



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 connection for the 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. Curing light tubing incorporates a special connector designed specifically for the curing probe assembly and can 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 curing light air tube to the "Curing" barb fitting only.

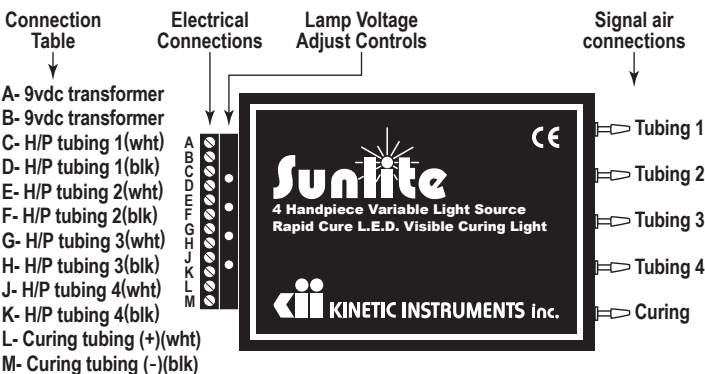
Attach the tubing wires to the power pack terminals corresponding to the tee air tube connection. The polarity of all wire connections should follow the diagram. The white (wht) wire is positive and the black (blk) wire is negative. If the **Sunlite** curing light tubing is being installed, **be certain** 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.**

Curing Probe Installation

Attach the desired 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.

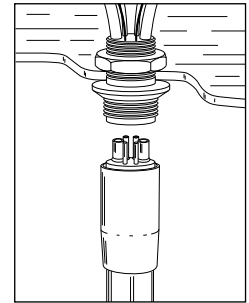
The LED array inside the curing probe does not emit heat, however, the device itself operates at elevated temperatures and must be cooled to avoid premature failure. The **SunliteLAZER** is activated by drive air and will not operate without adequate pressure. Although normal handpiece drive air set pressures are more than adequate for curing light operation, it is recommended that the drive air pressure for the **SunliteLAZER** be reduced to 25 psi. The **SunBurst** curing light does not require cooling and may be operated without connection to drive air.

The **SunliteLAZER** curing light will activate when the foot control is depressed. The **SunBurst** curing light is normally activated with the handle button. However, a connection can be made from the drive air if it is desired that SunBurst operate from the foot control. In either case, 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 or ISO-C halogen lamp systems, follow only instruction # (1).
For any Kinetic **Vari-Lux** LED system, follow only instruction # (2).

(1) Halogen lamp systems: 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: Higher voltage set levels seriously affect the life of the lamp. **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. **The set voltage for any halogen style lamp purchased from Kinetic Instruments is 3.35 volts.** 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) Kinetic Vari-Lux LED systems: Kinetic **Vari-Lux** LED illumination systems are exclusive to Kinetic Instruments and are available for use with all Kinetic-360 handpieces, any ISO-B 5H fiber optic handpiece or any brand F/O coupler. Using a combination of unique electronic and thermal designs, the Vari-Lux LED emitter provides unprecedented intensity together with an indefinite service life.

Kinetic-360 handpieces: The Kinetic-360 connection is a unique coupling that provides 360-degree swivel and quick connect capability for all K-360 style fiber optic handpieces. The Vari-Lux LED emitter module is assembled as an integral part of the coupling. Connect the tubing to the coupling in the normal manner.

ISO-B 5H handpieces: Connection to ISO-B 5H handpieces is a simple, direct, screw-on application. The Vari-Lux 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. Attach the Vari-Lux tubing in the normal manner.

Fiber optic couplers: Most handpiece manufacturers have a fiber optic coupler available for use with their swivel quick connect feature. By using a Vari-Lux 5H LED tubing, any of these handpieces can be converted to intense bright white illumination with less cost and more durability. Connection to this style of coupler is identical to the instructions for ISO-B 5H handpieces.

Intensity settings: All Vari-Lux systems are designed to have variable intensity. The LED emitter can be operated at various levels to provide a nice balance with available overhead lighting. First, set the appropriate voltage control to mid-point. Activate the handpiece light and adjust the control to the most comfortable level. Voltage range is between 3.50 and 4.50 volts as measured at the power pack terminals. The recommended set point is 3.70 volts. **Do not exceed 4.50 volts.**

SunliteLAZER LED Curing Light - Alternative Installation

Alternative Air Supply Installation

The SunliteLAZER 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 LAZER installation. In these cases it is necessary to install the curing light probe by utilizing an additional handpiece hanger and connecting the system in a slightly different configuration.

Auxiliary Handpiece Hanger

To effectively install SunliteLAZER 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 SunliteLAZER 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 SunliteLAZER probe is supplied by the foot control and ON/OFF control of this air is determined by the handpiece hanger air shutoff valve.

