



L.E.D. Curing Light and Handpiece Light Source System Installation

The **SUNLITE** is a combination curing light and handpiece light source system designed to be permanently installed into the dental delivery unit. The system consists of a wall transformer to reduce input power to low voltage, a power pack to provide regulated operating voltages for the curing light and handpiece illumination, delivery unit tubing and **SUNLITE** curing probe. Since a fair level of familiarity with dental delivery unit mechanics is required for installation, it is recommended that a qualified service technician be employed for this purpose.

Tubing Installation

Handpiece light source tubings are available in various styles and colors to be compatible with dental unit colors and desired handpiece connections. Be certain that the style of tubing is appropriate for the particular application. **SUNLITE** tubing incorporates a special connector designed specifically for the curing probe assembly and may be utilized for any ISO 4-hole device as well.

Replace the entire existing handpiece tubings with the appropriate light source or curing light tubings. During replacement, take care not to cut or shorten the electrical wires. The supplied length of wire must be retained. After replacement is completed, install the 1/8x1/8x1/16 plastic tee and air sensing tube assemblies into the drive-air lines at an appropriate position on each tubing not more than 12" from the desired location of the power pack.

Choose one of the tee air sensing tubes. If this particular tubing is for handpiece illumination, plug the tee air tube onto the power pack barbed fitting "TUBING 1" as shown in the diagram. Other illumination tubings may be installed for "TUBING 2, 3, 4". Attach the **SUNLITE** air tube to the "SUNLITE" barb fitting only.

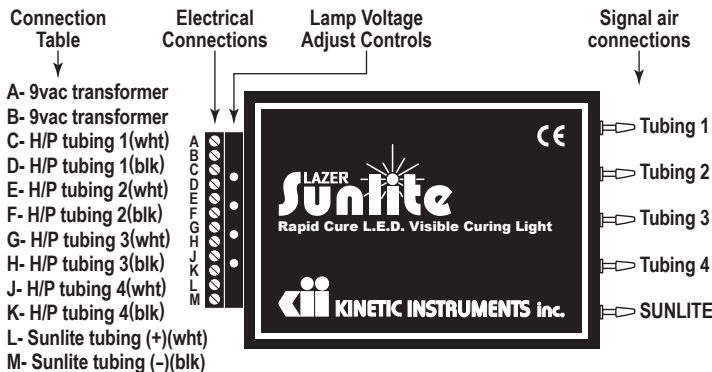
Attach the tubing wires to the power pack terminals corresponding to the tee air tube connection. The polarity of the light source wire connections is not important. Be certain that the **SUNLITE** tubing wires are connected to the appropriate terminals and that the polarity is as indicated (white is positive, black is negative). Improper polarity connection will have no adverse effect other than non-operation of the curing light. Attach the wall transformer wires to the power pack terminals as shown in the diagram. Plug the wall transformer into an outlet of appropriate voltage. If another AC transformer is to be used, it **MUST** be capable of at least 9.0VAC @1000ma. **Do not use higher voltage transformers.**

SUNLITE Installation

Attach the **SUNLITE** curing probe to the tubing designated for this purpose. No special adjustments to the power pack need to be accomplished since the necessary operating parameters are pre-set at the factory.

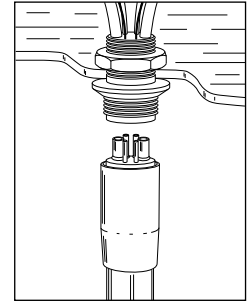
The LED array inside the curing probe does not emit heat, however, the device itself operates at elevated temperatures and must be cooled by the drive air to avoid premature failure of the array. The **SUNLITE** is activated by drive air and will not operate without adequate pressure. Although normal handpiece drive air set pressures are more than adequate for curing light operation, it is recommended that the drive air pressure for the **SUNLITE** tubing be reduced to approximately 20 psi.

The **SUNLITE** curing light probe will activate when the handpiece foot control is depressed. An audible tone will sound every 10 seconds and the probe can be de-activated at any time by releasing the foot control.



Delivery Unit Bulkhead "KINC" Connection

Handpiece light source and **SUNLITE** tubings can also be supplied with "KINC" style unit end terminations to be compatible with "KINC" bulkhead connectors factory installed in the delivery unit. To connect this style tubing, simply attach the tubing to the bulkhead connector insuring that the two electrical feedthru pins are included. Attach the bulkhead connector internally to the power pack following the instructions outlined in "Tubing installation".



ISO-C Handpiece Installation

This installation process is used for connections to any brand ISO-C 6 pin style handpiece. Insert the appropriate ISO-C handpiece adaptor into the end of the ISO-C tubing and securely tighten the tubing connector sleeve. Connect the handpiece to the adaptor following the manufacturer's instructions.

