EasyTouch RV™

Reference Manual

for Model

352

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The EasyTouch RV™ 352 model displays are Bluetooth and Wi-Fi enabled displays for remote access to your RV's comfort system. The 352 models were designed to directly replace certain 12-volt DC Coleman™ and Airxcel™ single-zone displays. All functionality of the original control is preserved, alongside all of the new functionality that EasyTouch RV brings. This display can also be used in other applications with certain electrical limitations, explained further in section *Generic Application Wiring*. Use this manual for detailed installation and operation of this product.

EasyTouch RV 352 Models and Compatible Replacements

EasyTouch RV 352 can be purchased in two colors. *Table 1* lists all EasyTouch RV 352 models.

EasyTouch RV 352 Model	Color
ASY-352-X03	Black
ASY-352-X04	White

Table 1

EasyTouch RV 352 models are designed for use in most 12-Volt DC, single zone systems from Coleman™ and Airxcel™. These systems can be identified by the OEM (Original Equipment Manufacturer) display. For some models, only the plastic form is important for identification. For other models it is important to note the markings on the face. All models should have a model number marked somewhere on the display and can be used for identification in this manual.

If you are still not sure after reviewing the below sections for specific models, feel free to contact us using our *Main Website* to determine compatibility. Include pictures of the front and back of the display, as well as the wiring to the back of your display. If there is a model number then include that as well.

Airxcel™ Three-Button Display

Figure 1 shows an Airxcel™ three button display. EasyTouch RV 352 is compatible with **all** OEM displays of this plastic form. It has two up-and-down arrows and a rectangular button along the bottom. It may be black or white and has a variety of potential connection types on the back. The only important characteristic for EasyTouch RV 352 compatibility with these displays is the three buttons and rectangular shape.

The model number is often silk-screened on the back of the backplate that is typically screwed into the wall. *Table 3* has a list of all the known compatible model numbers.

Figure 1 - Airxcel™ Three-Button OEM Display

Coleman-Mach™ RVComfort 2-Button Display (Single Stage)

Figure 2 shows an example of an OEM 2-button display. EasyTouch RV model 352 is compatible with **most** displays of this plastic form. What is important is the overall rectangular shape, small LCD display, and **only** two push buttons (up and down arrows) next to the LCD. The buttons are shown in *Figure 2* by the red box. The plastic color and any slide switches along the bottom are irrelevant for compatibility.
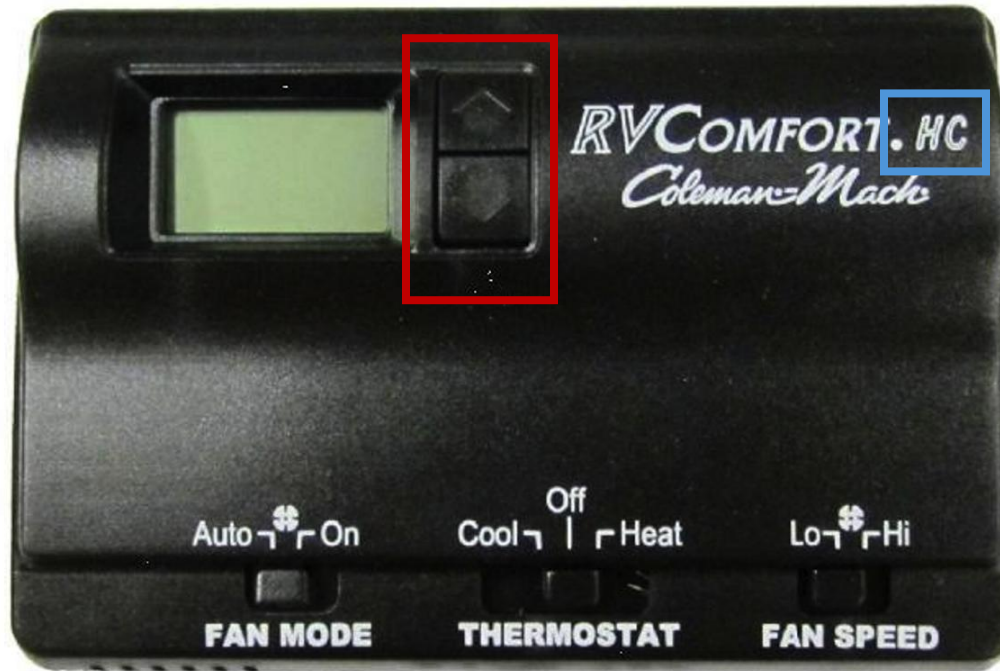
Figure 2 - Coleman Mach™ RVComfort 2-Button

Once you determine *Figure 2* is a match, you must inspect the silkscreen of the front to know what model it is. Displays often are called RVComfort.XXX, where XXX are a set of letters. *Figure 2* shows an example of these letters by the blue box. *Table 2* relates these letters to EasyTouch RV model compatibility. Note this manual is for EasyTouch RV model 352 and some listed may be compatible with other EasyTouch RV models.

Coleman-Mach™ RVComfort Model Types	
RVComfort Letters(Blue Box)	**EasyTouch RV Compatible**
"HC"	352
"HP"	352
"PHP"	356
"ZC"	354
"AV"	None

Table 2 - Coleman-Mach™ RVComfort Type and EasyTouch RV Compatibility

Coleman-Mach™ Analog Display (12-Volt DC Only)

*Figure 3* shows an example of an OEM analog slide display. EasyTouch RV model 352 is compatible with **most** displays of this plastic form. The important part is that it has an analog slide switch to control temperature and is a 12-volt DC powered display. The buttons along the bottom, writing, and color are not important.

Some of these are powered by 24-volts AC or replaceable batteries. These are **not compatible** as a drop-in replacement with any EasyTouch RV model. Some also have more than 9 wires and are not compatible. These may be compatible with our EasyTouch RV 356 model.
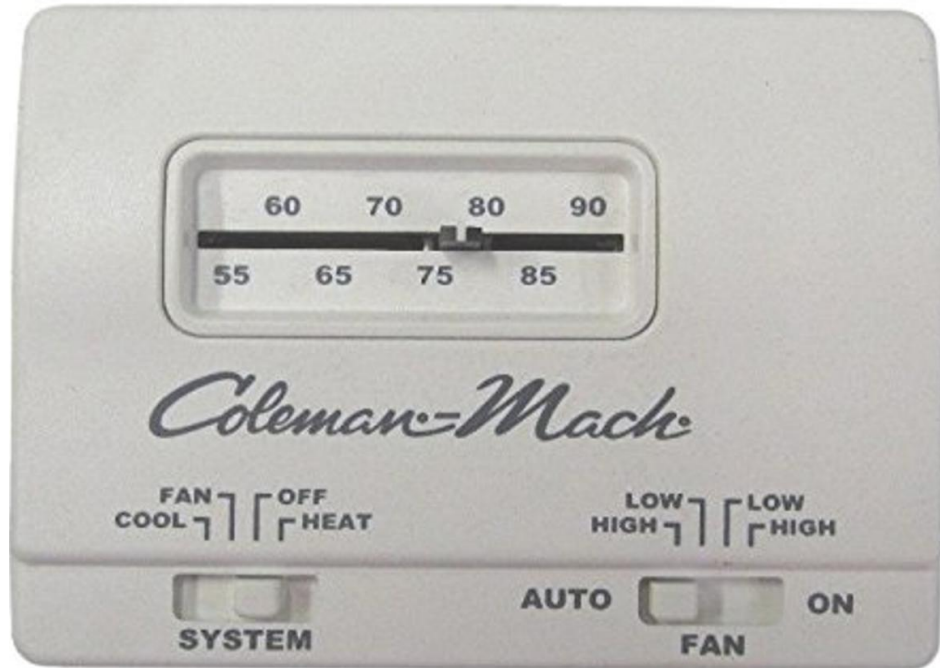
Figure 3 - Coleman 12 Volt Analog Display

If you are not sure, you can use *Table 3* to determine which known model numbers of these kinds of displays are compatible with EasyTouch RV 352.

Known Compatible Model Numbers for 352

Compatible OEM Display Model Numbers (* is any character)					
7330*332* 7330*344*	7330*335* (AP7862)	7330*336*	7330*337*	7330*385* (AR7815) (AP7862-4)	7330*386*
8330*336*	8330*337*	8330*338*	8330*339*	8330*346*	8330*348*
8330*368*	8330*386*	8330*387	8350*336*	8530*338*	8530*339*
8530*338*	8530*339*	8530*345*	8530*346*	8530*348*	8530*349*
8550*335*	9330*378*	9330*380*	9330*382*	8330*324*	
9430*335*	9430*336*	9430*337*	9430*338*	9430*339*	9430*340*
9430*342*	9430*351*	9430*353*	9430*354*	9430*355*	9430*356*
9430*357*	9430*358*	9530*380*	9630*335*	9630*336*	9630*337*
9630*351*	9630*352*	9630*353*			
9420*351*	9420*352*	9420*382*	9420*382*		

Table 3 - List of Known Compatible OEM Model Numbers

Included in the Box

EasyTouch RV model 352 is shipped with the following items:

- 1x EasyTouch RV 352 Display
- 1x Quick-Instruction Card
- 1x Mounting Bracket (_Figure 4_)
- 4x Screw Hole Covers
- 3x Connectors with Wire

The mounting bracket is used during installation. The screw hole covers can be used to cover holes in the wall from the previous display if they are exposed.
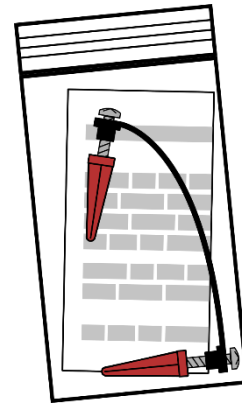

Figure 4 - Mounting Bracket and Instructions

Installing the Display

Safety

First, it is recommended to remove both AC and DC power from your system. Unplug your RV from shore power and turn off any converters or generators to remove AC power. Open your 12-volt DC bus breaker or fuse to de-energize your display. This greatly reduces the chance of any harmful electrical discharge, as well as preventing accidentally opening a fuse.

