PTV Process Turbidimeters: A User Inspired System

Turbidity is the key measurement parameter for determining drinking water quality.

To develop this instrument, Lovibond® Tintometer® assembled a team of globally recognized turbidity experts. We tasked them with creating a new process instrument that addresses all of the issues customers struggle with while using their current turbidity systems. These advancements, along with the addition of state-of-the-art communications and user interface make the PTV 1000 and PTV 2000 the next generation of process turbidimeters.

Rethink the Controller

We’ve replaced the need for a traditional controller with the familiar interface of a smart device. By utilizing a mobile device app, the user experience is enhanced by allowing quick and easy data viewing, calculation of statistics and access to operator instructions and useful tips.

The app is designed to control any aspect of process turbidity measurement. A maximum of three ‘clicks’ on your mobile device will take you where you need to be! The app can be utilized with a Bluetooth® connection, or can be utilized with a direct USB connection.

The sensors also have a local touch screen display that allows users to set basic testing parameters and perform basic operations.

Low Maintenance

- Stable Light Source
- Easy to Clean
- Rapid Fluidics Connections

Innovative Design

- Low Volume Flow Body
- Simple Installation
- Optimized for Low Level Turbidity
- Integrated Bubble Trap
- Local Display
- Optimized for Grab Samples
- Integrated Flow Indication
- Small Footprint

Smart Interface

- Intuitive Mobile App
- Single Device Communicates with Multiple Sensors
- Bluetooth® or Direct Connect
- Superior Data Management

www.lovibond.com
Process Simplified - A New Approach

The development of the PTV 1000 and PTV 2000 considered every aspect of process turbidity workflow - from installation and setup; daily measurement and control; routine procedures such as calibration, verification and maintenance; to data collection and management.

We have created a secure system with significantly reduced complexity, allowing users to interact with an unlimited number of turbidimeters using a single mobile device App. This approach eliminates the requirement of dedicated controllers for each instrument and allows maximum flexibility as your needs and regulatory requirements change in the future.

Readings and alarms are communicated on the instrument display, the mobile device and the SCADA system - wherever you are, whenever you need it.

The instrument can easily be configured with additional features such as integrated flow indication, digital communication protocols and Bluetooth® connectivity.

