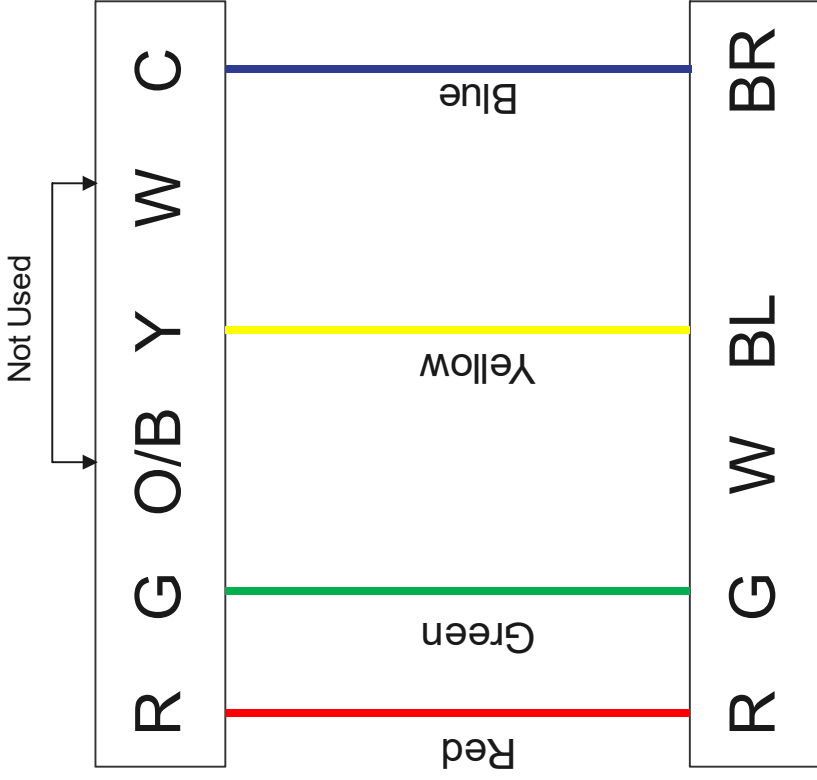


This packet contains the thermostat wiring diagrams and other important wiring schematics for the Marine AC units. For further assistance please contact Freedom Medical and Marine Solutions.

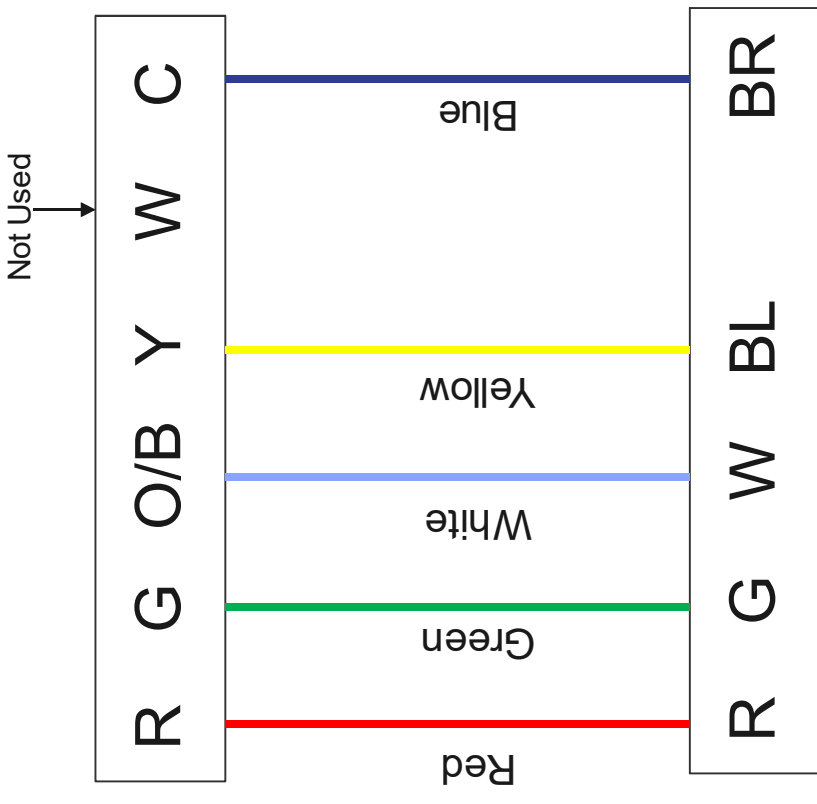
Marine Unit Thermostat Wiring (Honeywell Thermostat)

Cool Only



R-R
G-G
Y-BL
C-BR

Reverse Cycle



R-R
G-G
B-W
Y-BL
C-BR

Thermostat

Control Box

Notes:

- C/BR is an optional wire and not all thermostats will require it or have the terminal available. This wire is required for WIFI/Smart thermostats. See thermostat user manual for more information
- For reverse cycle thermostat has to be setup to run in heat pump mode. See included installation manual for thermostat setup

Honeywell T4 Important Settings

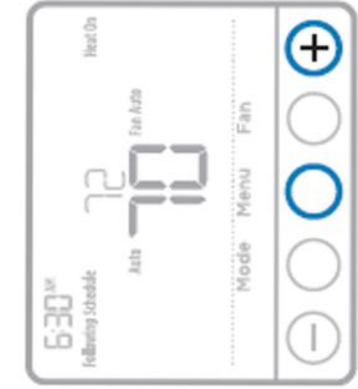


This section is only a summary of important information that can all be found in the install booklet that came with the thermostat

Installer setup (ISU)

- 1 Press and hold **CENTER** and **+** buttons for approximately 3 seconds to enter advanced menu.
- 2 Press **Select** to enter **ISU**.
- 3 Press **Select** to cycle through menu setup options.
- 4 Press **+** or **-** to change values or select from available options.
- 5 Press **Select** and confirm your settings or press **Back** to ignore changes and return to ISU menu screen to continue editing another setup option.
- 6 To finish setup process and save your setting, press **Home** and return to Home screen.

NOTE: A complete list of all setup (ISU) parameters and options starts below



Installer setup will be available at first startup, if bypassed, return using these steps

# ISU	ISU Name	ISU Options (factory default in bold)
120	Scheduling Options	0 - Non-Programmable 2 - 5-2 Programmable 3 = 5-1-1 Programmable 4 - 7-Day Programmable <i>Note: You can change default MO-FR, SA-SU schedule here. To edit periods during days, temperature setpoints, or to turn Schedule On/Off, touch MENU and go to SCHEDULE.</i>
125	Temperature Indication Scale	0 = Fahrenheit 1 - Celsius
200	Heating System Type	1 = Conventional Forced Air Heat 2 - Heat Pump 3 - Radiant Heat 5 - None (Cool Only) <i>Note: This option selects the basic system type your thermostat will control.</i>
205	Heating Equipment Type	<i>Conventional Forced Air Heat:</i> 1 - Standard Efficiency Gas Forced Air 2 = High Efficiency Gas Forced Air 3 - Oil Forced Air 4 - Electric Forced Air 5 - Hot Water Fan Coil <i>Heat Pump:</i> 7 = Air to Air Heat Pump 8 - Geothermal Heat Pump <i>Radiant Heat:</i> 9 = Hot Water Radiant Heat 12 - Steam <i>Note: This option selects the equipment type your thermostat will control. Note: This feature is NOT displayed if feature 200 is set to Cool Only.</i>

