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LABORATORIES

# OL SERIES 730E

*The OL 730E Programmable Radiometer / Photometer sets the standard when it comes to superior performance, accuracy, sensitivity, and versatility. When coupled with the appropriate detector, optical filter, and/or input optic, the OL 730E can provide research grade precision and accuracy at a fraction of the cost of comparable stand-alone systems.*




The basic OL 730E 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 730E include silicon, photomultipliers, germanium, and indium gallium arsenide.

The OL 730E can be programmed by the user to read directly in any specified radiometric optical unit. Up to 25 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 are selected, the OL 730E will measure and read directly in the designated optical units. The OL 730E-HV, a programmable, high voltage DC power supply for use with photomultiplier detectors, is also available as an option at time of purchase or as a factory upgrade.

## Design Features

The OL 730E is a microprocessor-controlled, high sensitivity radiometer / photometer that can be programmed to read directly in any user-specified radiometric or photometric quantity.

- High Sensitivity
- Auto-Ranging
- Auto-Zeroing
- Highly Accurate Readout and range-to-range Linearity
- Integrating Mode for Measuring Flash Sources
- 4½ Digits Plus Exponent Display
- Variable Response Time
- USB Interface
- Multiple Detector Library
- Extremely Large Dynamic Range
- Software Application for PC Control and Remote Logging
- Small Footprint

| SPECIFICATIONS | |
|---|---|
| **Readout** *(Units)* | User Programmable |
| **Display** | 4½ Digits Plus Exponent |
| **Range** | 2 x $10^{-10}$ to 2 x $10^{-3}$ Amps |
| **Resolution** *(Standard)* | $10^{-14}$ Amps |
| **Accuracy** *(@ 25°C Ambient)* | |
| $10^{-3}$ to $10^{-7}$ Amps<br>$10^{-8}$ to $10^{-9}$ Amps<br>$10^{-10}$ Amps | ± 0.05 % + 1 Digit<br>± 0.1 % + 1 Digit<br>±0.5 % + 2 Digits |
| **Noise** | 1.0$^{-14}$ A/√Hz |
| **Range Selector** | Auto, Manual, or Software Selectable |
| **Response Time** | 0.1 Sec to 10.0 Sec |
| **Operating Temp Range** | 5°C to 40°C |
| **Operating Humidity Range** | 0% - 90% *(Non-condensing)* |
| **Size** | 7.12" x 3.71" x 7.75" *(18.1 x 9.4 x 19.7 cm)* |
| **Weight** | 2.5 lbs. *(1.13 kg)* |
| **Power Input** | 85-265 VAC, 0.3A, 50/60Hz |
| **Computer Interface** | USB |
| **Auxiliary I/O Interface** | 15-pin Female (HD15) TTL *(4 Inputs, 4 Outputs)* |
| **Optional PMT High Voltage Range** | -200 VDC to -1100 VDC |

## OL 730E FRONT PANEL CONTROLS

The OL 730E has eight (8) function keys and a 20 character X 2 line, alphanumeric, backlit LCD 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)*
- Select 100% or dB readings for transmittance and reflectance
- Enter a menu routine for specifying system and operating parameters

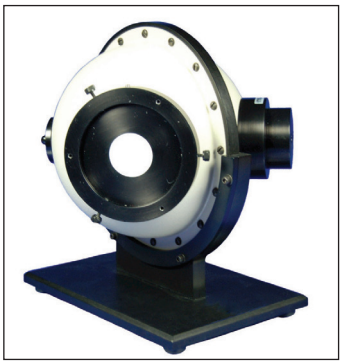
## INPUT OPTICS

A line of accessories for the OL 730E are available to enable users to tailor the unit for multiple measurement applications. An OL 730E / detector / filter / input optic combination can be configured to measure:

- Luminance *(fl, cd/m$^2$)*
- Illuminance *(lux, footcandle)*
- Radiant flux *(power, watts)*
- Radiance *(watts/cm$^2$/sr)*
- Irradiance *(w/cm$^2$)*
- Photopic transmittance *(%/db)*
- Luminous intensity *(lumens/sr, candela)*
- Radiant intensity *(watts/sr)*

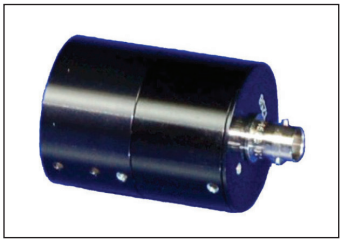
The versatility and measurement capability of the OL 730E is greatly enhanced with the selection of optional input optic modules. With the proper input optics, the OL 730E can be calibrated and programmed to read directly in the desired optical units. In addition, up to 25 different optical head configurations with their associated calibration factors can be stored in the OL 730E 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 changeable.

- OL 600 Direct Viewing Imaging Optics Module
- OL 16AB LED Receptor *(with OL 730-5 and OL 730-5-PF-1 filters)*
- OL Series 85 Cosine Receptors *(transmitting)*
- OL IS-430 4-inch Integrating Sphere *(in-line ports)*
- OL IS-670 6-inch Integrating Sphere *(90° ports)*
- OL 730-8 Reflex Microscope
- OL 730-9A Reflex Telescopes



| DETECTORS | | | |
|---|---|---|---|
| **Model #** | **Detector Type** | **Wavelength Range** | **NEP (Watts)** |
| OL 730-5 | Silicon | 0.2 – 1.1 Gm | 2 x $10^{-14}$ @ 960 nm |
| OL 730-Ge | Germanium *(TE Cooled)* | 0.8 – 1.8 Gm | 7 x $10^{-13}$ @ 1500 nm |
| OL 730-In-GaAs | Indium Gallium Arsenide *(TE Cooled)* | 0.8 – 1.7 Gm | 1 x $10^{-13}$ @1580 nm |
| **OL 730-Si** | Silicon *(TE Cooled)* | 0.2 – 1.1 Gm | 5 x $10^{-15}$ @ 960 nm |
| **OL 740-15** | Photomultiplier | 0.2 – 0.8 Gm | 6 x $10^{-17}$ @ 430 nm |

| OPTICAL FILTERS | | |
|---|---|---|
| **Model #** | **Filter Designation** | **Function** |
| **OL 730-5-PF** | Photometric *(f1'<4%)* | CIE V (λ) 380 – 780 nm |
| **OL 730-5-PF-1** | Photometric *(For S-20 Response PMT)* | CIE V (λ) 380 – 780 nm |
| **OL 730-5-PF-LED** | High-accuracy Photometric *(f1'<1.6%)* | CIE V (λ) 380 – 780 nm |
| **OL 730-5-RB** | Color Temperature *(Set of 2)* | Red / Blue Ratio |
| **OL 730-5-RF** | Radiometric | Calibrated 460 – 980 nm |
| **OL 730-1, -2, -3** | Attenuation *(10, 1, & 0.1%)* | Calibrated 250 – 1100 nm |



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**Data sheet: B135 Nov 2018**

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