Removing the Old Display from the Wall

Airxcel™ Three-Button Display

These displays are typically mounted on a button mount similar to the EasyTouch RV mount. Slide the display up and pull away from the wall to remove it.

Sometimes these screwed directly into the wall. Locate the tabs of the front half of the display along its seam to pop it off. The backplate will be screwed into the wall and now exposed for the screws to be backed out. The backplate with the circuit board can now be removed from the wall.

Take a picture of the wiring at the back of the display so it can be duplicated later. Capture how the display wires may connect and change to the wires in the wall that go to the appliances.

Coleman-Mach™ RVComfort 2-Button Display (Single Stage)

Coleman-Mach™ Analog Display (12-Volt DC Only)

These displays have a front cover that pops off. Locate the tabs along the seam of the display to work the cover off. Behind the cover are 2-4 mounting screws to remove and free the backplate. Once the thermostat is removed, pull out some of the wire from the wall and take a picture of the thermostat wiring connections to the original thermostat.

Wiring The Display

Inspect the back of your original thermostat. Determine how the wires are attached to the display itself. Some will have a wire block with push-in terminals to connect wires. *Figure 5* shows the 9-terminal wire block. It may not match exactly but it will be very similar. Proceed to section *Wiring from Terminal Block Displays* if your original display has this terminal block.

Figure 5 - Typical Terminal Block

All others will have the wires directly soldered to the display. If there is no terminal block then the wires are directly soldered. Proceed to section *Wiring Direct-Wired Systems* for all non-terminal block displays.

Wiring from Terminal Block Displays

First, take a picture of the wiring of the terminal block for future reference.

Molex^{TM} Plugs
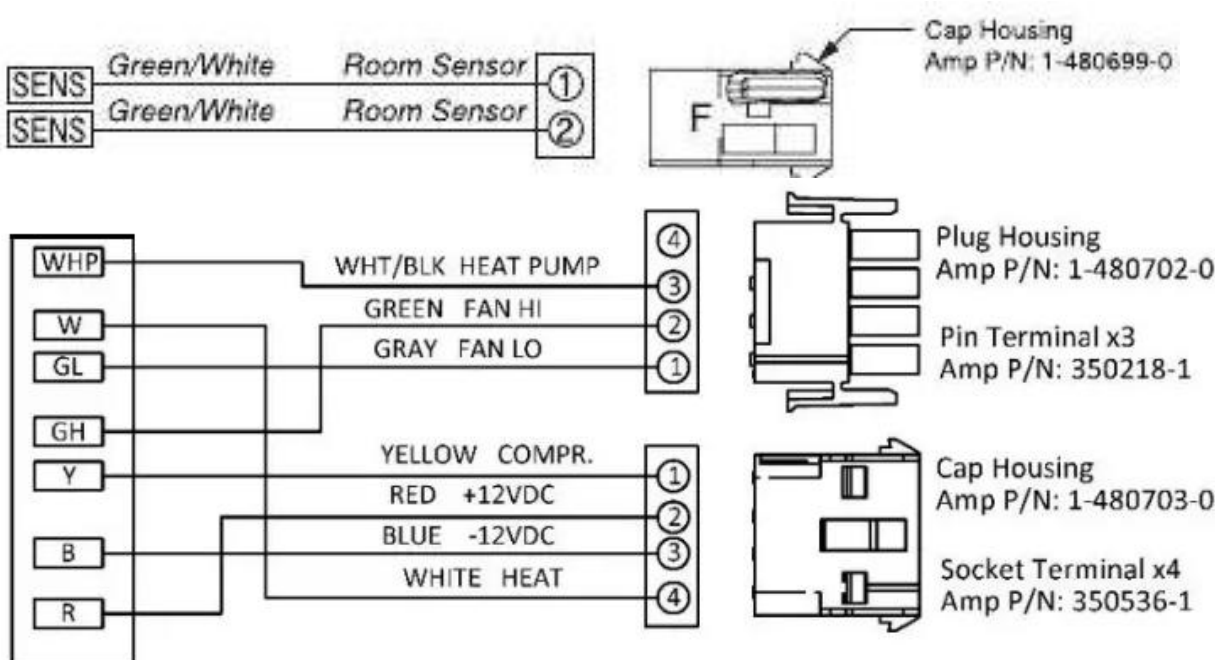
Figure 6 - Molex OEM and EasyTouch RV Plugs

All original AirXcel^{TM} displays were sold to RV builders with wire plugs. *Figure 6* shows an excerpt from the original OEM manuals and are sold with all EasyTouch RV 352. If the plugs are still used, simply unplug the old display and plug in EasyTouch RV. EasyTouch RV may have more wires than the original and that is OK, so long as each original wire has an EasyTouch RV match. You can then move on to the section *Re-apply Power*.

Terminal Block

If there are no plugs then we can swap the wires directly. Note the silkscreen on the back of the display for the names of the individual terminals. *Figure 7* shows a typical way the terminal names are written. EasyTouch RV also has a terminal block of similar design, shown by *Figure 5*. It also has the same terminal names, just above each terminal on the back of EasyTouch RV. The colors of these wires are irrelevant when matching the terminal names. Each terminal may not be used, so long as each original wire is matched into the new display.

Depress the terminal button with a small screw-driver or similar. This will open the jaw and allow the wire to release from the original display. Ensure about 3/8" of insulation is removed from the wire and twist it together if they are stranded wire. Depress the button for the terminal of the same name on EasyTouch RV and slide in the wire completely. Repeat this until all wires are moved over.

Figure 7 – Terminal Names

Wiring Direct-Wired Systems

The original displays without terminal blocks were sold with wires directly soldered to its circuit board. The wires will exit from the back of the display and interface with the wires in the wall that connect to the appliances and power. Follow these wires a few inches down and note how they interface.

Molex™ Plugs

All original AirXcel™ displays were sold to RV builders with wire plugs, similar to *Figure 6*. If the plugs are still used, simply unplug the old display and plug in EasyTouch RV. EasyTouch RV may have more wires than the original and that is OK, so long as each original wire has an EasyTouch RV match. You can then move on to the *Re-apply Power* section.

Some systems were built with non-standard plugs and can use the next section for wiring.

Wire Joints

The RV may have been built with some other standard wiring means than the original plugs. These could be wire nuts, crimps, or other types of connectors. The wires that exit the display will always have the same colors for their purpose. The wires in the wall can be any color. Take a picture of how the display wires interface with the wall wires to know how it was originally wired. *Table 4* can also be used to write in that wall color wire does what, and how it relates to EasyTouch RV.

Cut off the plugs from the wires that comes with EasyTouch RV. Strip the wire ends to 3/8" length and twist the stranded wire together with itself.

Break the connection between the original display wire and the wall wire. Connect the EasyTouch RV wire to the wall wire of the same purpose. Use *Table 4* to create the new connections. Wire nuts or lever connectors (not included) are often used to make the new connection. Do this with each wire until all original wires are moved over. If there are unused wires in EasyTouch RV then they can be removed by depressing their button for a cleaner installation.

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Original plugs could be purchased and built for both the original display and the wall wires if desired. Micro-Air cannot assist in procuring and building these plugs. The original AirXcel™ manual often has the model numbers of these parts.

Original Display Wire Color	Original Factory Wall Wire Color (Write in Here)	Matching EasyTouch RV Terminal Name	Function
Red		R	+ 12VDC
Blue		B	-12 VDC, Ground
Gray		GL	Fan Low
Green		GH	Fan High
Yellow		Y	Compressor
White w/ Black Stripe		WHP	Electric Heat (Heat Pump or Heat Strip)
White		W	Furnace
Green w/ White Stripe (Bi-polar)		SEN	Remote Ambient Sensor
Green w/ White Stripe (Bi-polar)		SEN	Remote Ambient Sensor

