INSTRUCTIONS

Revision of October 24, 2023

Cartridges for the Derminator® 2 can not be used on the older machine and vice versa. owndoc.shop is the only place that sells correctly working cartridges for this machine.

- Derminator® 2 info page with videos and link to store: http://derminator.com/
- The latest version of this user manual: http://derminator.com/Derminator2-instructions.pdf
- How to properly attach the rubber feet to the machine: http://derminator.com/Mounting-the-rubber-feet.pdf

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READ FIRST: VITAL DERMANEEDLING INFO

Before using the Derminator® 2, read our dermaneedling instructions available on

- http://dermaroller.owndoc.com/dermaroller-instructions.pdf.

These instructions are essential because they contain important safety- and treatment guidelines as well as advice on how often to treat, and with which products to pre-treat, after-treat and treat during the actual needling procedure.

Warning & Disclaimer

The Derminator® 2 is a medical device, used to administer an invasive medical treatment procedure to the skin. Improper use or over-use can result in permanent disfigurement. The use of Corticosteroids or plant sterols that impair healing, such as those found in herbs like Sarsaparilla could also result in permanent disfigurement. The patient should not use any supplements, medications or skin products with medicinally active chemicals that interfere with skin healing. Skin products used during or shortly after dermaneedling should be critically examined for potentially troublesome ingredients. Needle cartridges should be inspected before use on the presence of bent needle tips. The same needle cartridge should never be used on different people and cartridges should always be sterilized directly after use or they should be discarded.

THE DERMINATOR® 2 DEVICE IS SOLD "AS IS" UNDER THE ASSUMPTION THAT ITS USER, BEFORE USING THE DEVICE, FULLY READ AND FULLY UNDERSTOOD THIS MANUAL AS WELL OUR GENERAL DERMANEEDLING INSTRUCTIONS AVAILABLE AT THE WEB ADDRESSES PROVIDED ON PAGE 1. BY PROVIDING INSTRUCTIONS AND GENERAL GUIDELINES AND ADVICE WE DO NOT ASSUME RESPONSIBILITY FOR A NEGATIVE TREATMENT OUTCOME.

OUR GUIDELINES ARE THE OPINIONS OF LAYPEOPLE AND NOT MEDICAL ADVICE.

IT IS AGAINST OUR TERMS TO USE THIS MACHINE UNLESS ITS OPERATOR AND/OR PATIENT ASSUME FULL LEGAL LIABILITY FOR THE TREATMENT OUTCOME AND WILL INDEMNIFY US AGAINST DAMAGES, REAL OR PERCEIVED.

INTRODUCING THE DERMINATOR 2

Cartridges, speed and depth

Cartridges are available with 1, 9 or 12 needles. They have a silicone spring/sleeve to prevent blood from entering the device.
The needling speed can be slow (3 Hz), medium (5 Hz) or fast (25 Hz). The slower speeds are rarely used, mainly to emulate a dermastamp or single needle, when very precise treatment of very small areas are required.

The needling depth is set with a push button and can be set to 0.25, 0.5, 0.75, 1, 1.25, 1.5, 1.75, 2, 2.25 or 2.5 mm. Using a "trick" (falsely claiming to the machine that a 9- or 12-needle cartridge is mounted), the 1-needle cartridge will needle 1 mm deeper than set, for a depth range from 1.25 to 3.5 mm. **This depth can cause nerve injury and is only to be used on the rare type of scar tissue that needs such a depth, and should only be used by a dermatologist or plastic surgeon.**

No microtearing

To avoid microtearing, a very powerful motor is a necessity in order to make the needles move in & out extremely quickly, and making the machine run on a rechargeable battery would therefore be impractical and very expensive. Competing (Chinese-made) devices are based on permanent makeup hardware and are much too feeble to be used for safe dermaneedling. They do not reach the advertised depth and they all cause more or less skin tearing.

