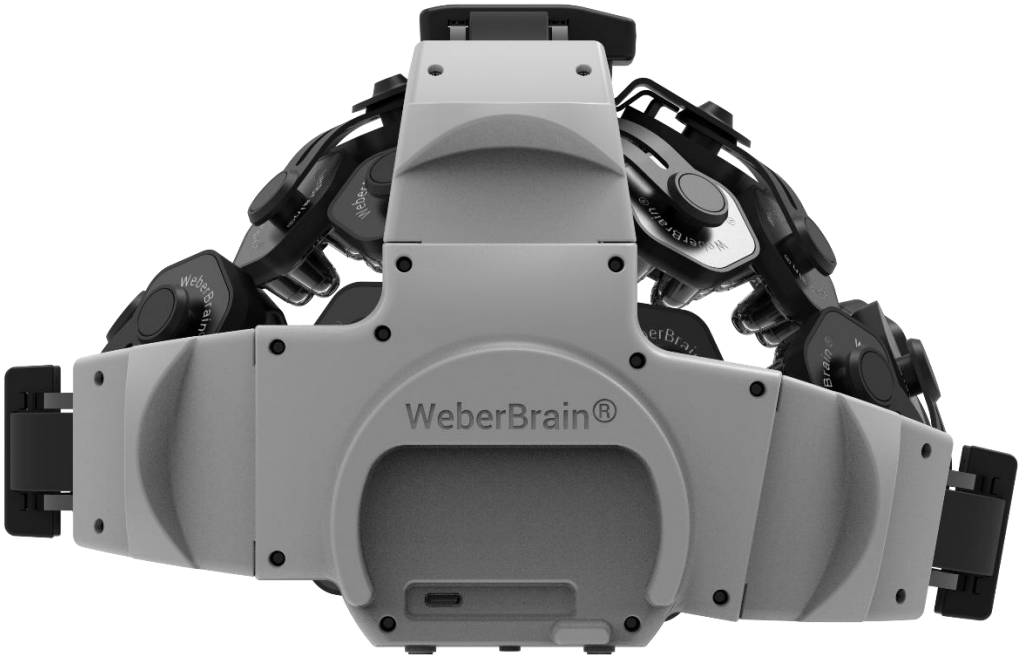
WeberBrain®

User Guide



by Weber Medical

Contents

1. General information

Welcome to your WeberBrain®

From now on, the WeberBrain® supports your cognitive performance, mental state and focus.

Consciously take a few minutes for the application and try to relax during the session.

Attention: Please read this manual carefully before operating the WeberBrain® and retain it for future reference.

Accessories

WeberBrain® Helmet

SmartLink

Dual USB-C PD cable

Power adapter

AC power cable
Europe: 220VAC to 5V 1A
USA: 110VAC to 5V 1A

Removal/attachment tool
for disposable clip-ons

Travel and storage bag

Safety Goggles

User Guide

Intended Use

The technology of the WeberBrain® is based on the principles of transcranial Low-Level Laser Therapy (LLLT). The device is worn on the head for a duration of 20-30 min/day.

The WeberBrain® houses 38 individual HEX-shaped panels that deliver red and infrared laser light to the brain. The diodes are precisely aligned across all four regions of the human cerebral cortex.

The diodes irradiate the skull with different wavelengths of light, frequencies and intensities, depending on individual user settings.

The WeberBrain® is a wired device.

The WeberBrain® is intended for private use only and not for industrial/commercial use. According to the Product Safety Act, the WeberBrain® is not a medical product but a wellness product. Its intended use is for the improvement of general well-being and was not designed to diagnose, cure, alleviate, or treat any disease, symptoms, or other medical problems.

Please note that in the event of improper use, liability is void.

Contraindications

Use in infants and children under 16 years of age, pregnant women and in case of pre-existing conditions only after consultation with a doctor.

2. Safety

Signal words and warning symbols

A WARNING message contains special safety emphasis and must be always observed. Failure to observe a WARNING message could result in serious personal injury.