Personal Preference, this setting will activate or deactivate program scheduler

- If unit is "cool only" change to "5"
- If unit is "reverse cycle" change to "2"
- If unit is "electric heat" leave on "1"

- If unit is "reverse cycle" leave on "7"
- If unit is "electric heat" change to "4"

“Reverse cycle” only, change to “1”



Change this setting for thermostat to automatically change to heating only applies to units with heat



This is the time delay between cooling/heating cycles, 5 minutes is recommended. Setting to “0” will potentially harm unit



Personal preference



Min/Max heat and cool setpoints



# ISU	ISU Name	ISU Options (factory default in bold)
218	Reversing Valve O/B	0 = O (O/B in Cool) 1 - B (O/B in Heat) Note: This option is only displayed if the Heat Pump configured. Select whether reversing valve O/B should energize in cool or in heat.
220	Cool Stages / Compressor Stages 200-Cont / 200-HP	0, 1 Note: Select how many Cool or Compressor stages of your equipment the thermostat will control. Set value to 0 if you do not have Cool Stage/Compressor Stage.
221	Heat Stages / Backup Heat Stages	1 Note: Select how many Heat or Aux/E stages of your equipment the thermostat will control.
230	Fan Control in Heat	1 - Equipment Controls Fan 2 = Thermostat Controls Fan Note: This ISU is only displayed if ISU 205 is set to Electric Forced Air or Fan Coil.
300	System Changeover	0 = Manual 1 - Automatic Note: Thermostat can automatically control both heating and cooling to maintain the desired indoor temperature. To be able to select "automatic" system mode on thermostat home screen, turn this feature ON. Turn OFF if you want to control heating or cooling manually.
303	Auto Changeover Differential	0 °F to 5 °F 0.0 °C to 2.5 °C Note: Differential is NOT deadband. Differential means how far past the setpoint before switching to the mode selected. Deadband setup is not an option. Honeywell uses an advanced algorithm that fixes deadband at 0 °F. This is more advanced than previous thermostats.
365	Compressor Cycle Rate (Stage 1)	1 - 6 Note: This ISU is only displayed when Cool / Compressor Stage is set to 1 stage. Cycle rate limits the maximum number of times the system can cycle in a 1 hour period measured at a 50% load. For example, when set to 3 CPH, at a 50% load, the most the system will cycle is 3 times per hour (10 minutes on, 10 minutes off). The system cycles less often when load conditions are less than or greater than a 50% load.
370	Heating Cycle Rate (Stage 1)	1 - 12 Note: This ISU is only displayed when Heat Stage is set to 1 stage. Cycle rate limits the maximum number of times the system can cycle in a 1 hour period measured at a 50% load. For example, when set to 3 CPH, at a 50% load, the most the system will cycle is 3 times per hour (10 minutes on, 10 minutes off). The system cycles less often when load conditions are less than or greater than a 50% load. The recommended (default) cycle rate settings are below for each heating equipment type: Standard Efficiency Gas Forced Air - 5 CPH; High Efficiency Gas Forced Air - 3 CPH; Oil Forced Air - 5 CPH; Electric Forced Air - 9 CPH; Fan Coil - 3 CPH; Hot Water Radiant Heat - 3 CPH; Steam - 1 CPH.
370	Heating Cycle Rate Auxiliary Heat	1 - 12
387	Compressor Protection	0 - Off 1 - 5 minutes Note: The thermostat has a built in compressor protection (minimum off timer) that prevents the compressor from restarting too early after a shutdown. The minimum-off timer is activated after the compressor turns off. If there is a call during the minimum-off timer, the thermostat shows "Wait" in the display. This ISU is displayed if ISU 220 is set to at least 1 stage.
425	Adaptive Intelligent Recovery	0 - No 1 = Yes Note: Adaptive Intelligent Recovery (AIR) is a comfort setting. Heating or cooling equipment will turn on earlier, ensuring the indoor temperature will match the setpoint at the scheduled time.
430	Minimum Cool Setpoint	50 °F to 99 °F (50 °F) 10.0 °C to 37.0 °C (10.0 °C) Note: The cool temperature cannot be set below this level.
431	Maximum Heat Setpoint	40 °F to 90 °F (90 °F) 4.5 °C to 32.0 °C (32 °C) Note: The heat temperature cannot be set above this level.

Setting to prevent tampering

Air filter reminder

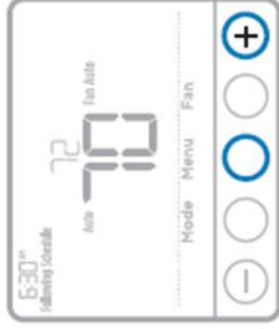
If thermostat is placed in a non-ideal location this will help adjust thermostat to read a more “accurate” space temperature

# ISU	ISU Name	ISU Options (factory default in bold)
435	Keypad Lockout	<p>0 = None 1 - Partial 2 - Full <i>Note:</i> Unlocked: User has access to all thermostat settings. Partially Locked: User can modify only temperature settings. Fully Locked: User cannot modify any settings. Screen will be locked by default factory code and cannot be changed. This code is displayed for a short time, when you are about to lock the thermostat screen. Please note the code in safe place for future reference.</p>
702	Number of Air Filters	<p>0 - 2 <i>Note:</i> This ISU refers to the number of air filters in the system.</p>
711	Air Filter 1 Replacement Reminder	<p>0 = Off 1 - 10 Run Time Days 2 - 20 Run Time Days 3 - 30 Run Time Days 4 - 45 Run Time Days 5 - 60 Run Time Days 6 - 90 Run Time Days 7 - 120 Run Time Days 8 - 150 Run Time Days 9 - 30 Calendar Days 10 - 45 Calendar Days 11 - 60 Calendar Days 12 - 75 Calendar Days 13 - 3 Calendar Months 14 - 4 Calendar Months 15 - 5 Calendar Months 16 - 6 Calendar Months 17 - 9 Calendar Months 18 - 12 Calendar Months 19 - 15 Calendar Months <i>Note:</i> Set a reminder for when to change your air filter. Choose either calendar or equipment run time-based reminder.</p>
712	Air Filter 2 Replacement Reminder	<p>0 = Off 1 - 10 Run Time Days 2 - 20 Run Time Days 3 - 30 Run Time Days 4 - 45 Run Time Days 5 - 60 Run Time Days 6 - 90 Run Time Days 7 - 120 Run Time Days 8 - 150 Run Time Days 9 - 30 Calendar Days 10 - 45 Calendar Days 11 - 60 Calendar Days 12 - 75 Calendar Days 13 - 3 Calendar Months 14 - 4 Calendar Months 15 - 5 Calendar Months 16 - 6 Calendar Months 17 - 9 Calendar Months 18 - 12 Calendar Months 19 - 15 Calendar Months <i>Note:</i> Set a reminder for when to change your air filter. Choose either calendar or equipment run time-based reminder.</p>
1400	Backlighting	<p>0 = On Demand 1 - Continuous <i>Note:</i> Common wire needed for continuous.</p>
1401	Backlight brightness	<p>1 - 5 <i>Note:</i> Only displayed if continuous backlight selected.</p>
1410	Clock Format	<p>12 / 24</p>
1415	Daylight Saving Time	<p>0 - Off 1 = On <i>Note:</i> Set to Off in areas that do not follow Daylight Saving Time.</p>
1420	Temperature Display Offset	<p>-3 to 3F (0) -1.5 to 1.5C (0) <i>Note:</i> 0 °F - No difference in displayed temperature and the actual room temperature. The thermostat can display up to 3 °F (1.5 C) lower or higher than the actual measured temperature.</p>

Installer system test

To perform a System Test:

- 1 Press and hold **CENTER** and **+** buttons for approximately 3 seconds to enter advanced menu.
- 2 Use **+** to go to **TEST**. Press **Select** to enter System Test.
- 3 Use **+** to change between Heat, Cool, Fan, Em. Heat (TH4210U only), or Ver (thermostat version information). Press **Select**.
- 4 Press **+** to turn heat, cool, or fan on. Press **-** to turn them off.
- 5 Use the **Home** button to exit the System Test.



