

V-LASER

Long Pulsed KTP 532nm
& Nd:YAG 1064nm

Clinical Guide





Device Introduction and Use of this Guide

The following information should be used in conjunction with the V-Laser Operator Manual and the V-Laser Quick Reference Guide. Please refer to the Operator Manual for detailed information, including important cautions and warnings, prior to using the laser system. Refer to the Quick Reference Guide for detailed instructions on performing V-Laser treatments.

V-Laser is a long-pulsed KTPd 532nm and Nd:YAG 1064nm Laser. It offers an extremely high standard of treatment for vascular lesions, dyschromia and pigmentation, and skin rejuvenation.

V-Laser is:

- **Versatile**
Dual wavelength of long-pulsed 532nm and 1064nm is effective in the treatment of a range of lesions such as vascular lesions, benign pigmented lesions in both epidermis and dermis of all skin types. In addition, a 300 nanosecond 1064nm pulse is used for skin rejuvenation.
- **Flexible**
Energy, pulse duration and spot size can be flexibly adjusted when considering each lesion's features, leading to better treatment results.
- **Real Long Pulse**
Powerful and stable energy output presents in a constant pulse pattern of a square shape, assuring safe and effective treatments.

Dual Wavelength

- **Long-pulsed 532nm Wavelength**
With higher absorption coefficient in both haemoglobin and melanin, and lower penetration depth (epidermis), it is used for epidermal vascular or pigmented lesions such as rosacea, port wine stains and lentigines.
- **Long-pulsed 1064nm Wavelength**
With a relatively low absorption coefficient in both haemoglobin and melanin, but deeper penetration depth (dermis), it is used for dermal vascular or pigmented lesions.



Important Notices

- The equipment must be used exclusively as described in this document. All operators must have successfully completed the operational training program specific to this product.
- The equipment must be operated exclusively by locally qualified and trained professionals with a thorough understanding of the therapy.
- Before handling and/or operating the equipment, you must read the instructions carefully.
- Failure to use the product in accordance with the recommendations contained in the product instruction manual may cause irreparable damage and could reduce the lifetime of the equipment.
- The V-Laser is an electromedical device. Incorrect or inadequate installation, use, operation and/or maintenance could compromise the safety of the operator and the patient.
- Correct electrical installation and adherence to all environmental requirements are critical to the safe operation of the device and all accessories.
- Never operate the equipment near gases, gaseous substances or flammable anaesthetics.
- Always place the machine in standby mode when not in use. This will avoid the risk of accidental triggering of the equipment.
- The correct protective glasses or goggles as specified in the manual should be used at all times, by all people in the treatment room.
- Even when wearing protective glasses or goggles, never look directly at the light or laser source.



WARNING:

When the laser is not in use, the protection cap must be placed over the applicator tip.

Failure to do this will allow dust or dirt particles to penetrate the laser cavity, thereby damaging the product.

Patient Assessment

You should always obtain a medical history and a signed Informed Consent.

Indications for Use

(Refer to the Operator Manual for a complete list of indications for use)

The Wontech V-Laser is cleared for the treatment of:

- Benign vascular lesions
- Benign pigmented lesions
- Benign cutaneous lesions
- Wrinkles

Contraindications

- Pregnant patients
- Patients undergoing treatment for skin cancer

Please refer to the Operator Manual for a complete list of contraindications, warnings, and precautions.

Skin Type

Determine ethnicity and skin type by using the Fitzpatrick Skin Type Scale.

SKIN TYPE	COLOUR	REACTION TO UVA	REACTION TO SUN
TYPE I	Caucasian; blond or red hair, freckles, white, very fair skin, blue eyes	Very sensitive	Always burns easily, never tans; very fair skin tone
TYPE II	Caucasian; blond or red hair, freckles, fair skin, blue or green eyes	Very sensitive	Usually burns easily, tans with difficulty, fair skin tone
TYPE III	Darker Caucasian; any hair and eye colour	Sensitive	Burns moderately, tans gradually; fair to medium skin tone
TYPE IV	Mediterranean, Asian, Hispanic; brown skin and eyes	Moderately sensitive	Rarely burns, always tans well; medium skin tone
TYPE V	Middle Eastern, Latin, light-skinned black/dark brown skin, Indian	Minimally sensitive	Very rarely burns, tans very easily; olive or dark skin tone
TYPE VI	Black, African, black skin, brown eyes	Least sensitive	Never burns, deeply pigmented; very dark skin tone

- Reevaluate the patient prior to each treatment.
- Treatment settings may need to be decreased due to sun exposure as sun exposure may increase the melanin content of the skin.

