

Favorite

Therapeutic vet laser



User's manual

Thank you for buying the **favorite** vet laser!
Although this product is simple to operate, you have to read this manual before using it.

1. DESCRIPTION

favorite is a portable laser specifically designed for Low Level Laser Therapy (LLLT) utilized in veterinary practice to treat different diseases of horses in the farm environment or at a competition event.

favorite laser consists of a control unit having shock- and splash-proof housing and a laser head connected to the control unit with flexible spiral cable.

Optional special fiberoptic tips can be attached to a standard laser head for external or/and intracavitary irradiation. Use of optional optical tips substantially extends capabilities of the **favorite** laser.

The control unit allows user to choose one of six different modes of operation to conduct desired laser treatment. It provides necessary output power and duration of laser radiation.

The control unit can operate only when removable safety key is inserted in the socket. It has an LED indicator that provides a visible signal during emission.

The device operates from a rechargeable battery built in the control unit.

When operating the **favorite** laser, the control unit should be placed in a special carrying case with belts that allow firmly fixing the device on the body of the user.

2. GENERAL LASER SAFETY NOTICE

favorite laser is a source of generated continuous radiation. It is a class IIIb (3B) laser product manufactured in compliance with 21 CFR 1040.10 and 1040.11 (EIC/EN 60825-1:2003-10).



3. IMPORTANT SAFETY INSTRUCTIONS

- Read and understand all instructions.
- The output power of this laser device may sometimes be high enough to cause permanent damage to the human eye. Operator should wear appropriate laser safety goggles at all times when using the laser.
- Do not point laser at the eye.
- Do not look directly in the laser aperture.
- Light emitted by this unit may be in the infrared area of the spectrum (depending on type of laser head used). The laser light may not be visible to the human eye. Use extreme caution at all times when laser is in use.
- Do not place highly reflective or flammable objects in the laser beam.
- The **favorite** laser may not be used on humans.
- Keep the device away from children.
- Do not allow anyone to operate the device before reading and understanding this user's manual.
- Operating the FAVORIT laser using procedures other than those specified herein may result in hazardous radiation exposure.

4. GENERAL INFORMATION

The **Favorite** consists of virtually unbreakable hermetically sealed control unit and exchangeable laser heads.

Built-in rechargeable battery provides up to 6 hours of continuous lasing or approximately one week of normal daily usage (approximately one hour of continuous lasing per day).

Preprogrammed microcontroller ensures effective operation of the laser emitter(s).

The control unit features two buttons ("START/STOP" and "MODE"), 6 preset modes of operation, laser radiation indicator, audible warnings, and a safety key.

Exchangeable laser heads contain state of the art GaAs semiconductor laser diodes emitting visible red light of wavelengths in the range 650–670 nm or infrared light of wavelength in the range 820–890 nm.

5. WHAT IS IN THE BOX

Control unit	1 pc.
Standard physiotherapy laser head	1 pc.
Collimator	1 pc. (on the standard laser head)
Removable safety key	1 pc.
Plug-in charger	1 pc.
Carrying case with belts	1 pc.
User's manual	1 pc.
Laser shower head	optional
Fiberoptic tip	optional

6. SPECIFICATIONS

Wavelength of emitted light:	
Standard laser head	820 nm – 890 nm
Optional laser shower head	670 nm or 870 nm
Laser radiation mode	continuous
Maximum radiation power:	
Standard laser head	300 mW
Optional laser shower head (red)	95 mW
Optional laser shower head (infrared)	190 mW
Rechargeable battery voltage	12 V
AC adaptor:	
Input AC voltage	110 V at 60 Hz
Output DC voltage	14 V
Output power	300 mW
Overall dimensions:	
Control unit (W×H×L)	3.1"×6.7"×5.9" (80 mm×170 mm×150 mm)
Standard laser head (Dia.×L)	1.1"×5.9" (28 mm × 150 mm)
Laser shower (W×H×L)	3.9"×1.6"×8.3" (100 mm×40 mm×210 mm)
Weight (control unit with standard laser head)	4.2 lbs (1.9 kg)
Battery charging time*	15 hrs.
Battery life** (continuous lasing)	6 hrs.
Operation temperature	41°F – 95°F (+5°C – +35°C)

* Actual battery charging time may vary depending on remaining charge and on battery condition.

** Rechargeable batteries have a limited number of charge cycles and may eventually need to be replaced. Battery life and number of charge cycles vary by use and settings.

