Surge Guard Training Manual

Beware of the Pedestal

Your RV Is At The Mercy Of The Power Pedestal

Available In Hardwires, Portables And Automatic Transfer Switch Models

SURGE GUARD™
RV Power Protection

Don’t Plug-In Without It!
This Surge Guard® Training Manual will show you how to help prevent this from happening…

Consequences of an Electrical Fire in an RV:

1. Costly Damage and/or Loss of the RV
2. Insurance Deductibles/Claims
3. Annoying Downtime
What does Surge Guard do?

Why is Surge Guard needed?

RVs hook up to power pedestals for shore power at campgrounds, parks and other locations. RVs today have highly sophisticated electronic circuitry with an array of expensive appliances ranging from air conditioners and microwaves to plasma TVs. The single largest threat to a RV’s electrical system and appliances is the “power pedestal”, either miswired or faulty electrical power. Faulty power can result in significant damage to these appliances. TRC manufactures a complete line of Surge Guard products that offer bumper-to-bumper electrical system protection for all RVs.

Due to the enormous damage and repair expense caused by miswired pedestals and faulty power, many of the RV manufacturers have begun installing Surge Guard hardwire models in their RVs. As RVs continue to increase in cost, so does the need to protect the investment. Surge Guards are one of the best insurance policies that an RV owner can purchase.
What is Surge Protection?

Surge protection is protection against voltage spikes on power lines. These voltage spikes can cause severe damage to electronic/electrical equipment, even if not in close proximity. Although several factors determine the effectiveness of surge protection, a loose guide is the number of joules rated for the device. This should not be confused with over/under voltage protection, which is effective for a gradual increase or decrease in voltage, exceeding the maximum or minimum voltage for which appliances are rated.

**NOTE:** Direct lightning strikes can be catastrophic. Although effectiveness varies, obviously no device can effectively protect against a close or direct lightning strike.

**Model AECM10086**

120V, 30Amp Portable Circuit Analyzer

Identifies faulty park power plus offers surge protection. Plug into power pedestal to test for and indicate **Open Ground**, **Open Neutral** or **Correct Polarity**.

Pedestal is OK if the two (2) “Green” lights come on.

Provides **1,020 Joules of Surge Suppression**

This item is priced for the RVer who wants the **wiring diagnostics** not available with Model 44740, but also wants **Surge Protection**. It does not provide low-high voltage protection.
Model 44740
120V, 30Amp Portable with Ground Fault Protection

This product is the most economical and offers two types of electrical protection, surge suppression and ground fault protection. It does not protect against miswired pedestals, low-high voltage or open neutral conditions.

RV owners buy this product primarily to protect their RV’s electronics from power surges. Rather than purchasing individual surge strips for individual circuits and appliances, this model protects the entire RV and its contents. It is perfect for Towables, 5th Wheels and Class C Motorhomes.

When a power surge or voltage spike occurs, the Surge Guard instantaneously shuts off the power to the RV and automatically resets when the power is restored.

When a ground fault condition occurs, the power is disconnected in 25/1000ths of a second to protect the RV’s wiring, appliances and to prevent fire hazards. Once the ground fault is corrected the reset button must be activated to continue power.

A commonly asked question –

*Is this unit self-sacrificing?*

The answer is yes, it can be in extreme conditions, lightning strikes, etc. In such conditions the RV owner may need to purchase a replacement. The $100 Surge Guard protected the RV and in all probability thousands of dollars of electrical wiring and appliances…It did its job!

Provides **510 Joules of Surge Suppression**
NEW …Now with LCD Display & Higher Joules!

Model 34730  120V,30Amp Portable
Model 34750  120/240V,50Amp Portable

The new portables with LCD display offer higher joules of power surge protection than the previous models. The 30 Amp model now has **2450** Joules. The 50Amp model now has **3850** Joules.

These portable models protect your RV from faulty park power by automatically shutting off power when an open neutral (which can cause severe electrical damage) or low (<102V) and high (>132V) voltage is present. The 50Amp model also shuts off if a reverse polarity is present.

Both units continuously monitor for voltage and amp draw (RMS) and reverse polarity (miswired pedestal, elevated ground voltage). When the Surge Guard shuts off the power for this or any other cause, it will automatically reset once the power problem has been corrected. However, there is a 128 second delay built in to allow the head pressure to bleed off on the RV’s air conditioner prior to reconnecting the power.

Designed for all travel trailers, 5th wheels and motorhomes with 30 and 50Amp service.

30Amp model provides **2,450 Joules of Power Surge Protection**.
50Amp model provides **3,850 Joules of Power Surge Protection**.
Can RVers use a 50Amp/30Amp adapter plug with their 50Amp Surge Guard and hook up to a 30Amp power pedestal?

Yes; however, their RV is wired with two 50Amp/120V circuits for a total of 100Amps while the 30Amp power pedestal will only provide a total of 30Amps of power. Subsequently, only a limited number of appliances can be operated without causing circuit breakers on the power pedestal to be thrown. The Surge Guard will provide the protection; however, the RVer may experience inconvenience due to the limited power.

