



Smart Thermostat HD Power Plate

Installation Guide

ADC-T40-PP

Installation precautions

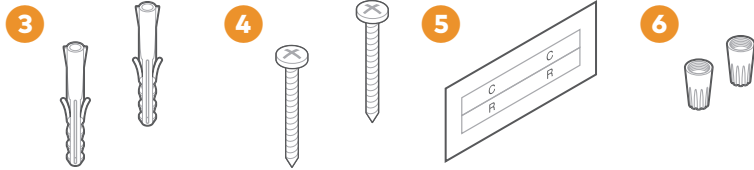
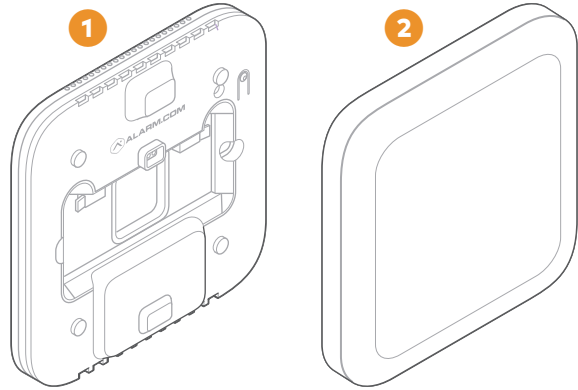
- Before installing the Smart Thermostat HD or servicing the HVAC equipment, turn off power to the system.
- Leave power off until you have finished installing or servicing the HVAC equipment.
- Shorting the electric terminals at the control on the heating or cooling system is not recommended. Do not 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 temperatures before testing the cooling system.
- You must follow all local codes and ordinances for wiring the system.
- The Smart Thermostat HD should only be powered by a listed Class 2 power supply at 24 VAC (C-wire or wall transformer).
- A current 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 V or 240 V 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 answers.alarm.com or contact your service provider.

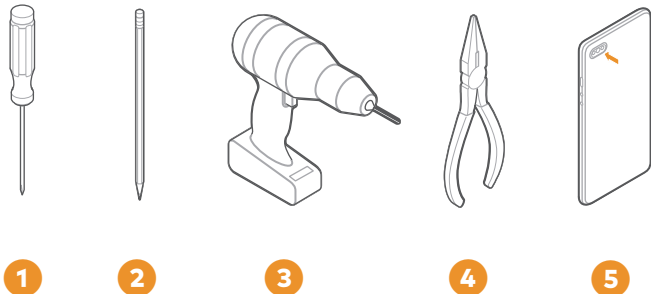
In the box

- 1 Power Plate
- 2 Thermostat cover
- 3 Drywall anchors x2
- 4 Wall screws x2
- 5 Wire Labels (R and C)
- 6 Wire Connectors



Recommended tools

- 1 Phillips screwdriver
- 2 Pencil – to mark mounting location
- 3 Power drill – 3/16" (#13) drill bit
- 4 Needle nose pliers
- 5 Camera



Overview

Thermostat

- 1 Status LED
- 2 Button

Display

- 3 Settings menu
- 4 Current setpoint

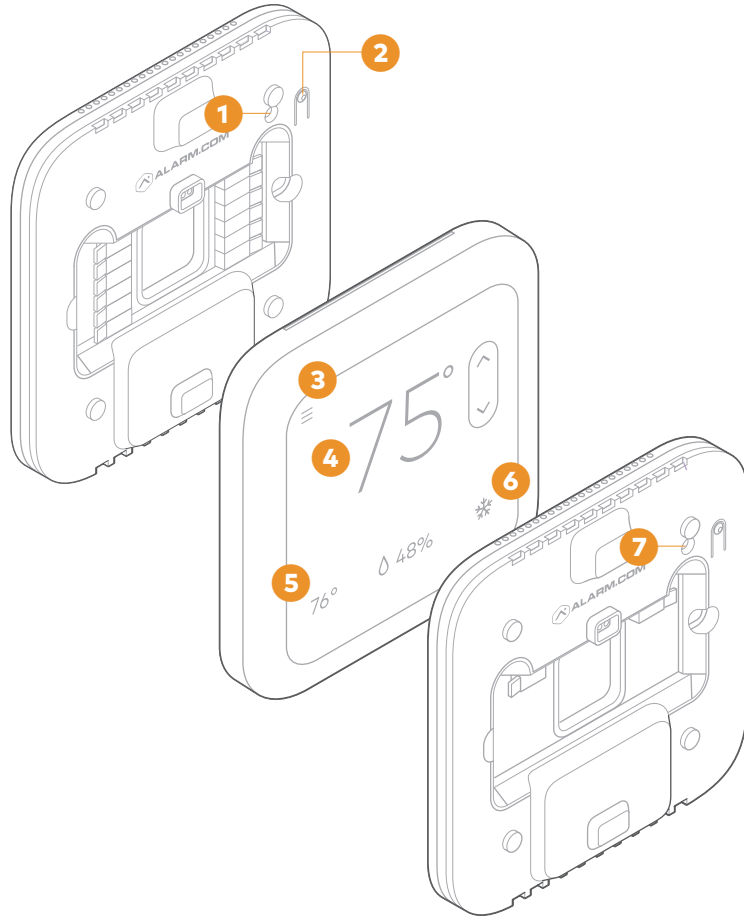
To change the setpoint, tap on the up or down arrow.