Table 1. Specification of operation modes

Mode #	1	2	3	4	5	6
Fraction of maximum output power (%)	10	20	40	60	80	100
Exposure time (sec)	60	60	120	120	360	360

7. OVERVIEW

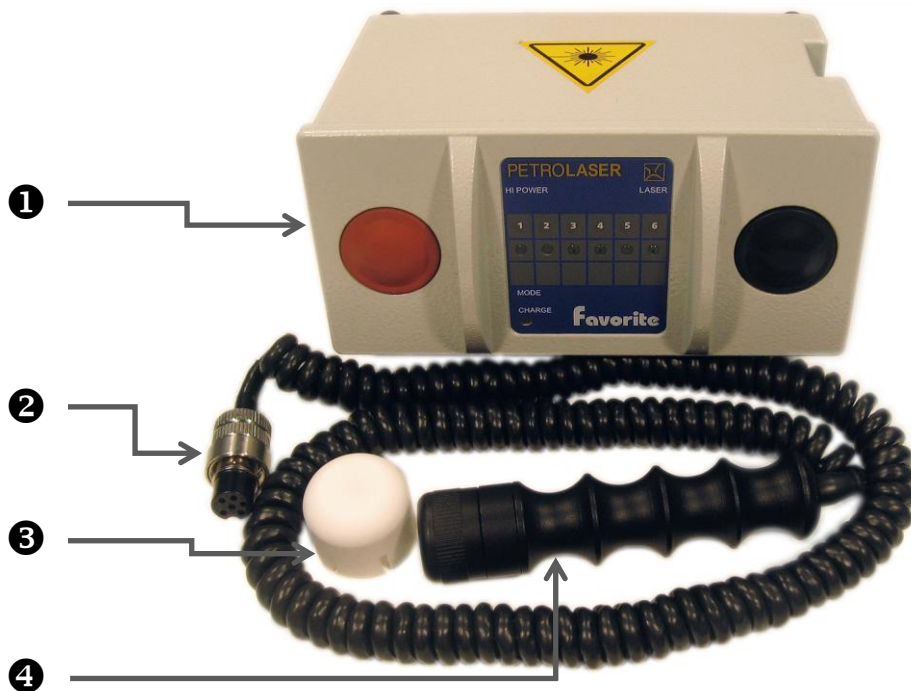


Figure 1. The **Favorite** control unit and standard therapeutic laser head.

- 1 – laser control unit
- 2 – connector plug
- 3 – safety cup
- 4 – standard therapeutic laser head (300 mW)

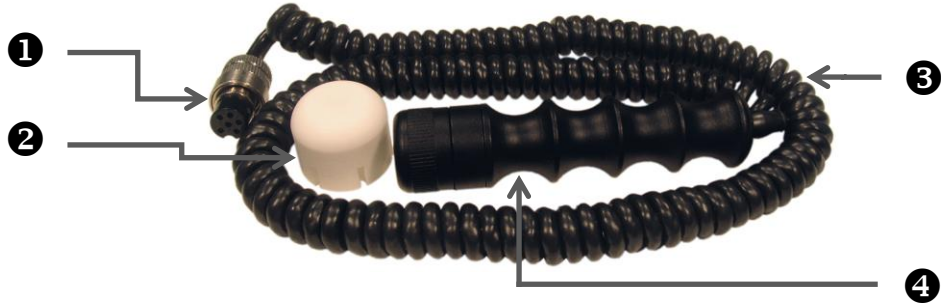


Figure 2. Standard therapeutic laser head (300 mW).

- 1 – connector plug
- 2 – safety cup
- 3 – spiral cable
- 4 – laser head (300 mW) with light emitting module and collimator.

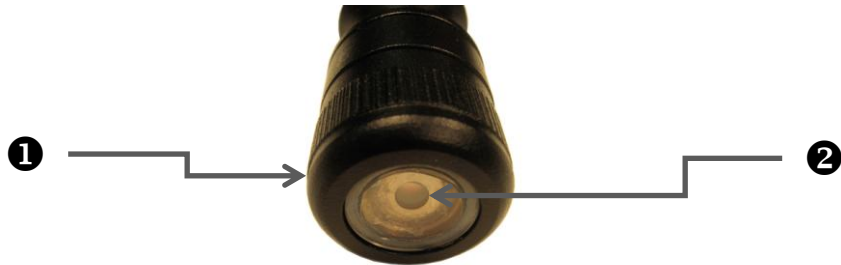


Figure 3. Light emitting module (300 mW).