Can I hook up a 30Amp Surge Guard to a 240V/50Amp power pedestal using a 30Amp/50Amp adapter?

The answer is yes, and the Surge Guard will function properly; however, it is not recommended. The higher 50Amp input can cause the circuit breakers to be thrown.

Can an RV owner use a ‘voltage boosting’ product in conjunction with a Surge Guard?

Yes, by plugging the voltage booster into the power pedestal in front of the Surge Guard. The voltage booster’s primary function is to increase the voltage in low voltage situations. Most provide “limited” surge protection or protection for extreme over/under voltage and open neutral condition. If the voltage booster is mounted after the Surge Guard, the Surge Guard will automatically shut off the power if it is below 102V for more than 8 seconds; subsequently not allowing the voltage booster to operate.

Model 34590
Universal Lock Hasp

Fits all portable Surge Guard models and Surge Guard Voltage Regulators, as well as standard 30Amp and 50Amp portable plugs.
NEW...Now with Optional Remote LCD Display & Higher Joules!

Model 34520  120V, 30 Amp Hardwire  
Model 34560  120/240V, 50 Amp Hardwire

These hardwire units are permanently installed in the RV. They automatically shut off the power to the RV when the power pedestal is miswired or faulty power is detected.

When safe current is available to the RV, the “Power On” light will be illuminated. The “Line Voltage” light on the 30Amp model and both “Line Voltage #1 & #2” lights on the 50Amp model will be illuminated to indicate that the circuits are operational.

One of the most common power pedestal problems that RVers experience is “low voltage”. When the voltage from the power pedestal drops below 102V or goes above 132V for more than 8 seconds or, in cases of instantaneous severe voltage drops or spikes, the power is automatically shut off. The Surge Guard will automatically reset once the power problem has been corrected. There is a 128 second delay built in to protect the air conditioner compressor.

When the power is shut off due to polarity, miswiring or current to ground conditions, the “Caution Light” will be illuminated in order to help RV owner identify the cause of the power outage.

30Amp model provides 2,450 Joules of Power Surge Protection  
50Amp model provides 3,850 Joules of Power Surge Protection

(Optional) Model 40298 Remote Power Monitor LCD Display

When connected to the above Surge Guard hardwires, the optional plug and play LCD Display, with 16 information fault screens, shows more detailed information regarding incoming line voltages, current being used, and fault conditions than with just a Surge Guard unit alone. Connects to a RJ12 (6 pin) connector cable (included).
Model 40240
50Amp Hardwire with RV Power Protection
120/240V, 50A, 60Hz

This Surge Guard offers the same features and benefits as the hardwire units; however, it also monitors and displays the condition of the power being supplied to the RV with an LCD readout and source power connection diagnostics. This model has multi-mode surge suppression (fuse protected) and protects against: excessive voltage (<102V/≥132V), miswired pedestal, open neutral, open ground, high/low frequency, and reverse polarity.

Provides 3,350 Joules of Power Surge Protection

What is Over Voltage and Under Voltage Protection?

Over voltage and under voltage protection removes primary power from the load (i.e. RV Coach) when the voltage drops below 102V or above 132V (safe mode). This predetermined value is selected as the point beyond which electrical and electronic equipment is likely to be damaged if operated for an extended length of time. The user of any protective device is urged to be aware that protective devices are not necessarily effective for all circumstances. Bypassing for this condition can result in damage of electrical equipment on the coach.

How do I know my surge protection still works?

The surge protection does not usually fail unless there is a direct lightning strike. If this happens, there would likely be other obvious damage; otherwise, the surge protection should last indefinitely.

What does the term "Weather Resistant" mean?

The term "Weather Resistant", sometimes described as "Rainproof", is used to describe many electrical products that are manufactured for outdoor use. Surge Guard products described as "Weather Resistant" can be used in most outdoor environments. Please note that these products should not be submerged under water at any time.
A Multitude of RV Electrical Protection Choices

|------------------------------|--------------------|-------------------------|----------------------------|------------------------------|-------------------------|--------------------------------------------|------------------------------------------|-------------------|---------------------|-------------------|-----------|-----------------------------|-------------------|------------|-----------------|--------------------------|----------------|
Model 40100
50Amp Basic Automatic Transfer Switch
120/240V, 50Amp, 60Hz

This is a basic ATS that transfers to generator power automatically when energized after a 30 second delay. When both shore power and generator power are available, generator dominates after a 30 second delay. Once the generator is shut down, shore power activates after a 3-4 second delay.

Mechanical interlocking contactors and time delay at power up.

Does not provide surge protection.

Model 41260
50Amp Automatic Transfer Switch
Limited RV Power Protection 120/240V, 50Amp, 60Hz

This unit transfers to either shore power or generator automatically when energized. In the event both shore and generator powers are available, generator power will dominate after a 30 second delay.

Provides open neutral and reverse polarity protection as well as multi-mode surge suppression.

Time delay at power up (shore 3-4 sec., gen. 30 sec.

Mechanical interlocking contactors.