Technical Specifications

<table>
<thead>
<tr>
<th>Specification</th>
<th>PTV 1000</th>
<th>PTV 2000</th>
</tr>
</thead>
<tbody>
<tr>
<td>Measurement Range</td>
<td>0.0001 to 100 NTU</td>
<td>0.0001 to 100 NTU</td>
</tr>
<tr>
<td>Accuracy</td>
<td>± 2% of reading from 0 to 10 NTU</td>
<td>± 2% of reading from 0 to 10 NTU</td>
</tr>
<tr>
<td>Stray Light</td>
<td>PTV 1000 IR (ISO): &lt; 0.005 / 5 mNTU</td>
<td>PTV 1000 IR (ISO): &lt; 0.005 / 5 mNTU</td>
</tr>
<tr>
<td>Limit of Detection</td>
<td>PTV 1000: &lt;0.0005 NTU</td>
<td>PTV 1000: &lt;0.0005 NTU</td>
</tr>
<tr>
<td>Limit of Quantitation</td>
<td>PTV 1000: Better than 0.005 NTU</td>
<td>PTV 1000: Better than 0.001 NTU</td>
</tr>
<tr>
<td>Displayed Resolution</td>
<td>up to 0.0001 NTU (range dependent)</td>
<td>up to 0.0001 NTU (range dependent)</td>
</tr>
<tr>
<td>Repeatability / Precision</td>
<td>Better than 1% at 1 NTU</td>
<td>Better than 1% at 1 NTU</td>
</tr>
<tr>
<td>Initial Response</td>
<td>10% Change: 15 seconds @ max flow</td>
<td>10% Change: 15 seconds @ max flow</td>
</tr>
<tr>
<td>Step Response</td>
<td>T-90</td>
<td>T-90</td>
</tr>
<tr>
<td>Signal Averaging</td>
<td>User Selectable: 1, 3, 6, 10, 30, 60, and 90 Seconds Defaulted to 30 Seconds</td>
<td>User Selectable: 1, 3, 6, 10, 30, 60, and 90 Seconds Defaulted to 30 Seconds</td>
</tr>
<tr>
<td>Sample Temperature</td>
<td>0 to 50°C (32 to 122°F)</td>
<td>0 to 50°C (32 to 122°F)</td>
</tr>
<tr>
<td>Sample Flow</td>
<td>30 to 500 ml/minute</td>
<td>30 to 500 ml/minute</td>
</tr>
<tr>
<td>Operating Pressure</td>
<td>Atmosphere</td>
<td>110-120 kPa (8.6-9.2 bar)</td>
</tr>
<tr>
<td>Ambient / Operating Temperature Range</td>
<td>5 to 50°C (41 to 122°F)</td>
<td>5 to 50°C (41 to 122°F)</td>
</tr>
<tr>
<td>Ambient / Operating Humidity Range</td>
<td>5 to 95% (Non-condensing)</td>
<td>5 to 95% (Non-condensing)</td>
</tr>
<tr>
<td>Storage and Shipping Temperature</td>
<td>-40 to 60°C (-40 to 140°F)</td>
<td>-40 to 60°C (-40 to 140°F)</td>
</tr>
<tr>
<td>Power Requirements</td>
<td>90 to 264 VAC, 50/60 Hz. Auto Select</td>
<td>90 to 264 VAC, 50/60 Hz. Auto Select</td>
</tr>
<tr>
<td>Sample Inlet Connection</td>
<td>¼-inch NPT female, ¼-inch compression fitting tubing (Included)</td>
<td>¼-inch NPT female, ¼-inch compression fitting tubing (Included)</td>
</tr>
<tr>
<td>Sample Outlet (drain) Connection</td>
<td>¼-inch NPT female, ¼-inch hose barb tubing (Included)</td>
<td>¼-inch NPT female, ¼-inch hose barb tubing (Included)</td>
</tr>
<tr>
<td>Sample Inlet Tubing</td>
<td>¼-inch OD or 6 mm OD</td>
<td>¼-inch OD or 9 mm OD</td>
</tr>
<tr>
<td>Sample Outlet Tubing</td>
<td>¼-inch OD or 9 mm OD</td>
<td>¼-inch OD or 9 mm OD</td>
</tr>
<tr>
<td>Turbidimeter Body Drain</td>
<td>Quick connect with integrated check valve</td>
<td>Quick connect with integrated check valve</td>
</tr>
</tbody>
</table>

Analog Output:
- Measurement Module: 1 Selectable 0-20 mA or 4-20 mA; Output span programmable over any portion of the measurement range.
- Junction Box: 1 Selectable 0-20 mA or 4-20 mA; Output span programmable over any portion of the measurement range.

Alarms:
- (Requires Junction Box Option) Three set-point alarms, each equipped with an SPDT relay with unpowered contacts rated 5A resistive load at 230 VAC

Digital Protocol Options:
- (Requires Junction Box Option) Modbus, Profibus or Ethernet

Enclosure Type:
- Junction Box: Fiber Reinforced polyester

Enclosure Rating:
- Junction Box: IP 66
- Measurement Module: IP 65

Compliance:
- ISO 7027: PTV 1000 IR
- EPA: PTV 1000 WL and PTV 2000 RL
For EPA Approval information, see 82 FR 34861, published 27 July 2017

Safety:
- Listed by TÜV Rheinland to UL 61010A-1: CE certified by TÜV Rheinland to CSAC22.2 No. 1010.1: CE Certified by TÜV Rheinland to EN 61010-1

Immunity:
- CE certified by TÜV Rheinland to EN61326 (Industrial Levels)

Emissions:
- Class A: EN 61326, CISPR 11, FCC Part 15, Canadian Interference-Causing Equipment Regulation ICES-003

Mounting Hardware:
- Turbidimeter Sensor - Slotted Mounting Bracket that can be affixed to any vertical surface or panel (Optional).
- Junction Box - Direct mounting to any vertical surface or panel (Optional)

Dimensions:
- PTV Sensor with Junction Box: 13.17 x 6.24 x 13.4 inches (L x W x H)
- Dimensions: 334.5 x 158.5 x 340.4 mm (L x W x H)

Method of Calibration:
- One Point Calibration at 5.0 or 20 NTU with any regulatory approved formazin

Method of Verification:
- Wet Standards or dry verification device.

The Bluetooth® word mark and logos are registered trademarks owned by Bluetooth SIG, Inc.