

Troubleshooting UPSPro™ and RemotePro™ Systems

*The minimum amount of equipment needed is a good digital voltmeter which will display DC Volts

Battery Voltage

Measure battery voltage at the charger/controller

12V Systems

1. Battery voltage should be around 13.5VDC to 14.5VDC when charging
2. When not charging, Battery voltage should be between 11VDC to 13VDC

24V Systems

1. Battery voltage should be around 27VDC to 29VDC when charging
2. When not charging, Battery voltage should be between 22VDC to 26VDC

48V Systems

1. Battery voltage should be around 54VDC to 58VDC when charging
2. When not charging, Battery voltage should be between 44VDC to 52VDC

Solar Panel Voltage

With the solar panel disconnected and sun on the panel, a 12V panel will show around 18-22VDC, a 24V Panel will show around 32-38VDC, a 48V panel configuration will show 64-76VDC.

FUSE – The battery cables have a protection fuse. If no power, check the fuse to see if it is blown. Replace with Type 3AG 20A 250V Glass Cartridge (Shurter 0001.1037 or similar). Available at Digikey and Mouser.

Charger LEDs

TP-SCPOE Charge Controller

LOA – LOA Light will be on and the load outputs (Green connector and RJ45 POE Out) should have voltage when the battery is within the useable range. When the battery drops to below 11.2V the LOA will turn off. It won't turn back on until the battery reaches 12V. On 24V systems LOA turns off at 20V and back on at 24V.

POE – The POE LED will only show when the controller has a POE input in the bottom connector

CHA – will be steady state when charging and it will be flashing when the controller is float charging the batteries.

SOL – The SOL LED will be on whenever there is voltage on the solar input.

FUSE – There is a battery fuse in the front of the controller. Fuse type is 5mm x 20mm 10A 125V (Littlefuse 0233010.MXP or similar)

TP-BCxx-300 High Capacity UPS Charge Controller

- Make sure the back voltage switch is set for your AC voltage (115VAC or 220VAC).
- Make sure battery type is set to GEL (for GEL or AGM) or WET for automobile type batteries.
- Make sure the Battery Switch on the front is switched to ON. This can be switched to OFF to disconnect the battery from the charger.

LOAD – Load power is on. Load will turn off when battery voltage is too low and will turn back on when battery voltage reaches a stable voltage.

12V Systems = <10.7V OFF / >12.6V ON

24V Systems = <21.5V OFF / >25.2V ON

48V Systems = <40V OFF / >51V ON

PWR – AC Power is ON

BATT – Battery is connected

CHD – Battery is fully charged and is float charging.

CHG – Battery is charging

TP-SC24-20 Solar Charge Controller

RED LED - steady state when charging and flashes when batteries are charged and in float charge.

Battery Status LED – Green 100%, Yellow 70%, Red 30%. Flashes when battery is very low.

Green LED – Load output is on. If light is flashing then the load was drawing too much current (>20A)

The load output will turn off automatically when the battery voltage is too low and turn back on automatically when the battery voltage is stable.

12V Systems = <10.7V OFF / >12.6V ON

24V Systems = <21.4 OFF / >25.2 ON

- Use the ON/OFF button to manually turn off power to the load.

Batteries

When testing batteries that are wired in parallel, you must disconnect the battery so it is isolated from other batteries. When batteries are wired in series you can test each battery without disconnecting them.

A fully charged 12V battery will have a battery voltage greater than 12.5VDC without a load.

To see if you have a bad cell, disconnect any load and fully charge the battery, wait a few minutes, measure and record the battery voltage, wait at least 15-30minutes and measure the battery voltage again. The voltages should be within about 0.5V of each other. If the 30minute measurement is too low then the battery is not good and should be replaced.

Tycon Batteries are designed to be charged with Tycon Chargers that are designed for AGM or GEL batteries. Using automobile chargers can be used in an emergency but they shouldn't be left connected to the battery for a long time or the battery will be damaged. We recommend not to exceed 4hrs if connected to an automobile battery charger. And only use for emergencies, not for regular charging.

Tycon Batteries should never be left in a discharged state, especially in cold weather. If your UPSPro™ or RemotePro™ system is having charging issues, be sure to make sure that you disconnect the load and leave the batteries in a charged state while troubleshooting. Leaving the batteries in a discharged state for a few days or a week can kill the battery, permanently.