

**NT** network thermostat  
**NetXTM**  
**X-Series**  
**Thermostat**



## Network Thermostat NetXTM X-Series Thermostat Installation Guide

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**NT** network thermostat

Network Thermostat NetXTM X-Series Thermostat



## Specifications

- **Thermostat Model:** NetXTM X-Series
- **Protocols:** BACnet and Modbus
- **Sensors:** Up to 3 auxiliary sensors
- **Digital Inputs:** 2 for fault conditions
- **Alerting:** Email & Text Message for 4 recipients
- **Alerts:** Hi/Lo Temps, Equipment Faults, Filter Notifications
- **Warranty:** FIVE (5) Year Limited Warranty

## Product Usage Instructions

### Thermostat Location

To ensure proper operation: – Mount on an inside wall in a frequently occupied area – Position at least 18" from any outside wall – Position approximately 5' above the floor in an area with freely circulating air

Avoid mounting locations such as behind doors, in direct sunlight, near conditioned air discharge grilles, or where affected by steam or water pipes.

### Mounting the Thermostat Backplate

1. Turn off power to HVAC equipment.
2. If replacing an existing thermostat, take a picture of wiring for reference.
3. Attach the wiring backplate securely to the wall.

### Thermostat Setup

Basic HVAC configuration can be done from the thermostat touchscreen. Advanced settings are accessed via

network and Internet.

## **Programming The Thermostat**

Refer to the installation manual for detailed programming instructions.

## **Wiring Diagrams**

Consult the provided wiring diagrams for proper terminal connections and optional independent power source setup.

## **FAQ**

### **Q: How do I configure the thermostat for BACnet or Modbus protocols?**

**A:** Only one protocol can be in operation. Refer to the installation manual for detailed configuration steps.

### **Q: Can I add remote sensors to the thermostat?**

**A:** Yes, up to 3 auxiliary sensors can be added for monitoring various parameters.

### **Q: What alerts are available on the thermostat?**

**A:** Alerts include Hi/Lo Temps for various zones, Equipment Faults, Filter Notifications, and more. Email & Text Message alerting is also supported.

## **BEFORE YOU START**

Please read the entire installation manual. The thermostat will need to be correctly wired and configured for proper operation. Basic HVAC configuration can be performed from the thermostat touchscreen and advanced settings are accessed via your network and the Internet.

## **INTRODUCTION**

The X-Series thermostat is a network-connected color touchscreen thermostat with an advanced remote sensor bus, designed for new or replacement commercial or residential applications. It supports up to 3 Heat / 2 Cool heat pumps and 2 Heat / 2 Cool conventional systems. Internal webpages help deliver a near-effortless setup of your daily schedules (4 events per day), and up to 40 Special and 40 Calendar Events. The unique scheduling structure also supports the powerful features of adjustable temporary override times, temperature ranges, occupied and unoccupied events, keypad lockout, and many more features.

Available in both Wi-Fi and Ethernet models, the X-Series supports NetX CloudConnect™, DirectConnect™, and PCConnect™ Software Tools.

## **Core Features**

- 4 independent schedules per day
- 40 Calendar Event Schedules
- 40 Special Event Schedules
- Integrated Humidity Sensor
- Integrated Weather with Current Conditions & 7-Day Forecasts
- Occupancy Sensor Input
- 14 Remote Sensors: up to 6 indoor, 1 humidity, 1 outdoor, and up to 3 auxiliary sensors for monitoring items such as supply air, return air, walk-in refrigerators, freezers, etc.
- 2 Digital Inputs for Fault Conditions, including Condensate and Equipment Faults

- Email & Text Message Alerting for 4 Recipients
- Alerts include Hi/Lo Temps for Indoor, Outdoor, Supply, Return, and Aux Temps, Inefficient Equipment Runs, Change Filter Notifications, and Two Digital Inputs: 19 Alerts in All

