Quazar

IPL and Driver

Replacement Parts

IPL Supplies

IPL Eyewear

Eyewear # D-213-4600 Each $199.95

IPL280 Lamp Replacement

IPL # D-213-6700 Each $299.95

Carbon Dye 200ml

Carbon Dye # P-213-2500 Each $99.95

Prices are subject to change without notification. To order on-line, go to
http://www.centre-biotechnique-avance.com
For technical assistance beyond what this manual provides, please e-mail
admin1@centre-biotechnique-avance.com
Please allow 24 hours for processing.

Quazar IPL *produces laser radiation which can be harmful to the eyes. Always wear protective eyewear while operating this equipment. Intense Pulsed Light has the capability to burn the skin if the technician does not closely observe the patient's reaction to the procedure. IPL treatments result in full destruction of the hair follicle and is* ***irreversible****. Always plan ahead before undertaking detail work such as eyebrow shaping or hairline contouring. Patch test a small area (no larger than 1X1 inch square) before full application. Allow 24 hours to determine the patient's reaction before applying full treatment.*

Handling Precautions: The IPL flash tube can be damaged beyond repair if the handpiece is dropped or bumped sharply. Handle with care.

UL8529001
Printed in UK

Quazar IPL280

Instruction Material for Quazar IPL280
Precision O.E.M. IPL and Driver Unit

Quick Setup Guide

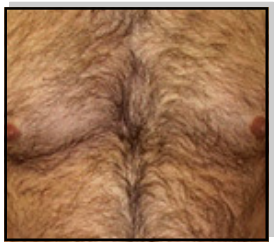
Read this guidebook first to set up your equipment for use.

Keep this manual in a convenient place for quick and easy reference at all times.

Hair Removal with Light

The newest procedure to reach the epilation cosmetology market is called Intense Pulsed Light. It's a revolutionary advancement to 'laser' cosmetology (which includes hair removal and more) and is similar to laser epilation in many ways. The radiation emission source; however, is far superior in cost, reliability, fluence (power) and adjustability.

A very powerful flash tube delivers a photon emission 10-20 times larger than a typical epilation laser (in diameter at 54-180 jcm2). This light energy is carefully filtered with precision optics. The heat is removed from the energy with a Schott KG1 Filter, then all wavelengths above 800 are removed with a MgF2 coated lens.



The photons are sent through Ruby, Sapphire or a BK7 Glass condenser (depending on requirements). The end result is a safe, usable, high-density photon emission with performance equal to (or greater than) that of an ordinary laser.

Power Comparison: Standard laser epilators produce CW or Pulsed output power around 20-60 Watts. An IPL typically produces 250-600 Watts. This allows for a much larger treatment diameter, which equates to far greater speed and efficiency for the technician.

One of the greatest benefits of the IPL, over that of the laser, is the difference in cost. The typical 'price per watt' of a standard laser is $1,000-$2,000 whereas the price per watt of an IPL is roughly $100-$200.

Average life expectancy of the flash tube is over one million pulses. This equates to 3-5 years of reliable service, nearly the same as a Long Pulse Diode. The flash tube is easily serviceable when it comes time for replacement and costs around $300-$500 (depending on unit).

The Benefits of IPL over Laser: Larger areas can be treated at one time. A typical man's back would require about 20-30 minutes with a Long Pulse Diode. The IPL280 would do the same job in about 10 minutes.

IPL works on persons who are outside of the acceptable limit for the Fitzpatrick skin pigment grading scale. A type 6 could be treated safely (with skin bleaching).

No hair is vaporized so there is much lower risk of pitting around the hair follicle itself (from intense heat).

IPL gives added benefits as a result of the hair removal treatment. Improved tone, texture, and vitality of the skin is commonly noted.

Client Pre-Qualifications

The best candidate for IPL hair removal has fair skin with dark terminal hairs. Skin typing for exposure to ultraviolet light can be categorized by the Fitzpatrick classification, developed by Dr. Thomas Fitzpatrick of Harvard Medical School.

