

Lasers for a better life
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PowerMedic

Lasers for a better life



User Manual

English, revision 1.7

PowerLaser™ Series

PowerLaser™ Pro VET & PowerLaser™ Basic VET



User Manual

PowerLaser™ Basic500/1200/1500 VET

PowerLaser™ Pro500/1500 VET



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Introduction

The PowerLaser VET is a hand-held, user-friendly therapeutic laser intended to treat the indications described in the Laser Therapy Manual VET.

The PowerLaser VET is cordless and battery operated. The battery is rechargeable and can be replaced quickly and easily. At the same time, the battery serves as a key for the laser.

The battery is recharged in a separate intelligent **SmartCharger** – which is described in a later chapter.

Parts included

The PowerLaser is shipped with the following parts:

- PowerLaser VET base unit, including the battery
- Spare battery
- SmartCharger
- USB AC Adapter
- USB-DC Cable
- Protective goggles
- Case
- Instructions for use
- VET Laser Therapy Manual

Contact your dealer immediately on receipt of the PowerLaser if any parts are damaged or missing.

Contraindications and special care

Do not treat patients

- Who are pregnant
- Who have cancer

Take extra care when treating patients with

- Birthmarks
- Tattoos
- Dark fur
- Generally dark areas

If the patient reacts as if the treatment is unpleasant, the laser must be **stopped** immediately.

Birthmarks and tattoos can be covered with plaster/band aid or tape, or alternatively, you must reduce the effect or keep the laser device in motion during the treatment.

Warnings and safety instructions

Warning: if the device is used in any way other than as described in these instructions for use, it may cause personal injury, cross contamination or the breakdown of the device.

The device must only be used by persons who have thoroughly acquainted themselves with the contents of these instructions for use.

When the device is not in use, the battery must be removed to avoid unauthorized use.

The device must not be used if the lens on the front of the laser is missing or damaged.

Protective goggles

The PowerLaser VET has a very wide divergence (spread of the laser beam) compared to other lasers, designed this way to maximize safety for both the therapist and the patient.

Use of protective goggles is only mandatory if the treatment is carried out closer to the eyes than the safety distance (NOHD) stated in the specifications for the laser model concerned.

Warranty

The PowerLaser VET is covered by a 3-year warranty against defects in materials or manufacture.

Disclaimer

Any error or damage which may arise from failure to observe the guidelines in these instructions for use is the user's own liability. In this case the supplier and manufacturer cannot be held liable.



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Incidents

In case of damage to therapist/animal resulting from treatment with the device, the event must be reported to the manufacturer, so that the safety of the product can be further optimized. See the contact information below.

Developer and manufacturer

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Denmark

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e-mail: info@powermedic.com

Web: www.powermedic.com

VAT no.: DK 21483931

North American Distributor

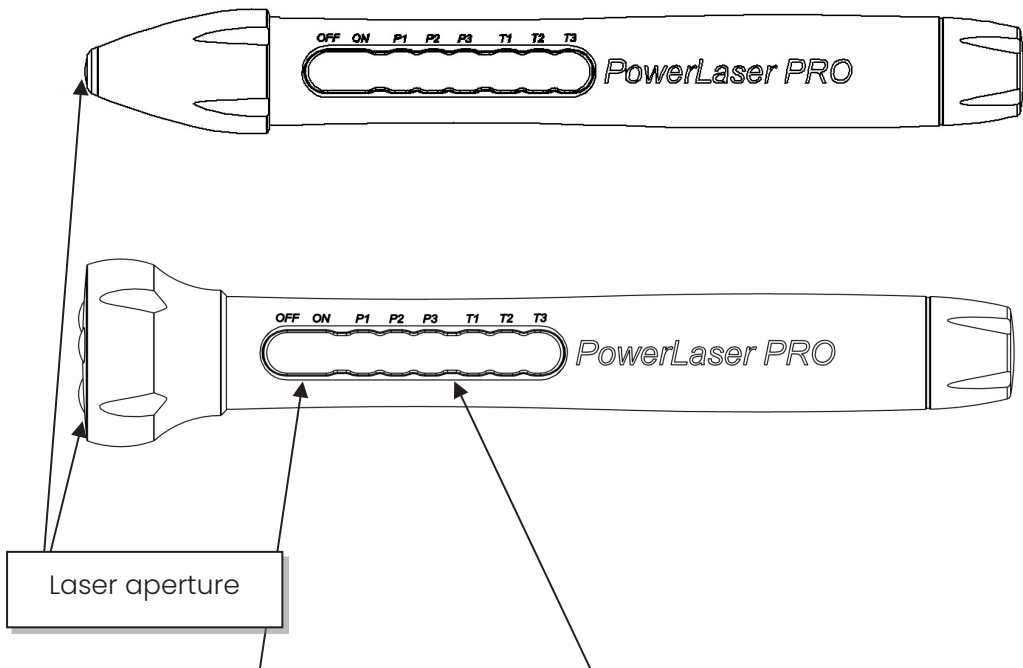
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PowerLaser Pro VET