## WHAT IS IN THE BOX?

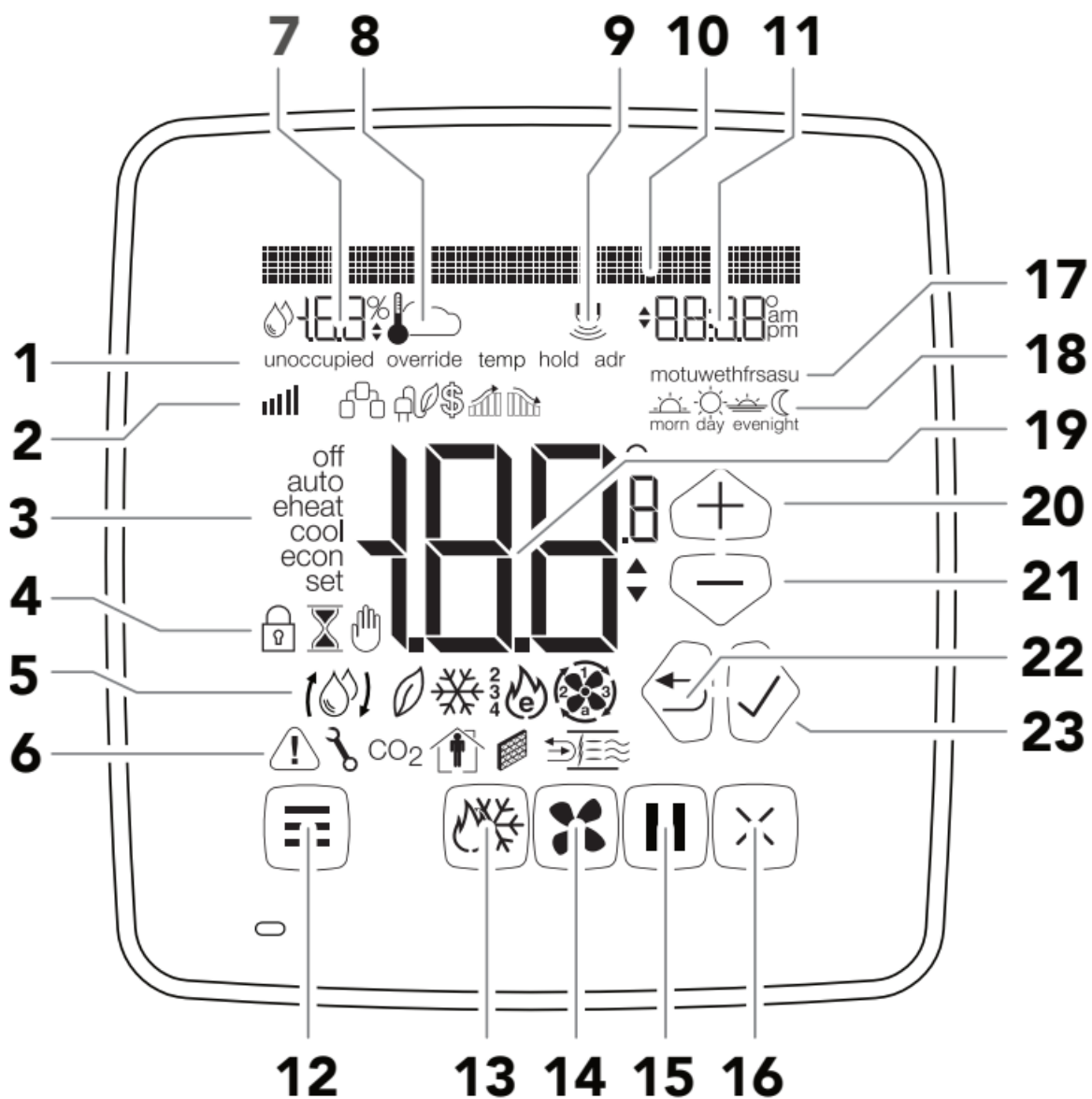
- (1) X-Series Thermostat Faceplate
- (1) Wiring Backplate
- (2) 3/16 Drywall anchors
- (2) Mounting Screws
- (1) Installation Manual

## BACNET AND MODBUS PROTOCOLS

The X-Series thermostat includes both BACnet and Modbus protocols for use in different building automation scenarios.

Either BACnet or Modbus may be configured, but only one may be in operation.

## THERMOSTAT CALLOUT



1. Special Status Notification
2. Secondary Notification Icons
3. Current Equipment Mode Indicators
4. Lock, Override, and Hold Icons
5. Current Operation Status Icons
6. Secondary Status Icons
7. Remote Sensor Value (humidity and temperature)
8. Remote Sensor Icons (temperature, indoor, outdoor icons)
9. Occupancy Detection Icon
10. Dot Matrix Display
11. Clock Display
12. Menu Button
13. Mode Button
14. Fan Button
15. Hold Button
16. Resume/Cancel/Power Button
17. Day of Week Icons
18. Active Schedule Icons
19. Current Temperature Display
20. Up Button (Up Arrow)
21. Down Button (Down Arrow)
22. Back Button (Left Arrow)
23. Accept Button (Right Arrow)

## **THERMOSTAT LOCATION**

To ensure proper operation, the thermostat should be mounted on an inside wall in a frequently occupied area of the space. In addition, its position must be at least 18" (46 cm) from any outside wall, and approximately 5' (1.5 m) above the floor in a location with freely circulating air of an average temperature.

### **Be sure to avoid the following locations:**

- Behind doors or in corners where freely circulating air is unavailable
- Where direct sunlight or radiant heat from appliances might affect control operation
- On an outside wall
- Adjacent to, or in line with, conditioned air discharge grilles, stairwells, or outside doors
- Where its operation may be affected by steam or water pipes or warm air stacks in an adjacent partition, or by any unheated/uncooled area behind the thermostat
- Where operation may be affected by lighting dimmers
- Where operation will be affected by the supply air of an adjacent unit
- Near electrical source interference such as arcing relay contacts

## **MOUNT THERMOSTAT BACKPLATE**

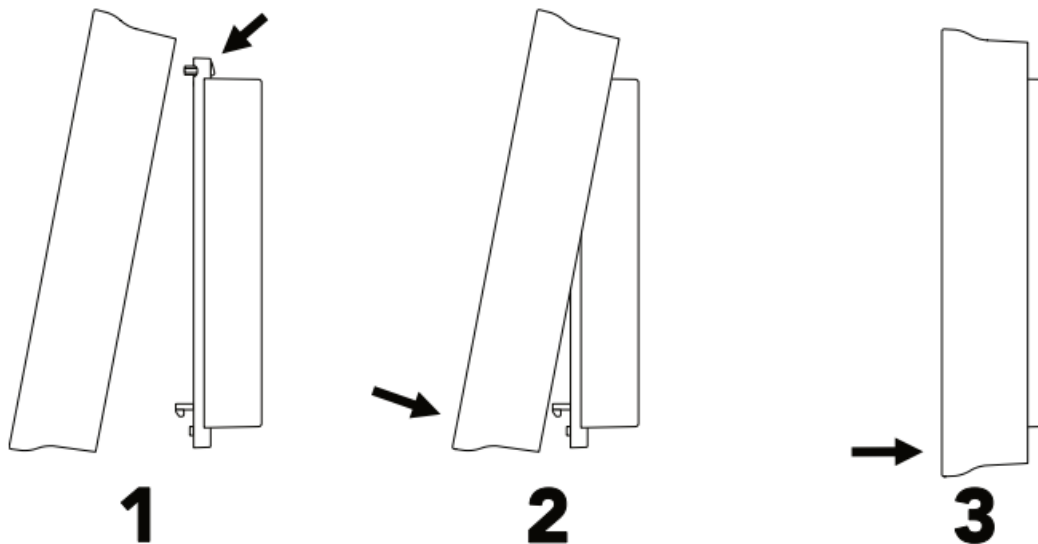
**BEFORE YOU BEGIN:** Turn off the power to the HVAC equipment.