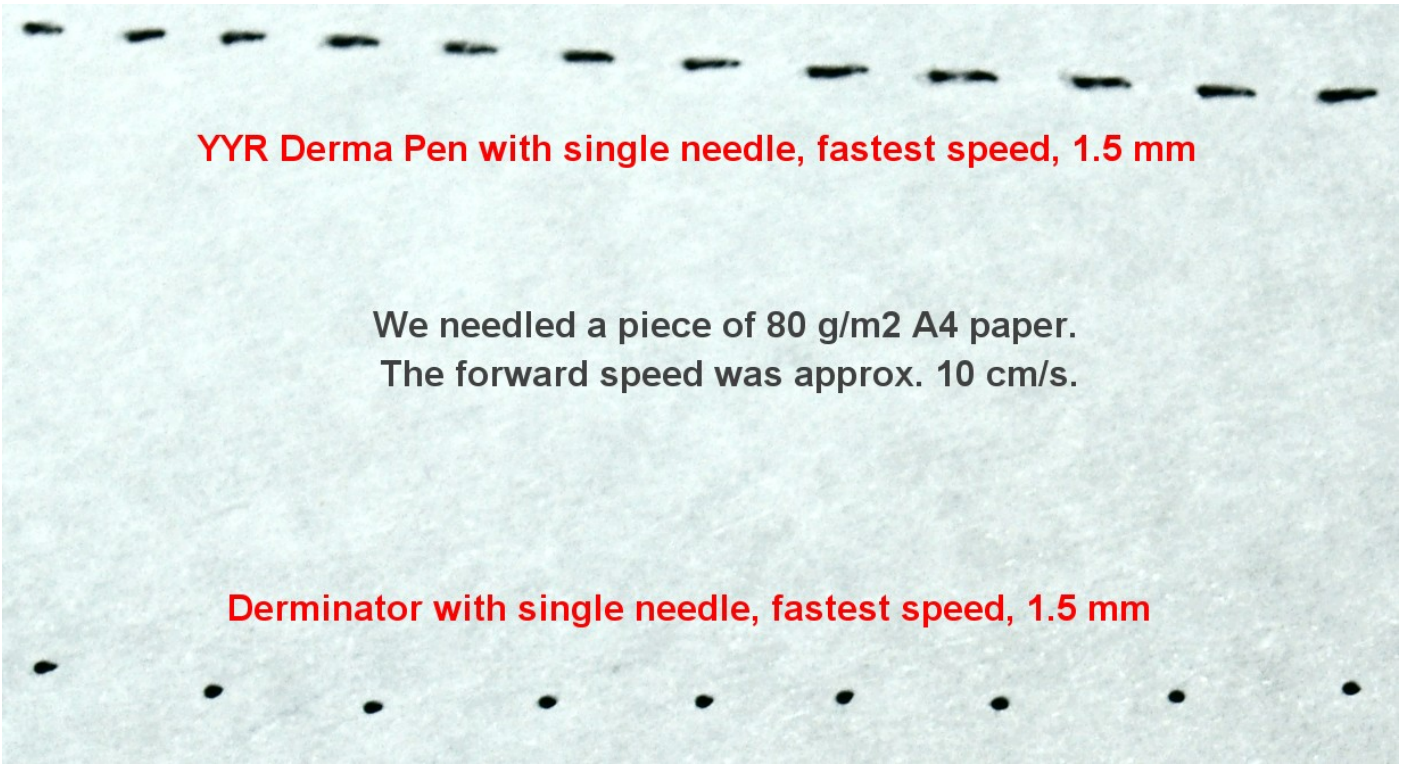
Timer

The Derminator® 2 is able to count down the time required to optimally treat a skin patch of a certain area by calculating the treatment time required based on the needling frequency used to automatically result in the optimal prick density. All you do is set inches or cm, input width and length of the skin area and start needling with any variety of speeds. The machine will stop automatically when the skin has been treated optimally. All the user needs to do is move the machine smoothly at least once over the entire area during the allotted, calculated treatment time, which is constantly displayed as it counts down.

Don't use the timer for ordinary use, as it is requires many button pushes.

NO MICROTEARING WITH THE DERMINATOR

This is what “micro”-tearing looks like. It is caused by a dermaneedling machine’s motor not having sufficient accelerating power to push the needles in quickly and pull them back out just as fast:



We have a video on our sales page where we use a microscope and needle paper with our device and another device. Anyone who has doubts about the above picture is encouraged to repeat the experiment and post the results online. We tested several more devices such as the Korean mCure and they all caused extreme tearing. We hope others will repeat our experiment with our machine and other machines and post their results online.
Microtearing rips the edges of pores, causing permanent pore enlargement. Only a very powerful motor can move the needles in & out in a few milliseconds. That is why the Derminator® 2 is much louder than Chinese “pen” devices, and has a much larger motor part.

Chinese companies simply “recycled” their underpowered permanent makeup pens. Those feeble, overpriced “buzzers” will give electric dermaneedling a bad name, just like the dermarollers that have 540 stamped Titanium “knives” instead of real needles are causing permanent injury and thus give dermaneedling a bad name.

IMPORTANT PRECAUTIONS

- When using the 1-needle cartridge, do not tell the machine that a 9- or 12-needle cartridge is mounted, or the machine will needle 1 mm deeper than indicated!

- **Never slam the hand unit onto a hard surface in an attempt to dislodge the magnet!** Follow our instructions on how to remove the magnet instead. The hand unit's tip will break when you slam it into a table, making the machine unusable. Also, do not drop the hand unit – the same can happen.

- **Do not drop the hand unit!** The hand unit's tip could break, making the machine irreparably damaged.

- **Do not poke around with Q-tips too long/hard into the back of the hand unit!** There resides a rubber EPDM magnet-buffering back plug that could reduce in size or disintegrate when you damage it by thinking it may be some kind of debris that doesn't belong there, rendering the machine inoperable.

- Do not reuse needle cartridges on different people. It is always best to discard needle cartridges after use, but they can be re-used, as long as you only use them on the same person and always clean and disinfect the cartridge directly after use.

- Do not pour water or other liquids into the hand unit's opening. You can use a cotton swab, moistened with alcohol at the most. Water will corrode the sensor electronics inside the machine, which will result in it refusing to operate.

- Do not pour water onto the outside of the hand unit, since it is not water proof, and water may corrode the sensor electronics.

- Do not use a disinfecting chemical spray on the hand unit, because certain popular disinfectant mixtures weaken the plastic cover, causing it to crack, when gripped firmly.

- Especially initially, **use one or more size shorter needle length and one week longer interval than used with manual needling**, when using the Derminator® 2. Pushing less hard will make the needles penetrate less. Do not use the timer function initially, since it uses an algorithm for a very thorough (medically optimal for regeneration) treatment.

- Only use the highest repetition rate and/or longer needle lengths when you have experience with the lower repetition rates/shorter needle lengths already, and only **after you have done a test patch with the higher repetition rate/needle length. Even the 0.25 mm setting can cause pain and redness and even pinpoint bleeding because the Derminator's needles penetrate deeper than those of a dermaroller or dermastamp of equivalent needle length** and it makes many more stamps per minute than you can make with a dermastamp. Also competing electric devices, due to their weak motor, penetrate less deep than they claim.

  Always do a very conservative test patch first and then wait!

  Do not needle too long over the same skin patch if you have not seen how the skin reacts to intensive needling yet. Always do a test patch first!

- Keep the device moving constantly and evenly over the skin when using the device, except when needling the scalp, in that case refer to the next chapter.

- Keep the cartridge moving over the skin, without lifting it, except when needling the scalp, in that case refer to the next chapter.

- Do not push the cartridge too hard onto the skin.

- Do not hold the cartridge under an angle but flat onto the skin.

- Never use needle cartridges not made by us! Even though they may fit, they all have a very different needle length, causing incorrect needling depth even though the machine will think it's working correctly.

NEEDLING THE SCALP REQUIRES A DIFFERENT TECHNIQUE

This machine is very popular with customers using it to treat Alopecia. The machine is the only one (at least below $5000) powerful enough to be able to penetrate hair, to a certain extent. **Use the 9-needle cartridge – the fewer needles that have to push through hair, the better. On significant hair cover, do not make circling motions but move straight from the hair roots downwards, lift the hand unit up and repeat the process. No circling at all.**

Hair consists of the very tough substance Keratin – the same substance nails are made of.

Our recommendation of making circling motions and not lifting the cartridge from the skin does not apply, when needling hair because no machine in the world, not even ours, is powerful enough to punch through strands of hair or the needles not getting entangled into it. The longer and thicker the hair cover, the greater the likelihood that the machine will start stalling and entangling in that case. Entanglement combined with circling (esp. into the direction of untwisting the bajonet fitting of the cartridge) cause the cartridge to detach and the magnet to fly out.

Eventually a warning may appear “Needling hair? Read manual!” and the machine will stop depth-monitoring so that it will not warn about it not being able to consistently needle at the set depth in the future, until you do a factory reset (See “Technician’s menu”).

