# Smart Thermostat
User Guide

ADC-T2000

Installation precautions

- Before installing or servicing the thermostat, turn off power to the system at the circuit breaker.

- Leave power off until you have finished installing or servicing.

- Shorting the electric terminals at the control on the heating or cooling system may damage the thermostat. Do not test the system this way.

- You must follow all local codes and ordinances for wiring the system.

- This thermostat should only be powered by 4 AA alkaline batteries or 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 the thermostat to a high voltage system. Contact a local HVAC professional for help.
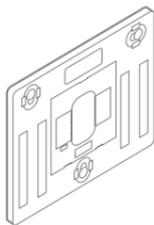
Questions?

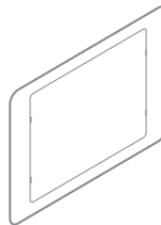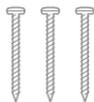Visit **answers.alarm.com** or contact your service provider.

In the box
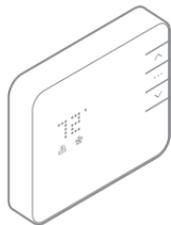
Thermostat
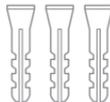
Back plate

Trim plate

Drywall screws (3)

Drywall anchors (3)

AA batteries (4)

Recommended tools

Phillips screwdriver

Power drill (³⁄₁₆" drill bit)

Pencil

Needle-nose pliers

Thermostat overview

Buttons

∧ **UP:** Adjust target temperature up.

••• **MODE:** Change thermostat between **HEAT**, **COOL**, **AUTO**, **EMER** and **OFF** modes.

∨ **DOWN:** Adjust target temperature. Also add and delete from the network.

Modes

♨ **HEAT:** Will activate the heating system.

❄ **COOL:** Will activate the air conditioner.

♨❄ **AUTO:** Will select either the **HEAT** or **COOL** mode automatically.

♨ **EMER:** For use with heat pumps only. Will bypass the heat pump and enable auxiliary/emergency heat.

OFF: The system will not heat or cool.

Display

♨ **HEAT:** Illuminated in **HEAT**, **EMER** or **AUTO** mode.

❄ **COOL:** Illuminated in **COOL** or **AUTO** mode.

📶 **RADIO:** Illuminated during the wireless configuration.

1 Display

2 Heat

3 Cool

4 Radio

5 Up

6 Mode

7 Down
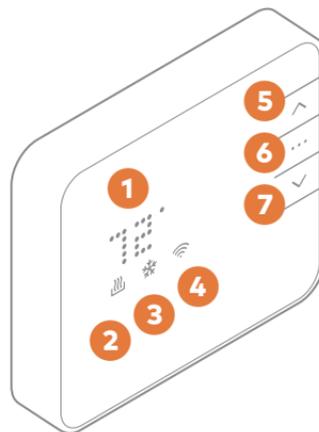
Location

If replacing an old thermostat, the new thermostat 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 thermostat 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.

- Be aware of what is on the other side of the wall where the thermostat is being installed. Do not install on walls adjacent to unheated rooms, stoves, or housing hot water pipes.

- Damp areas will not only affect the humidity reading of the thermostat, but could lead to corrosion and shorten the life 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

Test the system

Verify that the heating and/or cooling system is operating properly before you try to install the new thermostat.

CAUTION: Do not test the system by shorting electric terminals at the furnace or air conditioner. This may damage the thermostat.

Turn the power off

Turn all heating and cooling systems off. This can be done at the circuit breaker.

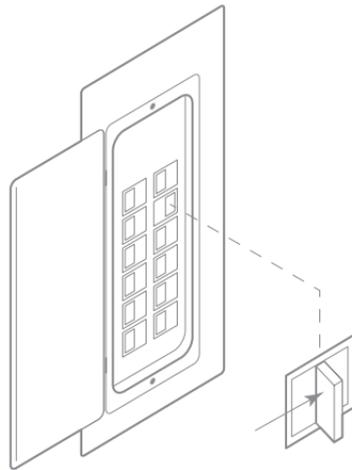**CAUTION:** Do not remove the existing thermostat until power has been turned off at the circuit breaker.

Once power to the heating and cooling systems is off, perform the following steps:

Remove the thermostat cover

Remove the cover from the existing thermostat. **Do not disconnect the wires yet.**

Take a picture of the wires before you detach them from the existing thermostat for future reference.

Prepare the wires

Disconnect all of the wires and remove the existing thermostat. Remember to secure the wires so they don't fall into the wall.

Follow these guidelines for safe and secure wire connections:

- Ensure the wires are a proper gauge between 18-24 AWG.

- Make sure wires have exposed straight ends about ⅛" long.

  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 to a high voltage system. Contact a local HVAC professional for help.

