



LIGHT SOURCE POWER SYSTEM

Halogen handpiece illumination

Vari-Lux LED handpiece illumination

High intensity LED curing light

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 **SunliteLazer** 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 also 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 **SunliteLAZER** air tube to the "SUNLITE" barb fitting only.

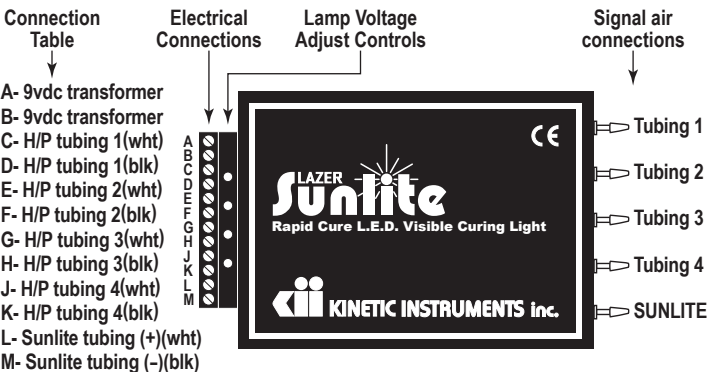
Attach the tubing wires to the power pack terminals corresponding to the tee air tube connection. The polarity of all wire connections should follow the diagram. The white (wht) wire is positive and the black (blk) wire is negative. If the **SunliteLAZER** curing light is being installed, be certain that those tubing wires are connected to terminals "L" and "M" and that the polarity is as indicated. Attach the wall transformer wires to the power pack terminals as shown in the diagram. Polarity is not important in this case. Plug the wall transformer into an outlet of appropriate voltage. The wall transformer supplied is rated at 9.0VDC @1700ma. **Do not use any transformer other than the one supplied.**

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 preset at the factory.

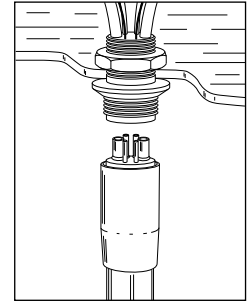
The LED array inside the curing probe does not emit heat, however, the device itself operates at elevated temperatures and must be cooled by the drive air to avoid premature failure of the array. The **SUNLITE** is activated by drive air and will not operate without adequate pressure. Although normal 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 25 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".



Setting Lamp Voltage Adjust Controls

For ISO-B 5H halogen lamp, follow only instruction #(1).
 For ISO-C halogen lamp, follow only instruction #(1).
 For ISO-B 5H Vari-Lux LED lamp, follow only instruction #(2).
 For K-360 Vari-Lux LED lamp, follow only instruction #(2).

(1) Generally, each brand ISO-C handpiece or ISO-B 5H lamp module 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" mini-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. 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.

(2) The **Vari-Lux** LED illumination system is exclusive to Kinetic Instruments and is available for use with Kinetic-360 connected handpieces and also any ISO-B 5H fiber optic handpiece.

Kinetic-360 handpieces: The Kinetic-360 connection is a unique coupling that provides 360 degree swivel and quick connect for all K-360 style fiber optic handpieces. The Vari-Lux LED emitter module is an integral part of the coupling and is not designed as a separate part that needs frequent replacement. To take advantage of the cooling capability of the air and water passages in the coupling, the Vari-Lux module is thermally connected to the internal structure of the K-360 swivel coupling. This dynamic cooling provides an indefinite lamp life.

ISO-B 5H handpieces: Connection to ISO-B 5H handpieces is traditionally made by the insertion of a lamp module directly behind the handpiece. This requires a connector nut that is longer than normal to accommodate the extra one inch length. The Vari-Lux LED emitter in this style connection is built directly into the connection end of the tubing and is not a separate part that needs frequent replacement. To take advantage of the cooling capability of the air and water passages thru the end connector, the Vari-Lux emitter is mounted on a thermally conductive printed circuit board that is soldered to the air and water fittings in the end connector. This very efficient dynamic cooling provides an indefinite lamp life.

Since both the K-360 and ISO-B 5H connections are designed to have variable intensity, the Vari-Lux emitter can be operated at any level desired to produce a nice balance with available overhead lighting. To use the voltage adjust controls, turn the appropriate control to about the mid-point. Activate the handpiece light and further adjust the control up or down to the most comfortable level.

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 signaled 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.

