

OL SERIES 750

AUTOMATED SPECTRORADIOMETRIC
MEASUREMENT SYSTEM



OPTRONIC LABORATORIES, INC.
Light Measurement Specialists Since 1970

AUTOMATED SPECTRORADIOMETRIC MEASUREMENT SYSTEM

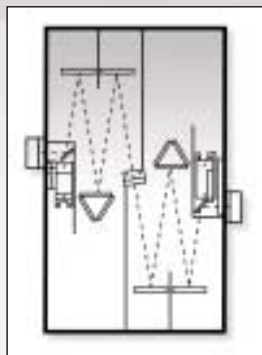
Inside the Black Box

The OL Series 750 Spectroradiometric Measurement System is controlled by the OL 750-C controller, which houses all the electronics, data acquisition, monochromator and accessory control. The all-in-one controller is connected to your PC via RS-232 interface as standard, or IEEE-488 as an option.

The heart of the system is your choice of a Single (OL 750-M-S) or Double (OL 750-M-D) high-efficiency ($f/4$) scanning monochromator. Each monochromator is precisely fabricated and assembled in our plant to exacting specifications.

Each is configured with a computer controlled, tri-grating mount as standard. Up to three large 68 X 68 mm gratings are employed for superior optical performance from 200 nm through 30 μm – covering the entire ultraviolet-visible-infrared spectrum.

The system is entirely computer controlled through its Windows® based application software. No manual operation of any controls is required. Every function from grating turret and filter wheel rotation to detector set-up, data reduction and calibration routines is controlled via the software and your PC.



OL-750-M-D
Double Monochromator

With the wide array of modular accessories available, the OL Series 750 can be configured to perform a variety of optical measurements.

Source Analysis

This covers a broad range of spectroradiometric measurements for all sorts of light sources. Equipped with the appropriate input optics, you will achieve the most precise measurements for light sources such as:

Arc Lamps, Blackbody Sources, Flash Lamps, Fluorescent Lamps, Growth Chambers, Laser Diodes, LED's, Low Light Level Sources, Pulsed Sources, Star Simulators, Solar Simulators, Solar Radiation, Sphere Sources, Tungsten Lamps

Input Optics Include:

- **Integrating Spheres** for measuring spectral irradiance or power.
- **Reflex Telescopes** when you need to measure spectral radiance or radiant intensity at large distances.
- **Reflex Microscopes** for measuring the spectral radiance of very small light sources.
- **Mirror Imaging Optics** for spectral radiance measurements from 200 nm to 30 μm .



OL 750-M-S

OL 730-9 Reflex Telescope

Transmittance



Coupled with a UV-VIS-IR source, collimator, and integrating sphere, the OL Series 750 can measure both the normal and diffuse spectral transmittance of various materials, such as lenses and filters. Transmittance can be measured in terms of percent transmittance, optical density, absorbance, or photometric transmittance.

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Specular Reflectance

■ The OL Series 750 can be configured with the OL 750-75MA Goniospectroreflectance Attachment to measure the specular reflectance of polished materials or mirrors as a function of both wavelength and angle of incidence. Achieving precise and accurate measurements are critical in applications such as:

Lens coatings, computer monitor and television screen surfaces, automotive windshield headlamp housings and mirrors, paint finished surfaces and shellacs, windows and portals, building materials, you name it.



Diffuse Reflectance

■ When you need to quantify the reflectance of light scattering in all directions from a surface, there is no better system available than the OL Series 750 configured with an OL 740-70 Integrating Sphere Diffuse Reflectance Attachment.

The OL 740-70 uses all mirror optics in a true double beam optical design. A light trap inserted at the specular position of the sphere wall provides for diffuse reflectance measurement, with the specular component removed.