Install the back plate

Use the bubble level provided on the back plate as a guide. Mark where the screws will go with a pencil through the screw holes on the back plate. Ensure the top of the back plate is facing up.

If necessary, use the trim plate to cover up any marks or holes left from the old thermostat. Attach the trim plate before securing the back plate to the wall.

Drill holes with a ³⁄₁₆" drill bit to tap in the drywall anchors for added support

Installation

Wire your new thermostat

Reconnect the wires to the new thermostat and indicate the connected wires with a pencil in the image below. This information will be needed when configuring the thermostat.
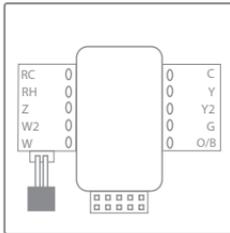
If you have extra wires, do not install them in the new thermostat. Please contact your local HVAC professional for additional assistance.

- If you have R, connect it to RH.

- If you have RH & RC, remove the black jumper in the lower left corner of the back plate terminal board with needle-nose pliers.

- Z can be used for W3, H, DH, O/B Zoning, or Ventilation.

Jumper On   Jumper Off
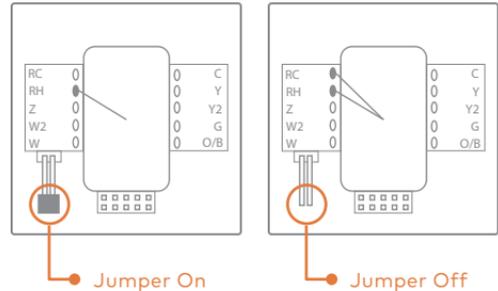
Terminal designations

Conventional system	
Terminal	Description
RC	Cooling power
RH	Heating power
Z	Configurable W3, H, DH, O/B Zoning, or Ventilation.
W	Heat stage 1
W2	Heat stage 2
W3	Heat stage 3
C	Common wire from secondary side of heating transformer (if 2 transformers)
Y	Cool stage 1
Y2	Cool stage 2
G	Fan
H	Whole home humidifier
DH	Whole home dehumidifier
O/B	Energized in cool mode

| Heat pump	
Terminal	Description
RC	Cooling power
RH	Heating power
Z	Configurable W3, H, DH, or Ventilation
W	Aux stage 1
W2	Aux stage 2
W3	Aux stage 3
C	Common wire from secondary side of cooling transformer
Y	Pump stage 1
Y2	Pump stage 2
G	Fan relay
H	Whole home humidifier
DH	Whole home dehumidifier
O/B	Reversing valve

Install the batteries

The thermostat can be powered by battery or 24 VAC. If a wall transformer is used to power the thermostat, connect between C and RH.

Ensure the batteries are installed following the specified polarity markings on the thermostat.

CAUTION: SPECIAL BATTERY WARNING

- Always replace the batteries as soon as you have low battery levels, indicated by "**LOW**" then "**BATT**" flashing on the display. If the batteries drain, the thermostat could leave the HVAC system on or off, overheating or freezing the home.

- Always replace the batteries at least once a year. This will protect the thermostat from damage and corrosion by leaking batteries.

- If the home is unoccupied for a month or more, such as with vacation homes, you should replace the batteries as a preventive measure against battery failure while you are away.

- Always use new batteries as replacements.
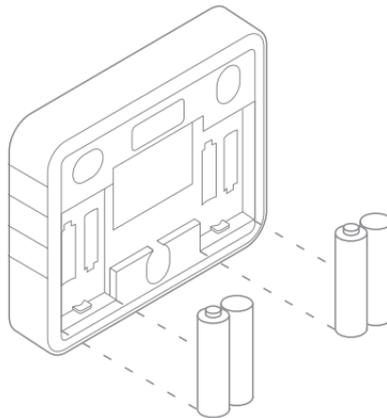
Attach the body and back plate

Verify that any excess wire is tucked back into the wall to allow room for the thermostat to sit flush against the back plate.

Return the thermostat to the wall plate by pressing the thermostat body firmly into the back plate mounted to the wall. Ensure that the pins on the body are correctly aligned with the back plate. Failure to do so could cause damage to the thermostat.
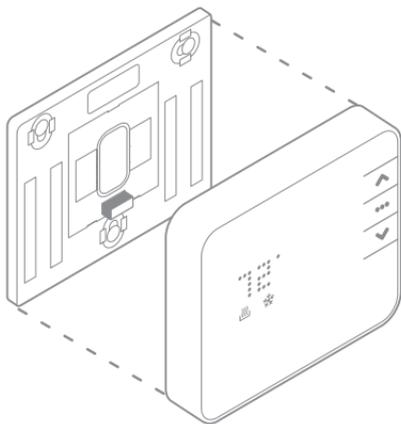
Turn the power on

