



StarBright® Quad Lamp Control and Handpiece Tubing

Instruction Manual

MAKES YOUR PRACTICE PERFECT®

Contents

- Specifications
- Quad Lamp Control Installation
- StarDental® Tubing Installation
- Adjusting Lamp Voltage
- Quad Lamp Control Operation
- Curing Probe Alternate Installation
- Cleaning Tubing & Optical Surfaces
- Troubleshooting
- Duckbill Valve & StarBright® Lamp Replacement
- Replacement Part Numbers
- Warranty

Specifications

Quad Power Supply

Height x Width x Length: Approximately: 1.500" x 2.125" x 3.125"
 Voltage Input Range: 100V-240V, StarDental Part #265333
 All other voltages, StarDental Part #265335
 Power Output: 18 watts
 2 amp current

Quad Lamp Control

StarDental Part Number: 265330 - Controller w/265333 Power Supply (100-240V)
 265331 - Controller w/265335 International Power Supply
 Height x Width x Length: .85" x 2.44" x 4.1"
 Weight: 4.01oz (113.8 g)
 Voltage Input: 9 VDC
 Air Pressure Input: 50 psi max. (no air consumption)
 Voltage Output at Handpiece Terminal: 3.3 VDC
 Calibration Range: 2.9-4.3 VDC
 Automatic Light Delay: 10 seconds

Lamp, StarBright: Lens end, Xenon-Halogen, StarDental Part #262522
 Voltage: 3.3 VDC
 Wattage: 4.3 watts
 Current: 1.36 amps

Lamp, non-StarDental: Consult with tubing or handpiece manufacturer to confirm correct voltage setting.

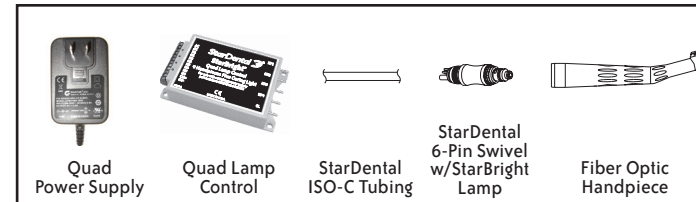
Quad Lamp Control Installation



StarBright® Quad Lamp Control System has a Quad Lamp Controller and power supply. The StarBright Quad tubing connects to the StarBright Swivel which has a fiber optic guide, a Xenon-Halogen lamp (3.3 VDC), and a built-in anti-retraction water valve.

Since a fair amount of familiarity with dental delivery unit mechanics is required for installation, it is recommended that a qualified service technician be employed for this purpose.

The Quad Lamp Control has a 10 second light shut-off delay to assist in viewing the oral cavity without the handpiece running or external light repositioning.



Tools Required:
 Utility Knife
 Phillips Head Screwdriver
 Jewelry Size Flathead Screwdriver

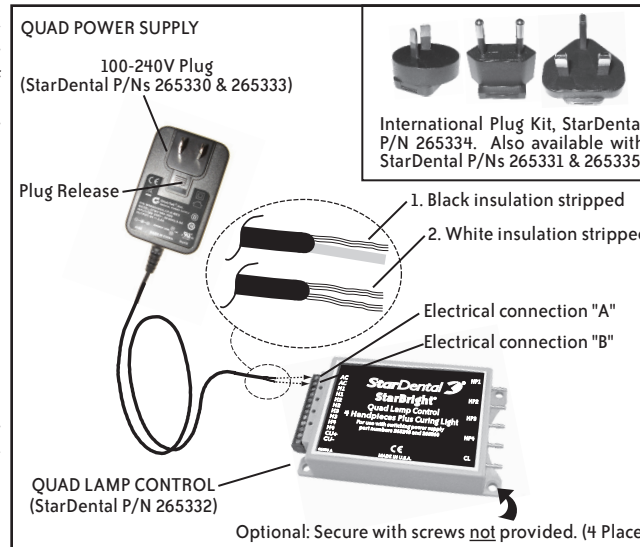
Vinyl Electrical Tape
 Wire Insulation Strippers
 Drill and 3/32" Drill Bit

Materials Provided:
 Quad Lamp Control
 Velcro™ Strip
 Instruction Manual

Quad Power Supply-
 100V-240V, StarDental® Part #265333 or
 International, StarDental® Part #265335

Note: The key features of the Quad Lamp Control and switching power supply are automatic light delay, and the ability to operate four StarDental Fiber Optic Handpieces or other brand handpieces as well as a curing light probe.

