

# TED Pro Series Troubleshooting Communication Issues

TED communicates over the existing power lines in your home using technology known as Power Line Carrier (PLC) communication. So we will need to check the hardware and software to narrow down the issue. We will start with verifying the hardware to build a solid foundation and work up from there into verifying software settings.

## HARDWARE

**1<sup>st</sup>:** You will need to remove the breaker panel cover to see the wiring connections of the MTU.

**2<sup>nd</sup>:** Write down the MTU serial number (located on the top of the MTU below the TED logo). We will check this in software settings later.

**3<sup>rd</sup>:** Make sure the black wire from the MTU power cable is connected to a single pole 15A, 20A, or 30A breaker. Make sure it's a standard breaker and NOT a GFCI/Arc fault breaker. Next, confirm that the white wire from the MTU power cable is connected to the neutral bus bar.

**4<sup>th</sup>:** For troubleshooting purposes, we will want to make sure the MTU is being powered by the same breaker that is powering the outlet that your ECC is plugged into. The quickest way to verify this is by turning off the breaker that is powering the MTU and checking the ECC to make sure it is now powered off. If it is, turn the breaker back on and let's move on to software. If the MTU and ECC are not on the same circuit, please rewire so that they are.

## SOFTWARE:

Go to your Footprints Dashboard > Settings > System Settings > Product Identification > MTU Product ID's and make sure the MTU serial number(s) match the MTU serial number(s) you wrote down in step 2 above.

If you needed to modify anything, skip to the last tab at the top "Write to ECC" and click 'Update' to save the settings. If you did not modify anything, click 'Cancel' at the bottom to close the window.

On the Footprints Dashboard page click Help > TED Pro Statistics Page and check to see if you have a reading next to Voltage and Active Power. If you have readings next to those then you have communication with your MTU(s) and should be getting energy readings on the Live Dashboard of Footprints. This can sometimes take up to 10 minutes, so give it a little time.

At this point the installation and settings are correct, so if there's still no communication then it leaves us with PLC interference - so we can move on to that below.

## PLC COMMUNICATION TROUBLESHOOTING

Video Link: [PLC Troubleshooting](#)

If the Footprints Dashboard still shows 0's for the readings then it's time to look at what else is on the circuit that could be causing PLC interference. Ideally, this circuit should have no noise-producing electronic devices on it, such as transformers, UPS backups, microwaves, treadmills (really anything that has a switching power supply (converts AC-DC) - even something as simple as a phone charging cable can cause just enough interference to put it over the acceptable interference level blocking all communication) so it's best to unplug everything that's on that circuit and see if we get any communication on the Stats page.

A few suggestions:

DO NOT plug the ECC into a power strip. The ECC should be plugged directly into a wall outlet, preferably isolated from any other electronic devices in the room. If you have equipment in the room on a UPS backup power supply,

temporarily remove the UPS. Plug the ECC in. If your TED system begins to function correctly, read further on using Plug-in Filters. The blinking LED on the MTU (component in the panel), indicates a signal is being transmitted.

There are several things that can cause communication problems:

- a) Noise on the power line. Today's homes usually contain numerous devices capable of producing noise on a power line. These might include fluorescent lights and ballasts, halogen lights, UPS backup power supplies, unfiltered dimmer switches, and fan-speed controls and A/C-D/C power supplies for fax machines, computers, televisions, printers, Wi-Fi devices, and numerous other electronic products.
- b) Faulty wiring can cause large resistance in the power lines between the ECC and MTU. This problem is frequent in older homes, homes with aluminum wiring, and homes where the wiring path from the MTU to the ECC is long.
- c) Devices on the power line that absorb communication signals. These include surge-protecting plug strips, TVSS devices, power factor correction capacitors, and power supplies containing large capacitors.

Another diagnostic tool you can use to check the PLC health of your system is the Statistics Page. You can access this 'background' page either by typing in the address of your ECC followed by `"/stats.htm"` or by opening the TED Dashboard and going to HELP, then clicking "TED Pro Statistics Page." On this page you will see a grid of information. Look for "MTU REC" and "MTU SKP" on the left-hand column. MTU REC indicates the number of data-packets received by your ECC. MTU SKP is the number of data-packets that have been skipped or lost. These two numbers indicate how well the PLC is operating. As long as the REC is greater than 75% of the total REC-to-SKP ratio, your TED system will present accurate data. Obviously, the higher the REC ratio the better. A low REC-to-SKP ratio will indicate line noise and/or interference on the PLC line between your MTU and ECC so you may want to continue to try and track down what else is plugged into that circuit to isolate the interference.

#### Plug-In Filters:

Once you've found the noisy devices that are causing interference there are plug-in filters that can be used if you need that device plugged in where it is instead of moving it to another circuit. The plug-in filters are easy to use IF you have located a specific device that is causing the line noise problems; you simply plug the filter into the wall-outlet and plug the offending device into the filter. The filter will take care of any noise being emitted by that device. You may find filters locally at a Walmart, RadioShack, or other electronic and home improvement retailers. Or you may order them online from [smarthome.com](http://smarthome.com) or a similar retailer.

If you have any questions or need further assistance, please [click this link to submit a Support Ticket](#). We have found this to be the most expedient way to provide assistance.