Table 4 - Wiring Color and Function Chart

Generic Application Wiring

It is possible to use this display as a thermostat for custom installations. The outputs are all +12VDC active and open collector (high impedance) in-active outputs. Maximum drive current is 200mA per output. This display cannot be used in 24 VAC applications. *Figure 8* shows how these could be wired.
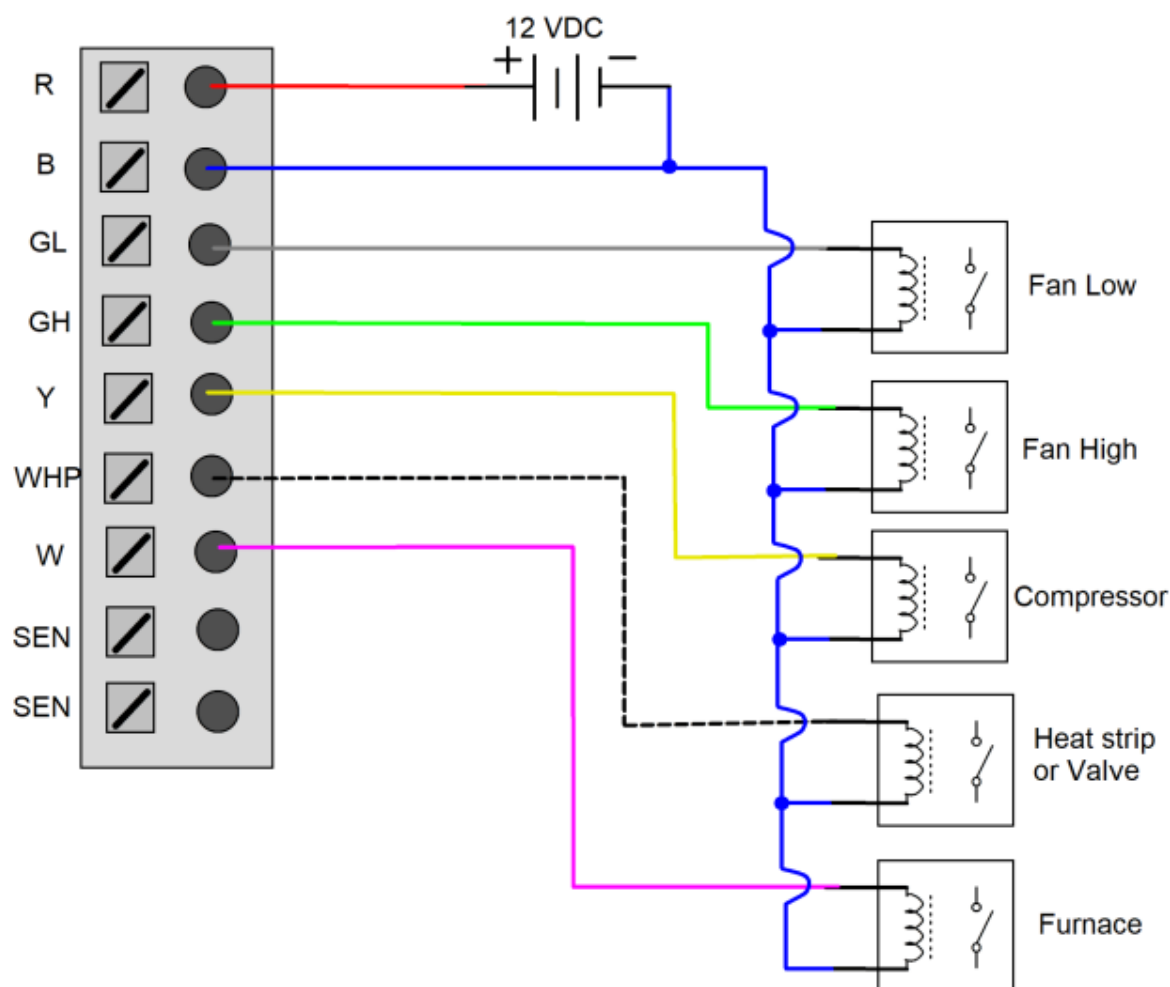

Figure 8 - Generic Wiring Diagram

One application can be for a furnace-only system. These were two-wire systems that gave the +12VDC signal to the furnace to turn on and broke the connection to turn off. *Figure 9* shows a typical style of these thermostats. If a ground wire is run to power EasyTouch RV then it can be used to replace that system. The existing +12VDC wire can be connected to R, the furnace wire to W, and the new ground wire to B. Micro-Air cannot assist further in wiring these systems or ensuring compatibility.
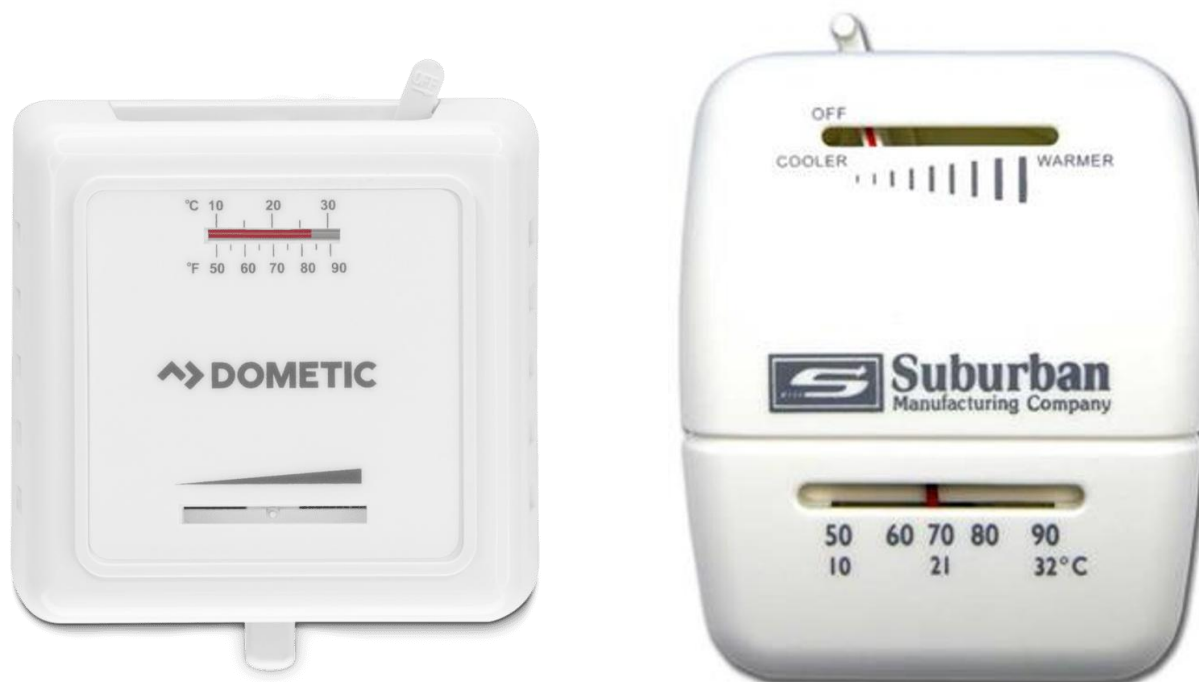
Figure 9 - Furnace-Only Application Examples

Re-apply Power

Restore DC power. The display screen should light up and boot into the main menus. Restore AC power so that your appliances can run again. Move on to the section *Mounting the Display*, or the section *Initial Setup Instructions* and mount the display later.
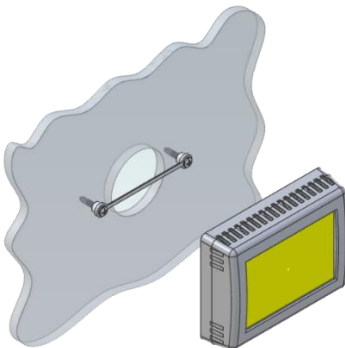
Mounting the Display

Step 1: Level the mounting bracket horizontally across the hole with the smaller diameter of the mounting button against the wall.

Step 2: Screw in one screw and level the buttons so the display will be straight when installed. Screw into the smaller hole of the two buttons.

Step 3: Screw in the second screw and make sure the buttons are flat and level. The wider inner diameter button has some play to make these adjustments easier.
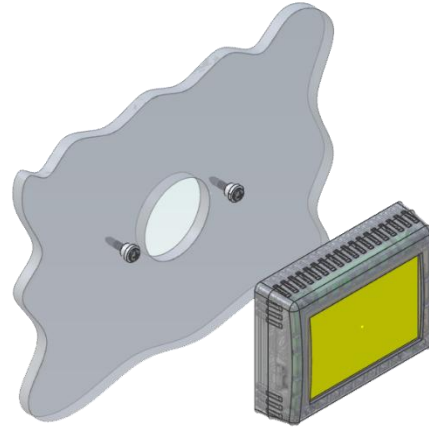
Step 4: Cut away the center of the mounting bracket before mounting the display on the wall.
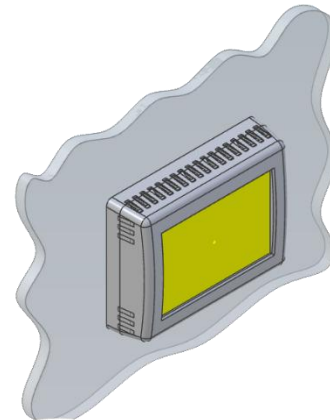
Step 5: Align the buttons with the holes in the back of the display. Press the display against the wall and gently slide the display down to lock it in place.

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Initial Setup Instructions

EasyTouch RV 352 is a replacement for many OEM displays and so must be configured for your specific system prior to using it.

Configure Available Modes

Tap the Settings button on the main screen, then navigate to and tap the Setup button. Tap the icons on this page to enable and disable appliances to match your setup. A red line through the icon indicates disabled.
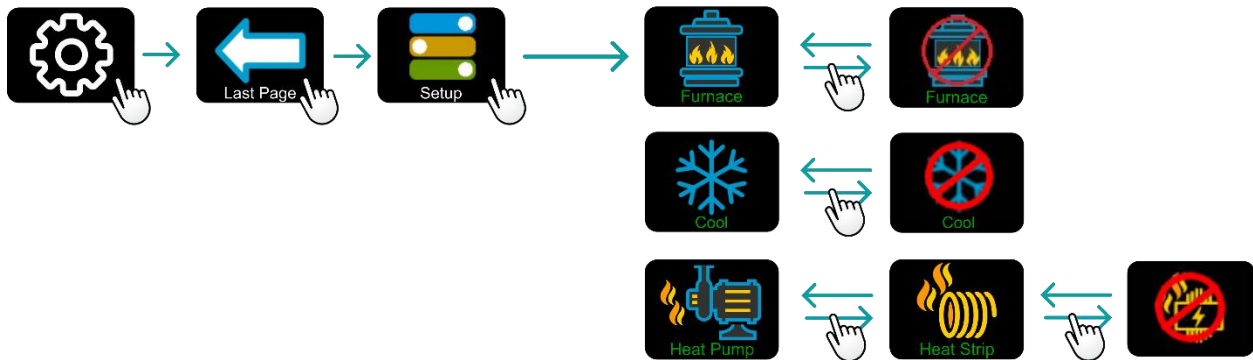

See section _Unique Features_ for some settings that can be changed for some desired operations. Default operation is often fine for most users.

