

# Smart Energy Management System

Intellitec's **Smart Energy Management System (Smart EMS)** is designed to be used in RVs equipped with 30 Amp power cords. It includes a 120 volt circuit breaker distribution panel which can accommodate up to four, twin circuit breakers. One of these circuit breakers is used as the Main; the other seven breakers can be used as branches to power the loads.

The **Smart EMS** monitors the total amount of current drawn in the RV and automatically controls loads, as necessary, to practically eliminate circuit breaker tripping.

The **Smart EMS** automatically "learns" the amount of current drawn by each of the controlled loads. In this way, the energy manager automatically adapts to differing loads or loads whose current changes with line voltage or temperature.

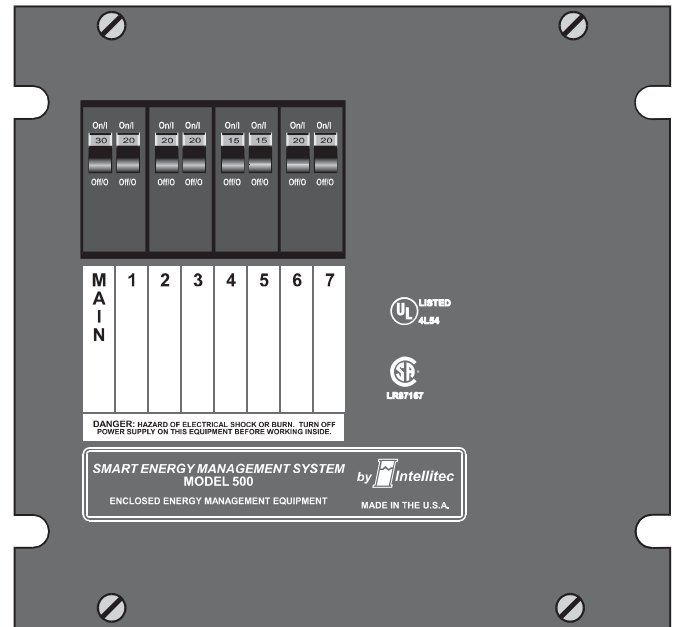
## Features:

- Limits total current to 30 Amps.
- Meets NEC section 551-42(c) for adding breakers over the maximum limit of five and allowing for more than two thermostatically controlled appliances.
- Minimizes circuit breaker tripping.
- Eliminates manual appliance select switches.
- Senses current of owner added loads.
- Owner selectable 20 Amp operation (from optional remote panel).
- Protects air conditioners with two minute restart delay.
- "Learns" controlled appliance current draw.
- Optional remote panel with Load Status indicators and a digital AC line amp meter.

## SMART EMS OPERATION

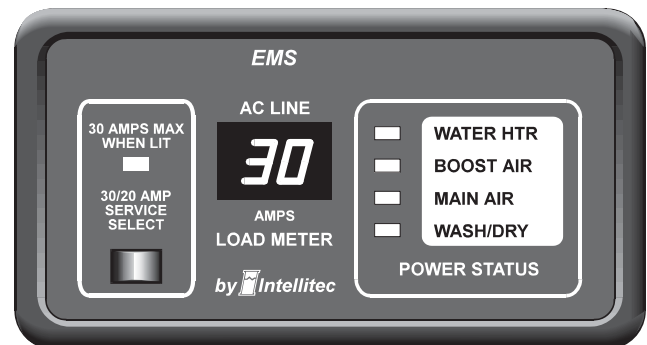
Large appliances, such as air conditioners, water heater, washer/dryer, coffee maker, etc., whose use can be temporarily postponed, are automatically controlled. Temporarily postponing their use leaves enough power to operate the "on demand" appliances, such as the microwave, hair dryer, or toaster.

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Smart EMS turns off each controlled appliance when the total current in the RV exceeds 30 amps. It will restore appliance power when the total current drops below a level that allows it to operate again.

## OPTIONAL REMOTE MONITOR PANEL



To help the owner understand what the system is doing, a series of LED's indicate the loads that have power applied. When the power is available, the LED will be on. There is a digital readout of the total amount of current being drawn by all the loads in the RV. The panel includes a switch to select operation from 30 amp or 20 amp service.

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## HOW DOES IT WORK?

The Smart EMS controls loads whose function can be postponed until there is enough power available to operate them.

When the shore cord is first plugged in, Smart EMS turns on power to the controlled loads in order, as long as the total current doesn't exceed 30 Amps. This happens within seconds, so it is transparent to the owner. If the total current exceeds 30 Amps, the Smart EMS senses this over-load and turns off the next controlled load in order. The system notes the amount of current "decrease" and puts that amount in memory as the amount of current that appliance was drawing. The system continues to monitor the total current and when it drops to a level that is the amount of the controlled load, it will turn that load back on. At least two minutes must have passed before power will be re-applied.

In this way, the actual current of the specific appliance operating at that particular line voltage, temperature, and load will be learned and used by the system. This current will be "re-learned" each time the controlled load is turned off. This assures that the system will operate the appliances when the exact amount of power is available and will not unnecessarily cycle the appliances. A receptacle can also be one of the controlled loads and Smart EMS will learn what the owner plugs in.

To meet the NEC requirements, the system keeps track of the average total current drawn. If the average current over a three hour period exceeds 80% of the 30 Amp source (24 Amps), the system will turn off an appliance to drop the three hour average back below 80% of the source rating.

An optional monitor panel is available that offers a digital display of the total current being drawn and status indication of which appliances have power applied to them. This panel keeps the owner informed as to how much current is being drawn, and helps them understand how current is being drawn by each appliance.

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## SPECIFICATIONS

Part Number: 00-00549-100  
Ambient Temperature Range: -40C to +85C  
Operating Environment: Out of direct weather  
Delay before reapplying power: Two minutes (all loads)  
Maximum Controllable Loads: Four, OEM selectable from five relays  
Relay Rating: (2) DC or Thermostat - 1.0 A, 24VDC  
(3) AC - 1 HP, 15A, 120 VAC 60 HZ  
U.S. Patents: 4499385, 4617472

### 120 VOLT CIRCUIT BLOCK

Main Feed: 30 amps  
Branch Circuits: Seven  
Breaker Locations: (4) Twin Breakers  
Breaker Types: Bryant - BR, BD, GFCB,  
Filler Plate FP-1B  
ITE Gould - QP, QT,  
Filler Plate Qf3

**Installation:** Smart EMS is housed in a metal box that can be flush mounted in a cabinet, inside of the RV. The Smart EMS housing is approximately 10" wide X 9 1/2" high X 3 1/2" deep.

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P/N 53-00549-000 Rev. B 032619