

# SOLAR<sup>®</sup> LIGHT

## QUICK START GUIDE

### 16S-SERIES 150-300W SOLAR SIMULATOR

#### LAMP INSTALLATION

##### Positioning Lamp Base

Lamp base position is adjusted with two knobs (X adj, Z adj.) on the side of the housing. If installing a lamp in a new system from the factory, the lamp base will be close to the correct position for lamp alignment.

##### Orientation

Xenon lamps are installed with the Anode (+) end up. In this position the larger electrode will be on top. A lamp installed upside down will be ruined in a few minutes of operation.

##### Lamp Nub

On the top surface of the lamp is a small nub that is used during manufacturing. The nub should be oriented in the 16S such that it is pointed 90 degrees to the optical path.

##### Start Wire Position

On the outside of the Xenon lamp is a thin nickel wire used to help the lamp ignite when cold. This wire will cast a shadow in the output if placed in the optical path. The wire should be 180° from the nub to keep it out of the light path.

##### Clamping

Lamps are clamped in place with a #6 cap screw located on the lamp base and accessed from the side of the simulator.

***\*Lamp must be firmly held in lamp base.***

##### Lamp Installation Instructions for 16S-150 Watt

- Ensure that the power supply is OFF.
- Remove upper case from base.
- Insert lamp with anode (+) up.
- Push lamp down as far as it will go in lamp base.
- Locate clamp screw on lamp base on left side of simulator.
- Tighten lower clamp screw using 7/64" hex key to keep lamp in place.
- Clip high voltage lead to top of lamp.

##### Lamp Installation Instructions for 16S-300 Watt

- Ensure that the power supply is OFF.
- Remove upper case from base.
- Insert lamp with anode (+) up.
- Push lamp down as far as it will go in lamp base.
- Locate clamp screw on lamp base on left side of simulator.
- Tighten lower clamp screw using 7/64" hex key to keep lamp in place.
- Fasten high voltage lead to top of lamp as shown in Figures 15 through 18.

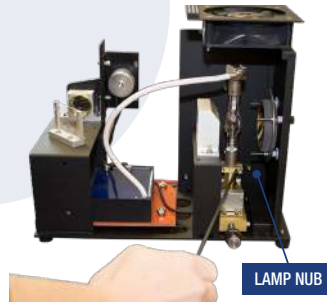


Figure 12

##### Installed 150 Watt Lamp



Figure 13

##### Installed 300 Watt Lamp

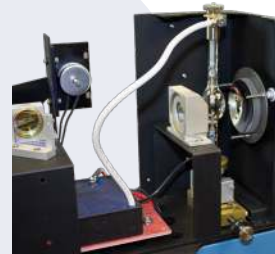


Figure 14

##### 300 Watt Lamp Connection Instructions



Figure 15

Lamp, Power Lead, #10 Lock Washer, #10 Washer, Thumb Nut



Figure 16

- Carefully place power lead over threaded end fitting as shown.
- Place lock washer on top of power lead.
- Place washer on top of lock washer.



Figure 17

Place thumb nut on top of washer with knurled ring on top as shown.



Figure 18

Using finger tips only, tighten thumb nut until gap in lock washer is closed.

***\*Do not use pliers or wrench to tighten thumb nut. The lamp is fragile and will break.***

#### POWER SUPPLY SETUP

XPS power supplies must be installed in a location with sufficient air flow to prevent overheating. The power supply has a universal mains input range of 100 to 240 Vac. A standard IEC power input module allows use of line cord suitable to local electrical codes.

#### WARNING

*Do not connect the power supply to an isolation transformer or bypass the line ground in any way.*

Connect simulator to back of XPS150/300 and hold in place with 4-40 lock screws on cable connector. Make sure that the connector to the power cable is screwed tightly to the mating connector on the power supply. The metal shell connector has two screws on either side that must be screwed in tightly for proper operation. If the connector is not screwed in place, the plug will work its way loose, cause erratic operation and eventually fail.

#### LAMP OPERATION

##### POWER SUPPLY CONTROLS

**Power Control:** This knob sets the operating power for the lamp. Maximum power is factory set to support 150W or 300W lamps.

**Lamp Enable Switch:** enables the power supply to start and run the Xenon lamp.

**Shutter Control Switch:** (For use with Single Port Simulators)

*Open:* In this position the internal shutter is held open.

*Close:* This closes the shutter, and enables "SHUTTER CONTROL" via DCS or PMA radiometer.

**Shutter Control:** The eight pin circular connector on the front panel allows remote control of the simulator shutter. When connected to a PMA or DCS meter and detector the shutter can be controlled in dose delivered mode or a timed exposure mode.

##### FRONT PANEL INDICATORS

**READY (green)** indicates that the mains power is on and the internal 24Vdc power supply is operating correctly.

**LAMP RUNNING (green)** indicates that the lamp is operating correctly.

**SYSTEM FAULT (red)** indicates that a cable fault or over-temp condition exists. Check cable and/or confirm lamp housing fan operation.

**IGNITION FAULT (red)** time out indicator for lamp ignition sequence.

##### REAR PANEL INDICATORS

**Mains Power Switch:** Controls the application of mains power to the power supply. This powers the fans and internal control circuits.

*Note: No power is applied to the lamp until the LAMP ENABLE switch is moved to the ON position.*

**Rear Panel Connection:** Power/control cable to simulator: The DB25 style connector provides lamp power and control circuit connections. This connector provides: an interlock to prevent power supply activation unless connected to lamp housing, AC igniter control lines, fan power, housing temperature sensor,

fan sensor, shutter position signals and shutter solenoid power.

**Hour Meter Reset Switch:** Below the simulator power connector is a recessed switch which can be used to reset the elapsed time meter indicating lamp use hours when a new lamp is installed. The time can also be used as a total system operation time.

#### STARTUP INSTRUCTIONS

Before turning on the **MAINS** power make sure of the following:

- The Xenon lamp is installed correctly.
- Simulator power cable is securely fastened to power supply.
- **LAMP ENABLE** switch is in the **OFF** position.
- All simulator covers and case parts are in place and closed.

#### WARNING

The (~25KV) ignition pulse to start the lamp can cause failure and damage to the radiometer display and program memory loss in the sensors depending on field cabling and simulator placement.

*\*Be sure to disconnect the PMA/DCS cable going to the XPS power supply, the AC/DC adaptor charging the PMA2100 at the PMA2100 side and do not have the PMA2100 and detectors near the XPS when igniting the lamp.*

- Once the mains power is applied the housing fan will start.
- Move the lamp enable switch to the **ON** position. The lamp will start and after a few seconds the **LAMP RUNNING** indicator will light.
- If the lamp will not start after 6 or 7, attempts the power supply will time out and show an **IGNITION FAULT** light. Cycling the mains power will allow the ignition sequence to begin again.
- If the lamp will not start, move the power control to a higher setting and try again.
- Difficult to start lamps should be replaced.
- Lamps should also be replaced when the over current error light on the power supply comes **ON**.

#### SHUTDOWN INSTRUCTIONS

Move the **LAMP ENABLE** switch to the **OFF** position. The lamp will turn **OFF**. The simulator and power supply fans will continue to operate. This continuing operation of the fans will allow the lamp to cool down and avoid the build-up of heat in the enclosure.

Wait at least 10 minutes for the lamp to cool and then turn the **MAINS** switch **OFF**.