

Installation Manual
Central Processing Unit 0550
Version 2.06.1



ECO-0550

HBX Control Systems Inc.



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HBX ECO-0550 GEOTHERMAL CONTROLLER

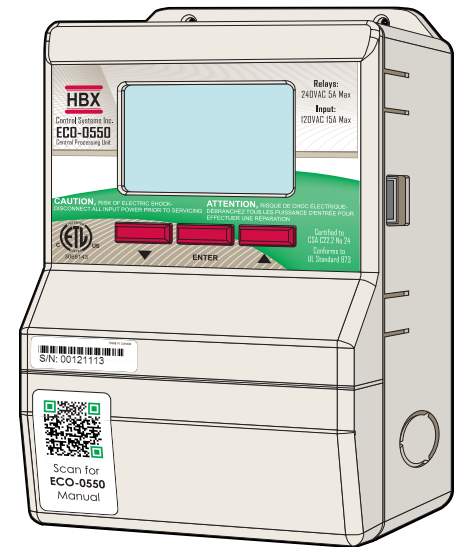
INTRODUCTION

This manual will help with the installation, parameter setting, troubleshooting and general maintenance requirements for the controller. To guarantee the safe and reliable operation of this control, you must first read this manual in detail and take particular note to any and all warnings or caution directives prior to connecting to AC power.

Please consult and install the geothermal appliance in accordance with manufacture's recommendations.

DESCRIPTION

The ECO-0550 is designed to be a stand-alone Outdoor Reset Control device. The purpose and function of the ECO-0550 is to provide control for Geothermal applications. It can manage single tank applications as well as applications with separate hot and cold tanks.



WARNING: This product can expose you to chemicals including lead, which is known to the State of California to cause cancer and birth defects or other reproductive harm. For more information go to www.P65Warnings.ca.gov.

SAFETY SYMBOLS & WARNINGS



Extreme Hazard

This action poses a serious threat that could result in personal injury or death, as well as permanent damage to the equipment. Proceed with caution.



Moderate Hazard

This action may cause personal injury or have adverse effects on the installation process if handled incorrectly.



Disconnect Power Source

The presence of low voltage(24VAC) or high voltage(120VAC) could result in personal injury or permanent damage to components or equipment.



Point of Interest

This point clarifies pertinent information, or brings your attention to an action that may have adverse effects on the installation process.



Drawing Reference

Refer to the specified electrical or mechanical drawing at the back of the manual.



Only suitably qualified individuals with formal training in electrical and Geothermal controls should attempt the installation of this equipment. Incorrect wiring and installation will affect the warranty provided with this unit. Wiring must be completed in accordance with the codes and practices applicable to the jurisdiction for the actual installation.



Use only copper conductor supply wire suitable for at least 105 °C



The HBX ECO-0550 is a microprocessor based controller and as such is not to be regarded as a safety (limit) control. Please consult and install the heating or cooling appliance in accordance with the manufacturer's recommendations.

RECEIPT & INSPECTION

After receiving, inspect the unit for any possible physical damage that may have occurred during transportation.

After unpacking the unit make sure the box contains:

- 1 x Remote Outdoor sensor (Part #OUT-0100)
- 2 x Universal sensors (Part #029-0022)
- 1 x Terminal Screwdriver (2.5mm)
- 2 x Cable ties
- 1 x Manual

TECHNICAL DATA & DIMENSIONS

TECHNICAL DATA

Specifications:

3 x Thermistor Input
(10K Ohm)
2 x Miscellaneous Input Signal
3 x Relay Outputs (240VAC 5Amps) Dry
Contacts
1 x 2Amp Dry Contact
Input: 120VAC +/- 10% 50/60Hz 15A Max
FCC ID: 2AHMR-ESP12S

Weight:

0.408Kg

Dimensions:

100mm W x 168mm H x 70mm

ETL Listings:

Meets CSA C22.2 No. 24

Meets UL Standard 873

ETL Control No. 3068143

Storage:

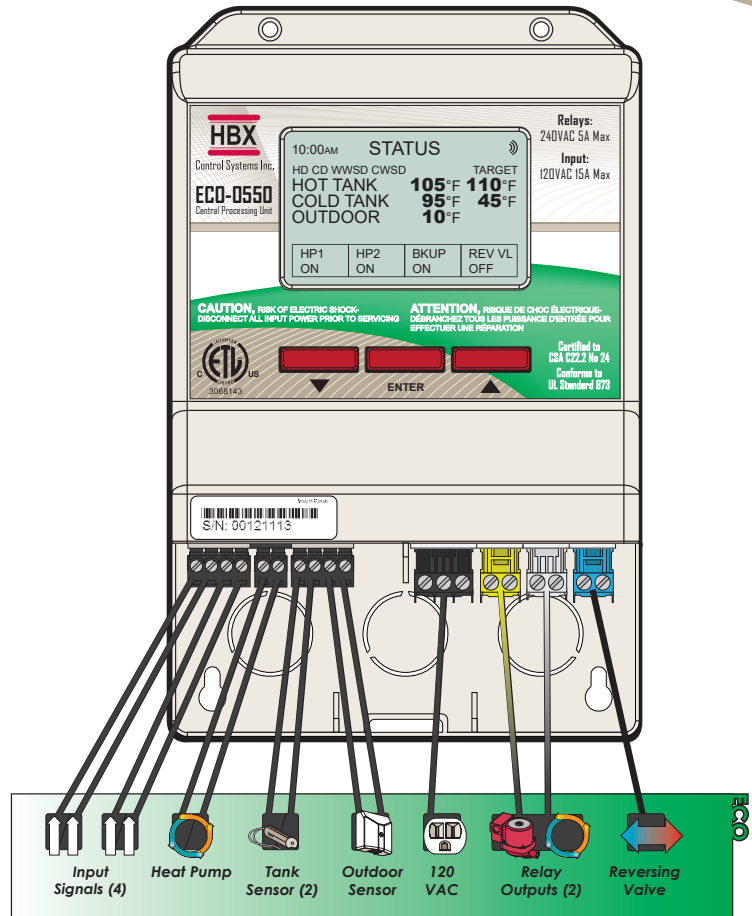
50°F to 104°F (10°C to 40°C)

RF Info:

Contains FCC ID: U30-G2M5477

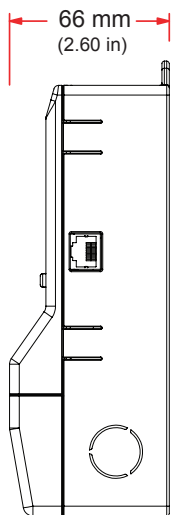
Contains IC: 8169A-G2M5477

Wi-Fi 2.4GHZ network only

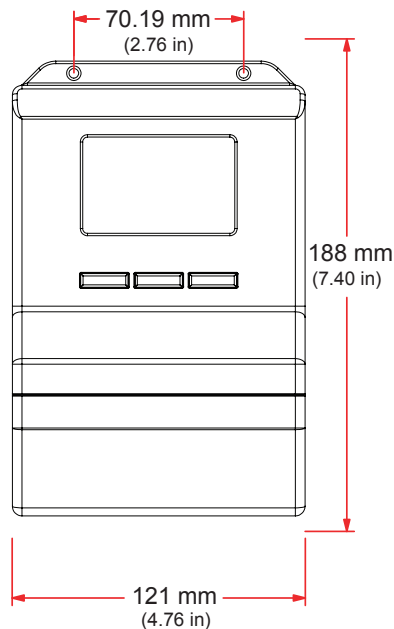


DIMENSIONS

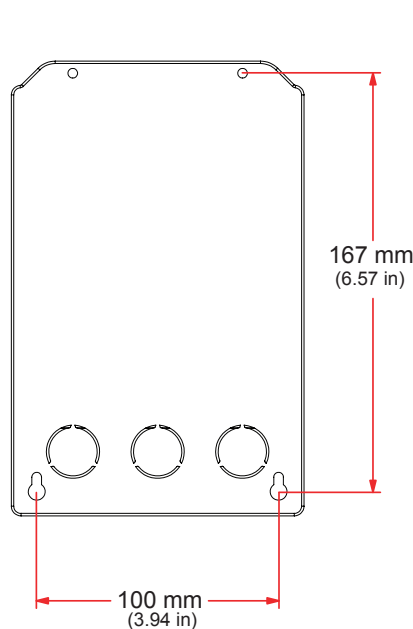
Side View



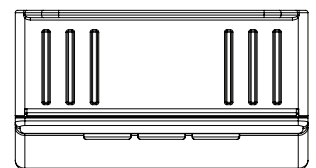
Front View



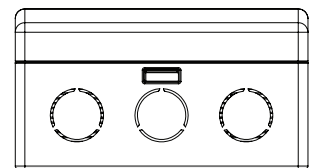
Rear View



Top View



Bottom View



WIRING AND INSTALLATION

Wiring

All signal wiring must be with a minimum of 18AWG wire at a maximum of 500ft.

1, 2: Demand Signal 1

Apply heat demand from a dry contact, or 24VAC.

3, 4: Demand Signal 2

Apply cool demand from a dry contact, or 24VAC.

