Amana Smart Thermostat Installation & Commissioning

Technical Training Module TRC-9

Rest assured.
It's an Amana® brand.

Disclaimer

This material provides technical information that is to only be used by appropriately trained and certified HVAC-R installers and technicians who have agreed to the terms and conditions available here at https://www.daikincity.com/DaikinCityB2BTermsOfUse.html. If you have not agreed to these terms and conditions, you may not use or view this material, and you assume responsibility for any injury or property, system or equipment damage which may result. If you have agreed to these terms, you also agree, by viewing or using this material, that this material, by its nature, cannot include a discussion of everything necessary to effect a proper installation or repair of HVAC-R equipment, nor can it address every possible scenario or environment a technician or installer may encounter. Accordingly, this material should not be considered as recommendations for best practices and will not be considered installation or repair instructions to the extent of any conflict with Daikin- or Goodman-issued manuals and specifications, or industry standards and regulations. Each installer or technician remains fully responsible for ensuring proper installation or repair of the HVAC-R equipment being worked on, and you remain fully responsible for any injury or property, system or equipment damage which may result from your installation.

Agenda

**Amana** Heating & Air Conditioning

Amana Smart Thermostat

- Premium control that provides optimal comfort.

- The high-resolution touch screen supports tactile-based interactions.

- Navigating to each screen is done by tapping an icon.

- Designed to regulate and communicate with HVAC equipment.

- The user will be able to control the indoor unit remotely through the Amana Home app.
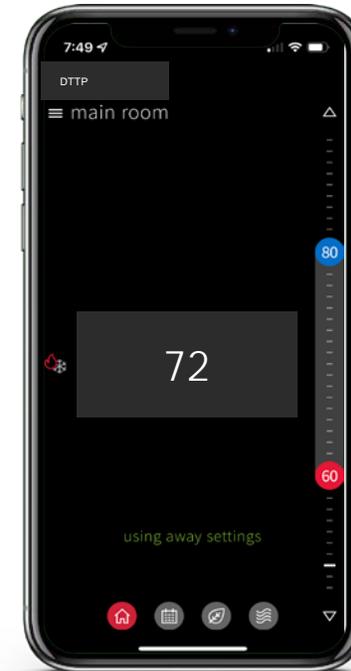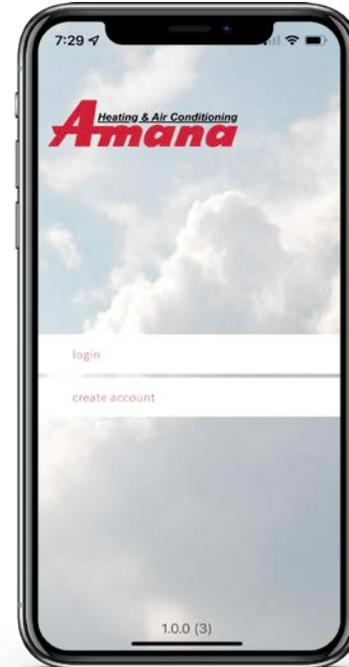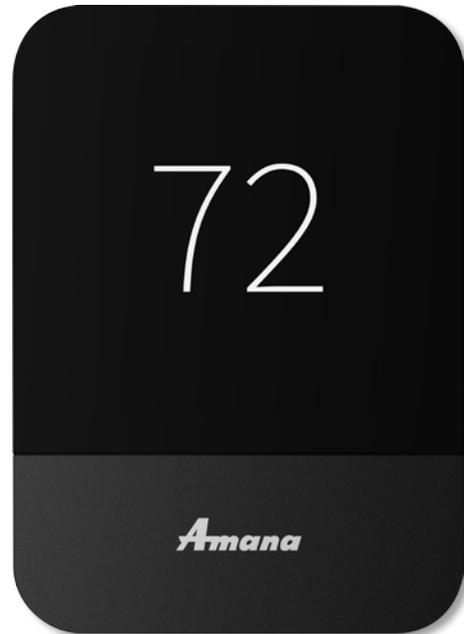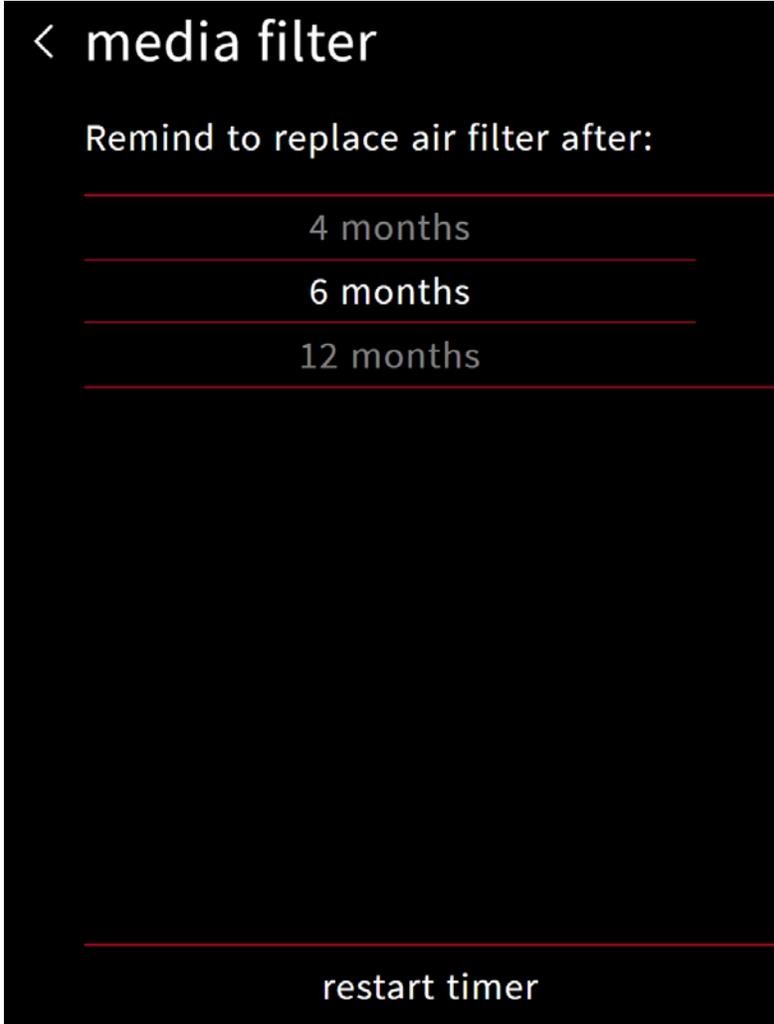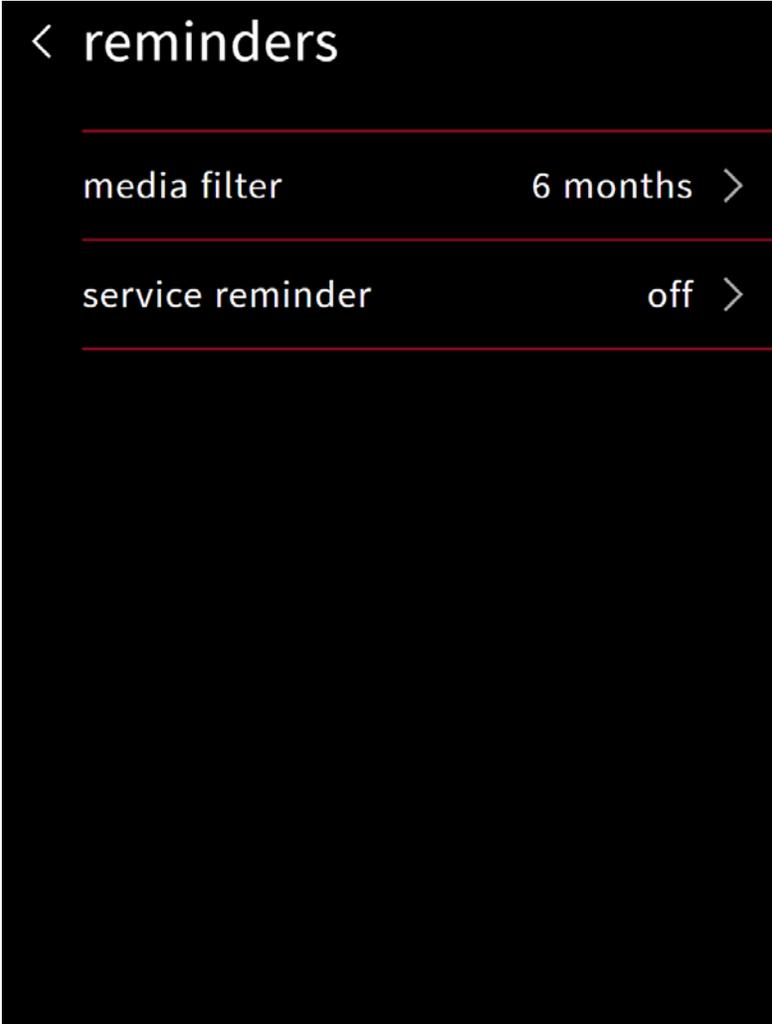
Amana Smart Thermostat