Remote Ambient Air Sensor

EasyTouch RV has an internal air sensor that is used by default to make decisions. Some OEM thermostats and EasyTouch RV can use a remote sensor, installed on the back of EasyTouch RV in the SEN port, to make those decisions. When used, it will override the internal sensor reading automatically.

If you would like to install a new remote sensor or replace it then you can do so with the OEM remote sensor for single-zone AirXcel™ systems. It is a 100KΩ NTC thermistor. Once mounted, simply connect the two leads to the two SEN ports of EasyTouch RV. Micro-Air cannot assist in procuring and mounting the OEM remote sensor.

Connecting Remotely

EasyTouch RV can be operated entirely by the touchscreen, however you can also communicate, monitor, and modify operation of it wirelessly using the EasyTouch RV application (mobile app). Some extra features will require a wireless connection and are described in their sections. See _Appendix A: Working Wirelessly_ for details.

EasyTouch RV App icon

It is recommended to make sure all aspects of the system are working from the display itself before moving on to trying the app. The app mirrors the display touchscreen operation when connected so familiarizing yourself with the display touchscreen first will help understand intended operation and isolate any issues during installation.

Operating the Display - Touchscreen

Main Screen

This screen is where most time is spent using the display. This screen allows you to set and monitor the desired operation of the display, shown in *Figure 3*.

(1) Operational Mode

This is the main operating state of the system. The graphics correspond to how your appliances will operate. Tap it to change to any available mode or turn the system off.

Note: If you do not see a mode you should have then see section *Configure Available Modes*

(2) Fan Speed

This sets how the electric fan (not the furnace blower!) will operate in conjunction with the selected *(1) Operational Mode*. Tap it to iterate the available fan speeds. EasyTouch RV offers improved electric fan control whenever possible.

Figure 3 – Main Screen

No fan button for a mode means there is no fan control for the selected mode. Not all fan speeds are available for the selected mode and there is no control of the furnace blower from the display.

- **Full Auto**: Turns the electric fan on and off with a cycle. It automatically adjusts the speed based on the difference between setpoint and inside temperature
- **Cycled**: Turns the electric fan on and off with a cycle at the selected speed only
- **Manual**: Always runs the electric fan at the selected speed
- **Off**: Some modes can be set to not use the electric overhead fan with any cycle

(3) Inside Temperature

This is the temperature reading for the space that the display is trying to temper, determined by an ambient air sensor in the display. If a remote sensor is plugged into the back of the display then the remote sensor has priority over the display's internal sensor. Use the *(9) Info Screen* to determine which is in use.

The numbers being white means that no cycle is active. The numbers being blue or red mean that a cooling or heating cycle is active, respectively, determined by the *(1) Operational Mode*.

(4) Temperature Setpoint

This button shows the current temperature setpoint for the selected *(1) Operational Mode*. Tap it to adjust the temperature setpoint. Setpoints are tied to each mode to remember the last setting. If there is no setpoint button then there is no setpoint control for the selected mode.
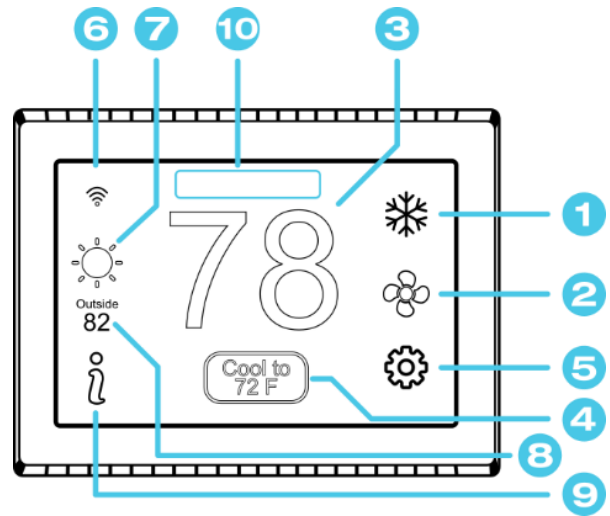
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(5) Settings

This button will enter the settings screens. Settings are mostly for configuring the display and making changes that are not common or found on the main screen. See section *Settings Screens* for more details.

(6) WiFi Status

The Wi-Fi indicator shows the state of the display's Wi-Fi connection. A dark blue icon means no connection to an internet enabling device. Red means it is connected to an internet enabling device but does not have internet. Green means it is connected to the internet. The number of bars indicate strength. See the *Connecting to a New Wi-Fi Network* for more details.

(7) Local Weather

This icon indicates the local weather at the last time weather information was received. A Wi-Fi connection on the display is required to get weather data. Tap the icon for more detailed weather information. See the *Local Weather and Local Time* section for more details.

(8) Outside Temperature

This is the temperature reading for your local area and may be retrieved over the display's internet connection as part of the *(7) Local Weather* information.

(9) Info Screen

This screen shows information about the display's operating state. Tap the button for this information.

(10) Status Message

Various messages may be shown here to indicate active operations. See the *Status Messages* section for potential messages and their meanings.
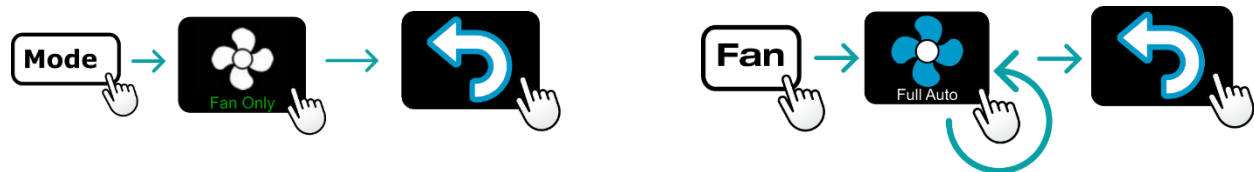
Operational Modes

All modes operate the overhead electric fan and/or a heating or cooling cycle based on the current setpoint, relative to the inside ambient temperature. To get appliance operation:

1. Set the desired mode by tapping the *(1) Operational Mode* [Mode] and choosing the desired mode or turn the system off.

2. Tap the *(2) Fan Speed* [Fan] button if applicable to set the desired electric fan operation.

3. Tap the *(4) Temperature Setpoint* button if applicable to set the desired ambient temperature.

Fans and Fan Only Mode

This mode lets the fan operate based on the chosen *(2) Fan Speed*. This will circulate the air using the electric fan of the A/C without operating any heating or cooling cycles.

Cool Only Mode

This mode only runs a cool cycle to maintain the cooling set-point in the selected zone. Set the *(1) Operational Mode* to Cool and the desired *(2) Fan Speed* and *(4) Temperature Setpoint*.
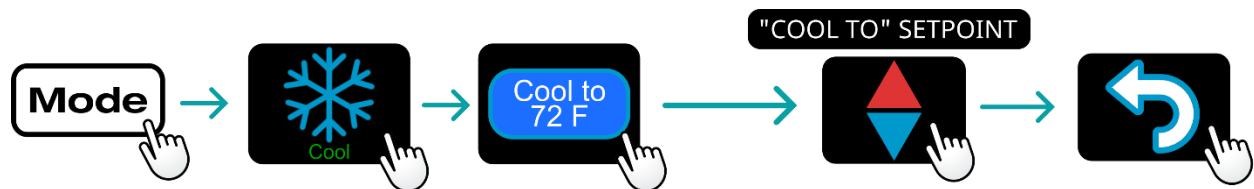
Electric Heat Only Mode

This mode only runs an electric heat cycle to maintain the heating set-point in the selected zone. This may be a heat pump or a heat strip depending on the factory zone set up. Set the *(1) Operational Mode* to Heat Pump or Heat Strip and the desired *(2) Fan Speed* and *(4) Temperature Setpoint*.

