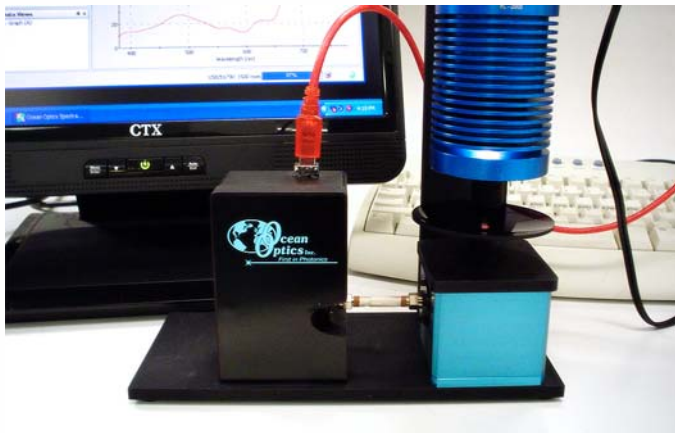




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Optical Transmittance Spectroscopy



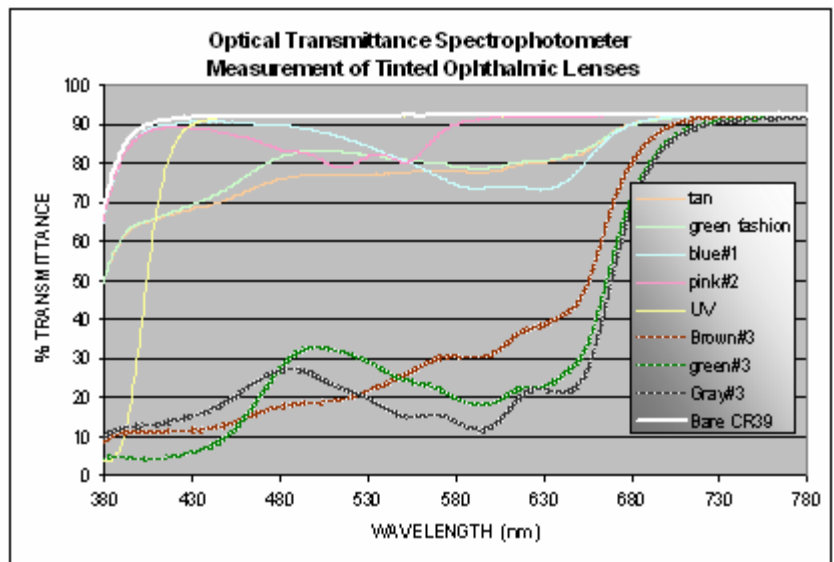
Simple yet elegant system is ideal for accurate, repeatable measurements of optical filters, glass and ophthalmic lenses

We've combined our expertise in miniature spectrometers and accessories with experience as a manufacturer of precision optics to create a compact system for real-time transmittance measurement of ophthalmic lenses and other optical components. The Ocean Optics Optical Transmittance Spectrophotometer (OTS) is ideal for both in-line and in-lab applications where transmittance accuracy (to $\pm 1.0\%$) and precision ($\pm 0.1\%$) are critical. Common applications include measurement of optical coatings, windows and filters, and glass and plastic components.

About the System

The OTS covers the 380-1000 nm wavelength range and accepts samples from 10 mm-76 mm diameter and 25.4 mm thickness. The system comprises several components:

- High-resolution miniature linear CCD-array spectrometer configured for 380-1000 nm
- High-power, 20-watt tungsten halogen light source
- Fiber optic integrating sphere for collecting signal transmitted through the sample
- Optics for improved beam collimation and spectral sensitivity distribution
- Sample fixture (z-stage) to hold sample in place and exclude ambient light
- Short optical fiber to channel signal from the integrating sphere to the spectrometer
- SpectraSuite Operating Software for calculating %T, color and other measurement characteristics





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Optical Transmittance Spectroscopy

Typical Applications

The OTS is especially useful for measuring tint color, photopic (visual) transmittance and UV cutoff of ophthalmic lenses, and for characterizing photochromic, electrochromic and sun lens materials. What's more, manufacturers of neutral density filters and filter glasses, and anti-reflective and other precision coatings, will appreciate the ability to use the OTS as a real-time, in-line process monitor.

Characteristics	
Spectral range:	380-1100 nm
Detection:	Miniature fiber optic spectrometer
Light source:	High-power tungsten halogen (360-2000 nm)
Sample collection:	Fiber optic integrating sphere
Color calculations:	CIE color characteristics
Measurement calibration:	Manual calibration using known filter standard (not included); calibration time <30 seconds
System calibration:	Recommend annual recalibration
Transmittance calibration standards:	Not included
Typical samples measured:	Windows, filters, glass and plastic lenses
Sample size:	10-76 mm diameter, up to 25.4 mm thickness
Optical stage:	Aluminum (black anodized)
Software:	SpectraSuite Operating Software (contact an Applications Scientist for custom version)
Quality:	Compatible with ISO 9001 norm; calibration referenced to accepted standards
Manufacturing compliance:	CE/UL/RoHS/WEEE
Performance	
Transmittance measurement accuracy:	+/-1.0%
Transmittance measurement precision:	+/-0.1%
Data acquisition time:	1.5 ms
Light source output:	20 watts
Light source stability:	0.5% (~5 minutes to stabilize)
Light source drift:	<0.3% per hour
Bulb lifetime:	2,000 hours
Bulb color temperature:	3,000 K
Light source temperature:	5 °C - 35 °C
Light source humidity:	5-95% at 40 °C
Dust:	Ambient
Computer Requirements	
Operating systems:	Windows 98/Me/2000/XP, Mac OS X and Linux with USB port; Any 32-bit Windows OS with serial port
Computer interfaces:	USB 2.0 @ 480 Mbps; RS-232 (2-wire) @ 57.6 K baud