Restore power to all the heating and cooling systems. This can be done at the circuit breaker.
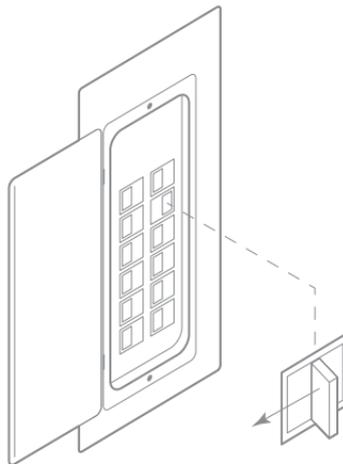
Connect to the network using Z-Wave SmartStart

1 Ensure the Z-Wave controller is powered on.

2 Log in to MobileTech.

3 Select the customer account.

4 Add the device using SmartStart and follow the on-screen instructions.

5 Scan the thermostat's QR code found on the box or back of the thermostat.

6 Put the thermostat in **OFF** mode (no mode icons are lit).

7 Press and hold the **DOWN** ∨ button on the thermostat to begin Add mode. Release the button when the **RADIO** 🛜 icon lights up. When the **RADIO** 🛜 icon becomes solid, the thermostat has been added.

NOTE: If the **RADIO** 🛜 icon is already illuminated during this process, you're already added to a network.

Connect to the network manually

1 Put the thermostat in **OFF** mode (no mode icons are lit).

2 Put the Z-Wave controller in Add mode. Refer to the controller documentation for more information.

3 Press and hold the **DOWN** ∨ button on the thermostat to begin Add mode. Release the button when the **RADIO** 🛜 icon lights up.

NOTE: If prompted by the controller or MobileTech for your DSK, input the five-digit DSK on the box.

4 When the **RADIO** 🛜 icon becomes solid, the thermostat has been added.

5 Log in to your online customer account to sync the thermostat with the system or contact your service provider for professional installation setup.

NOTE: Write your login information below once you have chosen a personal password.

User ID

Password

Configure the system

The thermostat configuration will be done on your online account. Here you can configure the parameters of the system, such as: Heat Pump or Normal, number of heat and cool stages, heating fuel, calibration temperature, and configurable terminal (Z). In your online account, you will have to enter the thermostat configuration. Refer to page 7 for the appropriate diagrams when you set up the thermostat.

While the default settings online will be sufficient in most cases, you also have the option to change advanced configuration settings, such as: Swing, Differential, Recovery Setting, Fan Circulation Period, Fan Circulation Duty Cycle, Maximum Setpoints, Minimum Setpoints, and Thermostat Lock.

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 a local HVAC professional for help.

Manual configuration of HVAC system on thermostat

The system type listed in the table below can be physically set on the thermostat by doing the following:

1. Put the thermostat in **OFF** mode.

2. Press and hold the **UP** ∧ button for 5 seconds until the display shows a version number.

3. Press and hold the **UP** ∧ button again for 5 seconds until the display shows your HVAC setup.

4. Press the **UP/DOWN** ∧|∨ buttons to select the thermostat configuration from the table below.

5. Press the **MODE** ••• button to confirm your selection.

Configuration	System Type	Description/Note
NORM	Normal 2-heat 2-cool system	Normal electric heating system, thermostat turns on fan with heat. Two or fewer stages of heating and of cooling are allowed.
FOSL	Fossil 2-heat 2-cool system (for hydronic heat w/no fan)	Normal fossil heating system, thermostat does not turn on the fan using the G wire when heating. Gas furnace or hydronic usually.
PUMP	Heat pump (O terminal)	Heat pump using O in the O/B termina with two or fewer stages of electric aux heating.
PMPS	Heat pump (B terminal)	Heat pump using B in the O/B termina with two or fewer stages of electric aux heating.
DUAL	Dual fuel system (O terminal)	Heat pump with two or fewer stages of fossil aux heating using O in the O/B terminal.
DULB	Dual fuel system (B terminal)	Heat pump with two or fewer stages of fossil aux heating using B in the O/B terminal.

Operation
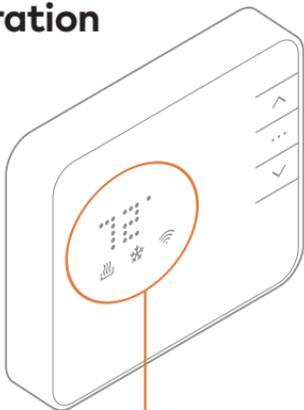
Display ●

1 Press any button to wake up the thermostat.

2 After waking, the display will show the current mode and room temperature.

Changing the mode and set point

1 Press the **UP/DOWN** ∧|∨ buttons once to display the current set point.

• The modes icon **HEAT** ♨ or **COOL** ❄ will begin to pulse.

