

Energy Management System

INTELLITEC'S Energy Management System, (EMS) is designed to be used in RVs equipped with 30 Amp cords. It includes a 120 volt circuit breaker distribution panel and a 12 volt fuse block.

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

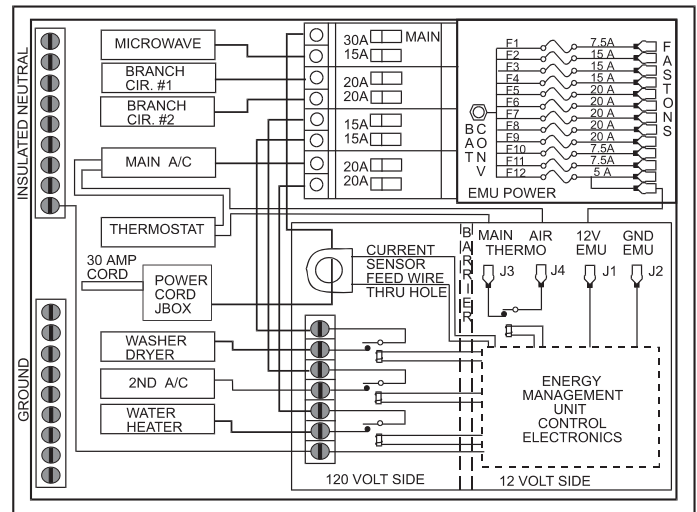
FEATURES:

- Limits total current to 30 Amps.
- Minimizes circuit breaker tripping.
- Eliminates manual appliance select switches
- Does not control microwave oven, minimizing need to reset the oven-mounted clock.
- Senses current of owner added loads, such as hair dryer or coffee pot.
- Protects from either 30 Amp or 20 Amp outlet.
- Protects air conditioners with two minute restart delay.

EMU OPERATION

The largest, most shed-able loads in the RV are controlled to provide power for the other loads for periods of time, without inconveniencing the occupants. These are (in order of shutdown) the Water Heater, Boost Air, Main Air, and Washer/Dryer.

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EMU senses the current drawn by all the loads in the RV and turns off selected loads if the total current exceeds a preset limit. It will hold the loads off until the total load current drops below a level that allows them to operate again.

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.

120 VOLT DISTRIBUTION

A circuit breaker block has been provided for mounting up to four, twin circuit breakers. One of the breakers is used as the Main; the other seven are to be used as branches to provide power to the loads. An insulated, nine position neutral block and a nine position ground block are also provided.

12 VOLT DISTRIBUTION

The 12 volt fuse block provides room for twelve ATO, automotive type, blade fuses. A 1/4" post is provided for connection of the battery and converter via a ring terminal.

P/N 53-00326-000 Rev B 032519

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Specifications:

EMS CURRENT SETTINGS AND ORDER OF SHUTDOWN

Water heater:	1-11.5 Amps Max Boost Air
Cond.:	2-8.6 Amps Max Main Air
Comp.:	3-12.5 Amps Max
Washer/Dryer:	4-13.6 Amps Max
Air Cond.:	15.0 Amps Maximum
Air Cond. Delay:	Two Minutes
Relay Rating:	1HP, 15A, 120VAC, 60 Hz
U.S. Patents:	4499385, 4617472

Example Operation:

When the shore cord is first plugged in, **EMS** begins providing power to the controlled loads, in order as long as the current doesn't exceed 30 Amps. This happens within seconds, so it is transparent to the owner.

If the owner decides to make coffee in the electric coffee pot and the total current exceeds 30 Amps, the system senses this current and turns off the water heater to keep the total draw to 30 Amps or less.

If the owner then decides to also make toast, the load again increases and the system turns off the next load, in order, the boost air. If it was already off, no decrease in current occurs, so the system then turns off the next load, in order, the main air.

When either the coffee maker or the toaster go off and the current drops to less than 15 Amps, and at least two minutes have passed since the air was turned off, the Main air is turned back on again. This process goes on automatically and continuously.

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

12 VOLT FUSE BLOCK

Main Feed:	95 Amps
Fuse Locations:	Twelve
Max Fuse Ratings:	5 - 20A, 6 - 15A, 1 - 5A
Fuse Type:	ATO Auto Blade Littlefuse 257

Installation:

Install four, twin, 120 volt circuit breakers. One of the circuit breakers will be used as the main, the other seven for branch circuits. Install twelve, 12 volt fuses into the printed circuit fuse block.

Route the black (hot) wire of the shore cord through the **EMS** current sensor and connect the end to the screw terminal on the 30 Amp Main circuit breaker. Connect the black wire of the air to the **EMS** relay. Connect a black wire from the air conditioner circuit breaker to the **EMS** relay. Connect all the other black wires to the screw terminals on the matching circuit breakers. Connect all the white wires to the insulated neutral bus. Connect all the ground wires to the ground bus. Connect the wires from the 12 volt loads to their proper points on the fuse board.