Skin Type I: Never tans, always burns (extremely fair skin, blonde hair, blue/green eyes)
Skin Type II: Occasionally tans, usually burns (fair skin, sandy to brown hair, green/brown eyes)
Skin Type III: Often tans, sometimes burns (medium skin, brown hair, brown eyes)
Skin Type IV: Always tan, never burns (olive skin, brown/black hair, dark brown/black eyes)
Skin Type V: Never burns (dark brown skin, black hair, black eyes)
Skin Type VI: (black skin, black hair, black eyes)

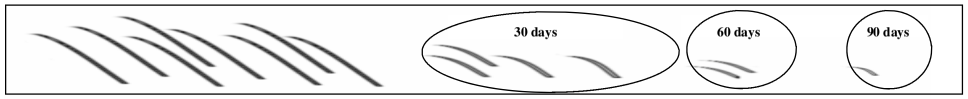
Types 1 through 4 are outstanding candidates. Type 5 will have excellent results as well, but care must be taken to assure that the IPL will not burn the skin. Type 6 should not undergo laser hair removal unless used in conjunction with skin bleaching due to the high risk of burning and hypo/hyper pigmentation issues.

References

1. Bjerring P, Cramers M, Egekvist H, Christiansen K, Troilius A. Hair reduction using a new intense pulsed light irradiator and a normal mode ruby laser. J Cutan Laser Ther 2000; 2: 63-71.
2. Kauvar AN. Treatment of pseudofolliculitis with a pulsed infrared laser. Arch Dermatol 2000; 136:1343-6.
3. Eremia S, Li C, Newman N. Laser hair removal with alexandrite versus diode laser using four treatment sessions: 1-year results. Dermatol Surg 2001; 27: 925-9.
4. Gorgu M, Aslan G, Akoz T, Erdogan B. Comparison of alexandrite laser and electrolysis for hair removal. Dermatol Surg 2000; 26:37-41.
5. Bencini PL, Luci A, Galimberti M, Ferranti G. Long-term epilation with long-pulsed neodimium:YAG laser. Dermatol Surg 1999; 25:175-8.
6. Lloyd JR, Mirkov M. Long-term evaluation of the long-pulsed alexandrite laser for the removal of bikini hair at shortened treatment intervals. Dermatol Surg 2000; 26:633-7

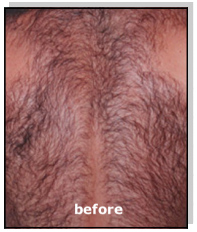
Treatment Efficacy

Permanent hair removal is a gradual process which takes 90 days or more for complete destruction of the follicle tissues. Each hair must go through its entire growth cycle for it to be effectively treated. Generally, it is only during the ***early anagen*** phase that it is vulnerable to destruction. The following chart will give you an accurate example of what the reduction in growth activity should look like from 30, 60 , and 90 days of treatments.



Important Considerations for Safe IPL Hair Removal Treatment

Treatment Around or Near the Eyes: Great care must be exercised when working near the eyes. The IPL emission is powerful enough to actually penetrate the eyelid and permanently damage the eye. Having the patient close their eyes is not satisfactory protection. The use of a dark-colored damp wash cloth which is folded over four times will deflect the harmful radiation; however, only laser protective eyewear is recommended.

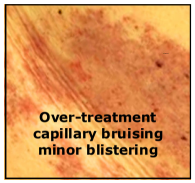


Treatment Around or Near Mucus Membranes: IPL radiation will severely damage the tissues inside the nose and ear canal. Treatment should be avoided in these areas altogether.

Treatment Around or Near the Genitals: IPL hair removal is safe for application to the pubic regions including the reproductive organs of both sexes. Care must be taken into consideration in these areas due to the increased level of neural sensitivity. The patient may find the process uncomfortable without a topical desensitizing spray.

Treatment Around or Near the Areola (nipple): IPL hair removal is safe and effective on hair growth which occurs from the areola of both sexes.

Post-Treatment: The skin surrounding the treatment area will experience short-term erythmia (reddening) which will subside within 12-24 hours. Should the treatment area show signs of excess scabbing you may wish to reduce the overall treatment time or intensity. The application of a post-treatment cooling and healing gel (such as Aloe) is encouraged to speed healing and reduce sensitivity. Instruct the patient to refrain from applying cosmetics or sunbathing for at least 24 hours.