One of the most important determining factors in designing the right treatment for your skin is your skin type. The Fitzpatrick Classifications categorise your skin according to your genetic makeup, the way your skin reacts to sun exposure, and your own personal habits with regard to sun exposure.

Type I is usually considered ideal for V-Laser treatment, and Types II and III generally produce very good results. Type IV may be acceptable, depending on the results of the spot test, but Types V and VI are not recommended for V-Laser treatment.

Photosensitivity

When a person has an abnormal sensitivity to UV rays from the sun or another UV source, they are said to be photosensitive. Some medications can increase sensitivity to UV light, and to V-Laser and other light-based therapy. You should advise patients to discontinue taking any medication that might cause sensitivity at least 2 weeks before their treatment. They should also limit their exposure to the sun and make sure they protect their skin. V-Laser treatment should not be administered to someone who has had significant sun exposure in the 2 weeks preceding treatment.

You should explain to the patient that taking these medications does not exclude them from having V-Laser treatment, but additional precautions should be taken and/or the treatment possibly delayed briefly.

Common Photosensitising Medications

Antibiotics

- *Tetracyclines*
- *Fluoroquinolones e.g. ciprofloxacin*
- *Sulfonamides*

Nonsteroidal anti-inflammatory drugs (NSAIDs)

- *Ibuprofen*
- *Naproxen*
- *Ketoprofen*
- *Celecoxib*

Diuretics

- *Frusemide*
- *Bumetanide*
- *Hydrochlorothiazide*

Retinoids

- *Isotretinoin*
- *Acitretin*

Hypoglycaemics

- *Sulfonylureas (e.g. glipizide, glyburide)*

Neuroleptics (anticonvulsants)

- *Phenothiazines (e.g. chlorpromazine, fluphenazine)*
- *Thioxanthenes (e.g. chlorprothixene)*

PDT Pro-photosensitisers

- *5-aminolevulinic acid*
- *Methyl-5-aminolevulinic acid*
- *Photofrin*

Other drugs

- *Amiodarone*
- *Diltiazem*
- *Quinine*
- *Quinidine*
- *Hydroxychloroquine*
- *Enalapril*
- *Dapsone*

Patient Considerations

Patient considerations include, but are not limited to the following:

- Current medications (both routine and occasional use):
 - Accutane: do not treat if taken in the last six months.
 - Gold therapy: may cause blue-grey discolouration.
 - Photosensitising drugs (see list on previous page): you may have to adjust the treatment parameters according to the patient's clinical response from the test area(s).
 - Anticoagulants: may increase the risk of purpura or bruising.
- Vitiligo: heat from the treatment could induce a flare-up.
- Herpes: pre-treatment with an antiviral may be indicated.
- Wound infections.
- History of coagulopathies.
- History of keloid or hypertrophic scarring.
- Diabetes: may impede wound healing.
- Do not treat dysplastic nevi or questionable pigmented lesions.