- 1 – collimator
- 2 – laser light emitter

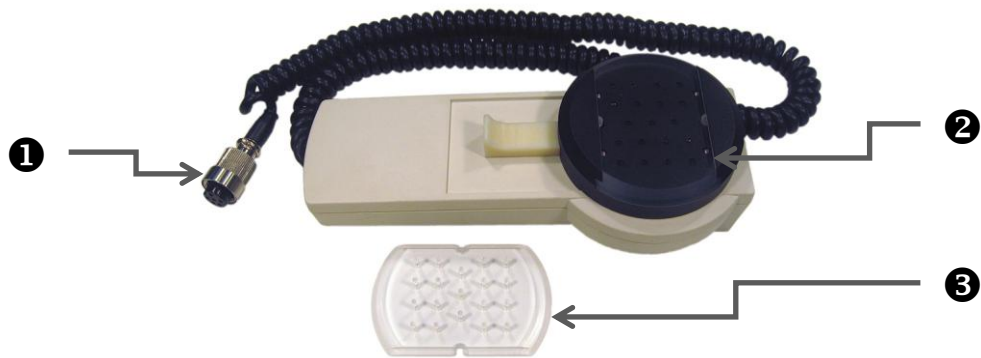


Figure 4. Optional "laser shower" head (95 mW).

- 1 – connector plug
- 2 – 19 laser emitter (5 mW each) cluster with protective polycarbonate glass
- 3 – enhanced protective glass with 19 fiber optic pins (fiber optic "brush")

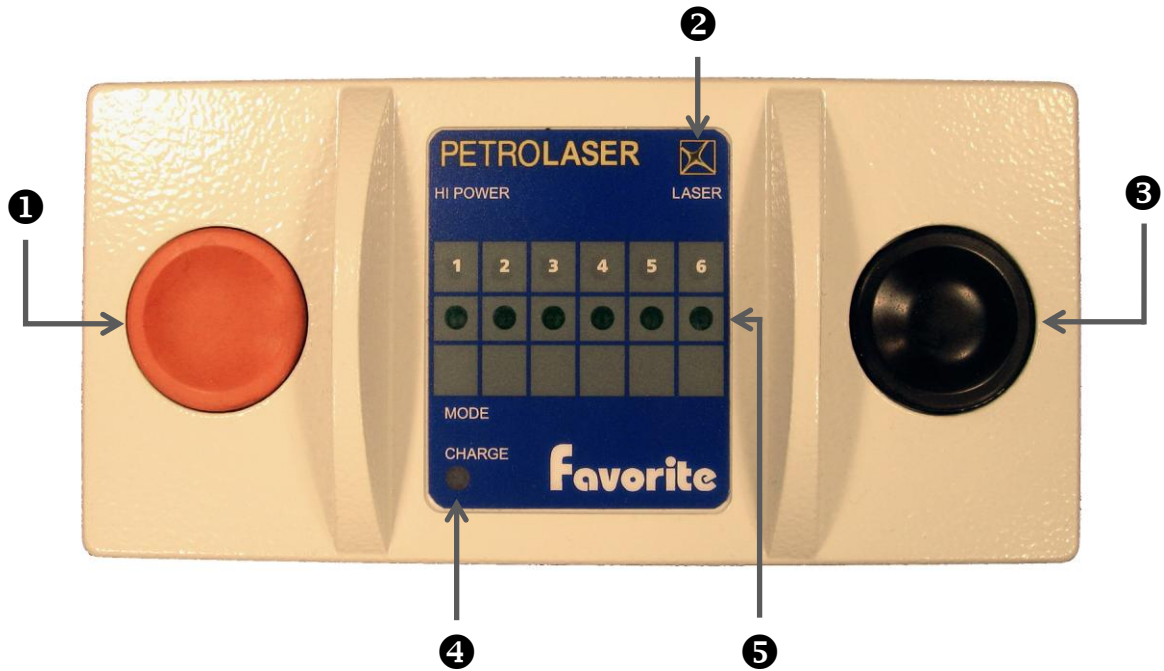


Figure 5. Front panel of the **Favorite** control unit.

