TAKE CONTROL
KNOW WHAT’S
IN YOUR WATER

UV TRANSMITTANCE BROCHURE
Importance of UV Transmittance

Ultraviolet (UV) Disinfection is an effective treatment technology in the water and wastewater industry used to address the risk from disease causing microorganisms, improving water quality for public safety. Assessment of the water quality, most commonly measured as UV Transmittance, is a critical aspect for design, calculation of UV dose delivery, and assessing operational problems.

UV TRANSMITTANCE (UVT)...

...is defined as the amount of light passing through a water sample compared to the amount of light passing through a pure water sample.

...is a relative measurement expressed as a percentage UVT(%)..

...is typically measured at 254 nm through a 10 mm sample cell.

The UVT of the water relates to the quantity of organics, colloidal solids, and suspended matter that will absorb and scatter UV light. For this reason, UVT will directly impact the amount of UV light available for inactivation of microorganisms.
Real Tech Advantage

WITH 10 YEARS OF DESIGN AND APPLICATION EXPERIENCE, REAL TECH INC. MANUFACTURES THE MOST INNOVATIVE ULTRAVIOLET TRANSMITTANCE (UVT) TECHNOLOGY ON THE MARKET TODAY. REAL TECH’S PASSION FOR UV PHOTOMETRIC INSTRUMENTATION IS DISPLAYED IN THE FULL SERIES OF PRODUCTS TO MEASURE A WIDE RANGE OF UVT.

Understanding the importance of UVT monitoring, Real Tech offers comprehensive solutions for every UV Disinfection application avoiding a one size fits all approach. With client satisfaction in the forefront, our instrumentation combines simplicity, accuracy, and competitive pricing.

TECHNOLOGY

Real Tech Inc.’s innovative technologies solve the challenges of using UV/Vis light for water quality analysis in the most simple and effective manner.

SPLIT-SENSE

- Improved ease of use for rapid grab sample testing
- Unique ability to remember the portable meter’s calibration
- Eliminates the need to calibrate (zero) the meter to known pure (DI) water source before taking a test
- Extremely stable and accurate readings

SPLIT-SENSE PRO

- Ideal for very short or long measurement paths
- Automatic compensation for drifts and fluctuation over time

ORTHO-BEAM TECHNOLOGY

- Multiple path length measurement technique allows testing without the need for frequent calibration with DI water
- Accounts for quartz fouling that is present in both path lengths
- Lowers maintenance and operator intervention
- Automatically compensates for lamp fluctuations and drift over time

Founded in 2004, the Real UV254 P200 was the first instrument to market for Real Tech Inc.
UV Transmittance (UVT) is one of the most important operational parameters related to a UV disinfection system’s performance. Large wastewater UV disinfection systems are typically designed with a method that allows the delivered UV dose to be calculated based on UV intensity, flow rate and UVT. Real-time analysis of UVT is essential to ensure an effective UV dose.

Large drinking water and process water UV disinfection systems are often designed with a method that allows the UV dose delivery to be calculated based on UV intensity, flow rate, and UVT, such as the USEPA UVDGM Calculated Dose Approach method. Real-time analysis of UVT is required for a calculated UV dose strategy.
The USEPA UVDGM₁, DVGW₂, and ÖNORM₃ UV Intensity set-point approach is common for small UV disinfection systems. Though not required for a set point approach, UV transmittance (UVT) measurements are a valuable tool in diagnosing operational problems, thus saving the operator time. Investing in a low cost UVT instrument will also ensure that the water quality meets the minimum design criteria at all times, giving the operator peace of mind.

UV Transmittance (UVT) data is essential whether designing a new construction UV facility or replacing an existing chlorination system. An increase or decrease in UVT will directly impact UV intensity, influencing the dose delivered for inactivation. Gathering a full range of expected UVT in all conditions will ensure that over-design or frequent off-specification operation is avoided.
When a UV reactor goes into alarm or poor microbiological counts are found, service is needed. The cause could be related to fouling of the quartz sleeve, UV lamp failure, fouling of the UV sensor, condensation on the sensor window or low UV transmittance (UVT). The first step for an operator or service technician to diagnose the failure is to test the UVT of the water. If results indicate UVT is below the validated conditions, action can be taken to enhance pre-treatment. If results prove the UVT is within the validated range, the technician can proceed to troubleshoot further. This initial step will save a technician time and user expense.