1. Mount Quad Lamp Control as near as possible to delivery head's tubing connections. Install control at one of three positions: underneath or inside delivery head, or on unit arm using Velcro™ strip.
2. If mounting with screws (not provided) is preferred, use Quad Lamp Control as a template to mark position of pilot holes. Use a 3/32" drill bit to make pilot holes. Secure Quad Lamp Control with #4 machine screws.
3. Carefully route the power supply cord through or on the support arm of the delivery head for eventual connection to Quad Lamp Control. Provide sufficient slack to prevent binding any moving part. Prevent cord from hanging loosely in an area where personnel travel.
4. Determine the safest and most efficient route for the power supply's electrical cord before connecting it to the Quad Lamp Control. Strip approximately 1/8" to 1/4" of the black and then the white insulation off of the end of the cord. Attach the loose wires from the white insulation into either electrical terminal connection A or B on the Quad Lamp Control and tighten down the applicable screw to hold the wires in place - see illustration. Then attach the remaining loose wires into A or B, which ever one was not used for the first connection, and tighten screw.
Note: If bare wire is visible, take it out of connection and trim it down so that the end of the insulation butts up to the electrical connection terminal 'stall' preventing any bare wire to be visible.
5. Plug power supply into a convenient receptacle.
Note: If using International Quad Power Supply, insert applicable plug into recessed area for plug by placing top edge in first and then snapping bottom edge in.