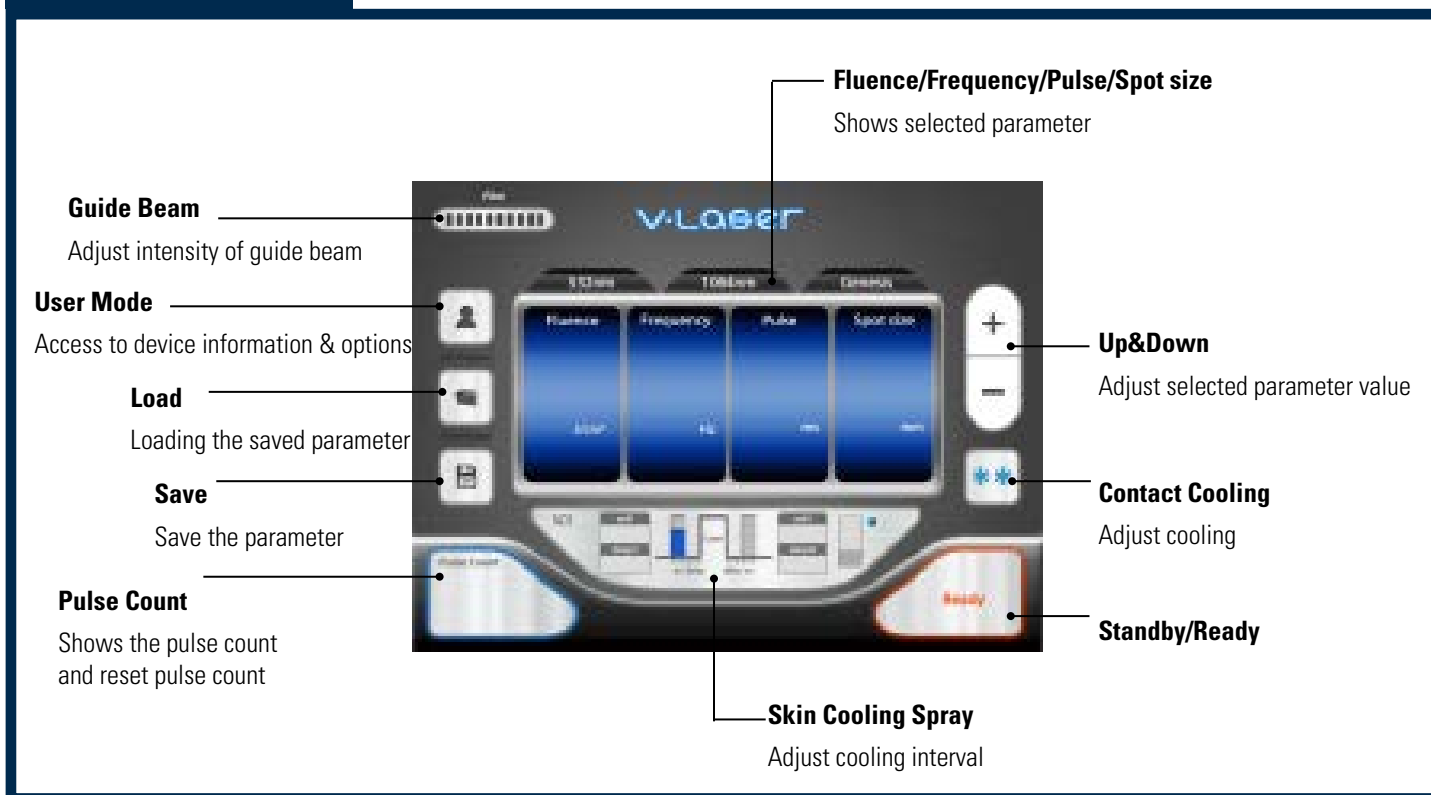
Precautions

Ensure policies and procedures are in place and followed to avoid complications.

- Pre-cooling is essential to prevent burns.
- Darker skin types have an increased risk of complications and/or pigmentary issues.
- Always treat outside the orbital rim of the eye, aiming the beam away from the orbit.
- Do not treat over, or close to, tattoos or permanent make-up.
- The patient should not use tanning of any kind for at least 2–4 weeks prior to treatment.
- The V•Laser beam can crack a tooth if the teeth are exposed:
 - Consider placing moist gauze between the lips and the teeth as an added precaution.
- Implants:
 - Avoid treating over metal implants in area with little tissue coverage, e.g., clavical, jaw, orbit.
 - Always ask the patient if he/she has any surgical implants or threads.
 - Never treat over a Pacemaker implant.
 - Patient reaction to treatment over tissue treated previously with dermal fillers or neurotoxins has not been documented.
- Ice should NEVER be applied to a suspected burn, as it may cause unwanted side effects. However, frozen gel packs or cool compresses can be used.

V-LASER

GUI Screen



V-Laser Handpiece

- There is no need to change the handpiece to use a different wavelength or pulse duration.
- The operator has perfect visibility through the sapphire cooling window.
- The contact cooling system uses no consumables.
- Light and convenient handling.
- There are 8 different tips:
 - 2, 3, 4, 5, 6, 8, 10, 12mm
 - Conveniently detachable tips of different spot sizes
 - Small size: for small lesions
 - Large size: for bulk heating and shortening of the procedure time.



Contact Cooling System

- Three cooling steps: 5 – 10°C; 10 – 15°C; 15 – 20°C
- 5 – 10°C: for vascular lesions or dark skin types
- 10 – 15°C: for complex lesions
- 15 – 20°C: for pigmented lesions

Select Parameter



Press a file button

or



Choose a parameter and press a "✓" button



Press "ready" button

Save Parameter



Adjust parameter and wavelength

or



Add a name to the screen



Done

Precautions

- Make sure everyone who is exposed to laser is wearing protective goggles
- Run through test on switch connection, polarity for normal operation
- Check power cable connection
- Do not put flammable material near the laser device
- Use the device where there is no excessive pressure, temperature, humidity, wind, dust, and sulfur
- Be aware of its required voltage, frequency and power consumption
- Avoid any vibration, external shock and keep upright

Selection of Parameters

The following parameters are provided as a guide only. Always start with the least aggressive settings and observe laser-tissue interaction and clinical endpoints to determine appropriate settings.