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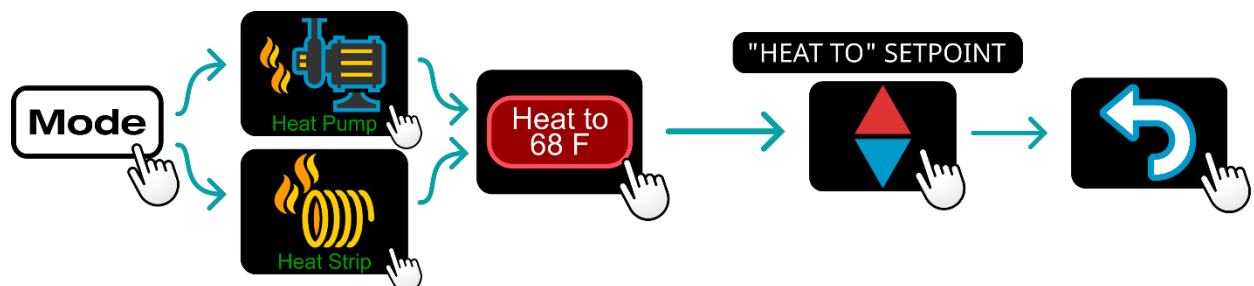
Auxiliary Heat Only Mode

This mode only runs a "forced-air" auxiliary heat cycle to maintain the heating set-point in the selected zone. Set the *(1) Operational Mode* to Furnace or Aqua and the desired *(2) Fan Speed* and *(4) Temperature Setpoint*.
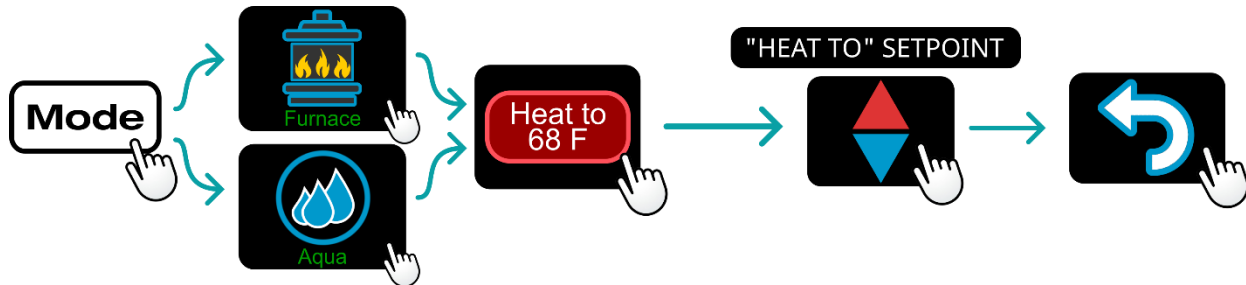
Auto Modes

This is a new feature brought to the system by EasyTouch RV. These modes will automatically switch between a heat or cool cycle as needed, without changing modes. Their operation will be the same as their "only" mode counterpart to trigger cycles. Auto modes have their own "dual" set-points that are separate heating and cooling setpoints. No heating or cooling cycles will occur when the inside temperature is between these setpoints.

These modes can be useful when setting a higher daytime cooling temperature and a lower night-time heating temperature. It can also be used to control the temperature extremes when you are away from the space.
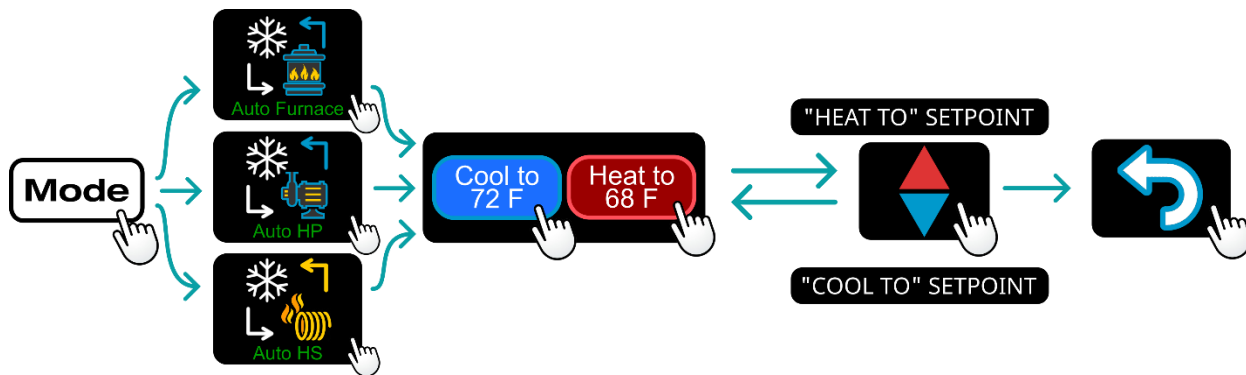
Settings Screens

These settings are common to all displays. These allow for further configuration and control of the display and system behaviors. Each setting can be tapped to configure the related settings.

Tap the settings button as shown in section *(5) Settings* under *Main Screen* to view them.

Settings Button

Navigation

Use these buttons to flip through all the available settings or return to the main screen.

Previous Settings Page

Back to Main Menu

Next Settings Page

System Help

This screen displays a QR code that can be scanned to provide information about display operation and troubleshooting from the Micro-Air website. It also shows the current display firmware revision and the display's serial number.

Help Button

Day/Night Mode (Screen Saver)

Tap this icon to switch between Day or Night mode. Day mode will dim the display down to the Sleep Level set in the *Display Brightness* settings, after 30 seconds of no screen presses. Night mode will turn the backlight completely off after 30 seconds of no screen presses. The display will brighten again after a screen press to the Active Level set in the *Display Brightness* settings.

Day Mode

Night Mode

Display Brightness

This screen allows you to set the Active and Sleep brightness levels that are used by the *Day/Night Mode (Screen Saver)* settings. Tap the associated up and down arrows to change their level.

Brightness Button

Schedule – Edit, Enable or Disable

There are two Schedule buttons with sub-writings "Schedule" or "Enable/Disable". Tap the enable/disable button to turn the schedule on or off. Tap the schedule button to modify the schedule. See section *Schedule Screens* for more details.

Schedule Button

Wi-Fi Information

This screen allows you to monitor the state of your Wi-Fi connection to the display. SSID and Password fields show the saved credentials that the display is always attempting to find and connect to. Tap the password field to reveal the password.

The Router, Strength, and Internet fields show the state of the Wi-Fi connection. The MAC address of the display is also shown at the bottom. See section *Connecting to a New Wi-Fi Network* for more details about using Wi-Fi.

Wi-Fi Button

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Max Wi-Fi Recovery

This button on the Wi-Fi settings page, when enabled, will restart the thermostat if it detects an outage for too long. This is intended to make sure the Wi-Fi connection from the thermostat stays up as much as possible.

ENABLED

Max Wifi Recovery

Sometimes, a cooling or heating cycle may terminate to accommodate this functionality. If this is undesirable, it is recommended to turn this feature off while at the space and reenable it when you plan to be away.

Home/Away

This setting changes from a home memorized set of settings to an away memorized set of settings. It is like having two different displays, one while you are at the RV and one for when you are not. Each can be set with a completely different set of modes, schedules, set points and fan speeds to customize the operation with a single button press.

Home and Away Buttons

Bluetooth (Account) Password Reset

This screen is used to reset the saved Bluetooth password in the display. This is the password that must match your EasyTouch RV app account to make remote connections. Only one account can have access to the display. Use this whenever you reset the password to your app account to regain remote access to the display.

Bluetooth Password Reset

Temperature Reading Adjustment

This setting allows you to calibrate the Inside temperature reading with an offset. For example, if the inside temperature reads 72F (22.2C) and you feel it is 75F (24C), you can use the up and down arrows on this page to increment the offset to +3F (+1.8C).

Temperature Reading Adjustment

Temperature Gap (Hysteresis)

This setting determines the difference in temperature required between setpoint and inside temperature before a heating or cooling cycle will begin. This is helpful to prevent short cycling in large spaces or spaces with high thermal loss, by running a cycle for longer amounts of time. This offset is applied to all logic that involves setpoint operations, such as auto modes, auto gas changeover, etc. See *Table 5* for an operational example.

Temperature Gap Button

Inside Temperature (°F)	Heating Setpoint (°F)	Heating Hysteresis (°F)	System Operation
69			None
66			None
65	68	3	Heating Cycle Begins
67			Heating Cycle Continues
69			Heating Cycle Ends

Table 5 - Temperature Gap Operational Example

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Measurement Units

This setting determines the temperature scale to use in the display. Tap the Units button to toggle between Fahrenheit and Celsius.

Units Buttons

Touchscreen Calibration

The EasyTouch RV touchscreen is calibrated at the factory to accurately interpret your touch presses. Tapping the Touchscreen Calibrate Button will allow you to recalibrate the touch press area. Follow the on-screen prompts to calibrate the touchscreen.

Touchscreen Calibrate Button

Restart

This setting will turn the display off then on as if removing and restoring power. Tap the Restart button and follow the on-screen prompts to confirm.

Restart Button

Reset All

This setting will reset certain settings in the display back to factory defaults. Some displays offer options to which settings to return to defaults. Tap the Reset All button and follow the on-screen prompts to choose what you would like to reset.

Reset All Button

Setup

This setting is used to configure your display's operational settings and is slightly different for each EasyTouch RV model. Some simply display how the air conditioner control board that EasyTouch RV communicates with is configured. Others allow for telling EasyTouch RV what appliances it has connected to it. Tap the Switches button to see what configurations are available. See section *Initial Setup Instructions* for details on what must be configured, if any. Micro-Air cannot assist with manipulating and adding more appliances to your system.

Setup Button

Furnace/Aqua Icons

Most RV systems have auxiliary heat modes in the form of a "forced-air" gas furnace or hydronic heat. EasyTouch RV or the associated control board treats these as the same output and so you can tap the Furnace/Aqua button to toggle between what icons to display for this operational mode. This is simply a cosmetic setting for all EasyTouch RV models except the 350 model, which should be set appropriately.

Furnace/Aqua Button

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Schedule Screens

The schedule supports 7 day per week scheduling of events. Events can include changes to the set point or mode of operation for one or more zones. Each numbered row is an event that can be configured. _Figure 10_ shows the main schedule screen. Tap the "Schedule" button from the Settings _Screens_ to enter.

The smart device application also offers a method to copy days. Once a schedule is set for one day, it can be copied to any other day using the app.

Create Schedule Flowchart

This section shows all steps to create a schedule using a graphical flowchart. The next section shows the same process in more detail.

This flowchart is for the touchscreen on the display. It is recommended to be in front of the display when following this chart and follow the graphical elements and their arrows.