5, 6: Heat Pump 1

Heat Pump 1 Output.

Sensor Inputs

7, 10: Hot Tank temperature in dual tank mode, or Tank Temperature in single tank mode.

8, 10: Cold Tank temperature. If the cold tank sensor is not connected, the control assumes single tank operation. If connected, the control will operate in dual tank mode.

9, 10: Outdoor temperature.

14, 15: Relay 1

This relay is generally a second Heat Pump, or can be used as System Pump output.

16, 17: Relay 2

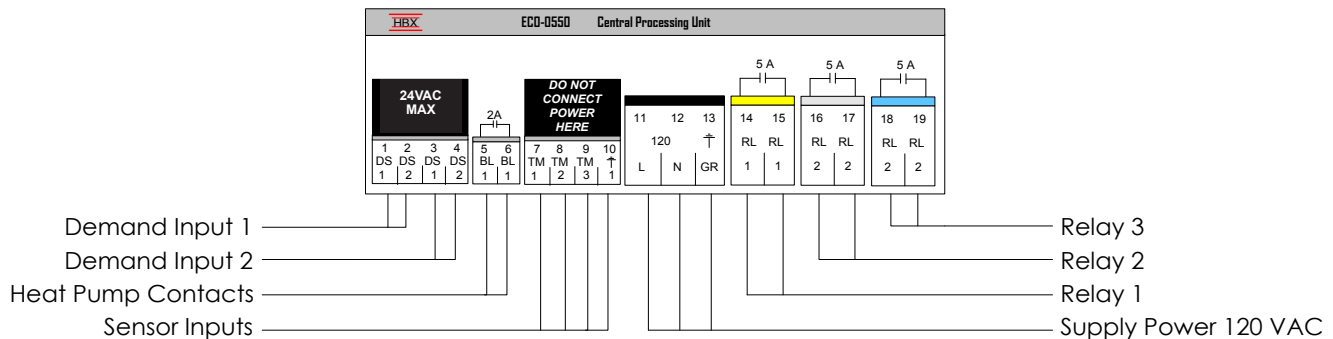
Generally used as a Third stage or Backup Boiler.

18, 19: Relay 3

Used as a Reversing Valve and/or 3 way diverting valves.



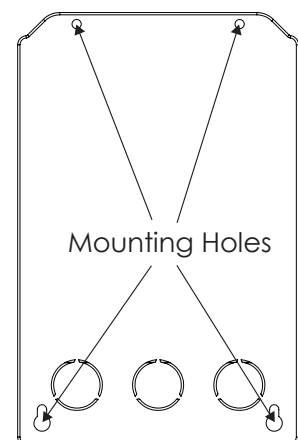
(Relays 1, 2 and 3 are dry contacts and rated for a maximum of 5 Amps.)



Installation

The ECO-0550 is designed to be wall mounted or installed in a separate electrical enclosure. The unit should be mounted inside and protected from falling water and high humidity conditions. With all the covers in place it is designed to protect any individual from accidental electrical shock. It is not suitable for installation in hazardous locations and should not be placed close to any electromagnetic fields.

- Identify the four mounting holes on the ECO-0550, mark on the wall the desired location of mounting.
- Predrill, anchor and fasten four screws for mounting.
- Hang ECO-0550 and fasten tight to desired locations
- Complete wiring connections in accordance with terminal locations.



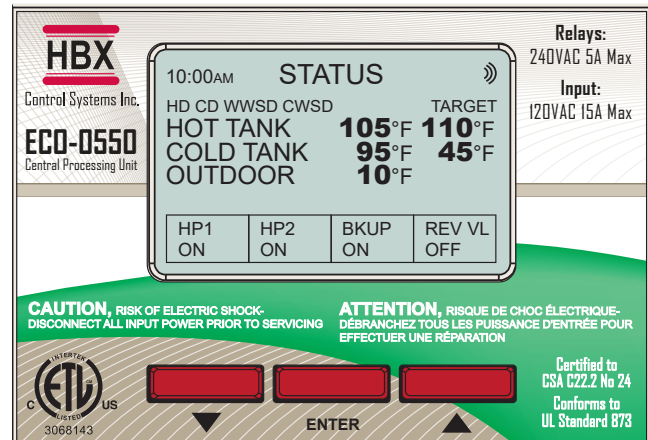
NAVIGATING THE ECO-0550

All programming steps within the ECO-0550 are achieved by using the three buttons (and combination thereof) located below the screen.

The ▼ button is used to scroll down in menu screens and decrease a value within specific options.

The ▲ button is used to scroll up in menu screens and increase a value in specific options.

The **ENTER** button is used to access the setpoint menu and select a setting.



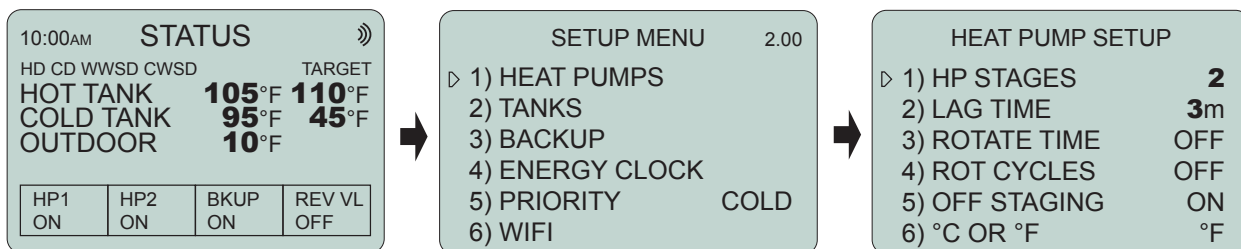
SETUP MENU

The SETUP menu is used for entering the design values, as well as assign different control options. To access the setup menu, push the **ENTER** button on the STATUS screen. Use the ▲ or ▼ buttons to scroll through the various settings.

To select a parameter, align the cursor arrow ▷ with the desired parameter and press the **ENTER** button. The arrow will become solid ▶, which indicates that a parameter has been selected.

Adjust the setting to the desired value with the ▲ or ▼ buttons. Once the correct value is set, push the **ENTER** button. This will deselect the parameter.

To go to the previous screen, push and hold the **ENTER** button. If the SETUP menu is left for more than 90 seconds, the display will change to the STATUS screen and the control will resume operation.



GEOTHERMAL MODE

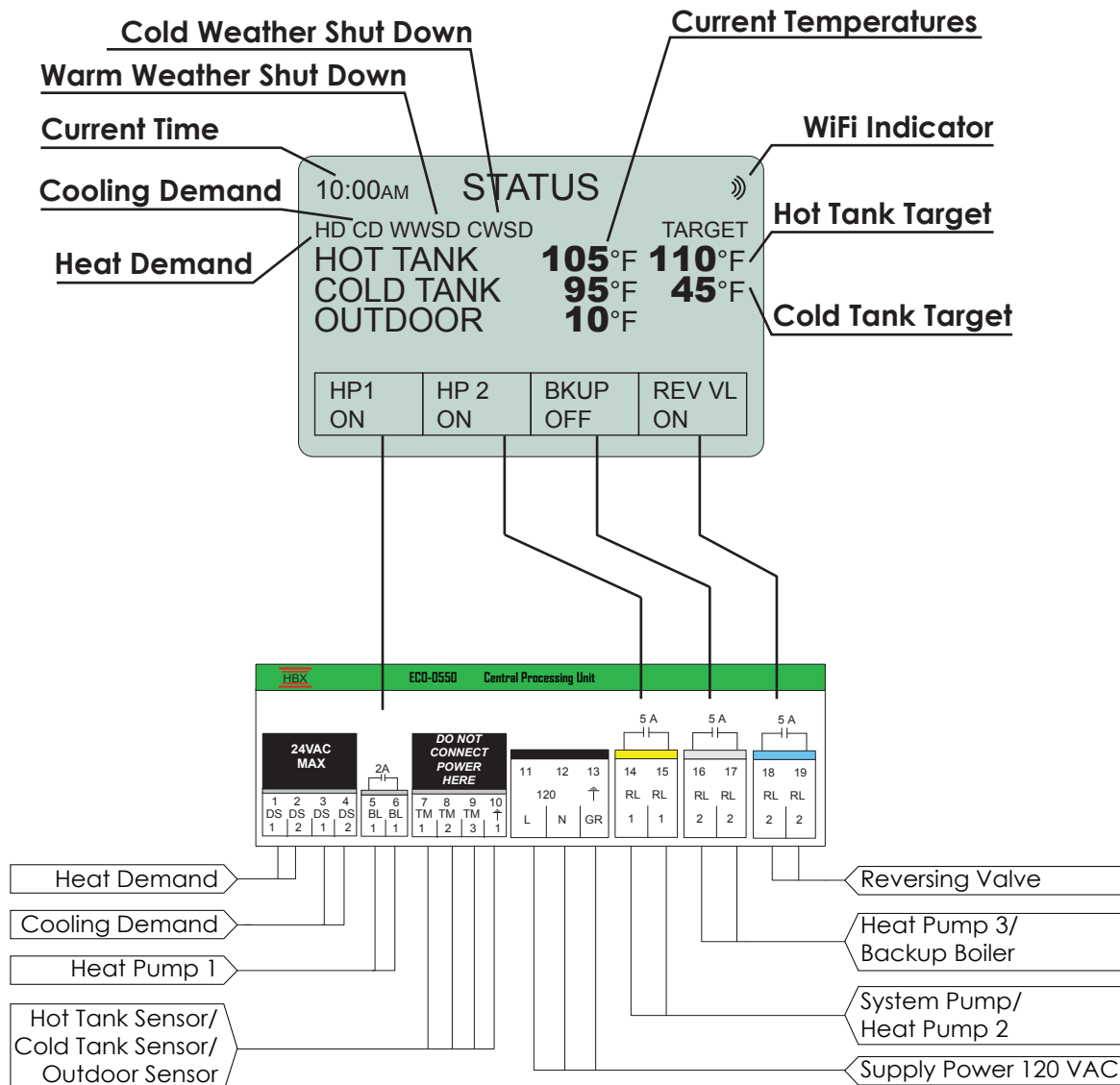
Multicolour backlit Display

The Multicolour Backlit Display is one of the key features of the HBX Controls stand-alone ECO-0550 Control. Depending on which mode of operation is selected the screen color will change to indicate information about the status of the system.

