

## Product Manual

- Smart Thermostat HD Overview
  - Smart Thermostat HD Hardware
    - Display
    - Thermostat
      - Button
      - Status LED
- Installation Precautions
  - Before installing the Smart Thermostat HD or servicing the HVAC equipment, turn off power to the system.
  - Leave power off until you have finished installing or servicing the HVAC equipment.
  - Shorting the electric terminals at the control on the heating or cooling system is not recommended. Do not test the system this way.
  - When testing the existing system or the new Smart Thermostat HD do not run the cooling system when it is cold outside as this may harm the compressor. Please wait for mild temperature to test the cooling system.
  - You must follow all local codes and ordinances for wiring the system.
  - This Smart Thermostat HD should only be powered by a listed Class 2 power supply at 24 VAC (C-Wire or wall transformer).
  - An amperage higher than 1 amp to each thermostat terminal may cause damage to the thermostat.
  - Verify that the system is 24 VAC. If the old system is labeled as 120 or 240 volts or has wire nuts, the system is high voltage. Do NOT install this thermostat on a high voltage system. Contact a local HVAC professional for help.
  - Questions?
    - Visit: [www.alarm.com/supportcenter](http://www.alarm.com/supportcenter) or contact your service provider.
- Smart Thermostat HD Installation - Considerations
  - This Smart Thermostat HD requires 24 VAC power, it does not have the option to be battery powered. This is supplied via a common wire, typically identified as C.
  - The Smart Thermostat HD can adapt for situations where there are not enough wires in the bundle at the install location. For example, if you do not have C-Wire but do have 24 VAC available at the HVAC unit, or if you have upgraded your HVAC equipment and now require more control wires. For these scenarios, the Smart Thermostat HD may be installed in a way that requires only 2 wires at the wall. For instructions on this install configuration and further information, please find the Installation Guide in the separate Power Plate box.
- In the Box / Recommended Tools
  - Smart Thermostat HD - Thermostat
  - Smart Thermostat HD - Display
  - Trim Plate
  - Wall Screws x2
  - Drywall Anchors x2
  - Phillips Screwdriver
  - Camera
  - Pencil
  - Needle nose pliers

- Power drill – 3/16<sup>th</sup> inch (#13) drill bit
- Smart Thermostat HD Installation – Location
  - If replacing an old thermostat, the new Smart Thermostat HD can be mounted in its place. If a new location is desired it will be necessary to move the wiring.
  - New installation and relocation should follow the accompanying guidelines to ensure the most accurate temperature reading and ease of use.
    - Mount on an inside wall, approximately 5 ft (1.5m) above the floor in a frequently used room.
    - Do not install in locations near appliances or devices that affect the local temperature such as televisions, lamps, or dryers.
    - Avoid areas that are exposed to large temperature variances, such as: direct sunlight, near an AC unit, above or below auxiliary heat and air vents, and drafts from windows or exterior doors.
    - Be aware of what is on the other side of the wall where the install is occurring. Do not install on walls adjacent to unheated rooms, stoves, or housing hot water pipes. Exterior walls are also not ideal locations for installation
    - Damp areas will not only affect the humidity reading of the product but could lead to corrosion and shorten the lifespan of the product.
    - Install in a location with good air circulation. Stagnant air will not accurately reflect the rate of temperature change in the room.
    - Avoid areas behind open doors, corners, and alcoves.
    - Wait until construction and painting are finished before installing.
- Smart Thermostat HD Installation - Preparation
  - If adding to a z-wave network, power on the Hub or Panel and verify it is communicating.
  - If installing on a z-wave network utilizing smart start scan the QR code found either on the Thermostat or the box.
  - Test existing system
    - Verify that the heating and/or cooling system is operating properly before you try to install the new Smart Thermostat HD.
    - !CAUTION: Do not test the system by shorting electric terminals.
    - !CAUTION: Do not test the cooling system if it is cold outside, as this may harm the compressor.
  - Turn off power at the HVAC unit
    - Turn all heating and cooling systems off. This can be done at the circuit breaker.
    - !CAUTION: Do not remove the existing thermostat until power has been turned off at the circuit breaker.
  - Remove existing thermostat
    - Remove the cover from the existing thermostat. Do not disconnect the wires yet.
    - Make sure the wires are identified correctly. If you have an unidentified wire, it may be necessary to identify the wire where it connects to the heating or air conditioning equipment.
    - !CAUTION: Wiring can vary for each manufacturer. Identify all wiring before removing it from the existing thermostat.
    - Take a picture of the wires before you detach them from the existing thermostat for future reference.