Diffuse Spectral Reflectance measurements can be made including or excluding the specular component on material such as:

Powder, Paints, Cosmetics, Plastics, Glasses , Food, And more



Detector Response

■ Adding source imaging optics mounted at the entrance slit of the monochromator, exit optics that produce a uniform, collimated monochromatic beam at the exit slit and a standard calibrated reference detector, converts your OL Series 750 into a measurement system for determining detector response. Types of detectors which can be analyzed include:

Photomultiplier, Silicon, Germanium, InGaAs, Lead Sulfide, Lead Selenide, InSb, HgCdTe, Pyroelectric, CCD, Cameras, Radiometers, Photometers

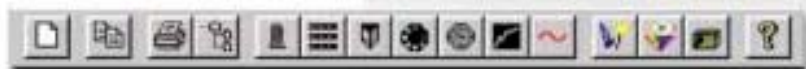
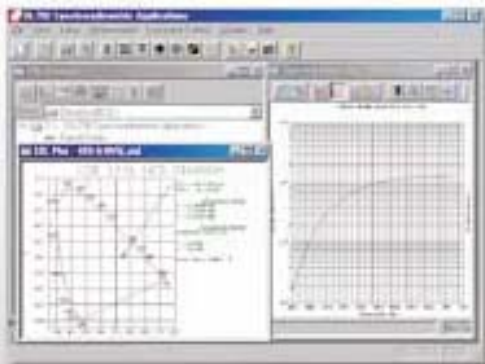


APPLICATION SOFTWARE

The OL Series 750 Application software is a highly intuitive Windows® based software package which combines utility programs and data reduction routines with specific application software, for a completely integrated operating system. The software operates on any Microsoft™ Windows® compatible computer (see separate information sheet for minimum system requirements), utilizing full mouse and/or keyboard control for menu selection.

Software Features:

- **Familiar Look and Feel.** Because the software is Windows® compatible, it provides you with a computing environment consistent with your everyday computer activity. Windows can be minimized, resized and opened multiple times allowing you to configure a measurement environment to suit your individual style.
- **One Button Access.** The software provides one button access to various setups with built-in wizards and drop down lists.
- **Powerful Wizards.** Built in Wizards guide you effortlessly through setup routines, such as grating and detector setup.
- **Smart File Browser.** The browser opens immediately after the application is booted. The browser enables you to customize the computing environment such as, opening multiple windows for data comparison and plotting. The browser sorts and stores data relevant to standards, calibration and measurements into “virtual folders,” eliminating the need for tedious searches in directory hierarchies.
- **Browser Pays Attention.** Once you access a file, the browser protects your data by changing the toolbar to reflect and access routines appropriate to that data file only.
- **Combine Files.** Simultaneously viewing two files and their combined input is simple, intuitive and visually coherent. You can easily scale and combine two files with interactive cursor dragging.
- **ActiveX™ Control SDK.** An option for custom software development.

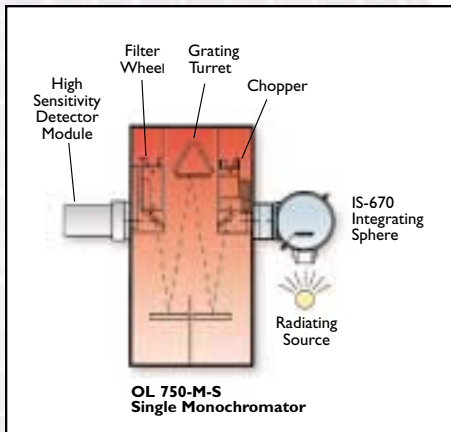


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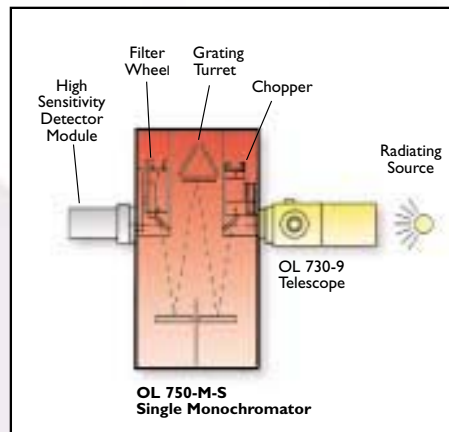


