

Model 504D MOD 1
PHOTOMETRIC SPHERE



FEATURES

The model 504D MOD 1 Photometric Integrating Sphere is an AC operated instrument suitable for bench mounting that is primarily intended for quality control of production quantities of subminiature incandescent lamps. The unit measures average luminous intensity (mean spherical candelpower) expressed in spherical millicandelas (smcd) and has a maximum range of 1999.9 smcd.

The front panel includes the SPHERICAL MILLICANDELA display and an illuminated rocker type POWER switch. The right side panel of the instrument has an AC POWER receptacle which accepts the right-angle plug of a heavy duty 3-wire cord set. The right side panel also includes a 4-contact LAMP POWER and VOLTAGE SENSE receptacle which connects to a locking right-angle plug with attached 4-wire cable terminated in color coded banana plugs.

The system features a photopically corrected silicon photosensor which yields rapid response without hysteresis, fatigue or memory errors. The photosensor drives a chopper stabilized integrated circuit amplifier which optimizes sensor loading for linear conversion of luminous intensity to electrical output with excellent stability over the full range of the instrument. The analog output of the amplifier is digitized by a high linearity auto zero A/D converter which includes calibration circuitry and a driver for the 4 1/2 digit liquid crystal display (LCD).

REQUIRED ACCESSORIES (AVAILABLE AT EXTRA COST)

CALIBRATED LAMPS - for periodic calibration checks. These lamps should be maintained in sets of three to allow detection of drift or damage. To optimize accuracy, a calibration lamp should closely simulate the lamps being measured in candela, color temperature and geometric configuration. Certified lamp sets calibrated for several levels of average luminous intensity and traceable to the National Institute of Standards and Technology (formerly NBS) are listed on our calibration lamp data sheet.

LAMP BASE ADAPTORS - to accommodate the majority of subminiature lamp bases commonly used in aircraft and electronic applications. Lamp sockets (and calibration lamps) are affixed to a mounting platform which has gold-plated contacts to minimize contact resistance. The adaptors are listed on our model 530A series data sheet.

USER SUPPLIED ACCESSORIES

METERED REGULATED POWER SUPPLY - required to energize lamp filaments. We recommend a DC type with both voltage and current regulation modes, an overall regulation of 0.01% or better and remote high impedance sensing with high resolution adjustments for output voltage and current. Independent digital metering of voltage and current should be provided with an accuracy of 0.01% of the reading or better and to a resolution of 4 digits.

SPECIFICATIONS

POWER - Instrument is powered from 50/60 Hertz AC power line with operation on 115 volts or 100 volts through selection of internal transformer taps. Operation on 240V AC is available by request at time of order.

SPHERE - Approximately 4 inches in diameter (100mm). Interior finished with flat spectral reflectance lusterless white coating.

DISPLAY - 4 1/2 digit 0.4 inch (10mm) high LCD type with triplexed temperature compensated drive.

RANGE AND RESOLUTION - Single range, 0 to 1999.9 SMCd.

LINEARITY $\pm 0.1\%$ of the reading, $\pm 0.001\%$ of full scale. Absolute accuracy depends upon the accuracy of the lamp standard, voltmeter and ammeter used for calibration.

SPECTRAL RESPONSE - Optically filtered silicon photosensor has response trimmed to match the photopic (tristimulus "Y") curve with an accuracy that allows no more than 2% candela deviation due to change in color temperature over a range of 1800 to 3000 Kelvins.



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**PHOTOMETRIC
SPHERE**

MODEL 504D MOD 1

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