Screen Colors

- Light Blue - No Heat Demand
- Red - Demand and heat pumps running (Heating Mode)
- Green - Demand ON, no heat pumps running
- Dark Blue - Demand ON and heat pumps running (Cooling Mode)
- Purple - Demand ON and Backup Only running (EcoSwitch Mode)

Status Screen



GEOHERMAL MODE PROGRAMMING GUIDE

1) HEAT PUMPS

SETUP MENU 2.00	
▶ 1) HEAT PUMPS	
2) TANKS	
3) BACKUP	
4) ENERGY CLOCK	
5) PRIORITY	COLD
6) WIFI	

Heat Pump Setup

This setting is used to configure the heat pump staging component in your system.

HEAT PUMP SETUP

HEAT PUMP SETUP	
▶ 1) HP STAGES	1
2) LAG TIME	3m
3) ROTATE TIME	OFF
4) ROT CYCLES	OFF
5) OFF STAGING	ON
6) °C OR °F	°F

Stages

This setting will allow you to select the number of heat pump stages that are attached to the control.



If Backup is being used, you can only have a maximum of 2 stages.

(1 to 3) Default: 1

HEAT PUMP SETUP	
1) HP STAGES	1
▶ 2) LAG TIME	3m
3) ROTATE TIME	OFF
4) ROT CYCLES	OFF
5) OFF STAGING	ON
6) °C OR °F	°F

Lag Time

When the heat pump is set for more than 1 stage, this setting will be set for the minimum lag time between heat pump stages. This is a time delay between stages. Even if the differential has been exceeded this time must elapse before that stage can come on.

(1m to 240m) Default: 3m

HEAT PUMP SETUP	
1) HP STAGES	1
2) LAG TIME	3m
▶ 3) ROTATE TIME	OFF
4) ROT CYCLES	OFF
5) OFF STAGING	ON
6) °C OR °F	°F

Rotate Time

The time of rotation between heat pumps. This setting is in hours of run time. This means that the heat pumps are going to rotate when the first heat pump exceeds the second by the rotate time.

(OFF/1H to 99H) Default: OFF

HEAT PUMP SETUP	
1) HP STAGES	1
2) LAG TIME	3m
3) ROTATE TIME	OFF
▶ 4) ROT CYCLES	OFF
5) OFF STAGING	ON
6) °C OR °F	°F

Rotate Cycles

Set the number of cycles at which you would like to rotate the heat pumps. One cycle is described as the heat pump going on and then off.

(OFF/1 to 240) Default: OFF

HEAT PUMP SETUP	
1) HP STAGES	1
2) LAG TIME	3m
3) ROTATE TIME	OFF
4) ROT CYCLES	OFF
▶ 5) OFF STAGING	ON
6) °C OR °F	°F

Off Staging

This feature is used to set how you would like to stage the heat pumps off. If set to ON the heatpumps will stage off normally, based off of tank temperature and differential settings. If set to OFF the heat pumps will all stage off at the same time, based off of tank temperature and differential settings.

(OFF/ON) Default: ON

1) HEAT PUMPS (CONT.)

HEAT PUMP SETUP

HEAT PUMP SETUP

- 1) HP STAGES **1**
- 2) LAG TIME **3m**
- 3) ROTATE TIME **OFF**
- 4) ROT CYCLES **OFF**
- 5) OFF STAGING **ON**
- ▶ 6) °C OR °F **°F**

Celsius or Fahrenheit

This setting is used to set the temperatures displayed on the control in either Celsius or Fahrenheit.

Default: °F

2) TANK SETUP

SETUP MENU 1.10

- 1) HEAT PUMPS
- ▶ 2) TANKS
- 3) BACKUP
- 4) ENERGY CLOCK
- 5) PRIORITY **COLD**
- 6) WIFI

TANK SETTINGS

- ▶ 1) HOT TANK
- 2) COLD TANK
- 3) CWSD/WWSD TIME **0H**

Hot Tank Setup

This setting is used to set the desired temperature in the hot tank when there is a heat demand present.

HOT TANK SETUP WITHOUT OUTDOOR RESET

HOT TANK SETUP

- ▶ 1) WWSD **65°F**
- 2) OUTDOOR **OFF**
- 3) HOT DIFF **6°F**
- 4) TANK TEMP **115°F**

Warm Weather Shut Down

This setting is used to set the temperature in which the ECO-0550 will go into WWSD. If the system rises above this temperature, the system will be shut off. In WWSD the heat pumps and backup boiler will shut off.

(OFF/33°F to 120°F) Default: 65°F

HOT TANK SETUP

- 1) WWSD **65°F**
- ▶ 2) OUTDOOR **OFF**
- 3) HOT DIFF **6°F**
- 4) TANK TEMP **115°F**

Outdoor Temperature (Design)

This is used in the outdoor reset design calculation. This option should be set to reflect your specific city or region.



With this option enabled, the Tank Temperature setting will be replaced by Min Tank and Max Tank Temperature settings.

(OFF/-40°F to 120°F) Default: OFF

HOT TANK SETUP

- 1) WWSD **65°F**
- 2) OUTDOOR **OFF**
- ▶ 3) HOT DIFF **6°F**
- 4) TANK TEMP **115°F**

Hot Tank Differential

Set this temperature to be the desired hot tank differential. A differential of 4°F will allow for 2 degrees above and/or 2 degrees below the desired temperature before a demand is present.

(2°F to 100°F) Default: 6°F

HOT TANK SETUP

- 1) WWSD **65°F**
- 2) OUTDOOR **OFF**
- 3) HOT DIFF **6°F**
- ▶ 4) TANK TEMP **115°F**

Tank Target Temperature

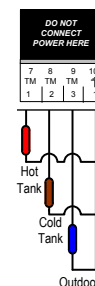
When a heat demand is present and the control is not in WWSD, the control will target this temperature for heating.

(35°F to 200°F) Default: 115°F

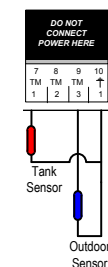


If there is no thermistor attached to pins 8 and 9, the control assumes single tank operation.

Dual Tank Setup



Single Tank Setup



HOT TANK SETUP WITH OUTDOOR RESET

HOT TANK SETUP

- ▶ 1) WWSD **65°F**
- 2) OUTDOOR **11°F**
- 3) HOT DIFF **6°F**
- 4) MIN TANK TEMP **80°F**
- 5) MAX TANK TEMP **115°F**

Warm Weather Shut Down

This setting is used to set the temperature in which the ECO-0550 will go into WWSD. If the system rises above this temperature, the system will be shut off. In WWSD the heat pumps and backup boiler will shut off.

(OFF/33°F to 120°F) Default: 65°F

HOT TANK SETUP

- 1) WWSD **65°F**
- ▶ 2) OUTDOOR **11°F**
- 3) HOT DIFF **6°F**
- 4) MIN TANK TEMP **80°F**
- 5) MAX TANK TEMP **115°F**

Outdoor Temperature (Design)

This is used in the outdoor reset design calculation. This option should be set to reflect your specific city or region.

(OFF/-40°F to 120°F) Default: OFF

HOT TANK SETUP

- 1) WWSD **65°F**
- 2) OUTDOOR **11°F**
- ▶ 3) HOT DIFF **6°F**
- 4) MIN TANK TEMP **80°F**
- 5) MAX TANK TEMP **115°F**

Hot Tank Differential

Set this temperature to be the desired hot tank differential. A differential of 4°F will allow for 2 degrees above and/or 2 degrees below the desired temperature before a demand is present.

(2°F to 100°F) Default: 6°F

HOT TANK SETUP

- 1) WWSD **65°F**
- 2) OUTDOOR **11°F**
- 3) HOT DIFF **6°F**
- ▶ 4) MIN TANK TEMP **80°F**
- 5) MAX TANK TEMP **115°F**

Minimum Tank Temperature

This setting is the bottom of the heat curve. The target will hit this temperature as the Outdoor Temperature approaches the WWSD.

