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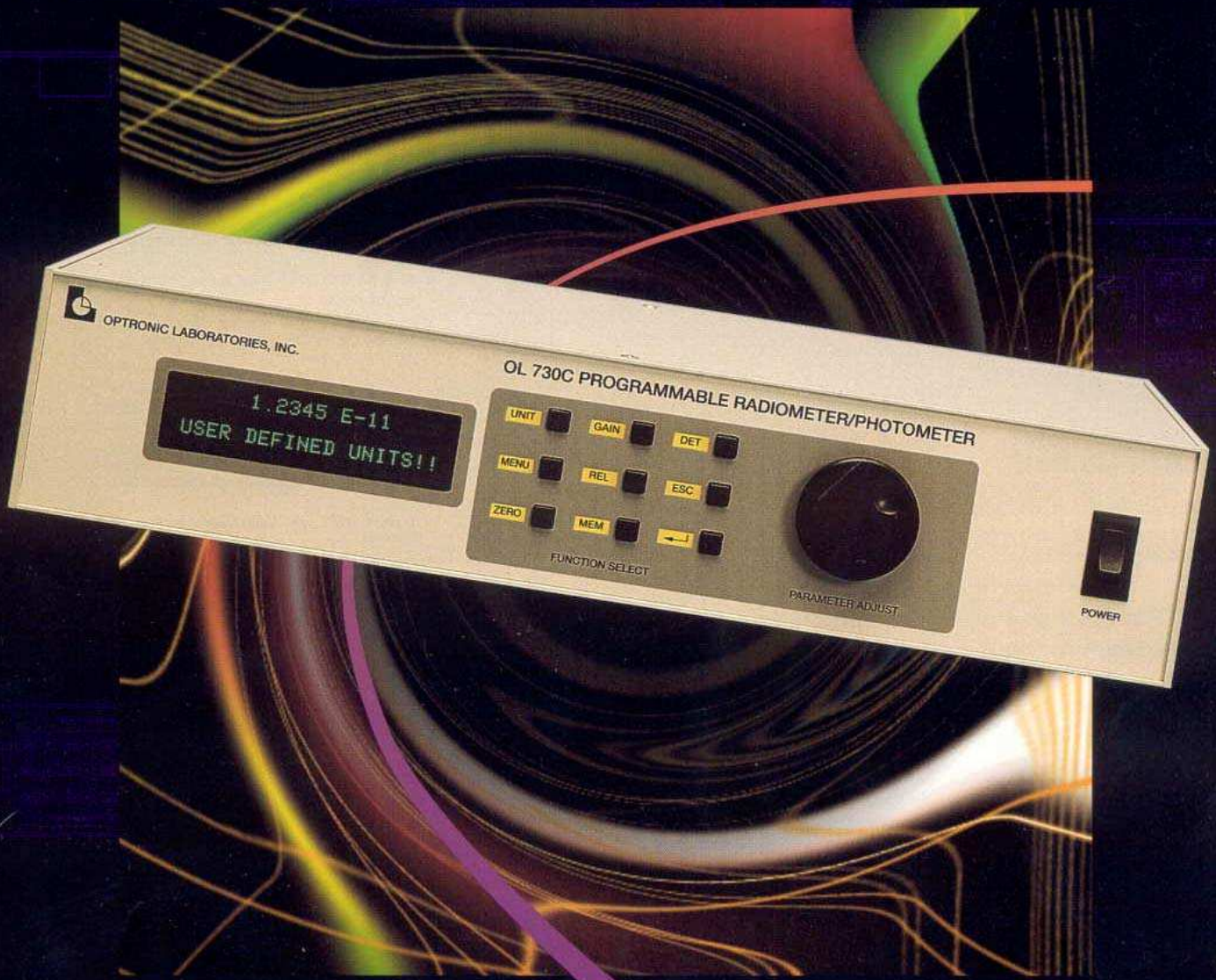
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Find the *Optronic Laboratories 730C* at our website: ***Click HERE***

OL 730C

Programmable Radiometer/Photometer



OPTRONIC LABORATORIES, INC.

Emphasizing Precision and Accuracy

OL 730C PROGRAMMABLE RADIOMETER/PHOTOMETER





The OL 730C Programmable Radiometer/Photometer sets the standard when it comes to superior performance, accuracy, sensitivity and versatility. The OL 730C is a completely microprocessor controlled, high sensitivity radiometer/photometer which can be programmed to read directly in any user specified radiometric or photometric optical quantity. The Radiometer/Photometer features high sensitivity, autoranging, auto-zeroing, highly accurate readout and range-to-range linearity, 4 1/2 digit plus exponent display, variable response time, RS-232 Interface (IEEE-488 optional), multiple detector operation, and extremely large dynamic range.The basic OL 730C is furnished with an internal preamplifier and has a sensitivity of 1 X 10^{-14} amperes. The optional detectors available for use with the OL 730C include silicon, photomultipliers, germanium, and InGaAs. In addition, an ultra high-sensitivity silicon detector with the amplifier built into the detector head is available that has a noise level of 10^{-15} amperes when used with the OL 730C. This combination has a radiometric sensitivity of 2 x 10^{-15} watts at 900 nm and a photometric sensitivity of 10^{-11} lumens.

