Lovibond® Water Testing

Tintometer® Group

Process Turbidimeters & Accessories

PTV Series

- Smart Interface - Rethink the Controller
- Simplified and Streamlined Processes
- Innovative, Low Maintenance Design
- Unsurpassed Accuracy for low-level effluent measurement
- Regulatory Compliant

www.lovibond.com

A User Inspired System

Smart User Interface - 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 by utilized with a direct USB connection.

The PTV 1000 also has a local touch screen display that allows users to set basic testing parameters and perform basic operations.

Designed to Save

Save time, money and water by using the PTV system. These instruments are optimized for drinking water applications with unsurpassed low range accuracy. (below 1 NTU) It has a variety of features that help users save.

The design features a long-lasting LED light source and patent-pending bubble exclusion system which will deliver accurate and ultra-stable measurements. Combined with the heated optical assembly, we have eliminated the chance for condensation and fogging - no desiccants needed!

The flow body is easy to clean - there are no "nooks and crannies" where particles can settle. The body can be easily drained for cleanings and calibration with quick-connect fixtures and collecting a "grab sample" for verification is easier than ever with no need to disconnect tubing to access the sample.

The low volume flow body (70% less volume than competitive units) provides faster response to turbidity spikes and uses far less water and calibration standards. In addition, the optimal flow rate of the instrument is 30 TO 150 ml per minute, which over the lifetime of the instrument translates to over 1 million gallons of water saved versus competitive instruments!

Regulatory Compliant

The PTV Series has instruments that meet EPA and ISO regulatory requirements.

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

Lovibond® Tintometer® also supplies everything the users need for calibration and verification protocols as well as other key accessories to provide a single source for turbidity measurement.

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.

Process Simplified - A New Approach

Details Matter. The development of the PTV Series 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.

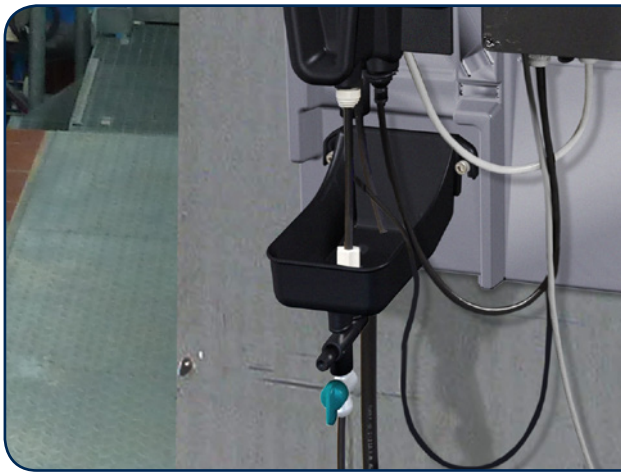
We have created a secure system with significantly reduced complexity, allowing users to interact with an unlimited number of turbidimeters using a single mobile device App. This approach eliminates the requirement of dedicated controllers for each instrument and allows maximum flexibility as your needs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

*Patent Pending

Fluidics Manager

Sample Management Simplified



The Fluidics Manager is an additional accessory that streamlines sample flowing into and out of the instrument. This eliminates the need to install and maintain separate devices to control sample entering and exiting the sensor.

- Control sample flow rate into the Flow Body - turn the knob on the front of the Fluidics manager to adjust sample flow.
- Easily Drain Flow Body for cleaning and calibration purposes. Simply use the provided quick-connect drain valve and the contents of the Flow Body instantly drains with no mess.
- Manage sample flow out of the Flow Body - no need to "create your own" funneling systems to take the sample to drain.

For quick and easy installation, the Fluidics Manager can be mounted to the optional instrument panel. Users may also choose to mount the Fluidics Manager directly to the wall or existing panel installation.

Description	Part Number
Fluidics Manager	19806-056
Rotometer, 25 to 100 ml/min	19806-087

Panel Mounting System

A Place for Everything

The Panel Mount is an additional accessory that aids in the installation of key instrument components and accessories.