(35°F to 200°F) Default: 80°F

HOT TANK SETUP

- 1) WWSD **65°F**
- 2) OUTDOOR **11°F**
- 3) HOT DIFF **6°F**
- 4) MIN TANK TEMP **80°F**
- ▶ 5) MAX TANK TEMP **115°F**

Maximum Tank Temperature

This setting is the top of the heat curve. The target will hit this temperature as the Outdoor Temperature approaches the Design Outdoor Temperature.

(35°F to 200°F) Default: 115°F

SETUP MENU 2.00	
1) HEAT PUMPS	
▶ 2) TANKS	
3) BACKUP	
4) ENERGY CLOCK	
5) PRIORITY	COLD
6) WIFI	

TANK SETTINGS	
1) HOT TANK	
▶ 2) COLD TANK	
3) CWSD/WWSD TIME	0H

Cold Tank Setup

This setting is used to set the desired temperature in the cold tank when there is a cooling demand present.

COLD TANK SETUP WITHOUT OUTDOOR RESET

COLD TANK SETUP	
▶ 1) CWSD	75°F
2) OUTDOOR	OFF
3) COLD DIFF	8°F
4) TANK TEMP	45°F

Cold Weather Shut Down

This setting is used to set the temperature in which the ECO-0550 will go into CWSD. If the system goes below this temperature, the system will be shut off. In CWSD the heat pumps will shut off.

(OFF/32°F to 119°F) Default: 75°F

COLD TANK SETUP	
1) CWSD	75°F
▶ 2) OUTDOOR	OFF
3) COLD DIFF	8°F
4) TANK TEMP	45°F

Outdoor Temperature (Design)

This is used in the outdoor reset design calculation. This option should be set to reflect your specific city or region.



With this option enabled, the Tank Temperature setting will be replaced by Min Tank and Max Tank Temperature settings.

(OFF/0°F to 119°F) Default: OFF

COLD TANK SETUP	
1) CWSD	75°F
2) OUTDOOR	OFF
▶ 3) COLD DIFF	8°F
4) TANK TEMP	45°F

Cold Tank Differential

Set this temperature to be the desired cold tank differential. A differential of 4°F will allow for 2 degrees above and/or 2 degrees below the desired temperature before a demand is present.

(2°F to 100°F) Default: 8°F

COLD TANK SETUP	
1) CWSD	75°F
2) OUTDOOR	OFF
3) COLD DIFF	8°F
▶ 4) TANK TEMP	45°F

Tank Target Temperature

When a cooling demand is present and the control is not in CWSD, the control will target this temperature for cooling.

(30°F to 200°F) Default: 45°F



If there is no thermistor attached to pins 8 and 9, the control assumes single tank operation.

COLD TANK SETUP WITH OUTDOOR RESET

COLD TANK SETUP

- ▶ 1) CWSD **75°F**
- 2) OUTDOOR **90°F**
- 3) COLD DIFF **8°F**
- 4) MIN TANK TEMP **45°F**
- 5) MAX TANK TEMP **60°F**

Cold Weather Shut Down

This setting is used to set the temperature in which the ECO-0550 will go into CWSD. If the system goes below this temperature, the system will be shut off. In CWSD the heat pumps will shut off.

(OFF/35°F to 119°F) Default: 75°F

COLD TANK SETUP

- 1) CWSD **75°F**
- ▶ 2) OUTDOOR **90°F**
- 3) COLD DIFF **8°F**
- 4) MIN TANK TEMP **45°F**
- 5) MAX TANK TEMP **60°F**

Outdoor Temperature (Design)

This is used in the outdoor reset design calculation. This option should be set to reflect your specific city or region.

(OFF/0°F to 119°F) Default: OFF

COLD TANK SETUP

- 1) CWSD **75°F**
- 2) OUTDOOR **90°F**
- ▶ 3) COLD DIFF **8°F**
- 4) MIN TANK TEMP **45°F**
- 5) MAX TANK TEMP **60°F**

Cold Tank Differential

Set this temperature to be the desired cold tank differential. A differential of 4°F will allow for 2 degrees above and/or 2 degrees below the desired temperature before a demand is present.

(2°F to 100°F) Default: 8°F

COLD TANK SETUP

- 1) CWSD **75°F**
- 2) OUTDOOR **90°F**
- 3) COLD DIFF **8°F**
- ▶ 4) MIN TANK TEMP **45°F**
- 5) MAX TANK TEMP **60°F**

Minimum Tank Temperature

This setting is the bottom of the cooling curve. The target will hit this temperature as the outdoor temperature approaches the Outdoor Design Temperature.

(30°F to 200°F) Default: 45°F

COLD TANK SETUP

- 1) CWSD **75°F**
- 2) OUTDOOR **90°F**
- 3) COLD DIFF **8°F**
- 4) MIN TANK TEMP **45°F**
- ▶ 5) MAX TANK TEMP **60°F**

Maximum Tank Temperature

This setting is the top of the cooling curve. The target will hit this temperature as the Outdoor Temperature approaches the CWSD.

(30°F to 200°F) Default: 60°F

COLD/WARM WEATHER SHUT DOWN TIME SETUP

TANK SETTINGS

- 1) HOT TANK
- 2) COLD TANK
- ▶ 3) CWSD/WWSD TIME **0H**

Cold/Warm Weather Shut Down Time

This setting is used as a lagtime for CWSD and WWSD. This will hold the control from entering CWSD or WWSD until this time has elapsed. The timer starts when the outdoor temperature hits the CWSD or WWSD. This setting is useful in the shoulder seasons when there are large outdoor temperature swings.

(0H to 48H) Default: 0H

3) BACKUP SETUP

SETUP MENU		2.00
1) HEAT PUMPS		
2) TANKS		
▶ 3) BACKUP		
4) ENERGY CLOCK		
5) PRIORITY	COLD	
6) WIFI		

Backup Setup

This setting is used to configure the boiler backup component in your system.

BACKUP SETUP

BACKUP SETUP	
▶ 1) BACKUP TIME	OFF
2) BACKUP TEMP	OFF
3) BACKUP DIFF	OFF

Backup Time

This setting will be set for the minimum lag time between heat pump stages and the backup boiler. This is a time delay between the heat pump stages and the backup boiler. Even if the differential has been exceeded this time must elapse before that stage can come on.

(OFF/1m to 240m) Default: **OFF**

BACKUP SETUP	
1) BACKUP TIME	OFF
▶ 2) BACKUP TEMP	OFF
3) BACKUP DIFF	OFF

Backup Temperature

Set this temperature to the desired outdoor temperature that will allow the backup to come on. When the temperature resides above this value, the backup will not be allowed to come on. Only when the Outdoor Temperature falls below this value can the backup come on.

(OFF/2°F to 100°F) Default: **OFF**

BACKUP SETUP	
1) BACKUP TIME	OFF
2) BACKUP TEMP	OFF
▶ 3) BACKUP DIFF	OFF

Backup Differential

This setting can be used with the backup temperature and backup time or on its own to bring the backup on. This setting is used to set a differential on the tank at which you would like the backup to come on. This setting will override the backup temperature and backup time settings.

(eg. Tank temperature of 115°F and a backup differential of 10°F. The backup boiler will come on at 105°F providing all of the heat pumps are already on.)

(OFF/2°F to 100°F) Default: **OFF**

4) ECOSWITCH ENERGY CLOCK SETUP

SETUP MENU	2.00
1) HEAT PUMPS	
2) TANKS	
3) BACKUP	
▶ 4) ENERGY CLOCK	
5) PRIORITY	COLD
6) WIFI	

Energy Clock Setup

This EcoSwitch feature allows you to lock out your heat pumps and run only the backup boiler on a timed schedule, allowing you to save on energy and lower your utility bills during peak time periods.



Energy Clock is only applicable if Backup is selected in setup.

ENERGY CLOCK SETUP - TIME

ENERGY CLOCK	
▶ 1) SET TIME	10:00 am
2) TIME ZONE	MOUNTAIN
3) WEEKDAY SETUP	
4) WEEKEND SETUP	

Set Time

Adjust time, year, day, and day of the week for EcoSwitch schedule. This time will appear on the Status Screen.

SET TIME	
▶ 1) YEAR	2017
2) MONTH	JUL
3) DAY	5
4) DOW	FRI
5) HOUR	10AM
6) MIN	00

Year

This setting allows you to adjust the current year.

SET TIME	
1) YEAR	2017
▶ 2) MONTH	JUL
3) DAY	5
4) DOW	FRI
5) HOUR	10AM
6) MIN	00

Month

This setting allows you to adjust the current month.

SET TIME	
1) YEAR	2017
2) MONTH	JUL
▶ 3) DAY	5
4) DOW	FRI
5) HOUR	10AM
6) MIN	00

Day

This setting allows you to adjust the current day.

SET TIME	
1) YEAR	2017
2) MONTH	JUL
3) DAY	5
▶ 4) DOW	FRI
5) HOUR	10AM
6) MIN	00

Day of the Week

This setting allows you to adjust the current day of the week.

