

***Progressive Industries, Inc.***  
***Electrical Management System***

**Operating Instructions for:**  
**Model EMS-PT50C**  
**Rated at 120V/50A**

***Manufactured by:***  
***Progressive Industries, Inc.***  
***414B Airport Boulevard***  
***Morrisville, NC 27560***  
***(919) 462-8280***

**[www.progressiveindustries.net](http://www.progressiveindustries.net)**



Proudly manufactured in the U.S.A.

# Features

## High/Low Voltage Protection

Whenever AC power falls below 104 volts, or rises above 132 volts, the EMS automatically shuts down power to the RV. The EMS will monitor the power and once the AC power rises above 104 volts, or drops below the 132 volt level, the time delay indicator flashes for the preset time and then automatically restores power to the RV.

## Time Delay for A/C Compressor

If AC power is interrupted, or the EMS detects a fault condition, the built in time delay is activated. There is a 136-second (02:16) time delay.

## 5 Mode Surge Protection

This feature provides full surge protection L-N, L-N, L-G, L-L and NG. Total Joule rating is 3,580, 88,000A surge current. Response time of <1 nano second.

## Surge Indicator

In the event of a power surge and the surge protector circuit is damaged within the EMS, L-N or L-G, the digital display error code will read E-10. This indicates the EMS needs to be serviced.

## Reverse Polarity Protection

If AC power is a reverse polarity condition, the EMS will not allow power to the RV and the error code will read E1.

## Open Neutral Protection

If AC power has an open neutral condition, the display will not light, and the EMS will not allow power to the RV.

## Open Ground Protection

If AC power has an open ground condition, the EMS will read an error code of E2 and power will not be allowed to the RV.

## AC Frequency Protection

If AC power frequency deviates plus/minus 9 hertz from 60 cycles per second, the EMS will shut down AC power. An Error Code of E7 will be displayed when the frequency is high; and an Error Code of E8 will be displayed when frequency is low.

## Accidental 240V Protection

If 240 volts is detected when plugging into AC power, the EMS will **NOT** allow power to the RV. If this condition occurs while power is applied to the RV, the EMS shuts off power instantly. The display will read the voltage and E-3 for the error. **(NEVER BYPASS THE EMS WHEN THIS OCCURS.)**

## Display

Continuously scrolls all of the AC power information, including voltage, current, frequency, error codes and previous errors. Each reading is displayed for two (2) seconds.

## Previous Error Code

This feature tells the user what the previous error was and why power was interrupted to the RV. To read a Previous Error Code, put a "P" in front of the "E" code. This is only displayed if an actual error occurs. The error is deleted when power is disconnected from the EMS.

## Weather Resistant

Can be exposed to the elements, however, may not be submerged.

## Microprocessor Controlled

The computer is driven by a state-of-the art microprocessor that is programmed with software to drive the entire EMS.

## Built-in Lock Bracket

Allows the user to secure the EMS to power source to prevent theft.

## Warnings

- Do not exceed the rating on the EMS for any reason, however, these devices are designed to be reduced down to 120V/15A, and still maintain full protection.
- Do not modify the EMS in any way, this will void the warranty, compromise protection, and could result in possible shock, and/or a fire hazard.
- It is important to always check the pedestal power outlet for charring; this condition means that the AC receptacle is providing a weak connection. **DO NOT USE!** It could result in possible melting of the RV power plug.
- When running extension cords from the RV to AC power, always use a 6-gauge cable for your 240V, 50 Amp system. Make sure that the cable is rated for outdoor use to reduce the risk of electric shock. Small gauge cable will have a higher resistance and will result in a voltage loss, plus it may result in an electrical fire.
- Whenever servicing or installing the EMS or any other AC powered device, make sure AC power is disconnected.
- RV wiring is different than the wiring found in homes; the neutral and ground conductors are isolated in the RV, unlike in a home where they are tied together at the service panel. The reason is: homes have a bonded ground system, whereas RV's do not. Therefore, never bond the neutral and ground together for any reason. This will create a ground fault condition, and may result in electric shock and/or a fire hazard.
- **Never** plug the EMS into an inverter.

## Operating Instructions

1. Plug into AC power.
2. Digital display will read 888 for one second then begin scrolling the voltage, amps, line frequency, and error code(s). In addition, the time delay light will flash in the bottom right corner of the display.
3. The EMS will read L-1, and then give you a 3-digit number which is your line voltage. Next, it will give you an “OA” reading. This is the amp reading; however, it will read zero until the time delay is complete. Then you will notice a number between 0 and 35. That number indicates how many amps the RV is drawing. Next, the display will read L-2 and indicate the voltage and amps for Line 2. Then it will read 60H and this number should remain fairly consistent; however, it may read plus or minus one or two. Lastly, you will notice the E code. E-0 is normal. Only when an E-0 and E-10 is present will the delay light flash and ultimately bring power in to the RV. Refer to your Error Code Chart that is provided or see next page for details.
4. Verify that Error Code E-0 is displayed.
5. Set up is complete.
6. The EMS has a 136-second time delay before you will receive power into your RV.