**TIP:** If you are replacing an existing thermostat, take a picture of the thermostat wiring for reference.

1. From the factory, the thermostat faceplate is not firmly connected to the backplate. While holding the thermostat, firmly near the bottom, gently pull apart the backplate from the faceplate.
2. Place the rectangular opening in the backplate over the equipment control wires protruding from the wall. Use the backplate as a template and mark the location of the two mounting holes.  
**NOTE:** There are several versions of the X-Series thermostat. The wiring instructions for the equipment are identical.
3. Use the supplied anchors and screws for mounting on drywall or plaster; drill two 3/16" (5mm) diameter holes at the marked locations; tap the nylon anchors flush to the wall surface and fasten the backplate using the supplied screws. **C WARNING:** Do not over-tighten the screws!
4. Connect the wires from your system to the thermostat terminals as shown in the Wiring Diagrams section of this manual. Carefully dress the wires so that any excess is pushed back into the wall cavity or junction box. Ensure that the wires are flush with the plastic backplate. The access hole should be sealed or stuffed to prevent drafts from affecting the thermostat.

#### Reattach Faceplate



5. Reattach the faceplate to the backplate by placing the top of the faceplate over the top lip of the backplate.
6. Gently swing the thermostat down and press on the bottom center edge until it snaps in place. This is a tight connection but may require a little wiggle to align the pins on the faceplate with the screw terminals on the backplate before it snaps into place.
7. Reconnect power to the HVAC equipment. You are now ready to configure your thermostat for operation.








**WARNING:** Your thermostat is NOT ready to use. You must complete the Thermostat Setup section before using the thermostat. Failure to do this can result in damage to your equipment.

#### THERMOSTAT SETUP

The Dot Matrix Display will provide feedback on the User Menu or Installer Menu configuration and selected

options. The Up Button  and Down Button  are used to select parameters while the LEFT ARROW (Back Button) and RIGHT ARROW (Accept button) are used to accept settings and navigate through the menu. You can use the CANCEL BUTTON to leave the User or Installer Menu at any time.

#### TOUCHSCREEN USER MENU SETTINGS

Tap the Menu Button  on the lower left of the thermostat touchscreen to access the User Menu. The Dot Matrix Area will guide you through the User settings. To save a setting and navigate to the next menu item, press the Checkmark Button  (Right Arrow). To return to the previous menu item, press the Back Button  (Left Arrow). Use the Up  and Down  Buttons to select from the available options for each setting.

### Brightness – Screen Brightness

Select the brightness of the touchscreen display.

**Options:** Auto (default), High, Medium, Low

### Color – Display color

Select the color of your display. The default is Cyan.

Options: Cyan, Purple, Yellow, White, Red, Green, and Blue.

### Display Complexity

There are three different resting display options.

**Options:**

- **Full:** (default) Shows entire screen all the time
- **Minimal:** if nothing is noticed by the sensor for 5 seconds only room temperature shows.
- **Dark:** if nothing is noticed by the sensor for 5 seconds the whole screen goes blank.

### Adjust Clock-12Hr or 24Hr Clock

Select between AM/PM or 24H time display. 12 Hr is the default.

### °F or °C Temperature Display

Select between °F (Fahrenheit) or °C (Celsius) temperature display. °F (Fahrenheit) is the default.

## TOUCHSCREEN INSTALLER MENU SETTINGS

Press and hold the Menu Button D on the lower left of the thermostat touchscreen for 5 seconds to access. Installer Menu will briefly display in the Dot Matrix Area followed by Conventional/HP. To save a setting and advance to the next menu item, press the Checkmark Button M (Right Arrow). To return to the previous menu item, press the Back Button L (Left Arrow).

### Conventional/ Heat Pump

Select between Conventional or Heat Pump operation. Conventional is the default.

**NOTE:** If Conventional is Selected Proceed to Stages Cool. If Heat Pump is selected, proceed to # of Compressors.

### Stages Cool

Select between 1 or 2 Stages Cool. The value is displayed in the main display. The default is 1.

### Stages Heat

Select between 1 or 2 of Stages Heat. The value is displayed in the Main Display. The default is 1.

### Gas or Electric Heat

Select between Gas or Electric operation. Gas heat is the default.

**NOTE:** If you selected Conventional Heat, proceed to Minimum On Time.

### **# of Compressors**

Select between 1 or 2 Stage Compressor. The value is displayed in the main display. The default is 1.

### **Enable Aux/EHeat**

Select between Aux/EHeat Mode On (default) or Aux/EHeat Mode Off.

**NOTE:** If the Aux/EHeat ON is selected, proceed to Heat Pump Option. Otherwise, proceed to the Minimum On-Time option.