SET TIME	
1) YEAR	2017
2) MONTH	JUL
3) DAY	5
4) DOW	FRI
▶ 5) HOUR	10AM
6) MIN	00

Hour

This setting allows you to adjust the current hour.

SET TIME	
1) YEAR	2017
2) MONTH	JUL
3) DAY	5
4) DOW	FRI
5) HOUR	10AM
▶ 6) MIN	00

Minute

This setting allows you to adjust the current minute.

ENERGY CLOCK SETUP - TIME ZONE SETUP

ENERGY CLOCK

- 1) SET TIME 10:00 am
- ▶ 2) TIME ZONE MOUNTAIN
- 3) WEEKDAY SETUP
- 4) WEEKEND SETUP

Time Zone Setup

This setting allows you to setup the timezone for your current location.

Default: Mountain Standard Time

ENERGY CLOCK SETUP - WEEKDAY SETUP

ENERGY CLOCK

- 1) SET TIME 10:00 am
- 2) TIME ZONE MOUNTAIN
- ▶ 3) WEEKDAY SETUP
- 4) WEEKEND SETUP

Weekday Setup

Adjust time and demand type options for weekday setup. The ECO-0550 is flexible and can be programmed for different schedules to run your heat pumps or backup boiler only for weekdays.

WEEKDAY SETUP

- ▶ 1) 12:00A BACKUP ONLY
- 2) 8:00A HEAT PUMPS
- 3) 4:00P HEAT PUMPS
- 4) 11:00P HEAT PUMPS

Device Set Time (1-4)

Adjust the schedule times for your heating devices. Time can be adjusted in 15 minute increments.

WEEKDAY SETUP

- 1) 12:00A ▶ BACKUP ONLY
- 2) 8:00A HEAT PUMPS
- 3) 4:00P HEAT PUMPS
- 4) 11:00P HEAT PUMPS

Heating Device Options

Set which devices will activate at set times.

Heat Pumps: If Heat Pumps selected, control will operate Heat Pumps and Backup Boiler (Normal Operation) as programmed by user until next scheduled time.

Backup Only: If Backup Only selected, control will operate the Backup Boiler only during a heat call until next scheduled time.

ENERGY CLOCK SETUP - WEEKEND SETUP

ENERGY CLOCK

- 1) SET TIME 10:00 am
- 2) TIME ZONE MOUNTAIN
- 3) WEEKDAY SETUP
- ▶ 4) WEEKEND SETUP

Weekend Setup

Adjust time and demand type options for weekend setup. The ECO-0550 is flexible and can be programmed for different schedules to run your heat pumps or backup boiler only for weekends.

WEEKEND SETUP

- ▶ 1) 12:00A BACKUP ONLY
- 2) 8:00A HEAT PUMPS
- 3) 4:00P HEAT PUMPS
- 4) 11:00P HEAT PUMPS

Device Set Time (1-4)

Adjust the schedule times for your heating devices. Time can be adjusted in 15 minute increments.

WEEKEND SETUP

- 1) 12:00A ▶ BACKUP ONLY
- 2) 8:00A HEAT PUMPS
- 3) 4:00P HEAT PUMPS
- 4) 11:00P HEAT PUMPS

Heating Device Options

Set which devices will activate at set times.

Heat Pumps: If Heat Pumps selected, control will operate Heat Pumps and Backup Boiler (Normal Operation) as programmed by user until next scheduled time.

Backup Only: If Backup Only selected, control will operate the Backup Boiler **only** during a heat call until next scheduled time.

5) PRIORITY SETUP

SETUP MENU 2.00

- 1) HEAT PUMPS
- 2) TANKS
- 3) BACKUP
- 4) ENERGY CLOCK
- ▶ 5) PRIORITY COLD
- 6) WIFI

Priority Setup

This setting will prioritize the option selected.

Single Tank Setup:

When the control is in this mode and there is a heat demand and cooling demand simultaneously, the control will disregard the call that is not priority until the priority is satisfied.

Dual Tank Setup:

When the control is in this mode and there is a heat demand and cooling demand simultaneously, the control will satisfy the priority tank before switching to the non-priority tank.

(HOT/COLD) Default: **COLD**

WIFI SETUP

SETUP WIFI

- ▶ 1) PASSWORD AB12
- 2) SETUP WIFI
- 3) CONNECTION READY

SYNC-CODE ACPU-1234

Password

This is the password for the device, selecting this option allows you to change the device's password to secure the privacy of this device when needed.

No: Password will remain the same.

Yes: The control will randomly generate a new password.

CHANGE PASSWORD

- ▶ 1) NO
- 2) YES

SETUP WIFI

- 1) PASSWORD AB12
- ▶ 2) SETUP WIFI
- 3) CONNECTION READY

SYNC-CODE ACPU-1234

Setup WIFI

SSID: This will display the connected network or can also be selected to manually enter a network

1) Network name location

2) NEXT: When inputing the password select this to input the next letter or number in the sequence of the password

3) DELETE: When inputing the password use this to delete the letter or number, this will return you to the previous sequence

4) DONE: When you have correctly inputed the password select done to return to the previous screen

SETUP WIFI

- ▶ 1) SSID
- 2) PASSWORD
- 3) SCAN FOR NETWORKS
- 4) SEND TO WIFI

SYNC-CODE ACPU-1234

Password: This will display the password for the network, select this to manually enter the password

1) Password location

2) NEXT: When inputing the password select this to input the next letter or number in the sequence of the password

3) DELETE: When inputing the password use this to delete the letter or number, this will return you to the previous sequence

4) DONE: When you have correctly inputed the password select done to return to the previous screen

SETUP WIFI

- 1) SSID
- ▶ 2) PASSWORD
- 3) SCAN FOR NETWORKS
- 4) SEND TO WIFI

SYNC-CODE ACPU-1234

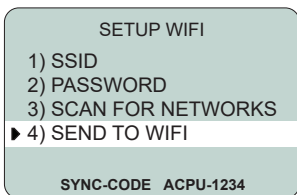
SETUP WIFI

- 1) SSID
- 2) PASSWORD
- ▶ 3) SCAN FOR NETWORKS
- 4) SEND TO WIFI

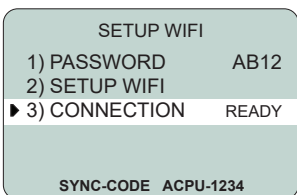
SYNC-CODE ACPU-1234

Scan for Networks: Selecting this will automatically scan for all available networks

SSID: press the enter button then using the up and down keys select your network, once it is selected hold the middle key for 2 seconds to return to the previous screen.



Send to WIFI: Select this once you have correctly entered the password to the selected Network. The control will send the SSID and password upon which it will automatically connect. Press and hold the enter button for 2 seconds to return to the WIFI SETTINGS screen. CONNECTION should change from WIFI to SERVER. Once this happens the CPU-0550 is now connected to the network.



Connection

This option displays the current Wi-Fi connection status.

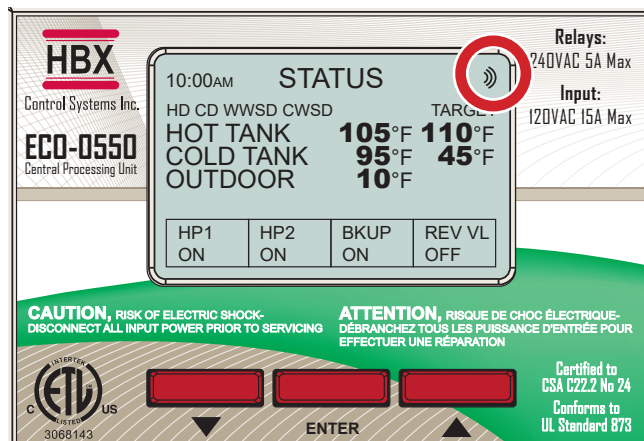
Ready: Awaiting for Wi-Fi setup. Control is not connected to a Wi-Fi internet network.