Thermostat testing procedure to confirm proper operation

System test System status

Heat	0	Heat Off
	1	Heat On
Cool	0	Cool Off
	1	Cool On
Fan	0	Fan Off
	1	Fan On
Em. Heat (TH4210U only)	0	Em. Heat Off
	1	Em. Heat On

Specifications

Temperature Ranges

Heat: 40 °F to 90 °F (4.5 °C to 32.0 °C)

Cool: 50 °F to 99 °F (10.0 °C to 37.0 °C)

Operating Ambient Temperature

37 °F to 102 °F (2.8 °C to 38.9 °C)

Shipping Temperature

-20 °F to 120 °F (-28.9 °C to 48.9 °C)

Operating Relative Humidity

5% to 90% (non-condensing)

Physical Dimensions in inches (mm) (H x W x D)

4-1/16" H x 4-1/16" W x 1-5/32" D

103.5 mm H x 103.5 mm W x 29 mm D

Electrical Ratings

Terminal	Voltage (50/60Hz)	Running Current
W Heating (Powerpile)	20-30 Vac	0.02-1.0 A
W2 (Aux) Heating (TH4210U only)	750 mV DC	100 mA DC
E Emergency Heat (TH4210U only)	20-30 Vac	0.02-1.0 A
Y Compressor Stage 1	20-30 Vac	0.02-0.5 A
G Fan	20-30 Vac	0.02-1.0 A
O/B Changeover	20-30 Vac	0.02-0.5 A
L/A Input	20-30 Vac	0.02-0.5 A

Thermostat technical specifications

Honeywell T6 Smart Important Settings



This section is only a summary of important information that can all be found in the install booklet that came with the thermostat

Installer setup – using the thermostat

Setup using the thermostat

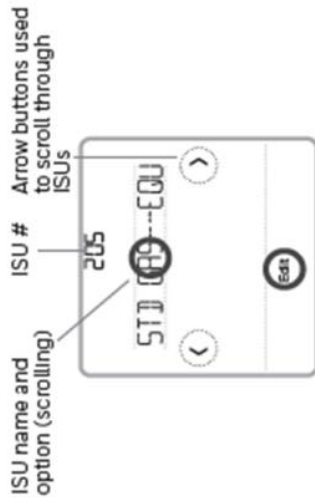
- After the thermostat has powered up, touch **START SETUP** on the thermostat. You'll be asked if you want to perform setup via app. Touch **No**.
- Touch **Yes** or **No** to toggle between Installer Set Up (ISU) options.
- Touch **Edit** or touch text area, and then touch **Done** or **Cancel** to edit default setup option.
- Touch **Done** or touch text area to confirm the setting or press **Cancel**.
- Touch **Done** or **Cancel** to continue to setup another ISU option.

NOTES:

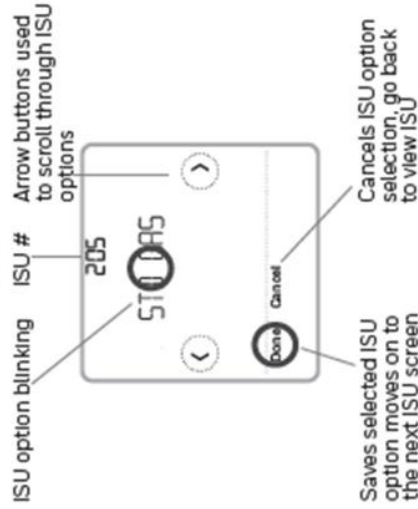
- To see a list of all setup parameters, go to "Installer setup options (ISU) – advanced menu" on page 11. The thermostat displays the ISU name and the ISU number.
- To finish setup and save your settings, scroll to the **Finish** screen at the end of the ISU list.
- Touch **Select** or touch text area to save changes and exit, or touch **Done** to return to initial setup screen.



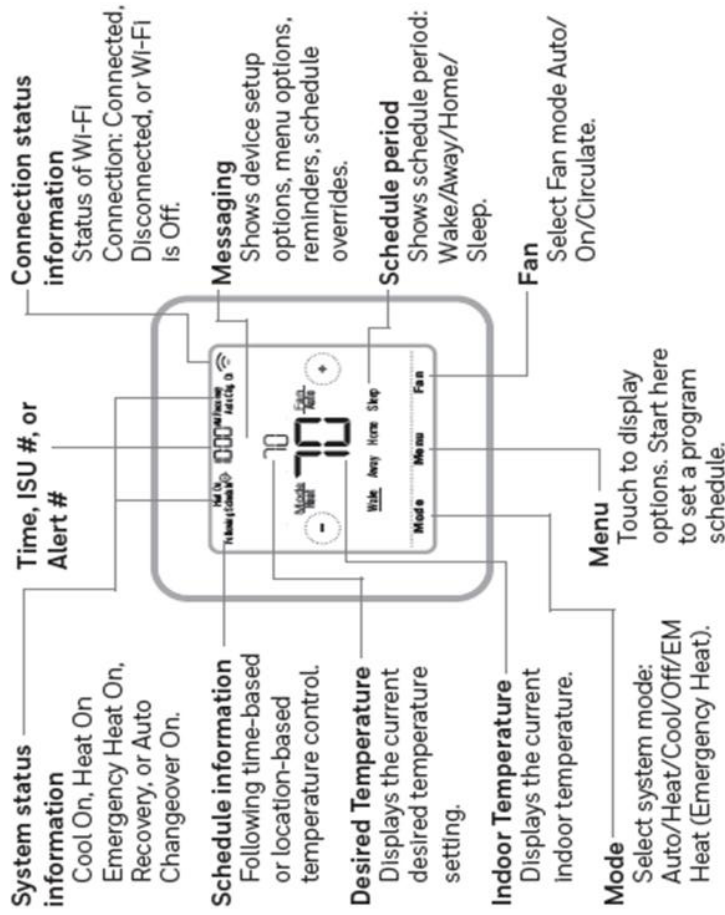
View ISU



Edit ISU



Key features



Note: Long press of Menu button for 5 seconds to access Advanced Menu options.

The screen will wake up by pressing the center area of the displayed temperature. The screen will stay lit for 45 seconds. Brightness can be adjusted in the Menu.