ON/OFF

- **Orange OFF light** slowly oscillating: the laser is in **Standby mode** (power-saving).
- **Steady blue light in ON, Laser Ready mode:** the laser is ready to be activated.
- **Flashing blue light in ON, Laser ON mode:** the laser is active, and laser light is being emitted from the aperture.

Slide bar / touch panel

- Selection of output power: P1, P2, P3
- Selection of treatment time: T1, T2, T3

When the laser is **Ready** or **Active**, one of the P positions and one of the T positions will be lit up.

The light indicates which setting has been selected.

To change the setting, in Laser Ready mode:

place a finger on the active setting (which is lit up) and slide it to the neighboring setting, which then will be selected.

Alternatively, press the new setting with your fingertip.

At the same time, a tone will be emitted that is unique to each setting.



Initial operation of the PowerLaser Pro VET

Insert the battery into the device. Check that the orange **OFF** light begins to oscillate. This mode is called **Standby**.

If all lights are OFF - with the battery already inserted - the laser can be turned on by loosening the battery slightly and screwing it in again.

Now place a finger on **OFF** and slide it towards **ON**. Check that the **OFF** light goes out and **ON** lights up in blue. At the same time, the last used Power and Time settings will light up in blue.

This mode is called **Laser Ready**.

Program selection

Place a finger on the active setting (Power or Time) and slide the finger to the desired setting. Check that the blue light follows. Remove your finger. The new setting is now selected.

Alternatively, simply press the new setting with your fingertip. At the same time, a tone will be emitted that is unique to each setting.

To start laser treatment

Place a finger on **OFF** and slide it towards **ON**. You can also simply press **ON**.

The laser will then be activated, and the **ON** light will flash. If vibration has been selected, then it will also start. This mode is called **Laser ON**.

A flashing blue light (in the ON light) indicates that laser treatment is in progress, and that the device is functioning normally.

Depending on the time setting, a tone will be emitted for each partial period, and the Power and Time light will turn off momentarily. This indicates that a specified energy dose has been delivered.

For specifications, see tables for the current PowerLaser model.

To stop laser treatment

The laser treatment will stop automatically after expiration of the selected treatment time, and a long beep will be emitted.

The laser treatment can also be stopped at any time by sliding your finger from ON to OFF or by screwing the battery out.

To turn the PowerLaser Pro off

With the laser in **Laser Ready** mode (3 constantly lit blue lights), slide a finger **from ON to OFF**, and the laser will go in **Standby** mode, indicated by the orange **OFF** light slowly oscillating.

If the laser has not been used for 8 minutes, it will automatically go into **Standby** mode.

If the laser is in **Standby** mode and you wish to turn it off completely, slide a finger from **ON** to **OFF twice**. After the first slide, the blue **ON** light will begin to flash. Now slide your finger from **ON** to **OFF** again, and the orange light will go out.

If you do not slide your finger from **ON** to **OFF** a second time, the laser will remain on **Standby**.