- Easy Mount / Placement of key components and accessories
  - Secure the Fluidics Manager in the correct place for quick connect fitting.
  - Easily mount the junction box with pre-drilled holes
  - Place the Constant Head Device on the side of the panel using the pre-drilled holes
- Safely Store Measurement Module during cleaning - add the Smart Device Mount and go "hands-free"
- Cable Management - keeps the cable between the instrument and junction box neatly organized and out of the way.
- Smart Device Mount - there's a place to quickly and safely attach your smart device, keeping your hands free to perform required maintenance or other services. You can even plug in the device into the USB port on the Junction Box to charge or leave it permanently mounted on the panel.
- Hang the T-CALplus Standards on the optional hook

Description	Part Number
Mounting Panel Includes Hook for hanging T-CAL*plus* Standards	19806-088
Constant Head Device	19806-058
Hook for T-CAL*plus*™ Bag	19806-569
Smart Device Mount	19806-521

Two Ways to Interface

Touchscreen Interface

All PTV Series instruments are supplied with an integrated touchscreen. All measurement settings and routine functions such as calibration can be managed directly with the touchscreen without the need for additional devices.

No Extra Pieces to Install

- **Built directly into Sensor** - With no extra devices to purchase or install in order to control the instrument, setting up your instrument for the first time is quick and easy. Simply connect the Measurement Module to the power supply and it's ready to go!
- **Control key aspects of measurements** - Initialize the instrument, control settings, set security preferences directly with the touchscreen.

Intuitive Menu Screens

- **Follow the Prompts** - It's easy to perform routine procedures such as calibration or verification, because the interface guides you through all of the major steps. Leave the manual behind - Simply follow the on-screen prompts to quickly perform key operations.
- **Simple Menu Structures** - All key settings are organized so that it's easy to find what you're looking for, change settings, or to confirm instrument performance.
- **Switch Back-and-Forth** - While it is not possible to make changes via the touch screen when a sensor is connected to the AquaLXP App via Bluetooth, the menu structures of each interface are set up in the same way - making it easy for users to be familiar with both interfaces.

Results That are Easy to See

- **It's big and it's backlit** - Designed to be viewed from up to 15 feet away, it's easy to get a visual indication that all is well with the turbidimeter.
- **Critical test information is always visible** - In addition to a large display of the current turbidity values, there are visual indications that outputs are active, or being held, or if any alarms are active. If a sensor is configured to include a flow indicator and/or *Bluetooth*® connectivity, these icons will also appear on the touchscreen as active.
- **Colors indicate Status** - Easily monitor flow, reporting outputs and alarm status - if the icons are green, everything is performing or functioning as expected. Yellow icons indicate a warning to investigate, while red icons indicate an alarm status or malfunction.
- **Keep the gloves on** - The touchscreen is resistive - so it responds to pressure. That means operators get to keep your gloves on (or use a stylus) when updating settings or perform routine service or maintenance procedures.

AquaLXP™ Interface

The AquaLXP app is an enhanced version of the touchscreen. In addition to being able to perform all of the functions as the touchscreen, users have access to animated instructions of all procedures, advanced data analysis and statistics tools, complete maintenance and repair logs as well as the comfort of using a familiar device.

Bluetooth® is an optional accessory for any PTV sensor. Choosing this feature enables bi-directional communication between the PTV and the AquaLXP app. Using the AquaLXP™ app, one smart device can control all of the sensors in a plant. The app is available for use on iOS® and Android™ devices and can be downloaded from the app stores free of charge.

Step-By-Step Instructions - At Your Fingertips

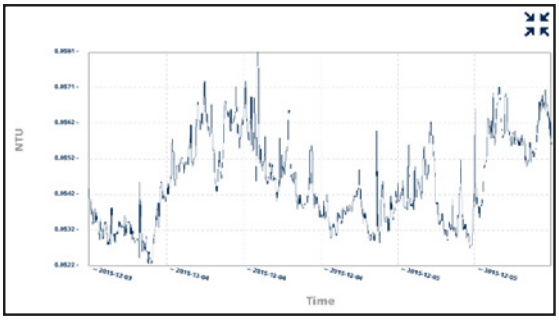
- **Standardize Procedures** - Step-by-step illustrated instructions are integrated into the app - this ensures everyone has the same set of procedures and that those important details necessary to achieving excellence in measurement are followed.
- **Quick and easy access to "pro-tips."** Anywhere in the app that the ⓘ graphic appears, be sure to click. These pages contain additional information about the instrument and turbidity measurements.
- **Fingertip Access** - Leave the manual behind! Always have access to the latest features and updated instructions by using the AquaLXP App.