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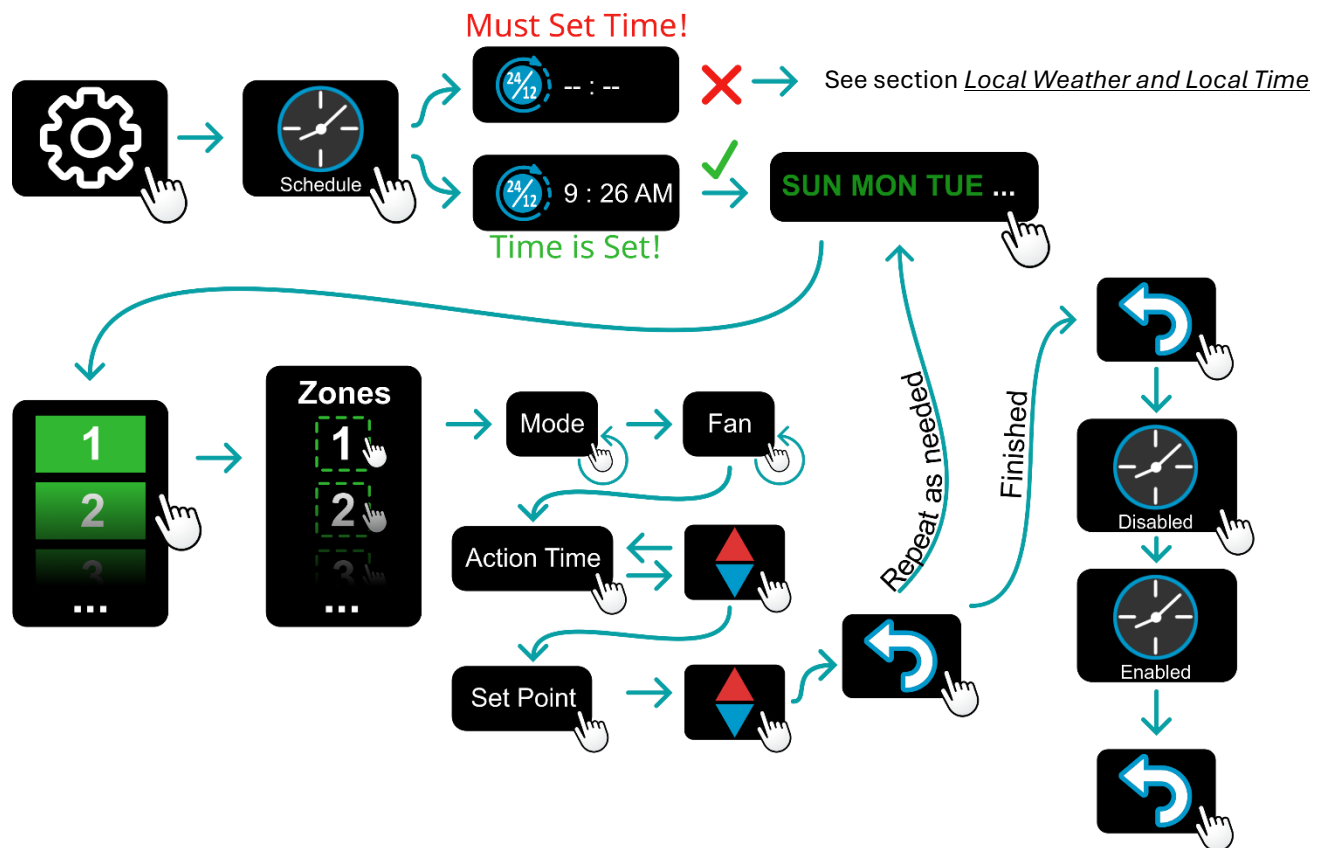
(1) Day of the Week

Day of the week is selected from the days along the top of the screen. The day selected appears in white.

(8) Scheduled Events

Events are numbered 1 to 6 along the left side of the screen. Each row is a numbered event. Tap an event to edit it and advance to the schedule edit screen, shown in *Figure 11*. Tap "More" to see events 4, 5, and 6.

(2) Time

This column shows the status of the event (row). It is either disabled or set for a time to apply its event settings.

(3) Mode

This column shows the mode that will be applied if this event (row) occurs.

(4) Temp

This column shows the temperature setpoint that is applied if this event (row) occurs.

(5) Zones

This column shows the zones that this event (row) will apply to. Only used in zoned systems.

(7) System Time

System time is displayed along the bottom. Tap the time to change from 12-hour to 24-hour time format. A "--:--" is shown when time has yet to be set. A valid time is required for the schedule to operate. See section *Local Weather and Local Time* for how the system time operates.

(6) Back

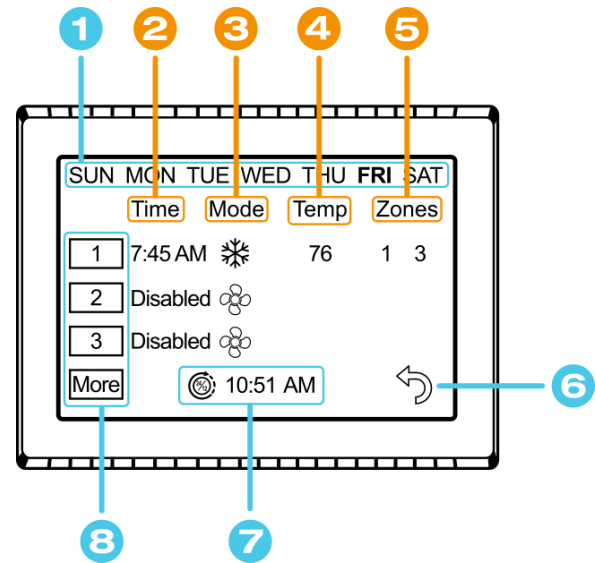Tap the back arrow to return to the last screen.

Figure 10 - Main Schedule Screen

Figure 11 shows the edit screen when an event is tapped as shown in *(8) Scheduled Events* of *Figure 10 - Main Schedule Screen*. The event time on the main schedule screen and Action Time in the edit schedule screen will show disabled until a time is set. Tap "Disabled" (1) at the top of the screen to show a gray box around the Action Time to select it. The up and down arrows change to full color once a selection is made. Use the arrows to make a change to what is selected. Use the back arrow (2) to save any changes and leave the screen.
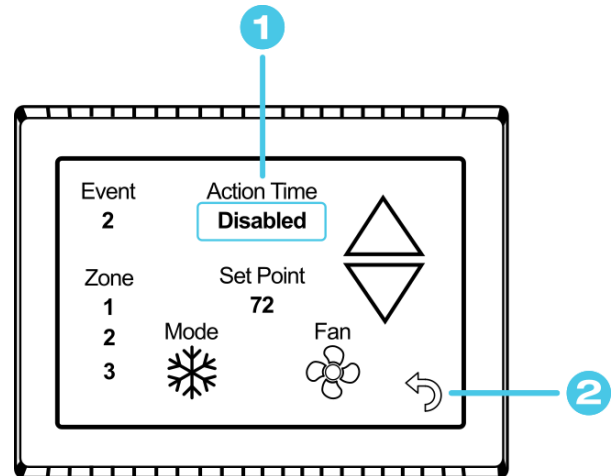

Figure 11 - Schedule Edit Screen (Disabled Event)

Figure 12 shows the schedule edit screen once a valid time is set for the event.

1. Set the desired mode and (if available) fan speed by tapping their buttons.
2. Set the event time by tapping hours, minutes or AM/PM.
3. Use the red and blue arrows to adjust your selection. Tap the hours, minutes, AM/PM or the set point to select an editable parameter.
4. **Zoned systems only**: Tap the zone number to enable/disable the zone you want this event to affect. A green box will draw around zones the event is enabled for. Events for Single zone EasyTouch RV models will always be enabled when the Action Time (2) is set.
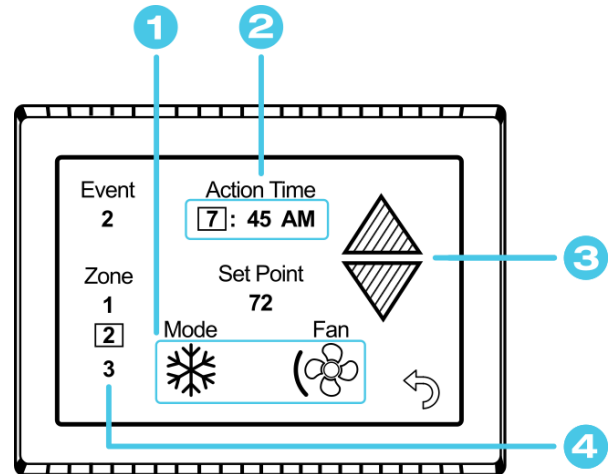
Figure 12 - Schedule Edit Screen (Enabled Event)

Create and Enable a Schedule

1. Tap the edit schedule button as described in the Schedule – Edit, Enable or Disable section in settings to enter the main schedule screen, shown by *Figure 10*.
2. Ensure that a valid *(7) System Time* is shown. Tap the day you want to set up a schedule for, then the event you want to edit, all shown by *Figure 10*. Tapping the event will take you to the edit schedule screen, shown by *Figure 11* and *Figure 12*.
3. Tap the Action Time, Setpoint and Mode/Fan Speed to make edits to what you want your event to do. Tap the zone you want this event to occur in if shown.
4. Tap the back button to save the event and repeat for any other events and any other days.
5. Tap the back button once again to return to the settings screen. Activate the schedule by pressing the schedule button with the "Enabled/Disabled" subtext as described in the *Schedule – Edit, Enable or Disable* section in settings. When enabled, it may also be noted on the *(9) Info Screen*, under the *Main Screen*.