The stalling issue can largely be avoided by making classical “dermastamping” motions, pushing the hand unit down onto the scalp for a fraction of a second (just enough to touch the scalp, lift it up as quickly as you can again), wait half a second and repeat this rapid “touching” motion adjacent to the spot where you just landed the cartridge. If you cover the scalp area like this multiple times, you’ll ensure even coverage. You can also try making linear motions in the direction of the hair strands. Alternatively, when the cartridge detaches and you still insist on making circling motions, circle the opposite direction as when the cartridge detaches.

Needle the scalp after taking a shower – hair is softer then.

If you want to try longer movements with the cartridge over the skin: Move the hairs out of the way of the cartridge with one hand, flattening it away from the direction you move the cartridge towards.

CARTRIDGE MOUNTING

Bajonet fitting. Align the slots in the cartridge with the protrusions on the tip of the hand unit, push the cartridge on and while pushing, rotate the cartridge right a quarter turn until you start to feel resistance, then stop turning at the point of maximum resistance.

MAGNET REMOVAL

If you want to verify the magnet is inside or want to remove a possible ingress of liquid from the hand unit, you should follow our instructions in how to remove the magnet and **not slam the hand unit's tip onto a hard surface because it will crack its tip and make the entire machine unusable.** This video demonstrates how to remove the magnet safely by slamming the hand unit into the palm of your hand: https://youtu.be/aTLGUPS-czk?t=53
If you do not manage to do it that way, the only alternative is to "fish" it out magnetically with a thin steel object such as a screwdriver. Not too thin – the thinness of a paperclip will not work.

CARTRIDGE LIFETIME

The question "how long do the needle cartridges last" is unanswerable, since this depends on how many times the cartridge has been plunged into the skin, which depends on needling frequency, skin area, treatment frequency and the thickness of the particular skin. All we can say is that generally, cartridges can be reused one or more times and specifically, that they have become blunt when treatment starts to be more painful than it was when the cartridge was new.

HAND UNIT CLEANING

If it looks like blood or gliding serum may have penetrated past the cartridge's protective silicone spring/shroud and entered the hand unit, there is a risk that if you don't clean the inside of the hand unit, that this residue dries up and ends up "glueing" the reciprocating magnet shut into its tube.

Watch this video https://youtu.be/aTLGUPS-czk on how to prevent this by cleaning the hand unit and magnet after a "messy" needling session.

Never slam the hand unit onto a hard surface in an attempt to dislodge the magnet! Follow our instructions on how to remove the magnet instead. The hand unit's tip will break when you slam it into a table.

CARTRIDGE DISINFECTION

Cartridges must be immediately cleaned and disinfected after use, if you want to reuse them. For this there are two options: **CHLORAMINE-T** or **ISOPROPANOL.**

If you want to use Chloramine-T: Mix the contents (20 g) of our Chloramine-T product into a litre / quarter gallon of lukewarm water. Use a plastic bottle and shake until it's dissolved. This liquid is more than a mere disinfectant – it actually *sterilizes* things.

After-use disinfection procedure for cartridges:

- Within 5 minutes after use, drip some dishwashing detergent onto the needle(s) and, while holding it under a strong stream of lukewarm tap water, move the plunger **GENTLY and the NEEDLE TIPS NO FURTHER THAN 3 MM BEYOND THE CARTRIDGE RIM OR THE SILICONE SPRING IS PERMANENTLY MADE UNUSABLE** until the soapy solution has enveloped the needles. Keep moving and rinsing until the detergent has been flushed away, also from inside the cartridge.

- Then pour some Chloramine-T solution or Isopropanol 70 to 100% into a cup and add the cartridges to it. Make circling motions with the cup, so that the solution swirls around the cartridges. Stick your fingers into the cup and operate the cartridges' plungers plunger **with the NEEDLE TIPS NO FURTHER THAN 3 MM BEYOND THE CARTRIDGE RIM** while they're submerged. Leave the cartridges for one hour.

- When using Chloramine-T: Rinse the Chloramine-T out of the cartridges, one by one, under a strong stream of lukewarm water, while operating the plunger **with the NEEDLE TIPS NO FURTHER THAN 3 MM BEYOND THE CARTRIDGE RIM**. Tap water does not contain harmful pathogens and even the rare occasional intestinal water-borne parasite is completely unable to infect (via the) skin.

- Leave the cartridges to completely dry in a dust-free spot (and not near a toilet bowl or place where pets have access!) before reuse.

DERMINATOR NEEDLING TECHNIQUE

When needling with the 9/12-needle cartridges, the hand unit should be held at a 90 degree angle with the skin, otherwise not all needles will penetrate to their full length. Make sure that the entirety of the cartridge rim touches the skin.

Do not hover or brush slightly over the skin but apply moderate, constant pressure at all times. This way, you can be assured that the needles penetrate the full length and that the machine is able to regulate needling depth correctly. Do not push too hard, or the skin is squeezed inside the cartridge rim and the result is deeper needling than intended.

Always keep the device moving in a moderate circular motion, do overlapping spirals with a few cm (1 inch) diameter, with a circling speed depending on the prick density you want to achieve. Always keep the device moving at least slightly, such as not to prick the exact same channels multiple times. Do not move the device in straight lines, otherwise needling density will not be uniform but “stripey”.

As long as you keep moving in circles, it’s not so important how large those circles are or how fast you’re circling or how quickly you’re navigating around the skin. The only really important thing is to cover all of the to-be-treated skin more or less equally. But you could and perhaps should put increased focus on skin that needs extra treatment.