### **Heat Pump Option**

Select between HP Regular (default) or HP Dual Fuel.

If needed, the thermostat will perform the function of a fossil fuel kit. When HP Dual Fuel is selected the thermostat will turn off the compressor with a call for AUX heat. The HP Regular option will allow the compressor and AUX heat to run simultaneously.

### **Minimum On Time**

Select between 0-5 Minutes. The value is displayed in the main display. 0 Minutes is the default. The system will operate for a minimum of 0 minutes to 5 minutes depending on your setting.

### **Minimum Off Time**

Select between 2 to 5 Minutes. The value is displayed in the main display. 2 Minutes is the default. The system will allow equipment recovery for 2 to 5 minutes before turning it on again. This is also known as short-cycle protection.

### **Adaptive Recovery**

Select On (default) or Off. When this is enabled, the thermostat will anticipate when to turn on the heating or cooling system before the start of a schedule to achieve the desired setpoint temperature by the beginning of the schedule.

### **Fan Purge**

Select between Off, 30, 60, 90, and 120 Seconds. Off is the default.

### **1st Stage Differential**

Select between 1-6°F (0.5-3°C). The value is displayed in the main display. 1°F (0°C) is the default. The 1st Stage Differential is the temperature degree change required before the thermostat responds.

### **2nd Stage Differential**

Select between 1-6°F (0.5-3°C). The value is displayed in the main display. 3°F (1.5°C) is the default.

### **2nd Stage Delay**

Select between 5-40 Minutes. The value is displayed in the main display. 20 Minutes is the default.

**NOTE:** The following options only apply to multi-stage heat pump configuration.

### **Aux Heat Differential**

Select between 1-6°F (0.5-3°C). The value is displayed in the main display. 1°F (0.5°C) is the default.

### **Aux Heat Delay**

Select between 5-40 Minutes. The value is displayed in the main display. 20 Minutes is the default.



## High & Low Balance Point Configuration

If the thermostat is being used as a Heat Pump thermostat and current weather conditions are enabled or an outdoor sensor is connected to the remote sensor terminals, the thermostat can be configured to disable the use of auxiliary heat during warmer weather and to lock out the compressor during colder weather. If the weather conditions are enabled the high and low balance point settings are available in the installer menu.

**TIP:** Refer to the manufacturer's heat pump equipment manual for temperature cut-offs on the equipment.

### Low Balance Point

Select between -54°F to 39°F (-48°C to 4°C). The value is displayed in the main display. This will lock out the heat pump at the selected outdoor temperature. The default value is -54°F (-48°C).

### High Balance Point

Select between 41°F-118°F (5°C-48°C). The value is displayed in the main display. This will lock out the auxiliary heat at the selected outdoor temperature. The default value is 118°F (48°C).




## TOUCHSCREEN TEMPERATURE OVERRIDE

### Temperature Override Range (During Lockout)

On the Basic Configuration page, this setting adjusts the temperature variance allowed from the scheduled setpoint when the faceplate is locked. The range is from  $\pm 2^{\circ}\text{F}$  ( $1^{\circ}\text{C}$ ) to  $\pm 8^{\circ}\text{F}$  ( $4^{\circ}\text{C}$ ). The default is  $\pm 3^{\circ}\text{F}$  ( $1.5^{\circ}\text{C}$ ).




### Temporary Override (Up to 24 hours)

Change the temperature setting temporarily without affecting the schedules, both occupied and unoccupied. Use

the Up  and Down  Buttons to adjust the temperature within the minimum and maximum range. This temperature will be maintained for the duration set by the Override Timer. To cancel, simply press the Cancel  Button.

### Temporary Override During Lockout (Up to 24 hours)

Change the temperature setting temporarily without affecting the schedules, even though the keypad is locked.

Use the Up  and Down  Buttons to adjust the temperature limited to the Temperature Override Range setting. This temperature will be maintained for the duration set by the Override Timer. To cancel, simply press the Cancel Button. 

**NOTE:** If running an OCCUPIED schedule, the currently occupied setpoint will be shown, and if running an UNOCCUPIED schedule the thermostat will revert to the most previous OCCUPIED schedule setpoints.

## ADDITIONAL SETTINGS AND FEATURES

In addition to the User Menu and Installer Menu The X-Series thermostat has additional options that can be set using the built-in web pages or via our cloud interface. Please refer to this online guide for setting these additional parameters. Unless otherwise noted, these additional settings are available under the Configuration menu tab of the built-in web.

### Override Timer

On the Basic Configuration page, you will be able to adjust the length of a temporary override condition from 0 minutes to 24 hours, in 10-minute increments. The default override time is 8 hours.

### Temperature Calibration Offset

The thermostat is pre-calibrated at the factory, but in some installations, lack of airflow at the sensor or proximity to






other warming or cooling sources may cause the temperature to be off by a few degrees. The X-Series thermostat includes a temperature calibration offset with a range of  $\pm 6^{\circ}\text{F}$  ( $3^{\circ}\text{C}$ ) in  $0.2^{\circ}\text{F}$  ( $0.1^{\circ}\text{C}$ ) increments. The Temperature Calibration Offset is on the HVAC Settings web page of the thermostat.

## Lock Screen

The X-Series thermostat can restrict and lockout certain functions available from the faceplate. The Lock Screen can be activated from the HVAC Settings web page on the thermostat. When engaged, you can set a 4-digit pin code that can be used to temporarily unlock the faceplate for 30 minutes.