Complete Instrument History

- Every logged reading, calibration, verification, cleaning or other maintenance performed on a sensor over its lifetime is stored in one place - on the sensor. The AquaLXP™ App allows the user to access that information at any time.
- By connecting to a PTV 1000 Sensor with a smart device, an operator, supervisor or regulator can easily confirm if scheduled verification/calibration procedures, maintenance or cleaning have been performed as planned.

Calculate, Graph and Send Data

- Easily generate meaningful data - Identify trends faster by viewing or exporting the data for a selected time period as a table or as a graph.
- Was there an unexpected or unintended spike in turbidity? Operators can add notes to any data point so that the "why" can be easily referenced in the future.
- Quickly calculate important values, such as upper and lower control limits, and percent compliance over a selected time frame.



Calibration & Verification Standards

Wet Standards - for Calibration & Verification

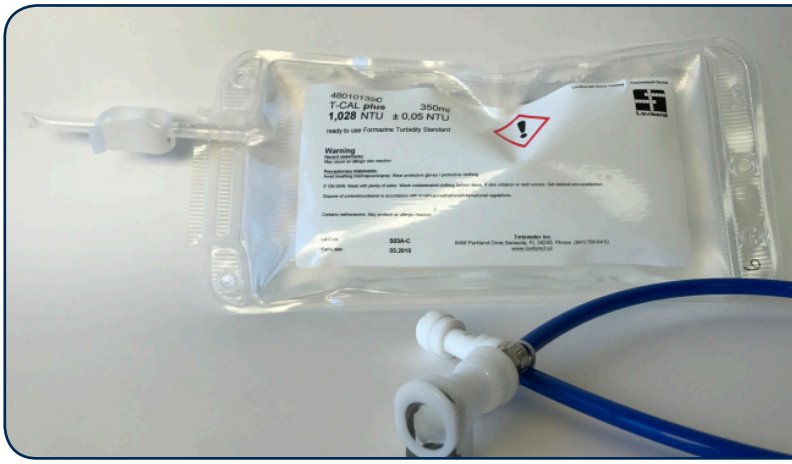
T-CAL Turbidity Standards from Lovibond® Tintometer® are primary standards that are US EPA and ISO compliant.

When you combine our T-CAL Turbidity Standards and our T-CAL*plus*™ packaging, turbidity standards have never been easier to use.

- **Safe for the User** - our T-CAL*plus*™ packaging is durable and because the user never comes into contact with the solution, concerns over operator safety and exposure to chemicals are eliminated.
- **Easy to Mix** - Simply squeeze and manipulate the packaging with your hands for about 1 minute to ensure it is thoroughly mixed, and it's ready to use!
- **No Bubbles** - Bubbles in a sample are a major interference in turbidity measurement. Because standards need to be properly mixed before use, it can be difficult to properly prepare a standard and not create bubbles. Our T-CAL*plus*™ packaging is vacuum sealed, which allows users to easily mix the standard - without creating bubbles!
- **Stable Formulation** - T-CAL Turbidity Standards have a long shelf life and there are no concerns about degradation in cold or freezing environments.

In addition to our T-CAL*plus*™ packaging, Lovibond® Tintometer® also offers our T-CAL standards in 500 ml bottles in a variety of concentrations.

Users can also purchase a 4000 NTU Stock Solution in order to prepare their own standards.



Dry Verification Standards

The Dry Verification Standard is an easy way for operators to quickly verify instrument performance - without the use of consumable standards.

The standard is available in two values - one for low range verification and the other for confirming high range values.