- Offers two-way communication when combined with:.
  - Amana S-Series system; air conditioners and heat pumps, residential inverters; air conditioners and heat pumps, and two stage system; air conditioners and heat pumps.
- Serves as a cloud-connected hub and controller for communicating HVAC systems.
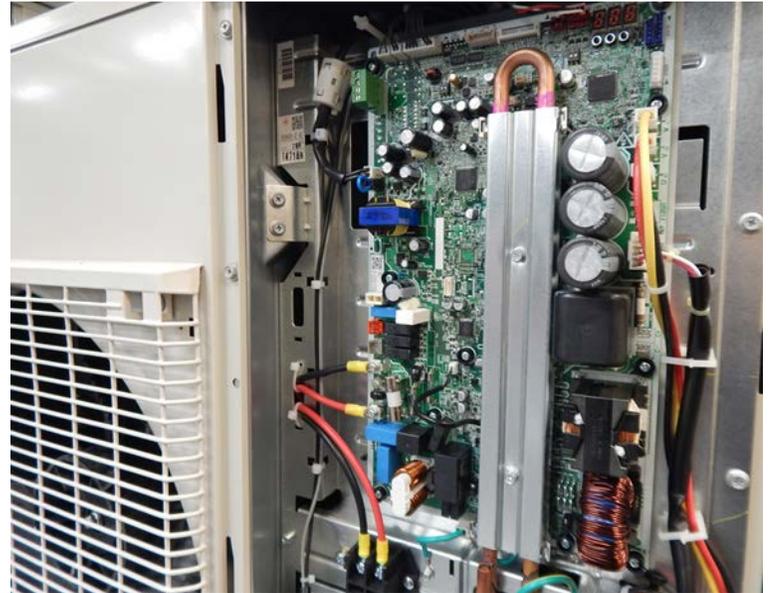
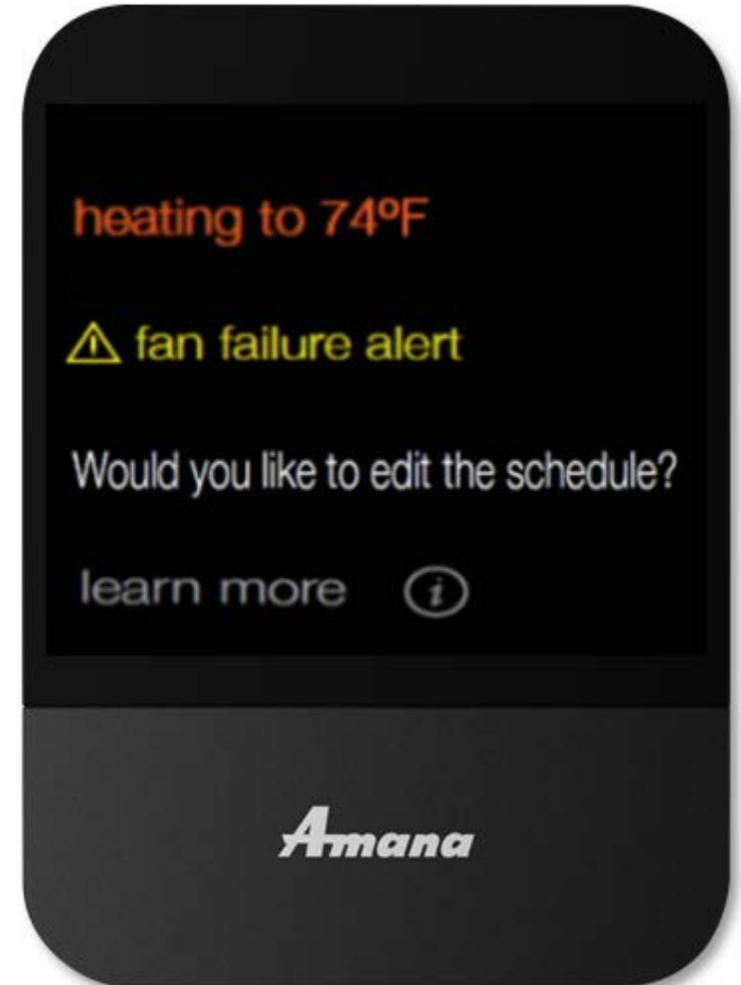# Amana Smart Thermostat