***IMPORTANT:*** The display will only read voltages between 78 volts and 255 volts.

***Note:*** If the wiring reads anything different than correct, the EMS will not turn on and we recommend moving to a different source of AC power, or you use your generator power. Also, if power is below 104 volts or above 132 volts, the EMS will not turn on, and we recommend using your generator power.

## Error Code Chart

- E-0 Normal Condition
- E-1 Reverse Polarity Condition (hot and neutral wires Reversed)
- E-2 Open Ground (means no ground wire connection)
- E-3 Line 1 Voltage High (Line 1 voltage above 132 volts)
- E-4 Line 1 Voltage Low (Line 1 voltage below 104 volts)
- E-5 Line 2 Voltage High (Line 2 voltage above 132 volts)
- E-6 Line 2 Voltage Low (Line 2 voltage below 104 volts)
- E-7 Line Frequency High (Line frequency above 69 cycles per second)
- E-8 Line Frequency Low (Line frequency below 51 cycles per second)
- E-10 Replace surge protector mode

*Note: If the EMS cuts the power to the RV, it will show a PE code following the E code. This denotes a previous error or why the EMS shut down. Example: The EMS cuts power for low voltage on Line 1, and then the power is restored. The error code reads E0 but the PE code reads PE4 which tells the user that low voltage was the reason for the EMS previously cutting the power. This PE error code will be deleted when power is disconnected from the EMS.*

### Accidental 240 Volt Protection

Should this condition occur, the display will read 240 volts instead of displaying the voltage and the error code message will read E-3. AC power will shut down instantly. **DO NOT UNDER ANY CIRCUMSTANCES BYPASS THE EMS; OTHERWISE, THIS WILL RESULT IN SEVERE DAMAGE TO THE RV.**

## **Troubleshooting Guide**

In order for the on-call Technician to troubleshoot the problem(s) you are experiencing and render the best possible solution, it is necessary that you be at your RV when you place your call.

1. If the display is illuminated and scrolling information, note the Error Code. If there is an Error Code of 1-8, the device will interrupt the power. See Error Chart for definition of AC power problem. The device being off when an Error Code is present indicates the product is working properly and protecting your coach.
2. If the display is illuminated and reading Error Code E0, and yet no power is present in the coach, please contact Technical Support. You must wait 136 seconds for the time delay light to stop flashing.
3. If the display is not illuminated and power is in the coach there is a connection issue between the display and the main control box. Contact Technical Support.

Technical Support can only help if the above information is provided, therefore, please do not call until this information is obtained. Again, it is necessary for you to be at the RV when you place your call.

## **Progressive Industries Warranty**

Progressive Industries warrants its products are free from defects in materials and workmanship for the life of the unit. This is in lieu of all other warranties, obligations or liabilities expressed by the company. In the event that a properly installed EMS proves defective under normal use, Progressive Industries will repair or replace the device at its discretion.

For Technical Support, please call (919) 462-8280. In order for the on-call Technician to troubleshoot the problem(s) you are experiencing and render the best possible solution, it is necessary that you be at your RV when you place your call.

Once Technical Support has properly diagnosed the problem, if any, arrangements will be made to repair the unit.

Considering the PT-50C is exposed to the elements, it is necessary that the unit be returned to the factory for any required repairs in order that the unit be sealed to maintain weatherproofing.

The address below is strictly a mailing address. Please do not attempt to visit this facility during business hours, as the company is not staffed, nor equipped, to handle on-site repair work. All returns must be routed through Technical Support.

**Progressive Industries, Inc.  
414B Airport Boulevard  
Morrisville, North Carolina 27560**

The unit being returned must be properly packaged with the postage paid and include the following information:

- 1) Date of purchase
- 2) A detailed explanation of the problem/defect.
- 3) Your name
- 4) Return address and phone number

Progressive Industries cannot assume responsibility for acts of God, alterations, shipping/handling, or any other factors not under the control of Progressive Industries.

Progressive Industries has no responsibility for installation, personal injury, property damage, incidental, contingent or consequential damages of any kind resulting from defects, or failure of the unit to function.

The remedy for breach of this warranty is limited to the repair or replacement of the defective product at Progressive Industries' option. In no case shall the liability prescribed by law exceed the purchase price. Some states do not allow exclusion or limitation of incidental or consequential damages or allow disclaimers, modifications or limitations on how long a warranty lasts; therefore, the above warranties may not apply to you. This warranty gives you certain legal rights and you may have other rights, which may vary from state to state.

*(Revision E)*