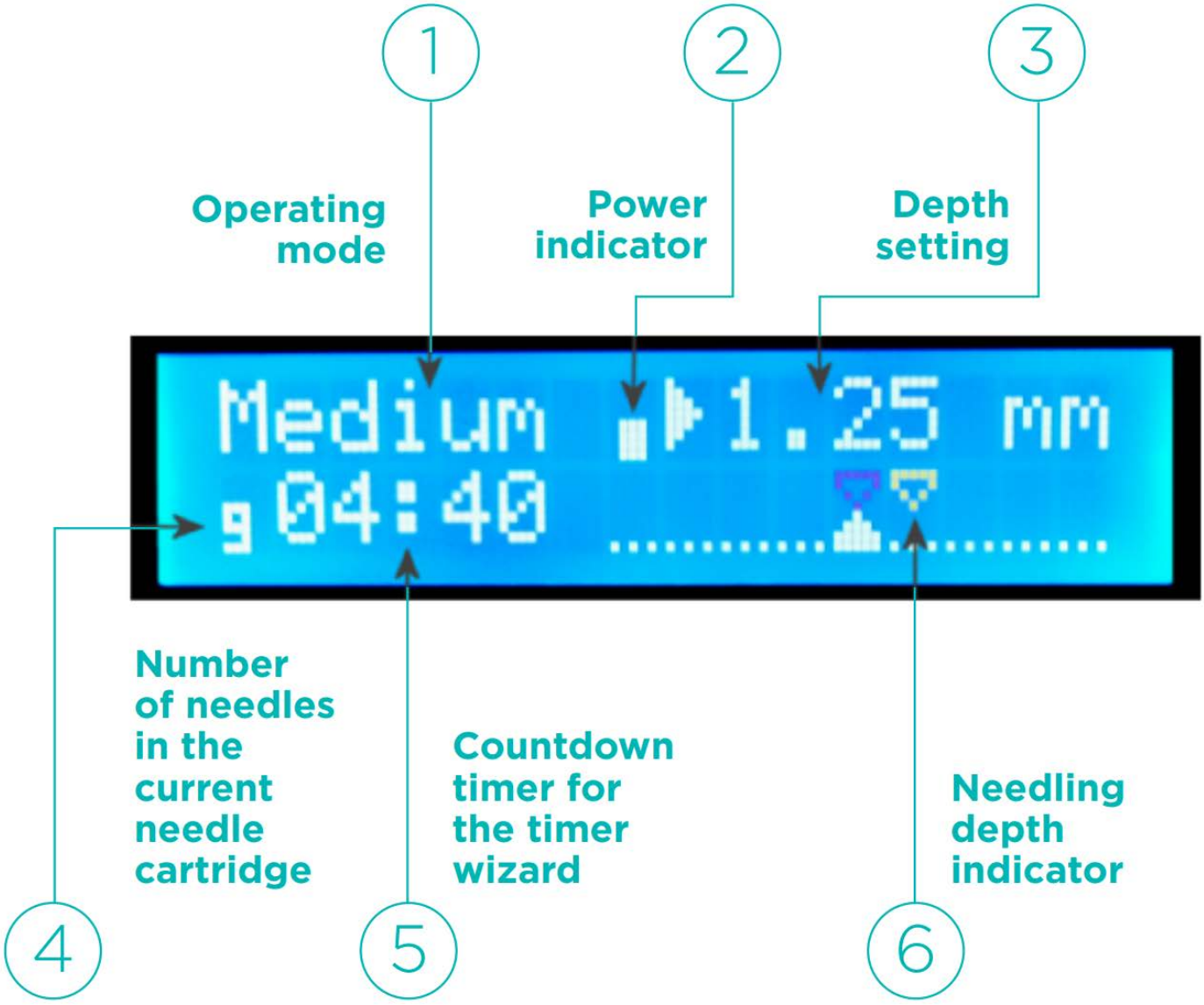
There are many videos on YouTube, including our channel and on our site http://derminator.com/ where the correct technique is demonstrated.

The linear movement technique shown for those weak Chinese “buzzers” is wrong, just as we explained why the star pattern is wrong with manual dermaneedling. So the proper way to move over the skin is a constant circling motion with small circles, moving the hand around the skin while making small circles with the hand unit. Keep circling and try to cover the entire patch equally at least one full time.

When needling with the single needle cartridge, no special movement technique is required, but make sure you always keep moving. **The single needle, since it’s also designed to treat stretch marks, is usually NOT moved in circles.**

When needling hair, refer to the chapter “Needling hair requires a different technique”.

THE DISPLAY EXPLAINED



1. Operating mode

Can be “Slow”, “Medium”, “Fast” or “Timer”, where you can specify a skin area size and the machine calculates how much time should that area be needled with the speed setting(s) used. When you change the needling speed, the remaining time changes as well. The most common mode of operation is the “Fast” setting. **The left, gray button is used to select operating mode.**

2. Power indicator

Shows how hard the machine needs to push the needles to reach the set needling depth. It's not an important indicator but it shows that the machine works correctly. If the power indicator would be "maxed out" most of the time (8 bars lit) that would indicate that the motor has lost its power (due to a demagnetized magnet for example).

3. Depth setting

From 0 to 2.5 mm in steps of 0.25 mm**. The right, blue button is used to cycle through the needling depth.** Selecting a needling depth of zero functions as the "off button".

4. Shows the number of needles in the currently used needle cartridge

This is a small number in the bottom-left corner. It shows 1, 9 or 12. **VERY important** to: (1) Ensure that the Timer mode's calculations use the correct needle cartridge or the timer function will create up to 12 times more pricks than it should, when the user has told the machine that a single-needle cartridge has been mounted, but in fact a 12-needle cartridge is mounted. This error can result in permanent disfigurement.

This setting is also VERY important to: (2) Inform the sensor of the needle length of the cartridge used, otherwise the machine will needle 1 mm too deep when the user has told the machine that a 9- or 12-needle cartridge has been mounted, while in fact a single-needle cartridge is mounted. When the user then selects 2.5 mm needling depth, an actual needling depth of 3.5 mm is achieved, which can cause permanent nerve damage.

IT IS VERY IMPORTANT THAT THE MACHINE ALWAYS SHOWS THE NEEDLE CARTRIDGE TYPE THAT IS ACTUALLY MOUNTED

When the machine is turned on with the power switch, it asks what cartridge is going to be used: **`Single needle? [Yes] [No].`** The left gray button chooses "Yes" and the right blue button chooses "No". Other options are **`9 needles? [Yes] [No]`** and **`12 needles? [Yes] [No]`**

ALWAYS VERIFY YOUR SELECTION ON THE DISPLAY

To remind the user to pay great attention to answering correctly and verify his/her selection, and to remind the user that the only way to switch cartridge type is to turn the power off and on to the machine with the mains switch and then choosing the correct cartridge type, the following warning is flashed after cartridge type selection:

```
Always answer          turn off before
correctly and...       cartridge swap!
```

5. Countdown timer for the timer wizard

This is a very useful feature for if you want to perfectly treat a specific scar and you know the skin area's dimensions. The device allows you to specify the area in inch² or cm² of a skin patch by specifying width and length, and it then calculates, using 250 pricks/cm² (the same as 1500 pricks/in²), how long you should needle that patch in order to achieve that prick density. The device will stop when the timer has reached zero. All the user has to do is move the device with circular motions equally over the entire patch at least once during that time period. **Do not use the timer when you "just want to needle" because it is too much hassle to press so many buttons. Simply press the left gray "Speed" button to make the timer go away and the device is ready to needle.**

6. Needling depth indicator

The bottom triangle indicates the set depth in increments of 0.25 mm. The deepest needling setting, 2.5 mm, shares its position with depth setting 2.25 mm.