## Temporarily Unlock Faceplate

When the X-Series thermostat is placed on the Locked Screen, you can temporarily bypass the Lock Screen by entering the 4-digit PIN. To temporarily unlock the faceplate, follow the steps below.



1. Press the bottom left area of the touchscreen where the Menu Button  is usually located. Temporary Unlock will display in the Dot Matrix Display.
2. The Dot Matrix area will then display Enter PIN: 0 0 0 0. Use the Up  and Down  Buttons to select the first digit in the pin code. Press the Accept Button  (Right Arrow) to Enter the first digit.
3. Repeat Step 2 for the next three digits.  
When you enter the correct PIN, the thermostat will return to the main screen and display a countdown timer  
Unlock: 30 min left in the Dot Matrix Display To re-lock the screen, press the Cancel Button  on the right.

**WARNING:** If you enter the incorrect PIN, Wrong PIN will display in the Dot Matrix display. After 3 wrong attempts, the thermostat will return to the main screen and will not allow another attempt for 5 minutes.


## LED1 / Filter Indicator

If selected by software, the Filter Icon  will illuminate when a signal is received from the Terminal LED1 on the Terminal block. This indicates the filter needs to be changed. Otherwise, the status of the Terminal LED1 will be reported on the Status Update page of the thermostat.

## LED2 / Service Indicator

If selected by the software, the Service Indicator icon  will illuminate when a signal is received from Terminal LED2 on the terminal block. This terminal is normally connected to the L terminal on a heat pump. When a signal is received, the WRENCH icon  will display on the thermostat screen. This indicates that service is required.

## Auxiliary/Emergency Heat Indicator

The thermostat is equipped with the Emergency Heat icon  in the Main Status Icons area on the faceplate which indicates when the system has engaged auxiliary heat mode or emergency heat mode.

## Random Restart

After a power failure, the thermostat will delay the heating/ cooling equipment start-up by 1-24 seconds. When multiple NetX™ X-Series thermostats are used, this minimizes the 'in rush' current (electric power usage) as it reduces the number of HVAC units that will be turned on simultaneously.

## Power Failures

This NetX™ X-Series has an internal power backup that will last approximately two days. If the thermostat experiences a power outage less than this time, all functions will resume as soon as power is restored. If the power outage lasts longer, upon power restoration the X-Series thermostat will recover depending on a few factors.

- Time is set via NTP (Network Time Protocol) time server.
  - When the power is restored and the thermostat connects to the internet, the thermostat will resume the normal programmed operation.
- Time is set manually.
  - When power is restored, the clock will flash 12:00 and will operate in Manual Mode until the time is set.
  - After the time has been set, the thermostat will resume the normal programmed operation.

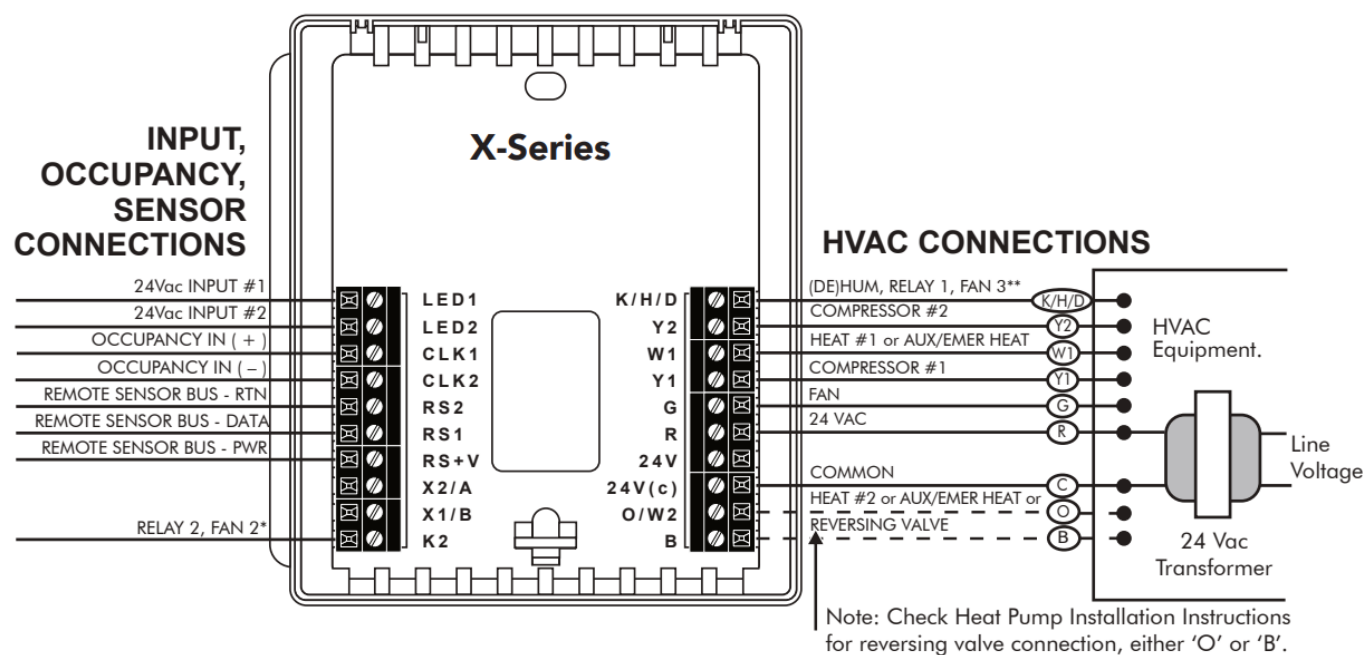
## REMOTE SENSORS (OPTIONAL)

If your NetX™ thermostat has been installed with one or more NetX™ remote sensors, the sensor information is available on the small secondary display of the thermostat. There are many different remote sensor options. You can view the remote sensor information by tapping the upper left part of the display to view different attached remote sensors.

