

## OL 16A, 65A, and 83A Programmable DC Current Sources



The OL 16A, 65A and 83A are microprocessor controlled, precision DC current sources specifically designed to accurately operate tungsten filament lamp standards and calibration sources. The power output range is 10 to 100 watts for the OL 16A, 10 to 200 watts for the OL 65A and 10 to 1000 watts for the OL 83A. All three units feature:

- Output current accuracy of  $\pm 0.01\%$  or better
- Controlled ramp up / ramp down of the lamp current
- Simultaneous digital readout of lamp current, voltage, and power
- Ability to set lamp current, voltage, or power
- Lamp "library" for storing and recalling the operating parameters & description for up to 10 different lamps. The user-defined operating parameters include lamp current, voltage or power, current limit, calibration due interval & lamp hours. A separate elapsed time meter keeps track of the lamp hours for each of the 10 lamps. A calibration due warning message will appear upon power up when the lamp hour's limit is exceeded and/or 1 year has elapsed since last calibration.
- RS-232 (standard) and IEEE-488 (optional) computer interface

Tungsten lamp standards must be operated at their specified calibration current in order to realize the accuracy of the standard. A small error in setting the lamp current can induce a sizeable, wavelength dependent error in the spectral output of the lamp. The OL 16A/65A/83A enables the lamp current to be set to an accuracy of better than  $\pm 0.01\%$ , a factor of about 25 better than most other commercial power supplies, which are typically 0.25%. The advantage of the OL 16A/65A/83A's increased accuracy is illustrated in the table below.

### SPECTRAL IRRADIANCE UNCERTAINTY Due To ERROR IN SETTING LAMP CURRENT

Wavelength (nm)	OL 16A/65A/83A $\pm 0.01\%$	Other Supplies $\pm 0.25\%$
250	0.12%	3.0%
300	0.09%	2.3%
550	0.04%	1.0%
1000	0.02%	0.5%
2000	0.01%	0.3%

\*Tungsten Lamp @ ~3000K

In order to eliminate electrical shocking of the lamp due to high initial current surges, a ramp function is used to control the turn-on current rise. Once the instrument is turned on, the current automatically increases at a slow, safe rate until the set current is reached. A fail-safe, shut down circuit protects the lamp standard against any equipment malfunctions.

The OL current sources will maintain their accuracies while experiencing  $\pm 10\%$  fluctuations in line voltage and  $\pm 10\%$  variance on the load voltage. These features effectively compensate for transients in the power line and variations in resistance from one lamp to another. The power supplies are packaged in a chassis suitable for mounting in a 19" cabinet rack.