Failure to observe a CAUTION associated with use could result in minor injury.

Please observe the following instructions carefully to avoid property damage.

ADVICE: Please observe the information of this user guide. Do not use the WeberBrain® without reading this guide.

Electrical voltage warning

WeberBrain® not for general waste.

General

Some basic safety precautions must be taken into consideration when using electrical equipment. Failure to take precautions outlined in this section could result in fire, electric shock, other injuries, damage to the WeberBrain® or other property. Please read the following safety instructions carefully before use.

This information relates to the WeberBrain®, the USB-C PD cable, the power adapter, and all accessories.

Always keep these operating instructions on hand and store them in a safe place so that you can pass them on to the new owner in the event of a sale.

Safe use of the WeberBrain® is the primary responsibility of the user. If the WeberBrain® appears to be operating incorrectly, please refer to the troubleshooting guide. Contact us if the problem persists.

Safety instructions

⚠ CAUTION

This hazard warning indicates a potentially hazardous situation which, if not avoided, may result in minor or moderate injury.

Skin reactions

Due to the high-power output, it is normal that the WeberBrain® generates heat. The helmet incorporates active thermal management. Surface temperatures remain within IEC safety limits during device-specific operation. However, the device can become sufficiently warm to cause discomfort or minor injury upon direct contact. Therefore, special care should be taken when removing the WeberBrain® from the head. The heat sinks on the Hex-shaped panels should not be touched directly whenever possible.

Wearing the WeberBrain® can cause skin irritation or allergic reactions. To avoid this, you should always keep the device clean and dry. Please do not wear it too tight around your head.

If the irritation persists, take the WeberBrain® off your head, and contact your doctor if symptoms last for more than 3 days.

If you experience pain, numbness, or a burning or tingling sensation while or after wearing the device, remove it immediately.

Skin with a higher proportion of melanin absorbs a higher amount of laser light and can therefore heat up more likely. Observe your skin reaction particularly carefully if you have dark skin (skin type V or VI).

If the WeberBrain® becomes uncomfortably hot while it is being used, or if it produces unusual noises or smoke, immediately remove it from your head and unplug it from the socket.

Physical discomfort

Consult your doctor and temporarily stop using the device if you experience physical symptoms such as seizures, fainting, eye aches or headaches that you suspect may be caused using the WeberBrain®.

Product damage

If your WeberBrain® has been damaged or was exposed to liquid, do not use it anymore.

To avoid injury, do not try to open or disassemble the WeberBrain® yourself.

Handling

Handle your WeberBrain® with care. Do not drop it or expose it to an open flame.

Do not use accessories or detachable parts not described in this user guide.

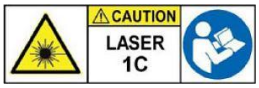
Do not interconnect the WeberBrain® with other equipment not described in this user guide or modify it in any way.

Use

Use only under approved protocols.

⚠WARNING

This WARNING message contains valuable safety information, and it must be always taken seriously. Failure to observe this WARNING message could result in serious personal injury.



Never look directly into the diodes – visible and invisible laser radiation may be harmful to the eye. Do not operate the WeberBrain® off head.

The use of controls, adjustments, or performance of procedures other than those specified in this user guide may result in exposure to hazardous laser radiation.

Suitable for mains supply voltages 110-240 V/AC 50/60 Hz.

Authorized and non-authorized users

The WeberBrain® may be used by children under 16 years and persons with limited physical, sensory or motor skills and inexperienced/untrained individuals, provided they are supervised or instructed by a responsible adult regarding the safe use of the device and are aware of the possible risks. Use in children under 16 years only after consultation with a doctor.

Cleaning and care must not be carried out by children without supervision.

The WeberBrain® must not be used as a toy. If the device is used by children or in their vicinity, carefully supervise the situation. Children cannot always recognize possible dangers.

Keep the WeberBrain® away from babies, infants and young children. Packaging materials or components that come loose can pose a choking hazard.