2 Press the **UP/DOWN** ∧|∨ buttons again to adjust the desired set point.

3 Press the **MODE** ••• button at any time to change the mode.

• The modes are **HEAT** ♨ , **COOL** ❄, **AUTO**, **EMER** and **OFF**.

• **EMER** mode is available for Heat Pump systems. Press and hold the **MODE** ••• button while in Heat Mode to enter **EMER**.

• When in **EMER** mode, the display will read **EMER** when the thermostat wakes up and the **HEAT** ♨ icon will be displayed. Changing the mode will leave **EMER** mode.

• In **AUTO**, the brighter icon will indicate which set point is currently displayed and active **HEAT** ♨ or **COOL** ❄.

- After 5 seconds the display will return to the current room temperature. The mode icon will become solid to indicate this. If powered by the "C" wire, the thermostat display will remain lit. If the thermostat is running on battery power only, the display will turn off after 5 seconds to conserve energy. The thermostat will continue to operate while the display is off.

Changing the batteries

If the thermostat batteries are low, replace the batteries with four new AA batteries.

1 Remove the thermostat from the back plate by pulling the thermostat straight out and off the wall.

2 Take out the existing batteries.

3 Insert the new batteries following the specified polarity markings on the thermostat.

4 Return the thermostat to the wall plate by pressing the thermostat body firmly into the back plate mounted to the wall. Ensure that the pins on the body are correctly aligned with the back plate. Failure to do so could cause damage to the thermostat.

Humidity Control

The thermostat can adjust the humidity level in your home by directly controlling an external humidifier, dehumidifier, or by using the cooling system to dehumidify. For an external humidifier or dehumidifier, the thermostat must be configured to use the Z terminal. For controlling dehumidification by the cooling system, a cooling system must be present without an external dehumidifier. In this case, the thermostat will extend your cooling cycles in an attempt to reach your dehumidification setpoint. To change humidification/dehumidification settings refer to the Customer Website.

Ventilation

The thermostat can control a ventilation system (HRV, VRV, or air baffle) using the Z terminal. By default, the thermostat will operate the ventilation system for 15 minutes every hour. To change the ventilation settings, refer to the advanced configuration settings through the Customer Website or Mobile App. If the settings are not available, please contact your service provider.

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 Thermostat inserts a delay when cycling the compressor. This delay is only a few minutes long.	• Change the setpoint to 2 degrees beyond the current setpoint and wait 5 minutes, at which point the system should turn on. • If this does not work, contact your local HVAC professional.
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.	• Try switching the O/B configuration setting through your online account. • If this does not fix the problem, contact your local HVAC professional for help.

Problem	Causes	Tips
How do I delete the thermostat from the Z-Wave network?		1. Set the thermostat to **OFF** mode 2. Press and hold the Delete button on the Z-Wave controller. Refer to controller documentation for more information 3. Press and hold the **DOWN ∨** button on the thermostat to enter Delete mode. Release the button when the **RADIO** 📶 icon lights up. 4. When the **RADIO** 📶 icon blinks red, the thermostat has been successfully deleted from the network.

Troubleshooting (continued)

Problem	Causes	Tips
Batteries drain quickly	If a thermostat is added using a "C" Wire, that information is saved in the network and cannot be changed unless deleted and added again without a "C" Wire connected. The same applies to thermostats added on battery power. If a device is added using the "C" Wire, the Z-Wave communication never sleeps, and the thermostat will act as a repeater, sending messages for other devices as well. If the "C" Wire was removed, this kind of behavior will drain the batteries very quickly	• Make sure the "**C**" Wire connection is still intact

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.

2. This device must accept any interference received, including interference that may cause undesired operation.

   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 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.

IC

Under Industry Canada regulations, this radio transmitter may only operate using an antenna of a type and maximum (or lesser) gain approved for the transmitter by Industry Canada. To reduce potential radio interference to other users, the antenna type and its gain should be so chosen that the equivalent isotropically radiated power (EIRP) is not more than that necessary for successful communication.

Conformément à la réglementation d'Industrie Canada, le présent émetteur radio peut fonctionner avec une antenne d'un type et d'un gain maximal (ou inférieur) approuvé pour l'émetteur par Industrie Canada. Dans le but de réduire les risques de brouillage radioélectrique à l'intention des autres utilisateurs, il faut choisir le type d'antenne et son gain de sorte que la puissance isotrope rayonnée équivalente (PIRE) ne dépasse pas l'intensité nécessaire à l'établissement d'une communication satisfaisante.

NOTE: The grantee is not responsible for any changes or modifications not expressly approved by the party responsible for compliance. Such modifications could void the user's authority to operate the equipment.

Notes

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