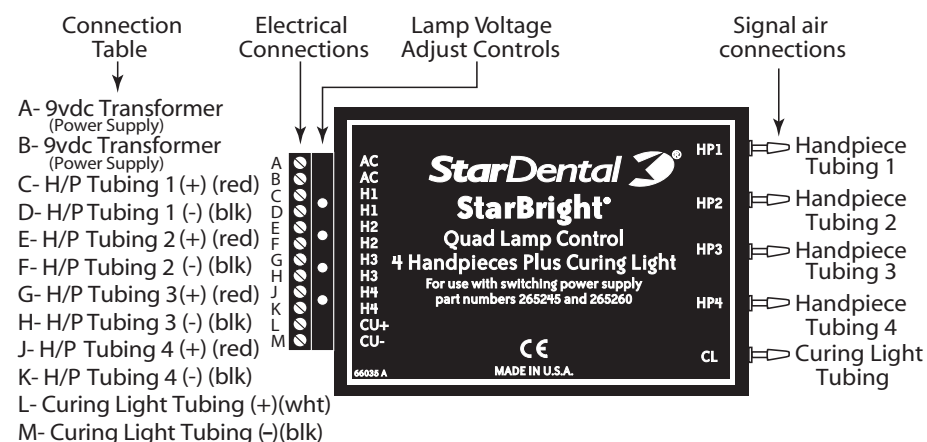


StarDental Tubing Installation

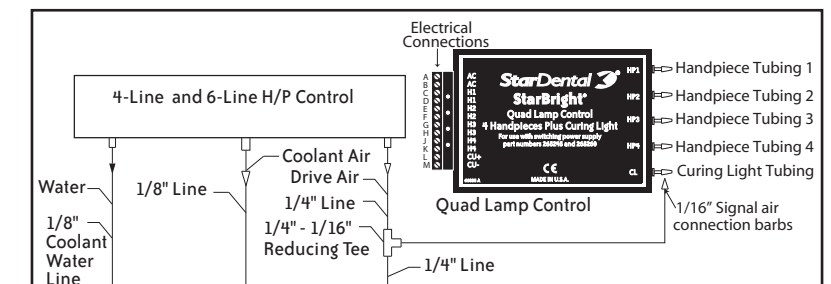
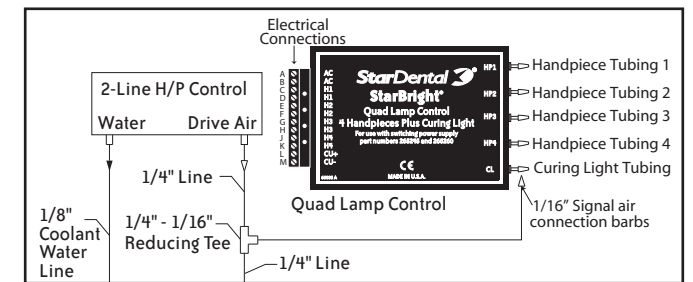
StarBright Quad Tubing is available in a variety of colors and lengths. See Replacement Part Numbers for a complete listing.

Tools Required:
 Utility Knife
 Wire Installation Strippers
 Jewelry Size Flathead Screwdriver

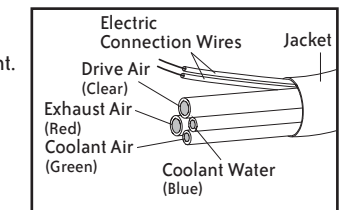
Materials Provided:
 Reducing 'T': 1/4" to 1/16" with 1' of 1/16" Tubing
 Instruction Manual



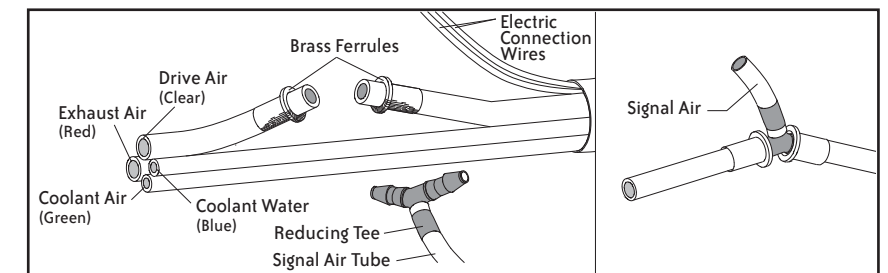
1. Place tubing coupler in hanger. Route tubing to handpiece delivery head. Adjust tubing length in delivery head to obtain desired length outside to prevent kinking.
2. Connect air and water. See illustrations for correct connections on 2-, 4-, and 6-line units.
Note: StarDental Fiber Optic handpieces do not have a separate chip blower. Coolant air is ON only when drive air is ON. Coolant air is not adjustable at the delivery head.



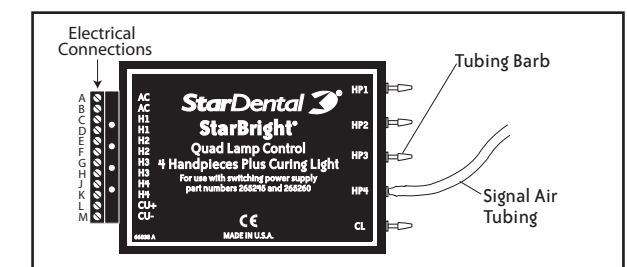
3. Identify each of the four service tubes shown to the right.



4. Select a position on drive air tubing near lamp control. It may be necessary to trim back outer tube jacket to get correct position of drive air tube (clear). Cut drive air tubing and slide a brass ferrule (supplied with tubing) over each end of the cut tubing. Install the 1/4"-1/16" Reducing Tee by sliding each cut tubing onto each barb of the Reducing Tee. Push brass ferrules over tubing at each barb to lock tubing in place. If using existing StarDental 6 pin tubing, remove existing "T" and signal air tubing and replace with new signal air "T" and signal air tubing.



5. Route signal air tubing from Reducing Tee to lamp control. Cut 1/16" signal air tubing to a convenient length. Install tubing onto a tubing barb. Use tubing barbs HP1, HP2, HP3 or HP4 for handpieces only and use tubing barb CL for curing light probe only. Signal air tubing must be free of kinks to activate lamp control properly.



