PRECISION PLEX™

TOUCH SCREEN
USER MANUAL

PRECISION CIRCUITS INC
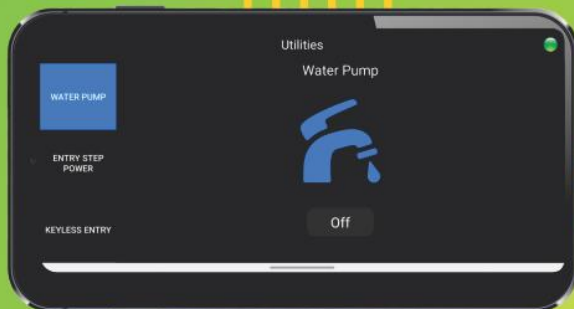
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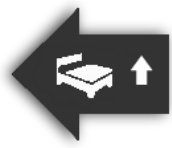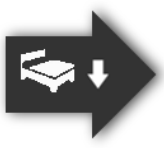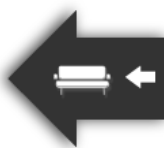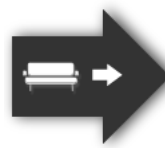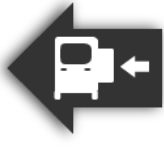
This document covers information available across multiple products. Some of the features listed in this document may not be available in your system. Available features vary across all manufacturers and model years.

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	Lights
Lights Icon	**All available on/offs, dimmers, and special light functions are found here. Use the Arrows on each side of the screen to navigate through the light pages.**
	On / Offs – These lights only have two functions, on and off. The user can toggle the bulbs on or off by tapping the light Icon. Icons will update accordingly.
Light Off	**Dimmers –** These lights can be brightened and dimmed as well as be toggled on and off. The user can toggle the bulbs on or off by tapping the light icon. To adjust a dimmer's brightness, tap and hold the icon until the light is at the desired brightness. Once a dimmer's brightness has been set, it will stay at that level when being toggled on and off. The dim levels will reset back to full brightness after the precision plex enters diagnostic mode or is power cycled.
Light On	**Special Functions –** Available functions vary by manufacturer.

- **All Lights/Master lights –** The first button press turns off all the lights, the second button press will turn on all the previously turned off lights. Holding the button will turn all the lights on.
- **Theater –** Turns multiple lights off and dims others to optimize a viewing experience. Tap the icon to cycle through each mode.
- **Exterior Lights –** Turns on the exterior lights in a four-part cycle: first half of the exterior lights on, second half of the exterior lights on, first half of the exterior lights off, second half of exterior lights off.
- **Mood Lights –** This function turns off the rear bathroom lights and dims the bedroom lights.

	Level Monitors
Levels Icon	**Level Monitor –** This screen displays tank levels and battery voltages. There are three different types of sensor readings that may be displayed: 1/4's, 1/3's, and percentages. Percentage readings are only displayed when using pressure sensors. Should a sensor exceed normal limits, ERR will display. For RV's with more than one type of a tank, tap on the tank gauge to cycle from tank 1/2 to tank 2/2. If you see the "No Digi Level Comm" the system is not communicating with the Digi.

Battery Levels	Black and Grey Tank Gauge	Fresh and LP Tank Gauge

Slides				
Slides and Stabilizers Icon	**All available slide-outs, tv-lifts, bed lifts, and stabilizers will be here.** **Use the tabs on the left side of the screen to change zones.**			
	Slides – Use the arrows to control the slides and other functions. The menu icon displayed is dependent on which features are utilized on your RV. Inhibits vary across manufactures. When attempting to control these outputs while in an inhibited state a warning message will appear underneath the buttons instructing you to change the state of the ignition or parking brake. Once conditions are met the output will be permitted to turn on.			
Slides Icon	**Murphy Bed Up**	**Murphy Bed Down**	**Sofa Bed In**	**Sofa Bed Out**
Sofa Bed Icon	**Slide In**	**Slide Out**	**TV Lift Down**	**TV Lift Up**

Awnings	
Awning Icon	**Awning controls can be found by tapping this icon.** **Use tabs on left side of screen to change zones.**
	Awnings – Use the arrows to control the awnings in and out. Inhibits vary across manufactures. When attempting to control these outputs while in an inhibited state a warning message will appear underneath the buttons instructing you to change the state of the ignition or parking brake. Once conditions are met the output will be permitted to turn on.
	Awning Out / **Awning In**

Fans		
Fan Icon	**Control of fans and fan lids is found here.**	
	Fans – You can turn the fans on and off by tapping the fan power icon. To open or close the lids tap and hold the arrows.	
	Fan Power	**Lid Down**	**Lid Up**

