

# neurio

INSTALLATION GUIDE

# Intro

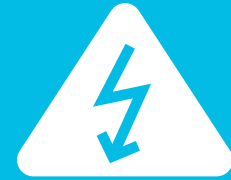
To watch a video of the installation visit [support.neurio.io](https://support.neurio.io)

This booklet will guide an electrician or a professional installer through the typical installation process of the Neurio Sensor on a two-phase system (the most common power system in North America). If you have a one-phase, three-phase or solar system, please visit [support.neurio.io](https://support.neurio.io) for instructions.

## ITEMS NEEDED BEFORE STARTING:

- + Smartphone with the Neurio app installed
- + Flashlight — after all your power will be turned off
- + Thick rubber gloves (for working near live wires)
- + #2 Phillips and flathead screwdrivers
- + One (1) empty 15 or 20 amp dual (double) pole breaker\*
- + 4' length of 12 or 14 gauge wire
- + Contents of Neurio box

**\*NOTE:** The voltage cables on the Neurio Sensor need to be installed on two empty breakers (one for each phase) or one empty dual (double) pole breaker. However, some regional codes allow you to piggyback wires on existing breakers by using the supplied wiretaps and attaching the voltage wires from Neurio to the existing cables before they go into a breaker. See Step 4 for diagrams. Please consult your local electrical code for approved methods.



**CAUTION:** This product must be installed by an electrician or other qualified professional. Before following this guide, please read and review the safety warnings provided at the end of this book.

## CONTENTS OF NEURIO BOX



Neurio Sensor



Voltage cable



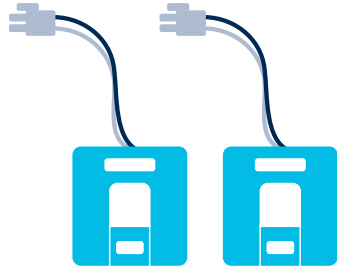
Antenna and cable



1/2" and 3/4" antenna mounts



Two (2) wiretaps



Two (2) current transformers (CTs)



Two (2) self-drilling screws



One (1) marrette



Neurio breaker sticker

## Steps to follow:

### Step 1

Turn off main breaker

### Step 2

Remove breaker panel cover

### Step 3

Mount the sensor

### Step 4

Connect the voltage cable

### Step 5

Connect CTs

### Step 6

Connect the antenna

### Step 7

Check your work

### Step 8

Replace panel cover

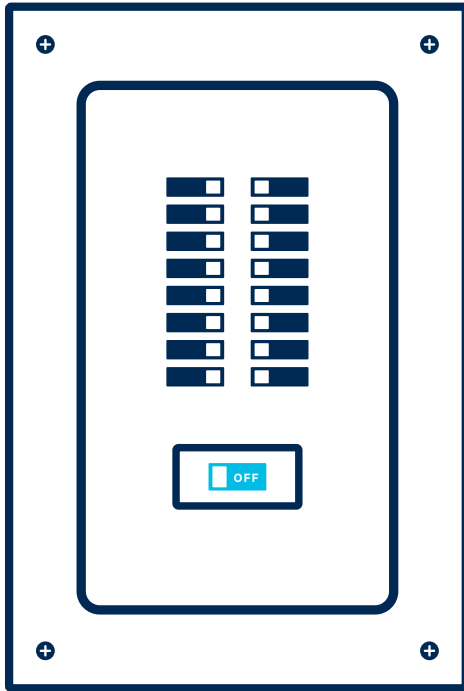
### Step 9

Connect Neuroio to WiFi

If you get stuck at any point, visit [support.neurio.io](https://support.neurio.io) for walkthrough videos and helpful tips.

# Step 1

Turn off the main breaker in your electrical panel.

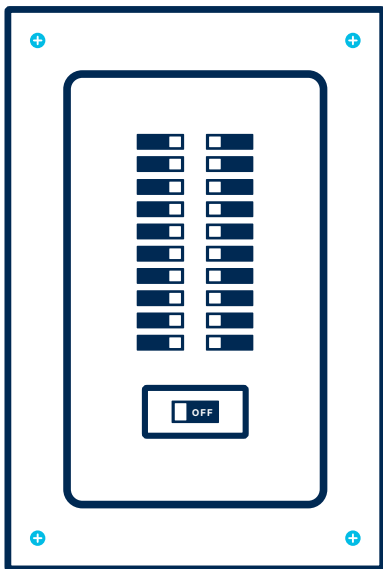


**NOTE:** If you have more than one electrical panel in your house, make sure Neurio is installed in the main one (the one that draws power directly from your utility).

