

INSTALLATION & OPERATING INSTRUCTIONS

SURGE GUARD®
RV Power Protection
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MODEL 40299

Optional Remote Power Control Monitor LCD Display w/ Navigation

Please read these instructions carefully.

In the event you have any questions concerning use or care of this product, please contact TRC at 1-800-780-4324.

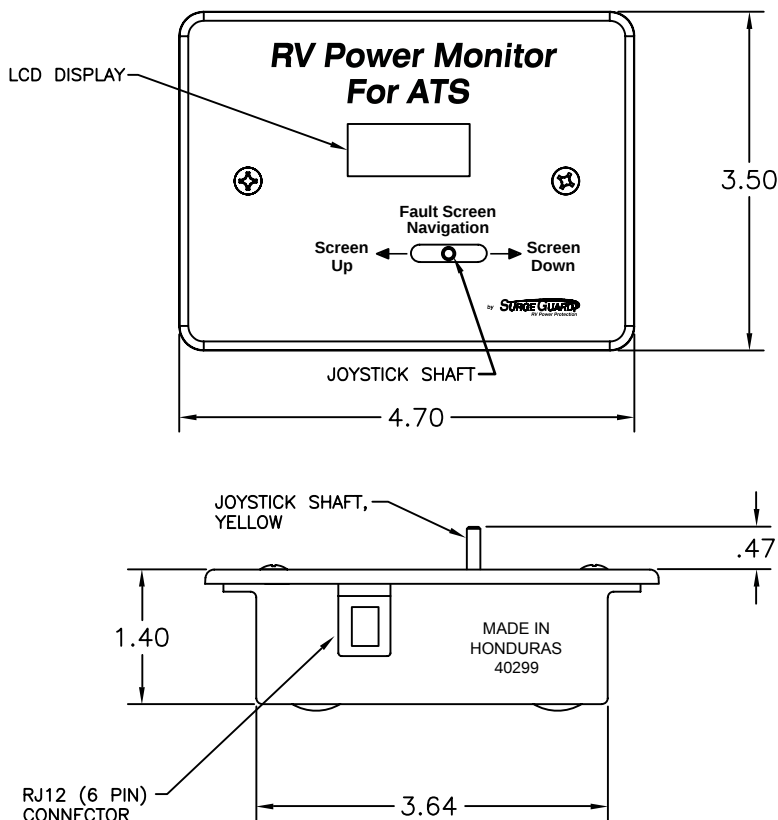
For use with Automatic Transfer Switch (ATS) unit **40350-RVC** or **41390-RVC**, the optional Remote LCD Display is connected via an RJ12 (6 pin) connector cable to conveniently monitor your electrical power anywhere inside your RV remotely from the location of the ATS.

The Remote Power Control allows you to see detailed information such as voltages for Line 1 and Line 2, (typically 110-120VAC), current draws (0 to 50Amps), and status and conditions of the ATS, including time and date. Electrical faults such as Low Voltage or an Open Ground connection that cause the ATS to shut off power are shown on the Remote Display, allowing you to retrieve via the joystick a log of fault conditions kept by the ATS of electrical power at your location.

This is a helpful diagnostic tool that allows you to comprehend and correct problems with your RV's power. The display also features a right/left navigation lever allowing navigation through the various screens.

Complete set of features and information displayed includes the following:

- **Main Screen:** Display of normal operating voltages and currents, for example 120V 25Amps for each Line (240V system). Shore Power or Generator Power.
- **Main Screen:** Display of faulty power conditions responded to by ATS such as low voltages, high voltages, open ground, open neutral, reverse polarity, high frequency, etc.
- **Main Screen:** Display of delay condition when recovering from faulty conditions.
- **L1/L2 Volt and Current Screens:** Displays Line 1/2 Voltage or Current. This is handy as it allows you to view the voltage or current when there is a fault condition being displayed on the Main Screen.
- **Faults Screen:** Allows you to view a history of up to 50 faults which have been logged by the ATS. Each fault that has been logged contains the fault, the voltages and currents at the time of the fault, and the time and date when it occurred.
- **Time/Date Screen:** Displays the current time and date and allows you to set the current time and date on the ATS unit.
- **Joystick Lever:** to navigate through screens and set the time and date.



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FOR YOUR RECORDS

MODEL NO: _____

DATE PURCHASED: _____

WHERE PURCHASED: _____

INSTALLATION INSTRUCTIONS

1. Determine desired location where the remote display can be viewed. The display provides continuous visual indication of source voltages, load currents, and fault diagnostics. The RJ12 (6 pin) connector cable allows for installation virtually anywhere inside the RV, or may be installed in the same location as the ATS. Mounting is not necessary. Leave enough cable length for accessibility. Balance of cable can be bundled with a plastic tie wrap. Should a remote location be desired, route cable through the coach as needed. (Cable ends and remote display must be located in a dry interior location away from inclement weather and moisture.)
2. Remove cover plate. (Do not allow foreign matter to fall into open box).
3. Using the open box as a template, mark outline on mounting surface.
4. Allow room for connector cable.
5. Position box, with cable installed and secure with mounting screws (not supplied)
6. Attach cover plate.
7. Connect Remote Display to ATS using RJ12 (6 pin) connector cable. The Remote Display can be connected to the ATS before or after the ATS has been powered up.