6. After connecting signal air, verify that power is disconnected by unplugging the power supply from receptacle.
7. If electrical jack is attached to tubing electrical wires, snip it off.
8. Strip electric connection wires for each handpiece and/or curing light probe tubing and insert into applicable electrical connection terminals - see 'Connection Table' in the illustration at the beginning of StarDental Tubing Installation section. Make sure that no bare wire is visible and then tighten down screw to hold wires in place.

Note: Non StarDental tubing installation procedure is the same as StarDental tubing installation procedure unless otherwise specified by tubing manufacturer.

Adjusting Lamp Voltage

Tools Required: 5/64" Jeweler's Screwdriver, DMM - Digital Multimeter capable of measuring 2.9 to 4.3 volts DC
 The operating voltage of the handpieces' lamps must now be set to the value recommended by the manufacturer. The StarDental Fiber Optic handpiece and StarBright® swivel lamp = 3.3VDC. The four voltage adjustment controls are located near the terminal strip of the Quad Lamp Control unit and are turned using a 5/64" Jeweler's screwdriver. Note-curing light is not adjusted, its parameters are pre-set.

1. Connect the handpiece to applicable tubing adapter - follow the manufacturer's instructions. Plug switching power supply into a convenient receptacle.

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

2. Turn all the voltage setting controls fully DOWN (CCW). Gain access to the lamp connections and attach the digital multimeter (DMM). Activate the handpiece line, which should turn on the lamp for ten seconds. SLOWLY turn the appropriate voltage set control up (CW) until the meter reads 3.3VDC (if not StarBright swivel lamp, then use the manufacturer's recommended voltage). Repeat this procedure for any of the Quad Lamp Control Tubing positions that are being utilized.

-If direct attachment of DMM to the lamp is mechanically difficult, then attach the DMM directly to the appropriate terminal strip connections. With the lamp operating, set the recommended voltage. (With this method, if using tubing with smaller wire sizes, a higher voltage may be required to achieve the specified voltage at the lamp)

Quad Lamp Control Operation

HANDPIECES:

The Quad Lamp Control is designed to operate a variety of fiber optic handpieces. Once installation and lamp voltage adjustments are completed, the Quad Lamp Control will deliver the correct voltage to each handpiece tubing and lamp.

1. Pick up the handpiece from hanger. To operate the fiber optic electrical system, press and hold down the foot pedal of the delivery unit.
3. After completing the work session, return the handpiece to its holder.

CURING LIGHT PROBE:

Attach the curing probe to the tubing designated for this purpose. No special adjustments need to be made to the Quad Lamp Control because the 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 curing probe is activated by drive air and will not operate without proper pressure. Normal handpiece drive air set pressures are more than needed for curing light operation; so, it is recommended that the drive air pressure for the curing probe tubing be reduced to approximately 20psi.

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

Curing Light Probe Alternate Installation

The curing light probe tubing 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 use one of the existing handpiece lines. In this case, it is necessary to install curing probe by using an additional handpiece hanger and connecting the system with a different configuration.

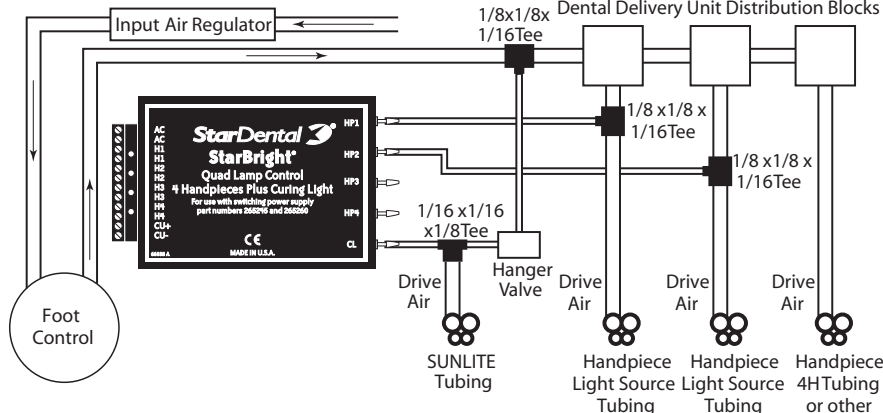
To effectively install using the alternate method, obtain a handpiece hanger that is compatible with the dental unit both in mounting style and in color. Also, this handpiece hanger must have a "positive" operation mechanism. Meaning that, when any device in the handpiece hanger is removed, air is permitted to flow through the shutoff valve. This will permit the curing light probe to be supplied cooling air in operation.

