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68950 Light Intensity Control System.

- **Light intensity controller and digital timer in one**
- **Ensures stable long term output from arc, deuterium and quartz tungsten halogen lamps**
- **Reduces short term variations**
- **Conveniently mounts directly to Oriel Lamp Housings**
- **Dose control**
- **RS-232 communications**

The all **new** 68950 is a light intensity controller and digital timer in one. The Light Intensity Controller maintains a constant light output from your arc, deuterium and quartz tungsten halogen lamps, and the digital timer allows timed exposures and dose control. RS-232 communications allow computer controlled operation.

DO I NEED A LIGHT INTENSITY CONTROLLER?

Oriel Power Supplies are highly regulated to operate lamps at constant current or power, even if the line voltage changes over a wide range. Even with lamp current constant, the light output of many lamps varies with age, filament or electrode erosion, gas adsorption or desorption, and, particularly for mercury lamps, ambient temperature. Both the total output and the distribution of power between the spectral lines from a mercury lamp change with temperature. These effects cause output variations with time, with different and sometimes pronounced frequency dependence. Even the relatively simple quartz tungsten halogen lamps exhibit output variations: evaporation and halogen cycle redeposition of tungsten constantly change the microstructure of the filament.

The 68950 corrects for these lamp output changes, maintaining a constant, short and long term output, from the lamp. The figures on the right show the marked improvement in output stability when a 68950 is used.

HOW DOES IT WORK?

The 68950 is made up of a light sensing head and a controller. The silicon based light sensor monitors part of the light source output; the controller constantly compares the recorded signal to the set level and changes the power supply output to keep the measured signal at the set level. Automatic detector gain setting allows the unit to work with the large variety of light sources offered by Oriel.

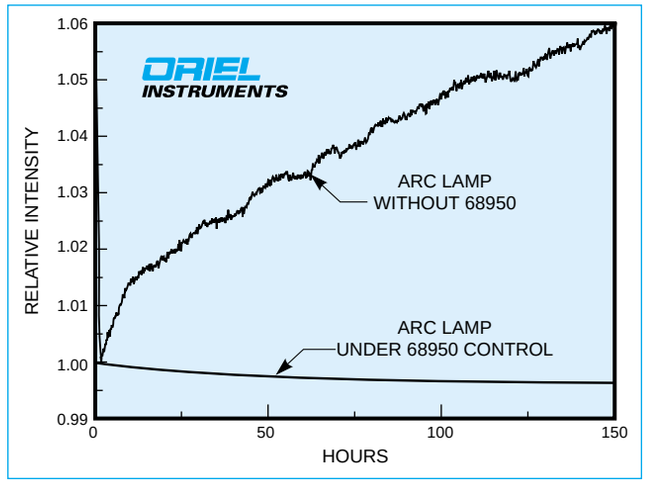


Fig. 1 Intensity of arc lamp under 68950 Light Intensity control, and without 68950 control.

Light Sensor

The sensor is temperature stabilized to maintain complete independence from temperature variations; this means you don't have to worry about variations in the ambient temperature affecting the reading.

Control Box

The control box of the 68950 houses the Light Intensity Controller and the Digital Timer. Fig. 3 shows the front panel. Two independent readouts display timer and light intensity controller (LIC) information.

Light Intensity Controller

As the lamp ages or as other conditions cause a change in the light output, the controller signals the lamp power supply to increase or decrease power to the lamp, in order to maintain the light output constant. (Not all Oriel Power Supplies work with the 68950. See the following page for a list.)

Digital Timer

The Digital Timer controls any Oriel Shutter, for timed exposure applications. Accurate, repeatable timed exposures down to 2 ms are possible. We also offer a stand alone Digital Timer, for those not requiring a Light Intensity Controller. Neither the Stand Alone Digital Timer, model 68945, nor the Light Intensity and Digital Timer System, model 68950, drive the shutter. They provide TTL output for the driver which is a part of the shutter system.

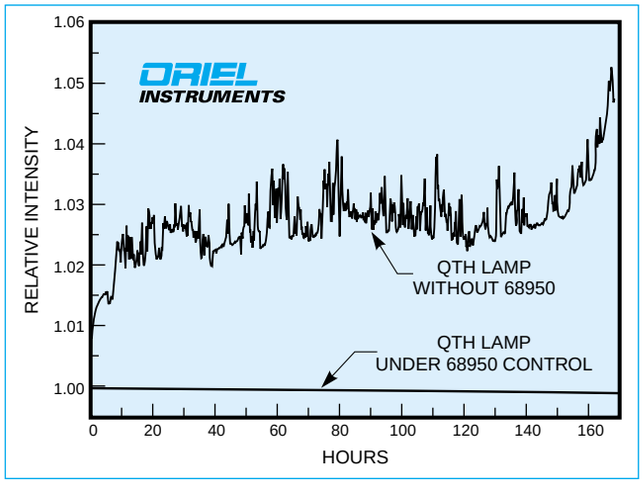


Fig. 3 Intensity of QTH Lamp under 68950 Light Intensity control, and without 68950 control.

OPERATING MODES/FEATURES

- Light Intensity Control (ON/OFF)
- Single or multiple timed exposures
- Dose control mode
- Audio and electrical “out-of-control” alarms
- Remote switch activation
- Exposure/Dose accumulation
- Idle mode
  - Lamp life extension
  - Faster output setting
- Up or down exposure counting
- Sensor calibration for Dose mode

WORKS WITH SELECTED POWER SUPPLIES

Only the following Oriel Power Supplies support the 68950 Light Intensity Control System:

68907 50 - 200 W Arc Lamp Power Supply
68910 200 - 500 W Mercury Arc Lamp Power Supply
68911 200 - 500 W Xenon Arc Lamp Power Supply
68920 450 - 1000 W Arc Lamp Power Supply
68931 10 - 250 W Quartz Tungsten Halogen Lamp Power Supply
68935 600 - 1000 W Quartz Tungsten Halogen Lamp Power Supply
68940 30 W Deuterium Lamp Power Supply

MOUNTING

The recommended mounting configuration for the light intensity sensor is shown in Fig. 4. Use a wedged beam splitter (page 12-4) to split off part of the beam to the sensor. If you want to look at only a narrow spectral region, use a bandpass filter from Section 11. The 7123 Filter Holder holds 1 inch (25.4 mm) diameter filters and mounts directly to the input of the light sensor via a 1.5 Inch Series flange.

Adapter Kits for Oriel Lamp Housings

For convenience, you can mount the sensor directly to the lamp housing. The 68855 Adapter Kit mounts the sensor off Oriel Research Housings looking transversely at the lamp. The 68855 includes a filter holder with a beam attenuator.

The 68856 Adapter Kit mounts the sensor on an unused port of the Series Q Housing. It also includes a filter holder and beam attenuator, as shown in Fig. 5.

TECH NOTE

The most important thing to remember when using the 68950, is to monitor what you use! The best control is achieved when you sample the beam just before it reaches the work plane, after all the optics and filters. The other critical point is to make certain that the 68950 sensor is not exposed to light reflected or scattered from the work plane.

SPECIFICATIONS

Power:	115/230 V, 50/60 Hz
Time resolution:	1 ms
Minimum exposure time:	2 ms

ORDERING INFORMATION

68950	Light Intensity Control and Digital Timer System	
68945	Digital Timer	
68855	Adapter Kit for Research Housings	**$ 185.00**
68856	Adapter Kit for Series Q Housings	
68955	Remote Switch	**$ 74.00**
68956	Remote Foot Switch	

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