DENTAL OPERATING LIGHT

Radiant LED

Installation, Operation & User Manual

EDI LED light head · Models R6101-LED and R6105-LED (sensor) · Includes maintenance, technical data and EMC tables



DOCUMENT
Radiant LED Operating Light Instructions
Revised October 2026

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How to read this manual

⚠ **WARNING** Risk of injury or damage to the equipment. Follow exactly.

ⓘ **NOTE** Information that makes the job easier or the result more reliable.

Technical support

(800) 560-8222

Monday to Friday, 8:00 AM to 5:00 PM Pacific.

SECTION 01

Safety and label symbols

These symbols appear in this manual and on the light's labels.

In this manual

Danger
Instructions that must be followed exactly to avoid harm to the device, the operator or the patient.

Warning
Operate with the utmost care to avoid situations that could damage the device.

Restriction
The correct behavior to avoid damaging the device.

Recommendation
Useful details for using the device effectively.

WARNING No modification of this equipment is allowed.

On the packaging

This side up	Fragile
Keep dry	Do not roll
Do not use hooks	Maximum stacking weight
Storage temperature	Shipping conditions
Relative humidity	Atmospheric pressure
Recyclable cardboard	

On the labels

- **Adjustment point**
- **Sensor** · proximity switch location
- SN **Serial number**
- REF **Item code**
- **Sterilization** · handles: steam sterilize (page 9)
- I / O **Switch** · I = on, O = off
- **Relative humidity limits** · use 30–75%
- **Temperature limits** · use 10–40 °C
- **Atmospheric pressure limits**
- **Class II device**
- **Refer to the documentation**
- **Separate collection** · dispose of as electrical equipment (WEEE Directive 2012/19/EU)

GENERAL INFORMATION

Safety regulations

The light illuminates the operative field in dental treatment. It is designed for use on an articulated arm about 700 mm (27.5") above the patient.

Intended users

- Dentists, dental assistants and hygienists.
- The user must have full use of one arm and vision suited to the profession.
- This is not a life-support device. A fault does not put the patient at risk.

Installation

- Install only by qualified personnel, on a dental unit or an electrical system that complies with IEC 60364-1 and national rules for medical areas.
- Fit an all-pole mains switch that complies with IEC 61058-1.
- The installer is responsible for keeping the device compliant with IEC 60601-1.
- Check that the supply voltage matches the rating plate.
- Not suitable for explosive atmospheres or high oxygen levels.

Use

- Clean the device before first use. Never use it if any part is damaged.
- Do not shine the light into patients' eyes, especially children or anyone with an eye condition or on photosensitive medication. Use TPC protective goggles; clean and disinfect them after use (sterilize at 121 °C only).
- Cover the handles with disposable barriers or sterilize them after each patient.
- Use only the accessories named in this manual.
- Keep small parts away from children.

Maintenance

- Unplug the power before any work on the head.
- Do only the maintenance described here; for anything else contact TPC.
- Unauthorized modifications void conformity and the warranty.

Storage and shipping

Temperature	**−20 to +70 °C**
Humidity	**10–90% RH**
Pressure	**500–1,060 mbar**
Maximum time	**15 weeks, in original packaging**

Operating conditions

Temperature	**10 to 40 °C**
Humidity	**30–75% RH**
Altitude	**Up to 2,000 m**

⚠ **WARNING** Do not spray detergents or disinfectants directly on the head. Never use cleaners containing ammonium hydroxide, sodium hydroxide, methylene chloride or methyl alcohol on plastic parts; they can crack them.

GENERAL INFORMATION

Features and parts of the head

Versions

- Head with switch
- Head with switch and automatic lighting
- Head with proximity sensor (R6105-LED)

Features

- Two LEDs mirrored into two parabolic reflectors for an even spot with no shadows
- Intensity set with the switch or sensor
- Touch-free sensor reduces cross-infection
- Removable, sterilizable handles; front screen reduces internal contamination



Fig. 1 Head: front screen, reflector, handles



Fig. 2 On/off and intensity switch



Fig. 3 Sensor (optional)

1	On/off switch, intensity (with or without automatic lighting)	5	Front screen
2	Lens	6	Sensor, intensity (with or without automatic lighting)
3	Parabolic reflector	7	Electronic board
4	Handle	8	Front screen wrench

In the box

- Light head (version as ordered), left and right handles
- Switch toggle extension, front screen wrench, brass spanner (tension) nut
- Instruction manual

SECTION 02

Installation

Install by qualified technicians only. Cut off the power supply first, and check the rating plate before connecting.