Normally, when installing handpiece tubings, the dental unit distribution blocks control air supplied to devices. But, in this alternate installation, a distribution block is not used. Therefore, cooling air to the curing 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, 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 auxilliary handpiece hanger shutoff valve. The OUTPUT side of the valve should be routed to both the curing probe tubing DRIVE air and also to the "Curing Light" postion barb fitting on the Quad Lamp Control.

-When curing light 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 probe tubing drive air. Exhaust air will exit via the tubing exhaust line. At the same time, the Quad Lamp control will be signaled by this air and subsequently turn on the curing light. If the foot control is kept depressed, an audible tone will sound every 10 seconds and the probe can be turned off at any time by releasing the foot control.

-The curing light 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.



Cleaning

PLEASE NOTE:

Clean outside surfaces of tubing with a non-alcohol based disinfectant only.
 Use of alcohol based cleaner will discolor tubing.

Troubleshooting

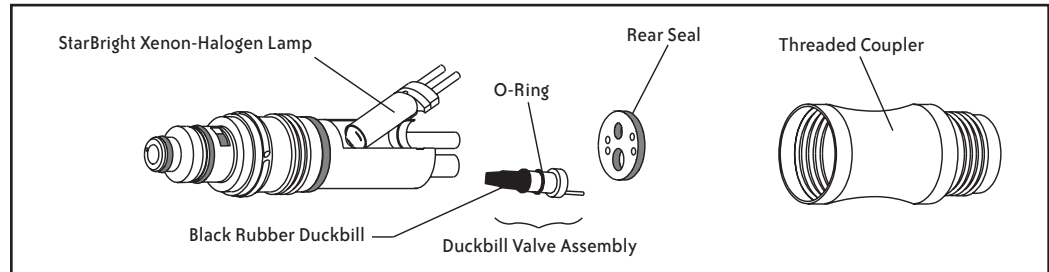
- Problem: NO LIGHT OR INTERMITTENT LIGHT**
Cause: Electrical connections
Correction: Verify three connections:
 1. Wall outlet – Quad power supply
 2. Power pack – Quad Lamp Control electrical connections A and B
 3. Quad Lamp Control – applicable handpiece tubing electrical connections C through K curing light electrical connections L and M (for connection and polarity)
- Cause:** Crimped signal air line to lamp control
Correction: Straighten signal air line to allow air flow.
- Cause:** Wire broken at tubing coupler
Correction: Re-strip wire 1/8", flow solder into strands and lock set screw with .035 Allen wrench.
- Cause:** Lamp installation
Correction: Verify lamp is properly seated into tubing connector.
- Cause:** Corrosion on lamp contact pins
Correction: Remove lamp (located in the StarBright® swivel connector) and clean contact pins with isopropyl alcohol.
- Cause:** Lamp burned out
Correction: Replace with Xenon-Halogen lamp, StarDental® Part #262522.
- Cause:** Faulty connector sockets
Correction: Verify lamp contact pins are properly seated into connector sockets. Clean contact pins of lamp and connector sockets.
- Problem: YELLOWISH LIGHT**
Cause: Debris on optical surfaces
Correction: Clean optical surfaces. Refer to Swivel Connector Instruction Manual, StarDental Part #62549.
- Problem: REDUCED LIGHT**
Cause: Low voltage
Correction: It is recommended that a qualified service technician be employed for this purpose: Verify correct adjustment of lamp voltage, refer to *Adjusting Lamp Voltage* section. If voltage is adjusted correctly and problem persists, contact Customer Service at the number listed below.
- Problem: NO WATER FLOW**
Cause: Faulty delivery head
Correction: Disconnect tubing at delivery head; check water flow.
- Cause:** Clogged tubing
Correction: Remove handpiece and connector from tubing. Verify water flow through tubing.