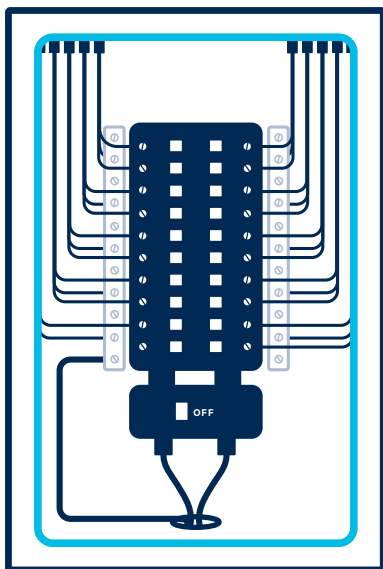
# Step 2

Remove the screws on the corners of the panel and remove the cover. After you do this, you should see the wires going into each breaker and main lines from the utility.

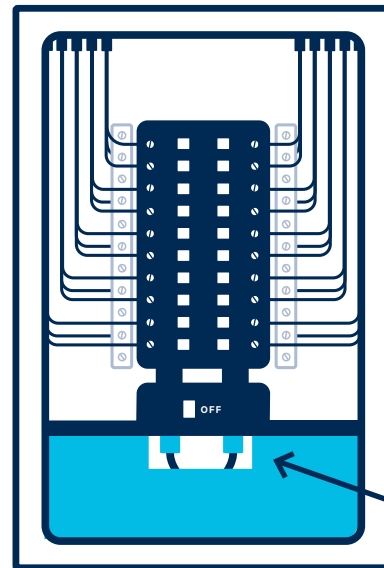
If your panel has a secondary cover that hides the main utility line, please remove that as well.



BEFORE



AFTER



### CAUTION:

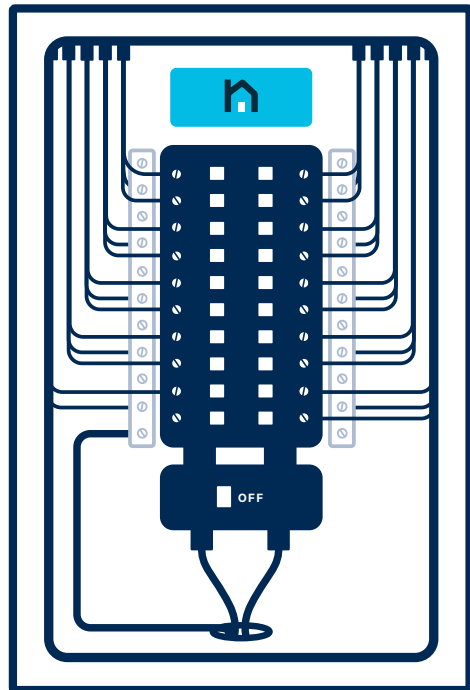
Be careful not to touch the metal screws where the main line is attached to the main breakers as the mains are still energized.



**CAUTION:** In some cases, even though main breaker is off, some parts of the panel could be still energized. Use caution.

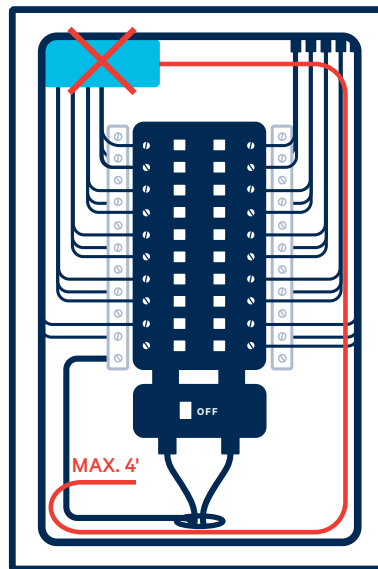
# Step 3

Find a suitable place in your panel where Neuroio can fit. Then, using the supplied self-drilling screws, secure Neuroio to your metal panel.

