Installation Manual ZON-0550 Version 1.11



• Zone Control

ZON-0550

HBX Control Systems Inc.

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HBX ZON-0550 Zone Control Version 1.11

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HBX ZON-0550 ZONE MODULE

INTRODUCTION

This manual will help with the installation, 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.



Only suitably qualified individuals with formal training in electrical and hydronic 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.

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.

The HBX ZON-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.



Use only copper conductor supply wire suitable for at least 105 $^\circ\text{C}$



All circuits must have a common disconnect and be connected to the same pole of the disconnect

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 Terminal Screwdriver (2.5 mm)
- 1 x Manual



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HBX ZON-0550 ZONE CONTROL DESCRIPTION

The ZON-0550 is an intelligent, microprocessor based zone control for the 0550 series controls, or standalone zone control. More than a standard zone control, the ZON-0550 is a Wi-Fi enabled zone control that has capability to control up to four (4) THM-0300 thermostats per controller plus fancoil (W-Y-G) control, with expansion up to four (4) additional units that communicate wirelessly, for a maximum of twenty (20) zones. This powerful controller allows for pump or valve control and is also capable to controlling 2 damper zones per zone module. In Geothermal applications the system can also control 2 or 4 pipe systems.



FEATURES

- Smartphone or tablet device App for remote access
- Control four (4) independent zone per control plus Fancoil (W-Y-G) output
- Wirelessly expandable to a maximum of twenty (20) zones
- Provides pump or valve control
- Damper control
- Two (2) demands outputs (Heat/Cool) or (LT / HT)
- Geo Mode (2 or 4 pipe systems)
- Alarm email notification



TECHNICAL DATA AND DIMENSIONS

ZON-0550 TECHNICAL DATA



DIMENSIONS

Specifications:

- 4 x THM-0300 Thermostat Communication inputs
- 3 x Fancoil outputs 24VAC 2A
- 2 x Demand output relays 24VAC 2A

4 x Zone Relay 120VAC 5A Input 120VAC 15A Max 1 x Pump Relay 120VAC 5A

Combined relay power should not exceed 15A

Weight:

0.408Kg

Dimensions:

121mm W x 188mm H x 66mm 4.76in W x 7.40in H x 2.60in

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)

ZON-0550 RF Info:

Contains IC: 7693A-24J40MB Contains FFC ID: 0A3MRF24J40MB





TECHNICAL DATA AND DIMENSIONS

TMX-0100 TECHNICAL DATA



Specifications: 1 x 5VDC input

Weight: 0.1Kg

Dimensions: 60mm W x 62mm H x 28.24mm

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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)

TMX-0100 RF Info: Contains IC: 8169A-G2M5477 Contains FFC ID: U3O-G2M5477

LEDs:

Red - Unit is connected to a WiFi Network Green - Unit is powered Blue - Unit is communicating with the server



DIMENSIONS



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WIRING AND INSTALLATION

WIRING

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



1. DEMAND OUTPUTS

These are the outputs for the demands. These can be a Heating and Cooling demand, 24VAC contact, dry contact TT/Low Temperature demand for a boiler, or DHW/High Temperature demand.

2. ZONE 1 - 4 OUTPUT

These are the outputs for the zone device. This can be a pump or a valve depending on what power is supplied to terminals 11-12. These outputs can also be used for Damper Zones (terminals 1 & 3) or a 4 pipe system.

3. SYSTEM PUMP OUTPUT

This is a dry contact output that can be used for a system pump. This contact will activate any time a zone comes on.

4. INPUT POWER

This input is to power the ZON-0550. 0.5 Amps at 120 VAC is required to power this device.

5. ZONE POWER

This input is used to power the zone outputs and is rated for 240VAC, 120VAC or 24VAC.

6. FANCOIL OUTPUT

These are the outputs for the Fancoil demands. These can be a Fan Demand or an HRV Demand.

7. THERMOSTAT INPUT 1 - 4

These terminals are used for power and communication for thermostat inputs. Only THM-0300 thermostats are compatible with this control.



INSTALLATION

Mounting Holes

ZON-0550 Installation

The ZON-0550 is designed to be wall mounted or installed in a separate electrical enclosure. The unit should be installed 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 close to any electromagnetic fields.

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



STAND ALONE SYSTEM SETUP

THM-0300 Procedure Installation

Additional information on the installation of the THM-0300 can be found in the THM-0300 manual.