Installer setup – advanced menu

To access the advanced menu, press and hold the **Menu** button for 5 seconds. Touch ⏪ or ⏩ to go through the options in the advanced menu.

Advanced menu options

Device Setup

This is used to access the device ISU setting.

Screen Lock

The thermostat touch screen can be set to lock fully or partially.

Rater View

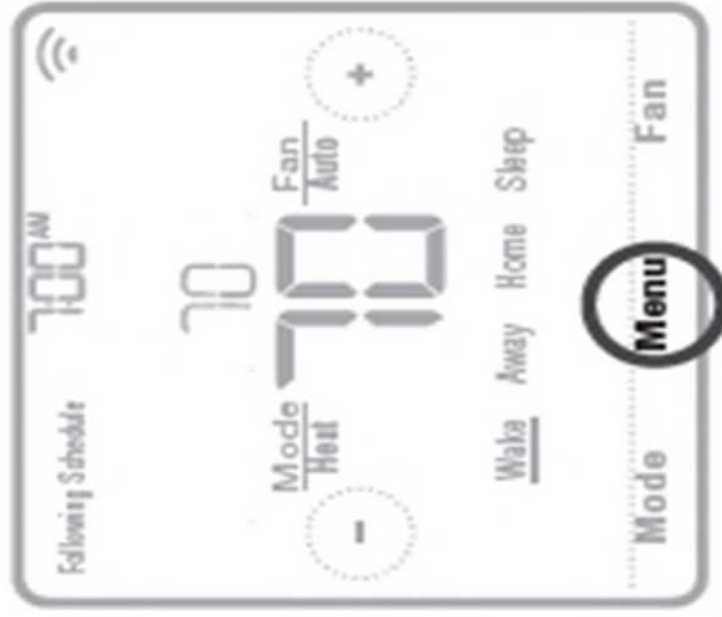
A read only place to view all the ventilation settings.

System Test

Test the heating and cooling system.

Range Stop (Temperature)

Set the minimum, maximum, cool and heat temperature set points.



Reset

Access all reset options on the thermostat. This is the only place to access factory reset.

# ISU	ISU Name	ISU Options (defaults in bold)	Notes
120	Schedule Type	No Schedule MO-SU - Every day the same MO-FR, SA, SU - 5-1-1 schedule MO-FR, SA-SU = 5-2 schedule Each Day - Every day individual	You can change default MO-FR, SA-SU schedule here. To edit periods during days, temperature setpoints, or to turn Schedule On/Off, from the home screen, go to MENU/SCHEDULE .
125	Temp Scale	Fahrenheit, Celsius	
200	System Type	Conventional Forced Air Heat Pump Boiler Cool Only	Basic selection of system your thermostat will control.
205	Equipment Type	Conventional Forced Air Heat: Standard Gas (STD GAS), High Efficiency Gas (EFF GAS), Oil, Electric, Fan Coil* Heat Pump: Air To Air, Geothermal Boiler: Hot Water, Steam	This option selects the equipment type your thermostat will control. Note: This option is NOT displayed if ISU 200 is set to Cool Only. *Fan coil setting is for a residential application with a hot water coil in an air handler.
218	Reversing Valve	O/B on Cool, O/B on Heat	This ISU is only displayed if ISU 200 is set to Heat Pump. Select whether reversing valve O/B should energize on cool or on heat
220	Cool Stages (#200-Conv./200-HP)	0, 1, 2	Only 1 compressor stage available on TH6220WF model if configured for heat pump.
221	Heat Stages/Aux/E Stages (#200-Conv./200-HP)	Heat Stages: 0, 1, 2 AUX/E Stages: 0, 1	Maximum of 2 Heat Stages for conventional systems. Maximum of 1 Aux/E stages for heat pump systems.
230	Fan Control	Equipment, Thermostat	This ISU is only displayed if ISU 205 is set to Electric Forced Air or Fan Coil.
300	Auto Changeover	On, Off	OFF: The user must select heating or cooling as needed to maintain the desired indoor temperature. ON (Automatic): On (enabled) Allows user to select Auto Changeover as one of the system modes from the home screen. In auto mode, the thermostat can control either heating or cooling to maintain the desired indoor temperature.
303	Auto Differential	0 °F to 5 °F or 0.0 °C to 2.5 °C	Differential is the minimum number of degrees rise or fall required during off cycle to switch from the last active mode (heat or cool) to the opposite mode when the thermostat is in auto-changeover. Differential is NOT deadband. The deadband temperature between when in heating (or cooling) cycles on and cycles off to maintain setpoint is not adjustable. The thermostat uses an algorithm that fixes deadband at 0 °F (0 °C).
387	Compressor Protection	Off, 1 - 5 minutes	The thermostat has a built in compressor protection (minimum off timer) that prevents the compressor from restarting too early after a shutdown. The minimum-off timer is activated after the compressor turns off. If there is a call during the minimum-off timer, the thermostat shows "Wat" in the display. This ISU is displayed if ISU 220 is set to at least 1 stage.
702	Air Filters	0 - 2	This ISU refers to the number of air filters in the system.
711	Air Filter 1 Reminder	Off 10, 20, 30, 45, 60, 90, 120, 150 Run Time Days 30, 45, 60, 75 Days 3, 4, 5, 6, 9, 12, 15 Months	Choose either calendar or equipment run time-based reminder.
712	Air Filter 2 Reminder	Off 10, 20, 30, 45, 60, 90, 120, 150 Run Time Days 30, 45, 60, 75 Days 3, 4, 5, 6, 9, 12, 15 Months	Choose either calendar or equipment run time-based reminder.
1401	Idle Brightness	O = Off, 0 - 5	Adjust brightness of an inactive backlight (H/E screen) from default 0 (backlight off) to 5 (maximum brightness).
1410	Clock Format	12 hour, 24 hour	
1415	Daylight Saving	On, Off	Set to Off in areas that do not follow Daylight Saving Time.
1420	Temp Offset	Off, -3 °F to 3 °F (in 1 °F increments) or -1.5 °C to 1.5 °C (in 0.5 °C increments)	0 °F (0 °C) - No difference in displayed temperature and the actual room temperature. The thermostat can display up to 3 °F (1.5 °C) lower or higher than the actual measured temperature.

Personal preference

“Electric heat” leave setting
“Reverse cycle” set to “heat pump”
“Cool only” set to “cool only”

“Electric heat” change
to “Electric”

“Reverse Cycle” change
to “O/B heat”

Personal preference

Delay before compressor
runs after a cycle. 5 minutes
recommended. If set to “0”
potential equipment damage

Air filter reminders

If thermostat is installed
in a non-ideal location this
setting will give a more
“accurate” reading of the space

Performing a system test

You can test the system setup in **ADVANCED MENU** under **SYSTEM TEST** option.

- 1 Press and hold **Menu** on the thermostat for 5 seconds to access **ADVANCED MENU** options.
- 2 Touch **<** or **>** to go to **SYSTEM TEST**.
- 3 Touch **Select** or touch text area.
- 4 Touch **<** or **>** to select system test type. Touch **Select** or touch text area.
- 5 For the heat test and cool test, use **+>** or **<-** to activate each stage of the equipment. For the fan test, use **<** or **>** to turn the fan on and off.

NOTE: The clock is used as a timer while the stages are running. The Heat On and Cool On indicators are displayed when the system test is running.