PRODUCT SELECTION

MODEL: Real UV254 P Series

FORM: Portable Meter

RANGE: 5-100% UVT

OPTIONS: Battery Pack
## P200 SERIES

<table>
<thead>
<tr>
<th>Feature</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>P300 SERIES</strong></td>
<td><strong>RANGE</strong> 5-100 %UVT</td>
</tr>
<tr>
<td><strong>ACCURACY</strong></td>
<td>+ 0.5 % FS</td>
</tr>
<tr>
<td><strong>RESOLUTION</strong></td>
<td>0.1 %UVT</td>
</tr>
<tr>
<td><strong>UNIT</strong></td>
<td>cm²</td>
</tr>
<tr>
<td><strong>PATH LENGTH</strong></td>
<td>10mm</td>
</tr>
<tr>
<td><strong>CALIBRATION</strong></td>
<td>Calibration memory prevents the need to re-zero to DI water.</td>
</tr>
<tr>
<td><strong>CLEANING</strong></td>
<td>n/a</td>
</tr>
<tr>
<td><strong>SELF DIAGNOSTICS</strong></td>
<td>Notification of system failure</td>
</tr>
<tr>
<td><strong>OPERATOR INTERFACE</strong></td>
<td>Easy to use. No complex configuration required</td>
</tr>
<tr>
<td><strong>DISPLAY</strong></td>
<td>32 character backlit LCD</td>
</tr>
<tr>
<td><strong>ALARMS</strong></td>
<td>n/a</td>
</tr>
<tr>
<td><strong>HUMIDITY CONTROL</strong></td>
<td>n/a</td>
</tr>
<tr>
<td><strong>WAVELENGTH</strong></td>
<td>253.7nm</td>
</tr>
<tr>
<td><strong>LIGHT SOURCE</strong></td>
<td>Low-pressure mercury UV lamp / UV LED</td>
</tr>
<tr>
<td><strong>LAMP LIFE</strong></td>
<td>2 years</td>
</tr>
<tr>
<td><strong>DIMENSIONS</strong></td>
<td>8.7”L x 7.5”W x 3.9”H (254 cu in)</td>
</tr>
<tr>
<td><strong>ENCLOSURE</strong></td>
<td>Rugged, compact, watertight and dustproof</td>
</tr>
<tr>
<td><strong>FLOW RATE</strong></td>
<td>n/a</td>
</tr>
<tr>
<td><strong>PRESSURE RATING</strong></td>
<td>n/a</td>
</tr>
<tr>
<td><strong>FLUID CONNECTIONS</strong></td>
<td>n/a</td>
</tr>
<tr>
<td><strong>ELECTRICAL</strong></td>
<td>12VDC 1A wall adapter (accepts 90-250VAC 50/60Hz, 12VDC car adapter)</td>
</tr>
<tr>
<td><strong>STORAGE TEMP</strong></td>
<td>-20 to 60°C (-4 to 140°F)</td>
</tr>
<tr>
<td><strong>OPERATING TEMP</strong></td>
<td>0 to 45°C (32 to 113°F)</td>
</tr>
<tr>
<td><strong>WEIGHT</strong></td>
<td>4 lbs</td>
</tr>
<tr>
<td><strong>WARRANTY</strong></td>
<td>2 years limited warranty</td>
</tr>
<tr>
<td><strong>TECHNOLOGY</strong></td>
<td>Split-Sense</td>
</tr>
<tr>
<td><strong>OPTIONS</strong></td>
<td>Battery power-pack</td>
</tr>
</tbody>
</table>