Unique Features

Each model of EasyTouch RV is a drop-in replacement for a specific existing OEM system. This means each model will have some unique operations and parameters that can be set. EasyTouch RV also brings new functionality to the OEM system.

Auto Gas Changeover

The OEM system has a protocol for automatically switching from electric heat (heat pump or heat strip) to auxiliary heat (gas or hydronic heat). EasyTouch RV mirrors this operation. See your OEM manual for the exact operation. This can be enabled or disabled from the Setup Screen. Tap the gear, navigate to Setup, and tap the button to enable or disable Auto Gas Changeover.

Temperature Sensor Adjustment

EasyTouch RV has a temperature sensor installed in the display and is used to make decisions on when to run a cycle. This reading can be calibrated to better match what the space feels like.
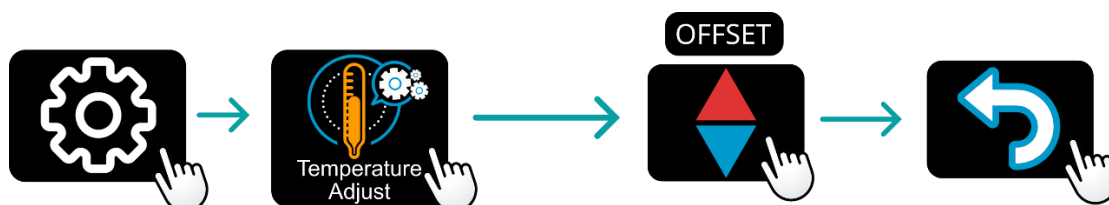
Hysteresis Control – Temperature Differential

EasyTouch RV has logic to set when a cycle starts based on the inside temperature and the setpoint. Setting the Hysteresis offset will change when a cycle will start. This can be useful for running a cycle longer or shorter, to prevent short cycling or adding more energy into a space with high thermal loss. See *Table 5* for an operational example in the *Settings Screens* section.
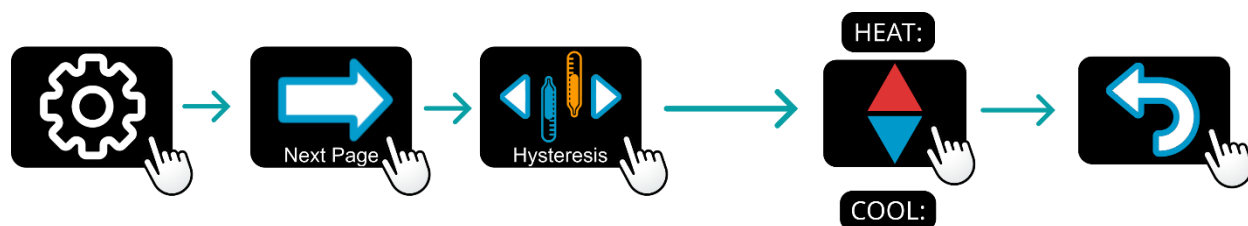
Auto Operational Mode

EasyTouch RV has modes that will run heating or cooling without intervention. The original system could only be set to heat or cool at any one time. See section *Operational Modes* for more details.

Enhanced Electric Fan Speed Control

EasyTouch RV has improved control over how the electric fan will operate during a cycle. See section *Operational Modes* for more details on the additional ways to control the overhead fan.

This feature allows for the overhead electric fan to run in furnace mode, if set to do so. If you *always* want the fan to be off when the furnace runs then you can turn off fan speed control from the SETUP page in *Settings Screens*.

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Status Messages

Some messages may be displayed at the top of the main screen. *Table 6* shows the potential messages and their meaning.

Message Text	Description
BAD INDOOR SENSOR	EasyTouch RV has an ambient sensor for making decisions on when to operate a cycle. A remote sensor needs to be added or replaced, or EasyTouch RV needs to be repaired or replaced.

Table 6 - Status Message Descriptions

Local Weather and Local Time

Local weather is displayed on the main screen whenever Wi-Fi and internet is available, shown visibly in the *Main Screen* section. Tapping the *(7) Local Weather* button will reveal more detailed weather information of the last received weather data. The local temperature is displayed under the local weather.

A valid location and an internet connection on the thermostat are required to retrieve weather data. Local time data also requires valid location data to set up the time zone. Location is saved in the thermostat when a Bluetooth connection is made from a smart device with its location services enabled. You can check the current saved location from the weather screen. Location is preserved through power losses or device restarts.

New weather data is retrieved when there is any screen press or when a connection from a smart device is made, along with the above prerequisites.

Time is pulled in when a Bluetooth or Wi-Fi connection is made from the app. Also, an internet connection on the thermostat will grab the time so long as there is a valid saved location. If power is interrupted or the device is restarted, it will go out to the internet to grab the current time when the internet connection is re-established, without app interaction.

Tapping the weather icon area, whether there is information there or not, will change to the weather screen that will show the last valid weather data or weather troubleshooting information. If the main screen has an outside temperature but no weather icon, it is defaulting to the outside sensor reading on thermostats that have one. The information screen will always show the sensor reading if there is a sensor, and the weather screen will always show the temperature reading from the internet. Systems without an outside temperature sensor cannot add one.

Smart-Device Application Features

Check for Updates

Checks to see if any updates are available for the display. The smart device application must have internet and the display must be connected to Wi-Fi with a green Wi-Fi symbol. Tap Check for Updates and follow the prompts.

Note: Beta updates may be available from time to time, but these are for people working with Micro-Air in testing them. Some features may not work as expected. The current version firmware can be restored by checking for updates again.

Notifications

Notifications provide a way for the user to monitor the temperature in the space using notification limits. Limits are set by connecting to the display in the app, selecting the settings gear, and then selecting notifications. A minimum and maximum allowed temperature can be set. _Table 7_ shows an example of operation with an 80°F maximum temperature set.

A Notification will be sent for each degree it rises above the maximum temperature. If temperature drops, no notification will be sent unless the temperature exceeds the last maximum temperature again (82 in the example). If the temperature drops two degrees below the set maximum, (78 in the example) it will again alert for each degree above the set maximum. This behavior helps avoid nuisance notifications to your smart device. The same occurs in the opposite direction for the lower limit.

Temperature (°F)	Action
80	Send first notification
81	Send another notification
82	Send another notification
81...79	Temperature drops, no notification
78	Max temp resets

Table 7 - Push Notifications Operation Example

Edit Wi-Fi Settings or Connect to Wi-Fi

This is where you will make the connection from the display to the internet. See section _Connecting to a New Wi-Fi Network_ for details on how to use this feature. The app must be connected to the display over Bluetooth to see this option.

Refresh Configuration

This setting resets the saved configuration in the app if a configuration change is made at the display. If there is a difference between the modes and zones available on the app compared to the display then press this button to sync the app to the display. First time connection will grab the correct settings but activate this setting to force the sync.

Appendix A: Working Wirelessly

This display may be operated remotely using either Bluetooth or Wi-Fi. All connectivity is performed through the EasyTouch RV App on a smart device. The app is downloaded from the Google Play store or Apple App store. The first time the app is opened, it will ask to create an account. Create your account and follow the prompts to connect your display.

EasyTouch RV App icon

Bluetooth is a limited range method to connect, typically used when near the display. The display can be connected to an internet-connected network, where you can then access the display from anywhere you have an internet connection with the app.

If a second user is going to use the display remotely, they MUST use the same account and password that the first user assigned to the display. Each display can only be assigned to a single account, but many users can control the display if they use the same account.

First Connection Steps

Note: An internet connection on your smart device is necessary for these steps.

1. EasyTouch RV uses BLE which is a special implementation of Bluetooth. The smart device and display do not "Pair" like other common devices. Ensure that Bluetooth is enabled in the smart device settings, and that the app has Bluetooth permissions. Android systems have changed over time and some users may need to have location permissions give to the app, location permissions turned on in general, our give "nearby devices" permissions to the app.
2. Start the app on your smart device. Bluetooth permissions must be accepted and may prompt you for them. The app will open to a main page where you can log-in, delete an account, recover a lost password, or create an account. Tap create account and enter your name, email, and a password at the prompts. The system will send a confirmation email to your inbox. Enter the number in the confirmation email when asked.
3. Once the account is created, the application may ask to add a device. If your display is powered and permissions are set up, it will show in the list to be added to your account, found over Bluetooth. Select the device and enter a name for it. This name is used to identify and connect to it in the future.
4. If you added a control, the app will ask if you want to connect the display to Wi-Fi now. Enter your SSID (network name) and password of the network you want to connect the display to.

Adding a Display to Your Account

Follow the next steps if you did not add add a display or there are more to add.

1. Open the app and you should be signed in from the directions of the *First Connection Steps* section. Press the settings gear and "Add Device".
2. The nearby display (s) should be listed in the "Devices Found" list. These are the displays heard over Bluetooth. Select the device and enter a name for the device.
3. Once added, go back to the "Devices" screen, which lists all the displays added to your account.
4. Select the display you want to control from the "Devices" list to connect.

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Connecting to a New Wi-Fi Network

You can connect to the display from anywhere using the app when the display is connected to an internet source. The internet source **must** be operating on a 2.4GHz network to connect to EasyTouch.

1. Connect to the display in Bluetooth and press the settings gear. Apple users select Bluetooth on the first page.
2. Select "Connect to Wi-Fi" or similar from the settings window.
3. Connect to a network:
   a. The SSID (network name) will say "searching" then switch to "select". Tap "select" to choose from a network the display can hear.
      i. Alternatively, enter the SSID manually (case sensitive)
   b. Enter the password (case sensitive).
4. Press OK and the screen will return to the selection screen. The display will reset and a green Wi-Fi symbol will appear on the main display screen if the connection was successful.
5. With a green Wi-Fi symbol, you can now connect to the display from anywhere using the app over the internet.

