Accessories

Semi-Micro Cell Holder and Optical Assembly
Enables the use of 10 mm standard or semi-micro analytical cells in the transmission compartment for color measurement of small and semi-micro volumes of clear liquids. Glass or plastic cells are purchased separately by customer.

Optical Cells
Optically clear glass cells with fixed path length of 10 mm, 20 mm or 50 mm. Sample volume 20 ml, 40 ml and 100 ml respectively. For use with Transmission Spill Tray and Cell Holder.

Transmission Cell Holder
To use for placing transmission cells at the transmission port.

Transmission Spill Tray and Cell Holder
Permits transmittance measurement of liquids using rectangular transmission cell.

Transmission Clamp
Holds transparent film, glass or plastic in position for total or regular transmission measurement.

• Accessories and sample handling fixtures available for every industry application
The UltraScan® PRO is the benchmark reference color measurement spectrophotometer against which all others are compared. It is ideal for demanding research and quality control applications. The UltraScan® PRO measures reflected and transmitted color, as well as spectral reflectance, spectral transmittance and transmission haze. It meets all CIE, ASTM and USP color measurement guidelines.

With exceptional inter-instrument agreement, precise spectral measurement and unsurpassed long term stability, UltraScan® PRO offers precise and reliable color measurement from opaque solids to clear liquids to transparent films.

**Exceptional Performance Built to Last**

Underneath its sleek exterior lives an electronic assembly, ruggedly built in excess of specification on a rigid optical platform, ensuring years of reliable, accurate service. The flash Xenon light source generates virtually no heat, eliminates the effect of ambient light, and requires no warm-up. Measurements over the entire spectral range are made in a matter of seconds. Spectral data is collected every 2 nm and reported for every 5 nm.

- Aircraft grade stainless fasteners
- Solid ½” thick optical platform, eliminating flex factor
- Robust electronic subassemblies

**Versatile**

In addition to measurement versatility, the UltraScan® PRO has available sample measurement accessories designed to hold virtually any type of solid or liquid sample for accurate and repeatable measurements. Use UltraScan® PRO for both research and quality control. The transmission compartment of UltraScan® PRO makes the measurement of over-sized samples easy and accommodates various sample handling devices. It is capable of measuring liquid volumes as small as 0.4 ml. The UltraScan® PRO has the ability to measure sample reflectance and transmittance as low as 350 nm, enabling the measurement of UV blocking characteristics of coated glass, sunglasses and other UV absorbers.

- Designed to measure opaque, transparent, and translucent samples
- 3 reflectance measurement area choices
- Automated specular exclusion and inclusion, for measuring reflected color with or without the effect of glass or texture
- Largest transmission compartment in the industry, open on three sides, and with a convenient one-touch read button for initiation of sample measurement

**Features**

- Fast measurement speed - 2 seconds for full range measurement 350 – 1050 nm with 5 nm data output
- D65 illumination source is calibrated in the ultraviolet region for accurate measurement of whitening agents, UV blockers, and fluorescent colors
- 3 reflectance measurement areas:
  - Large Area View (LAV): 25 mm aperture
  - Small Area View (SAV): 13 mm aperture
  - X-Small Area View (XSAV): 7 mm aperture
- Read button for convenient initialization of sample measurement
- Ergonomic sample clamp for supporting a wide range of samples
- Status indicator lights visually indicate selected mode
- EasyMatch® QC Software included with instrument purchase

**The HunterLab Advantage**

The UltraScan® PRO is backed by over 60 years of quality innovation and experience from HunterLab, the world’s most trusted color quality experts. With an unmatched reputation for delivering the right solution for any challenge, HunterLab tailors products and technologies for every color measurement need and budget offering the broadest range of color measurement solutions in the industry.

For more information go to [www.hunterlab.com](http://www.hunterlab.com) or contact your local HunterLab representative.
Measurement

**Measurement Principle:** Dual-beam spectrophotometer

**Geometry:** Diffuse d/8° reflectance, d/8° total transmission, d/0° regular transmission

**Spectrophotometer:** Two polychromators, each with a 512 element diode array and a high resolution, concave holographic grating

