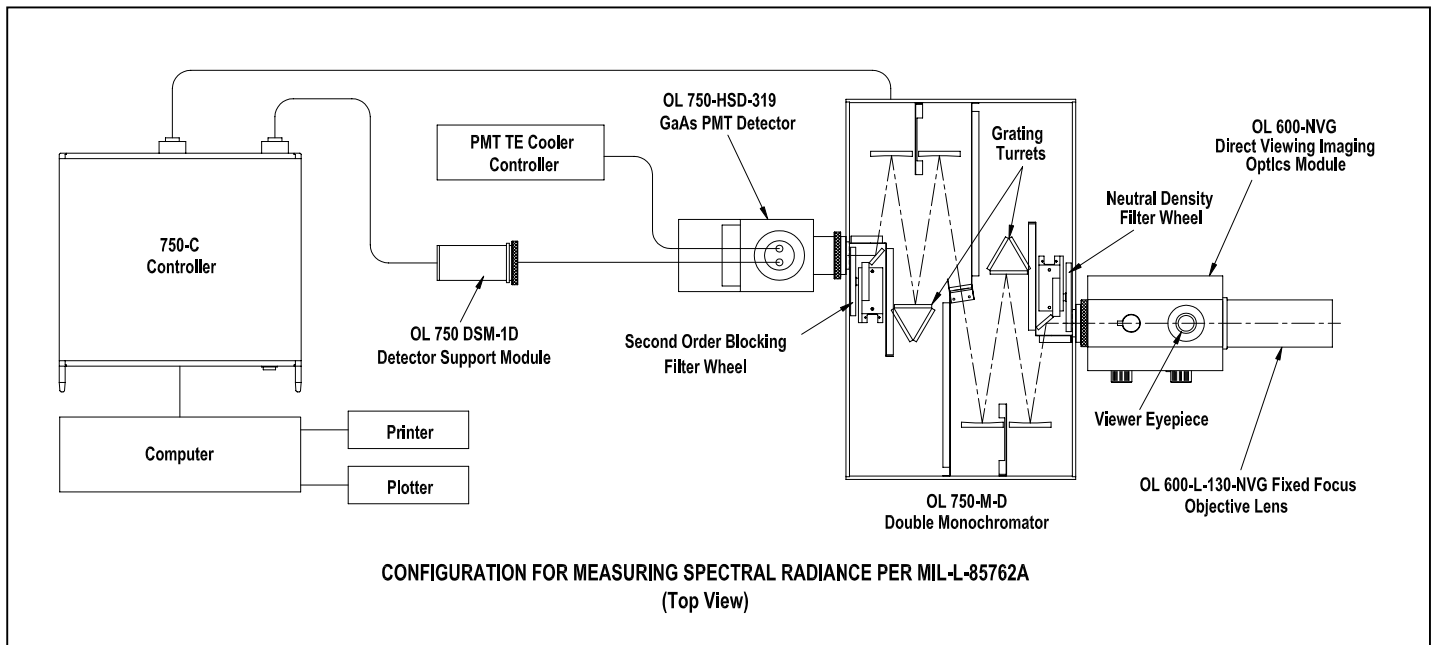


OL Series 750-NVG

Automated Spectroradiometric Measurement System

Configured for NVG Measurements per MIL-L-85762A

The OL Series 750-NVG is a specially configured version of the OL Series 750 Automated Spectroradiometric Measurement System for spectroradiometric and photometric certification of night vision devices. The OL 750-NVG, which **exceeds** the requirements of MIL-L-85762A, is a complete turnkey system capable of extremely sensitive spectroradiometric and photometric measurements over the wavelength range of 380 to 930 nm. The system incorporates an extremely sensitive GaAs PMT signal detection system with a research grade single (OL 750S-NVG) or double (OL 750D-NVG) grating monochromator and direct viewing imaging optics. The high sensitivity, in combination with the OL 750-423-NVG software, enables the user to certify night vision devices faster and more accurately than previously possible. Depending on the level of the spectral radiance, the time required to scan over the wavelength range 380 to 930 nm at 5 nm intervals varies from 1 to 5 minutes. In order to enhance the portability of the OL 750S-NVG System, the optics head (monochromator/ input optics/ detector housing) is mounted on a rugged aluminum baseplate.