Note: If a problem persists, contact dealer for further assistance or contact **StarDental** Customer Service at 1-866-DTE-INFO.

Duckbill Valve & StarBright Lamp Replacement

Detach rear seal and threaded coupler on StarBright Fiber Optic 6-Line Swivel. Lift lamp UP; replace with new, StarDental Part #262522.

Remove duckbill valve using needle nose pliers. Replace with StarDental Kit #263830: a complete assembly with housing, O-ring and duckbill valve. Make sure flat side of duckbill assembly aligns with orifice. Reassemble threaded coupler and rear seal.



Replacement Part Numbers

Always insist on **StarDental** parts for best performance.

Description	Item Number
StarBright Quad Lamp Control&Power Supply.....	265330
StarBright Quad Lamp Control&International Power Supply.....	265331
StarBright Quad Lamp Control.....	265332
Quad Power Supply (100V-240V)	265333
Quad Power Supply, International.....	265335
International Plug Kit.....	265334
Lamp, Xenon-Halogen Lamp, 3.3 Vdc for StarBright (Pkg. of 2)	262522
Lamp, Xenon-Halogen Lamp 3.1 Vdc for non-Star tubing (Pkg. of 2).....	262962
Duckbill Valve & O-Ring Replacement Kit for StarBright 6-Line	263830

Warning: Only use StarDental quad power supply (part number 265333 or 265335) with the StarBright Quad Lamp Controller. Use of other transformers will cause damage to the Quad Lamp Controller.

Description	Quad Tubing	Item Number
6' Straight, Sterling.....		265576
6' Straight, Sandstone.....		265579
9' Straight, Sterling.....		265577
13' Straight, Sterling		265578



For new products, manuals and technical information, call 1-866-DTE-INFO or visit our web site @ www.dentalez.com.

IMPORTANT NOTICE ABOUT RETURNING PRODUCT TO THE DENTALEZ GROUP

Anyone wishing to return any **DentalEZ**® Group product to a **DentalEZ** facility MUST obtain the proper RETURN AUTHORIZATION NUMBER from the Customer Service Department.

The RA Number must appear clearly marked on both the outside and inside of the returned product carton. When calling for a return authorization number you will be asked to provide the following information:

- Product Name, Model Number or Part Number
- Serial Number of Product
- Dealer Return Purchase Order Number
- Reason For Return
- Copy of Invoice Showing Purchase

To Obtain A Return Authorization Number, Call **1-866-DTE-INFO**

Items will be evaluated. Return Authorization Number is not a guarantee for credit. Your cooperation with this procedure will help us expedite processing of any returns.

Limited Warranty

StarDental® StarBright Quad Lamp Control System (including Quad Lamp Control and Quad Power Supply) and **StarBright® Quad Tubing** are warranted against defects in material and workmanship for 12 months from date of purchase. Lamps are specifically excluded from this warranty. This warranty is subject to the following conditions:
 This product must not be abused and must have been operated in accordance with procedures detailed in this manual.
 Any replacement parts must be genuine **StarDental** parts.
 Warranty validation card must be completed and returned within 15 days of purchase.
StarDental will, without charge, repair or replace (at its sole discretion) any defective part(s) covered in this warranty, providing above conditions are met and the product is returned through an authorized **StarDental** dealer. You must have a copy of your original invoice to qualify.

THIS WARRANTY IS IN LIEU OF ALL OTHER WARRANTIES, EXPRESSED OR IMPLIED, INCLUDING ANY IMPLIED WARRANTIES OF MERCHANTABILITY OR FITNESS FOR USE.

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Product complies with MDD 93/42/EEC

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