



## Model 34520 30A Hardwire Surge Guard® with Optional Remote LCD Display Troubleshooting Guide

Surge Guard protects your RV from low quality or incorrect shore power.

Normally shore power should be around 115 –120 Volts AC. When power falls too far outside this range it represents a poor or hazardous condition to your RV's electrical system. Surge Guard provides protection to your RV by turning off power when the line voltage falls below 102 Volts AC or goes above 132 Volts AC.

Surge Guard also protects your electrical system from a Reverse Polarity condition which indicates that the Hot and Neutral lines of shore power are swapped or reversed. It can also indicate that you have an open conductor. For instance it could mean that your Neutral or Ground connection is open. This can be hazardous to equipment and safety. Surge Guard will not connect power to your RV until the Reverse Polarity fault is corrected.

In the event your Surge Guard is not functioning as expected, perform the following troubleshooting steps in order to determine and correct any malfunctions. Note: Testing should be performed with AC units and electrical appliances turned off, then verified with appliances turned on.

Connect the shore power cord to a 120V, 30A power source. The Caution When Flashing Light will blink on and off for 128 seconds before power is connected to the RV. This allows the Surge Guard to correctly determine the Line Voltage before applying it to the RV. If you also have the Optional Remote LCD Display, the screen will display "DELAY" plus the delay time for 128 seconds while the Surge Guard is monitoring the incoming power and the caution light is flashing.

### Troubleshooting Steps

Problem	Troubleshooting Steps
<ul style="list-style-type: none"> <li>Coach powers up after 128 seconds but then turns off after another 8-10 seconds.</li> </ul>	<ul style="list-style-type: none"> <li>The Surge Guard may be operating properly, and you may have a low voltage condition. In this case, turn off as many loads as possible. It is not safe to operate some equipment with low voltage. Verify that the input voltage is greater than 102VAC with loads turned on and off.</li> </ul>
<ul style="list-style-type: none"> <li>Coach does not power up after 128 seconds after connecting to shore power.</li> </ul>	<ul style="list-style-type: none"> <li>Check the Caution When Flashing light (Red LED). If this light is blinking on and off, you could have a fault condition on your AC shore power which means Line 1 voltage is either too low (under 102V), too high (over 132V), or that you have a Reverse Polarity condition (ground and hot lines coming into the RV are reversed, or an open conductor). Also, you could have a Faulty Ground or Elevated Ground Condition. If you are using the Optional Remote Display, you can also view these faults on the LCD screen of the Optional Remote Display.</li> </ul>
<ul style="list-style-type: none"> <li>Caution When Flashing light is red and blinking.</li> </ul>	<ul style="list-style-type: none"> <li>This is normal when you first connect the Surge Guard to shore power. It will flash on and off for 128 seconds when you first power it up. Then, if shore power is good, it will stop flashing and connect power to your RV. If the Surge Guard has been in use for a while and it starts blinking after power has been good, then a fault has occurred with your shore power. This indicates that you have an Under Voltage, an Over Voltage, a Reverse Polarity fault or a Faulty Ground. In this case please notify your park of the condition in order to correct the fault.</li> </ul>
<ul style="list-style-type: none"> <li>Line 1 light turns Red.</li> </ul>	<ul style="list-style-type: none"> <li>You have an Under or Over Voltage condition on Line 1 coming into the RV. If these lights are green, yet you do not have power after 128 seconds and the Caution light remains blinking, then you must inspect your shore power for a Reverse Polarity or Open conductor fault. These faults will also be visible on the Optional Remote Display if used.</li> </ul>

## Troubleshooting Steps (continued)

Problem	Troubleshooting Steps
<ul style="list-style-type: none"> <li>A fault occurs such as a low or a high voltage during normal operation.</li> </ul>	<ul style="list-style-type: none"> <li>Surge Guard will turn off power to the RV, and the Caution When Flashing light will start blinking. Also the Line 1 light will turn red if you have an Under Voltage or Over Voltage fault. These faults will also be visible on the Optional Remote Display if used. If the power returns to normal, the Remote Display will show "DELAY" on the LCD screen. The Surge Guard will wait 128 seconds before turning power to the RV back on.</li> </ul>
<ul style="list-style-type: none"> <li>Optional Remote Display shows a fault (such as L1 Low or L1 High) and the Caution When Flashing light is blinking.</li> </ul>	<ul style="list-style-type: none"> <li>Any faults detected by the Surge Guard are reflected in the Optional Remote Display. This allows you to view the status or condition of your electrical power from a remote or convenient location. If the Optional Remote Display shows a fault, as above, check the input connections, shore power cord, and adapter (if applicable), and notify your park of the condition in order to correct the fault.</li> </ul>
<ul style="list-style-type: none"> <li>Optional Remote Display shows "REVERSE POLARITY" and the Caution When Flashing light is blinking</li> </ul>	<ul style="list-style-type: none"> <li>In this case you have an unsafe condition such as: Shore power connections are reversed, there is an open conductor or Faulty Ground. In this case please notify your park of the condition in order to correct the fault.</li> </ul>
<ul style="list-style-type: none"> <li>L1 is within range (102 – 132VAC) and there is no power.</li> </ul>	<ul style="list-style-type: none"> <li>Please call TRC Technical Support at 1-800-780-4324.</li> </ul>

### Notes:

- Low Voltage** – If the input voltage drops below 102VAC for more than 8 seconds, the power will be removed protecting your electronics. This condition may be caused by overloading the park's power grid. Try reducing your loads. Otherwise, do not operate until power is restored to safe levels.
- High Voltage** – If the input voltage increases above 132VAC for more than 8 seconds, power will be removed. In Generator mode, check for load balance. Check the generator's voltage regulator and adjust to safe operating levels.
- Reverse Polarity** – The Caution When Flashing light will be flashing. This indicates that shore power's hot line and ground are reversed. It can also mean you have an open conductor on any of the shore power lines. For instance you could have Line 1, Line 2, or Neutral open. Check all input wiring to the Surge Guard. Check the shore power cord and wiring from the generator if applicable. Check/replace adapter if reducing down to 120V, 20A service. Notify park for shore power problems if applicable. Also, this can mean a faulty ground condition.
- Caution When Flashing Light** – Anytime the caution light is flashing, there is some kind of fault present: Reverse Polarity, high voltage on the ground or neutral wires, or L1 voltage is outside its operating ranges. It is not uncommon for 2 to 3 volts to be on the neutral wire with respect to ground. Anything higher than this will make this light flash.