The cables pose a risk of strangulation. Store appropriately when not in use.

ADVICE: This notice indicates possible damage to property, which may occur if the safety measures are not followed.

ATTENTION! Please observe the following instructions to avoid damage to property:

Do not operate the WeberBrain® in enclosed or poorly ventilated environments. The WeberBrain® has an open design with heatsinks. Air has to be able to circulate freely for the heat to dissipate. Make sure that there is nothing covering the device.

Do not try to open or disassemble the WeberBrain® yourself to repair it. Disregarding this can lead to void guarantee and overheating. Always contact customer service representatives in case your WeberBrain® requires repair or maintenance.

The helmet has been tested according to applicable EMC standards (IEC 60601-1-2). In case of strong electrostatic discharge (ESD) events, a temporary reset may occur, but no safety hazard is introduced.

The WeberBrain® offers no special protection from water (IP Class IP0X). So please be careful that it does not get damp or wet. Do not use the WeberBrain® if moisture has penetrated.

Do not expose the WeberBrain® to extreme temperatures or direct sunlight. It is designed for ambient temperatures between +10°C and +35°C (50°F and 95°F) and storage temperatures between 0°C and +50°C (32°F and 122°F). Operating or storing outside of these temperatures can damage the WeberBrain®. Do not expose the WeberBrain® to direct sunlight or sudden changes in air temperature or humidity (permissible relative humidity: 30% - 75%, non-condensing).

Maximum operating altitude is 2,000 m above sea level, without pressure compensation.

Avoid contact with dust or sand.

Never use force when opening or closing the sliders, pressing the buttons or connecting a cable or plug as this may cause damage that is not covered by guarantee. If the plug does not connect easily, it is likely not compatible with the WeberBrain® or the port is blocked. **Make sure that you are only using the accessories provided** and that the ports are free from debris.

To prevent the cables from breaking, roll them up after use instead of folding them.

Disposal

When the WeberBrain® has reached the end of life, do not dispose of in general waste, take it to an e-waste recycler.

Type label

Graphic 1: Type label

3. Your WeberBrain®

Material

The outer housing of the WeberBrain® is made of PC/ABS and incorporates reinforced engineering polymers for internal structural support and mounting elements, tempered spring-steel components, corrosion-resistant stainless-steel fasteners, and silicone/TPE sealing elements.

All materials are carefully selected to ensure mechanical durability, electrical insulation, heat resistance, and long-term dimensional stability.

The HEX module incorporates a precision photonic system consisting of VCSEL laser diodes and precision optical lens elements manufactured from transparent Cyclo Olefin Polymer (COP).

The HEX module utilizes a thermally optimized PCB architecture including FR-4 PCB substrate, copper-filled thermal vias enabling vertical heat conduction from laser diodes to the internal ground plane and a thick copper ground plane layer for lateral heat spreading.

This multilayer configuration ensures efficient thermal distribution while maintaining electrical stability.

Thermal management components consist of black anodized aluminum heat sink and thermally conductive interface materials (TIM) transferring heat from PCB to heat sink.

This architecture supports effective heat dissipation, controlled operating temperatures, and long-term component reliability.

HEX housing components include a lens holder manufactured from PC+ABS engineering polymer and a COP optical lens secured using UV-curing optical-grade adhesive.

The housing ensures mechanical stability, precise optical alignment, electrical insulation, and long-term dimensional stability.

The bridge components are manufactured from technical-grade polypropylene (PP).

The mechanical interface between the helmet assembly and the HEX/Bridge elements is manufactured from technical-grade Polyoxymethylene (POM) engineering polymer.

This ensures reliable engagement, repeatable positioning, and long-term durability.

The HEX Clip-On components are manufactured from specialty injection-molded hypoallergenic optical-grade Polycarbonate (PC).

The Front HEX skin-contact elements are manufactured from medical-grade Liquid Silicone Rubber (LSR).