**Sphere Diameter:** 152 mm (6 in.)

**Sphere Coating:** Spectraflect™ for sphere, Duraflect™ for port plate and specular exclusion door

**Port Size/Measured Area:**

<table>
<thead>
<tr>
<th>Port Diameter/View Diameter</th>
<th>RsIN/RSEX Reflectance Modes</th>
<th>TTRAN Transmittance Modes</th>
<th>RTRAN Transmittance Mode</th>
</tr>
</thead>
<tbody>
<tr>
<td>Large Area View (LAV)</td>
<td>25 mm (1 in) illuminated/19 mm (0.75 in) measured</td>
<td>25 mm (1 in) illuminated/17.4 mm (0.69 in) measured</td>
<td>17 mm (0.67 in) illuminated/17 mm (0.67 in) measured</td>
</tr>
<tr>
<td>Medium Area View (MAV)</td>
<td>13 mm (0.5 in) illuminated/9 mm (0.35 in) measured</td>
<td>25 mm (1 in) illuminated/13.2 mm (0.52 in) measured</td>
<td>17 mm (0.67 in) illuminated/17 mm (0.67 in) measured</td>
</tr>
<tr>
<td>Small Area View (SAV)</td>
<td>7 mm (0.25 in) illuminated/4 mm (0.16 in) measured</td>
<td>25 mm (1 in) illuminated/11.6 mm (0.46 in) measured</td>
<td>17 mm (0.67 in) illuminated/17 mm (0.67 in) measured</td>
</tr>
</tbody>
</table>

**Lens Switching for LAV/MAV/SAV:** Automatic

**Specular Component:** Automated Included (RSIN) or Excluded (RSEX) in reflectance

**Spectral Range:** 350 nm - 1050 nm full CIE visible range plus NIR

**Wavelength Resolution:** < 2 nm

**Effective Bandwidth:** 5 nm equivalent triangular

**Reporting Interval:** 5 nm
Photometric Range: 0-150 \%

Light Source: Pulsed Xenon lamps (3), calibrated and controlled in the UV range

Automatic UV Control: 400 nm cutoff filter for UV control and UV exclusion
Optional 420 nm cutoff filter for UV exclusion

Transmission Modes: Total (TTRAN) and Regular (RTRAN)

Transmission Compartment: Large and open on 3 sides
10.2 cm D X 35.6 cm W x 16.5 cm H (4 in. D x 14 in. W x 6.5 in. H)

Standards Conformance
Reflectance: CIE 15:2004, ISO 7724/1, ASTM E1164, DIN 5033, Teil 7 and JIS Z 8722 Condition C
Transmittance: CIE 15:2004, ASTM E1164, DIN 5033 Teil 7 and JIS Z 8722 Condition E, G

Standards Traceability: Instrument standard assignment in accordance with National Institute of Standards and Technology (NIST) following practices described in CIE Publication 44 and ASTM E259

Performance

Colorimetric Repeatability: < 0.03 \(\Delta E^*\) CIE L\(^*\)a\(^*\)b\(^*\) on white tile in LAV mode
< 0.07 \(\Delta E^*\) CIE L\(^*\)a\(^*\)b\(^*\) on blue denim tile in LAV mode

Spectral Repeatability: Max 0.20 range between 435 nm and 695 nm

Inter-instrument Agreement: \(\Delta E^*< 0.09\) CIE L\(^*\)a\(^*\)b\(^*\) (Avg) on BCRA II Tile Set
\(\Delta E^*< 0.20\) CIE L\(^*\)a\(^*\)b\(^*\) (Max) on BCRA II Tile Set

Physical / Electrical

Dimensions: Height: 32.3 cm (12.7 in.)
Width: 42.0 cm (16.5 in.)
Depth: 49.8 cm (19.6 in.)
Weight: 25.9 kg (57 lbs)

Power: 90 to 250 VAC, 50 to 60 Hz
60 watts passive, 120 watts maximum

Interface: RS-232C serial, 19,200 baud, DB9 (female) terminal

Operating Environment: 4° to 38°C (40° to 100° F), 10 % to 85 % RH, noncondensing

Storage Environment: -21° to 66°C (-5° to 150° F), 10 % to 90 % RH, noncondensing (-5° to 150° F)

Standard Accessories: • Calibrated instrument white tile • Certificate of traceability
• Black calibration light trap • Transmittance zero calibration plate
• Green diagnostic tile • Wavelength diagnostic filter • Fluorescent standard
• Reflectance sample clamp • LAV aperture • MAV aperture • SAV aperture
• RS-232C cable • USB-to-Serial adapter • Power cord
• EasyMatch QC Software • EasyMatch QC Basic manual

For more information, please contact HunterLab at 703-471-6870, sales@hunterlab.com or visit www.hunterlab.com

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Specifications subject to change without notice

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