The OL 730C can be programmed to read directly in any user specified radiometric or photometric optical unit. Multiple calibration factors for different detector/filter/input optic configurations can be stored in memory. Once the desired detector/filter/input optic configuration and associated calibration factor is selected, the OL 730C will measure and read directly in the designated optical units. A programmable, high voltage dc power supply for use with photomultiplier detectors is also available as an option.

FEATURES

OL 730C Front Panel Controls

The OL 730C has nine illuminated function keys and a variable control knob in addition to a 20 character x 2 line, alphanumeric, vacuum-fluorescent display.

The function keys enable the user to:

- **Select the desired detector head (storage capacity is 25)**
- **Select the units of measurement**
- **Auto-zero the background signal**
- **Select the gain range (manual or autorange)**
- **Store up to 99 signal readings in memory**
- **Select 100% or 0 dB readings for transmittance and reflectance**
- **Enter a menu routine for specifying system and operating parameters**
- **Enter, edit, or delete any of the set parameters**

The variable control knob is used to view and select menu options, adjust displayed parameter values, and spell out detector descriptions.

SPECIFICATIONS

Readout (units)	User programmable
Display	4 1/2 digits plus exponent
Range FS (standard)	2 x 10^{-3} to 2 x 10^{-10} amperes
	2 x 10^{-3} to 2 x 10^{-11} amperes*
Resolution (standard)	10^{-14} amperes
	10^{-15} amperes*
Current Accuracy	
10^{-3} to 10^{-7} amperes	± 0.05% + 1 digit
10^{-8} to 10^{-9} amperes	± 0.1% + 1 digit
10^{-10} amperes	± 0.5% + 2 digits
10^{-11} amperes	± 0.6% + 2 digits*
Outputs (standard)	RS-232
	IEEE-488*
Response Time	User selectable for each gain range from 0.1 to 25.5 seconds
Zero Control	Auto
Range Selector	Auto or manual
DC Bias Voltage	Programmable from -200 to -1100 VDC*
Size	3.5 x 17 x 10 inches (9 x 43 x 25.5 cm)
Weight	10 lbs (4.5 kg)
Power Requirements	115 VAC @ 60 Hz / 220 VAC @ 50 Hz
Warranty	1 year parts and labor

*Optional

ACCESSORIES

A large selection of accessories is available for use with the OL 730C. These accessories include:

- **Detectors**
- **Input Optic Modules**
- **Optical Filters**
- **Calibration Standards**

The accessories enable the user to tailor the OL 730C for a multitude of measurement applications. An OL 730C/detector/filter/input optic combination can be configured to measure:

Luminous flux	**Radiant flux (power)**	**Transmittance**
Luminance	**Radiance**	**Luminous intensity**
Illuminance	**Irradiance**	**Radiant intensity**

In all cases, the OL 730C can be calibrated and programmed, either at the factory or by the user, to read directly in the desired photometric or radiometric units.

DETECTORS

A listing of the detectors available for use with the OL 730C along with their useful wavelength range and NEP at the peak wavelength is given in chart to right.

MODEL NO.	DETECTOR TYPE	WAVELENGTH RANGE	NEP (WATTS)
OL 730-5A	Silicon	200 to 1100 nm	2×10^{-14} @ 960 nm
OL 730-5H	Silicon w/Amplifier	200 to 1100 nm	2×10^{-15} @ 960 nm
OL 740-16	Ge (TE cooled)	800 to 1800 nm	7×10^{-13} @ 1500 nm
OL 730-11	InGaAs	800 to 1800 nm	1×10^{-13} @ 1580 nm
OL 740-15	Photomultiplier	200 to 800 nm	6×10^{-17} @ 430 nm

OPTICAL FILTERS

A listing of the optical filters available for use with the OL 730C along with their functions are in chart to right.

MODEL NO.	FILTER DESIGNATION	FUNCTION
OL 730-5-PF	Photopic	CIE V(λ) 380 to 780 nm
OL 730-5-T	Tristimulus (set of 4)	$\bar{y}$, $\bar{x}_r$, $\bar{x}_z$, $\bar{z}$ functions
OL 730-5-RB	Color Temperature(2 ea.)	Red/Blue ratio
OL 730-5-RF	Radiometric	Calibrated (460 to 980 nm)
OL 730-5-LED	LED Photometric	High Accuracy CIE V(λ)
OL 730-1,-2,-3	Attenuation (10, 1, & 0.1%)	Calibrated (250 to 1100 nm)
OL 730-5-XXX	Spectral Bandpass	Consult Factory

INPUT OPTICS

The versatility and measurement capability of the OL 730C is greatly enhanced with the selection of optional input optic modules. With the proper input optics, the OL 730C can be calibrated and programmed to read directly in the desired optical unit. In addition, up to 25 different optical head configurations with their associated calibration factors can be stored in the OL 730C at any one time. In actual use, the optical filter (if required) is inserted in the selected detector head and the combination is attached to the input optic module. All of the detectors, filters and input optic modules are user interchangeable.