Updating The EasyTouch RV Display

Ensuring you have the latest display software is key to having all the latest features.

1. Ensure the display is connected to Wi-Fi with a green Wi-Fi symbol.
2. Connect to the display with the app and press the app's settings gear. Then tap Check for Updates.
3. Follow the prompts to update the display or ensure that you already have the latest software.

Appendix B: Troubleshooting

This section has some troubleshooting suggestions based on what you may find with this display in particular. Please take a look at our *Quick Start and FAQ Manual* for typical questions that may arise when using the display or the app, as well as quick instructions for common operations.

EasyTouch RV Does Not Have a Terminal Block or Connectors on the Back

EasyTouch RV 352 has up to 9 wires from its terminal block. If the EasyTouch RV display you have does not then it is not a 352 model. Make sure that you purchased a 352 model, the 352 is appropriate for you, and that you were shipped the correct model. The serial number will begin with "352" if it is an EasyTouch RV 352 model.

I am Missing Mode Choices from the Main Screen

I only have a white fan for available modes?

I don't have a furnace mode? I don't have a cool mode?

EasyTouch RV must be told what appliances it has available to it. Make sure to complete the software setup in section *Configure Available Modes*. If you have the correct modes on the display but not in the app then tap "Refresh Configuration" in the app settings while connected to the display.

EasyTouch RV Reboots Constantly or Shuts Down Randomly

EasyTouch RV when first plugged in or is powered (boots) will show "EasyTouch RV by Micro-Air" before transitioning to the *Main Screen*.

If you find it shuts down randomly then see section *Max Wi-Fi Recovery*.

If you find it constantly re-shows the boot screen:

- See section *EasyTouch RV 352 Models and Compatible Replacements* to make sure you have the correct thermostat.
- Use section *Wiring The Display* to verify the installation wiring:
  - First time installations should make sure the wiring is correct. Incorrect wiring will constantly reboot.
  - Inspect the wiring to make sure the wires are fully inserted into the terminal block. There should be about 3/8" of exposed wire that is fully inserted to expose no copper. Peer down into the wire jaw and make sure there is no dirt or debris that could fowl the connection. See that the clamp opens and closes when you depress and release its button, respectively.
  - If using the wire plugs, peer into the plugs and make sure the wires are crimped will to the metal plug and is properly seated in the plastic housing.
- Try to unplug and reseat the wiring and wait up to 30 seconds for the display to return. Try this a couple times to be sure. This may clear away dirt or debris that created a poor connection.
- Make sure you have 12 volts DC between R and B terminals of EasyTouch RV. A voltage drop when EasyTouch RV is plugged in means there is a wiring issue somewhere between the battery, A/C, and the display.
- Try and plug in the OEM display if you still have it.

An Appliance is Not Operating as Expected

You may configure the system to start to heat or cool the space and appliances are not turning on or off as you expect. The system's logic is in EasyTouch RV and will energize certain outputs for certain appliances.

It is best to address these issues from the display directly to isolate any issue from use of the app. This procedure will reference the *Main Screen* and its buttons to tap.

- Make sure you have the latest display software. See section *Updating The EasyTouch RV Display* for more details.
- If the electric fan for the A/C is what is odd then use the fan button to set the fan speed appropriately and understand when it should run.
- Is the ambient temperature drawn in white? The ambient temperature color is how the display shows whether a cycle is active or not and is a direct signal from EasyTouch RV. White means a cycle is inactive. Make sure the software is set correctly to call for a cycle.
  - Tap the mode button, then the power button to green and tap the desired mode, such as the cool mode.
  - Tap the fan button to the desired fan mode. Set the speed appropriately and understand when the electric fan should run.
  - Tap the setpoint button to the desired temperature. For example, in cool mode the setpoint must be less than the ambient temperature to start a cycle.
    - You can use the *(9) Info Screen* to see if a cycle is pending and will start soon.
    - Check that the *Temperature Gap (Hysteresis)* operation is understood and set as expected as it affects when a cycle will start.
  - Check the *(10) Status Message* for any issues that may need to be addressed. Most messages will not allow a cycle to start.
- Is the ambient temperature drawn in color (blue or red)? This means that EasyTouch RV is actively powering the appropriate appliances for the mode and the cycle is active. The color is directly related to what outputs are energized by EasyTouch RV.
  - If an appliance is not running when the cycle is active then use section *Test Outputs of EasyTouch RV to Appliances*.

Test Outputs of EasyTouch RV to Appliances

Use this section with a voltmeter to determine EasyTouch RV is operating as expected.

- Inspect the fuse on the back of EasyTouch RV to see if it has blown. If it is blown then there is an issue with an appliance that needs to be investigated before the fuse is replaced.
- Inspect the wiring for any issues. Make sure the terminals at the back of EasyTouch RV are still fully inserted.

Use section *An Appliance is Not Operating as Expected* to make sure you have set the display to do what you expect. The main concern is that if the temperature reading is white then no cycle is being called for and only the overhead fan may run. If the numbers are red or blue then a cycle is active and a major appliance should be running.

EasyTouch RV has 9 circuit terminal block that is labelled per *Table 4* along the terminal block. Each terminal will energize to about 11 volts DC when EasyTouch RV wants to activate the appliance. It will read about 0 volts DC when off. Place the black probe in the "B" terminal for ground. Use the red probe to measure the output terminal.

If the output is energized but not running then there is an issue with the appliance or its wiring outside of EasyTouch RV. An RV technician is best to further diagnose these issues.

Setting	Energized Fan Output	Energized Appliance Output
Fan Low	GL	-
Fan High	GH	-
Cool	GL or GH	Y
Furnace	GL or GH or None	W
Heat Pump	GL or GH or None	WHP
Heat Strip	GL or GH or None	WHP

If an output is energized and it should be off, try unplugging the appliance wire and measuring the terminal directly. Use section *An Appliance is Not Operating as Expected* to make sure you have set the display and the appliance should be off. If the output is energized and should be off or is unenegerized and should be on then there may be an issue with your EasyTouch RV hardware.

Black or White Display Screen

The screen of the display normally has some graphics on it that show the status of the system operation. You may find the screen is blank (full black or full white) and can try the following:

- If it constantly goes black and reboots or does so randomly then see section _EasyTouch RV Reboots Constantly or Shuts Down Randomly_.
- Night mode will turn off the backlight so the screen is full black when inactive. Tap the screen to bring it alive and switch to Day mode to disable this functionality if desired.
- Try to unplug the display by its 12V+ and GND wires for a few seconds, then plug it back in and wait up to 30 seconds for the display to return. Try this a couple times to be sure.
- Make sure your 12-volt system (typically a system battery) is charged and any breakers or fuses are closed. Use a voltmeter to measure for 12 volts between the two power wires. Inspect the wires for any damage or poor connection. There should be about 3/8" of exposed wire that is fully inserted to expose no copper. Peer down into the wire jaw and make sure there is no dirt or debris that could fowl the connection. See that the clamp opens and closes when you depress and release its button, respectively.
- Try and plug in the OEM display if you still have it to verify operation.

Wi-Fi Troubleshooting

This is a list of potential fixes we have found for most customers that have trouble connecting the display to the internet. If you still have trouble then navigate to our _Micro-Air EasyTouch RV Knowledge Bank_ that has a troubleshooting section. See the WiFi troubleshooting articles for the latest information.

Blue Wi-Fi Icon – No connection

- SSID (Network name) and password are both case sensitive.
- Be sure you are connecting to a 2.4 GHz network and not a 5GHz or 6GHz network.
- Set the security to WPA2 and TKIP+AES if you are having trouble.
- The display has a limit of 31 characters for the SSID and 50 for the password.
- Ensure the number of devices limit for the network is not full.
- Ensure the Wi-Fi source is not out of range or metal partitions blocking the signal.
- Try a guest network or mobile hotspot that may have reduced restrictions.
- Reset the router to renew the DHCP lease.
- If you are in a metal enclosure, try moving the router or display a few inches (even if temporary) and trying again.
- If using MAC filtering, add the display to the allowed devices list.
- Try assigning a DHCP reservation to the display's MAC address.

Red Wi-Fi Icon – Connected without Internet

- The router must have an internet connection
- Server may be down, check back at a later time
- Be sure there is no firewall in the router blocking the incoming messages (port 8883, MQTT). Place the display's IP or MAC address into the router's DMZ settings to bypass any firewalls.

More Information and Resources

Micro-Air EasyTouch RV Knowledge Bank

Home page of the knowledge bank for the latest guides on setup, operation, and troubleshooting.

https://www.micro-air.com/kb_easytouch_rv.htm

Quick Start and FAQ Manual

Installation section of the Knowledge Bank, which has the quick start and FAQ manual at the top.

https://www.micro-air.com/kb-easytouchrv/cat_installation.htm

Dealer Map

This is a map of all technicians and RV shops associated with Micro-Air. You can use these businesses for installation services.

https://www.microair.net/pages/find-a-dealer

Main Website

Main website for buying our products and contacting us for support. Please read over the rest of the *Appendix B: Troubleshooting* section, the *Quick Start and FAQ Manual*, and the rest of this manual to see if it has the answers to your questions or issues. If you still have trouble, be sure to provide what product you have, model number, serial number, and a description of what is happening and what you have tried when contacting us.

https://www.microair.net/

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