If the laser has not been activated for 10 hours, it will automatically turn off completely.

Low battery and empty battery

When less than 20% battery capacity is remaining, the **OFF** light will flash rapidly in orange. **The battery should then be replaced to avoid unintended interruptions in the treatment.**

In order to preserve battery lifetime, **do not restart the laser** before you have changed to a freshly charged battery. When the battery is completely empty the **OFF** light will change to a short flash every 5 seconds, and the laser can no longer be activated.

Selecting and deselecting sound and vibration

Ensure that the laser is in **Standby** mode, with the **OFF** light slowly oscillating. Place two fingers so that one finger covers T3 and the other covers P3. With these two fingers in position, slide a third finger from **OFF** to **ON**. Now both **ON** and **OFF** will be constantly lit, as well as P1, P2 **or** P3 **and** T1, T2 **or** T3.

Vibration and sound can now be selected or deselected as shown:

Vibration off: touch P1 briefly (it is not necessary to slide here)

Vibration 50%: touch P2 briefly

Vibration 100%: touch P3 briefly

Sound off: touch T1 briefly

Sound 50%: touch T2 briefly

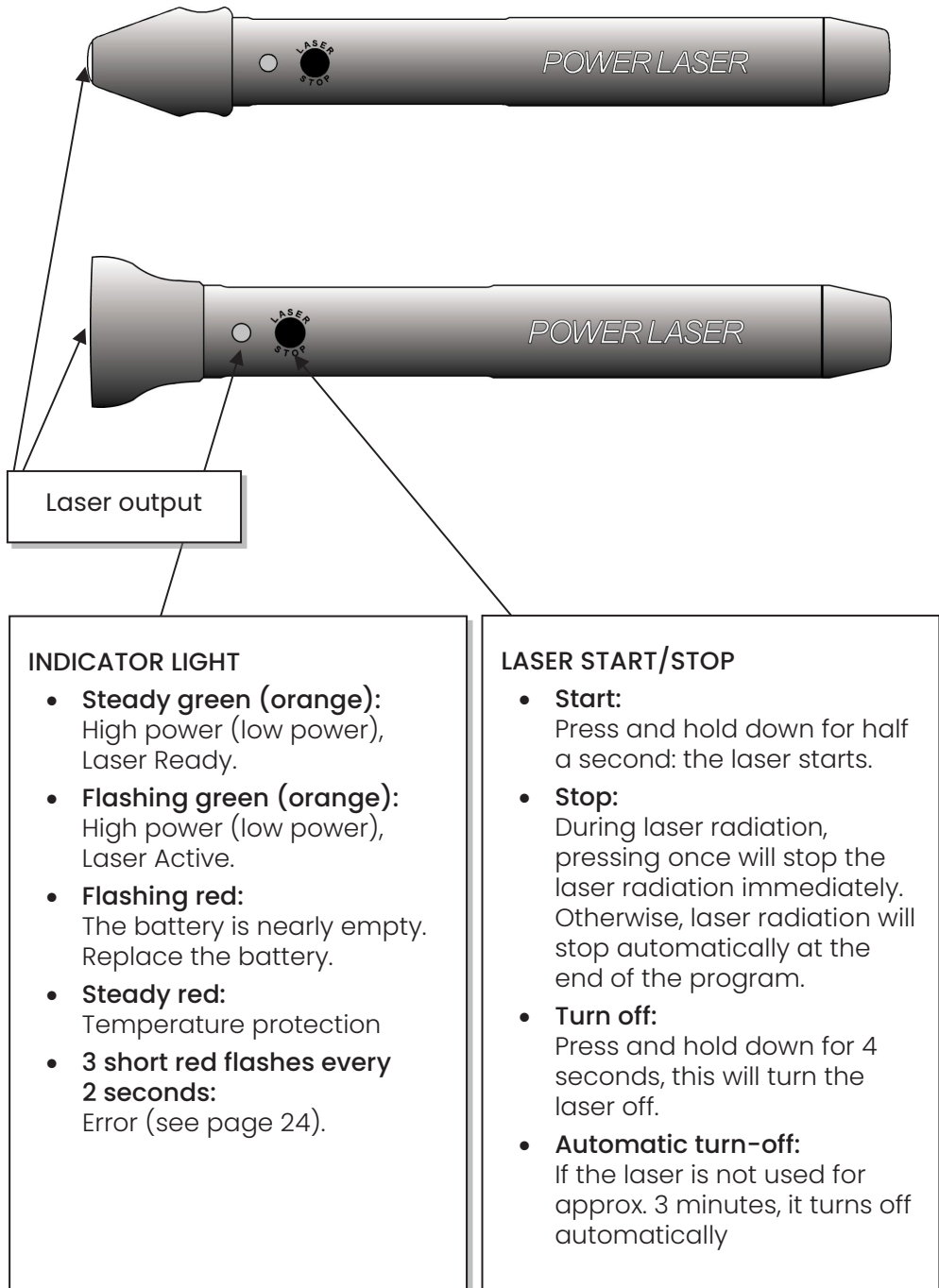
Sound 100%: touch T3 briefly

When the desired combination has been set, slide your finger down from **ON** to **OFF**.

The selected combination will now be stored.



PowerLaser Basic VET



Initial operation of the PowerLaser BasicVET

Insert the battery into the device.

Press the red **Laser Start/Stop** button.

The **Indicator light** will now light up in steady green or orange (see below) and indicate that the laser is ready to be activated.

This mode is called **Standby**.

Program selection

To change program:

Press the red **Laser Start/Stop** button twice in quick succession (double click) to alternate between the 2 programs.

For **Program 1**, the Indicator Light is **steady orange**.

- This corresponds to the **lowest power level**.

For **Program 2**, the Indicator Light is **steady green**.

- This corresponds to the **highest power level**.

To start laser treatment

Press the **Laser Start/Stop** button and hold it down for half a second.

A short beep will be emitted and the **Indicator Light** will flash green or orange according to the program.