Fit the head to the arm

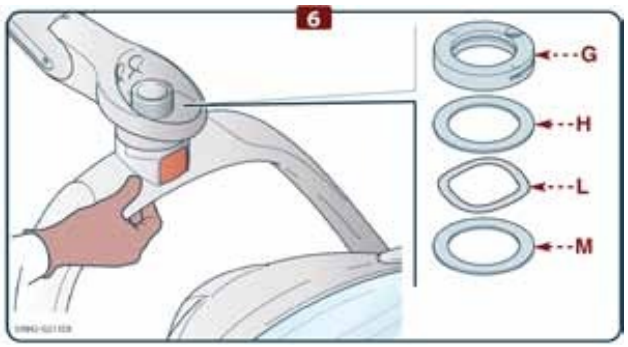


Fig. 4 Washers H, L, M

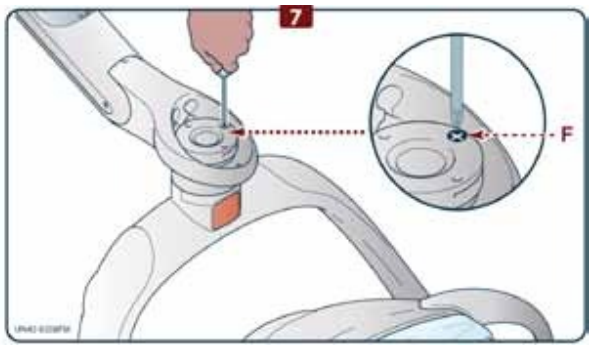


Fig. 5 Safety screw F

1. Support the head and fit the washers **H**, **L** and **M** in the order shown.
2. Screw on the ring nut **G**.
3. Tighten the safety screw **F** until the head turns with the right resistance.

Electrical connections

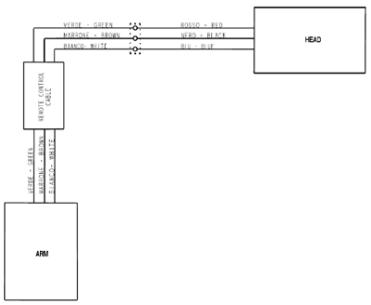


Fig. 6 Head to arm wiring

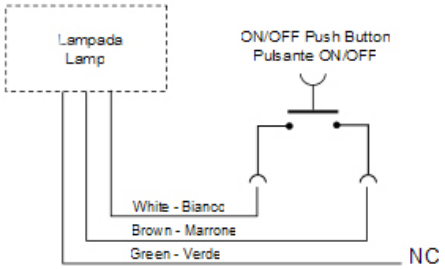


Fig. 7 Remote on/off push button

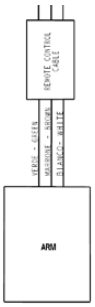


Fig. 8 Arm connection

4. Connect the wires as shown in the wiring diagrams.
5. Feed the excess wire back into the light head.
6. Fit the cover cap and secure it with the supplied screw.

SECTION 03

Operation

Position the head about 700 mm (27.5") from the patient. Nearer or farther, the light spot changes size and evenness.

Head with switch

- Press the switch briefly left or right to turn the light on or off. It beeps once.
- The light always comes on at maximum intensity.
- To dim, hold the switch left or right until you reach the intensity you want. It beeps once at minimum.
- To return to maximum, switch off and on again.

⚠ **CAUTION** The switch moves left and right only. Do not push or pull it.

Head with sensor

- Bring your hand within 3 cm (1¼") of the sensor to switch on or off. It beeps once.
- To dim, hold your hand still near the sensor until you reach the intensity you want.
- To return to maximum, switch off and on again.

Automatic lighting

The light comes on automatically whenever power is switched on.

Head with remote control

The head's remote cable connects to a remote on/off push button "A" (see wiring, page 6).

- Press and release A to switch on or off.
- Hold A to dim. It beeps once at minimum.
- Switch off and on again to return to maximum.

OPERATION

Video-diagnostic mode

This mode lets you film, or use diagnostic tools such as Diagnodent or a laser, without the light interfering. It works on switch and sensor versions.

Turn it on

1. Switch the light on with the switch (one beep), then release it.
2. Hold the switch to dim to minimum (one beep), then keep holding for **4 seconds**.
3. A confirmation beep sounds and the light returns to maximum: video-diagnostic mode is **enabled**. If not, start again.