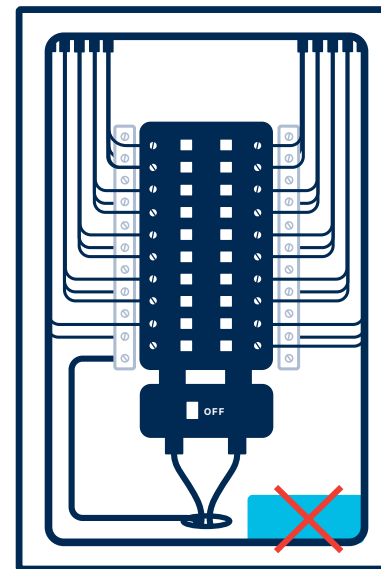


**NOTE:** The self-drilling screws will need pressure to drill through the metal.

**CAUTION:** Be sure to account for the length of the 4 foot CTs and the 2 foot voltage cable, and ensure that there is enough room on the sides of Neuroio for the wires and antenna to connect to.



TOO FAR FOR THE WIRES



TOO CLOSE TO THE SIDES OF PANEL

# Step 4



- 1) Connect the voltage cable to Neuroio by inserting the connector into the matching port on the Neuroio Sensor.

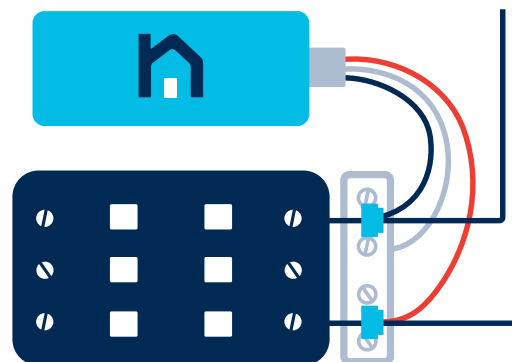


- 2) Connect the black wire to an empty 15 or 20amp breaker on the one phase of power.
- 3) Connect the red wire to an empty 15 or 20amp breaker on the other phase of power.
- 4) Connect the white wire to neutral bus bar, usually located next to the breaker.

- 5) Twist the marrette onto the blue wire and tuck into panel out of the way.

## ALTERNATE WIRING WITH WIRETAP

If an empty breaker isn't available, you can use the provided wiretaps to connect to an existing breaker. To do this, remove the existing wire from a 15 or 20amp breaker, replace it with a new wire cut to about 4 inches making sure that the new wire is the same gauge or larger than the wire you removed. Then use the wiretap to connect the new wire, the wire from Neuroio, and the original wire you removed from the breaker.



**NOTE:** To find breakers on different phases, you can trace the phase visually. Typically, every other breaker is on a different phase. You can also use a dual pole breaker because they use both phases.

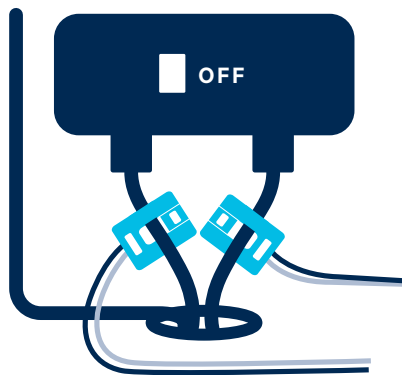
# Step 5



- 1) Remove the top bracket of the CT by inserting your finger through the loop and pulling towards you.

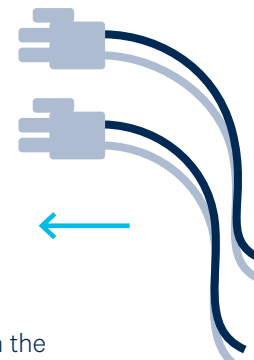


**CAUTION:** Be sure to take care to not touch the exposed main line connections to the main breaker.



- 2) Loop the CTs around each of the main power lines and attach the bracket to the CT again.

**NOTE:** Make sure the label on the CT is facing the utility (where the power comes from) and not the breaker panel.



- 3) Insert the connector from the CT that's on the same phase as the black Neurio voltage wire into port labeled (1). Then insert the connector from the second CT into the port labeled (2).

**NEED HELP?** Having troubles trying to figure out which phase a CT is on? Visit [support.neur.io](https://support.neur.io) for tips.



# Step 6



1) Attach the antenna cable to left side of the Neuroio Sensor.