### Accurate, Stable, and Reliable %UVT Readings

- Fast response
- Easy of use
- Rugged Portable Design
- Calibration memory eliminates the need for DI zero before each test
- Low capital cost
- Long life lamp
### M3000 Series
- **Range**: 15 - 100 %UVT
- **Accuracy**: ± 0.5 % FS
- **Resolution**: 0.1 %UVT
- **Units**: cm⁻¹
- **Path Length**: 10mm x 20mm
- **Sampling Time**: 10 seconds
- **Calibration**: In-situ zeroing to any sample with known UVT. No further calibration required
- **Cleaning**: In-situ cleaning makes cleaning quick and easy. Automatic chemical cleaning is optional
- **Self Diagnostics**: Detection and diagnosis of internal system fault
- **Operator Interface**: Five push buttons to control a comprehensive hierarchical menu system
- **Display**: 4 line x 20 character backlit LCD with LED alarm indicator
- **Alarms**: Dry contact terminals allow operator configurable alarms for: high and low UVT/UVA setpoints, low lamp output, leak detected, system fault, etc.
- **Humidity Control**: Humidity sensor with large regeneratable desiccant system
- **Outputs**: Self-powered 4-20mA, RS232 serial for PC
- **Wavelength**: 253.7nm
- **Light Source**: Low-pressure mercury UV lamp / UV LED
- **Lamp Life**: 2 years
- **Dimensions**: 16"H x 14"W x 8"D
- **Enclosure**: NEMA 4X, wall mountable
- **Flow Rate**: 300 - 1000 mL/min
- **Pressure Rating**: 20 PSI
- **Fluid Connections**: 1/4" tube push-in fittings
- **Electrical**: 24VDC 40W power adapter (accepts 90-250VAC 50/60Hz)
- **Storage Temp**: -20 to 60°C (-4 to 140°F)
- **Operating Temp**: 0 to 45°C (32 to 113°F)
- **Weight**: 22 lbs
- **Warranty**: 2 years limited warranty
- **Technology**: Ortho-Beam
- **Options**: - Real Clean System I or II

### M3500 Series
- **Range**: 55 - 100 %UVT
- **Accuracy**: ± 0.5 % FS
- **Resolution**: 0.01 %UVT
- **Units**: cm⁻¹
- **Path Length**: 50mm
- **Sampling Time**: 10 seconds
- **Calibration**: In-situ zeroing to any sample with known UVT. No further calibration required
- **Cleaning**: In-situ cleaning makes cleaning quick and easy. Automatic chemical cleaning is optional
- **Self Diagnostics**: Detection and diagnosis of internal system fault
- **Operator Interface**: Five push buttons to control a comprehensive hierarchical menu system
- **Display**: 4 line x 20 character backlit LCD with LED alarm indicator
- **Alarms**: Dry contact terminals allow operator configurable alarms for: high and low UVT/UVA setpoints, low lamp output, leak detected, system fault, etc.
- **Humidity Control**: Humidity sensor with large regeneratable desiccant system
- **Outputs**: Self-powered 4-20mA, RS232 serial for PC
- **Wavelength**: 253.7nm
- **Light Source**: Low-pressure mercury UV lamp / UV LED
- **Lamp Life**: 2 years
- **Dimensions**: 17"H x 15"W x 7"D
- **Enclosure**: NEMA 4X, wall mountable
- **Flow Rate**: 300 - 1000 mL/min
- **Pressure Rating**: 20 PSI
- **Fluid Connections**: 1/4" tube push-in fittings
- **Electrical**: 24VDC 40W power adapter (accepts 90-250VAC 50/60Hz)
- **Storage Temp**: -20 to 60°C (-4 to 140°F)
- **Operating Temp**: 0 to 45°C (32 to 113°F)
- **Weight**: 24 lbs
- **Warranty**: 2 years limited warranty
- **Technology**: Split-Sense Pro
- **Options**: - Real Clean System I or II