Service reminders

- Set service reminders to maintain your system.
- Preset reminder options include:
  - Media filter
  - Humidifier Pad
  - Service reminders

Amana Smart Thermostat - Messaging

- Amana Smart Thermostat's messaging updates, confirms, and informs about selections you make during set-up and operation.

- There are four types of messages:
  - Status
  - Alerts
  - Reminders and Prompts
  - Learn more/tips

Note: Alerts have priority over all other messages in the system.

# Amana Smart Thermostat - Quick Reference Card

- Quick reference cards are packaged with the thermostat to help answer questions during the installation and commissioning.

Dealers

Install the thermostat

Use the two included screws to secure the terminal plate to the wall. After connecting the wires, hook the top edge of the thermostat onto the holes on the top edge of the terminal plate. Rotate the thermostat down until it snaps into place. Once connected to power, follow the on-screen instructions.

Begin Setup
Use begin setup to customize settings and ensure the system is properly configured and ready for homeowners to use.
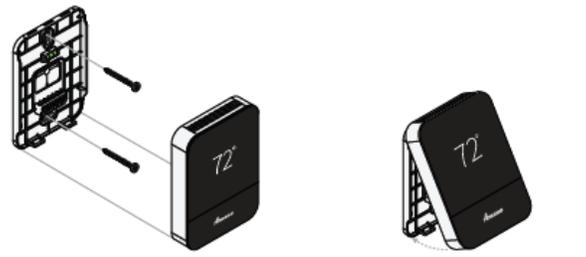
Terminal plate   Screws   Thermostat   Attach the thermostat to the terminal plate and snap into place

Get help at amana-hac.com/resources

Homeowners

Install the mobile app

Monitor and control your HVAC system from across the room, or from across the country.

Available on the App Store and Google Play.

amana-hac.com/app

Learn more about your smart thermostat

Find additional information about how your smart thermostat works and download the Homeowner Guide.

amana-hac.com/smart-thermostat

Scanning the bar code on the **bottom left** corner will link you to a website related to the title of the card. https://amana-hac.com/resources

Agenda

Amana Smart Thermostat

System Configurations

Installing Amana Smart Thermostat

Commissioning Amana Smart Thermostat

Full Set-up

Dealer Navigation

Homeowner Navigation

Mobile Apps

Amana
Heating & Air Conditioning

Valid System Configurations

- Air handler.
- Furnace.
- EEV coil.

- Heat pump.
- Air Conditioning.

Agenda

Amana Smart Thermostat

System Configurations

Installing Amana Smart Thermostat

Commissioning Amana Smart Thermostat

Full Set-up

Dealer Navigation

Homeowner Navigation

Mobile Apps

Amana Heating & Air Conditioning

DO NOT Install the thermostat where it can be affected by:

- Drafts or dead spots behind doors and in corners.

- Hot or cold air from ducts or ceiling fans.

- Radiant heat from the sun or appliances.

- Concealed pipes and chimneys.

- Unheated (uncooled) areas such as an outside wall.