Viewing equipment status

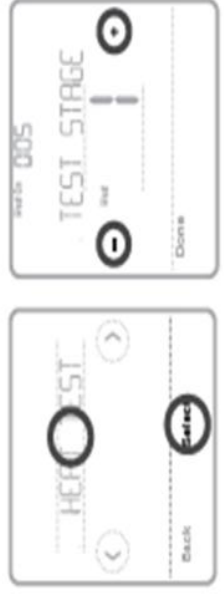
You can see the status of thermostat-controlled equipment in the **Menu** under the **EQMT STATUS** option.

- 1 Touch **Menu** on your thermostat.
- 2 Touch **<** or **>** to go to **EQMT STATUS**. Touch **Select** or touch text area.
- 3 Touch **<** or **>** to view statuses of all the equipment the thermostat is controlling. Depending on what feature the thermostat supports or how it was installed, the Equipment Status screen reports data for the following systems:

- Heating and cooling
- Fan
- Ventilation (available on certain models only)



This test should be performed after settings have been entered to ensure unit is wired and programmed correctly

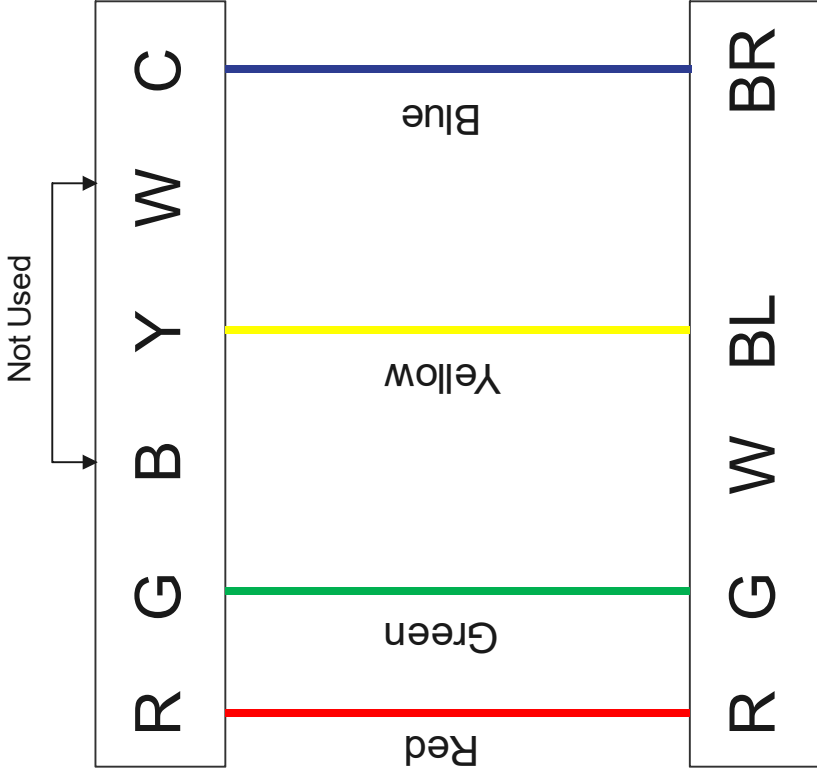


This will show what parts of the equipment are being asked to run by the thermostat



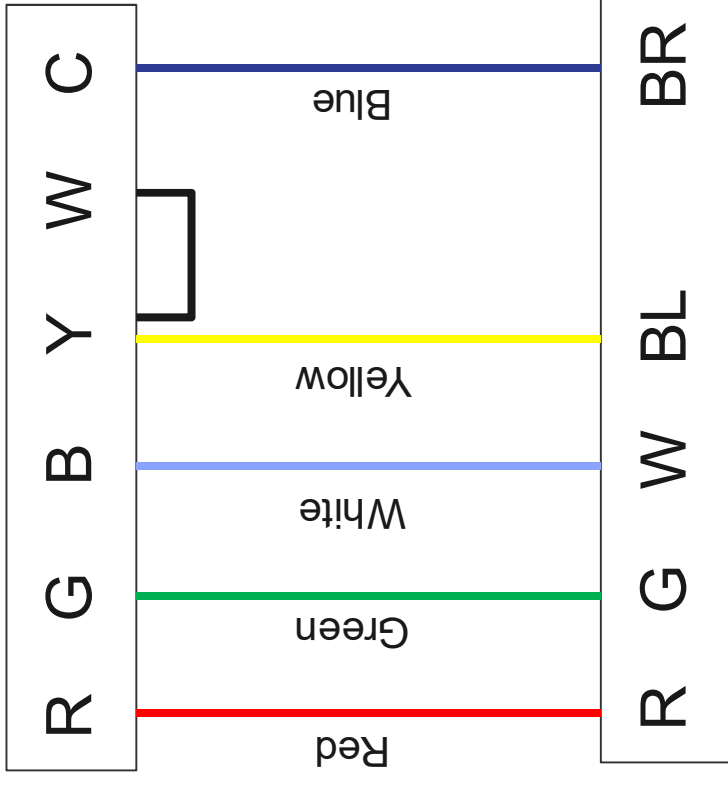
Marine Unit Thermostat Wiring (Luxpro Thermostat)