Wi-Fi: The control is connected to a Wi-Fi network, but unable to communicate with our server, ensure that PORT 1314 is open

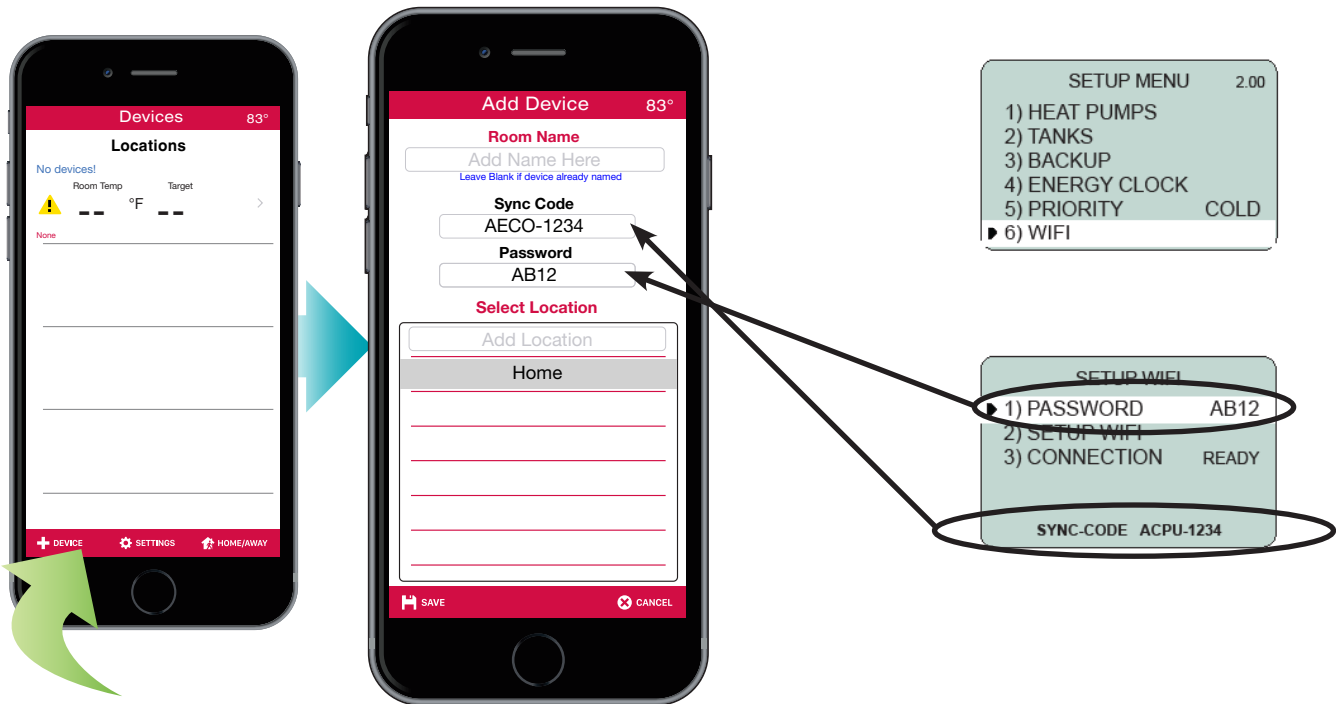
Server: The control is connected to a Wi-Fi network and is communicating with the Thermolinx server. You can now add the device to the Thermolinx App.

1. Once connected, the ECO-0550 control will display a constant Wi-Fi Symbol on the top right corner of the main status screen, and in the Wi-Fi menu Connection will say SERVER.

After the timer has finished the ECO-0550 will display in the top right corner of the main status screen a solid Wi-Fi symbol, this means that you have connected. You can also go back to the Wi-Fi Settings menu and on the 3rd line the Connection should display SERVER.



ADDING DEVICES



Adding thermostats to the HBX ThermoLinX App

1. On the home screen, select "+ Device".
2. Add the name of your ECO-0550. Leave this option blank if the ECO-0550 itself is already displaying a name.
3. Enter sync code for ECO-0550 Control. The sync code can be found in the Wifi Setup Menu on the ECO-0550.



The first half of the Sync-Code will always be letters, and the second half will always be numbers.

4. Enter password for ECO-0550. The password can be found in the Wifi Setup Menu on the Control.
5. Enter a system location name and select done/enter. (Ex. Home, Office, Cabin, etc.) **This is the name of the system location, not the ECO-0550 you added.**