A green or orange **flashing light indicates that laser radiation is in progress**, and the device is functioning normally. This mode is called **Laser ON**.

For every 20 (10) seconds a beep is heard, indicating that an energy dose of 10 (1) Joules has been reached.

Values in parentheses refer to program 1, 100 mW, lowest power.

To stop laser treatment

The laser radiation will stop automatically after expiration of the selected treatment time, and a long beep will be emitted. Additionally, the laser radiation can be stopped at any time by a short press on the **Laser Start/Stop** button.

To turn the PowerLaser Basic VET off

To turn the laser off, hold the **Laser Start/Stop** button down for 4 seconds.

If the laser is not used for approx. 3 minutes, it turns off automatically.



Low battery and empty battery

When less than 20% battery capacity is left, the **Indicator Light** - in **Standby** - **will flash red** followed by flashing green or orange according to the program. If laser radiation is in progress, the **Indicator Light** will flash red.

The battery should now be replaced to avoid unintended interruptions in the treatment.

The laser still has full output power in this situation. When the battery is completely empty, the laser can no longer be activated.

Battery charging system PowerLaser VET

Specifications

PowerKey / battery pack: Max. 4.2 V (Nom. 3.7 V), Lithium-Ion
Capacity: 1- 2.5 hours' continual use

USB-AC adapter:

Input: 100 – 250 VAC

Output: 5.0 VDC, 2.1 A

SmartCharger:

Output: 4.2 VDC, 2.0 A

Charging

Connect the AC adapter to an outlet.

Insert the cable from the AC adapter into the SmartCharger.

The SmartCharger has 2 indicators:

1. ● a green **Power ON Indicator**
2. ● a yellow **Charging Indicator**

When the SmartCharger is connected to an outlet, the **Power ON Indicator** will show a solid green.

Insert the battery into the SmartCharger and press it down until you hear a click.

The yellow **Charging Indicator** will now be lit constantly, indicating that the battery is receiving full charging current.

When the battery is fully charged, the charging process will stop automatically and the SmartCharger will switch to maintenance charging. The yellow **Charging Indicator** will emit short flashes.