	Vascular	Pigmentation
Wavelength (measured in nanometers – nm)	<p>Selection is based on vessel depth and color.</p> <ul style="list-style-type: none"> • superficial vessels (fine to moderate size, pink to red) = 532 nm • larger, deeper vessels (very dark red, blue to purple) = 1064 nm 	<p>Benign Pigmented Lesion Treatment</p> <ul style="list-style-type: none"> • 532 nm wavelength recommended for benign pigmented lesion treatments
Spot Size (measured in millimeters – mm)	<p>Selection is based on treatment type and vessel depth</p> <ul style="list-style-type: none"> • linear vessels, superficial = smaller spot size; linear vessels, deeper = larger spot size • area treatments/diffuse redness = larger spot size 	<p>Selection is based on lesion size</p>
Fluence (the energy, measured in J/cm ²)	<p>Selection is based on vessel size, depth, and skin type.</p> <ul style="list-style-type: none"> • 532 nm: smaller vessels = lower fluence; larger vessels = higher fluence • 1064 nm: smaller vessels = higher fluence; larger vessels = lower fluence • deeper vessels = higher fluence (energy dissipates to the surrounding tissue) • darker skin types or tanned skin = lower fluence 	<p>Selection is based on lesion color and location.</p> <ul style="list-style-type: none"> • lighter lesion = higher fluence; darker lesion = lower fluence • neck and chest treatments, reduce fluence by 15-20%.
Pulse Duration (the length of each pulse, measured in milliseconds – ms)	<p>Selection is based on vessel size and color.</p> <ul style="list-style-type: none"> • smaller diameter, lighter vessel = shorter pulse duration • larger diameter, darker vessel = longer pulse duration • darker skin types or tanned skin = longer pulse duration • pulse durations shorter than 10 ms increase the likelihood of purpura when treating vascular lesions. 	<p>Selection is based on lesion color and location.</p> <ul style="list-style-type: none"> • when possible, shorter pulse durations are generally preferred for treating benign pigmented lesions. • lighter lesion = shorter pulse duration; darker lesion = longer pulse duration
Contact Cooling (°C)	<ul style="list-style-type: none"> • use 5° or 10° for vascular indications • use 5° for larger, darker vessels and vascular birthmarks (more haemoglobin) • pre- and post-contact cooling are required 	<ul style="list-style-type: none"> • 10° to 20° is recommended for darker skin types. • 15° to 20° is recommended for lighter lesions on lighter skin types.
	<p>The sapphire window provides pre-, parallel, and post-cooling.</p> <ul style="list-style-type: none"> • Pre-cooling protects the epidermis by reducing initial skin temperature. This is critical in order to allow safe temperature increase during treatment. • Parallel cooling during the laser pulse protects the epidermis while the laser is firing. • Post-cooling extracts heat from the treated tissue to help prevent epidermal injury. • Longer pre- and post-cooling is recommended when heating larger, darker vessels. 	
Repetition Rate number of pulses per second, measured in Hz, with the foot pedal depressed	1 - 2Hz recommended	1 - 10Hz recommended
	<ul style="list-style-type: none"> • For increased epidermal safety, use single pulses (0.0Hz) with pre- and post-cooling. • When treating a global area, experienced practitioners may use higher repetition rates. 	

General Principles

Spot Size

Superficial vessels

Small individual vessels



Deep vessels

Big individual vessels

Pulse Duration

Smaller vessels

Smaller vascular volume



Larger vessels

Higher vascular volume

Fluence

Low pressure vessels

Dark-purple vessels

Larger vessels



High pressure vessels

Pink vessels

Smaller vessels










Advanced Treatments

Port Wine Stains

Port Wine Stains (PWS) should be performed by experienced practitioners only, with the following considerations:




- Use of extreme caution
- No universal parameters are available, due to the wide variety and types of PWS.
- PWS vary greatly in size and depth, and diagnostic studies may be required prior to designing appropriate treatment.
- PWS require significant pre-cooling.
- Several treatments may be necessary.