The material provides biocompatibility for external skin contact, hypoallergenic properties, soft-touch elasticity, durability under repeated use, and resistance to aging and cleaning agents.

The carry case incorporates formed EVA structural shell components, a ripstop nylon outer shell and a polyester fiber interior lining.

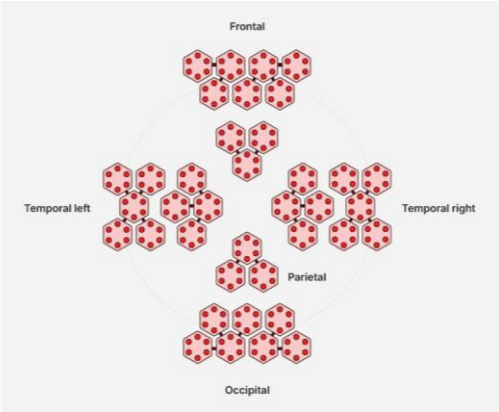
Diodes

The device is a Class 1C laser device. A special proximity sensor ensures that the diodes are only activated when they are in contact with the skull. This reduces the risk of eye damage to the user or a by-stander through direct exposure to laser light.

Graphic 3: Safety label on helmet

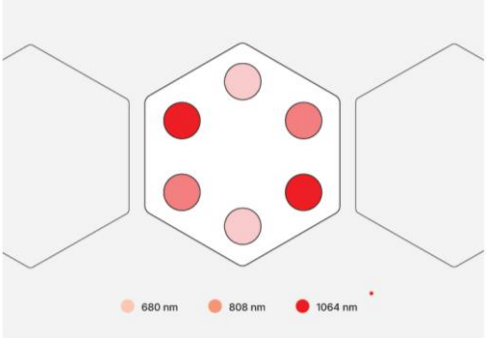
The core feature of the WeberBrain® are the 38 individual HEX-shaped panels that deliver their power in an optimally dosed manner.

The diodes ate precisely aligned across all four regions of the human cerebral cortex.



Graphic 4: Laser panel distribution

Each HEX panel hosts 6 high-precision laser diodes. Two for every wavelength: 680 nm, 808 nm and 1064 nm. A total of 228 diodes ensures intuitive operation and perfect calibration.



Graphic 5: Diode setup

The conically-shaped ends, or light fingers as we call them, direct laser light straight onto the scalp without being blocked by hair. Special lenses collimate and guide the light directly through the skin, into the brain.

Warning: Please never look directly into the light and do not shine the light into anyone else's eyes, as this can lead to serious eye damage.

4. Setup

Connect USB-C PD cable

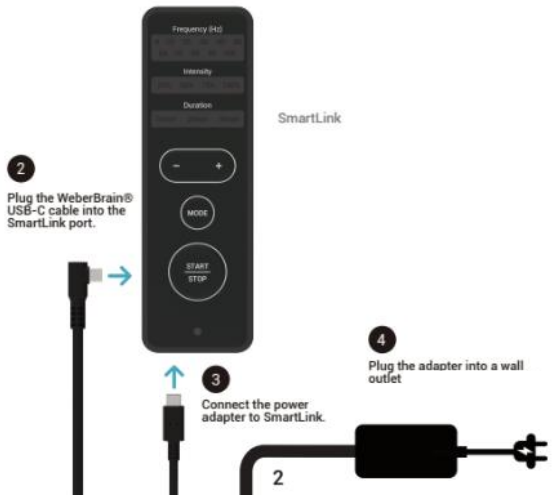
Plug the L-shaped end of the USB-C PD cable firmly into the helmet socket. Let the cable hang straight, not twisted or pulled tight.

Graphic 6: Connection of the USB-C PD cable to the helmet

Connect SmartLink and power supply

The SmartLink acts as the control unit for the device and allows for Bluetooth system pairing. If you choose to use the app, it acts as the communication interface enabling synchronization between the WeberBrain® helmet and the app.

Please note: Bluetooth option may not be available yet.