The normal charging time for an empty battery is 2-3 hours.

- | | |
|---------------------------------|-------------------------------------|
| ● Constant green light: | charger is on |
| ● Constant yellow light: | charging is in progress |
| * Short yellow flashes: | the battery is fully charged |
| * Flashing yellow/green: | error – see below |

If the green Power ON flashes more than 4-5 times, it means that the SmartCharger cannot charge the battery. This may be due to a fault in either the SmartCharger or the battery, and both should be checked at a service workshop authorized by PowerMedic.



Battery lifetime

The question of battery lifetime depends on many factors. We have collected some tips that may prolong the lifetime of your lithium-ion batteries.

✓ **Use both batteries, alternating between them**

Lithium-ion batteries have the longest lifetime if they are used regularly. Do not put one of them aside "as a spare". If the battery is not used, the cell will deteriorate faster, and the battery will no longer be usable.

✓ **Frequent charging**

It is best for lithium-ion batteries to be charged frequently, without the need to be discharged completely. Alternate between the batteries, so that you regularly use and charge both batteries.

✓ **Storage in a cool place extends their lifetime**

If you can, keep lithium-ion batteries in a refrigerator. If that is not possible, try to keep them in a place that is not too warm.

✓ **Change the battery as soon as the laser signals "Low power"**

The PowerLaser will give a signal when the battery is nearly flat. When this happens, put the battery in the charger, and use the other battery instead. Do not force the laser to continue working when it has indicated low battery:

✓ **Do not store a partially or completely discharged battery**

If a battery is to be stored for a longer period, charge it up first. If you put it aside when it is flat, the cell will die completely after a short while. Storing the battery in a partially or completely discharged mode will reduce the lifetime of the battery dramatically.

Defective batteries

The batteries are lithium-ion, and defective batteries must be replaced/renewed at an authorized service workshop or delivered to a battery collection site for recycling.

The manufacturer can refer you to the nearest service workshop.

PowerLaser Pro500 VET specifications

Max. output power, peak	1000 mW +/- 10%
Max. output power, average	500 mW +/- 10%
Wavelength	808 nm
Beam divergence	40°
NOHD	90 mm
Laser class	3B
Working temperature	5 - 35°C
Degree of protection	Type B

Program overview

Power levels:	P1	P2	P3
Output power [mW]	100	225	500
Energy dose [Joule] per beep in T1	1	2.25	5
Energy dose [Joule] per beep in T2	2	4.5	10
Energy dose [Joule] per beep in T3	6	13.5	30

Time settings:	T1	T2	T3
Treatment time [sec.]	60	200	600
Beep every: [sec.]	10	20	60



PowerLaser Pro1500 VET specifications

Max. output power, peak	3000 mW +/- 10%
Max. output power, average	1500 mW +/- 10%
Wavelength	808 nm
Beam divergence	40°
NOHD	90 mm
Laser class	3B
Working temperature	5 - 35°C
Degree of protection	Type B

Program overview

Power levels:	P1	P2	P3
Output power [mW]	300	675	1500
Energy dose [Joule] per beep in T1	3	6.75	15
Energy dose [Joule] per beep in T2	6	13.5	30
Energy dose [Joule] per beep in T3	18	40.5	90

Time settings:	T1	T2	T3
Treatment time [sec.]	60	200	600
Beep every: [sec.]	10	20	60

PowerLaser Basic500 VET specifications

Max. output power, peak	1000 mW +/- 10%
Max. output power, average	500 mW +/- 10%
Wavelength	808 nm
Beam divergence	40°
NOHD	90 mm
Laser class	3B
Working temperature	5 - 35°C
Degree of protection	Type B

Program overview

Program no.	1 (orange)	2 (green)
Output power [mW]	100	500
Time per beep [sec.]	10	20
Energy dose per beep [Joule]	1	10
Number of periods (beeps)	10	10
Total treatment time [sec.]	100	200
Total energy dose [Joule]	10	100