The unit should be installed 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 close to any electromagnetic fields.

Installation

1. Connect the THM-0300 Thermostat to the control. If you are using a single thermostat, ensure it is connected to THM 1 on the control. Match the numbers on the THM-0300 Pin Connectors to the numbers on the ZON-0550 Control. It is normal for the thermostat screen to blink upon startup.



ZON-0550

TMX-0100 (ThermoLinx™ Wi-Fi Module) Procedure Installation

The TMX-0100 is designed to be used with the ZON-0550 and HBX Zone App for remote access. The operational status of the TMX-0100 is indicated by lights (LEDs). The TMX-0100 has three (3) lights on the front (Red for Wi-Fi, Green for Ready, Blue for Server). Information is communicated by the color of the lights and whether they are steady or flashing.

The unit should be installed 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 close to any electromagnetic fields.

Installation

1. Connect the CAB-0150 connector to the Wi-Fi port of the ZON-0550 on the right side of the control.

The CAB-0150 connector length cannot be extended and no other connector shall be used for installation.

2. Connect the TMX-0100 to the CAB-0150 connector.



CONNECTING TO A WIRELESS NETWORK





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Before You Start

Download the free HBX Zone App from the App store for Apple[®] devices, or Google Play for Android[™] devices.

These steps will guide you through the installation and configuration of the ThermoLinx™ Network. Ensure that your Wi-Fi network is active.

Connecting to ThermoLinx[™]

- 1. After connecting the TMX-0100 to the ZON-0550 control, wait 60 seconds. If the red LED light (Wi-Fi) on the TMX-0100 is not blinking, press and hold down the reset button for 10 seconds, or until all the LED's on the TMX-0100 turn off, and then release.
- 2. Go into your **smartphone/tablet device settings** and then go into your Wi-Fi settings.
- 3. Select the ThermoLinx Wi-Fi Network.
- 4. Once you have selected the ThermoLinx Wi-Fi Network, wait until your smartphone/tablet device signifies that it is connected to the network, with a symbol **?**.
- 5. Start the HBX Zone App. It will display "Contacting ThermoLinx" and direct you to Wi-Fi setup.
- 6. In Wi-Fi setup, select the **home Wi-Fi network you would like to connect to**, and enter the password for the Wi-Fi network.



- 7. Select "Connect to WiFi Now". Please allow for 120 seconds to connect to your Wi-Fi network.
- 8. Once connected check the red, green, and blue LED lights on the TMX-0100. All LED lights should be steady.
- 9. Now you are ready to add thermostats. See Adding Thermostats on page 10.





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Connecting to ThermoLinx^{\ensuremath{\mathsf{TM}}} via personal hotspot

When there is no internet connection available during installation, you can use your personal hotspot on your smartphone to connect to the ThermoLinx Network to configure your system.

- 1. After connecting the TMX-0100 to the ZON-0550 control, wait 60 seconds. If the red LED light (Wi-Fi) on the TMX-0100 is not blinking, press and hold down the reset button for 10 seconds and then release.
- 2. Go into your smartphone settings and then go into your personal hotspot settings. Turn on your personal hotspot.

Don't use numbers, symbols or spaces for hotspot name and password

- 3. Start the HBX Zone App. It will display "Contacting ThermoLinx" and direct you to Wi-Fi setup.
- 4. In Wi-Fi setup, manually enter personal hotspot device name in network SSID and enter your personal hotspot password. Select "Connect to WiFi Now".



Hotspot name will not appear in network list.

- 5. Exit the app and go back into your personal hotspot settings and wait for the ThermoLinx Network to connect your hotspot.
- 6. Once connected, check the red, green, and blue LED lights on the TMX-0100. All LED lights should be steady (allow for a couple of minutes).
- 7. Now you are ready to add thermostats. See adding thermostats on page 10.





Adding thermostats to the HBX Wi-Fi Zoning App

- 1. On the home screen, select "+ Device".
- 2. Add the room name of your thermostat. Leave this option blank if the thermostat itself is already displaying a name.
- 3. Enter sync code for THM-0300 thermostat. The sync code can be found in the System Setup Menu on the thermostat. Any THM-0300 thermostat in your system can be used for set up.



- 4. Enter password for THM-0300 thermostat. The password can be found in the Zone Setup Menu on the thermostat.
- 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 thermostat 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.