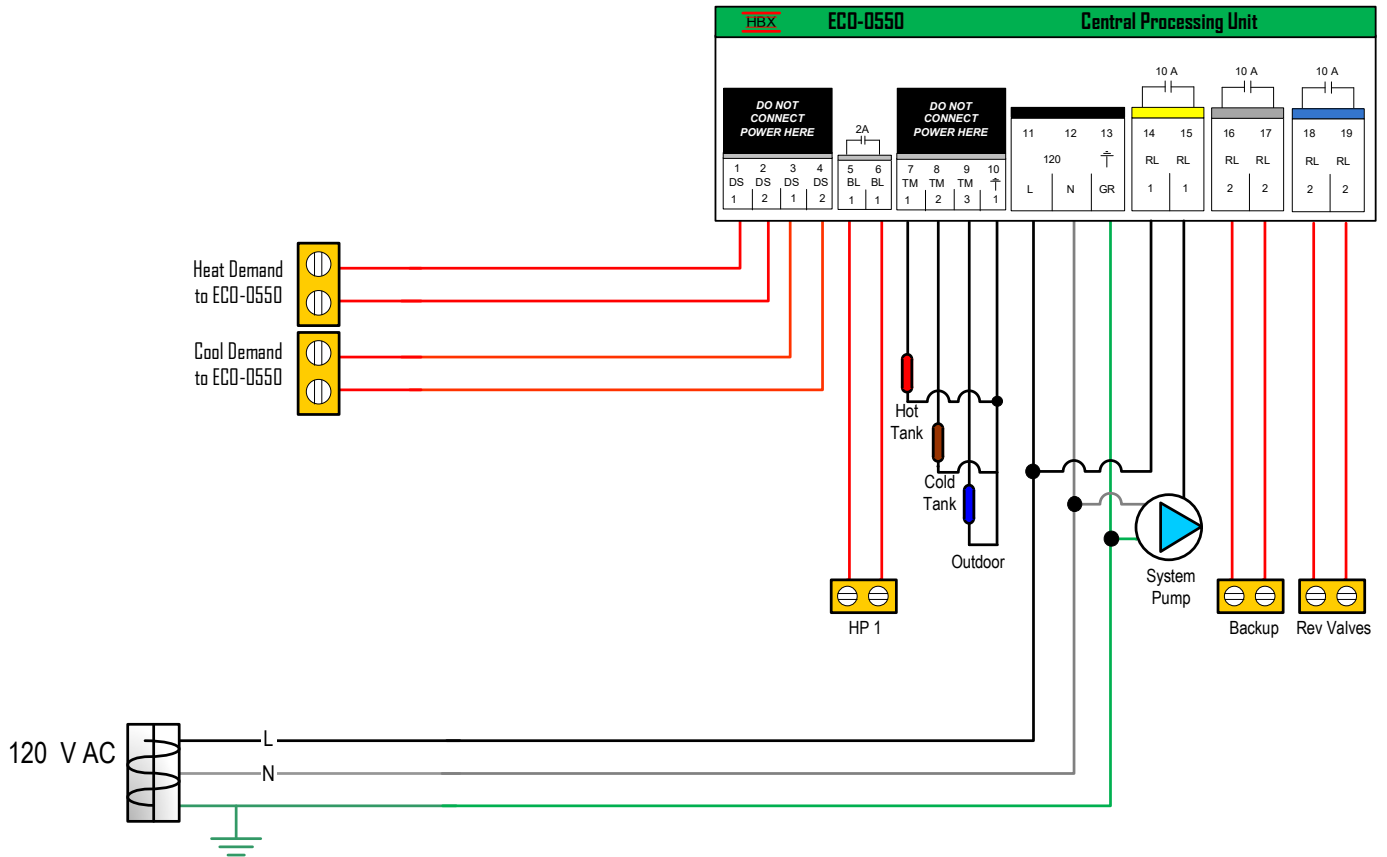


Symbols and numbers cannot be used in location name

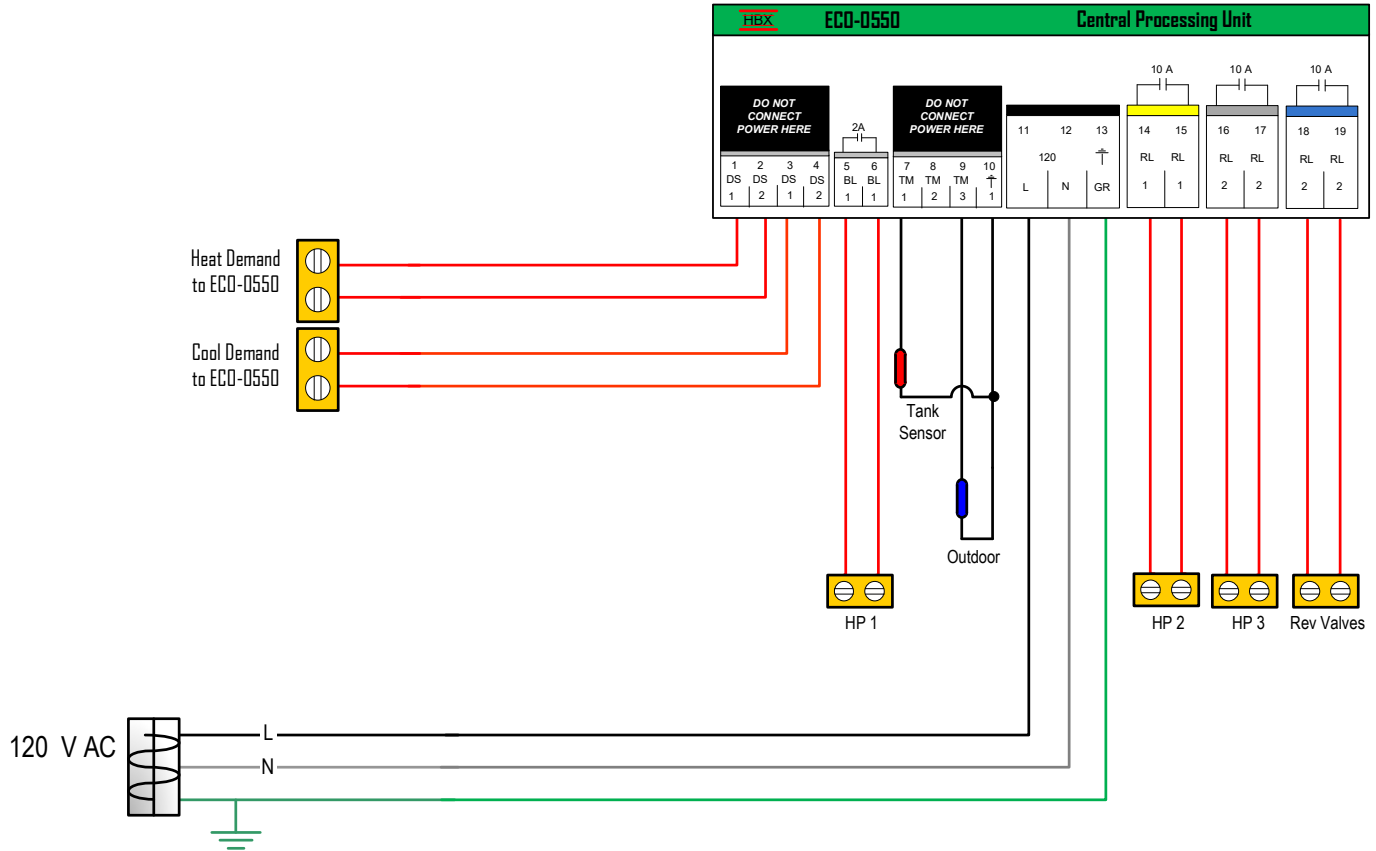
6. After you have entered the system location name, select the location so it is highlighted, and select save.

WIRING DIAGRAMS

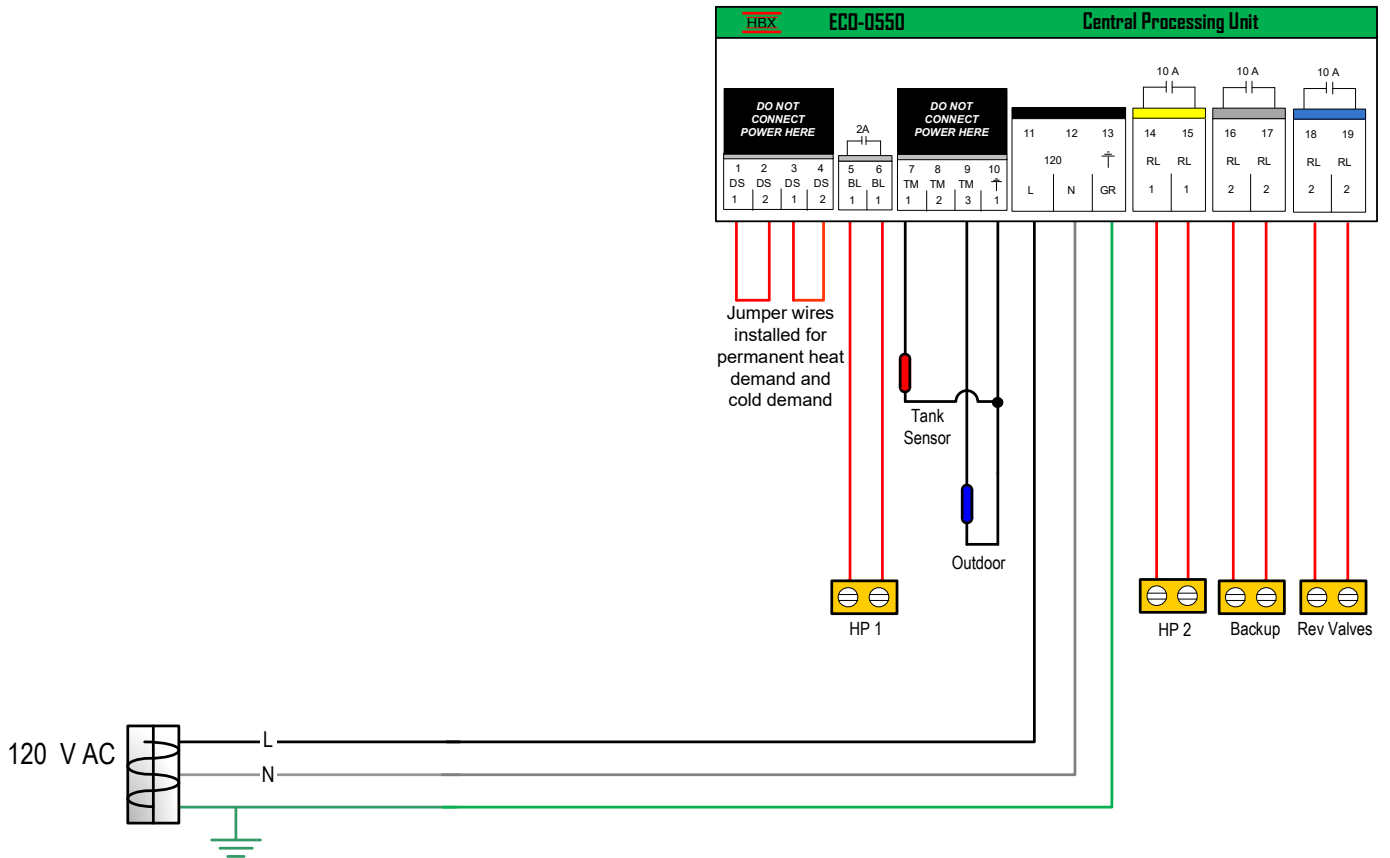
1) One stage, dual tank for heating and cooling, and back up heat source



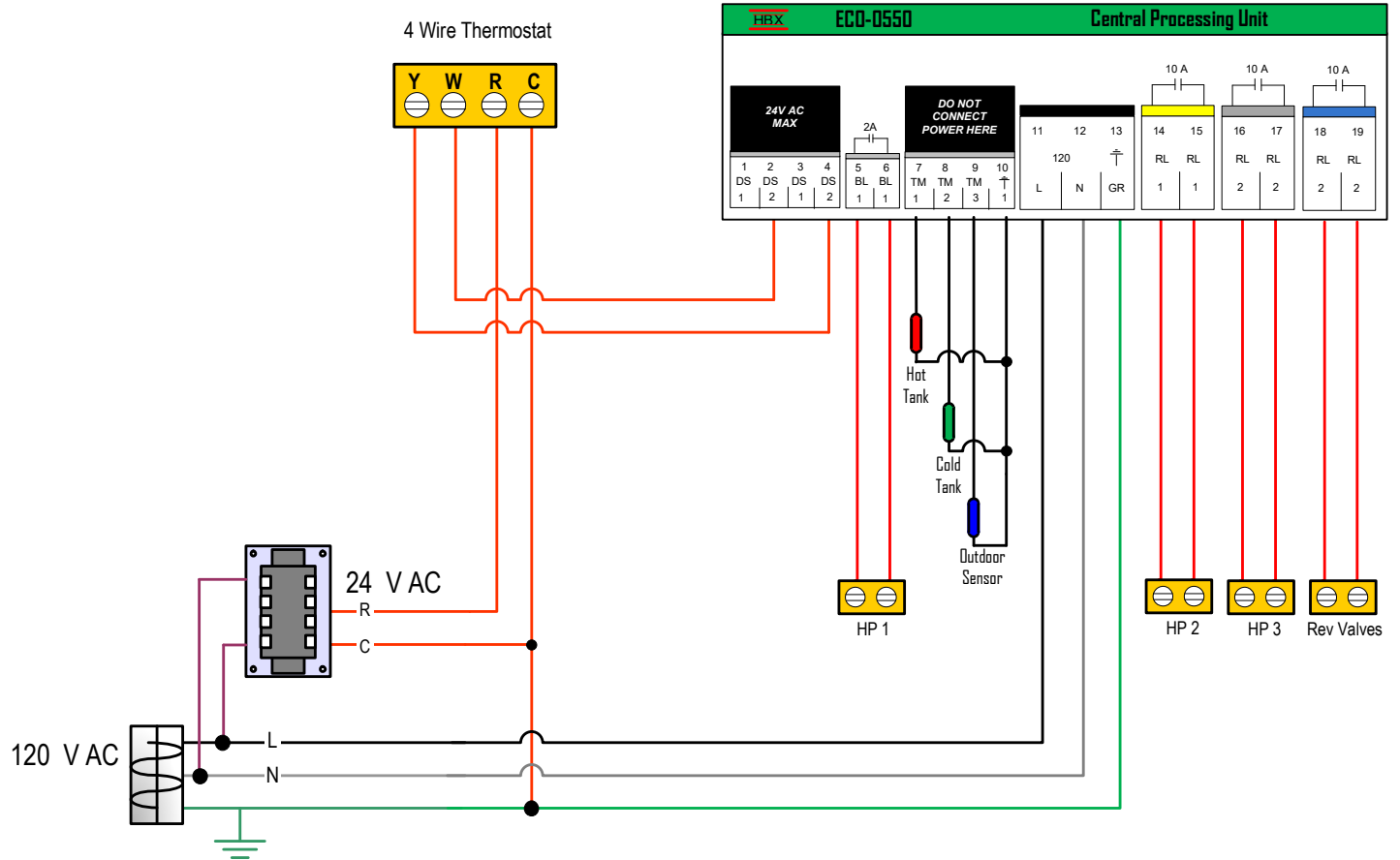
2) Three stages, single tank for heating and cooling