Utilities			
Utilities Icon	**Utility functions can be found here.**		
	Use the tabs on the left side of the screen to change pages.		
	Utilities – Tap the on or off button to toggle the selected utilities feature. Once on, the off button will illuminate and change to "on". Outputs that have voltage or temperature requirements that must be met before turning on will have disabled and enabled instead of off.		
Water Pump	**Electric Water Heater**	**L.P. Water Heater**	**On / Off Buttons**
			On Off
Aqua-Hot	**Utilities – Aqua-Hot**		
	Aqua-Hot – Some RV's use Aqua-Hot systems instead of furnaces. You can choose between electric, diesel, or both as power types for the burners. Some manufacturers require 50 Amp service or generator service to use the electric burner. Some systems provide a diesel burner fault message that will appear under the electric and diesel burner buttons.		
Entry Step Lock	**Utilities – Entry Step Lock**		
	Entry Step Lock – When attempting to control these outputs while in an inhibited state a warning message will appear underneath the buttons instructing you to change the state of the ignition or parking brake. Once conditions are met the output will be permitted to turn on.		
Tank Heater	**Utilities – Tank Heater**		
	Tank Heater – When the tank heater is enabled, starting conditions are listed below the enable/disable button. Temperature dependent start conditions use a thermistor connected to the Digi-Level to monitor the temperature of the tank bay area. If you see "No Temp Sensor" you will need to check connections to the Digi Level. Voltage dependent start conditions can be adjusted by the user by tapping the voltage button at the end of the warning message. This will enter a menu that allows you to configure both the voltage required to turn on the tank heaters, and the voltage at which the tank heaters should be forced off.		
Block Heater	**Utilities – Block Heater**		
	Block Heater – The block heater requires shore or generator 120V AC service types to turn on.		

Utilities – Keyless Entry System

Keyless Entry System – This allows you to unlock and lock the doors of the RV. Until the touch screen has seen the System Locked or Unlocked inputs activated, it will show the unknown state icon. When using the key fob to lock and unlock the RV you can press the buttons twice to use the All-lights command. Pressing the lock button twice on the key fob will command Master Lights Off. This will turn off all the lights in the coach. Pressing the unlock button twice will command Master Lights On. This will turn back on all the lights that were turned off with master lights, restoring them to the levels they were before.

Keyless Entry Unlocked	Keyless Entry Locked	Unknown State	Lock / Unlock
			Lock Unlock

Thermostat / HVAC	
Thermostat Menu Icon	**In this menu you can control your RV's heating and cooling functions.** **Use the tabs on the left side of the screen to change zones.**
	Temperature Control – The current room and set temperatures are displayed in the center of the temperature slider. Room Temp ˚F or Set Temp ˚F will be displayed above the dial to indicate what the temperature being displayed corresponds to. Set Temp can only be modified when an HVAC mode other than off is set.
Temperature Slider	**Fan Speeds –** There are 4 different fan speeds. Some heating and cooling functions require fans to be on while others will not allow any control over the fans.
	- **High –** This sets the fan speed to high. - **Low –** This sets the fan speed to low.
Raise Temp	- **Auto –** This dynamically sets the fan speed to low or high based on the temperature difference between the desired set temperature and the actual room temperature. If the temperature is less than 3 degrees different, the fan will be set to low. After the fan is set to low it will not switch to high again until after the temperature difference is greater than 5 degrees.
Lower Temp	- **Off –** This will turn the fan off.
Fan Speed / HVAC Mode	
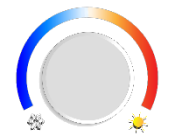
Thermostat / HVAC – HVAC Modes

HVAC Modes – There are six different heating and cooling modes.

- **Cool –** This function allows the use of high, low, and auto fan speeds. The fan will not be able to be turned off while this mode is selected. Once an AC is turned off there is a two-minute compressor wait timer to prevent damage to the AC's from cycling too quickly.

- **Heat Pump –** Fan control varies across manufactures. Some heat pumps can cycle between high, low and auto while most only allow the fan speed to be set to high. The fan will not be able to be turned off while this mode is selected. Once a heat pump is turned off there is a two-minute compressor wait timer to prevent damage to the compressors from cycling too quickly.

- **Furnace –** Fan control from the AC's varies across manufactures. Only some units have full control of the AC units' fans.

- **Auto-Heat –** This function will dynamically use the furnace / Aqua-Hot systems in addition to the heat pumps to heat the RV. If there is a temperature difference greater than 5 degrees between room temp and set temp the furnace / Aqua-Hot will turn on until the set temp is reached. If the set temp is within 5 degrees difference for longer than 5 minutes without reaching room temp the furnace / Aqua-Hot will turn on.

- **Aqua-Hot –** When the Aqua-Hot is used in a zone that uses a roof top AC, the user can turn the fan on, off, high, low, or auto. When the Aqua-Hot burners have not been turned on in the utilities menu you will see "Enabled Burner" instead of "Aqua-Hot On".