OPERATING INSTRUCTIONS

Screen Navigation Using the Button/Lever

There are several information screens associated with the Remote Display which can be selected via the lever on the front of the unit. Pushing the lever to the RIGHT repeatedly will access the screens in the following order. Pushing the lever to the LEFT accesses the screens in the reverse order.

When the VIEW FAULTS screen is displayed, momentarily pushing the lever in accesses a log of faults which have been stored by the ATS unit. Viewing the Fault Log data will be explained in more detail below.

Display for Normal Operation

During normal operation, the Remote Display screen reads the status of the RV electrical power, showing continuous voltages and currents for power Lines 1 and 2 coming into the RV on the main screen. A secondary screen showing SHORE or GEN will momentarily display approximately every 8 seconds, indicating whether your RV is running on power for your shore connection or whether the ATS has transferred you over to generator power.

Display During Fault Conditions

If there are any faults or problems with your electrical power, the Remote Display will show the particular faults on the LCD screen with a 3 second interval between each item. The faults displayed can be any combination of the ATS Fault codes, SEE FAULT CODE INDICATION.

Display During Delay State

When the ATS is powered up, the Remote Display will display "Delay" and the elapsed time in seconds until it reaches 128 seconds. After the delay is completed, if shore power is good the ATS will connect power to the RV, and the unit will go to the Normal Operating screen showing voltages and currents as described above.

L1 VOLT | L2 VOLT Screens

These screens are useful for viewing the line voltages when the Main Screen is in Delay or when L1 or L2 have a fault (line voltage that is too low or too high). The Main Screen will display line voltage between 102 and 132 volts; otherwise it will show that the line has a fault. The L1 VOLT and L2 VOLT screens however display a greater range, from 90 to 140volts. The L2 VOLT screen is only shown when using a 50Amp ATS.

L1 CURR | L2 CURR

These screens are useful for viewing the line currents in amps when the Main Screen is in Delay or when it shows that L1 or L2 have a fault. The L2 CURR screen is only shown when using a 50Amp ATS.

VIEW FAULTS Screen

This allows you to view the Faults recorded whenever the ATS detected a fault with electrical power. To view, momentarily push the front lever DOWN or In. The screen will display Fault 1, which is the most recent fault that occurred and was detected by the ATS. The screen will scroll through the following items for Fault 1 every 3 seconds:

- | | |
|--|---|
| 1. MODE- State of ATS when fault occurred. (MODE SHORE = shore power; MODEGEN = transferring to Gen power, etc.) | 3. L1/L2 Volts and Currents at the time of the fault. |
| 2. FAULT CODE. (L1 LO, L2 LO, etc. See below chart) | 4. Frequency of Line 2 |
| | 5. Time of Fault |
| | 6. Date of Fault |

To see the next fault, push lever right, showing Fault 2. Keep pushing the lever right to see up to 50 faults. Pushing the lever left goes backwards through the faults.

If no faults have occurred, you will still see fault number headings, but the information will be zeroed out. Voltages/currents will be zero, time will be 00:00:00 and date will be 00-00-00; or you may have only 5 faults and the other 45 fault numbers will be zeroed out as described, etc.

To exit the fault screens, push the lever DOWN/IN momentarily, returning to VIEW FAULTS screen from which you can navigate as previously described.

TIME/DATE Screen

View and/or set the current time and date on the ATS. To get to the TIME/DATE screen from the Main Screen, push the front lever right or left repeatedly until you see the time and date. To set, press the lever IN once quickly. You will see a blinking cursor. Push the lever left until the cursor is over the minutes digit. (Do not try to set the seconds - they reset to zero.) Once you have the correct setting for the minutes, continue on with setting the hour, date, month, year and so on by pushing the lever to the left.

Once you have entered the correct time and date, press and HOLD the lever IN for 3 seconds. You will see "TIME IS SET" once complete. You can now release the lever.

When you are on the TIME DATE screen and the cursor is not blinking, you can navigate to the other top level screens such as the Main Screen, or the L1 Volts screen, etc.

FAULT CODE INDICATORS

L1 LO	Line 1 voltage is low (below 102 VAC)
L1 HI	Line 1 voltage is high (above 132 VAC)
L2 LO	Line 2 voltage is low (below 102 VAC)
L2 HI	Line 2 voltage is high (above 132 VAC)
REV POL	Reverse polarity condition (hot wire and neutral are swapped)
OPEN NEUTRAL	Neutral wire connection is missing or mis-wired
L1 OPEN	Line 1 connection missing or mis-wired
L2 OPEN	Line 2 connection missing or mis-wired
SHORE	RV connected to Shore Power
GEN	RV connected to Generator Power
DELAY	Delay mode waiting for power to come back on
SINGLPHA	Connection at 110V instead of 220V
POWER REM	Power has been removed due to fault
OPEN GND	Open ground fault condition (ground wire missing or mis-wired)
HI FREQ	AC line frequency high (more than 60Hz)
LO FREQ	AC line frequency low (less than 60Hz)