Too Close

- Mount the thermostat to be
  - Leveled.
  - Approximately 5' from the floor.
  - On an interior wall using the included screws.
- Attach the thermostat to the top of terminal plate and snap into place
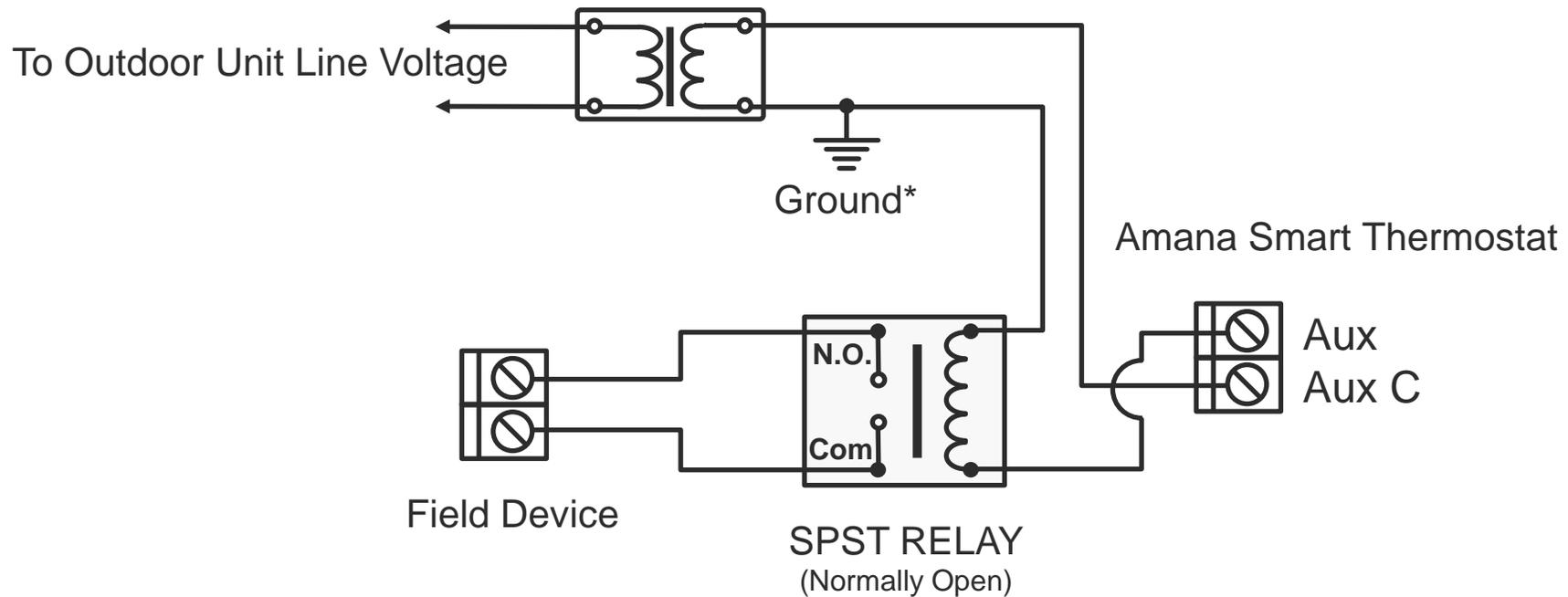

Approximately 5'
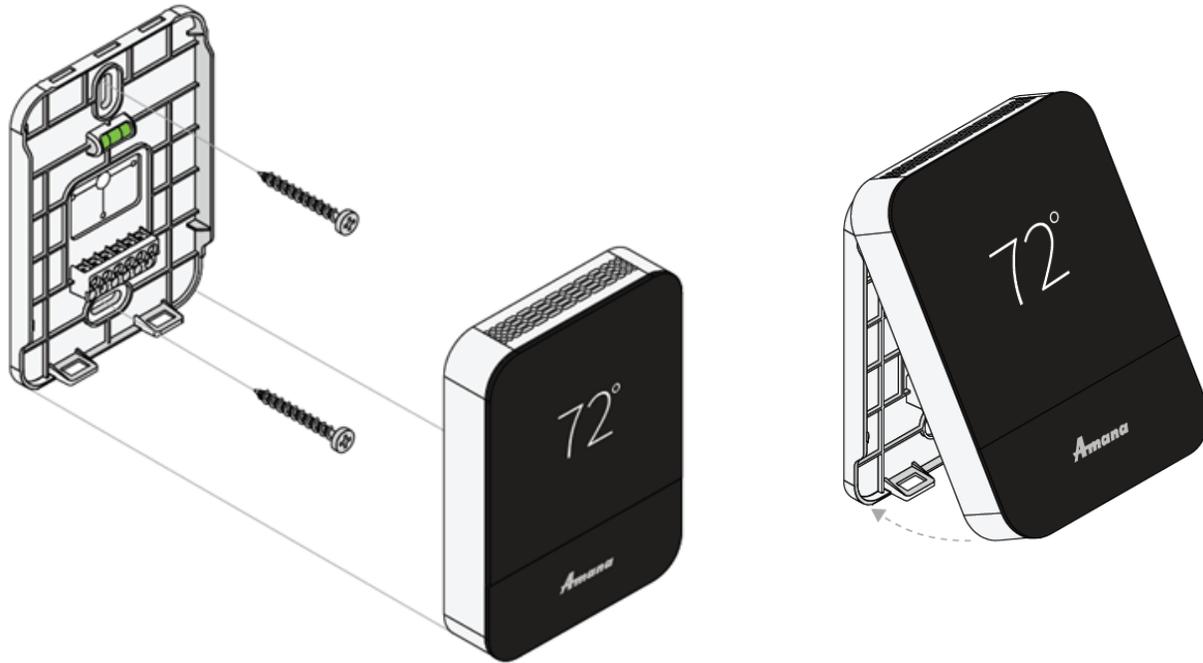
FLOOR

Wiring thermostat to communicating systems

- Maximum wire distance between the Amana Smart Thermostat and the indoor unit should not exceed **125 feet using 18 gauge wire.**