The top triangle shows the actual needling depth, or, more accurately phrased, how far the needles are penetrating past the cartridge rim. This indicator serves as a verification that the device is working properly and that the correct needle depth is indeed attained. It also reminds the user to maintain proper skin contact, because when you keep lifting the device up and down from the skin, the depth indicator will flutter around too much. With proper needling technique, the actual-depth indicator remains in close proximity to the set-depth indicator, helping to attain a smooth, uniform needling depth, something harder to attain with manual instruments.

"AI" TIMER FOR OPTIMAL TREATMENT OF SPECIFIC SCARS (DO NOT USE THE TIMER FOR NORMAL NEEDLING)

One of the main problems with manual dermaneedling is to figure out how many times to roll over the skin for optimum treatment. This involves complex maths because it depends on how wide the roller head is, how many needles are in the roller, the circumference of the roller head and of course the size of the skin area.

With the Derminator® 2, you only need to tell it the size of the skin area and the machine will simply switch off when you've treated the skin optimally. As long as you keep moving the device over the to-be treated skin patch, the device will take care of the rest. You can even change pulsing frequency meanwhile. We programmed the timer of the Derminator® 2 from the medical literature how many pricks need to be made on the skin, per unit of surface area and when that skin area has that number of pricks, it stops. That's all there is to it. And when you want to be conservative, you just stop sooner.

This "automatic mode" is done via the "Timer" function.

Do not use the timer when you "just want to needle" because it is too much hassle to press so many buttons. Simply press the left gray "Speed" button to make the timer go away and the device is ready to needle.

Timer mode is entered by pressing the right, blue "Depth" button marked **[OK]** when the display shows **"Timer"**. The device then asks whether to use inches or cm:

Use in^2 or cm^2?

[in^2] [cm^2]

After having selected the appropriate metric (by pressing the corresponding button below the text), the skin width and length is entered by pressing the corresponding buttons as many times as necessary. The left button increases the Length or Width.

Length skin area

[1] [OK]

Pressing the left button increases the value. Pressing the right button accepts the entered value, and the next screen appears:

Width skin area?

[1] [OK]

When inches are selected, the max. size that can be entered is 16 inches. When cm are selected, this value is 40. When the maximum value is exceeded, the value cycles back to 1. **Be careful to select the proper metric because if you select inches when you mean cm and enter values in cm, treatment time will be too long!**

Then you can cancel the timer function or turn it on:

Turn on timer?

[Cancel] [OK]

When you turn it on, a time in minutes and seconds appears in the lower left corner like this:

Slow 0.00 mm

905:02 ......

This means that when you needle the skin area on the "Slow" setting with the selected 9-needle cartridge, needling will take 5 minutes and 2 seconds. Needling time will shorten very considerably on faster settings, and the device automatically knows that and will turn itself off as soon as the optimal number of pricks have been made.

The device will stop needling and show **"ENDED"**.

When the timer has been set by selecting OK to the final value, you can start needling.

The machine will stop automatically when the needle density has been achieved. Of course you'll have to actually needle the skin all that time and not take relatively long breaks, otherwise you'll get a lesser prick density.

It is not necessary that the actual patch of skin to be treated has a rectangular shape.

MANUALLY CALCULATING TREATMENT TIME

With the Derminator® 2, there is no more need to guess how long to treat the skin.

The machine calculates this itself, using the “Timer” function. However, if you insist on doing the math yourself, below is explained how the “Timer” function works:

The device does approx. 25 punches/second on the “Fast” setting. 1500 pricks/in² (250 pricks/cm²) is the goal.

Formula for sq. inches, using fast speed:

Treatment (in seconds) = (Area in in² x 60) / the nr. of needles in the cartridge

Formula for sq. cm, using fast speed:

Treatment (in seconds) = (Area in cm² x 10) / the nr. of needles in the cartridge

How exactly you move the device over the skin during that time and how many times the skin is covered by the device is up to you, but it is of course important that the entire area is more or less equally covered, resulting in a uniform redness. Circular motions are the best needling technique with this device.

When in doubt, use the “Timer” function and enter length and width of the skin area., or, when the treated area is not rectangular, estimate its surface area and enter a width and length, resulting in that surface area. Select inches or cm first! The machine will then turn off automatically when you should stop needling that skin area.

All that’s required is to know the approximate area. Let’s say you’re going to treat a circular patch of skin with a diameter of 10 cm. How to set the timer? The area of skin according to the formula $\pi(\frac{1}{2}d)^2$ equals 3.14 * 5 * 5 = 78.5 cm². Just use a width of 8 and a length of 10, or vice versa. Or you can just estimate the area. Say you guess that an area is about 60 square inches. Then you enter timer mode, select inches and enter 6 for length and 10 for width.

CARE & MAINTENANCE

This machine only uses needle cartridges with a silicone shroud, so blood and gliding serum and other liquid products have a hard time getting into the hand unit, but when there is quite some liquid involved, it still can get in.

- So when you notice that the cartridge is wet with blood or another liquid, you must clean the inside of the hand unit. Use a dry cotton swab, according to this video and ignore the part about spraying the internals – that's not recommended anymore bec. Some liquids could creep deep into the part and perhaps cause a slow-progressing corrosion of the internal sensor.

- The outside of the hand unit should never come into contact with anything else but a cloth, slightly moistened with lukewarm water and a tiny bit of ordinary dishwashing/hand soap. Alcohol-based disinfecting products or any other products that contain organic solvents or dissolved chemicals will crack the hand unit shrouds.

- Never spray any liquids into the hand unit and never spray any liquids onto it. Neither submerge it into liquids, nor keep it in contact with any liquid while performing a treatment. You can wipe it with a cloth, moistened with soapy water but never use alcohol-based disinfectants on the plastic. Organic solvents such as Acetone could abrade the small prongs on the hand unit's tip, making the machine inoperable.

- Never poke hard into the back of the hand unit with a Q-tip or other object. There resides a small black rubber plug that is vital to the operation of the machine.

- Do not keep rotating a cartridge around the tip because that will permanently loosen up that cartridge even more. The tip is harder than the cartridge so fortunately, such a "loose-cartridge" problem can be solved by replacing the cartridge.

