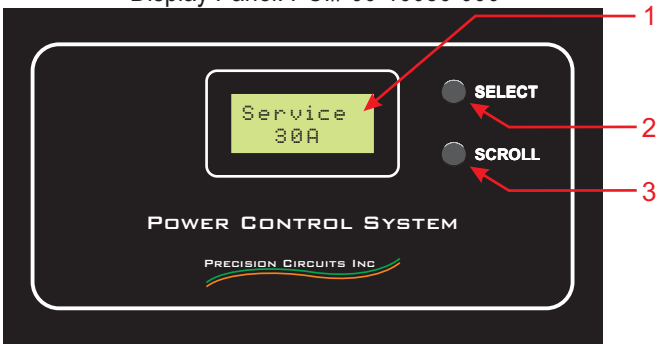
Diagnostics embedded in the MIDI-PCS including: Factory Setup and Factory Test.

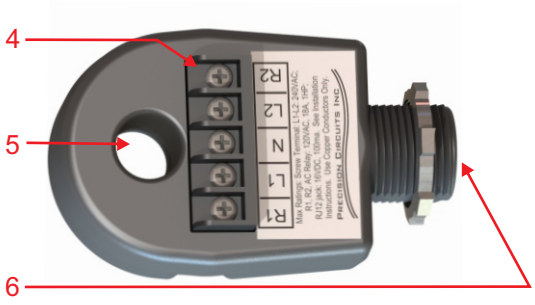
Overview: Fully automatic Power Control System which requires little to no user interface. The display is there to help the RV user understand power management and the function of the MIDI-PCS. The MIDI-PCS monitors the total AC current of an RV and prevents circuit breaker tripping by momentarily shedding up to five loads. As the user turns on additional appliances (such as a microwave, coffee pot, or hair dryer), the MIDI-PCS can shed the loads that it controls, (such as the water heater & air conditioner). As the user's selected appliances are turned off, and a minimum of 2 minutes has expired, the MIDI-PCS will automatically turn power back on each of the shed loads in reverse sequence, . The MIDI-PCS will constantly monitor 120VAC RV power and shed and restore power to the five controlled loads. The display panel has all the brains, a data connector to the I/O module, and an additional connector to control the air conditioners through low voltage signals. The I/O Module houses a current sensor, two relays to control 120VAC powered appliances, and Service Type detect circuitry.

Display Panel: PCI# 00-10050-000



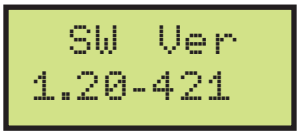
1 Display Screen
2 Select Button
3 Scroll Button

I/O Module: PCI# 00-10024-000



4 Screw Terminals
5 Current Sensor
6 Connector to Data Cable

Diagnostics: Press and Hold both the Select and Scroll buttons for 5 seconds to enter Diagnostics Mode.



In Diagnostics mode, there are four main screens. Pressing Scroll button will step you through the four different screens:

1. Displays the Software Version of the MIDI-PCS.
Press Scroll to continue to next menu option.

2. Displays Factory Setup option.
Press Select to enter Factory Setup review mode.
Press Scroll to continue to next menu option.

3. Displays Factory Test option.
Press Select to enter Factory Test mode.
Press Scroll to continue to next menu option.

4. Displays Exit Factory option.
Press Select to Exit Diagnostics.
Press Scroll to continue to return to first display above of Software Version.

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Factory Setup: Pressing Select while Factory Setup is displayed brings user to this Display.

421Winne bago170	This is the 18 character RV Data-2 Reference ID spread over screens. Press Scroll to get to the second screen. 421Winnebago170151 is interpreted as follows: 421 matches the last 3 digits of the part number, for example 00-10050-421 Winnebago170 identifies the RV manufacturer and model 151 identifies the revision of the RV Data-2 as year 2015 release #1 of that year. This is useful information in case the MIDI-PCS ever needs to be identified for replacement. Press Scroll Button to move to next Display.
151	
Checksum 0XB786	This displays the Checksum of the entire RV Data-2 file. It can be used to confirm any data corruption. RV-Data-2 file contains the personality of the MIDI-PCS which includes RV Model specific information like Appliances to shed and how they are wired, Generator size, and whether RV is 50A capable. Press Scroll Button to move to next Display.
Shed Order	This is a menu option to review appliance Shed Order. Press Scroll Button to skip Shed Order and move to Exit Setup Display. Pressing Select Button takes user to the next Display below.
Shed 1 WaterHtr	Example: The 1st appliance to be shed is the electric Water Heater. Most likely it is the least important appliance and will also be the last one to be turned back on. In the case of the Water Heater, the LP heater will heat the water when the electric Water Heater is shed. Press Scroll Button to move to the next Load to be Shed.
Shed 2 Refrig	Example: The 2nd appliance to be shed is the Refrigerator. An RV Refrigerator will automatically switch to run off the LP when electric power is removed. Note: Shed Order can not be modified, only viewed. It has been carefully planned by the RV OEM. The same information can be seen in normal operation mode, since Loads are listed in Shed order.
Exit Setup	Pressing Select Button to Exit Setup mode. Press Scroll Button to return to the top of this page and Display RV Data-2 Reference ID.