- Once all wires are identified and a picture is taken, disconnect all of the wires and remove the existing thermostat. Remember to secure the wires so they do not fall into the wall.
  - Prep wires if needed
    - Follow these guidelines for safe and secure wire connections:
      - Ensure the wires are a proper gauge between 16-24 AWG (1.5 – 0.5 mm<sup>2</sup>)
      - Make sure wires have exposed straight ends of the appropriate length.
    - !CAUTION: Verify that the system is 24 VAC. If the old system is labeled as 120 or 240 volts or has wire nuts, the system is high voltage. Do not install the thermostat on a high voltage system. Contact a local HVAC professional for help.
- Smart Thermostat HD Installation – Thermostat Install
  - Level and mount the Thermostat to the wall with the supplied hardware
  - If additional support is necessary, drill holes with a 3/16" (#13) drill bit and tap in the drywall anchors.
  - Mount trim plate prior to securing the Thermostat to the wall if required to cover up any marks or holes left from the old thermostat.
  - Insert the used wires into the designated wire terminals

Terminal	Description
Rc	Cooling Power
Rh	Heating Power
W2	Heat/Aux Stage 2
W	Heat/Aux Stage 1
C	Common wire from transformer for Rh
Z1	Configurable: W3, Humidifier, Dehumidifier, Vent
Z2	Configurable: W3, Humidifier, Dehumidifier, Vent
Y	Cool/Pump Stage 1
Y2	Cool/Pump Stage 2
G	Fan
O	Heat Pump Reversing Valve (Energized in COOL mode)
B	Heat Pump Reversing Valve (Energized in HEAT mode)

- !IMPORTANT If you only have one R wire, insert it into Rh.
    - !CAUTION Do not insert more than one wire into a wire terminal as this will damage the wire terminal.
    - !CAUTION If you only have one R wire, there is no need to physically jump Rh and Rc, the thermostat will internally jump the two.
  - Once all wires are inserted into the wire terminals, return power to the HVAC system.
    - This will supply 24 VAC power to the Thermostat
  - Check the Status LED, which will indicate the Thermostat has power.
    - If the Status LED is off, it indicates the Thermostat does not have 24 VAC power
      - Visually verify both Rh and C are securely inserted into the appropriately labeled terminals.
      - Verify the HVAC system has power, this may be identified at the unit.
      - Verify the circuit breaker was appropriately turned back on.

- Smart Thermostat HD Installation – Display Install
  - Connect the Display to the Thermostat
  - Once attached the Display will turn on
    - If the Display does not power on after 30 seconds, verify 24 VAC power is appropriately supplied to the Thermostat from the HVAC system.
- Smart Thermostat HD Installation - Setup
  - Follow the onscreen setup wizard to setup the Smart Thermostat HD and connect it to a z-wave network.
  - !NOTE Questions during setup? Please find the on screen help sections identified by a ? at each setup step for more information on each part of the setup.
- Post Installation - Test
  - !CAUTION: Do not test the AC during cold weather. Wait for mild weather to fully test the system.
  - After successfully installing and setting up your new Smart Thermostat HD, please test the Smart Thermostat HD and HVAC system.
  - If the Smart Thermostat HD will control a heating system, test the heat by changing the mode to HEAT, and adjusting the setpoint to be higher than the current room temperature. Verify the heating system turns on and that the room is starting to warm up.
  - If the Smart Thermostat HD will control a cooling system, test the cool by changing the mode to COOL and adjusting the setpoint to be lower than the current room temperature. Verify the cooling system turns on and that the room is starting to cool down.
- Post Installation – Further Configuration
  - While the default settings will be appropriate in most cases, you also have the option to change all configuration settings via the Display. These configurations can be found:
  - ! CAUTION: Be careful when changing advanced configuration settings. These configuration settings should only be changed by those familiar with heating and cooling systems’ parameters. Contact your local HVAC professional for help.
- Troubleshooting

Problem	Causes	Tips
Heating or Cooling does not turn on when the setpoint is above or below the room temperature.	To prevent damaging the compressor, the Smart Thermostat HD inserts a delay when cycling the compressor. This delay is only a few minutes long.	<ul style="list-style-type: none"> <li>• Change the setpoint to 2 degrees beyond the current setpoint and wait 5 minutes, at which point the system should turn on.</li> <li>• If this does not work, contact your local HVAC professional.</li> </ul>
Heat pump is “cooling when it should be heating” or “heating when it should be cooling”.	Some heat pumps use the O terminal, while others use the B terminal for their reversing valve. Your heat pump may be the opposite type from how your thermostat is wired.	<ul style="list-style-type: none"> <li>• Try physically swapping the O or B wire to the opposite. To do this first turn of power to the HVAC system at your circuit breaker, then</li> </ul>