- **Check for proper voltage before and after wiring is installed.**
  - 0.6VDC between Data 1 and 2

- Wiring communicating indoor unit to communicating outdoor units.
  - Connect **1, 2, C and R** from the **Amana Smart Thermostat**, to **1, 2, C and R** at the **indoor** unit.
  - Connect wires **1 and 2** from the **indoor** unit to **1 and 2** at the **outdoor** unit.

- **Note**: The Amana Smart Thermostat is labeled **1, 2, C, R.** **If wired incorrectly, you will receive a communication error, or your equipment may not be recognized and displayed.**
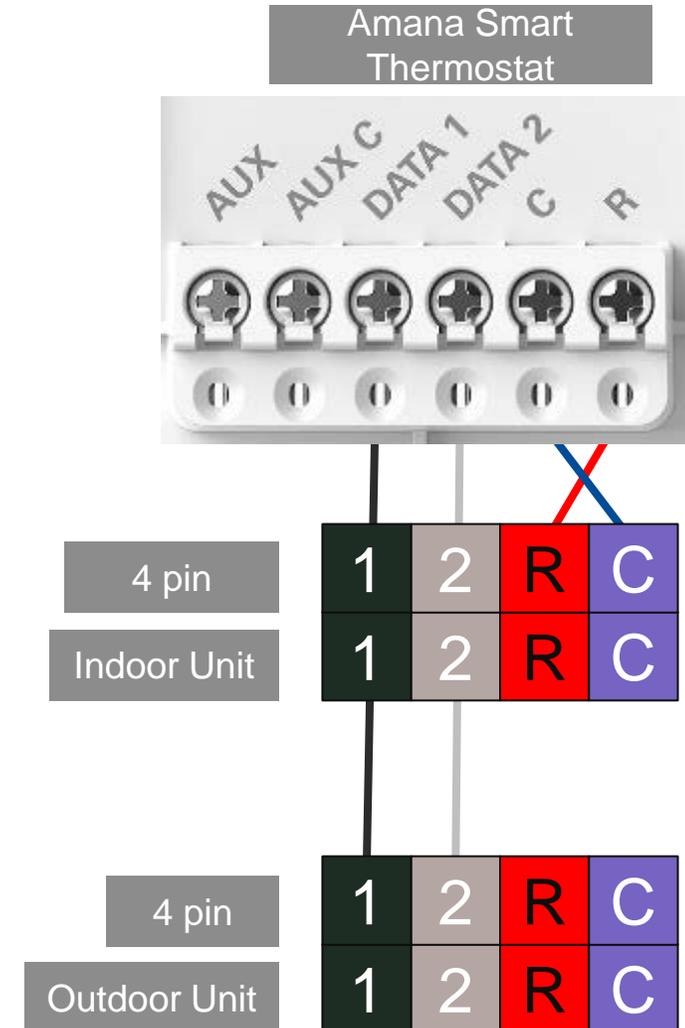
Aux Wiring

- The thermostats Aux outputs are dry contacts that close the connection to turn on the Aux equipment.
- A 24V AC control signal must be routed through one of the aux contacts of the thermostat.


To Outdoor Unit Line Voltage

Ground*

Amana Smart Thermostat

Aux
Aux C

N.O.

Com

Field Device

SPST RELAY
(Normally Open)

*The terminals are selected in the Amana Smart Thermostat installer wizard.
Note: It is recommended to use a minimum of 18-gauge wire. Maximum operating length of wire is 125 ft.

DAIKIN

Amana Heating & Air Conditioning

CoolCloud™ HVAC App
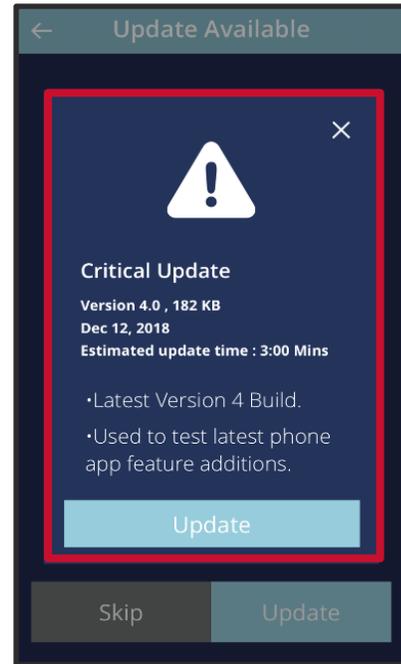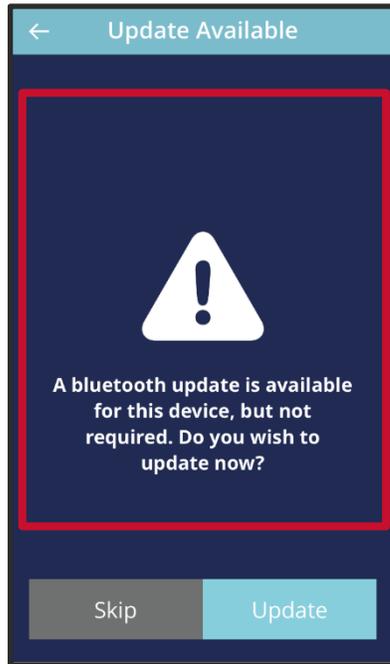
Download the **CoolCloud**™ HVAC application

- This system is **NOT** ComfortBridge controlled. If wired to a ComfortBridge furnace that requires a critical OTA update, the installer must complete an OTA update through the CoolCloud app prior to commissioning.