## RS1 – RS2 – RS+V: Remote Sensor Bus

Used for connection of a wide variety of NetX™ remote sensors, allowing installation flexibility and additional information from the communications bus. It also allows the thermostat to be placed in an area away from view.

## Basic Wiring Diagram



## Remote Sensor Averaging

If remote temperature sensors are connected, the X-Series thermostat can either use the remote sensors (default) or average the remote sensor and the internal temperature sensor. The Remote Sensor Averaging setting can be accessed from the HVAC Settings web page of the thermostat.

**NOTE:** If no remote sensors are detected, the thermostat will default to the internal temperature sensor regardless of the selected option.

On-board Data Logging with Sub-Metering Support

The NetX Platform provides reliable deep-data analysis for runtimes and all thermostat operations. This data can be used to perform sub-metering analysis to bill tenants according to actual HVAC usage for heating and cooling. Onboard memory supports approximately 30 days of records.

## PROGRAMMING THE THERMOSTAT

This NetX™ thermostat product has factory default programs as indicated below. Based on energy-saving guidelines and recommendations for residential use, these settings can reduce heating/cooling expenses by as much as 33%.

DEFAULT SCHEDULES	HEAT (Mon-Fri)	COOL (Mon-Fri)	HEAT (Sat-Sun)	COOL (Sat-Sun)
<b>MORNING</b> (Schedule 1)	70°F (21°C)	76°F (25°C)	Inactive	Inactive
<b>DAY</b> (Schedule 2)	Inactive	Inactive	Inactive	Inactive
<b>EVENING</b> (Schedule 3)	Inactive	Inactive	Inactive	Inactive
<b>NIGHT</b> (Schedule 4)	62°F (17°C)	82°F (28°C)	Inactive	Inactive

## NOTES:

- X7 models only. Connection and feature dependent on user settings and HVAC equipment.
- X7 models only. Connection and feature dependent on user settings and HVAC equipment.

### **This thermostat is intended to be used as a Communicating**

Programmable Thermostat, with changes to the thermostat schedules accomplished over a computer interface via:

1. CloudConnect™ Internet-Based Cloud Service
2. PCConnect™ Local Network & Port Forwarded Access
3. DirectConnect™ Integrated Web Server for Connectivity from Any Modern Web Browser
4. Integrated NetX™ API, Supports 3rd Party Apps
5. BACnet Integration Option

## WIRING DIAGRAMS

The basic wiring for the X-Series thermostats is identical for both the Wi-Fi and Ethernet version of the thermostat.

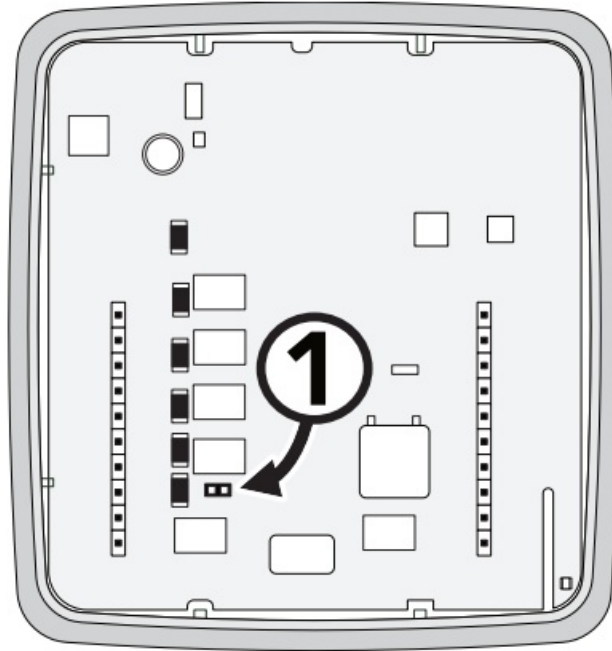
## TERMINAL CONNECTION CALLOUTS

- **K/H/D:** Humidification or Dehumidification, AUX Relay 1, or Fan 3
- **Y2:**  
Energizes compressor for second-stage cooling, or for heat pumps, either second-stage heating or cooling
- **W1:**  
Energizes heater for first-stage heating, or for heat pumps, auxiliary /emergency heat
- **Y1:**  
Energizes compressor for first-stage cooling, or for heat pumps, either first-stage heating or cooling
- **G:**  
Energizes fan circuit with a call for heating or cooling
- **R:**  
Independent Switching Voltage from HVAC equip
- **24V:** 24Vac
- **24V(c):** 24Vac Common
- **O/W2:** Energizes heater for second-stage heating, or for heat pumps, energizes the reversing valve in cooling mode pumps, energizes the reversing valve in cooling mode
- **B:**  
Energizes the reversing valve in heating mode
- **LED1:** 24Vac Input #1 for Filter or other Alert
- **LED2:** 24Vac Input #2 for Condensate, Fault, or other Alert
- **CLK1:** For use with External Occupancy Sensor ( + )
- **CLK2:** For use with External Occupancy Sensor ( - )
- **RS2:**  
Remote Sensor Bus (Power Return)
- **RS1:**  
Remote Sensor Bus (Data)
- **RS+V:** Remote Sensor Bus (Power)
- **K2:**  
Independent Relay AUX Relay 2 or Fan 2

## INDEPENDENT POWER SOURCE (OPTIONAL)

In situations where power from the HVAC hardware does not meet the needs of the X-Series thermostat. You can power the X-Series thermostat independently of the HVAC unit. Network Thermostat 24 VAC Transformer has the capability to power six X-Series thermostats.