### M4000 Series
- **Range**: 89 - 100 %UVT
- **Accuracy**: ± 0.001 % UVT
- **Resolution**: 0.01 %UVT
- **Units**: cm⁻¹
- **Path Length**: 250mm
- **Sampling Time**: 10 seconds
- **Calibration**: In-situ zeroing to any sample with known UVT. No further calibration required
- **Cleaning**: In-situ cleaning makes cleaning quick and easy. Automatic chemical cleaning is optional
- **Self Diagnostics**: Detection and diagnosis of internal system fault
- **Operator Interface**: Five push buttons to control a comprehensive hierarchical menu system
- **Display**: 4 line x 20 character backlit LCD with LED alarm indicator
- **Alarms**: Dry contact terminals allow operator configurable alarms for: high and low UVT/UVA setpoints, low lamp output, leak detected, system fault, etc.
- **Humidity Control**: Humidity sensor with large regeneratable desiccant system
- **Outputs**: Self-powered 4-20mA, RS232 serial for PC
- **Wavelength**: 253.7nm
- **Light Source**: Low-pressure mercury UV lamp / UV LED
- **Lamp Life**: 2 years
- **Dimensions**: 17"H x 15"W x 7"D
- **Enclosure**: NEMA 4X, wall mountable
- **Flow Rate**: 300 - 1000 mL/min
- **Pressure Rating**: 20 PSI
- **Fluid Connections**: 1/4" tube push-in fittings
- **Electrical**: 24VDC 40W power adapter (accepts 90-250VAC 50/60Hz)
- **Storage Temp**: -20 to 60°C (-4 to 140°F)
- **Operating Temp**: 0 to 45°C (32 to 113°F)
- **Weight**: 24 lbs
- **Warranty**: 2 years limited warranty
- **Technology**: Split-Sense Pro
- **Options**: - Real Clean System I or II

**BY-PASS STYLE ANALYZER**
- **Accurate, Stable, Reliable, and Precise %UVT Readings**
- **Fast Response**
- **Configurable Alarms: Low UVT Set Point, ETC.**
- **Operator Friendly and Easy to Use**
- **4-20 MA Output for SCADA or UV Control Panel Communication**
- **Innovative Technology with Multiple Path Length Selection**
- **P200 Meter for Custom Calibration and UVT Validation**
- **Low Maintenance and Low Operating Costs**
- **Long Life Lamp**
### Online UV Transmittance Probe

**M Series**

<table>
<thead>
<tr>
<th><strong>M1500</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Range</strong></td>
</tr>
<tr>
<td><strong>Accuracy</strong></td>
</tr>
<tr>
<td><strong>Units</strong></td>
</tr>
<tr>
<td><strong>Path Length</strong></td>
</tr>
<tr>
<td><strong>Sampling Time</strong></td>
</tr>
<tr>
<td><strong>Calibration</strong></td>
</tr>
<tr>
<td><strong>Cleaning</strong></td>
</tr>
<tr>
<td><strong>Self Diagnostics</strong></td>
</tr>
</tbody>
</table>
| **Operator Interface** | • Push button driven comprehensive hierarchical menu system (with optional Real Controller)  
  • RS232/USB interface to PC based Windows application |
| **Display** | 4 line x 20 character backlit LCD (with optional Real Controller) |
| **Alarms** | Onscreen alarms |
| **Humidity Control** | Humidity sensor with desiccant pack |
| **Outputs** | • Self-powered 4-20 mA output (with optional Real Controller)  
  • RS232/USB interface for datalogging via PC |
| **Wavelength** | 253.7 nm |
| **Light Source** | Low pressure mercury UV lamp / UV LED |
| **Lamp Life** | 2 years |
| **Dimensions** | 4" diameter x 10" length |
| **Enclosure** | Stainless steel with max rated depth of 36’ (optional Real Controller is rated NEMA 4) |
| **Electrical** | 24 VDC 120W power adapter included (power adapter accepts 90-250 VAC 50/60 Hz) |
| **Storage Temp** | -20 to 60°C (-4 to 140°F) |
| **Operating Temp** | 0 to 45°C (32 to 113°F) |
| **Weight** | 8 lbs |
| **Warranty** | 2 year limited warranty |
| **Technology** | Ortho-Beam |
| **Options** | • Real Air Clean Systems  
  • Real Controller  
  • Mounting Kit |