		<p>take off the display of the Smart Thermostat HD, hold down the terminal to remove the wire, remove the wire, hold down the opposite terminal, insert the wire fully, place the display of the Smart Thermostat HD back on the backplate, and return power to your HVAC system.</p> <ul style="list-style-type: none"> <li>• If this does not fix the problem contact your local HVAC professional for help.</li> </ul>
<p>How do I include the Smart Thermostat HD in a Z-Wave network or exclude it from a Z-Wave network?</p>		<ul style="list-style-type: none"> <li>• To find the Z-Wave settings, please use the following steps <ul style="list-style-type: none"> <li>○ INSERT STEPS</li> </ul> </li> <li>• The on-screen menu will assist you in adding or removing the Smart Thermostat HD to/from a Z-Wave network.</li> </ul>
<p>How do I reconfigure my Smart Thermostat HD?</p>	<ul style="list-style-type: none"> <li>• My wiring has changed and I need to re-configure the thermostat.</li> <li>• I made a mistake during the setup process and want to start again</li> </ul>	<ul style="list-style-type: none"> <li>• If you would like to reconfigure the Smart Thermostat HD settings using the setup wizard navigate to the following menu and use the on-screen instructions: <ul style="list-style-type: none"> <li>○ INSERT STEPS TO GET TO THE RESTART SETUP MENU OPTION</li> </ul> </li> <li>• Note: This will NOT remove you from the z-wave network</li> </ul>
<p>Can I setup local schedules?</p>	<p>The thermostat is setup prior to installation on a smart home network and schedules are needed.</p>	<ul style="list-style-type: none"> <li>• Schedules can be setup for the Smart Thermostat HD before it is connected to a smart home network if</li> </ul>

		<p>necessary. The setup for these schedules can be found here:</p> <ul style="list-style-type: none"> <li>○ INSERT STEPS</li> <li>● We suggest making use of your smart home supplied schedules as local scheduling is only available when not connected to your smart home</li> </ul>
<p>How do I reset my Smart Thermostat HD to the factory settings?</p>	<p>I am moving or re-setting up my smart home network and need the Smart Thermostat HD reset to it's factory settings.</p>	<ul style="list-style-type: none"> <li>● The Smart Thermostat HD can be reset back to its factory settings. This will reset all HVAC settings, rules, and schedules on the Smart Thermostat HD, and it will also remove the Smart Thermostat HD from the Z-Wave network.</li> <li>● To reset your Smart Thermostat HD to factory settings, follow the onscreen instructions found here: <ul style="list-style-type: none"> <li>○ INSERT INSTRUCTIONS TO GET TO THIS OPTION</li> </ul> </li> <li>● If you are unable to use the Display, the Thermostat may be reset to factory settings by removing the Display and pressing and holding the button on the Thermostat for 30 seconds. When the button is released the Status LED will blink 10 times and then turn solid indicating the Smart Thermostat HD has reset.</li> </ul>

		<ul style="list-style-type: none"> <li>• Note: The Hub or Panel may be unaware that this procedure was performed, so it is recommended that you remove the Smart Thermostat HD from the Z-Wave network before performing this reset.</li> </ul>
<p>The Display is not working.</p>	<ul style="list-style-type: none"> <li>• The Display may not be configured to wake up when you approach.</li> <li>• The Display may not be receiving power.</li> </ul>	<ul style="list-style-type: none"> <li>• Tap the screen which should wake up the Display <ul style="list-style-type: none"> <li>○ Note: If you would like your Display to wake up in response to your movement in front of it, please check the settings in the configuration menu.</li> </ul> </li> <li>• Ensure that the Display is powered <ul style="list-style-type: none"> <li>○ Remove the Display from the Thermostat and make sure the LED on the Thermostat is on, this indicates the Thermostat has power and should be able to power the Display.</li> <li>○ Put the Display back on the Thermostat</li> </ul> </li> <li>• !CAUTION: If the Display is broken and cannot communicate with the Thermostat, or is</li> </ul>

		<p>physically removed from the Thermostat your HVAC control will not behave as expected. Please contact your HVAC professional to remedy the situation as soon as possible.</p>
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- **Notices**

FCC

This device complies with part 15 of the FCC rules. Operation is subject to the following two conditions:

- (1) this device may not cause Harmful interference, and
- (2) this device must accept any interference received, including interference that may cause undesired operation of the device.

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 instruction, may cause harmful interference to radio communication. 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 receiver.
- Connect the equipment into 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.

CHANGES OR MODIFICATIONS NOT EXPRESSLY APPROVED BY Building 36 Technologies COULD VOID THE USER'S AUTHORITY TO OPERATE THE EQUIPMENT.

IC Notice

This device complies with Industry Canada license-exempt RSS standard(s). Operation is subject to the following two conditions:

- (1) this device may not cause Harmful interference, and
- (2) this device must accept any interference received, including interference that may cause undesired operation of the device.

Le present appareil est conforme aux CNR d'Industrie Canada applicables aux appareils radio exempts de licence. L'exploitation est autorisee aux deux conditions suivantes: (1) l'appareil ne doit pas produire de



brouillage, et (2) l'appareil doit accepter tout brouillage radioelectrique subi, meme si le brouillage est susceptible d'en compromettre le fonctionnement.

Radiofrequency radiation exposure information:

This equipment complies with radiation exposure limits set forth for an uncontrolled environment. This equipment should be installed and operated with minimum distance of 20 cm between the radiator and the body of any persons, user or bystander in a normal operation mode.