Vascular

Example	Lesion	Mode (nm)	Fluence (J/cm ²)	Frequency (Hz)	Spot Size (mm)	Duration (ms)
	Cherry Angiomas	1064	130 – 170	1.0	3	8 – 30
	Spider Angioma		100 – 150	1.0	3	15 – 40
	Facial Telangiectasia		90 – 130	1.0	5	15 – 50
	Reticular Vein		110 – 160	1.0	5	35 – 60
	Spider Vein – Leg		110 – 170	1.0	4	15 – 45
	Venous Lake		70 – 130	1.0	5 – 6	20 – 50
	Cherry Angiomas	532	10 – 14	1.0	3 – 5	6 – 15
	Facial Telangiectasia		7 – 10	1.0	4 – 7	8 – 15
	Nose Telangiectasia		7 – 10	1.0	5	8 – 15

- Cooling 5°C
- To protect the epidermis, apply a cooling gel to the patient's face.
- Adjust fluence and pulse duration according to patient's skin type.
- Make sure the cooled tip is in good contact with the patient's skin, particularly on curved areas such as jaws & nose.
- When treating blood vessels, look for endpoint (blood vessel lesion darkening, coagulating or disappearing). If it does not disappear, reduce pulse duration or increase energy gradually until end point is reached.
- Size of blood vessel, colour, depth, can have an effect on cooling time.
- When treating small blood vessels on 1064nm, do not overlap pulses.
- Observe changes of skin during treatment, to avoid over-treatment or burning.
- 532nm is appropriate for pigmented lesions, Nevus, Telangiectasia, Poikiloderma and diffuse redness.
- Facial telangiectasia should first be treated with 532nm, then 1064nm if needed.
- 1064nm is appropriate for Reticular veins, Nodular veins and Nevus.

Pigmentation

Example	Lesion	Mode (nm)	Fluence (J/cm ²)	Frequency (Hz)	Spot Size (mm)	Duration (ms)
	Lentiginos (face)	532	10.0 – 12.0	2.0	3 – 4	5 – 10
	Lentiginos (body)		8.0 – 10.0	2.0	4 – 5	5 – 10
	Dyschromia (red / brown)		5.0 – 8.0	2.0	10	10 – 15

- Cooling 15 – 20°C; ensure the sapphire window makes full contact with the patient's skin.
- To protect the epidermis, apply a cooling gel to the patient's face.
- Adjust energy and pulse duration according to patient's skin type.
- Perform a test pulse before treatment, and adjust the energy value accordingly.
- Use of ultrasound gel is recommended when treating pigment on 532nm.
- For darker phototypes and darker pigmentation, it is recommended that you increase the pulse duration and decrease energy.
- Erythema may appear after laser treatment. It should disappear in 1 – 2 days.
- Observe changes of skin temperature during treatment, to avoid over treatment or burning.
- In the case of any or damage to tissue, cool the tissue immediately, and treat as required (use the sapphire window, NOT ice).
- Required endpoint is a slight darkening of the pigment.
- After treatment for PIH, a crust will appear. It should fall off within a week.

Genesis and Skin Tightening

Lesion	Mode (nm)	Fluence (J/cm ²)	Frequency (Hz)	Spot Size (mm)	Duration (ms)	Pulse Count
Face Rejuvenation	Genesis	5.0	10	7 – 10	0.3	8,000 – 12,000
Fine Hair		6.5	8.0	8	0.3	700 – 800
Scars, Toes, Fingers		5.0	8.0	10	0.3	100 – 300

- Adjust the energy and pulse duration according to the patient's skin type.
- Continually observe the patient's skin reaction.
- Take into account the patient's skin phototype, and take extra caution when treating over hair bearing regions.
- Avoid treating the same areas for a prolonged period.
- End point is erythema and edema

Hair Removal – best for phototypes III – IV

Lesion	Mode (nm)	Fluence (J/cm ²)	Frequency (Hz)	Spot Size (mm)	Duration (ms)
Coarse Hair	1064	30 – 50	1.0	8	30
Applied Area	<ul style="list-style-type: none"> • Axillar (M/F) • Upper Lip (M/F) • Cheek (M) • Bikini Line 				
<ul style="list-style-type: none"> • Cooling 5°C • Patient should be advised to shave 1-2 days prior to treatment. • Peri-follicular oedema immediately after treatment indicates appropriate energy was used. 					
Fine Hair	1064	50 – 75	1.0	8	10
Applied Area	<ul style="list-style-type: none"> • Fine Hair: Arms / Legs (F) • Fine Lip: Upper Lip (F) 				
<ul style="list-style-type: none"> • Patient should be advised to shave 1-2 days prior to treatment. • Follicle will not swell up; end point is burning of hair and edema around follicle. 					
Normal Hair	1064	40 – 60	1.0	8–10	20
Applied Area	<ul style="list-style-type: none"> • Hair line (M/F) • Arms / Legs (M/F) • Chest (M) • Back (M) 				
<ul style="list-style-type: none"> • Patient should be advised to shave 1-2 days prior to treatment. • Follicle will not swell up; end point is burning of hair and edema around follicle. 					