PowerLaser Basic1200 VET specifications

Max. output power LASER, peak	3600 mW +/- 10%
Max. output power LASER, average	900 mW +/- 10%
Wavelength LASER	638 nm
Beam divergence	40°
NOHD	90 mm
Laser class	3B
Max output LED, average	300 mW +/- 10%
Wavelength LED	405 nm +/- 10%
Working temperature	5 - 35°C
Degree of protection	Type B

Program overview

Program nr.:	1 (orange)	2 (green)
Time per beep [sec.]	10	20
Output power [mW] 638nm	180	900
Energy dose per beep [Joule]	1,8	18
Output power [mW] 405nm	60	300
Energy dose per beep [Joule]	0,6	6
Number of periods (beeps)	10	10
Total treatment time [sec.]	100	200
Total energy dose [Joule]	24	240

PowerLaser Basic1500 VET specifications

Max. output power, peak	3000 mW +/- 10%
Max. output power, average	1500 mW +/- 10%
Wavelength	808 nm
Beam divergence	40°
NOHD	90 mm
Laser class	3B
Working temperature	5 - 35°C
Degree of protection	Type B

Program overview

Program no.	1 (orange)	2 (green)
Output power [mW]	300	1500
Time per beep [sec.]	10	20
Energy dose per beep [Joule]	3	30
Number of periods (beeps)	10	10
Total treatment time [sec.]	100	200
Total energy dose [Joule]	30	300



Labeling, PowerLaser Pro VET

PowerLaser Basic500 VET SN 18708

Class 3B laser product
500 mW 808 nm

(01) 0 57 13592 02134 0
(21) 18708

 PowerMedic ApS - Gasvaerksvej 8, 4300 Holbaek, Denmark

PowerLaser Pro1500 VET SN 18644

Class 3B laser product
1500 mW 808 nm

(01) 0 57 13592 02130 2
(21) 18644

 PowerMedic ApS - Gasvaerksvej 8, 4300 Holbaek, Denmark

PowerLaser Basic VET Battery SN 412843

Type: Li-Ion / Output power: 3.7 Vdc, 4A
- Use with PowerLaser Basic VET equipment only!

 PowerMedic ApS, 4300 Holbaek, Denmark

Labeling, PowerLaser Basic VET

PowerLaser Pro500 VET SN 18209
 Class 3B laser product
 500 mW 808 nm


  

(01) 0 57 13592 02120 3
 (21) 18209




    


 PowerMedic ApS - Gasvaerksvej 8, 4300 Holbaek, Denmark

PowerLaser Basic1200 VET SN 18858
 Class 3B laser product LED Output
 900 mW 638 nm 300 mW 405 nm

(01) 0 57 13592 03012 0
 (21) 18858

 PowerMedic ApS - Gasvaerksvej 8, 4300 Holbaek, Denmark

PowerLaser Basic1500 VET SN 18869
 Class 3B laser product
 1500 mW 808 nm

(01) 0 57 13592 02132 6
 (21) 18869

 PowerMedic ApS - Gasvaerksvej 8, 4300 Holbaek, Denmark

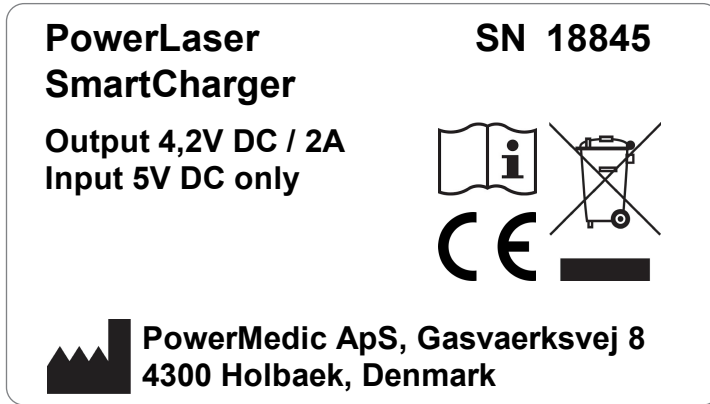
PowerLaser Pro VET Battery SN 412675
 Type: Li-Ion / Output power: 3.7 Vdc, 4A
 - Use with PowerLaser Pro VET equipment only!