Factory Test: Pressing Select while Factory Test is displayed brings the service technician to this Display.

WaterHtr Powered

WaterHtr Shed

Refrig Powered

Refrig Shed

Relay 3 Powered

Relay 3 Shed

Service 30A

Amps=25A

Ref Volt 2.46 v

Bat Volt 12.8 v

Exit Test

MIDI-PCS can control up to 5 appliances, (+ 2 additional future relays)
This section allows the user to manually control each individual appliance, shedding and restoring power to that appliance. This is a great way to test the vehicle wiring for each individual appliance.
Caution should be used, because turning on too many appliances can cause over-current and the circuit breaker to trip. MIDI-PCS does NOT monitor RV current and perform energy management while in this mode.
Pressing Select button toggles the appliance from Powered to Shed and back again.
Pressing Scroll button advances you through the 7 potential relays that control the appliance.
At each appliance Display, the Scroll button toggles the appliance.
Note: If an appliance is not wired to a relay then that relay is also not named and will be displayed as below.
Relay 1A - Relay in I/O module, L1 the circuit breaker input, & R1 connected to appliance.
Relay 2A - Relay in I/O module, L2 the circuit breaker input, & R2 connected to appliance.
Relay 3 - Relay in Monitor, low voltage control of AC compressors.
Relay 4 - Relay in Monitor, low voltage control of AC compressors.
Relay 5 - Relay in Monitor, low voltage control of AC compressors (Optional).
Relay 1B- Relay in I/O module, L1 the circuit breaker input, & R1 connected to appliance.
Relay 2B- Relay in I/O module, L2 the circuit breaker input, & R2 connected to appliance.
Note: Relay 1B and 2B are reserved for future use, if a second I/O Module is installed. Not presently supported, but controllable on Display.
Refer to Wiring Diagram for you specific RV, for more details regarding the above relays, which can be found at precisioncircuitsinc.com.

Continue pressing Scroll to advance through all 7 Relay Display screens.
Press Select button on any of the 7 Relay Display screens to control that appliances.

Once all 7 appliance Displays have been scrolled through, pressing Scroll will bring you to the Service Type display screen. This is the same is the Service Type display in normal operation, placed here to make sure all Service Types are tested during Factory Test.
1. Unplug the RV and “No Service” should display
2. Plug RV into 50amp Service and “Service 50A” should display
3. Plug RV into 30amp Service and “Service 30A” should display
4. Start the Generator and “Generatr ##A” should display, where ## equates to the Generator capacity, example: 45A equates to 5500W generator (5500watts / 120volts = 45 amps)

After testing all Service Types, Press Scroll button to advance to this Display.
Just like in Normal operation, MIDI-PCS displays total RV current. Turn on a few known appliances, and observe that Amps displayed is reasonable. Alternatively, a clamp on current meter can be place around the same wire going through the I/O Module for an exact current draw comparison.

Press Scroll button to advance to this Display. Reference Voltage is an internal reference used by the electronics and must be from 2.44v to 2.54v for the MIDI-PCS to properly operate. There are no adjustments, if the value is not within range the Display Panel should be replaced.

Press Scroll button to advance to this Display. Battery Voltage is not a accurate measurement of the Coach Battery, but instead shows the level of Battery power the is provided. Although MIDI-PCS operates outside these ranges, it should be between 11volts and 15 volts for most accurate operation.

Pressing Scroll one last time brings user to the end of the Factory Test.
Pressing Select Button to Exit Setup mode.
Press Scroll Button to return to the top of this page and restart Factory Test.
Note: Upon exiting Factory Test, to ensure all relays and functions are back to Normal operation, the MIDI-PCS performs a soft start function. All appliances are turned off, a 2 minute delay is executed, and then all the appliances are individually restored.