ERROR MESSAGES

MAGNET STUCK OR MISSING or MAGNET BAD/STUCK OR BAD CARTRIDGE

What to do when you see one of the above messages:

Step 1: Is the magnet gone? The first thing to verify is whether there is a magnet inside the hand unit. Do this by removing the mounted needle cartridge and turn the machine to *Medium* speed and *2.00 mm* deep, while covering the opening with the hand. **If do not feel the magnet pushing**, trying to get out, you have an older-firmware machine and it most likely flew out when you forgot to mount a needle cartridge. **Buy a replacement magnet in that case.**

Case 2: The cartridge sleeve was disrupted. If you ever pushed the cartridge plunger too far to slide the needles out, during cleaning for example, then the silicone sleeve/spring will permanently shove over the plunger and the machine gets confused and assumes the magnet has a problem. Try again with a new cartridge and select the CORRECT nr. of needles used.

Case 3: The magnet is "glued" stuck by blood or gliding serum. Clean the hand unit and magnet as shown in https://youtu.be/aTLGUPS-czk and try again. **Do NOT slam the hand unit's tip onto a hard surface because it will crack and destroy the machine.**

Case 4: The magnet is present but is the machine being used on hair? If you did feel the magnet pushing, then you can see these error messages in case the machine is being *pushed past its limits*, which can happen by needling the scalp, for example. Hair is made of Keratin, the same hard substance nails are made of.

Case 5: The magnet is present and the machine is used on hairless skin.
Has the machine been used commercially? **With very intensive use, our older magnets (machines sold before 2020) could lose some strength and would need replacing.** Buy a new magnet in that case. The old magnet can be removed by using the new magnet to pull both of them back out and breaking off the old one before reinserting the new one. If you mistakenly have TWO magnets in the hand unit then that is invisible to the naked eye but

cartridges will unable to be secured onto the hand unit's tip. If a replacement magnet does not solve the issue, we'll replace your machine.

Case 6: The magnet is present, and the machine is for moderate personal use. The most likely reason for a magnet error in this case is a bad cartridge, especially when it has been re-disinfected by the user and its Silicone sleeve been dislodged or degraded by a chemical substance. Try an unused 9/12 needle cartridge. If the problem is solved, ask our support to send you some cartridges to replace the bad one with.

Case 7: The magnet is present, the machine is used for personal use on non-hairy skin and a new cartridge does not solve the problem. Contact our support and we'll send you a replacement magnet. The old magnet can be removed by using the new magnet to pull both of them back out and breaking off the old one before reinserting the new one. If you mistakenly have TWO magnets in the hand unit then that is invisible to the naked eye but cartridges will unable to be secured onto the hand unit's tip. If a replacement magnet does not solve the issue, we'll replace your machine.

MAGNET REMOVED OR ATTRACTED OUT

Cause: The reciprocating magnet in the hand unit was there when we shipped the machine to you, but for some reason, the magnet has been removed from the hand unit while the machine was turned off. The most common cause for this is that the hand unit dropped on the floor and the magnet shook out, or that the hand unit has been placed close to a metal object, such as its own bottom case screw. In that case you can't even reach inside to pull the magnet back out so the only solution is to send you a new magnet, with which you can pull the missing one out. Then you'll have two working magnets again - of which one spare. Verify the magnet really is missing by trying to remove it as shown in this video: https://youtu.be/aTLGUPS-czk. Some people are unable to remove the magnet in that way, in that case use a small screwdriver or hex key attract the magnet out. You can also measure how far you can push an unbent paper clip etc. into the hole. With magnet present, that would be 35 mm (about 1.5") and without magnet, 55 mm (about 2").

MAGNET FLEW OUT! FIND IT/BUY NEW

The machine detected that the magnet flew out of the hand unit because the machine was operated without needle cartridge attached.

SENSOR FAILURE

-The usual cause is that the **reciprocating magnet inside the hand unit is damaged** or that you've added a second magnet into the machine instead of one. You can verify the latter by the fact that the cartridges do not attach properly anymore and that the magnets are very easily able to be shaken out. The length of one magnet is 20 mm (a bit shorter than an inch).

You can verify magnet damage as per https://youtu.be/aTLGUPS-czk . Even when a small chip is loose or missing, the device becomes inoperable. These magnets can't damage from their needling "hammering". They can handle orders of magnitude greater g-forces, but when you take it out and drop it, or it flies out and they hit an object (esp. a metal object, a tile or another magnet), the decelerating g-forces are astronomically high and they often shatter, since Neodymium magnet alloys are extremely brittle. Never play around with the magnet, never let it attach to another magnet or a metal object.

- Another possible cause for this error is that a fluid has entered the hand unit and it has penetrated so deeply and so much has entered, that it managed to slowly corrode and short-circuit the magnetic needling depth sensor (called a Hall sensor).

- It is also possible that the error appears that the hand unit cable has been damaged in some way. Examples are it getting stuck in a sharp edge of a door, a pet chewed on it or the cable got pulled so hard that it broke off inside the main unit.

TROUBLESHOOTING

Buttons do not work

Many customers leave the protective foil on the console. However, that foil is only intended as a smudge guard during assembly and should be **peeled off and discarded**. It may otherwise prevent the buttons from moving freely upwards so they are permanently kept down, causing problems with the operation of the machine. In extremely rare cases, a button can get stuck. If you're handy with a Philips-head screwdriver you can try carefully adjusting the mainboard and also bending the display board a little (usually inward) to align the buttons better but we'll of course replace the unit if that proves unsuccessful. When successful, we'll give you a $50 store credit.

Irregular needling, also when "needling air"

The device's motor is designed to be near-impossible to fail. Nearly all cases of "engine trouble" are caused by a damaged cartridge (pushing the plunger with a finger, making the needles come too far out causes the plunger to be shoved into the Silicone spring-sleeve).

However it can also (extremely rarely) happen that the magnet has a fragment broken off. Inspect the magnet as per https://youtu.be/aTLGUPS-czk . These magnets can't damage from their needling "hammering". They can handle orders of magnitude greater g-forces, but when you take it out and drop it, or it flies out and they hit an object (esp. a metal object, a tile or another magnet), the decelerating g-forces are astronomically high and they often shatter, since Neodymium magnet alloys are extremely brittle. Never play around with the magnet, never let it attach to another magnet or a metal object.

Dead display

Is the unit turned on with the white mains switch? Is the switch broken perhaps (it will rattle or move very freely). Try another outlet, preferably on a different fuse group (likely in a different room - preferably the kitchen). If the switch is broken and you can replace it yourself, we'll issue you a $50 store credit. Otherwise we'll replace the unit.
In very rare cases, the display's backlight is broken, In that case the machine still works but the display does not. We'll give you a new unit in that case.