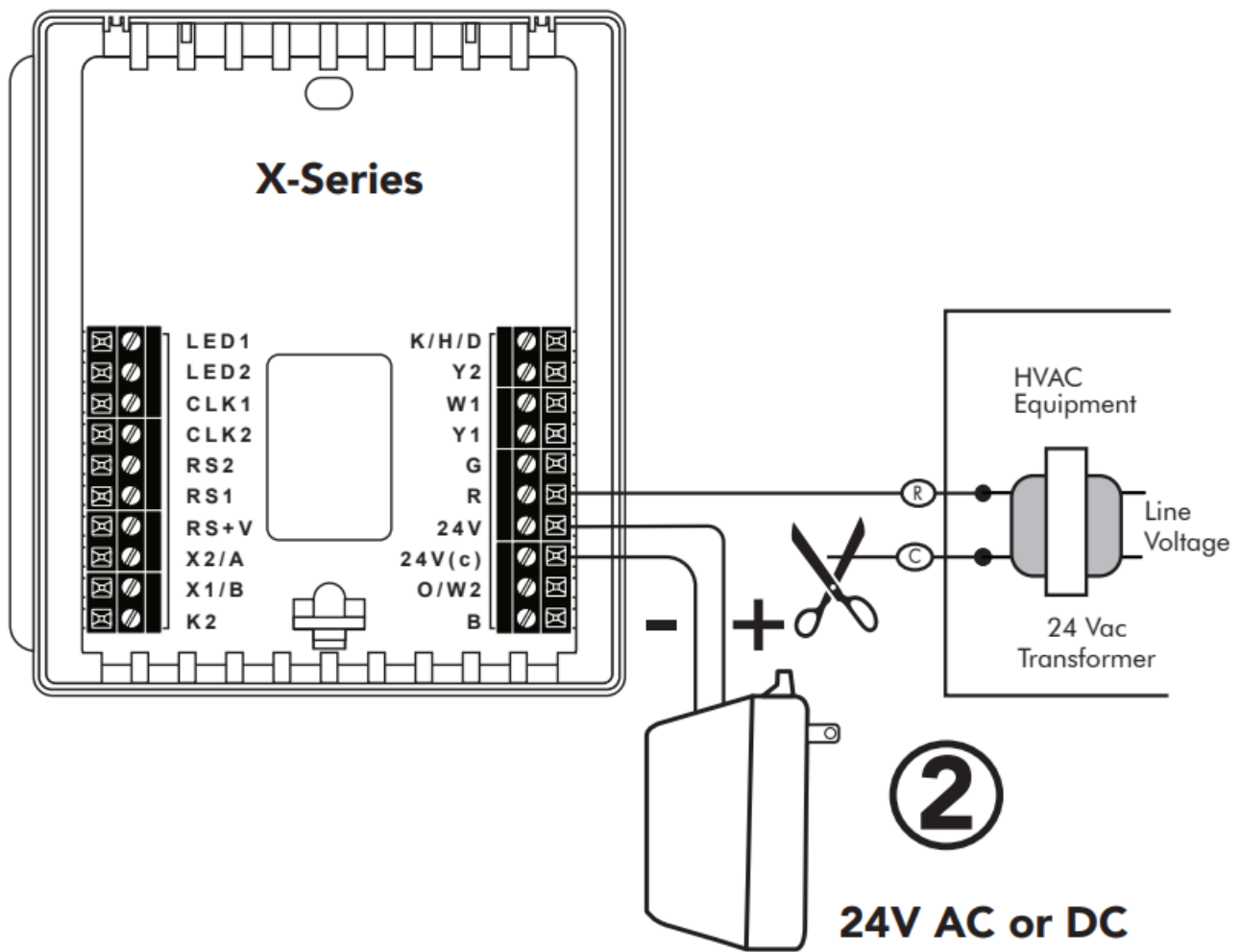
Follow the steps below to install a separate power source.



1. Remove the jumper on the faceplate.
2. Place the separate transformer 24VAC wire in the 24VAC terminal.
3. Move the WiFi or Ethernet board RED wire from R to the 24VAC terminal.
4. Leave the WiFi or Ethernet board BLACK wire in the 24V(c) terminal. If connected, remove thermostat wire from the 24VAC(c) terminal.
5. Place the equipment red wire in R.
6. Place the separate transformer 24VAC (Common) wire in the 24V(c) terminal.
7. The common from the equipment does not connect to the thermostat. This can cause a ground loop and issues.

## WIRING DIAGRAM CROSS-REFERENCE CHART

The chart below lists the connections needed for most common applications. Refer to the Basic Wiring Diagram for where to connect appropriate wires.