- **Aqua-Hot 250D –** There are some status messages exclusive to the 250D heating system. When hot water is being used by other systems in the RV you will see the message "Requesting Heat" instead of "Aqua-Hot On." Some systems have a "Low Fluid" warning message for when the Aqua-Hot system does not have enough water to heat properly.

- **Floor Heat –** This screen allows the user to control how long the floor heat is on. A floor heat cycle is 20 minutes. The user adjusts how long the floor heat is on in 10% increments. If the user sets the floor heat to 40% the floor heat will turn on for 8 minutes, turn off for 12, and repeat this cycle until the user turns floor heat off.

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Automatic Generator Start	
PCS Icon	In this menu you can setup and enable AGS along with manually controlling the generator. Use the tabs on the left side of the screen to change menus.
	Automatic Generator Start – There are two different icons used to access the generator settings depending on the features utilized by your system. After tapping on the PCS or generator icon you will be prompted with up to three options, Automatic Generator Start, Power Control System, or Inverter and Converter. The AGS feature is used to automatically start and stop the generator based on parameters set by the user.
Generator Icon	**AGS Modes**
	- **AGS –** This will allow AGS to function regardless of time of day**.**
	- **AGS with Quiet Time –** This will allow the user to set a time frame when the generator is not allowed to run. This is commonly used at facilities that do not allow generators to run at certain hours of the night.

Manual Control – This will allow the user to turn the generator on and off manually.

- **Start /Stop –** To use this, the user will have to hold down the button until the generator starts or stops.
- **AutoStart / AutoStop –** The user can tap the button and the generator will prime itself and attempt to start. After 4 failed attempts, it will display the message "Generator will not Start/Stop".
- **Run Time –** This displays how many hours the generator has run in six-minute intervals.

AGS Setup – You will need to have at least one startup condition set to enable AGS, and quiet time hours must be set to enable AGS with Quiet Time.

- **Quiet Time Setup –** This is where you will set the quiet time hours that will restrict the generator from running.
- **Enable or Disable on HVAC Demand –** This is one of the two startup conditions. This will start the generator whenever the AC or Heat Pump is in use.
- **DC Start Voltage –** This is the second available startup condition. This will start the generator whenever your battery voltage drops below the value you set here.
- **QT Pre-Charge Timer –** This feature is used to check the battery voltage before quiet time starts to avoid needing to charge the batteries during quiet time hours. The value set here will determine how long before quiet time the system will check the voltage of the batteries. If the battery voltage is lower than the previously set DC start voltage + .4 volt the generator will start.
- **Run Time –** This is the Minimum amount of time the generator will run before checking if the startup conditions have been met.
- **Max Run Time –** This is the maximum amount of time the generator will run before turning off. If the generator is turned off because of max run time the user will have to manually enable AGS again.

Status – This page contains all of the information about the startup conditions the user has set, the status of the generator and some diagnostic information.

Lock Screen

Lock Screen Icon	This will exit from the home screen to the lock screen page. If this icon is not present you can press the Precision Circuits Inc logo on the top center of the screen to return to the lock screen.

Power Control system

PCS Icon	**Power Control System –** After tapping on the PCS icon you will be prompted with up to three options, Automatic Generator Start, Power Control System, or Inverter and Converter. The PCS page will show the data received from the PCS connected to the Precision Plex system. If the touch is not communicating with the PCS, you will see a banner that displays "No PCS Comm".

- **Service –** This tab displays the current service type. There are four service types. Generator, 50 Amp, 30 amp, and No Service. When connected to 30-amp service you can switch between 30-, 20-, and 15-amp service.
- **Loads –** This page displays all the managed loads in the RV. They are listed in their shed order. On the right side of the screen, you will see "Powered" or "Shed" statuses for each load. Tapping the status will display the learned amp draw value. This value is used to prevent loads from unshedding if there is not enough available current.
- **Line –** This tab displays line voltage, current draw, and how much of the total current is being used per line. Some systems do not support 50-amp current sensing. If your system does, you will see two gauges for each incoming line voltage, current draw, and overall consumption. On some systems there will be three gauges for the generator instead of just one. The third gauge shows total consumption across both lines.
- **Wiring Status –** This page will display if there are any errors with the wiring of the shore power.

Settings	
	Settings – In this menu you can adjust the time, adjust screen brightness, pair your phone to the wireless module, and access many diagnostic menus. **Time –** You can adjust the format the time is displayed in and change the time. **Display –** You can adjust the brightness of the display when the touch is asleep. **Wireless pairing –** You can pair and unpair devices from this menu. **Set a Password –** Tap and hold the display tab for 5 to 10 seconds, then enter your desired password and hit enter when finished. **Removing a Password** 1. Tap and hold "Enter Passcode" for about 5 to 10 seconds. 2. You will see the text on the bottom of the screen change to "Set Pin to 0000 to remove PIN entry". 3. Set the new password to "0000". 4. This will remove the password.