- Where can I download the app?
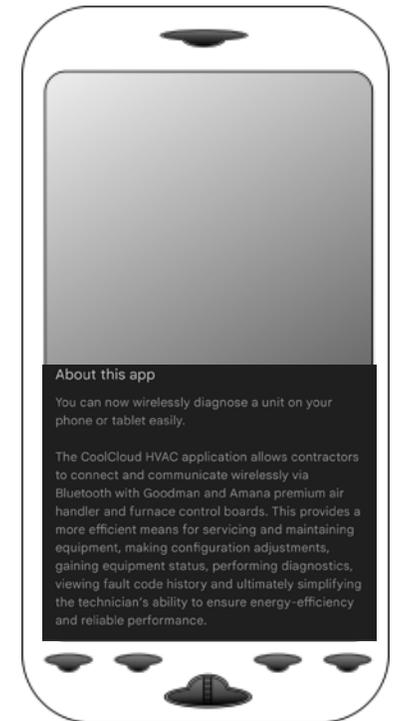
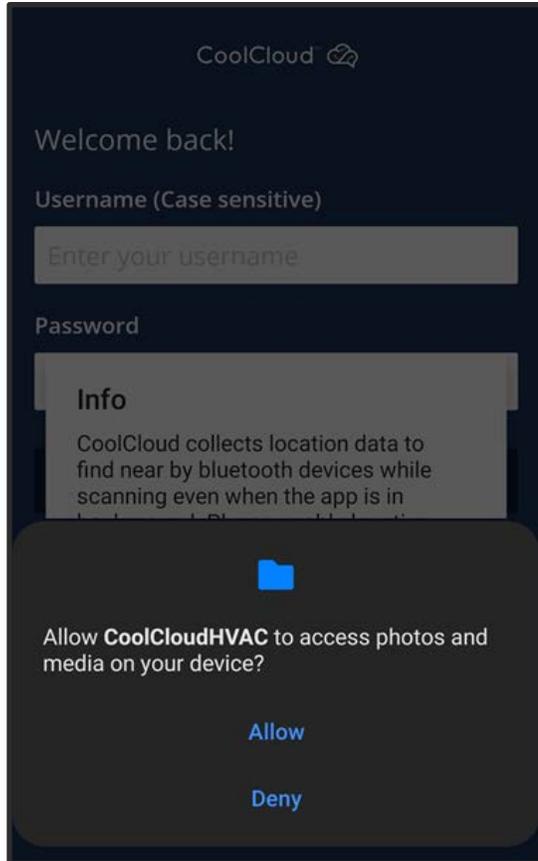- The **CoolCloud**™ HVAC app is available in **Apple**® and **Android**™ versions.