- 5 Indoor temperature
- 6 Current mode

To change the mode, tap on the current mode icon.

Power Plate

- 7 Status LED



Installation considerations

- Both the Thermostat and Power Plate/Display require 24 VAC power (C and R wires). The Smart Thermostat HD does not have batteries.
- This guide is intended to provide instruction for installing the Smart Thermostat HD in situations where there are not enough wires in the bundle present at the installation location. This situation may occur because there is no C-wire for the existing thermostat or there are not enough wires to accommodate a new HVAC system configuration. For the traditional installation method when there are enough wires at the installation location already, please refer to the Installation Guide supplied with the Smart Thermostat HD box.
- For situations where the C-wire is not already present at the wall, this Power Plate Installation allows for an existing wire to be re-purposed as the C-wire. Please see the instructions below for guidance.
- **Throughout this guide the following components will be referred to as such:**
 - 1 **Thermostat** - This will be installed near the HVAC unit.
 - 2 **Display** - This will replace the existing thermostat or will be mounted in the appropriate location if this is a new installation.
 - 3 **Power Plate** - This will supply power to the Display and requires only two wires. It will replace the existing thermostat or will be mounted in the appropriate location if this is a new installation, along with the Display.



Display and Power Plate location

- If replacing an existing thermostat, the new Display and Power Plate will be mounted in its place. If a new location is desired, you will be able to power the Smart Thermostat HD using any 24 VAC connection, so the new location simply needs access to the transformer power.
- 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 (1.5 m) 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 installation 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 but could lead to corrosion and shorten the lifespan of the thermostat.
- 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.


Preparation

1 If you will add the Smart Thermostat HD to a Z-Wave network, power on the controller and verify it is communicating.

- *If the Z-Wave network supports SmartStart, use MobileTech to scan the QR code found on the Thermostat or the box.*

2 Test the existing system.

- *Verify that the heating and/or cooling system is operating properly before you try to install the new Smart Thermostat HD.*

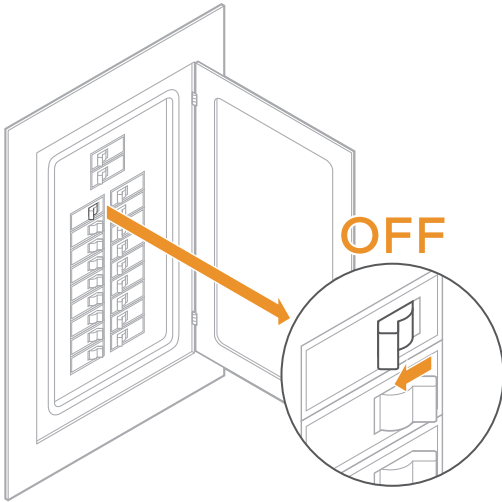
 **CAUTION:** Do not test the system by shorting electric terminals. Do not test the cooling system if it is cold outside, as this may harm the compressor.

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3 Turn off power to 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.



4 Remove the 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 where the wire connects to the heating or air conditioning equipment.

⚠ CAUTION: Wiring designations 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.
- After all wires are identified and a picture has been taken, disconnect all the wires and remove the existing thermostat. Remember to secure the wires so they do not fall into the wall.