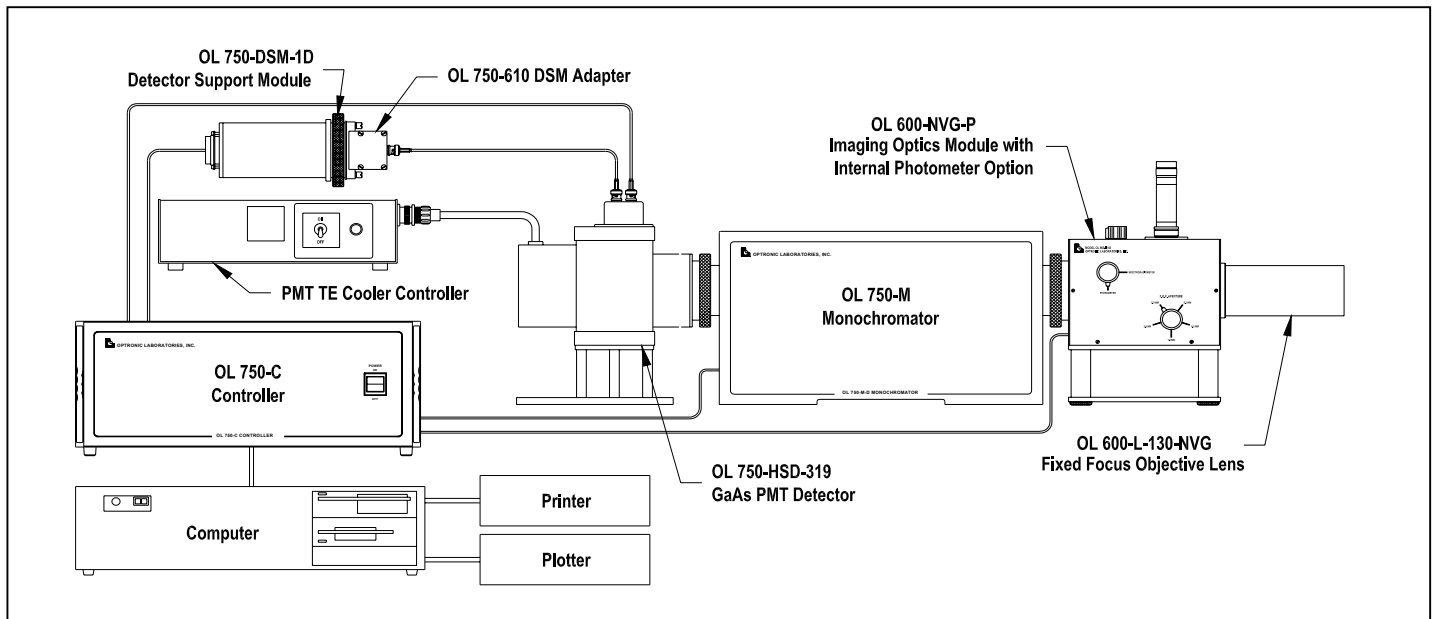
The OL 750-NVG includes:

- **OL 750-M-S Single or OL 750-M-D Double Research Grade Monochromator:** A single or double grating monochromator with automated, tri-grating turret mounts. Large (68 x 68 mm) gratings are used in order to optimize optical efficiency over the 380 to 930 nm wavelength range. The monochromators have: low stray light, wavelength accuracy of 0.2 nm, wavelength precision of 0.1 nm, automatic wavelength calibration, 4 to 8 nm/mm dispersion factors, an 11-position filter wheel with shutter and appropriate second order blocking filters for the 380 to 930 nm wavelength range and a 5-position neutral density filter wheel that expands the dynamic range to over 10 decades.
- **OL 750-C Controller:** An integral enclosure that houses all data acquisition and control electronics and communicates with the host computer through an RS-232 interface (IEEE-488 optional). The OL 750-C has a 32-bit microprocessor and performs monochromator control, detector selection/interface and signal processing. The OL 750-C is entirely computer operated and does not require manual operation of any controls.
- **OL 750-HSD-319-NVG Cooled GaAs PMT:** An extremely sensitive detector for use over the 380 to 930 nm wavelength range (NEP 10^{-16} watts). A TE/ air-cooled, PMT housing and variable temperature controller, along with a programmable HV power supply, are part of the detector package.
- **OL 750-SDS-210 Signal Detection System:** A signal detection system capable of measuring detector signals from 10^{-3} to 10^{-15} amperes
- **OL 600 Direct Viewing Imaging Optics Module with the OL 600-L-130NVG Fixed Focus Objective Lens:** Direct viewing optics design gives precise positioning or focusing of the source. A 5-position aperture wheel with aperture diameters of 5, 3, 1.5, 0.5 and 0.3 mm in combination with the 1.67:1 magnification enables the system to measure sources as small as 0.007 inches (0.18 mm).

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- **OL 750-423-NVG Software:** Windows compatible, NVG optimized software that enables the user to control the OL 750-NVG Measurement System. This software, designated "optOLab," combines data reduction and utility programs with the application programs for a completely integrated operating system. Depending on the user's preference, optOLab can be run from a Windows™ or DOS platform. The software operates on any IBM® 386 or higher PC. Using the Windows "desktop" concept, optOLab permits the user to access multiple screens simultaneously for system setup, utilities support, automated measurements and manual measurements. System calibration and measurement programs are standard. The software computes chromaticity, luminance, and NVIS A and NVIS B radiance and prints out a complete test report.
- **OL 750-NVG-P Internal Photometer (optional):** Enables the OL 750-NVG System to operate as a stand alone, direct photometer. The OL 750-NVG-P Option consists of an accurate photometric sensor, which is mounted in the OL 600-NVG Direct Viewing Imaging Optics Module and the OL 750-422 Stand Alone Photometer Software. A beam deflecting mirror enables the user to direct the beam to either the photometric sensor or, with the mirror positioned out of the optical path, to the entrance slit of the monochromator. The OL-750-C Controller can simultaneously accept the inputs from both the Photometric Sensor and the GaAs PMT. Thus, in order to switch from spectroradiometric to photometric measurements, the user merely switches the beam deflector to the "photometric" position and initiates the photometer software via the computer. The photometric sensor, which can measure signal levels as low as 1×10^{-15} amperes, is sufficiently sensitive to measure 0.1 footlambert sources having diameters of 0.007 inches. In addition, the photometric correction has an f factor of 1.5%. These features give the user the capability of measuring the luminance of virtually any source quickly and accurately and then performing the spectroradiometric measurements without having to realign the source.

Options for Stand Alone Photometer Operation



- **OL 455-6-1 Integrating Sphere Calibration Standard (optional):** Enables the user to easily calculate the OL 750-NVG System for spectral radiance response and for luminance response (when configured for stand alone photometer operation). The OL 455-6-1 consists of a source module/ optics head with a 6-inch diameter integrating sphere and a separate electronic display console/power supply. Calibration of the OL 750-NVG is easily accomplished as the near normal luminance/radiance of the 1½-inch diameter radiating port is uniform within $\pm 0.5\%$. See Bulletin 108 for more information on the OL Series 455.