

Neutrino Black Box installation guide

Version 1.09

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Congratulations on your new Neutrino power distribution and control system. This guide is intended to quickly guide you through the steps required to install your new Neutrino module.

Step 1. Find a suitable location to mount the module. Since the module is waterproof you are free to locate it just about anywhere you like, but it can't be more than 2 feet from the battery.

Please note that if you decide to install the module where it is exposed to water, cover the terminals with dielectric silicone grease or silicon putty. (Macks earplugs) We also recommend that in high water environments that the module be mounted with the terminal strip facing down so that water has a tendency to fall away rather than pool.

If you need to locate the distribution module more than 2 feet from the battery it's ok to splice in additional 8 AWG wire. Arboreal Systems offers a three foot 8 AWG extension kit if required.

Step 2. Connect up the 10 AWG leads to the battery. Black to negative and red to positive. Make sure you don't reverse polarity as this may cause irreparable damage to the module.

Step 3. Run the ambient temperature probe out to a location that is both shielded from direct sunlight and away from sources of vehicle heat.

Step 4. Connect the yellow power sense wire to a convenient circuit that is energized when the vehicle ignition is switched on. Typically this will be a tail light wire. Please use the included Scotchlok connector or similar for this purpose.

Step 5. Connect a battery charger (if desired) to the fused red lead coming from the main wiring bundle. Note, the NBB is shipped without a fuse. If you use this input/output, please install a 5mm x 20mm glass fuse of at least 5 amps in the fuse holder.

IMPORTANT: Please discharge any static electricity before sliding a device wire into the terminal block by touching both your finger and the wire being connected to a metal part on the bike. This is very important as ESD can damage your Neutrino.

Step 6. Connect up the various devices and battery charger connections to the 10 position terminal block. The terminals are clearly labeled on the top of the module. Please note that if you use the direct battery charger connection it's essential that you install a <5 amp fuse on the positive leg.

In order to minimize loads on the host vehicle, the system starts up circuits sequentially with a delay between each. We recommend that you connect devices that will be on immediately after startup to the higher numbered circuits to ensure that the starter gets full power.

IMPORTANT: we strongly recommend that one of the 10 AWG cables powering the Neutrino module be disconnected before adding or removing accessory devices in order to lessen the chance of short circuits. This is especially important for circuits 1 and 6, which are adjacent to ground terminals.

Here's a breakdown of what each terminal does, starting from left to right:

NOTE: It's really important to ensure correct polarity when hooking up devices. It is entirely possible to damage a 3rd party electrical accessory if polarity is reversed. Make sure to connect the -/ground wire to either the chassis or one of the 3 ground terminals on the module. Make sure to connect the +/positive wire to one of the 6 positive terminals on the module.

- a. Ground. One of three terminals that may be used to obtain the ground side of the circuit from the module rather than from the vehicle. This is really handy for simplifying installation and is almost essential when connecting audio devices in order to avoid "ground loop" noise. You can also use this ground or any of the others to connect up the ground leg of your battery charger.
- b. Relay. This is a special input for the new relay circuit function. If you want to use an existing switch on your vehicle to trigger one or more circuits on the NBB, connect up the sense line from that switch here. Please see the owner's manual for more information on how to use this function.
- c. Ground. See item a.
- d. Circuit 6. This is one of the six circuits you can control, and can handle a maximum sustained load of 15 amps.

- e. Circuit 5. This is one of the six circuits you can control, and can handle a maximum sustained load of 12 amps.
- f. Circuit 4. This is one of the six circuits you can control, and can handle a maximum sustained load of 15 amps.
- g. Circuit 3. This is one of the six circuits you can control, and can handle a maximum sustained load of 15 amps.
- h. Circuit 2. This is one of the six circuits you can control, and can handle a maximum sustained load of 20 amps. This is the circuit to use for devices that require extreme amounts of power. At the 20 amps setting a delayed start feature is automatically activated. (1.72+ firmware)
- i. Circuit 1. This is one of the six circuits you can control, and can handle a maximum sustained load of 12 amps.
- j. Ground. See item a.

Step 6. Secure the module via double stick tape, a tie wrap, a metal band, or any other way that works for you.

Step 7. Download the appropriate smart phone application from the iTunes store or the Android Marketplace.

iOS>>>> <https://itunes.apple.com/us/artist/arboreal-systems/id889657381>

Android>>>> https://play.google.com/store/apps/details?id=arborealsystems.com.neutrino_cockpit

Step 8. Connect your phone to the module via a Bluetooth wireless connection.

To connect via Bluetooth, make sure Bluetooth is enabled on your phone and launch the Neutrino Controller application. Unlike traditional Bluetooth, Bluetooth 4 LE does not require pairing, and will automatically connect. It takes a few seconds, but once it's connected you will have full access to all Neutrino functionality. (note: there is no problem in using the Neutrino module to power a small USB power converter to power your phone)

Note: on iOS devices it's essential to enable Location Services in order to use heading and altitude functions. This feature needs to be enabled for the Neutrino app in the Privacy settings

Note: Remember that in order to save programming information to the Neutrino module your phone must be connected to the module via Bluetooth. If changes are made when the phone isn't connected, they won't be saved

Step 9. go to www.arborealsystems.com/support and read/download the Neutrino owner's manual, where complete system operation is explained in detail.

On relays: as the switching transistors in the NBB are capable of switching large loads there is no need to use relays to switch circuits. If a relay is used it is essential that a diode be installed between the NBB and the relay. Vishay BYV27-200-TR or equivalent is recommended.

Congratulations. You are now ready to begin using the Neutrino Black Box and Cockpit Controller application.

Warranty: 1 year against defects in material or workmanship