Turn it off

1. Switch the light on with the switch (one beep), then release it.
2. Hold the switch to dim to minimum (one beep), then keep holding for **4 seconds**.
3. A confirmation beep sounds and the light returns to maximum: video-diagnostic mode is **disabled**. If not, start again.

Dimming in video-diagnostic mode

Intensity changes in steps instead of continuously, with two levels between maximum and minimum.

- Switch the light on (one beep), then release the switch.
- Use the switch to step down, releasing it at the level you want. It beeps at minimum.
- Each time the light is switched on it returns to maximum (one beep).

Acoustic signals

1 beep	**When switched on**
1 beep	**At each command**
1 beep	**Maximum or minimum intensity reached**

SECTION 04

Maintenance and cleaning

⚠ **WARNING** Unplug the power before any work on the head. Never use abrasives or cleaners containing trichloroethylene, gasoline, turpentine or similar on any part.

Front screen



Fig. 9 Loosen screw A



Fig. 10 Slide screen B out

- Turn the screws on the sides of the screen counterclockwise with the supplied wrench, and slide the screen out.
- Clean it with a soft cloth and glass cleaner.

Parabolic reflectors

- Remove the front screen.
- Clean with cotton wool and ethyl alcohol, or a 70% isopropyl or ethyl alcohol disinfectant. Wear gloves to avoid marks.
- Do not use cleaners with surfactants or water repellents; they leave halos. Slight halos do not affect light quality.

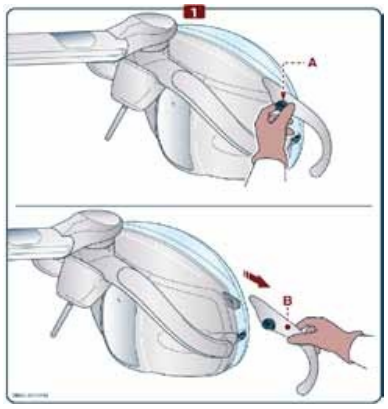


Fig. 11 Remove the handle: turn knob A, slide off B

Sterilize the handles

- To remove, turn knob A counterclockwise and slide the handle completely off B.
- To refit, push it firmly home and turn knob A clockwise to lock it.
- Handles are supplied non-sterile. Steam sterilize before use, type B cycles only (EN 13060), up to 200 cycles.

Temperature	Minimum hold	Pressure
121 °C	15 min	207 kPa
134 °C	3 min	308 kPa

Periodic checks

Rating plate legible	**Every year**
Power safety: insulation test (EN 62353), casing leakage test	**Every 2 years**
Light: maximum > 35,000 lux; blue light < 100 W/m²	**Every 5 years or 10,000 hours**

If a check finds a problem, contact TPC Customer Assistance immediately.

SECTION 05

Troubleshooting

01	**The light does not switch on**	Make sure the mains power is connected.
02	**The light is considerably dimmed**	Clean the reflectors and the front screen. If the intensity does not return to normal, contact TPC service.
03	**Handles do not lock, or are hard to unlock**	Make sure the fixing screw on the handle is fully open.
04	**Halos on the reflectors**	Clean with isopropyl alcohol. If they remain, an unsuitable cleaner has damaged the surface: contact TPC.

Technical data

Input voltage	**12–24 V AC or 17–33 V DC**
Frequency (AC)	**50 / 60 Hz**
Power consumption	**7 VA (AC) · 5 VA (DC)**
Current	**510–290 mA (AC) · 145–270 mA (DC)**
Protection	**Class II**
Operation	**Continuous**

Spot at 700 mm	**100 × 180 mm**
Maximum illuminance	**35,000 lux at 700 mm**
Color temperature	**5,000 K**
Surface temperature	**< 71 °C (plastic)**
Board fuse F1	**T3.15 AL 250 V, TPC service only**
Firmware	**Version 2.0 or later**

TPC Customer Assistance
Monday to Friday, 8:00 AM to 5:00 PM Pacific

(800) 560-8222

REFERENCE

Serial number and product code

The rating plate is on the rear arm. The serial number gives the year (AA), the product range (LD for dental light) and a running number, for example SN14LD000001.

Product code: 5 0 Z X Y W 0 0 0

Every version is described by a 9-digit code. The last three digits are 000 on the standard TPC version.