CoolCloud™ HVAC App

Software updates

- Once paired, available software updates will be displayed.
- Mandatory updates are required before moving forward.
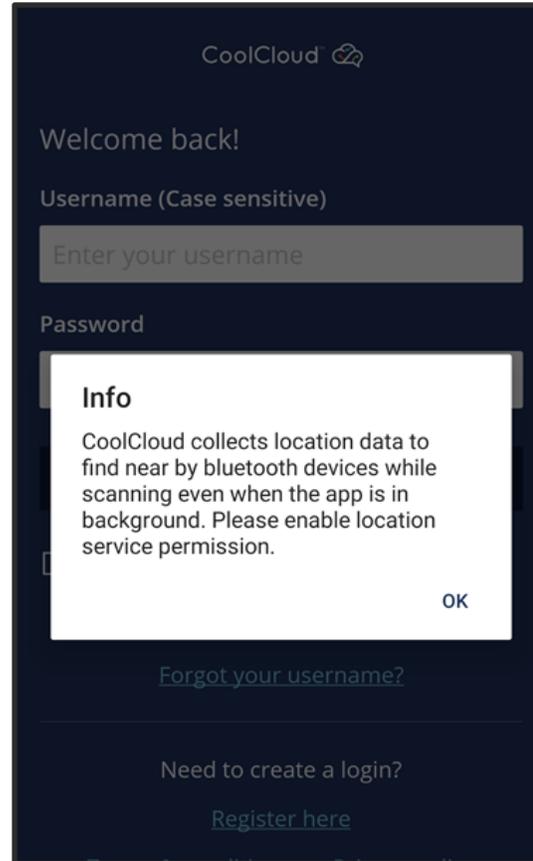- Optional updates can be downloaded or skipped.
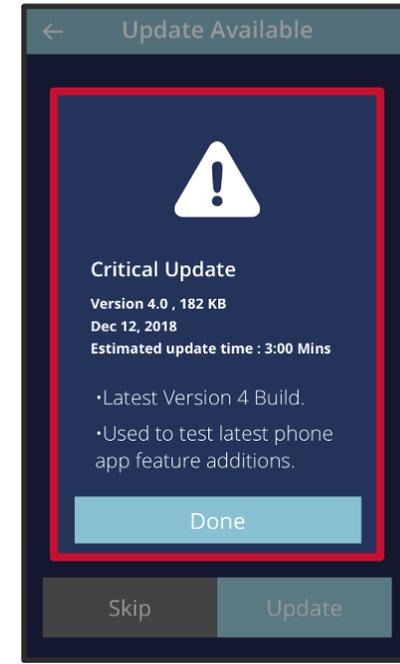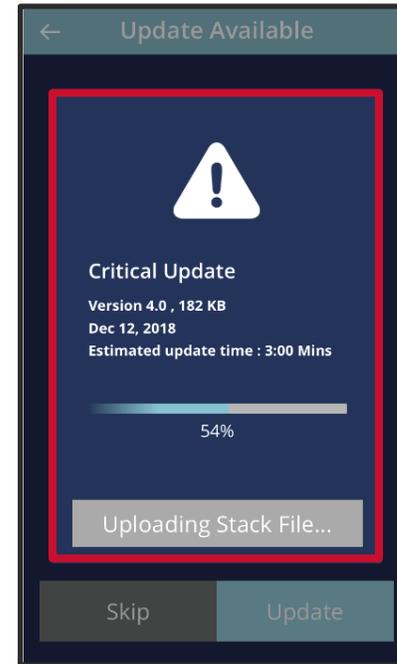
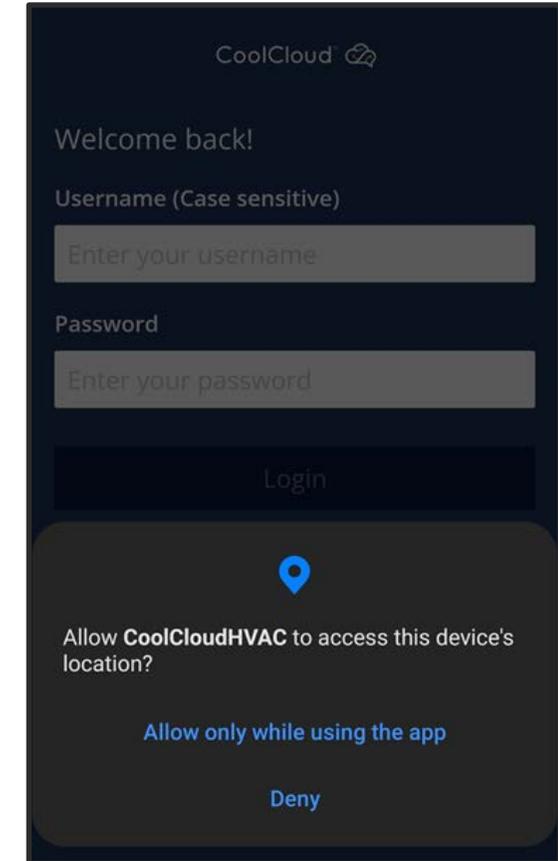# CoolCloud™ HVAC App

Permissions required by application

- **Access To Photos**

- **Bluetooth Scanning**

- **Device Location**

CoolCloud™ HVAC App

Login and registration screens

- Log in where you have a strong cell signal or are on an available Wi-Fi network.

- Create an account to get started.

- New users will first have to register for an account by providing registration information.

  - Note: Username information cannot be edited once selected by the user.

- If a user would like to make changes to the account information a new account will need to be created.
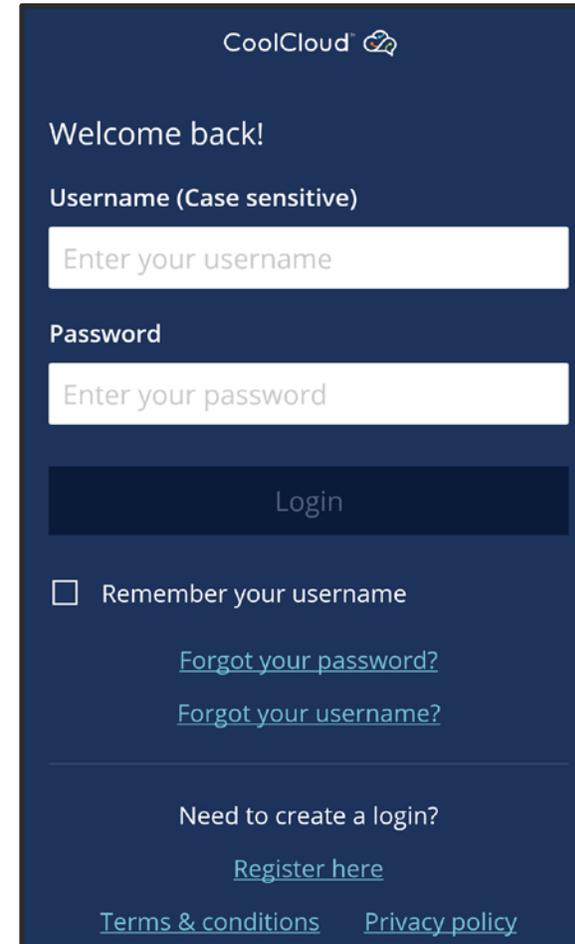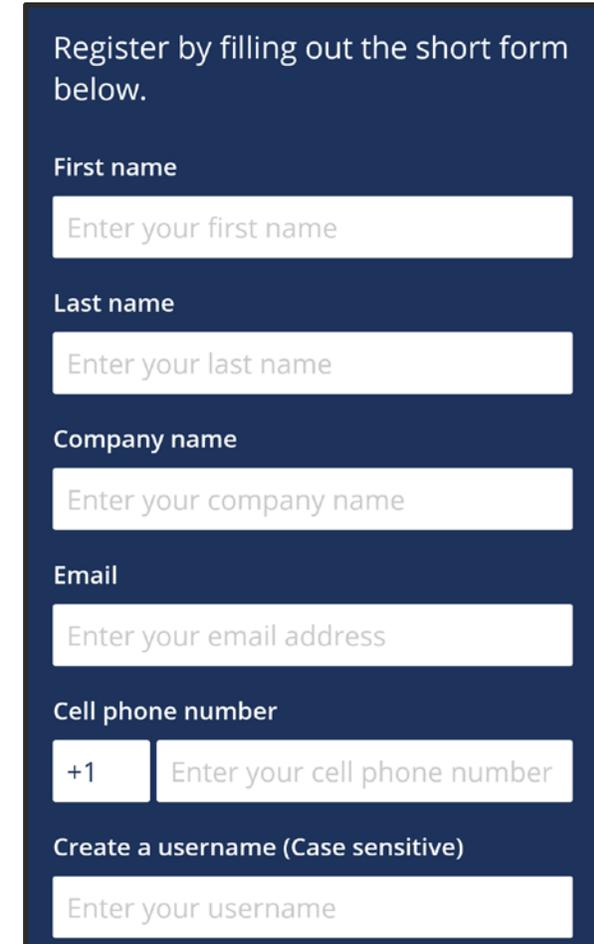
CoolCloud™ HVAC App