Over Treatment: Each IPL pulse sends a series of photon 'bundles' deep into the skin where it damages the hair follicle tissues. This IPL radiation also will have mild effects on capillaries and skin tissue. If too many IPL pulses are administered the capillary network will begin to break down. This will create a bruise which will take several days to subside. Although the use of lasers to destroy capillaries in the skin is quite common (for spider veins, port wine stains, birth marks etc), it is not the intent of this treatment as outlined for hair removal to damage other tissues. For that reason the technician should carefully test and document how many laser pulses each patient can withstand before capillary breakdown (bruising) occurs.

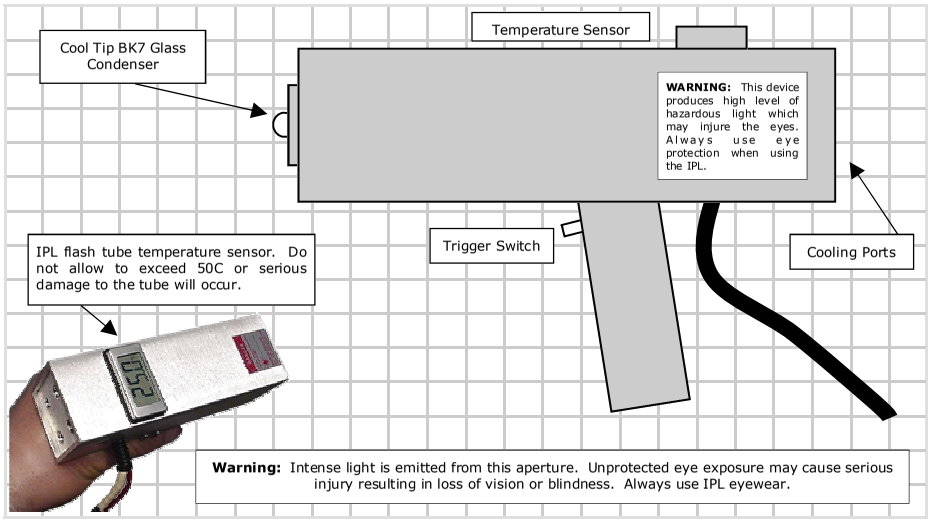
The general rule of thumb is to patch test the skin with 7 pulses (on full power) then send the patient home. Have them back in the office in 24 hours to observe the reaction. If there is no burning or bruising, administer the full treatment. It is not recommended to deliver more than 10 pulses to one stationary area at a time. If more than 10 pulses are delivered the technician should make a small circular motion with the IPL head to avoid sending all the energy through the exact same entry points.

This IPL can cause serious burns to the skin. All technicians should adopt the 'less is more' philosophy. It is far safer to have the patient come back for additional treatments than to administer too much radiation in one session resulting in tissue trauma and blistering.

Patient #	hair counts			12 week clearance
1 females, 1 males	pre	post	number of treatments	percent
#1: deep tissue with hair	225	11	10	95%
#2: deep tissue with dye	166	1	7	99%

Emitting wavelength	*(100-800 ± 10) nm*	*Classification: Exempt*	***Fluence***	*180J/cm2 max*
Output power	*User-adjustable 0 to 54 Joules*	*Designation: OEM*	***Energy Instability***	*19% maximum*
Generation modes	*IPL*	*Manufacturer: Quazar Industries, UK*	***Safety goggles***	*OD 8.0 @ 100-1000nm (minimum) suggested.*
Beam characteristic	*Flash Lamp*	*Warranty: 1 Year*	***Electrical requirements***	*100/120 VAC, 50/60 Hz nominal, 1.0 A max. 220 or 240 VAC, 50/60 Hz nominal, 1.2 A max.*
Pulse duration	*Manual Adjust*	*Emission Indicator: Yes*	***Ambient operating temperature***	*10°C to 30°C*
Weight	*15 kg max*	*Key Lock: Yes*	***Ambient storage temperature***	*-25°C to 70°C*
Optics	*Glass*	*Beam Shutter: No*		
Dimensions	*170 x 500 x 370 mm*	*21CFR 1040, IEC 825-1:1993: No*		

IPL280 Instrument



The IPL280 comes with a 54jcm2 adjustable pulse frequency (fixed pulse duration) instrument for superior operator control. Dropping or bumping the instrument may result in irreversible damage to the internal components and would not be covered by warranty. Activating the IPL while the glass condenser is in contact with an object (such as the carbon test sheet) may damage the optics. When testing against the carbon sheet always hold the condenser at least 5mm from the surface.

