



UltraScan[®] PRO



measure
color
the way your
eye sees it





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.

DESIGNED FOR

LENSES

powders

PREFORMS

PELLETS

Oil

TRANSLUCENT

Solids
and Liquids

detergents

resins

pigments

COATED GLASS
laminates

carpet

draw downs

Opaque
Bottles

ADHESIVES

tiles

fibers

transmission
cells

FABRIC

panels &
plaques

lip balm

COLORANTS

all dry chemicals

FILMS

plastic plaques

Paint Chips

Metals

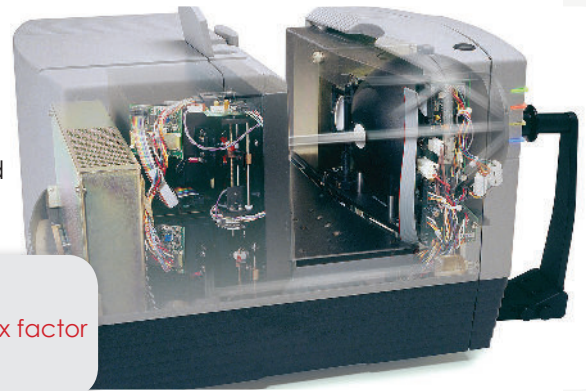
dyes

Solids

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.

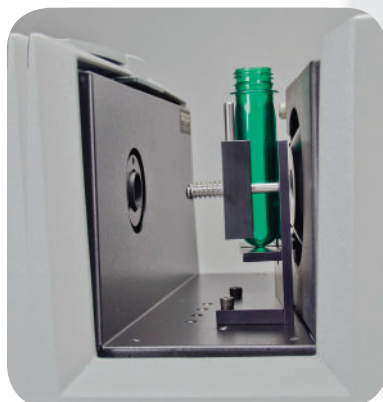


- Aircraft grade stainless fasteners
- Solid ½" thick optical platform, eliminating flex factor
- Robust electronic subassemblies

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 gloss 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

Accurate

The dual beam optical system has two state-of-the-art holographic grating polychromators with an effective bandwidth of 5 nm. The diffracted light is detected by a High IR sensitivity, 512 element linear array. Three long-life Xenon flash lamps mounted in a reflective lamp housing are used for illumination.

- Sphere geometry enables accurate transmittance measurements on scattering material and turbid solutions
- Provided wavelength calibration check filter
- 5 nm optical bandwidth
- Port insert underside finished to complete sphere geometry



Features

- Fast measurement speed 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
or contact your local HunterLab representative.



Accessories



D02-1016-956

Cell Holder Base Assembly

This Cell Holder Base Assembly with one or more clip-on holders (ordered separately) centers macro, semi-micro and ultra-micro, as well as other precision analytical cell holders in the transmission compartment of HunterLab sphere instruments. This assembly ensures repeatable transmission color measurements of very small volumes of clear liquids. Select one or more of the available precision cell holders by matching cell holder specifications with the desired glass or plastic analytical cells. Analytical cells are purchased separately by the customer.



13-8573-40
04-4592-00
13-8573-20

Optical Cells

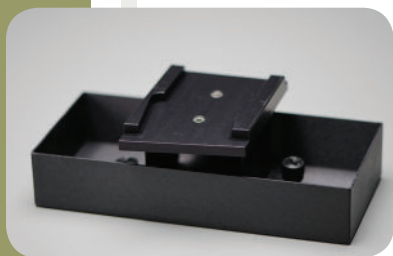
Optically clear glass cells with fixed path length of 10 mm, 20 mm or 50 mm. Sample volume 20 ml, 40 ml and 100 ml respectively. For use with Transmission Spill Tray and Cell Holder.



C02-1005-481

Transmission Cell Holder

To use for placing transmission cells at the transmission port.



D02-1011-568

Transmission Spill Tray and Cell Holder

Permits transmittance measurement of liquids using rectangular transmission cell.



C02-1005-444

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

SPECIFICATIONS

UltraScan® PRO

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:	Spectrafect™ for sphere, Duraflect™ for port plate and specular exclusion door
Port Size/Measured Area:	
Port Diameter/View Diameter in RSIN/RSEX reflectance modes	
Large Area View (LAV):	25 mm (1 in) illuminated/19 mm (0.75 in) measured
Medium Area View (MAV):	13 mm (0.5 in) illuminated/9 mm (0.35 in) measured
Small Area View (SAV):	7 mm (0.25 in) illuminated/4 mm (0.16 in) measured
Port Diameter/View Diameter in TTRAN transmittance modes	
Large Area View (LAV):	25 mm (1 in) illuminated/17.4 mm (0.69 in) measured
Medium Area View (MAV):	25 mm (1 in) illuminated/13.2 mm (0.52 in) measured
Small Area View (SAV):	25 mm (1 in) illuminated/11.6 mm (0.46 in) measured
Port Diameter/View Diameter in RTRAN transmittance mode where lens is field stop for all areas of view	
Large Area View (LAV):	17 mm (0.67 in) illuminated/17 mm (0.67 in) measured
Medium Area View (MAV):	17 mm (0.67 in) illuminated/17 mm (0.67 in) measured
Small Area View (SAV):	17 mm (0.67 in) illuminated/17 mm (0.67 in) measured
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 Haze conformance per ASTM D1003 Section 8. Procedure B Spectrophotometer
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: (20 readings)	< 0.03 ΔE^* CIE L*a*b* on white tile in LAV mode < 0.07 ΔE^* 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