNITS USER INSTRUCTIONS



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## Mitos Sensor Unit product range

| Product name  | Product picture   | Product description   |
|---|---|---|
| <p>Mitos Sensor Display<br/>(Part No. 3200095)</p>        |    | <p>The Mitos Sensor Display interfaces with separate flow and pressure sensors to provide a visual and USB output. It is designed to interface with the Mitos P-Pump for flow rate measurement and logging.</p> |
| <p>Mitos Flow Rate Sensors<br/>(Part No. 3200095-100)</p> |   | <p>The Mitos Flow Rate Sensors provide a range of flow rates which can be measured using the Sensor Display. They are interchangeable with the Mitos Sensor Display with a push-click action.</p>               |
| <p>Mitos Pressure Sensor<br/>(Part No. 3200119)</p>       |  | <p>The Mitos Pressure Sensor is an in-line sensor which can be used with the Mitos Sensor Display to give a real-time reading of the pressure.</p>  |

## 1. Important Information



### Overpressure Warning

Do not connect over the maximum pressure of the flow sensor being used. This may result in irreparable damage to the sensor. The table above includes the maximum pressure of each sensor, note that each sensor has a different maximum.



### Over-tightening Warning

Mitos Flow Sensors are highly sensitive measurement devices for ultra low flow rates. To assure precise and drift-free flow measurements mechanical stress needs to be avoided. For this reason, only tighten fittings by hand to assure precise flow measurement.

## 2. System Set-up

### 2.1 Introduction

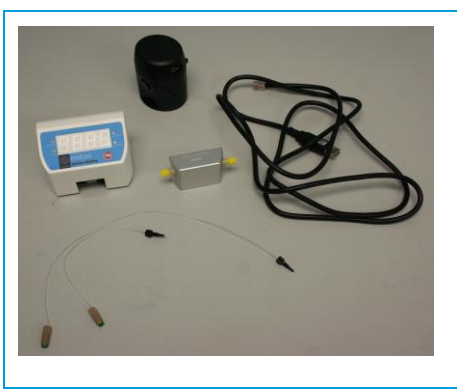




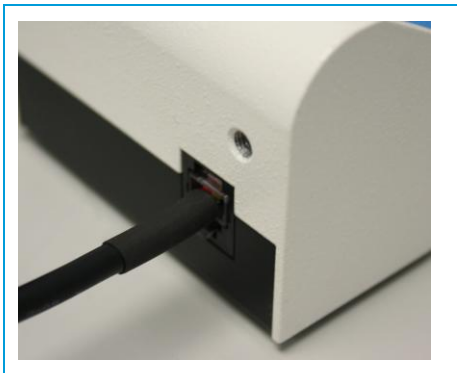
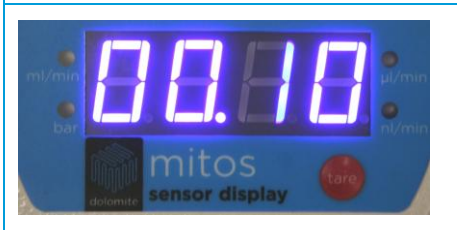




The Mitos Sensor Display connected to a Mitos Flow Rate Sensor is designed to sit on top of the Mitos P-Pump or as a standalone device. By connecting the Mitos Sensor Display USB lead to the Mitos P-Pump, the Mitos Sensor Display is powered and the Mitos P-Pump records the flow rates.

## 2.2 Flow Rate Sensor specifications:

|   | Specification                             | 3200096                  | 3200097           | 3200098    | 3200099     | 3200100           |
|---|---|--------------------------|-------------------|------------|-------------|-------------------|
| 1 | Flow rate range<br>(calibrated for water) | 0.2-5<br>ml/min          | 30-1000<br>µl/min | 1-50µl/min | 0.4-7µl/min | 70-1500<br>nl/min |
| 2 | Flow rate accuracy                        | 5%                       |                   |            | 10%         |                   |
| 3 | Response time                             | 30ms                     |                   |            |             |                   |
| 4 | Maximum pressure                          | 3bar                     | 5bar              | 100bar     | 200bar      |                   |
| 5 | Inner diameters                           | 1800µm                   | 1000µm            | 480µm      | 150µm       | 25µm              |
| 6 | Maximum pressure drop                     | 1mbar                    | 2mbar             | 5 mbar     | 5mbar       | 1.5bar            |
| 7 | Total internal volume                     | <90µl                    | <30µl             | 6.5µl      | 1.5µl       | 1.0µl             |
| 8 | Overall size                              | L 75mm x W 82mm x H 60mm |                   |            |             |                   |
| 9 | Wetted materials                          | PEEK, Glass and PTFE     |                   |            |             |                   |

## 2.3 Setting up the Sensor Units

|   |  |
|---|--|
|   | <p>Check that you have the following components:</p> <ul style="list-style-type: none"> <li>• Mitos Flow Rate or Pressure Sensor</li> <li>• Any fittings included with the Mitos Flow Sensor (for Part Nos. 3200098, 3200099 and 3200100)</li> <li>• Mitos Sensor Display Unit</li> <li>• USB lead</li> <li>• Mains USB power converter or Mitos P-Pump</li> </ul> |
|  | <p><b>Step 1:</b></p> <p>Screw fittings into the Mitos Flow Rate Sensor, making sure they are pumping fluid in the direction displayed on the Mitos Sensor Display.</p> <p>Any fittings should only be tightened by hand; any excessive torque may damage the sensors.</p>   |
|  | <p><b>Step 2:</b></p> <p>Connect Mitos Flow Rate Sensor to Mitos Sensor Display, making sure that the latch has clicked closed.</p>  |

|   |  |
|---|--|
|    | <p><b>Step 3:</b></p> <p>Connect the cable to the back of the MitoS Sensor Unit, then connect the other end to the MitoS P-Pump USB port or mains power converter.</p> |
|    | <p><b>Step 4:</b></p> <p>The MitoS Sensor Units will briefly display the software version before the flow rate appears.</p>  |
|    | <p><b>Step 5:</b></p> <p>The flow rate units or pressure units will be indicated by the blue LED lights, e.g. ml/min.</p>  |
|   | <p><b>Step 6:</b></p> <p>Prime the system by pumping fluid through the flow sensor then stop the flow.</p>   |
|  | <p><b>Step 7:</b></p> <p>After leaving the flow stationary for 1 minute, press the Tare button to zero the MitoS Sensor Display.</p>                                   |
|  | <p><b>Step 8:</b></p> <p>The MitoS Sensor Unit is now ready to use.</p>  |



### 3. Collecting data from Mitos P-Pump

When the USB cable is connected to a Mitos P-Pump for power, the Mitos Sensor Unit will transfer flow rate data to the Mitos P-Pump. This will be stored in a log file within the Mitos P-Pump with the pressure control data, which can be downloaded onto a USB key. See the Mitos P-Pump user guide for information.



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