Trouble Shooting

Should you encounter technical problems with your Quazar IPL system, refer to the following guide for potential problems and their solutions.

—Unit is plugged into the wall, all accessories are correctly inserted into the unit but no laser output is being registered.

++Check all connections. Plug and unplug each one being sure all contacts are sound.

++Check all cords. Due to continual bending and fatigue, wires may fray or break resulting is full loss of power.

++Check Fuse: The Quazar unit has a fast-acting fuse mounted on the top panel of your unit to protect the delicate flash tube from voltage spikes, on-line power surges and electro-static discharge (ESD damage). Replace with 15 amp fast acting type only. Failure to comply with these specifications may result in serious damage to your IPL and will void all warranties.

—Unit hums or makes noises.

++Unit needs servicing.

—IPL output is weak.

++Emitter optic is blocked with carbonized debris (burnt hair etc.). Clean thoroughly with a cotton tipped applicator and alcohol. If the performance of the IPL does not improve after cleaning the head your unit needs servicing by a qualified agent. Contact technical support for assistance.

—No output from the IPL is registered after all trouble-shooting suggestions listed above have been checked.

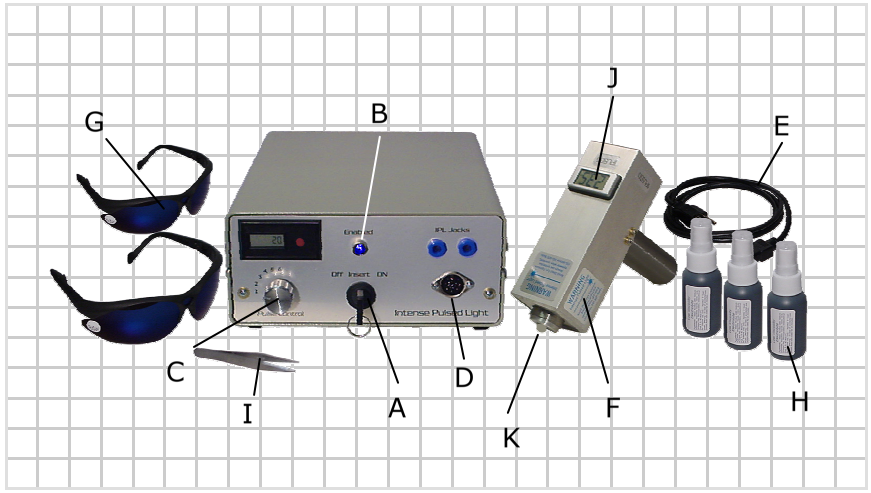
++Probable flash tube failure. Unit needs servicing.

Digital Temperature Meter

The meter may need re-calibration by adjusting the on-board potentiometer. Two resistors, Ra and Rb may be used in order to alter the full scale reading (F.S.R.) of the meter.

Specification	Min	Typ.	Max.	Unit	Reading	
Accuracy		0.05	0.1	%(+1 count)	50	
Linearity			+1	count	40	
Sample rate		3		Samples/sec	30	
Op. temp	0	50		°C	20	
Temp. Stbl.		150		Ppm/°C	10	

IPL280 Control Locations/Feature Descriptions



A. **Key Lockout:** This feature is required by law on all high-power laser and light devices. The first step in the correct sequence to power-up your laser is to turn this clockwise using the special key included in your kit. The light (center LED lamp) will be off when the power system is off and red when the power system is on.

B. **System Status LED:** This light will indicate system status (neutral or live). Blue indicates your IPL is live and ready for use.

C. **Pulse Control:** This allows the operator to set the number of laser pulses per second.

D. **IPL Jacks:** An eight-prong coaxial power jack for the diode laser hand piece and two blue banana plug receptacles.

E. **Power Cord:** Rated for 60Hz, 120-240 V, 10 Amp with corresponding plug-style for country of destination.

F. **IPL Instrument:** A 280 Watt high intensity pulsed light with thumb switch.

G. **Eyewear:** This is an essential part of the treatment process. Direct or reflective IPL radiation can seriously injure the eye. Both the technician and the patient must use the protective eyewear while the IPL is enabled or activated. Eyewear is intended for ***accidental*** exposure only. Never stare directly into an IPL optic.