Cool Only



R-R
G-G
Y-BL
C-BR

Thermostat

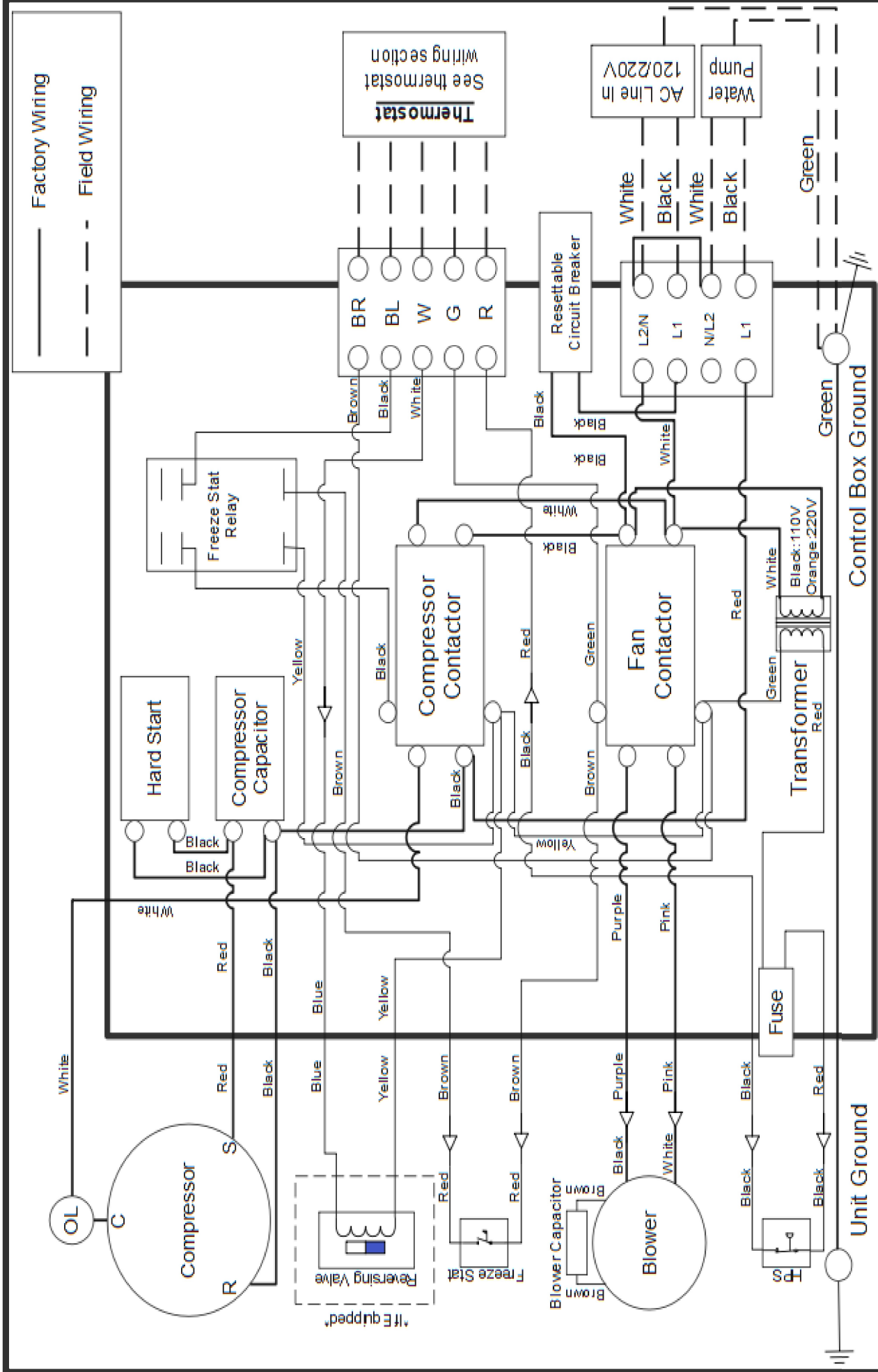


R-R
G-G
B-W
W-Y-BL
C-BR

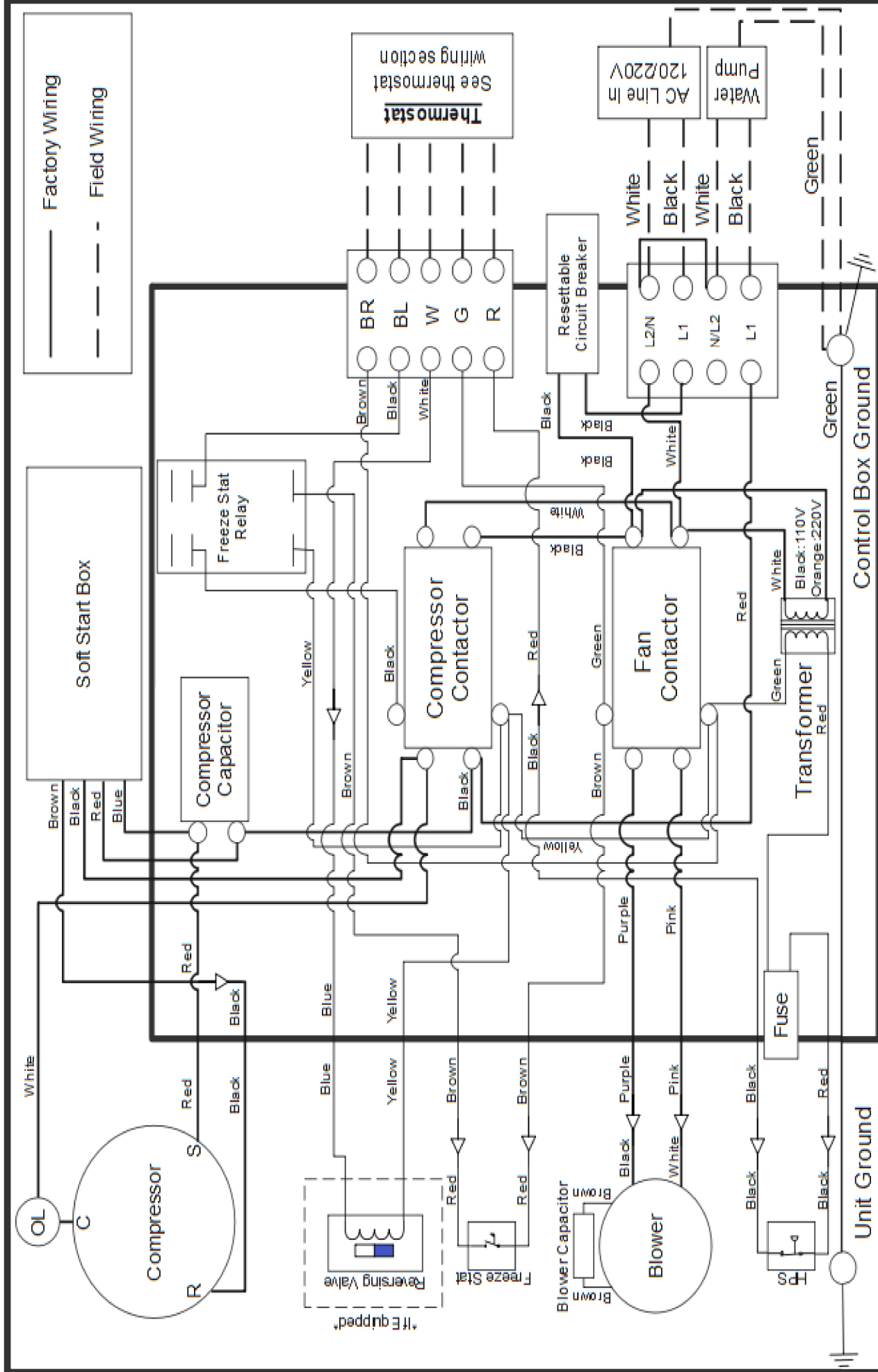
Control Box

Note:

C/BR is an optional wire and not all thermostats will require it or have the terminal available. For any WIFI/Smart Thermostat the C/BR connection is essential for 24V power to run the thermostat when the unit has power. If thermostat requires 24V power to operate it will turn off if unit is disconnected from high voltage power in any way

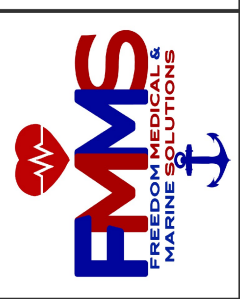


	Freedom Medical and Marine Solutions M3:M24 Cool Only/ Reverse Cycle Heat Units 110-230 VAC / 50/60Hz / 1 Phase Standard Control Box		Date: 12/8/2023 DRWG BY: BCW APR BY: SX	DWG: M3M24STD3 Revision: A
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Freedom Medical and Marine Solutions M3:M24 Cool Only/ Reverse Cycle Heat Units 110-230 VAC / 50/60Hz / 1 Phase Standard Control Box W/Soft Start		Date: 12/8/2023 DRW BY: BCW APR BY: SX	DWG: M3M24STDSS3 Revision: A
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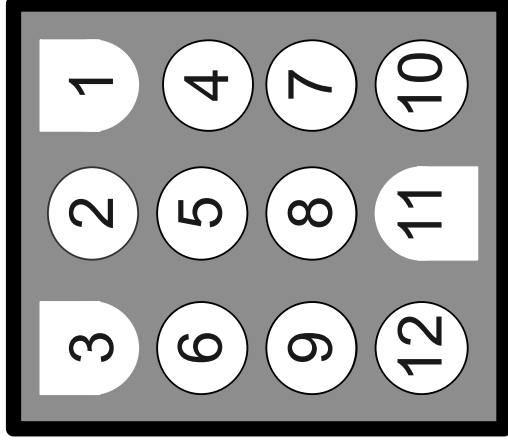