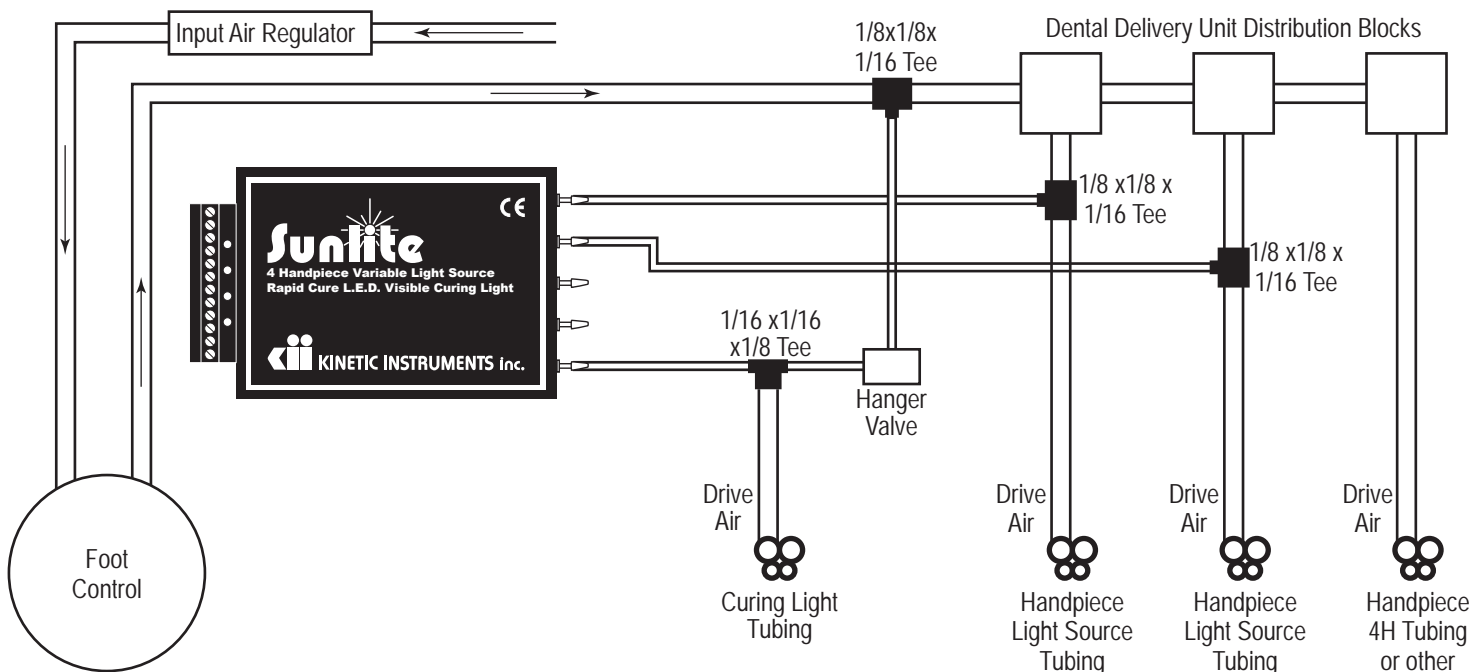
Following the diagram provided below, tee into the OUTPUT line from the foot control using a 1/8"x1/8"x1/16" plastic reduction tee. Route 1/16" tubing to the INPUT side of the auxiliary handpiece hanger shutoff valve. The OUTPUT side of the valve should be routed to both the curing light tubing DRIVE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

Operation

When the SunliteLAZER probe is removed from the hanger and the foot control is depressed, cooling air will flow through the hanger shutoff valve and into the curing light 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 SunliteLAZER 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.



Kinetic-360 Vari-Lux L.E.D. Lamp Module Installation

Disassembly of Kinetic-360 Coupling (see Fig. 1)

To install the Kinetic-360 Vari-Lux LED lamp module, the Kinetic-360 handpiece swivel coupling must be disassembled. Remove the coupling from the tubing and disconnect it from the handpiece. Remove the coupling sealing gasket from the coupling using a pair of tweezers. Remove the single screw that secures the gasket sealing plate. Remove the gasket sealing plate being careful not to lose the spring in the coupling. The gasket sealing plate will not be used during re-assembly.

Installation of Lamp Module and Re-assembly (see Fig. 2)

To install the Vari-Lux LED lamp module, slip the "nose" of the lamp module into the spring and align the tubes in the swivel coupling with the holes in the lamp module flange. Push the lamp module all the way down and replace the single screw removed during disassembly. Do not attempt to re-use the gasket sealing plate as it is no longer necessary. The Kinetic-360 Vari-Lux LED requires the use of a different tubing than previously used. This is to prevent inadvertent electrical non-compatibility between LED and halogen lamps. Follow previous instructions on page 1 regarding the installation of the Vari-Lux delivery tubing.

Fig. 1: Disassembly of Kinetic-360 Swivel Coupling

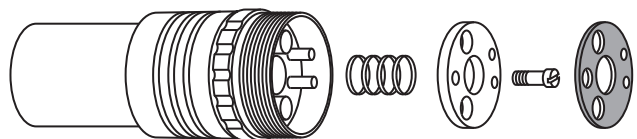


Fig. 2: Assembly of Vari-Lux LED Lamp in Kinetic-360 Coupling