3) Two stages, single tank for heating and cooling, with back up heat source



4) Three stages, dual tanks for heating and cooling, with 4 wire thermostat for demand calls



ECO-0550 TROUBLESHOOTING GUIDE

ISSUE	POSSIBLE CAUSES & RESOLUTIONS
Heat Pumps shut off all at the same time	<ul style="list-style-type: none"> • Check Off staging setting page. 6
Heat pumps not rotating	<ul style="list-style-type: none"> • Check rotation settings page. 6
System pump always running	<ul style="list-style-type: none"> • Control is wired for permanent heating (pins 1-2) or cooling (pins 3-4) demand.
Control won't go into heating or cooling	<ul style="list-style-type: none"> • Check if there is a demand on pin 1-2 and pins 3-4. • Check WWSD and CWSD settings
Heat pumps shutting off on high/low pressure	<ul style="list-style-type: none"> • Check hot tank or cold tank setpoints. Make sure they do not exceed recommend heat pump limits.
Heat pumps cycling to frequently	<ul style="list-style-type: none"> • Check tank differential on pages 7 - 10 • Check heat pump lag time
Backup boilers not coming on	<ul style="list-style-type: none"> • Check wiring • Check backup settings on page 11. Ensure one backup setting is not set to off.
Backup boiler taking too long to come on	<ul style="list-style-type: none"> • Check backup settings on page 11
No heat or Cool call	<ul style="list-style-type: none"> • Check demand inputs on pins (1-2) or pins (3-4) • Make sure control is not in WWSD/CWSD
Control not coming out of CWSD/WWSD	<ul style="list-style-type: none"> • Check the CWSD/WWSD time on page 10
Abnormal tank target	<ul style="list-style-type: none"> • Check outdoor reset settings on pages 7 - 10
Cold tank not showing on control display	<ul style="list-style-type: none"> • Check cold tank sensor is connected on pins (8-10)
Outdoor Sensor displays dashes on control display	<ul style="list-style-type: none"> • Check outdoor sensor is connected on pins (9-10)

ECO-0550 TROUBLESHOOTING GUIDE

ISSUE	POSSIBLE CAUSES & RESOLUTIONS
Heat pump(s) in not turning on	<ul style="list-style-type: none">• No heat/cool demand• Control is WWSD/CWSD
System pump is not turning on	<ul style="list-style-type: none">• No heat/cool demand
Reversing valve is not turning on	<ul style="list-style-type: none">• Control is CWSD• No cool demand

For additional assistance with the ECO-0550, please contact our
Technical Support Department toll free at:

+1 (855) 410-2341

Limited Warranty

HBX Controls warrants each of its products to be free from defects in workmanship and materials under normal use and service for a period of 24 months from date of manufacture or 12 months from date of purchase from an HBX Authorized Dealer, if within the above documented period after date of manufacture.

If the product proves to be defective within the applicable warranty period, HBX on its sole discretion will repair or replace said product. Replacement product may be new or refurbished of equivalent or better specifications, relative to the defective product. Replacement product need not be of identical design or model. Any repair or replacement product pursuant to this warranty shall be warranted for not less than 90 days from date of such repair, irrespective of any earlier expiration of original warranty period. When HBX provides replacement, the defective product becomes the property of HBX Controls.

Warranty Service, within the applicable warranty period, may be obtained by contacting your nearest HBX Controls office via the original Authorized Agent and requesting a Return Material Authorization Number (RMA #). Proof of purchase in the form a dated invoice/receipt must be provided to expedite the issuance of a Factory RMA.

After an RMA number has been issued, the defective product must be packaged securely in the original or other suitable shipping package to ensure that it will not be damaged in transit. The RMA number must be visible on the outside of the package and a copy included inside the package. The package must be mailed or otherwise shipped back to HBX with all costs of mailing/shipping/insurance prepaid by the warranty claimant.

Any package/s returned to HBX without an approved and visible RMA number will be rejected and shipped back to purchaser at purchaser's expense. HBX reserves the right, if deemed necessary, to charge a reasonable levy for costs incurred, additional to mailing or shipping costs.

Limitation of Warranties

If the HBX product does not operate as warranted above the purchasers sole remedy shall be, at HBX's option, repair or replacement. The foregoing warranties and remedies are exclusive and in lieu of all other warranties, expressed or implied, either in fact or by operation of law, statutory or otherwise, including warranties of merchantability and fitness for a particular purpose/application. HBX neither assumes nor authorizes any other person to assume for it any other liability in connection with the sale, installation maintenance or use of HBX Controls products.

HBX shall not be liable under this warranty; if its testing and examination discloses that the alleged defect in the product does not exist or was caused by the purchasers or third persons misuse, neglect, improper installation or testing, unauthorized attempts to repair or any other cause beyond the range of intended use, or by accident, fire, lightning or other hazard.

Limitation of Liability

In no event will HBX be liable for any damages, including loss of data, loss of profits, costs of cover or other incidental, consequential or indirect damages arising out of the installation, maintenance, commissioning, performance, failure or interruption of an HBX product, however caused and on any theory of liability. This limitation will apply even if HBX has been advised of the possibility of such damage.

Local Law

This limited warranty statement gives the purchaser specific legal rights. The purchaser may also have other rights which vary from state to state in the United States, from Province to Province in Canada and from Country to Country elsewhere in the world.

To the extent this Limited Warranty Statement is inconsistent with local law, this statement shall be deemed modified to be consistent with such local law. Under such local law, certain disclaimers and limitations of this statement may not apply to the purchaser. For example, some states in the United States, as well as some governments outside the United States (including Canadian Provinces), may:

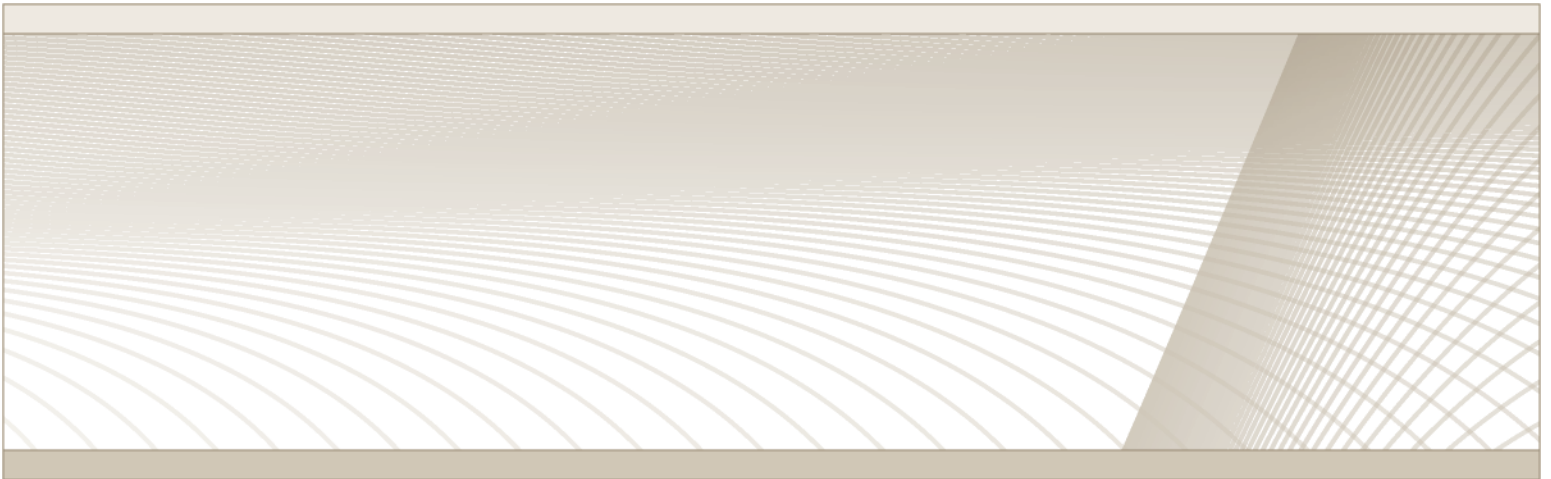
Preclude the disclaimers and limitations in this statement from limiting the statutory rights of a consumer (e.g. United Kingdom);

Otherwise restrict the ability of a manufacturer to enforce such disclaimers or limitations; or

Grant the purchaser additional warranty rights which the manufacturer cannot disclaim, or not allow limitations on the duration of implied warranties.

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