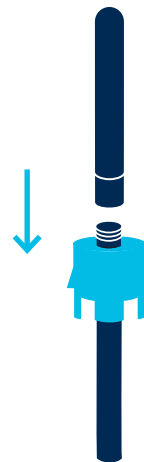
2) Locate a free  $\frac{1}{2}$ " or  $\frac{3}{4}$ " metal circular knockout in your panel and remove the metal tab to expose the hole.



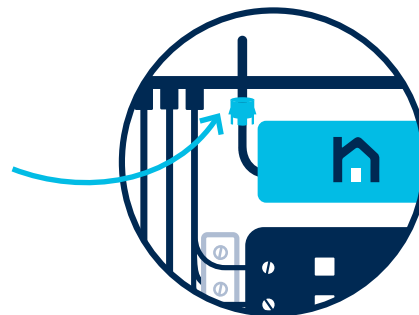
**NOTE:** If you are having troubles removing the knockout, use a hammer to gently tap the screwdriver to pry the knockout open.



3) Remove the nut at the end of the cable and insert the cable through either the  $\frac{1}{2}$ " or  $\frac{3}{4}$ " antenna mount, based on the size of knockout hole.



4) Replace the nut on the cable and attach the antenna to the end of the antenna cable.



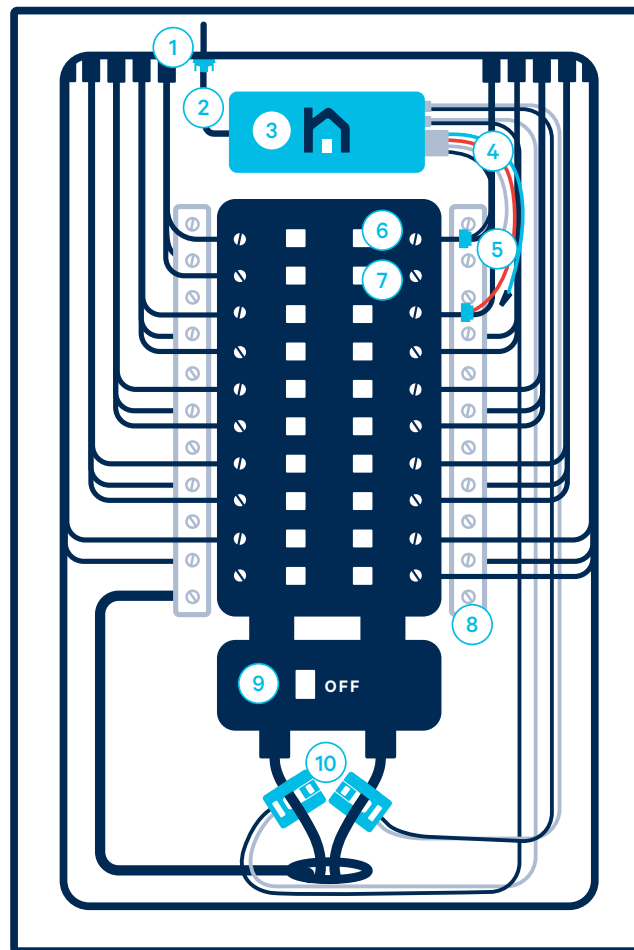
5) With the antenna inserted into the antenna mount, insert the antenna through the open knockout and click the antenna mount in place.

# Step 7

## CHECK YOUR WORK

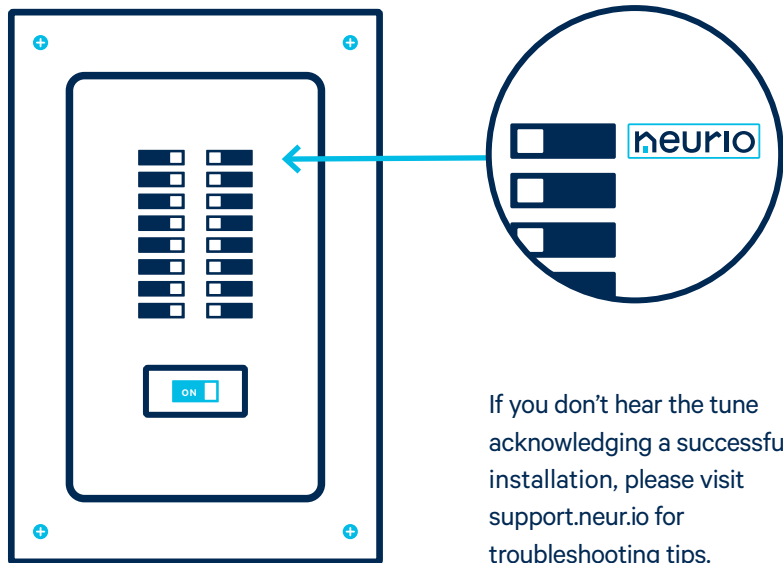
Now the panel should look something like this:

- 1) Antenna
- 2) Antenna cable
- 3) Neurio Sensor
- 4) Voltage cable — the voltage cable should be connected to 2 breakers and the neutral bus bar
- 5) 2 Wire taps (optional)
- 6) 15A or 20A single-pole breaker on phase A
- 7) 15A or 20A single-pole breaker on phase B
- 8) Neutral bus bar
- 9) Main breaker
- 10) Mains service wires and 2 CTs, connected to ports #1 and #2



# Step 8

You're almost done. Replace the covers on your panel. Make sure to place the supplied Neuroio breaker sticker next to the breaker that Neuroio's black wire is connected to. Then turn the main breaker back on.



If you don't hear the tune acknowledging a successful installation, please visit [support.neurio.io](https://support.neurio.io) for troubleshooting tips.

When powered on, Neuroio will play the following tones to indicate its status in sequential order:

TONE	INDICATION	DESCRIPTION
Short beep	Voltage check	One beep for each voltage wire that is connected. For a 2-phase installation there should be two beeps to indicate that the black and red wires are connected.
Falling tone	Voltage warning	Indicates that two wires are connected to the same phase. For a 2-phase installation, this warning should not be heard. If it is, try moving Neuroio's black or red wire to another breaker.
Falling tone	Neurio failed to join network	Neurio was unable to join the homeowner's WiFi network. Neuroio will now start hosting its own WiFi network again to allow the homeowner to re-connect to Neuroio and re-enter the WiFi credentials.
Short chime	Neurio's WiFi network started	Neurio has started hosting its own WiFi network. The homeowner can join this network to configure Neuroio and connect it to the homeowner's own WiFi network.
Long chime	Neurio's joined network successfully	Neurio's joined WiFi network successfully.

If Neuroio is connected to the WiFi network, you should also hear a long chime one minute after the short chime.

# Step 9

Now that the Neuroio Sensor has been installed, have the homeowner follow the instructions in the Welcome Guide to connect Neuroio to their WiFi network and to create an account.



## WARNING

Installing Neuroio requires working with voltages that are hazardous to human health, and thus must only be done by a qualified professional. Installations should be performed in accordance with the applicable electrical code for the region in which Neuroio is being installed. Whenever possible, power should be disconnected upstream from the installation location before attempting installation of Neuroio. If power cannot be disconnected, high voltages may still be present, and caution must be taken to avoid injury. If Neuroio is not used as instructed, its protection mechanisms may be impaired.

**Rules:** **1.** Installations must be performed by a qualified professional. **2.** Do not use Neuroio with voltages that exceed 240V. **3.** Only install Neuroio in approved breaker panels or enclosures. **4.** Neuroio must not be exposed to moisture, direct sunlight, extremely low or high temperatures, and conductive pollution. Consult the User Manual for Neuroio's acceptable operating environment. **5.** Neuroio must be installed in a location that limits access to only qualified personnel.

### WHAT DOES THIS WARRANTY COVER?

Neuroio Technology Inc., a corporation registered under the laws of British Columbia, ("we", "us", or "our") warrants this Energy Monitor hardware ("Neuroio") to be free from defects in materials and workmanship when used in accordance with our published guidelines (the "Warranty") for a period of ONE (1) YEAR from the date the Neuroio is delivered to you (the "Warranty Period").