Z · ARM	
0	Head only, no arm
1	750 × 550, unit/wall/floor
2	900 × 550, unit/wall/floor
3	750 × 855, unit/wall/floor
4	900 × 855, unit/wall/floor
5	750 × 550, ceiling
6	900 × 550, ceiling
7	750 × 855, ceiling
8	900 × 855, ceiling

X · HEAD	
0	No head (arm only)
1	Standard
2	Third axis

Y · CONTROL	
0	No board
1	Switch
2	Switch with automatic on
3	Proximity sensor
4	Sensor with automatic on

W · POWER	
0	Not used
1	12–24 V AC / 17–33 V DC
2	120 V AC 60 Hz *
3	230 V AC 50 Hz *
4	240 V AC 50 Hz *

* Not available for ceiling, wall or floor versions.

Examples

501 002 000	**750 × 550 arm, 120 V transformer**
500 241 000	**Third-axis head with proximity on/off**
508 121 000	**900 × 855 ceiling arm, standard head with on/off switch, 12–24 V AC / 17–33 V DC**



Fig. 12 Electronic board (firmware 2.0+)

NOTE The fuse F1 (T3.15 AL 250 V) may be replaced by TPC Service only.

REFERENCE

Electromagnetic compatibility

Compliance with IEC 60601-1-2:2007. Install and use the light as described here. Portable and mobile RF equipment, and accessories or cables other than those supplied, can affect it.

Emissions

Test	Compliance	Guidance
RF emissions, CISPR 15	Compliant	RF energy used for internal function only; very low emissions.
Harmonic emissions	Class C	Suitable for all buildings, including domestic.
Voltage fluctuations / flicker	Compliant	

Immunity

Test	Level	Environment
ESD, IEC 61000-4-2	±6 kV contact, ±8 kV air	Wood, concrete or ceramic floors; with synthetic floors, at least 30% RH.
Fast transients, IEC 61000-4-4	±2 kV power, ±1 kV I/O	Typical commercial or hospital mains quality.
Surge, IEC 61000-4-5	±1 kV differential, ±2 kV common	Typical commercial or hospital mains quality.
Dips and interruptions, IEC 61000-4-11	<5% Ut 0.5 cycle; 40% Ut 5 cycles; 70% Ut 25 cycles; <5% Ut 5 s	For use through outages, fit an uninterruptible power supply.
Power-frequency magnetic field, IEC 61000-4-8	3 A/m	Typical commercial or hospital levels.
Conducted / radiated RF, IEC 61000-4-6	3 Vrms 150 kHz–80 MHz; 3 V/m 80 MHz–2.5 GHz	Keep RF transmitters at the separation distances below.

Recommended separation from RF transmitters (m)

Transmitter power (W)	150 kHz–80 MHz · d = 1.2√P	80–800 MHz · d = 1.2√P	800 MHz–2.5 GHz · d = 2.3√P
0.01	0.12	0.12	0.23
0.1	0.38	0.38	0.73
1	1.2	1.2	2.3
10	3.8	3.8	7.3
100	12	12	23

Ut is the mains voltage before the test level is applied. At 80 MHz and 800 MHz the higher range applies. These guidelines may not apply in every situation; absorption and reflection by structures, objects and people affect propagation.

SECTION 06

Warranty, maintenance and disposal

2 year limited warranty

LED operating lights are guaranteed free from defects in workmanship and materials for 2 years from the date of purchase, unless otherwise stated.

Covered

TPC will repair or replace any defective part at no charge.

Not covered

- Labor, and shipping to and from TPC
- Normal wear or stains on the surface finish
- Damage from improper installation, misuse or accidents
- Damage in shipping and handling

Claims against the freight carrier must be started when the damaged items are received; filing the claim is the customer's responsibility. TPC improves its products continuously and may modify them without notice, without obligation to modify items already made.

⚠ **IMPORTANT** Only authorized service technicians should service TPC equipment. Service by an unauthorized technician may void the warranty.

Maintenance

Maintain the light at scheduled intervals to keep it reliable and to protect patients, users and others. The owner is responsible for making sure maintenance is done. TPC is responsible for the unit's safety only when maintenance and repairs are carried out by TPC or an agency it has authorized, using original spare parts.

Recycling and disposal

Dispose of used equipment according to the rules of your country, and make sure it is not contaminated during disposal. All packaging is recyclable; send it to the relevant collection system.

TPC

TECHNICAL SUPPORT

(800) 560-8222

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