Diagnostic Functions

Some diagnostic functions can cause damage to RV components when used incorrectly. Diagnostic Functions are intended for technicians and by experienced users only. If you need support, please call us at (630) 515-9100.

Changing a Model
If a model has been configured incorrectly you can change the model on the touch to match that of the Precision Plex Master. 1. While on the home screen, tap the setting gear in the top left-hand corner. 2. Tap on the time tab. 3. Tap on the banner on the top of the screen. 4. Tap on the banner on the top of the screen again. 5. Use arrows at the left and right of the screen to navigate through selectable models. 6. Tap on the correct model. 7. Tap on the home button until you return to the main screen.
Load Shed Data
This will give the user information on if the loads are shed and the shed order. **Menu Location** 1. From the home screen, tap the settings gear. 2. Tap the time tab. 3. Tap the banner on the top of the screen. 4. Tap "Display Load Shed Data". **Load Name –** This displays the name of the load. **Shed Status –** This will let the user know if the load is powered or shed. **Shed Order –** This displays what order the loads will shed.

Thermistor Diagnostics

This screen will display connected thermistor switch panels and the temperature they are recording.

Menu Location

1. From the home screen, tap the settings gear.
2. Tap the wireless tab.
3. Tap the banner on the top of the screen.

Thermistor LIN ID – This value is for internal purposes only.

Thermistor Address – This value is the address of the product that can have a thermistor connected to it.

Local Temp – This is the first thermistor temperature for a given address.

Remote Temp – This is the second thermistor temperature for a given address.

HVAC Diagnostics

This screen allows for diagnostic control of HVAC and PCS functions along with adjusting low or high temperature readings. Air Conditioners' Heat Pumps and Compressors should not be running without the fans. Doing so <u>could result in damage to your RV's AC units</u>.

Menu Location

1. While on the home screen tap the settings gear.
2. Tap the wireless tab.
3. Tap the banner on the top of the page.
4. Tap the banner on the top of the page a second time.
5. You are now in the HVAC diagnostic menus.

HVAC Modules – These are the components that connect to the air conditioners. In the first row you can select which module you would like to control. When a module is white it means that it is communicating. When a module is green it means that it is selected and communicating. When a module is red it means that it is not communicating. In the bottom two rows are all the possible commands. A blue line highlights the currently selected command.

Signal High Outputs – PCS control Signal Hi outputs can be controlled. A blue outline means the output is on.

HVAC Reset – An HVAC reset will reassign addresses to each of the connected modules in the order they are connected in. An HVAC reset sometimes fixes missing modules.

HVAC Temp Offset – Under this tab you can adjust the temperature for a given zone by ±9 degrees.

Inverter table

This page displays the size of the generator and what line the charger is on.

Menu Location

1. From the home screen, tap the settings gear.
2. Tap the time tab.
3. Tap the banner on the top of the screen.
4. Tap "Display Load Shed Data".
5. Tap "Display inverter Data".

Model – This displays the name of the generator.

Charger Branch Line – This will display what line the charger is on.

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Generator Table
This page displays the parameters for each breaker and the size of the generator.

Menu Location

1. From the home screen, tap the settings gear.
2. Tap the time tab.
3. Tap the banner on the top of the screen.
4. Tap "Display Load Shed Data".
5. Tap "Display inverter Data".
6. Tap "Display Generator Data".

Model – This displays the name of the generator.

Line 1 Circuit Breaker – This displays the current limit of Line 1.

Line 2 Circuit Breaker – This displays the current limit of Line 2.

Combined max Output Current – This is the combined maximum current for both Lines 1 and 2.

Input Diagnostics
This page displays the status of your inputs.

Menu Location

1. From the home screen tap the settings gear.
2. Tap the display tab.
3. Tap the banner on the top of the screen.

Switch Labels – This identifies the name of the switch.

Switch Status – This display if the switch is on or off.

Toggle Page – This will go to the second page of inputs.

RV Data
This page displays the information the touch panel gives to the PCS.

Menu Location

1. From the home screen, tap the settings gear.
2. Tap the time tab.
3. Tap the banner on the top of the screen.

REF ID – This is the reference id for the RV data.

Chksum – This is the Checksum for the RV data. This is used for testing purposes only.

MFG – This is the manufacturer for the loaded RV data.

Model – This is the selected model.

Date – This is the creation date for the given RV data.

SW Ver. – This displays the software version.

Touch – This column is all the information about the touch screen.

PCS – this column is all the information from the PCS.