- 7. The thermostats connected to your system will all automatically populate on the main page. If they do not, confirm that the sync code and password you specified are correct.
 - Depending on which thermostat is added, the thermostats may not appear on the app in zone order from 1 – 20.
 - To delete a thermostat:

Iphone: swipe the zone to the left and select delete.

Android: press and hold until the delete option appears.

If internet connection is lost, it may take up to 15 minutes for the thermostats to check in once internet connection is restored



Changing Thermostat Names

- 1. On the home screen, select the zone you would like to give a customize name too.
- 2. Select "settings" on the zone home screen.
- 3. Name: Enter the zone name that you would like to appear on the thermostat and app.



Do not use symbols (#, &, ect.) for thermostat name.

4. Select "back" to return to the zone home screen and select save.



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HBX ZONE APP INITIAL SETUP

 essantintionisentantion 	
HOME	83°F
City: Calgary	
App Degrees: °F °C	
Location Time Zone Alaska Pacific <mark>Mountain</mark> -9hrs GMT -8hrs GMT <mark>-7hrs GMT</mark> () ()	Central -6hrs GMT
Key: 12345	
Back	

Location Settings

- 1. On the home screen, select "settings".
- 2. Enter the system location by city or zip/postal code.



Do not use spaces in Zip/Postal Code

- 3. Change the app from Fahrenheit (°F) to Celsius (°C).
- 4. Scroll and select the system location time zone.



Setting time zone will automatically adjust the time on your thermostats and will automatically adjust for daylight savings.

5. Enter a contractor code to unlock advanced settings options.



Contact HBX Tech Support for contractor code

Technical Support

Phone: +1 (403) 720-0029 support@hbxcontrols.com



HBX ZONE APP ALARMS

 easensessanae 	
Alarm Settings	
Email	
info@hbxcontrols.com	
Email #1. This one must be filled out	
Email #2. Secondary email	
ON/OFF:	
SENSOR	
Room	
Floor	\bigcirc
ALARM TRIGGERS	
Temperature - +	99°F
Over	
Under	\bigcirc
EMAIL OPTIONS	
Send Only Once	
Send Once per Hour	\bigcirc
Send Once per Day	\bigcirc
Back Eave	

Email

The HBX Zone App allows you to receive alarm by email notification (up to 2 emails) from the HBX server. Email #1 must be filled out to receive an alarm notification. Email #2 is a secondary email.

Sensor Type

This option allows you to select a room, floor or tank sensor in a zone for alarm setup.

- 1. If thermostat is setup as a DHW Aquastat, Floor Sensor will automatically change to Tank Sensor.
- 2. Only one sensor can be monitored at a time.

Alarm Triggers

These options allow you to select a set temperature for an alarm trigger. If the temperature falls below or rises above the set temperature an alarm email notification from the HBX server will be sent out to the email entered in Email #1 and Email #2.

This can only be set to Over or Under. Both cannot be active at the same time.

Email options

This options allows you to set the frequency of alarm email notifications you receive per day. This option can be set to once, once per hour or once per day.



The Alarm will automatically reset once the alarm condition is no longer met.







Advanced Settings

Enter the contractor code in location settings from the home screen menu to unlock advanced settings. Contact HBX Tech Support for contractor code.

Special Functions

- 1. Thermostat Type: select between multiple heating, cooling and a variety of combined modes: 1H, 1C, H/C, 2H, 2C, 2H/1C, 2C/1H, 2H/2C.
- 2. Setbacks: This option allows you to turn on/off setbacks.
- 3. Geo Mode: This option allows you to turn on Geo Mode to control 2 pipe systems for geothermal applications.

Fancoil Settings

- 1. Fan On With Demands (W,Y): This option will turn on the fan with any fancoil demand.
- 2. Zone On with Demands (W,Y): This option will turn the zone pump on with any fancoil demand.
- 3. Temperature Averaging: This option will average the temperature between thermostats.
- 4. Damper Zone (1 & 3): This option allows you to set a zone as a damper zone. 2 zones and 2 dampers can be set up per zone module. Zones (1 and 3) are zones and (2 and 4) are dampers.
- 5. 4-Pipe System: This option is displayed when Geo Mode is turned on. This allows you to control a 4 pipe system for geothermal applications.

Mode Setup

- 1. Thermostat Mode: This option allows you to select between Room, Floor and Dual Mode.
- 2. Sensor Type: This option allows you to select between Floor, Room, Outdoor and Room Average sensor types.