Machine does not needle at all but display works

Blood or gliding serum may have entered the hand unit and dried up, "gluing" the reciprocating magnet shut into its tube. Watch this video https://youtu.be/aTLGUPS-czk on how to prevent this by cleaning the hand unit and magnet after a "messy" needling session.

To get a "glued" magnet out: Slam the hand unit with the tip down hard onto a wooden surface. This will dislodge the magnet but it may still remain attracted into the hand unit. You'll hear it dislodge though, and when it's loosened you can use the hand slam technique shown in the video to remove the magnet the normal way. Not that this slam needs to com to an abrupt halt – it's a large decelerating G-force we're after. Alternatively, "fish" it out with a small screwdriver.

This problem is rare because the silicone shroud in the cartridge normally prevents liquids from entering.

It is also theoretically possible that the magnet has rusted (Neodymium is extremely susceptible to rust) but our magnets have a protective nickel-layer and over that layer a black Teflon (PTFE) coating so that should never happen.

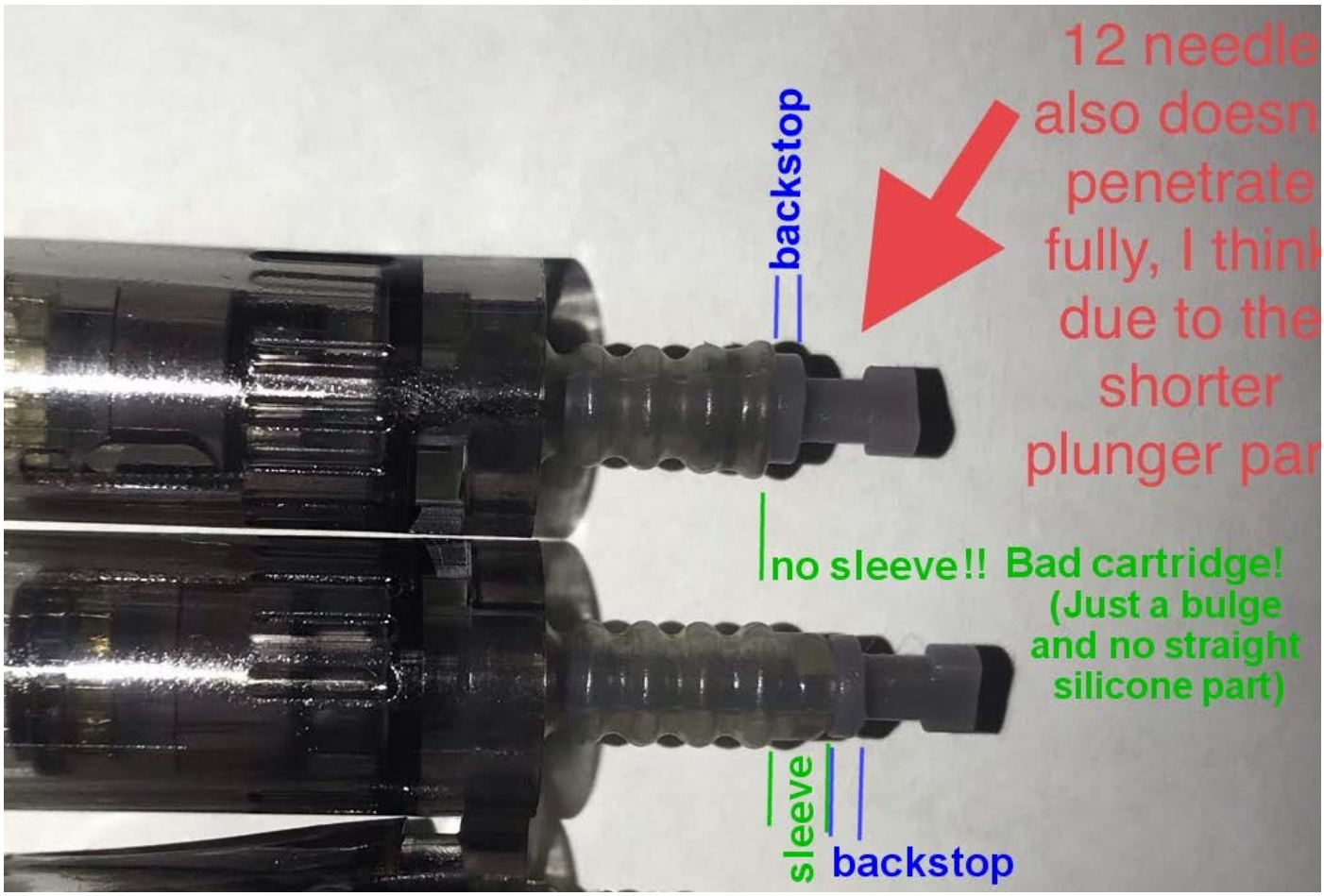
Needle cartridge and magnet fly off the hand unit

When this happens with a new machine and there is no oily substance between the hand unit's bayonet tip and the needle cartridge, and you have mounted the cartridge such that you stopped exactly at the point of greatest resistance and not any further, then the cause might be a badly injection-molded coil body.

However if a detaching needle cartridge is a new problem, it most likely is caused by lubrication present between hand unit tip and cartridge and the vibration as well as friction from the circling motions slowly loosen the cartridge. Solve this by thoroughly removing any gliding serum or ointment residue from the hand unit tip with a damp cloth with dishwashing liquid, drying it and then using an alcohol wipe on it. Also circle the other way round, since then your motions tighten, instead of loosen the cartridge. Use a new cartridge or clean an old one in soapy water bec. A re-used one may have gliding serum residue on it.

Needles do not come out at all, or insufficiently so, or scratch, or needle irregularly

This is nearly always caused by mishandling the cartridge by pushing with your finger the needles out during cleaning or inspection. Verify that the Silicone spring-sleeve looks OK: **(1) The top cartridge has a problem: The end of the silicone spring is "crumpled up" and missing a few mm of straightness.** This is caused by pushing the plunger to make the needles come out and you push a too far/hard. This is unfixable – the cartridge has become bad and has to be discarded. We warn several times in this manual not to push the plunger too far or too forcefully. Only very gentle force should be used.



(2) If there is nothing visible as in the photo, then the silicone sleeve has been shoved a couple mm too far over the cartridge stem. Then you can move the plunger to see a small space between backstop. You also can see, through bayonet gap in the cartridge, that the sleeve is too much over the stem than with a new cartridge. This is solvable by gently pulling the sleeve towards the backstop until you can't create a small gap there anymore.