Plug Pinout Diagram Page 1

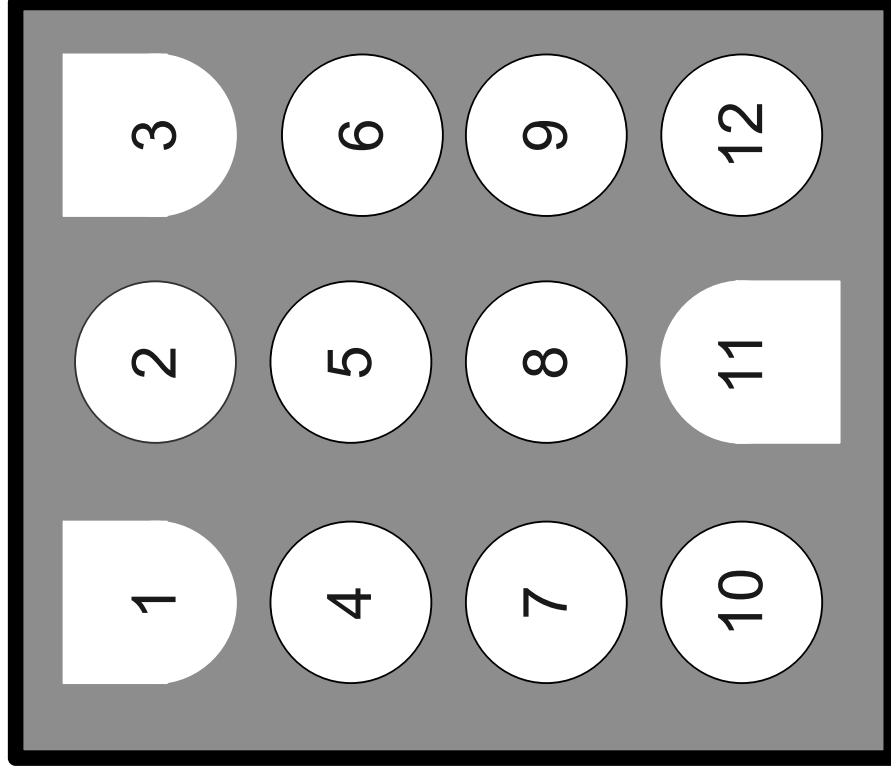
- 1: 24V Power to reversing valve (White wire from "W")
- 2: Compressor R (Black wire from capacitor)
 - 3: High pressure switch (Black from "BL")
 - 4: Compressor S (Red wire from Capacitor)
- 5: 24V Common from reversing valve (Yellow wire to common)
 - 6: Ground (Green wire to grounding screw)
 - 7: High pressure switch (Red from contactor 2 coil)
 - 8: Fan line (Purple wire from contactor 1)
 - 9: Fan common (Pink wire from contactor 1)
 - 10: Empty
 - 11: Compressor C (White wire to contactor 2)
 - 12: EBM Wire (Brown wire to EMB capacitor)*

*If equipped

Back of Control
Box



Plug Pinout Diagram Page 2



- 1: 24V power to reversing valve (Blue wire)
 - 2: Compressor R (Black wire)
 - 3: High pressure switch (Black wire)
 - 4: Compressor S (Red wire)
 - 5: 24V common from reversing valve (Yellow wire)
 - 6: Ground (Green Wire)
 - 7: High pressure switch (Red wire)
 - 8: Fan line (Purple wire)
 - 9: Fan common (Pink wire)
 - 10: Empty
 - 11: Compressor C (White wire)
 - 12: EBM wire (Brown wire)*
- *If Equipped

Notes:

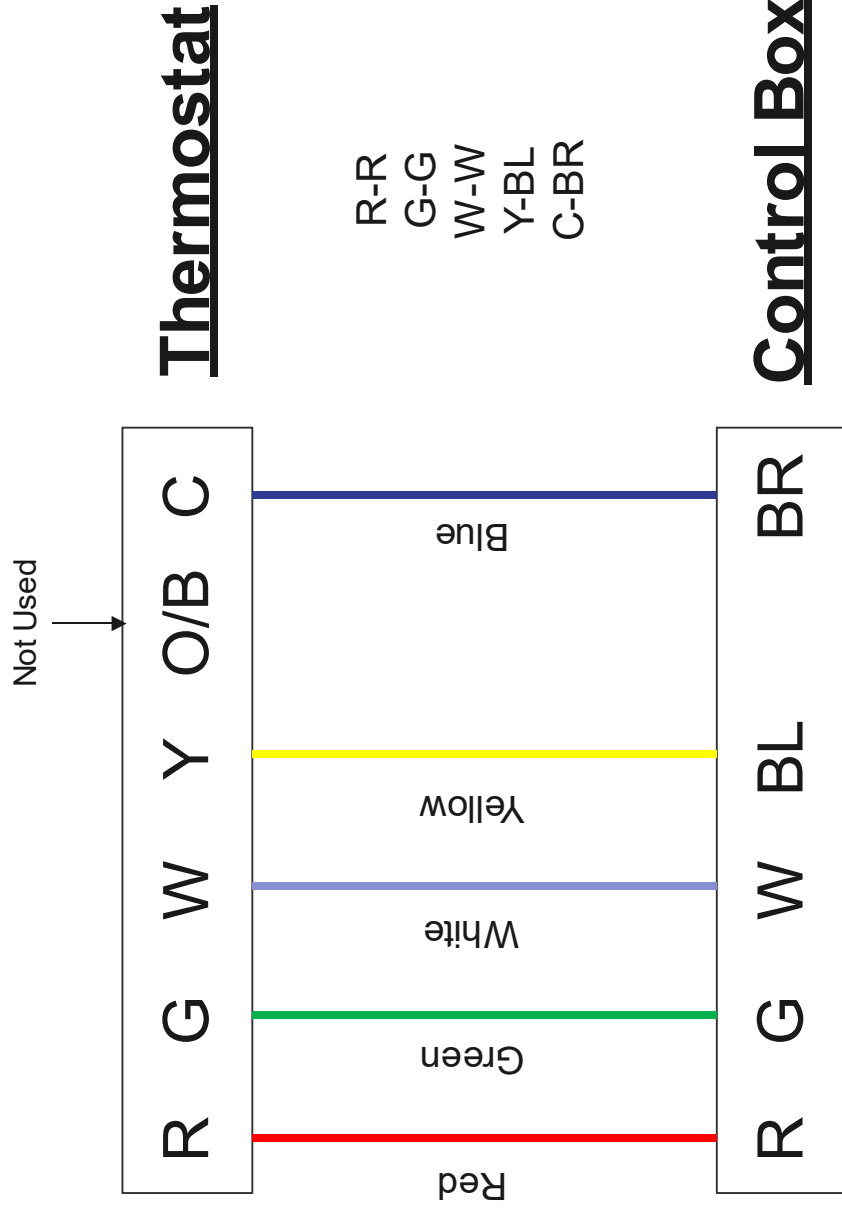
- This pinout is for the male end of the plug leading to the air conditioner
- The pinout for the control box female plug is the reverse of this pinout

SEE PLUG PINOUT DIAGRAM PAGE 1

Warning! Please Read!