Terminals	K/H/D	Y2	W1	Y1	G	R	24V(c)	O/W 2	B	K2
Conventional- Heat only Gas			X			X	X			
Conventional- Heat only Electric			X		X	X	X			
Conventional- Cool Only				X	X	X	X			
Conventional- 1H/1C Gas			X	X	X	X	X			
Conventional- 2H/2C Gas		X	X	X	X	X	X	X		
Conventional- 1H/1C Electric			X	X	X	X	X			
Conventional- 2H/2C Electric		X	X	X	X	X	X	X		
Heat Pump- No Auxiliary Heat Cool Reversing Valve				X	X	X	X	X		
Heat Pump- No Auxiliary Heat Heat Reversing Valve				X	X	X	X		X	
Heat Pump- 1 Stage Standard Cool Reversing Valve			X	X	X	X	X	X		
Heat Pump- 1 Stage Standard Heat Reversing Valve			X	X	X	X	X		X	
Heat Pump- 1 Stage Dual Fuel Cool Reversing Valve			X	X	X	X	X	X		
Heat Pump- 1 Stage Dual Fuel Heat Reversing Valve			X	X	X	X	X		X	
Heat Pump- 2 Stage Standard Cool Reversing Valve		X	X	X	X	X	X	X		
Heat Pump- 2 Stage Standard Heat Reversing Valve		X	X	X	X	X	X		X	
Heat Pump- 2 Stage Dual Fuel Cool Reversing Valve		X	X	X	X	X	X	X		
Heat Pump- 2 Stage Dual Fuel Heat Reversing Valve		X	X	X	X	X	X		X	
Independent Relay, Humidify, Dehumidify	X									
Independent Relay										X

## SPECIFICATIONS

- **RATED VOLTAGE:** 20V to 30VAC, 24VAC nominal, or 24VDC with jumper removed
- **RELAYS – RATED A.C. / D.C. CURRENT:** 0.05 to 0.75 AC / 0.0 to 0.75 DC Amp continuous, per output, surges to 3 Amps maximum
- **TEMPERATURE CONTROL RANGE:** HEATING: 38 to 88°F (6 to 30°C) in 1° steps COOLING: 60 to 108°F (16 to 40°C) in 1° steps
- **THERMOSTAT SENSING RANGE:** 32°F to 118°F (0°C to 48°C) Control Accuracy: ±1°F @ 68°F (±0.5°C @



20°C)

- **MINIMUM DEADBAND:** 2°F (1°C)
- **DIMENSIONS:** 5.1"H x 4.7"W x 1.15"D (130mm x 119mm x 29mm)
- **EQUIPMENT TERMINATIONS:** R – 24V switching voltage, W1 – Heat1 or Aux/Emergency Heat, G – Fan, Y1-Compressor1, Y2 – Compressor2, O/W2 – Heat2 or Rev. Valve in Cooling, B – Rev. Valve in Heating
- **POWER TERMINATIONS:** 24V – remote power, 24V(c) – power common (from HVAC equipment)
- **HUMIDITY TERMINATIONS:** K – Independent Relay, H – Humidify, D – Dehumidify
- **INDEPENDENT RELAY TERMINATION:** K2 – Independent Relay
- **INPUT TERMINATIONS:** LED1 (Filter Icon Selectable), LED2 (Fault Icon Selectable)
- **OCCUPANCY TERMINATIONS:** CLK1 ( + ), CLK2 ( – )
- **REMOTE SENSOR TERMINATIONS:** RS+V – Power, RS2 – Return, RS1 – Data
- **WIRELESS RADIO:** 2.4 GHz IEEE 802.11b/g/n, Security: WEP, WPA-PSK, and WPA2-PSK
- **ACCESSORY PORT (X7 Series Only):** SIM port for NetX CO2 Sensor
- **PROTOCOLS:** http, Native NetX API, BACnet-IP, and Modbus-TCP/IP over Wi-Fi and Ethernet (documents at <https://www.networkthermostat.com/protocols>)

## FIVE (5) YEAR LIMITED WARRANTY

Network Thermostat™ warrants to the original purchaser that this product will be free from defects in workmanship and materials for a period of five years from the date of purchase with proof of purchase.

### Warranty Limitations

This warranty begins on the date of purchase.

### Warranty is Void if:

- The date code or serial number is defaced or removed.
- The product has a defect or damage due to product alteration, connection to an improper electrical supply, shipping and handling, accident, fire, flood, lightning, or other conditions beyond the control of the manufacturer.
- The product is not installed according to the manufacturer's instructions and specifications.

### Owner's Responsibility

- Provide proof of purchase.
- Provide normal care and maintenance.
- Pay for freight, labor, and travel.
- Return any defective product.
- In no event shall the manufacturer be liable for incidental or consequential damages.

This warranty gives you specific legal rights and you may have others that vary by state and/or province. For example, some states and/or provinces do not allow the exclusion or limitation of incidental or consequential damages, so this exclusion may not apply to you. The manufacturer's continuing commitment to quality products may require a change in specifications without notice.

### CA Title 24 Requirements

This thermostat meets the Joint Appendix 5 (JA5) requirements for Occupant Controlled Smart Thermostat (OCST) certification of the California Energy Commission (CEC).

## FCC REGULATORY INFORMATION

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses, and can radiate radio frequency energy, and if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna
- Increase the separation between the equipment and the receiver
- Connect the equipment to an outlet on a circuit different from that to which the receiver is connected
- Consult the dealer or an experienced radio/TV technician for help


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Modbus™ is a registered trademark of Schneider Automation Inc.

## Documents / Resources

	<a href="#">Network Thermostat NetXTM X-Series Thermostat</a> [pdf] Installation Guide NetXTM X-Series Thermostat, NetXTM X-Series, Thermostat
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## References

- [NT Commercial Smart Thermostats & IoT Sensors | Network Thermostat](#)
- [NT Integrations | Network Thermostat](#)
- [User Manual](#)

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