

LS-1 Tungsten Halogen Light Source

The **LS-1 TUNGSTEN HALOGEN LIGHT SOURCE** is a versatile, white-light lamp utilized for the VIS-Shortwave NIR (360 nm-2 μ m). The lamp, available with either a 900-hour or 10,000-hour bulb, offers high color temperature and extremely efficient output.

Parts Included

- ◆ LS-1 Tungsten Halogen Light Source
- ◆ 12 VAC power supply
- ◆ Allen wrench for adjusting the collimating lens

Caution!

- ☠ DO NOT insert plastic or flammable materials into the filter slot. The materials could melt or ignite. The unit could ignite flammable materials that come in contact with the metal housing.
- ☠ The LS-1 becomes **HOT** during operation. No cooling fan is installed in the LS-1. Handle with care.

Operation

Turning On the Lamp

1. Plug the wall transformer end into a standard 110 V outlet. Plug the 12 V output end into the back of the LS-1.
2. Screw a fiber into the SMA connector on your LS-1.
3. Find the on/off switch on the back of the lamp and turn the lamp on. Allow the lamp to warm up for approximately 30 minutes.

Using the Filter Slot

The slot between the lamp and the fiber coupler can be used to hold filters or light blocks. You can place a filter into the filter slot; however, be aware of the following:

- ◆ The filter slot accepts filters up to 3 mm thick.
- ◆ Because the lamp can become hot, avoid plastic filters as they may melt.
- ◆ The unit could ignite flammable materials that come in contact with the metal housing.
- ◆ There is no filter clamping screw for holding filters in place.

The most useful filters include the following:

- ◆ an FG-3 blue filter for increasing the relative energy near 400 nm and 800 nm compared to 600 nm
- ◆ an IR cutoff filter to reduce stray light below 750 nm
- ◆ a 550 nm long pass filter to eliminate second-order effects on Shortwave NIR measurements

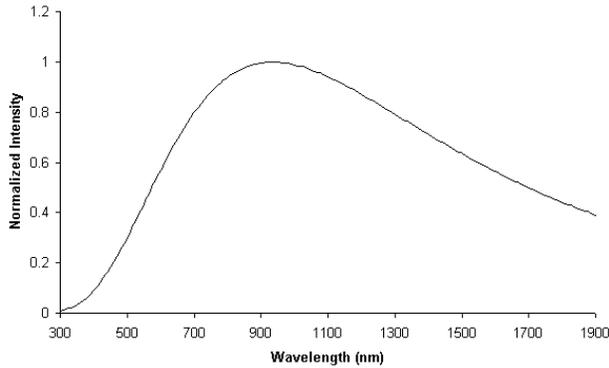
Replacing the Bulb

1. Order a replacement bulb (LS-1-B for a 900-hour bulb or LS-1-LL-B for a 10,000-hour bulb).
2. Turn off the LS-1 and allow the lamp to cool.
3. Use an Allen wrench to loosen the set screw on the bottom of the lamp. You do not need to remove the set screw. This screw holds the bulb in place.

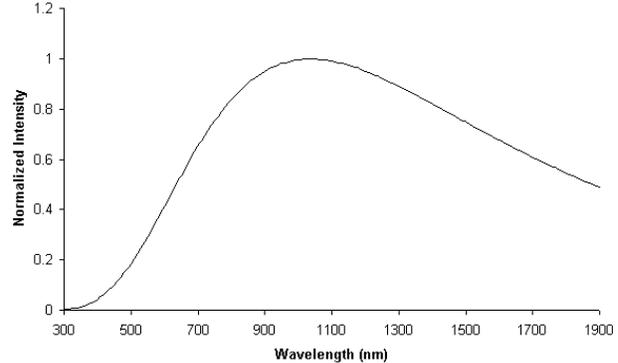
4. Locate the two set screws at the back of the lamp, one above each back leg. These two screws keep the two halves of the lamp together. Remove the two screws.
5. Gently separate the two halves of the lamp.
6. Carefully pull the bulb out of its housing. Detach the wire and lamp leads from the socket. Remove the old bulb unit and discard.
7. Plug the new bulb into the socket.
8. Slide the new bulb forward into the front of the lamp as far as it will go.
9. Gently tighten the set screw on the bottom of the lamp.
10. Close together the two halves of the lamp, being careful not to pinch the wires.
11. Replace the two screws at the back of the lamp.

Spectral Output

These graphs represent normalized blackbody curves for tungsten halogen light sources with 2800K and 3100K color temperatures. The observed spectral output of the LS-1 will vary due to bulb type, the spectrometer configuration, the sampling optics used, and inherent fluctuations in LS-1 output.



900-hour bulb / 3100K



10,000-hour bulb / 2800K

Specifications

Spectral range:	360 nm - 2 microns*
Dimensions:	9.0 cm x 5.0 cm x 3.2 cm (LWH), 3.5" x 2.0" x 1.25" (LWH)
Power input:	12 VDC/800 mA, 7-20 VDC/0.5-2 amps
Power output:	6.5 watts
Bulb life:	900 hours (standard), 10,000 hours (long-life)
Bulb color temperature:	900-hour bulb = 3100K, 10,000-hour bulb = 2800K
Output to bulb:	5 volts/1.3 amps
Output regulation:	0.2% voltage
Time to stabilized output:	~30 minutes
Bulb output:	7400 foot-candles (7.4MSCP)
Connector:	SMA 905

* Though the product can be used to 2 μm , it can be configured to "see" only to 1100 nm with our S2000 spectrometer.