- 1 – “START/STOP” red button
- 2 – radiation indicator (red LED)
- 3 – “MODE” black button
- 4 – charge indicator (red/green LED)
- 5 – six mode indicators (green LED’s)

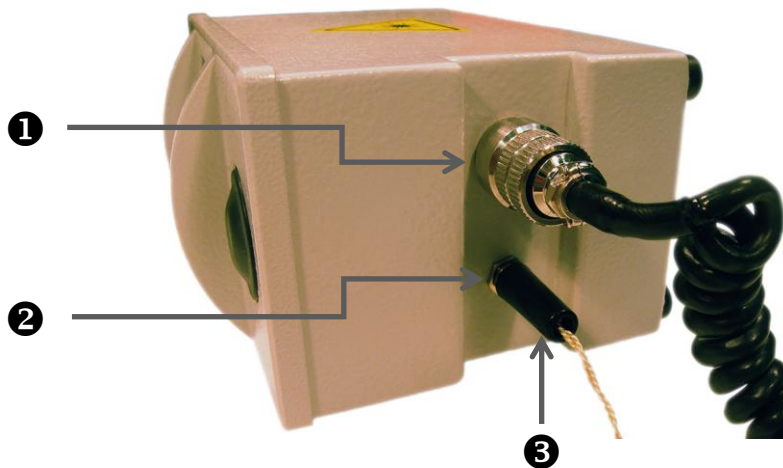


Figure 6. Side panel of the **Favorite** control unit.

- 1 – socket with laser head plug connected
- 2 – socket to connect charger or safety key (shown)
- 3 – safety key



Figure 7. The unit in the carrying case.

8. OPERATING INSTRUCTIONS

1. Fully charge battery before first use by plugging DC output of the AC adaptor in the socket ❷ (Figure 6). When charging, the charge indicator ❹ (Figure 4) lights red. When the battery is charged, the charge indicator ❹ (Figure 4) turns to green. The charge indicator ❹ (Figure 4) does not light up when the unit operates from built-in rechargeable battery.
2. Connect the laser head plug ❶ (Figure 2) to the socket ❶ (Figure 6) on the side panel of the control unit.
3. Insert the safety key ❸ (Figure 6) into the socket ❷ (Figure 6) on the side panel of the control unit.
4. Remove the safety cap ❷ (Figure 2) from the laser head ❹ (Figure 2).
5. Choose desired mode number from 1 to 6 (LED's ❺ in Figure 5) by consecutive pressing the "MODE" button ❸ (Figure 5).
6. Direct or apply the laser head to the area of treatment.
7. Turn on the laser emission by pressing "START/STOP" button ❶ (Figure 5). Short beep sound and illuminated radiation indicator ❷ (Figure 5) inform operator that the laser head generates radiation. Countdown timer turns lasing off automatically when time of chosen mode (specified in Table 1) elapses. User can turn emission off at any moment by pressing "START/STOP" button again.
8. When lasing, control unit generates short beep every 30 seconds and a long one every minute.
9. The control unit turns itself completely off automatically after 5 minutes of inactivity.
10. The **Favorite** laser can be used with optional "laser shower" head (Figure 4), which contains 19 individual laser emitters (5 mW each) combined in a cluster. The "laser shower" head works in mode #6 only.
11. Special enhanced protective glass with 19 fiber optic pins (fiber optic "brush") ❹ (Figure 4) can be used with optional "laser shower" head to improve delivery of generated light through the fur of animal to the skin. To mount optical "brush", first remove flat protective glass ❷ (Figure 4) by pulling the white trigger and sliding the glass sideways. Place the "brush" by sliding it in the slot where the flat protective glass was. The trigger will secure it in position where it is perfectly aligned with laser emitters.
12. It is recommended that the **Favorite** laser be operated when it is placed in the provided carrying case (Figure 7).

9. PRECAUTIONS

1. After exposing the device to cold weather conditions, it is necessary to keep it at room temperature for at least one hour before use.
2. Normal ambient temperature range is from 41°F to 95°F (from +5°C to +35°C). Operation at higher temperatures is not recommended as it may lead to degradation of semiconductor laser emitters, thus shortening their lifetime.
3. Avoid shocks to prevent damage of precise optical elements of the laser.
4. Do not use standard laser head without the collimator ❶ (Figure 3) or optional fiber optical tip. Do not use optional “laser shower” head without protective flat polycarbonate glass or fiber optical “brush” ❷ (Figure 4). Otherwise, it may cause damage to the laser emitter(s).
5. The unit must be turned off before the laser head is disconnected from the control unit for cleaning or any other purpose. Failure to turn the unit off during removal and replacement of the laser head may expose personnel to hazardous laser radiation.
6. When disconnecting the laser head from the control unit, unscrew the connector nut first and then pull the connector body from the socket ❶ (Figure 6). **Never pull the cable** to disconnect!
7. It is recommended to recharge the battery after long usage of the laser.
8. The **Favorite** laser should be charged using provided original power adaptor.
9. If control unit LED indicators become dim and a long faltering acoustic signal sounds, it means that rechargeable battery is completely discharged and it should be recharged. Long-term storage of the **Favorite** laser with completely discharged battery may substantially lower the capacity of the battery.