Provides 2,600 Joules of Power Surge Protection
Model 40250-RVC
50Amp RVC Compatible Automatic Transfer Switch
Full RV Power Protection 120/240V, 50Amp, 60Hz

This unit offers the same features and benefits as Model 40240 with the added bonus of an RVC Compatible ATS. Multi-mode surge suppression (fuse protected) and protects against: excessive voltage (<95V/132V), miswired pedestal, open neutral, open ground, high/low frequency, and reverse polarity.

Transfers to generator power automatically when energized after a 30 second delay. When both shore power and generator power are available, generator dominates after a 30 second delay. Once the generator is shut down, the shore power activates after a 3-4 second delay. Oversize contactors and UL Approved ATS - full transfer switch rating.

Optional 2-line plain English display with continuous visual indication of source voltage, load current or diagnostics. (p/n 40272 & cable p/n 40258)

Provides 3,350 Joules of Power Surge Protection

Model 41290-RVC
90Amp RVC Compatible Automatic Transfer Switch
Full RV Power Protection 120/240V, 90Amp, 60Hz

Multi-mode surge suppression (fuse protected) and protects against: excessive voltage (<95V/132V), miswired pedestal, open neutral, open ground, high/low frequency, and reverse polarity.

Transfers to generator power automatically when energized after a 30 second delay. When both shore power and generator power are available, generator dominates after a 30 second delay. Once the generator is shut down, the shore power activates after a 3-4 second delay. Oversize contactors and UL Approved ATS - full transfer switch rating.

Optional 2-line plain English display with continuous visual indication of source voltage, load current or diagnostics. (p/n 40272 & cable p/n 40258)

Provides 3,350 Joules of Power Surge Protection
TRC recommends a qualified licensed electrician install the hardwire Surge Guards. It may void the warranty if installed incorrectly.
30Amp & 50Amp Voltage Regulators by Surge Guard

**Model 10176 120V, 30Amp**
For use on single phase, 2-wire services

**Model 10175 120/240V, 50Amp**
For use on split phase, 3-wire services
Can be used on 120/208V, 3-wire network

This product provides a stable, reliable source of power to the coach or travel trailer. It is designed primarily for use in areas where low voltage (less than 102 VAC) is a persistent problem. If the voltage is as low as 95 VAC, the Voltage Regulator’s heavy duty transformer will increase the voltage to a safe operating level for all RV circuits and appliances.

The Voltage Regulator continuously monitors the voltage and indicates the conditions with a series of LED status lights – Open Neutral, Under Voltage, Over Voltage, Phase Reversal and Operating Mode.

**Special Note:** While the Voltage Regulator monitors and provides a stable regulated source of power, it does not protect against open neutrals and faulty electrical conditions that can potentially cause catastrophic damage. Subsequently, always use a Surge Guard portable or hardwired unit in addition to the Voltage Regulator. Plug the Voltage Regulator directly into the pedestal followed by the Surge Guard, prior to connecting the shore power cord.

### How to Hook Up to RV and/or to Surge Guard

- Voltage Regulator plugs directly into 30Amp or 50Amp power pedestal at campground
- Hook RV’s shore cord to Voltage Regulator if no Surge Guard protective device is being used
- If RV has a Portable Surge Guard - Surge Guard unit needs to be plugged between the Voltage Regulator and the RV
- If RV has an installed Surge Guard Hardwire then unit is already in the correct position
Model AECM20020
Digital Power Monitor

This is the most advanced microelectronics power monitor and diagnostics tool on the market. Plug into any 15Amp outlet and the backlit LCD display shows RMS voltage & frequency. The mode button allows for only the voltage or frequency or both to be displayed alternately. If a fault is encountered, the display screen will display one of the following:

- **LO** (Low Voltage <102V)
- **HI** (High Voltage >135V)
- **LF** (Low Frequency <55Hz)
- **HF** (High Frequency >65Hz)
- **GF** (Ground Fault)
- **PF** (Polarity Fault)

If the fault continues for more than 3 seconds, a **5 second audible alarm** sounds. It also provides **300 Joules of Surge Suppression** for the circuit in which it is plugged.

This is the only power monitor with an audible alarm, RMS technology (reads inverters & generators correctly) and digitally displays all faults with built in surge suppression.

**Contact and Resource Information**

- For information, Specs, and Troubleshooting Assistance, please visit: [www.surgeguard.com](http://www.surgeguard.com)
- **Customer Service**
  Kathy Neal
  Email – kneal@trci.net
  Direct Line – 727-812-0532 or 800-780-4324 x 312
- **Technical Support**
  Email – productinfo@trci.net
  Direct Line – 727-812-0531 or 800-780-4324 x 311
Your RV Is At The Mercy Of The Power Pedestal

Surge Guard Protects Your RV Against:

- Power Surges
- Over/Under Voltage
- Mis-wired Pedestal
- Open Neutral

Available in 120V, 30A and 120/240V, 50A Portables and Hardwires and 120/240V, 50A and 90A RVC Compatible

Automatic Transfer Switches

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