Graphic 7: Connection of SmartLink and power supply

When all cables are connected correctly, the display windows light up. The LED indicator light changes from red to green once the connection with the WeberBrain® is correctly established.

The graphic below shows the full setup:

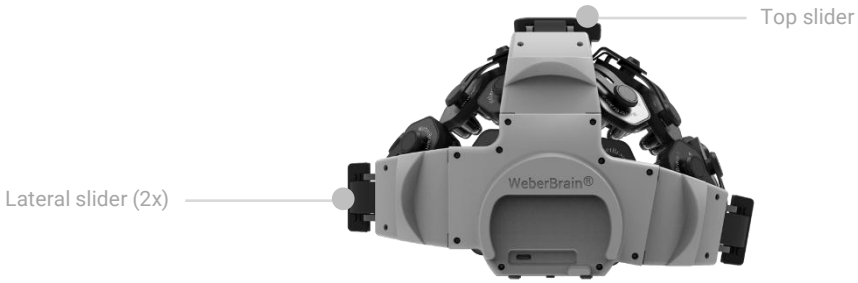
Graphic 8: Full setup

Put on the safety goggles

The provided safety goggles must be worn during every session. For your safety, do not use the WeberBrain® without eye protection. If you wear glasses, remove them, then put on the goggles.

Fit the WeberBrain® before use

Open all lateral sliders completely before placing the helmet on the head and before taking it off. Be sure to position the helmet correctly. The front section can be identified by its rubberized surface. Place frontal laser panels about 1 cm above the eyebrows.

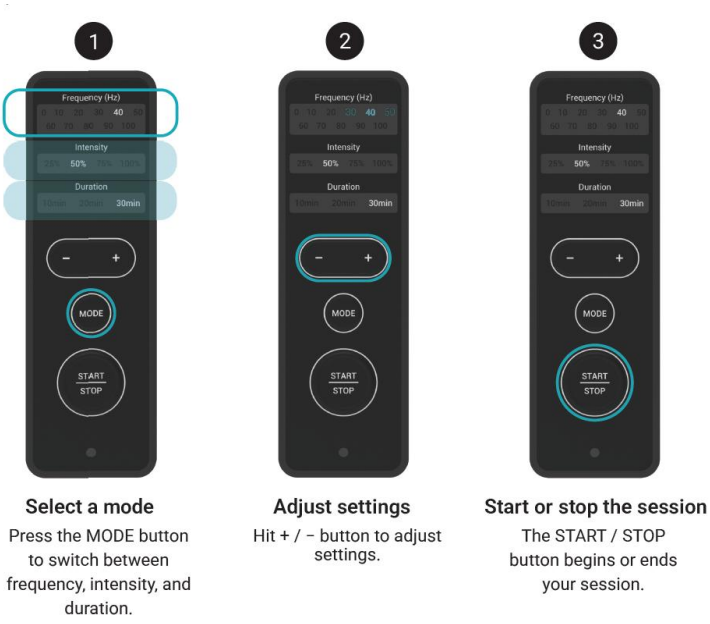


Graphic 9: Sliders

Wiggle the helmet so the light fingers go through the hair to reach the scalp, ensuring optimum irradiation. The WeberBrain® is equipped with a contact sensor and is only activated when contact with scalp is made.

You can either use the SmartLink to run a session or the WeberBrain® app.

5. Run a session with SmartLink



Graphic 10: SmartLink operation

Frequency: adjustable from 0 to 100 Hz in 10 Hz increments

Intensity: selectable at 25%, 50%, 75%, or 100%

Duration: 10, 20, or 30 minutes

6. Run a session with the app

Please note: This feature may not be available yet.