5 Prep wires (if needed).

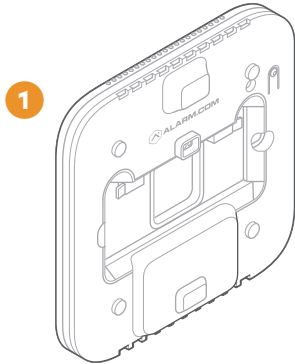
- Ensure the wires are a proper gauge between 16-24 AWG (1.3 – 0.5 mm)
- Make sure wires have exposed straight ends of the appropriate length.

⚠ CAUTION: Verify that the system is 24 VAC. If the old system is labeled as 120 V or 240 V 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.

Display and Power Plate installation

- 1 Level and mount the Power Plate to the wall with the supplied hardware.

- If you need to cover up any marks or holes from the previous thermostat, mount the trim plate prior to securing the Power Plate to the wall.

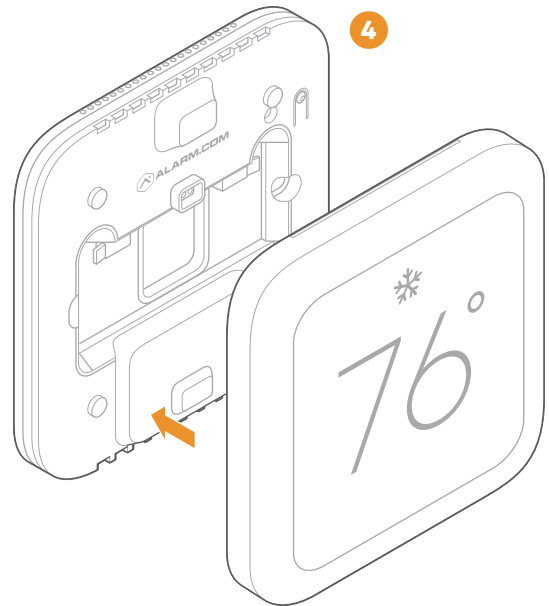


- 2 Connect the R and C wire from the existing thermostat to the terminals on the Power Plate.

- **NOTE:** If no C-wire is present, repurpose one of the existing wires as a C-wire. We suggest using the existing W wire, but anything other than R will work. Please take note of which color is chosen. Insert the chosen repurposed "C-wire" into the C terminal on the Power Plate and the existing R-wire into the R terminal on the Power Plate.

- 3 Trim and secure the ends of the remaining unused wires.
- 4 Connect the Display to the Power Plate.

- **NOTE:** The Display will not turn on yet because power to the HVAC system is off.



Thermostat installation

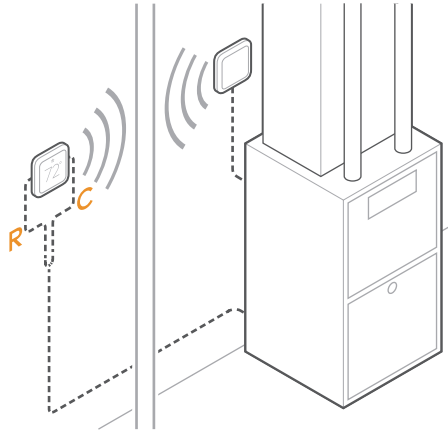
- 1 Proceed to the HVAC system, and bring the Thermostat and Thermostat cover plate.
 - 2 Remove all unused existing wires from the control board for safety. The only two required wires are R and C, which supply power to the Power Plate and Display.
- ⚠ **IMPORTANT:** If a wire was repurposed as a C-wire for the Power Plate, remember to move the repurposed C-wire to the C terminal on the control board or the common on the 24 VAC transformer. If there was already a C-wire for the Power Plate, there is no need to move the wire.
- 3 Level and mount the Thermostat near the HVAC unit on any non-metal object to ensure good wireless connection to the Display.

Terminal	Description
RC	Cooling power
RH*	Heating power
W2	Heat/aux stage 2
W	Heat/aux stage 1
C*	Common wire from transformer
Z1	Configurable: W3, humidifier, dehumidifier, vent

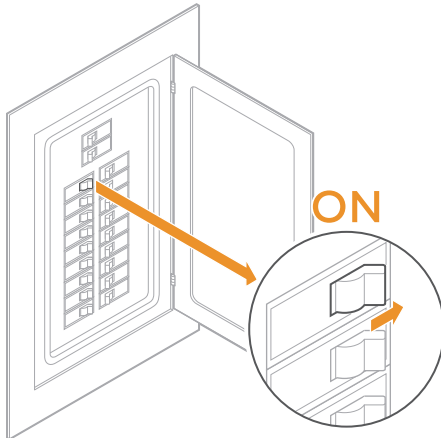
Terminal	Description
Z2	Configurable: W3, humidifier, dehumidifier, vent
Y	Cool/pump stage 1
Y2	Cool/pump stage 2
G	Fan
O	Heat pump reversing valve (Energized in COOL mode)
B	Heat pump reversing valve (Energized in HEAT mode)