 PowerMedic ApS, 4300 Holbaek, Denmark



Labeling, PowerLaser SmartCharger



Symbols

	Read the instructions before use		Warning that the product contains a laser source
	Read the instructions for important cautionary information		Dispose of the product as hazardous waste
	Name of manufacturer	nm	Specification of the wavelength in nanometers
	CE labeling		A type B applied part complying with IEC 60601-1
mW	Specification of power in milliwatts	Output	Output voltage [Volt] DC and current [Ampere]
Input	Input voltage [Volt] DC		

Service and maintenance

To ensure that your PowerLaser VET has a long and problem-free lifetime, and that its function, performance and user friendliness are retained, regular maintenance is necessary.

Storing the PowerLaser

To ensure that your PowerLaser complies with the specifications, the laser must be stored in the following conditions:

Temperature:	5 - 35°C (40 - 95°F)
Humidity:	20-85% RH

Cleaning

The PowerLaser VET should be cleaned with rubbing alcohol or isopropanol with a concentration of at least 70% after each patient. Alternatively, another disinfectant approved for the purpose can be used.

The lenses on the laser head must be checked regularly for scratches, opacity and/or foreign bodies that can block the laser radiation.

Technical maintenance

At suitable intervals, your PowerLaser VET must be checked, verified, and if necessary be updated and adjusted. PowerMedic recommends annual servicing of the laser and accessories.

Servicing includes:

- Checking the safety circuit
- Checking the control panel and buttons
- Checking and cleaning the battery contact surfaces
- Checking and cleaning the inner and outer lenses
- Verification and adjustment of the laser power
- Check of the charging station function
- Checking and cleaning the battery contact surfaces on the charging station
- Checking function of the batteries
- Checking and cleaning the contact surfaces on the batteries

PowerMedic offers service inspections at an affordable price.



Trouble shooting and repairs

The PowerLaser VET is equipped with an advanced safety circuit, monitoring whether the electronics are functioning correctly and preventing faulty conditions. If an error mode occurs, the laser radiation is blocked, and the OFF light flashes rapidly orange (Pro) or red (Basic).

If this situation – or any of the modes mentioned below – arise, the laser must be sent in for repairs to the supplier.

- No laser radiation
- The laser will not start
- ON and OFF do not light up
- Indicators do not light up
- The laser cannot be started in certain programs
- No sound signal even though it has been selected (PowerLaser Pro)
- No vibration even though it has been selected (PowerLaser Pro)

Temperature monitoring

The PowerLaser VET has built-in circuitry for protecting the laser diode(s) from turning fully ON both at too high and too low temperatures. If the PowerLaser is started at a temperature below 5°C (40°F), the electronics will automatically reduce the output power.

When the normal working temperature is reached, the laser will function normally.

If the internal temperature in the laser exceeds the maximum allowed temperature, the electronics will interrupt the laser radiation to prevent overheating. At the same time, the OFF light will flash rapidly in orange or red. If this situation arises, you should let the laser cool off for a while.

NB: The PowerLaser has a built-in circuitry for monitoring that the output power stay within +/- 10% from the nominal value. If the output power is outside this range, the OFF light will flash rapidly orange or red.



Traveling with the PowerLaser

Most often, airlines do allow bringing the PowerLaser and lithium-ion batteries in your carry-on luggage. However, it may be a good idea to bring your PowerLaser manuals as well, this way it is easier to explain to the security personnel what the PowerLaser is.

The TSA (Transportation Security Administration) in the USA allows lithium-ion batteries to be carried in your carry-on luggage (or in a device in your checked bags, with certain restrictions). However, we recommend checking with your specific airline, ahead of time.

Please see TSA's website for more details.

PowerLaser lithium-ion battery specifications:

3.7V

3400 mAh

12580 mWh = 12.6 Wh



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