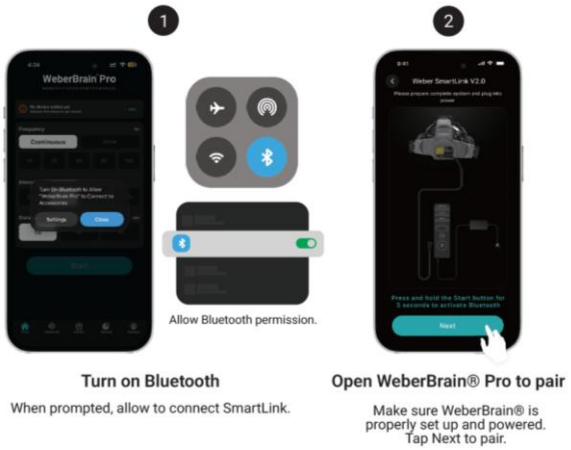
Download the WeberBrain® app.

Graphic 11: QR codes for app access

First-time pairing

Proceed as follows:

- Enable Bluetooth
- Open the WeberBrain® app
- Log in
- Access connection interface
- Initiate device search



Graphic 12: First-time pairing process

Once the app is running, connect the power plug to a mains outlet.

System initialization begins. The blue LED on the helmet port emits a solid blue light and the LED on the dongle emits a solid green light. Verify LED indicators before sessions.

Automatic pairing

The WeberBrain® supports automatic pairing. Once powered on, the app will automatically search for and connect to the helmet when within range. No further manual configuration is required.

7. Recommendations for use

Use your WeberBrain® whenever you want it to support you in everyday life. We recommend one daily session of 20-30 minutes.

At the beginning, start with low intensity (25 % - 50 %) and observe your reaction. You can then gradually increase the power from session to session depending on how you feel. In terms of frequency, we recommend 0 Hz.

8. Cleaning and storage

Routine cleaning of the WeberBrain® housing

For routine cleaning, wipe all hand-contact surfaces with a soft cloth lightly moistened with a standard alcohol-based disinfectant (e.g., 70% isopropyl alcohol or ethanol).

Most common medical or household surface disinfectants are suitable, provided they are alcohol-based and not strongly oxidizing or solvent-based.

This method is sufficient for routine cleaning between uses.

Cleaning of clip-on caps

Perspiration can develop during the session. The clip-on caps can be removed from the helmet for cleaning or replacement. When removed, they may be sprayed with a standard alcohol-based disinfectant (e.g. 70% isopropyl alcohol or ethanol).

We recommend periodically replacing the clip-on caps to ensure optimal transmission of light for all three wavelengths.

Important:

Never spray the helmet or its components directly and never immerse it in liquid. Instead, apply the disinfectant to a cloth and wipe the exterior surfaces. Damage due to the ingress of liquids or solvents will void the manufacturer's guarantee. Use of other cleaning products may damage your WeberBrain®.

Always ensure the WeberBrain® is powered off and disconnected from power before cleaning.

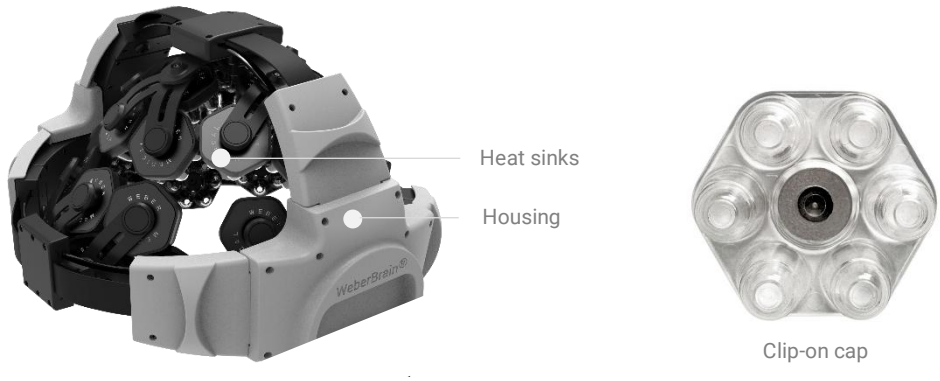
CAUTION: Do not use cleaning products that contain ammonium chloride, strong solvents (e.g., acetone, ketones), chlorine or high-concentration hydrogen peroxide. These chemicals may cause cracking of the material.