OL SERIES 750 OPTICAL LAYOUT

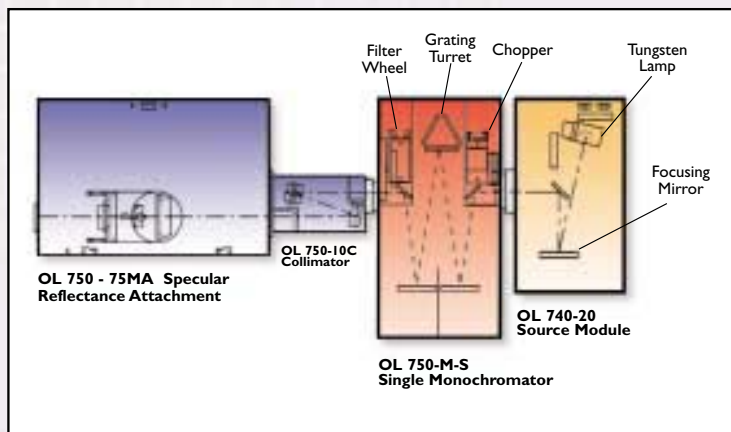
Source Analysis (Irradiance)



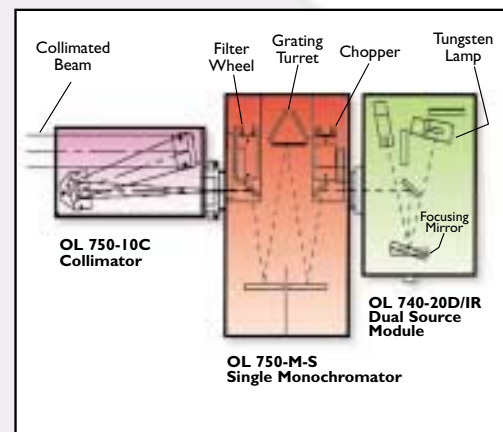
Source Analysis (Radiance)



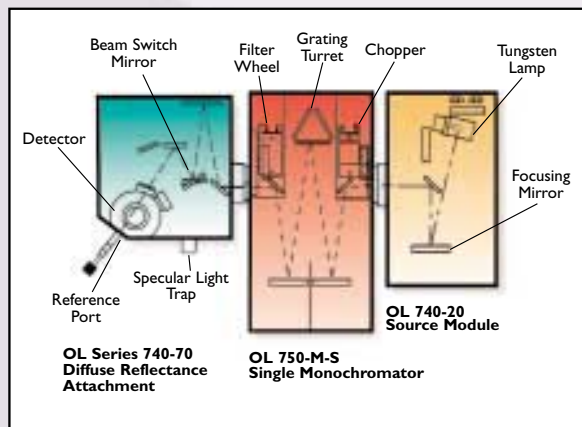
Specular Reflectance



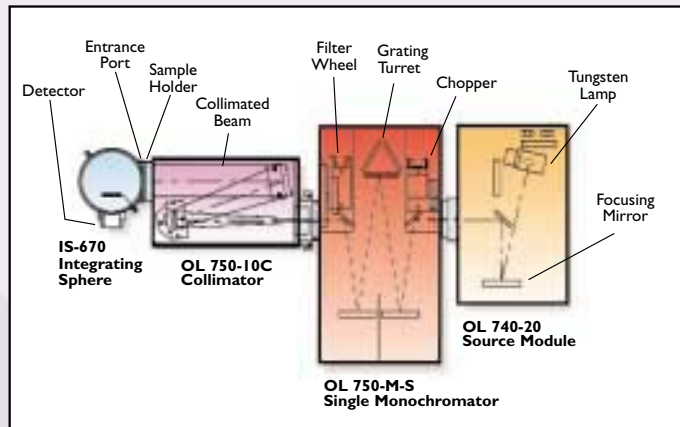
Detector Response



Diffuse Reflectance



Transmittance



■ The OL Series 750 Spectroradiometric Measurement System from Optronic Laboratories, Inc.

The OL Series 750 is the most versatile line of light measurement instrumentation in the industry today. Designed by practical minded light scientists for light measurement professionals, the OL Series 750 sets the standard when it comes to superior performance, accuracy and flexibility. The modular approach of this research-grade spectroradiometric measurement system coupled with a wide array of accessories and powerful Windows® based application software, enables users to tailor turn-key laboratory-quality light measurement systems to their exact requirements while ensuring expandability for other applications in years to come.