H. **Carbon Dye:** This is an 'atomized' form of molecular carbon which easily penetrates deeply into the follicle shaft. The dye adds pigment which gives a receptor for the photon/heat exchange reaction. The carbon atoms will capture the IPL energy and convert it into heat for the rapid and efficient cauterization of tissue for the permanent destruction of the hair follicle organ.

I. **High-Precision Tweezers:** Apparatus for the extraction of follicle prior to carbon dye application.

J. **Temperature Readout:** Control feature for the regulation of the flash tube internal temperature. Do not exceed 50C.

K. **Precision Optics:** BK7 Glass condenser optic for the efficient focus and penetration of light energy through the skin. May be changed to ruby or sapphire (see supplies).

Equipment Warranty

We warrant to the original purchaser the equipment manufactured by us to be free from defects in material and workmanship under normal use and service. Our obligation under this warranty shall be limited to the repair or exchange of any part or parts which may prove defective under normal use and service within 12 calendar months from the date of shipment and which our examination shall disclose to our satisfaction to be thus defective. When necessary, purchaser shall apply for a Return Materials Authorization and instructions on proper return procedures from their original sales associate. The laser diode (head) requires special operating precautions which, if defied, may void warranty.

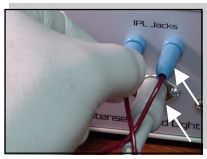
Warranty Extension Certification:

Customer Number Authorization Number

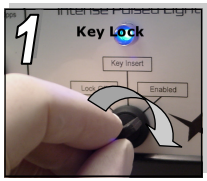
Warranty Extension ( ) years Warranty Type: **A** B C D

IPL Startup Procedure

Put on your IPL eyewear before powering up your system. Wear the eye protection throughout the entire procedure.

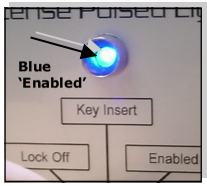


Place the blue plugs into the IPL driver unit firmly. These jacks produce high voltage current so the system must be off during plug insertion (key lock in the 'lock off' position). As an added safety measure, do not touch the metal portion of the plug while inserting or removing from the driver (even if you assume the unit is off).



Turn the key lock switch from system status neutral (off) to system status blue (enabled). At this time your IPL hand piece is LIVE. Extreme care must be exercised while handling the IPL. This system produces high levels of potentially hazardous light which could injure unprotected eyes.

Testing the IPL



With the pulse setting on 6 (seven pulses per second), place the IPL condenser optic 5mm from the black test sheet included with your instruction material. Press the trigger switch then immediately release (just for testing purposes). The hand piece will deliver 7 pulses of light. Repeat the test but hold the trigger switch down for 10 seconds. This will deliver approximately 70 pulses which will ignite the test pad producing vapor and smoke.

It is recommended to use the IPL in 6 pulses per second (pps) at all times (setting 4) to avoid over treatment.

IPL Safety Considerations

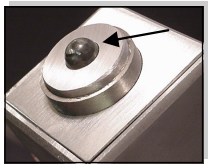
IPL should not be used for actual 'IPL (i.e. laser) shaving'. The energy emission exit port (glass optic) is in direct contact with the skin during the treatment. The reaction that occurs when radiation strikes a hair is very intense heat. It could cause pits and defects in the optic as well as potentially burn the patient's skin which is in direct contact with the vaporizing hair.

IPL must be used on shaved (or waxed) skin. The follicle being targeted is about 1/8 to 1/4 inch *below* the skin (the follicle and papilla). If using carbon dye, remove any excess which may come in contact with the optics using ethyl alcohol.

Lamp Overheating

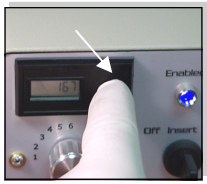
Keep the flash tube temperature at or below 50 degrees Centigrade for optimal performance. Pushing the IPL beyond the limits of performance (operating above 50C) may damage the tube, resulting in loss of intensity, performance and life expectancy of the IPL (which is not covered by your standard warranty).

IPL Optics Maintenance



Clean the condenser optics frequently. For light maintenance use acetone or alcohol on a cotton tip applicator. For more aggressive cleaning use an 'Exacto' blade to scrape any carbonized material from the glass.