Cleaning of heatsinks and delicate structures

The heatsinks should not be touched during cleaning.

If dust or fine particles accumulate, they can be removed using a light air spray (for example from a compressed-air can) using moderate pressure only.

Other fine or delicate structures should be avoided or, if necessary, cleaned very gently using a soft brush.



Graphic 13: Different parts of WeberBrain® (relevant for cleaning)

Store your WeberBrain® in the provided storage case when not in use to prevent dust and debris from getting inside the device.

9. Change disposable clip-on caps

If the WeberBrain® is shared among multiple users, we recommend cleaning or changing the disposable caps after each session. The caps keep the WeberBrain® hygienic and maintain consistent performance.

Thanks to a magnetic system, replacing the caps is simple and quick.

To remove a protection cap from the HEX-shaped laser panel, please use the provided cylindrical removal tool. It has a magnet at one end. Bring the magnet to the metal center of the cap and gently pull it back. Detach the cap from the tool. Proceed in the same way with each of the other 30 panels.

Discard caps in residual waste.

To attach a new cap, no tools are required. Simply bring the cap close to the laser panel. The metal center will securely snap onto the panel's magnet.

Graphic 13: Replacement of a disposable cap with magnetic removal tool

10. Product durability

The WeberBrain® is designed to be durable under typical use.

The device is equipped with parts that are subject to natural wear and tear (e.g., the rechargeable battery). The service life of these parts depends either on their frequency of use or is limited in time. These parts can possibly be replaced by our service team.

11. Troubleshooting

Problem	Possible cause	Solution
The WeberBrain® …		
does not turn on.	No USB-C PD negotiation (non-PD adapter used).	Use the supplied original USB-C PD power supply. Standard USB chargers will not power the device.
	Faulty USB-C PD cable (not PD-rated).	Use the original WeberBrain® USB-C PD cable.
	Loose connection.	Disconnect and reconnect both ends firmly.
switches off unexpectedly.	Thermal protection activated.	Allow device to cool down completely before restarting. Ensure adequate ventilation during use.
	Power supply overheating or current limiting.	Use the supplied USB-C PD power supply.
	Intermittent cable contact.	Verify original WeberBrain® USB-C PD cable. Replace cable and avoid cable strain during operation.
does not respond to button presses.	Firmware freeze.	Disconnect power supply. Reconnect and restart.
	SmartLink button mechanically obstructed or damaged.	Check for physical blockage or damage. If damaged, contact customer service.
becomes warm or hot.	Normal heat generation during operation.	Mild warming is normal. Ensure ambient temperature is within specified limits.
	Overheating due to coverage.	The WeberBrain® has an open design with heatsinks. Air has to be able to circulate freely for the heat to dissipate. Make sure that there is nothing covering the device.
	Thermal protection threshold reached.	WeberBrain® will automatically reduce output or switch off. Allow cooling before next use.
has a low light output.	Power supply not delivering full 20V.	Verify that the supplied original WeberBrain® USB-C PD power supply is used.
	Cable voltage drop.	Verify that the supplied original WeberBrain® USB-C PD power supply is used.
	Automatic thermal output reduction.	Allow device to cool; ensure ventilation.
has a flickering light output.	Unstable power supply.	Verify that the supplied original WeberBrain® USB-C PD power supply is used.
	Cable fault.	Verify that the supplied original WeberBrain® USB-C PD power supply is used. Replace cable.

is not detected in the app or connection fails.	Incorrect Bluetooth pairing.	Select “Unpair device” in the app. Remove the device from the phone’s Bluetooth settings Restart the app. Reconnect the device via the app Restart the phone if necessary.
	The device is already connected to another smartphone or session.	Close the app on the previously connected device. Turn off Bluetooth on the other smartphone if necessary. Reopen the app and attempt to reconnect.
starts a cycle (countdown runs), but the LEDs remain off.	Synchronization issue between app and device or inconsistent firmware state.	Press pause / resume once. Restart the cycle. Restart the app. Power cycle the WeberBrain® (disconnect and reconnect power).
shows delayed behavior (LEDs turn on with a delay, intensity does not respond immediately, pause/resume responds with delay).	Internal timing / firmware delay or communication issue between app and helmet.	Reconnect the device and restart the app.