### WARRANTY LIMITATIONS

THIS WARRANTY SHALL NOT EXTEND BEYOND THE WARRANTY PERIOD. TO THE EXTENT PERMITTED BY LAW, THIS WARRANTY AND THE REMEDIES SET FORTH HEREIN ARE EXCLUSIVE, AND ARE IN LIEU OF ALL OTHER WARRANTIES, REMEDIES AND CONDITIONS, WHETHER ORAL, WRITTEN, STATUTORY, EXPRESS OR IMPLIED. WE DISCLAIM ALL STATUTORY AND IMPLIED CONDITIONS, INCLUDING, WITHOUT LIMITATION, WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE, WARRANTIES ARISING BY CUSTOM, USAGE OR TRADE, AND WARRANTIES AGAINST HIDDEN OR LATENT DEFECTS, TO THE EXTENT PERMITTED BY LAW. IN SO FAR AS SUCH WARRANTIES CANNOT BE DISCLAIMED, WE LIMIT THE DURATION AND REMEDIES OF SUCH WARRANTIES TO THE WARRANTY PERIOD, AND, AT OUR OPTION, TO THE REPAIR OR REPLACEMENT SERVICES DESCRIBED BELOW.

### WHAT WE WILL DO IF THE WARRANTY IS BREACHED

If, during the Warranty Period, you submit a valid claim to us, we will, at our exclusive option and without charge, (i) repair the Neuroio using new or previously used parts that are equivalent to new in performance and reliability, and return the repaired Neuroio to you, or (ii) send you a replacement Neuroio. Any repairs or replacements are warranted for the remainder of the initial Warranty Period.

### HOW TO OBTAIN WARRANTY SERVICE

To obtain Warranty service within the Warranty Period, you must return the Neuroio, freight paid, with a copy of the sales receipt or other proof of purchase that shows the date of sale and/or delivery date, to:

Neuroio Technology Inc., 515-88 E Pender St, Vancouver, BC, Canada, V6A 3X3

In the event your Neuroio needs to be upgraded or repaired, you must contact us prior to shipping it to us, and we will assign you a Return Merchandise Authorization (RMA) number.

### WHAT THIS WARRANTY DOES NOT COVER

This Warranty does not apply:

1. To damages caused by operating the Neuroio outside of our published guidelines;

2. To damages caused by improper operation or storage, misuse, abuse, accident or neglect, contact with liquids, extreme humidity or heat, contact with sand, dirt, food or the like, fire, or other external cause, or any other acts that are outside the course of normal consumer usage;

3. To damages caused by modification or repair to the Neuroio by anyone other than one of our authorized representatives, including software/firmware modifications;

4. When serial numbers or product labels have been removed, altered or obliterated, seals have been broken, or there is any other evidence of tampering with the Neuroio;

5. Where you are unable to present proof of purchase when requesting Warranty service;

6. To defects caused by normal wear and tear or otherwise due to the normal aging of the Neuroio;

7. To damage caused during shipment (such claims should be presented directly to the freight forwarder or shipping company);

8. To any used Neuroio purchased from a third party; or

9. Where the damage is purely cosmetic damage, including but not limited to scratches, dents or deterioration to the surface finish.

### DESIGN CHANGES

We reserve the right to change or improve the design of the Neuroio without prior notification to you. Design changes will not be implemented retroactively, and any design changes to future products does not imply the availability of an upgrade to existing units.

### LIMITATION OF LIABILITY

EXCEPT AS PROVIDED IN THIS WARRANTY AND TO THE MAXIMUM EXTENT PERMITTED BY LAW, WE ARE NOT RESPONSIBLE FOR ANY SPECIAL, DIRECT, INDIRECT, CONSEQUENTIAL OR INCIDENTAL DAMAGES, INCLUDING ANY DAMAGES FOR LOST DATA OR LOST PROFITS, OR FOR ANY INJURY, LOSS OR DAMAGE SUSTAINED BY ANY PERSON OR PROPERTY, THAT MAY RESULT FROM THE NEUROIO FAILING TO OPERATE CORRECTLY AT ANY TIME, INCLUDING WITHOUT LIMITATION, DAMAGES RESULTING FROM THE USE, INABILITY TO USE, OR INACCURACY OF THE NEUROIO. REPAIR OR REPLACEMENT AS PROVIDED UNDER THIS WARRANTY IS YOUR EXCLUSIVE REMEDY UNDER THIS WARRANTY.

### OUTSIDE THE UNITED STATES AND CANADA

In countries other than the United States and Canada, the terms and conditions of this Warranty may be different. Unless a specific Neuroio warranty is communicated to you in writing by us, no warranty or liability exists beyond any minimum requirements imposed by law, even though defect, damage, or loss may be by negligence or other act.