Pulse Counter



Your IPL280 comes with a convenient pulse counter to track total photon emissions (for conversion to joules, see back page for information). To reset to zero press the button to the right of the display. The system will pulse 2 times per second on setting 2, 3 times on 3, 4 times on 4, 5 times on 5, and 7 times on 6.

Shipping Damage: The high wattage flash tube in your hand piece is sensitive to shock and may be damaged if the unit is dropped of mishandled. If your system arrives in non-working condition (the hand piece does not produce pulses of light energy when activated) it has likely been damaged during shipping. See 'Lamp Replacement Procedure' for instructions on removal and replacement of the high wattage tube.

Intense Pulsed Light Progressively Permanent Hair Removal

The IPL can be considered an excellent replacement for laser hair removal as the results and overall procedure are similar in many ways. It can be noted that IPL treatments are more efficient due to the substantial increase in overall energy being used (which equates to less overall treatment time).

Like laser, IPL will injure the cells which are responsible for hair growth by way of thermolysis (heat in the follicle tissue). This trauma is just below the threshold of injuring other cells (notably skin) around the follicle. IPL works best on clients who have light skin combined with dark hair growth. Should a hair follicle survive the IPL treatment, it will grow back slower and thinner. After a series of treatments the continual 'site specific' localized trauma to the follicle tissue will eventually destroy the hair growth. Once destroyed, a follicle cannot produce another hair.

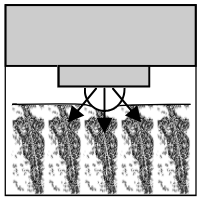
Discomfort and Client Reaction

Remarkably, the sensation felt with an IPL treatment is no more intense than that of a laser (although much more total energy is being delivered to the tissue). The first two pulses from the IPL generally are not felt by the client. The third (if the technician chooses to deliver that many) begins to feel like a snap of a rubber band (as the tissue absorbs and retains the energy). Five or more pulses in less than one second may be uncomfortable for some clients. The use of a topical desensitizing spray or pre-treatment cold pack will alleviate most sensation.

Pre-Treatment Preparation

First spray the area with a lidocaine or benzocaine topical numbing compound. Now place a cold pack over the area intended to be treated for a minimum of 5 minutes prior to treatment. The patient will be able to withstand as many as 7 pulses per 2.5 cm2/second without much sensation. It is generally not necessary to deliver more than 5 pulses for effective hair removal treatment.

IPL Hair Removal Variation 1



This procedure is the most popular among professionals as it requires only shaving prior to the application. It will be necessary to remove all hair above the skin with a razor. Any hair which protrudes above the skin may cause pits in your optics which will reduce the overall efficiency of the device.

Turn your IPL driver to setting 6 pulse (54 jcm2 per second) a place the IPL condenser against the skin in the area where the unwanted hair growth is occurring. Press the trigger switch then release (delivering four total emission equating to 54 jcm2 of energy density) then move the condenser to the next treatment area. The treatment will effectively damage or destroy all anagen follicles in an area of 2.5 cm2. An area 25cm square (about 10 inches) will required 100 pulses spaced evenly for effective hair removal.

IPL Hair Removal Variation 2: Deep Tissue Trauma With Follicle Extraction with Carbon Dye

Before applying treatment, remove all hair from the area by tweezing or waxing. IPL hair removal is most effective when applied to an empty follicle shaft. Human hair simply does not normally have enough pigment to allow for sufficient heat exchange to cauterize, desiccate and necrotize the cells which produce hair. To compensate for this lack of 'quantitative' and 'qualitative' photon targets, it will be necessary to place a high-density carbon dye inside the follicle prior to treatment.

Using a cotton-tipped applicator, completely cover the treatment area with the special dye included in your kit. Massage the dye into the follicle pore with a firm downward circular motion. Repeat 2-3 times to saturate the follicle pore. Use an ***ethyl alcohol*** based wipe (isopropyl alcohol will not dissolve the dye) to lightly clean the excess from the surface of the skin. At this point you will have all desired follicles ***visibly highlighted*** with a dark spot (as seen above). Perform the standard IPL treatment as outlined in 'IPL Hair Removal Variation 1' as normal. *Don not over treat.* Applying 10 or more pulses in 1 second to the same area may result in a severe burn (leading to blistering).