If troubleshooting does not solve the problem, please contact customer service.

12. Warranty and guarantee

Warranty

We grant you a 24-month warranty. This covers manufacturing defects in your WeberBrain® from the date of purchase that were already present at the time of purchase.

Guarantee

What is covered by the guarantee?

The guarantee period for material and manufacturing defects under normal use is one year and begins from the date of purchase. This applies to both the WeberBrain® and any accessories.

No new guarantee period begins after repairs or replacements.

What is not covered?

We do not guarantee the repair or replacement of a product if the defect is due to:

- Accidental damage caused by improper care or misuse, as well as careless use or operation which is not in conformity with this user guide.
- Use of the product beyond “normal use”, which corresponds to more than 1 hour a day.
- Use of parts that have not been assembled or installed in accordance with the manufacturer's guidelines.
- Use of parts and accessories from other manufacturers.
- Repairs or changes that have not been made by the manufacturer or its authorized partners.
- Incorrect setup
- Normal wear and tear

Please contact our service team if you are unsure which cases are covered by your guarantee.

Replacement or repair of defective devices within the guarantee period

During the guarantee period defective devices or device parts can be sent to one of our service addresses. Repair or replacement of the WeberBrain® is at the discretion of the manufacturer.

Before returning the device, please contact us and have your purchase receipt or delivery note ready. Therefore, please keep the invoice and delivery note carefully as proof of purchase. Without these documents, you will be charged for the costs of all work involved.

We will then inform you about the further procedure.

Replacement or repair of defective devices outside of the guarantee period

Even after the guarantee period has expired, you can send the defective device for repair. Please contact us first before sending in the device.

Repairs or replacements that occur after the guarantee period are subject to a charge.

13. Quality system - Serial number

During production, the helmet is assigned a serial number for traceability.

You can find it on the type label above the USB port:

Graphic 14: Serial number on type label

In case you experience a warranty or guarantee issue, please have the serial number of your WeberBrain® ready.

14. Manufacturer and service contact details

Manufacturer address:

Weber Medical GmbH

Sohnreystr. 4

37697 Lauenförde

Germany

Website: www.webermedical.com

Service address for USA:

Weber Laser Systems

Attn: Repairs

1926 Bonus Drive

San Diego CA 92110

USA

General service address for all other countries:

Weber Medical Systems GmbH

Sohnreystr. 4

37697 Lauenförde

Germany

Tel.: +49 5273 3894506

Email: info@wmedicalsystems.com

Website: www.wmedicalsystems.com

If you require any help with the setup, use or maintenance of your WeberBrain®, or to report unexpected operation or events, please contact the **general service address**: info@wmedicalsystems.com

15. Product specifications

Diode color	Diode type	Quantity	Wavelength
Red	Laser	76	680 nm
Infrared	Laser	76	808 nm
Infrared	Laser	76	1064 nm

Output power per diode*	20 mW
Total output power* (at diode source)	4.56 W
Effective optical output per diode (after optical system)*	Approx. 17 mW (measured at light tip exit)
Total effective optical output	Approx. 3.9 W
Peak power density at light tip exit	Approx. 1,500 mW/cm²
Input voltage	110-240VAC 50/60 Hz
Max. power consumption	<60W
Duration per session	20-30 minutes
Operating temperature	+10°C to +35°C
Storage temperature	0°C to +50°C
Permissible relative humidity	30% - 75% (non-condensing)
Power source	Powered via AC mains
Weight	1.55 kg

*At an intensity of 100 % and 0 Hz frequency