This section is for electric heat equipped marine units. Any attempt to wire a cool-only or reverse cycle unit in this way may result in damage or personal injury.

Marine Unit Thermostat Wiring (Electric Heat Only)



Note:

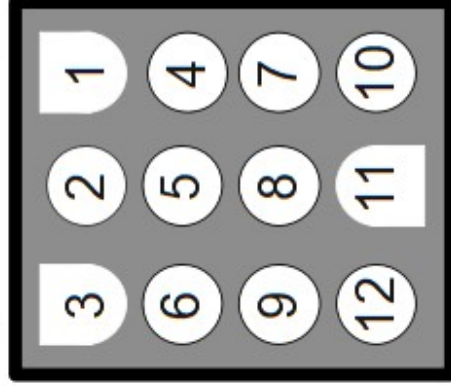
C/BR is an optional wire and not all thermostats will require it or have the terminal available. For any WIFI/Smart Thermostat the C/BR connection is essential for 24V power to run the thermostat when the unit has power. If thermostat requires 24V power to operate it will turn off if unit is disconnected from high voltage power in any way

Wiring Harness Connections (Electric Heat Only)

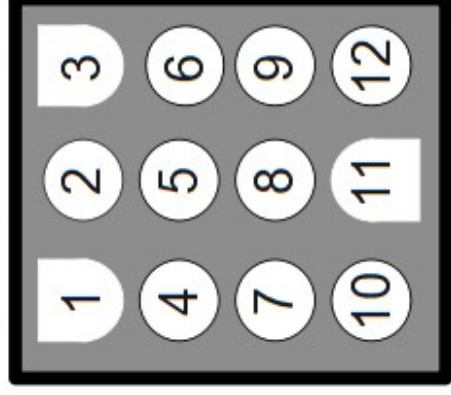
- 1: Heat Strip Neutral (Yellow Wire to Contactor 1)
- 2: Compressor S (Red wire from capacitor)
- 3: High pressure switch (Black from "BL")
- 4: Compressor C (White wire from Capacitor)
- 5: Heat Strip Line (Blue wire from Electric Heat Relay)
 - 6: Ground (Green wire to grounding screw)
 - 7: High pressure switch (Red from contactor 2 coil)
 - 8: Fan line (Purple wire from contactor 1)
 - 9: Fan common (Pink wire from contactor 1)
 - 10: Empty
- 11: Compressor R (Black wire to contactor 2)
- 12: EBM Wire (Brown wire to EMB capacitor)*

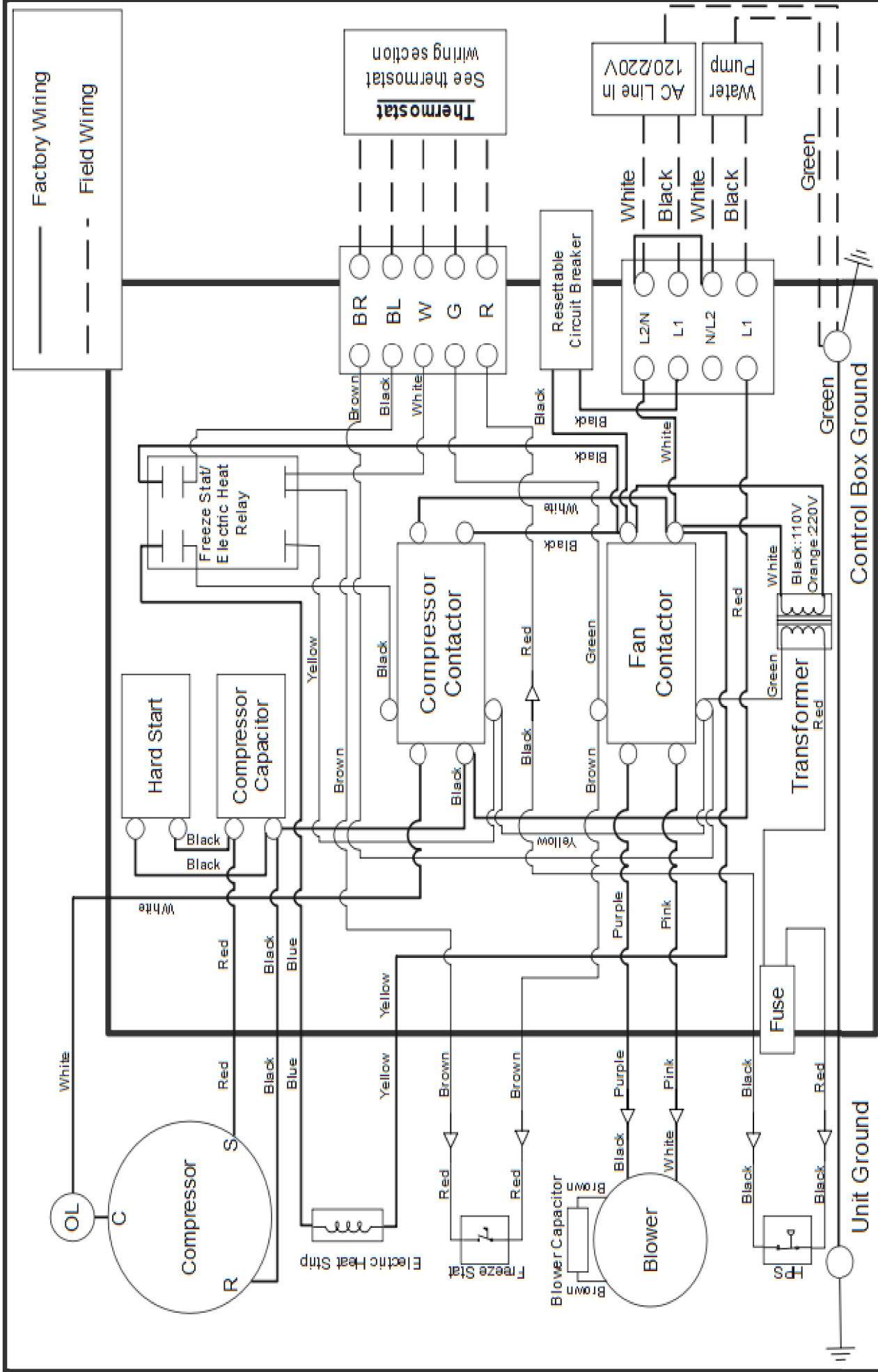
*If equipped

Female End
(On Control Box)



Male End
(Wiring Harness)





Freedom Medical and Marine Solutions
 M3:M24 Cool W/ Electric Heat
 110-230 VAC / 50/60Hz / 1 Phase
 Standard Control Box W/ Electric Heat

Revision: A

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DWG: M3M24STDEH3

Date: 12/8/2023

DRWG BY: BCW

APR BY: SX

Unit Ground

Control Box Ground