Zone Setup

- 1. Zone Demand: This option allows you to select between a Low Temperature, High Temperature, Domestic Hot Water or Fancoil Demand.
- 2. Zone Priority: This option allows the user to set a priority on a zone(s) over other zone(s). Priorities range from 1 (highest) to 7 (lowest). Higher priorities will lock out lowest priorities until the demand has been satisfied. Multiple zones can be given the same numbered priorities. The Priority Shield option allows a zone to ignore other priorities from other zones.

Priority 1 is a timed priority of 60 minutes, generally used for DHW



Pairing ZON-0550 Controls

The ZON-0550 can be expanded to control up to 20 zones per system. The ZON-0550 controls communicate to the Master control wirelessly on an RF network. No wires are needed to pair. Pairing can be done with or without the ThermoLinx Wi-Fi module, no internet connection is required.

You will need to have all of your THM-0300 Thermostats connected to the zone controls you are pairing. **All pairing programming steps are done using the first THM-0300 Thermostat (zone 1) on the zone control.** Pressing and holding down the set button for 2 seconds will direct you to the Setup Menu. To select the desired option, use the ADD and ADD buttons to toggle and the ADD button to select.

Master Control Steps



- 1. Go to the **first THM-0300 (zone 1)** on the ZON-0550 zone control that is connected to the TMX-0100 module. This is indicated on the screen on the thermostat as **"Zone 1"**. This will be your master zone control.
- 2. On the first THM-0300 thermostat (zone 1) of the master zone control, enter the **Setup Menu** by pressing and holding down the Setup button for 2 seconds. Select ▶3) System Setup and then select ▶1) Zone Setup.
- 3. In Zone Setup, go to **1**) Sequence. This setting allows you to set your zone control sequence order.
- 4. In Sequence, set your zone control to 1-4. This will set your zone control as the "master".
- 5. Stay in **Zone Setup** and toggle down the menu options to **>5**) Master ID.
- 6. Select ▶5) Master ID. This will put the master zone control into "Discovery Mode". The LED lights on the zone control will flash to indicate that the control is in "Discovery Mode", and will stay in this mode for 300 seconds (5 minutes).



- Go to the first THM-0300 Thermostat (zone 1) of the additional zone controls you would like to pair to the master. Enter the Setup Menu by holding the setup button for 2 seconds. Select ▶3) System Setup and then select ▶1) Zone Setup using the setup button.
- 2. In Zone Setup, go to ▶1) Sequence. Select the sequence you would like to set up for the control (5-8, 9-12, 13-16, 17-20).
- 3. Stay in **Zone Setup** and toggle down the menu options to **>5**) Paired to Zone ID.
- 4. Select ▶5) Paired to Zone ID. This will put the control into "Pairing Mode". When pairing is successful, it will indicate the ID of the master control it is paired to. The control will stay in this mode for 300 seconds (5 minutes).



Make sure the master control is in "Discovery Mode" when pairing



Do not press any buttons on the thermostat when the control is pairing to master mode



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1) Standalone with THM-0300 and Zone Pumps





2) Standalone with THM-0300 and Zone Valves





3) 2 Paired ZON-0550 Controls with THM-0300 and Zone Pumps and Valves



LT Low Temperature Demand HD Heat Demand (Geothermal System) CD Cold Demand (Geothermal System)		riigh temperatore bernana
HD Heat Demand (Geothermal System)CD Cold Demand (Geothermal System)	LT	Low Temperature Demand
CD Cold Demand (Geothermal System)	HD	Heat Demand (Geothermal System)
, , , ,	CD	Cold Demand (Geothermal System)



For each zone control, demands are individually given to the control device. If multiple zone controls are giving demands to the same control device, the demands must be wired in parallel.



4) ZON-0550 and CPU-0550 with THM-0300 and Zone Pumps





rege	10
HT	High Temperature Demand
LT	Low Temperature Demand
HD	Heat Demand (Geothermal System)
CD	Cold Demand (Geothermal System)



6) ZON-0550 with Zone Valves and Dampers



Lege	ilu
HT	High Temperature Demand
LT	Low Temperature Demand
HD	Heat Demand (Geothermal System)
CD	Cold Demand (Geothermal System)



7) ZON-0550 with Zone Pumps and Tank Pumps



Lege	inu
HT	High Temperature Demand
LT	Low Temperature Demand
HD	Heat Demand (Geothermal System)
CD	Cold Demand (Geothermal System)



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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