Generally, each brand ISO-C handpiece will have an exact operating voltage specification that must be precisely set using a digital multi-meter (DMM). The four voltage adjustment controls are located near the terminal strip of the power pack and are turned by using a 5/64" jewelers screwdriver. The operating voltage of the lamp must now be set to the value recommended by the manufacturer.

IMPORTANT: Voltage set levels seriously affect the operation of the lamp, especially longevity. **NEVER USE THESE CONTROLS TO ADJUST LAMP INTENSITY.**

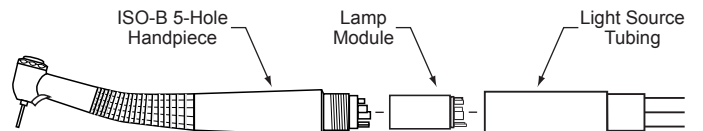
Turn the voltage set control fully DOWN (CCW). Gain access to the lamp connections and attach a digital multi-meter (DMM) capable of measuring 3.00 to 4.20 volts DC. Activate the handpiece line, which should turn on the lamp for 10 seconds. SLOWLY turn the appropriate voltage set control up (CW) until the meter reads the voltage recommended. Repeat the procedure for any of the other power pack positions that are being utilized.

If direct attachment of the DMM to the lamp is mechanically difficult, then connection can be made at the power pack. This method **MUST** compensate for the electrical resistance of the tubing wires. Attach the DMM directly to the appropriate power pack terminal strip connections. With the lamp operating, set the voltage **0.25 HIGHER** than specified **ONLY IF USING KINETIC TUBINGS**. For other brand tubings, set the voltage **AT THE SPECIFIED VOLTAGE**.

KINC Connected Application - Attach the DMM directly to the appropriate power pack terminal strip connections. With the lamp operating, set the voltage **0.25 HIGHER** than specified.

ISO-B Handpiece Installation

This installation is used for connections to any brand ISO-B 5-hole style fiber optic handpiece. Slide the light source tubing connector nut back to expose the lamp module receptacle. Plug in an **ISO-B** lamp module. Be sure the module is correctly aligned to avoid bending the electrical pins. Plug the handpiece into the lamp module carefully aligning all air and water tubes. Slide the connector nut over the lamp module and tighten securely to the handpiece.



The power pack must be set at the correct operating voltage when using the Kinetic **ISO-B** 5-hole lamp module no matter what brand handpiece is utilized. Following the foregoing appropriate procedures, set the lamp voltage to **3.35**. If access to the lamp terminals is mechanically difficult, attach the DMM directly to the power pack and set the voltage to **3.6**. Activating the handpiece will now activate the light. After stopping the handpiece, a delay of 10 seconds will be noticed before the light will automatically de-activate.

L.E.D. Curing Light - Alternative Installation

Alternative Air Supply Installation

The **SUNLITE** probe should be connected to an air supply as described previously. However, occasionally the dental delivery unit does not have a spare tubing distribution mechanism or it is not desirable to utilize one of the existing handpiece lines for **SUNLITE** installation. In these cases it is necessary to install **SUNLITE** by utilizing an additional handpiece hanger and connecting the system in a slightly different configuration.

Auxiliary Handpiece Hanger

To effectively install **SUNLITE** using the alternative method, it is necessary to obtain a handpiece hanger that is compatible with the dental unit both in mounting style and color. In addition, the handpiece hanger must have a "positive" operation mechanism. That is, when any device in the handpiece hanger is removed, air is permitted to flow through the shutoff valve. This will permit **SUNLITE** to be supplied cooling air in operation.

Air Routing Connections

Normally, when installing handpiece tubings, the dental unit distribution blocks control air supplied to devices. However, in this installation scenario a distribution block is not utilized. Therefore, cooling air to the **SUNLITE** probe is supplied by the foot control and ON/OFF control of this air is determined by the handpiece hanger air shutoff valve.

Following the diagram provided below, tee into the OUTPUT line from the foot control using a 1/8"x1/8"x1/16" plastic reduction tee. Route 1/16" tubing to the INPUT side of the auxiliary handpiece hanger shutoff valve. The OUTPUT side of the valve should be routed to both the **SUNLITE** tubing DRIVE air and also to the "SUNLITE" position barb fitting on the power pack.

Operation

When the **SUNLITE** probe is removed from the hanger and the foot control is depressed, cooling air will flow through the hanger shutoff valve and into the **SUNLITE** tubing drive air. Exhaust air will exit via the tubing exhaust line. At the same time, the power pack will be signalled by this air and subsequently turn on the curing light. If the foot control is kept depressed, the curing light will remain on and an audible tone will sound every 10 seconds. The curing light can be turned off at any time by releasing the foot control.

Cooling Air Flow

The **SUNLITE** probe does not require much air to be cooled properly. The hanger shutoff valve as well as the 1/16" tubing should provide adequate air flow restriction to reduce the pressure to the probe to an acceptable level. If further restriction is desired, a suitable restrictive orifice can be inserted to gain the desired level of flow.