OL 600 Direct Viewing Imaging Optics Module

OL 15 LED Receptor

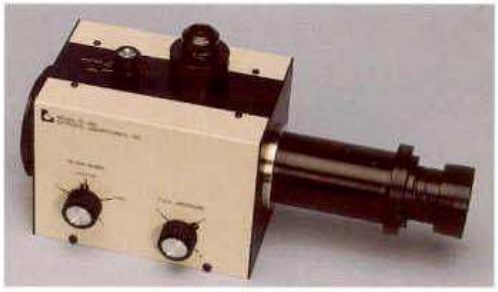
OL Series 85 Cosine Receptors (transmitting)

OL IS-430 4-Inch Integrating Sphere Cosine Receptor (in-line ports)

OL IS-440 4-Inch Integrating Sphere Cosine Receptor (90° ports)

OL 730-7G Glass Fiber Optic Probe

OL 730-7Q Quartz Fiber Optic Probe



The **OL 600 Direct Viewing Imaging Optics Module** is useful for measuring the luminance, radiance, or spectral radiance of uniform, diffusely emitting light sources.

Features include:

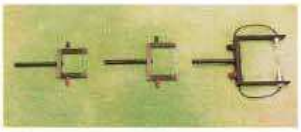
- A 4-position, reflective FOV aperture wheel which directs the unmeasured portion of the light beam to a 25 mm viewer eyepiece (8X).
- A 5-position filter wheel for inserting shutter or optional filters in the optical path.
- A relay lens for 1:1 imaging of the target aperture onto the detector or monochromator entrance port.
- Optional objective lenses mounted in a focusing lens barrel.

Calibration Standards

Optronic Laboratories, a recognized leader in high quality spectroradiometric, radiometric, and photometric standards around the world, offers one of the most complete selections of calibration standards in the industry. For more than two decades, Optronic Laboratories has been in the forefront of developing and supplying NIST-traceable standards which enable users to approach state-of-the-art accuracies when calibrating optical radiation measuring instrumentation.

OL SERIES FEL, 200, 220 & 245

HIGH ACCURACY STANDARDS OF SPECTRAL IRRADIANCE/ILLUMINANCE



These standards consist of 1000-W, 200-W and 45-W tungsten-halogen lamps which are calibrated over all or part of the 250 to 2500 nm wavelength range. The 1000-W and 200-W versions can be obtained with calibrations out to 4500 nm and also with special super high accuracy calibrations. Illuminance, color temperature, and chromaticity values are also supplied with those standards calibrated over the visible spectrum. The base of the 1000-W FEL standards have been converted to the medium bi-post socket as recommended by NIST.



OL SERIES 455

HIGH-INTENSITY INTEGRATING SPHERE CALIBRATION STANDARD

The OL Series 455 is a high-intensity, uniform, diffusely radiating calibration standard. It is used for accurately calibrating imaging spectroradiometers, radiometers and photometers. The luminance of the OL Series 455 can be varied over six decades without changing the color temperature. The OL Series 455 consists of a source module/optics head and a separate electronic display console/power supply. A precision silicon detector-filter combination with an accurate photopic response is mounted in the sphere wall and monitors the sphere luminance. Source modules are available with integrating spheres having diameters of 4, 6, 8, 12, or 18 inches with corresponding exit or radiating ports of 1, 1 1/2, 2, 3, or 6 inches. The OL Series 455 can also be obtained with calibrations for spectral radiance over the 300 to 2500 nm wavelength region.



Calibration & Measurement

Optronic Laboratories was established as an optical radiation instrumentation, standards, and calibration laboratory in 1970. Forming the nucleus of the company were two former NIST (National Institute of Standards and Technology, formerly the National Bureau of Standards) physicists who had individually made significant contributions to the field of spectroradiometry and electro-optical technology. The company was established to eliminate a void which existed in industry, government, and academia in the area of optical radiation standards, calibration services, and measurement instrumentation. The company emphasized precision and accuracy in these endeavors and, as a result, has developed a reputation for high quality work and a unique capability throughout the world in the measurement of optical radiation.

The key to Optronic Laboratories' light measuring capabilities lies in the senior personnel formerly associated with NIST and in the calibration laboratory patterned after that at NIST. The company, however, has designed its laboratory more toward handling practical calibration problems. Thus, in addition to providing spectroradiometric, radiometric and photometric standards and instrumentation, the company provides unique calibration services.

Most of the standards and calibration services supplied by Optronic Laboratories are directly traceable to NIST. In those cases where NIST standards are not available, standards from other national laboratories or standards set up at Optronic Laboratories are used.

SERVICES OFFERED BY OPTRONIC LABORATORIES, INC.

Characterization of Light Sources
Characterization of Detectors, Radiometers, Arrays and CCD's
Calibration of Spectroradiometers
Optical Properties of Materials

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