If you are absolutely certain that the problem also occurs with a new cartridge that you never operated with your finger, then please consider the following causes:

(1) Damage to the magnet (a crack, rust, a small “chipped” piece missing) will cause serious needling issues.

(2) **The number of needles in the cartridge has been incorrectly set to "1" instead of 9 or 12 or vice versa**. Verify that that question was answered correctly, to the machine. That question much be re-answered whenever the cartridge type is changed, so you must turn the machine off so it will ask you that question again.

(3) Due to its low duty cycle**, our machine is MUCH less painful than others** and if you used numbing cream then you'll definitely feel nothing on most depth settings, likely nothing at all. Also due to the low duty cycle (very short time inside the skin of the needles), the eye is unable to see the 1-needle come out. And due to the stroboscopic effect of modern lighting, also the 9/12 needle cartridges may never seem to have their needles deep enough out.

(4) **A delay in reaching the set depth is by design**, since the needling depth is achieved by a magnet, hammering on the cartridge and the force of the magnet is carefully calibrated in a sensor feedback loop.

That can only be done safely and accurately when the starting force starts at zero and slowly ramps up force and depth over the first few seconds - needle punches, in fact. At the FAST speed, this takes only about 0.8 seconds, or 20 punches. At MEDIUM speed, this takes about 3 seconds and at SLOW speed, up to 20 seconds.

So when you feel nothing on SLOW or MEDIUM, that's normal and by design, the first few seconds, especially on the "SLOW" setting. The correct needling depth force is still being calibrated to your skin, for safety.

DIAGNOSIS OF THE PROBLEM – IF YOU WANT TO CONTACT OUR SUPPORT

(A) Could you tell us at what needle depth you DO feel the needles penetrate, and WHAT skin you're using to ascertain that? The soles of the feet are many mm thick dead skin (callus) so you'll feel nothing, there.

(B) Please attach a picture of the display, when needling 0.75 mm deep, on skin or in the air. This will allow us to see whether the machine thinks it's needling correctly deep and without expending too much effort. Please tell us which cartridge type you mounted.

(C) Please attach sharp macro pictures (taken from the side) of the cartridge used, when the problem occurred. One mounted onto the machine, one of the cartridge unmounted, lying on the table.

(D) Could you please needle a stretched-taut piece of paper from the edge of a table with one hand, while needling with the other hand with the single needle cartridge on 1 mm and hold it against the light and report whether you see holes? Remember - this will only work when first turning the machine off and telling it a 1-needle cartridge has been mounted.

(E) Another test you should definitely do, but it will destroy the cartridge so you can use an old one (we will send you several replacement cartridges), is to needle the surface of a table on 0.5 mm with the 9/12 cartridge on FAST. That should cause a loud "banging" and vibration felt in your hand and will make the power level indicator on the display go up to maximum. Please attach also a photo of the display when that happens (or not happens) after waiting 5 seconds and report whether the needles hit the table (you'll see their imprints).

The table will be scratched and the needles become VERY damaging to skin!

COMPLIANCE STATEMENTS

FCC

This device has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 and part 18 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation.

This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures: Reorient or relocate the receiving antenna. Increase the separation between the equipment and receiver. Connect the equipment into an outlet on a circuit different from that to which the receiver is connected. Consult the dealer or an experienced radio/TV technician for help.

IMPORTANT: Any changes or modification not expressly approved by the party responsible for compliance could void the user's authority to operate the device. Where shielded interface cables have been provided with the product or specified additional components or accessories elsewhere defined to be used with the installation of the product, they must be used in order to ensure compliance with FCC regulations.

Canada

This Class A digital apparatus meets all requirements of the Canadian Interference Causing Equipment Regulations. Cet appareil numérique de la classe A respecte toutes les exigences du Règlement sur le matériel brouilleur du Canada.

EU

Products with the CE marking comply with the EMC Directive (89/336/EEC) and the Low Voltage Directive (73/23/EEC) issued by the Commission of the European Community and if this product has telecommunication functionality, the R&TTE Directive (1999/5/EC).
Compliance with these directives implies conformity to the following European Norms (in parentheses are the equivalent international standards and regulations):
EN55022 (CISPR 22) – Electromagnetic Interference
EN55024 (IEC61000-4-2, 3, 4, 5, 6, 8, 11) – Electromagnetic Immunity
EN61000-3-2 (IEC61000-3-2) – Power Line Harmonics
EN61000-3-3 (IEC61000-3-3) – Power Line Flicker
EN60950 (IEC60950) – Product Safety

WARRANTY POLICY

Lifetime warranty

Defective machines are replaced by brand new, unused machines at our cost, without the need to return the old machine, or we pay for return postage in rare cases when we want to diagnose an issue. An exception to this warranty policy is hand units with internal liquid damage, cracked hand unit shroud (due to using chemical disinfectants on it) or a damaged hand unit tip (due to dropping the hand unit or slamming it onto a hard surface).

You can reach our support department at http://owndoc.support

TECHNICIAN'S MENU

The technician's menu is entered by turning the mains switch on while holding the left console button down. Firmware versions of 3.3 and below only show the firmware version and have no further options. The right console button changes the displayed setting or executes it. Settings are saved immediately. This mode can only be left by turning off the mains switch.

Firmware version

Shows the firmware version. We may ask for it, in order to troubleshoot your device.

Magnet monitor

When turned OFF, the machine will not check whether the magnet is present, flew out, is stuck or otherwise has a problem. You can set it to "OFF" when you want to avoid annoying messages when needling the scalp.

Swap warning

When turned OFF, the machine will not warn about the importance of setting the correct number of cartridge needles. A convenient speedup for clinicians.

Show Hall value

Shows the magnetic sensor's measured value. Usually, when it is closest to 500, the magnet is present. When it is closest to 510, there is no magnet in the hand unit.

MagnetMissingCnt

Never change this value unless asked to by our support.

Dlt-HallTreshold

Never change this value unless asked to by our support.

StartPulseLength

Never change this value unless asked to by our support.

HallMarginFFNPls

Never change this value unless asked to by our support.

MinPulseLength

Never change this value unless asked to by our support.

FastFreq

Never change this value unless asked to by our support.

FastDelay

Never change this value unless asked to by our support.

LCDDelay

Never change this value unless asked to by our support.

Recalibrate

If we're ever start selling different magnets or different cartridges, the user can recalibrate the machine by mounting a sacrificial 9- or 12-needle cartridge and following the machine's instructions.

Factory Reset

Restores the machine to its original settings, EXCEPT any recalibrations that were done.