Each OL Series 750 provides you with research caliber results that are accurate, repeatable and traceable, with an infinitely expandable measurement system designed for decades of error-free measurements.

The OL Series 750 Spectroradiometric Measurement System is designed, built and calibrated for flawless precision, accuracy and ease of use. Over three decades of research and Optronic Laboratories' technical innovation goes into each custom configured OL 750. The basic system along with an extended selection of accessories means you can measure all or part of the entire UV-VIS-IR spectral range from 200 nm to 30 µm.

About Optronic Laboratories

Since 1970, Optronic Laboratories has been improving the way the world measures light (UV/VIS/NIR). In fact, the company enjoys a worldwide reputation as a leader and innovator in the field of optical radiation measurement. From the characterization and compliance of the most sophisticated NVIS instrumentation to tanning beds, Optronic Laboratories provides both standard and custom products and services to satisfy the most demanding light measurement applications.

We are headquartered in Orlando, Florida. Here, we design and manufacture research-grade and industrial-grade light measurement solutions. This means that clients are guaranteed the industry's highest quality modular systems and accessories

available, designed to provide consistent, traceable measurements throughout the long life of the instrumentation.

Our commitment to providing instrumentation designed for flawless precision and accuracy pays off through customer loyalty and the opportunity to solve some of the world's most difficult light measurement challenges.



OPTRONIC LABORATORIES, INC. HEADQUARTERS • Orlando, Florida



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OL-750-C Controller Specifications

Microprocessor	32-Bit
Interface	RS-232 (standard) IEEE-488 (optional)
Input	Detector Channel A Detector Channel B Detector Channel C (MUX option) Detector Channel D (MUX option) Photon Counter (optional) Pulse Integrator (optional)
Output	Monochromator Control DC Signal Monitor AC Signal Monitor AC Reference Monitor
Size	18 x 18 x 7.5 in. (46 x 46 x 19 cm)
Weight	27 lbs. (12 kg)
Operating Temp.	5°C to 40°C
Signal Detection System	DC, AC, Pulse Integration, and Photon Counting
Computer Controlled Functions	Grating Turret Position, Wavelength Position, Filter Wheel Position, Chopper Rate/Position, Signal Detection System

OL-750-M-S Monochromator Specifications

Wavelength Range	0.28 - 30 μm
Wavelength Accuracy	$\pm 0.05\%$
Wavelength Precision	$\pm 0.01\%$
Wavelength Mechanical Drive	Direct geared
Dispersion^{1/}	4 nm/mm
Bandwidth^{1/ 2/}	0.5 to 20 nm
Stray Light	10^{-4}
Grating Size	68 mm x 68 mm
Focal Length	254 mm (f/4)
Filter Positions	11
Chopper Rate	programmable 10-500 Hz
Control Interface	RS-422
Size	10 x 19 x 9.5 in. (25 x 48 x 24 cm)
Weight	34 lbs. (15.5 kg)
Operating Temp.	5°C to 40°C

OL-750-M-D Monochromator Specifications

Wavelength Range	0.20 - 30 μm
Wavelength Accuracy	$\pm 0.05\%$
Wavelength Precision	$\pm 0.01\%$
Wavelength Mechanical Drive	Direct geared
Dispersion^{1/}	2 nm/mm
Bandwidth^{1/ 2/}	0.25 to 10 nm
Stray Light	10^{-8}
Grating Size	68 mm x 68 mm
Focal Length	254 mm (f/4)
Filter Positions	11
Chopper Rate	programmable 10-500 Hz
Control Interface	RS-422
Size	16.5 x 28 x 9.5 in. (42 x 63 x 24 cm)
Weight	62 lbs. (28 kg)
Operating Temp.	5°C to 40°C

1/ - 1200g/mm gratings.

2/ - Narrower bandwidths obtainable with optional smaller size slits.

Visit Our Web Site

The Optronic

Laboratories web site

offers a large database

of specific information

concerning your

OL Series Product,

as well as a host of other

features that will provide

solutions and personal

applications support to

ensure our customers

satisfaction.

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