- Error proof insertion
- Easy to clean
- Robust Design

Ordering Information

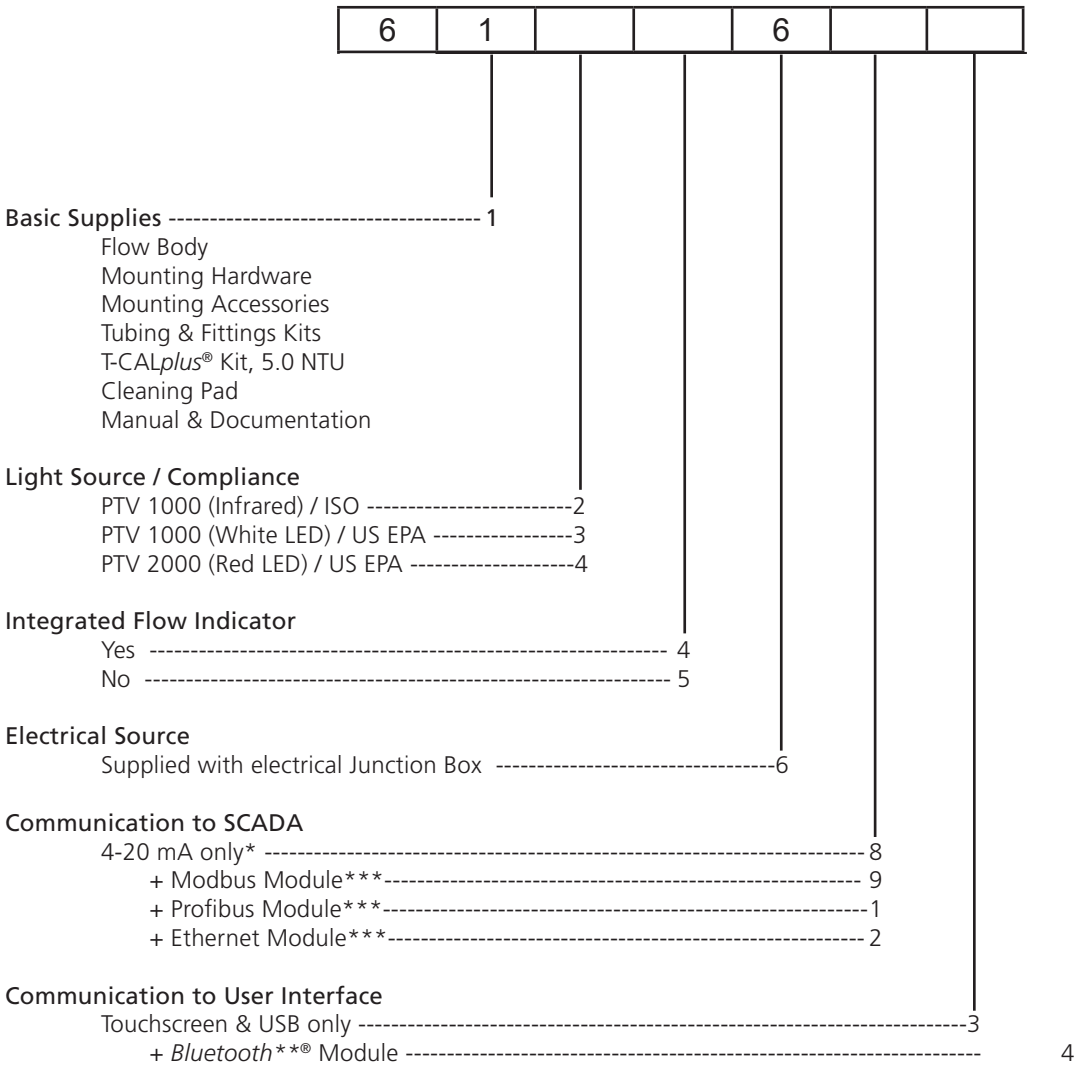
Description	Part Number
T-CAL*plus*™ Kit, 5.0 NTU For Calibration	48 01 02 35
T-CAL*plus*™ Kit, 20.0 NTU For Calibration	48 01 03 35
T-CAL*plus*™ Kit, 0.3 NTU For Verification	48 01 00 35
T-CAL*plus*™ Kit, 1.0 NTU For Verification	48 01 01 35
T-CAL Standard, 0.3 NTU, 500 ml	48 01 10 50
T-CAL Standard, 1.0 NTU, 500 ml	48 01 11 50
T-CAL Standard, 5.0 NTU, 500 ml	48 01 22 50
T-CAL Standard, 20 NTU, 500 ml	48 01 23 50
Formazin Stock Solution, 4000 NTU	
100 ml	19 41 41
250 ml	19 41 42
500 ml	19 21 30

Description	Part Number
Calibration Tube Replacement (Blue)	19806-062
Dry Verification Device, in case less than 10 NTU	19806-111
Dry Verification Device, in case greater than 10 NTU	19806-110
Pipette	36 52 30
Pippette Tips	36 52 31

Description	
TB 250 WL Portable Turbidimeter	19 42 00
TB 250 IR Portable Turbidimeter	19 42 10
TB 210 IR Portable Turbidimeter	20 60 20
TB 300 IR Laboratory Turbidimeter	19 40 00

Instrument Ordering Information

Many configurations of the PTV instruments are available. Select the options that work best for your facility.