**Required wire*

- 4 Install a new wire to connect the Thermostat to the control board using the designated wire terminals. These wires should be inserted into the terminals from the front of the Thermostat. Do not run wire behind the thermostat when mounting.
- ⚠ **IMPORTANT:** A C-wire and RH wire are both required to power the Thermostat. Please be sure to include both C and RH in the wire bundle and insert them into the Thermostat terminals. 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. If you only have one R wire, there is no need to physically jump RH and RC. The Thermostat will internally jump the two terminals. Please verify the supplied voltage is 24 VAC.



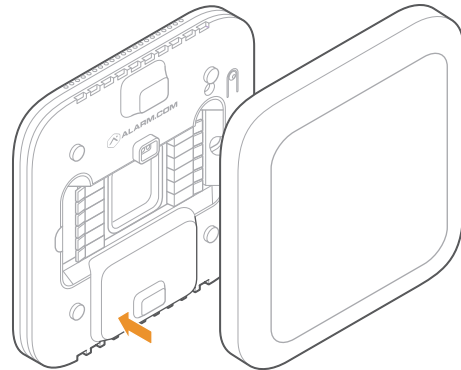
- 5** After all used wires are inserted into the wire terminals, restore power to the HVAC system.



- 6** 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.

- 7** Attach the Thermostat Cover to the front of the Thermostat.




Setup

- 1 **Return to the Display, verify it has powered on and is prompting setup.**
- 2 **Follow the on-screen setup wizard to set up the Smart Thermostat HD and add it to a Z-Wave network.**

NOTE: If the Display does not power on after 30 seconds:

- *Verify both R and C wires are securely inserted into the appropriate terminals on the Power Plate.*
- *Verify the HVAC unit has power.*


Test the system

 **CAUTION:** Do not test the AC during cold weather or heat during hot weather. Wait for mild weather to fully test the system.

- 1 **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 heating system 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 cooling system 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.

Additional configuration

- Although the default settings will be appropriate in most cases, you also have the option to change all configuration settings via the Display. Open the Navigation menu and proceed to the relevant settings.

 **CAUTION:** Be careful when changing advanced configuration settings. These configuration settings should only be changed by those familiar with heating and cooling system parameters. Contact your local HVAC professional for help.

Troubleshooting

Problem	Cause	Tip
<p>The Display does not power on.</p>	<ul style="list-style-type: none">• The Power Plate is not providing power to the Display.• The HVAC equipment does not have power.• There is not 24 VAC power at the wall.	<ul style="list-style-type: none">• Remove the Display from the Power Plate.• Verify the R and C wires are appropriately inserted into the terminals on the Power Plate.• Verify there is 24 VAC across the R and C wires.• Verify the R and C wires are connected to the appropriate terminals on the HVAC control board.• Verify the HVAC unit has power. This is likely handled at the circuit breaker.• If powered using a transformer, verify the transformer is 24 VAC.• Return the Display to the Power Plate.

Problem	Cause	Tip
<p>The Display is indicating it cannot communicate with the Thermostat.</p>	<ul style="list-style-type: none"> • There is a wireless communication issue between the Display and Thermostat. • This may be caused by metal or other objects in the way or attached to each section of the Smart Thermostat HD. • This may be caused by a long range between the Display and Thermostat 	<ul style="list-style-type: none"> • Verify both the Display and the Thermostat have power. • The screen should be on. • The Status LED on the front of the Thermostat should be on. • If both are powered, there may be an interruption in the wireless connection between the two. • The Status LED on the front of the Power Plate should be on. • Verify there are no large metal objects between the two. • Verify the Thermostat is not mounted onto metal. Please mount it away from any metal surface. • Follow on-screen prompts to re-establish wireless connection. • While very unlikely, if no wireless connection can be established it may be required to re-install the Thermostat at the wall and physically attach the Display to the Thermostat. <p>⚠ CAUTION: If the Display cannot communicate with the Thermostat, 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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