**Submersible Probe Analyzer**

Accurate, stable, reliable, and precise %UVT readings  
Fast response  
Configurable alarms, low UVT set point, etc.  
Operator friendly and easy to use  
4-20 mA output for SCADA or UV Control Panel communication  
Innovative patent technology  
P200 for custom calibration and UVT validation  
Low maintenance and low operating costs  
Long life lamp
Optional Products & Accessories

Real Tech has designed a variety of options and accessories with our clients’ best interests in mind. Optimal configuration ensures the highest level of performance for each respective UVT monitoring application and water source.

REAL UV254 P SERIES PORTABLE
BATTERY PACK
Battery pack for P series instruments for remote testing allows for UVT grab sampling to truly be performed anywhere, anytime.

REAL UV254 M SERIES ONLINE
REAL CLEAN SYSTEM I
Automatic chemical cleaning system designed for by-pass style continuous analyzer. Powered and programmed through the online analyzer, cleaning cycles can easily be configured to clients’ specific cleaning frequency requirements.

REAL CLEAN SYSTEM II
Automatic chemical cleaning system designed for the 3500 and 4000 models. Powered and programmed through the analyzer, the system employs a faster pumping time and recycles the cleaning solution to accommodate a longer path length design.

REAL PUMP CLEAN SYSTEM
In open channel or non-pressurized systems, the pump systems can accompany any by-pass online analyzer and is self-priming. Pump System options can come complete with a Real Clean System in one system.

REAL UV254 M SERIES PROBE
REAL CLEAN VALVE MODULE I
A valve module installed in the Real Controller box for sites with compressed air available. Includes an air compressor, reservoir, and valve.

REAL AIR CLEAN VALVE MODULE I
An ideal system in one system.

REAL AIR CLEAN SYSTEM I
The automatic pressurized air cleaning system offers the most effective cleaning for submersible probes. It is installed in the Real Controller box for sites without compressed air. Includes an air compressor, reservoir, and valve.

REAL CONTROLLED
Wall mounted operator interface with push button control, backlit LCD screen, LED alarm indicator and self-powered 4-20 mA output. Allows for multiple M probe series connections.

SEAWATER UPGRADE
Allows use of any by-pass style analyzer to accommodate seawater conditions.

HIGH TEMPERATURE UPGRADE
Allows use of any by-pass style analyzer in water temperatures up to 95°C.

REFERENCES

VALIDATION and CUSTOM CALIBRATION with the REAL UV254 P SERIES PORTABLE METER
The P series meters are ideal to validate the accuracy of any M series analyzer. A variance of ±0.5% UVT between the M series analyzer and the P series meter would indicate a need for calibration. To minimize maintenance hours, Real Tech has incorporated a unique ‘Custom Calibration’ function to each M series analyzer that allows the instruments to be calibrated to a known UVT, without the need for DI calibration or taking the analyzer offline. The process involves three simple steps.

1. Take a grab sample with a P series meter and record the UVT of the water.
2. Press the Zero button on the M Online series or Real Controller and use the down arrow to select “Custom Zero” then press the Enter button.
3. Use the up/down arrow keys until the known UVT of the water is displayed then press Enter. The monitor is now calibrated.
PRACTICAL. ACCURATE. AFFORDABLE.

1375 Hopkins Street, Whitby ON L1N 2C2 Canada
T 905.665.6888   TF 1.877.779.2888   F 905.665.7025
E info@realtechwater.com

www.realtechwater.com

SHINING LIGHT ON WATER QUALITY

Available from:
Fluidquip Australia Pty Ltd
Ph: 0247 35 5054
E: fluidquip@fluidquip.com.au
www.fluidquip.com.au