* 2 x 4-20 mA supplied with Junction Box Option;
** Subject to regional availability. Please contact us for details.
***Contact us for date of availability

Cleaning and Maintenance Accessories

Routine maintenance and cleaning are essential elements to achieving accurate results and extending the life of your sensor. Lovibond® Tintometer® offers a variety of accessory kits and accessories that include everything needed to keep the instrument up and running.

Description	Part Number
Bubble Trap Replacement Kit Includes Bubble Trap Cover & O-Ring	19806-077
Waste Chamber Cover Replacement Kit Includes Waste Chamber Cover and O-Ring	19806-081
Bubble Trap Latch Replacement Kit Includes Bubble Trap Latch and Hardware	19806-079
Beam Dump Replacement Kit Beam Dump and O-Ring	19806-078
Fittings and Tubing Replacement Kit Includes Flow Body Fittings, Tubing and Lanyard	19806-059
Lens Replacement Kit Includes Collimating Lens Assembly, O-Ring and Guard	19806-085
Flow Sensor Replacement Kit Siphon Tube, Float, Outlet Fitting, O-Ring and Spacers	19806-080

Description	Part Number
Tubing, by the foot	19806-429
Cleaning Pad Pack of 10	19806-803
PTV Detergent Solution For normal cleanings	54 01 10 10
PTV Cleaning Solution For cleanings in systems with hard water	54 01 04 35
PTV Scale Remover Used in conjunction with the PTV Cleaning Solution for extra help with scale removal.	54 01 30 03
PTV Complete Cleaning Kit Contains all 3 Cleaning Solutions with Rinse Bottle and Cleaning Pads	19806-063
PTV Cleaning Accessory Kit Contains 500 ml Rinse Bottle and Cleaning Pads	19806-112
Cleaning Tube Replacement (Black)	19806-072

Technical Specifications

Measurement Range	0.0001 to 100 NTU
Accuracy	± 2% of reading from 0 to 10 NTU ± 4% of reading between 10 to 100 NTU
Stray Light	PTV 1000 IR (ISO): < 0.005 / 5 mFNU PTV 1000 WL (EPA): <0.015 / 15 mNTU PTV 2000 RL (EPA): <0.008 / 8 mNTU
Limit of Detection	PTV 1000: <0.0005 NTU PTV 2000: <.0.0001 NTU
Limit of Quantitation	PTV 1000: Better than 0.005 NTU PTV 2000: Better than 0.001 NTU
Displayed Resolution	up to 0.0001 NTU (range dependent) or 5 digits displayed.
Repeatability / Precision	Better than 1% at 1 NTU
Initial Response	10% Change: 15 seconds @ max flow
Step Response	T-90
Signal Averaging	User Selectable: 1, 3, 6, 10, 30, 60, and 90 Seconds Defaulted to 30 Seconds
Sample Temperature	0 to 50°C (32 to 122°F) Max Sample Temperature: 70°C (158°F)
Sample Flow	30 to 500 ml/minute Optimal Flow: 50-80 ml/minute
Operating Pressure	Atmosphere
Ambient / Operating Temperature Range	5 to 50°C (41 to 122°F)
Ambient / Operating Humidity Range	5 to 95% (Non-condensing)
Storage and Shipping Temperature	-40 to 60°C (-40 to 140°F)
Power Requirements	90 to 264 VAC, 50/60 Hz. Auto Select
Sample Inlet Connection	¼-inch NPT female, ¼-inch compression fitting tubing (Included)
Sample Outlet (drain) Connection	⅜-inch NPT female, ⅜-inch hose barb tubing (Included)
Sample Inlet Tubing	¼-inch OD or 6 mm OD
Sample Outlet Tubing	⅜-inch OD or 9 mm OD
Turbidimeter Body Drain	Quick connect with integrated check valve

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

Technical changes without notice Lovibond® and Tintometer® are Trademarks of the Tintometer Group of Companies. The ***Bluetooth***® word mark and logos are registered trademarks owned by Bluetooth SIG, Inc.

Authorised distributor

In Australia:
For customer service, call 1300-735-292
To fax an order, use 1800-067-639
To email an order, ordersau@thermofisher.com

In New Zealand:
For customer service, call 0800-933-966
To fax an order, use 0800-329-246
To email an order, ordersnz@thermofisher.com

ThermoFisher SCIENTIFIC