10. MAINTENANCE

1. The **Favorite** laser does not require regular complicated service. The main requirement is to keep the optical elements clean.
2. If external surfaces get dirty, it is recommended to wipe them with cotton fabric or cotton swab dipped in 50% alcohol solution.
3. The battery used in **Favorite** laser is a lead-acid type, with 12 V nominal output voltage and 1.2 Ah capacity. **Use of rechargeable battery of different type may damage the unit.** When ordering a replacement battery, please use the following specification:

Battery type:	lead-acid battery
Voltage:	12 Volts
Capacity:	1200 mAh.
Battery size:	3.8” × 1.9” × 2.1” (97 mm × 47 mm × 53 mm)
4. The lid on the bottom side of the control unit provides access to the battery compartment. Screw out the holding screws with Philips #2 screwdriver. In order to remove the battery, take off two unipolar connectors from its terminals and unscrew the two screws aside the U-shape holder. After replacing the battery with a new one, screw the U-shape holder back tightly and connect electrical connectors to the terminals, keeping up with the polarity. Close the bottom lid and fix it with screws. The control unit can now be charged. After the full charge, the device is ready for operation again.
5. Repair of the device by unauthorized personnel is forbidden!
6. The manufacturer may offer paid post-warranty repair service. Please contact the manufacturer for further details.

11. MANUFACTURER'S LIMITED WARRANTY

What does this limited warranty cover?

The manufacturer warrants that the product purchased by end user is free from defects in materials and workmanship under normal use during the limited warranty period. This limited warranty covers the product for warranty service only within the country where the product was originally purchased and only covers products purchased as new.

How long does this warranty last?

The limited warranty period for the product and for the rechargeable battery included with the product is one year from the date of purchase, but not more than 18 months from the date of production.

What will the manufacturer do if the product is not free from defects in materials and workmanship during the limited warranty period?

If during the warranty period the manufacturer considers the product as defective, it will decide whether to repair or exchange the product or part with a new or remanufactured product or part that is at least equivalent to the original product or part. This is your sole and exclusive remedy for breach of warranty.

What is not covered by this limited warranty?

- Product that has been subject to misuse, accident, shipping or other physical damage, abnormal operation or handling, neglect, inundation, fire, water or other liquid intrusion.
- Product that has been damaged due to repair, alteration or modification by anyone other than an authorized service representative of the manufacturer.
- Product whose serial number plate has been defaced, altered or removed.
- Product returned without a valid proof of purchase.

The manufacturer, the distributor, or the retailer will in no case be responsible for any incident, consequence, damage, etc. related to the use of the product.

Under no circumstances will the liability of the manufacturer exceed the cost of repairing or replacing the instrument.

Replacement parts or products are warranted to be free from defects in materials and workmanship for thirty days or for the remainder of the limited warranty period, whichever is longer.

The manufacturer reserves the right to make any changes in the construction of the device that do not worsen its technical parameters and custom properties.

How does customer get warranty service?

To obtain warranty service, please contact the manufacturer by e-mail, mail or telephone:

Petrolaser Corporation
47 pr. Stachek
Saint-Petersburg, 198097
Russia
Phone/Fax: +7 (812) 336 3593
E-mail: laser@petrolaser.ru

The manufacturer will provide you information about available service location.

Customer is responsible for delivery or handling charges incurred in the transport of the product to service location. The manufacturer will return repaired or replaced product under this limited warranty. The manufacturer assumes no risk for loss or damage of the product in transit.

What should customer return to get warranty service?

1. In case of failure within the limited warranty period the customer should return entire original package and contents including the product along with a description of the malfunction to the service location specified by the manufacturer.

2. Valid proof of purchase.
 3. Customer's complete and correct mailing address, telephone number and e-mail if available.
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Saint-Petersburg, 198097
Russia
Phone/Fax: +7 (812) 336 3593
laser@petrolaser.ru

Serial #

Manufactured: _____
(date)

Authorized signature _____