Connecting to equipment

- Move to proximity of the equipment, boot up the app and the indoor equipment should appear on the device screen.

- Random **Bluetooth**® equipment in range may also appear and can simply be ignored.

- If the equipment being searched for does not appear choose *Refresh* in the upper right.

- A unit may not show up if:
  - It is out of **Bluetooth** range
  - Another user is connected to the same **Bluetooth** device
  - The unit is not powered on

- Tap the desired equipment to begin the connection steps.

- Pressing *Logout* returned the user to the previous log in screen.
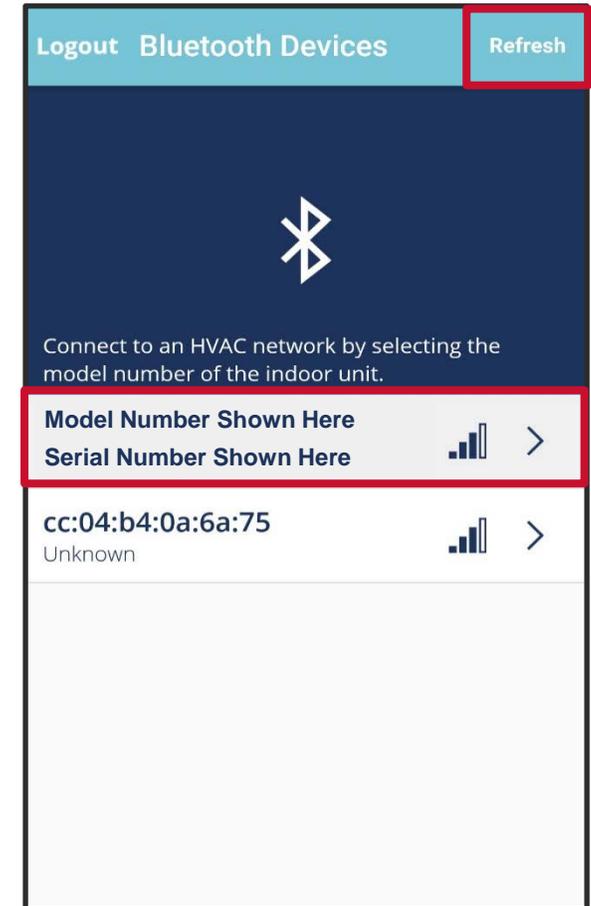
# CoolCloud™ HVAC App

Pair device by code

- Allows the user to enter the three-digit code from the circuit board's three 7-segment displays.

- **Note:** The user cannot pair the device using the Amana Smart Thermostat
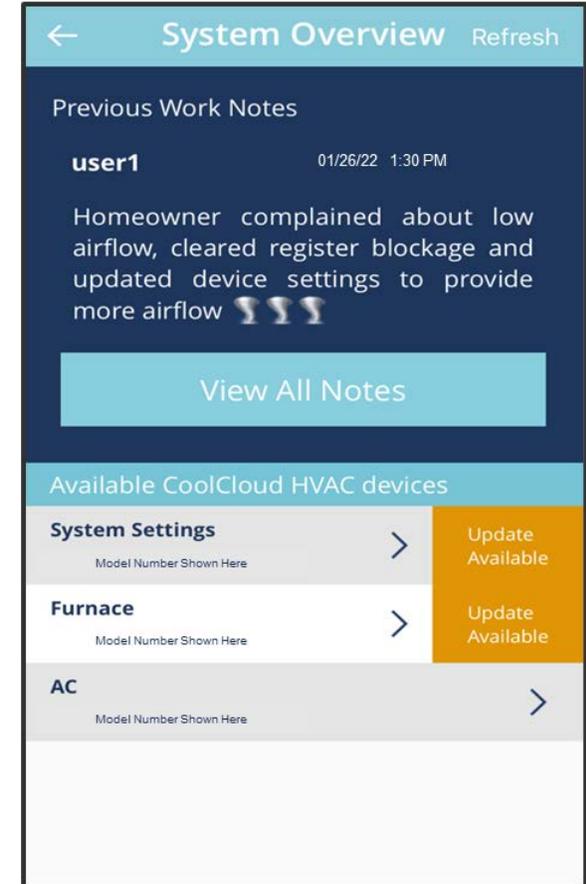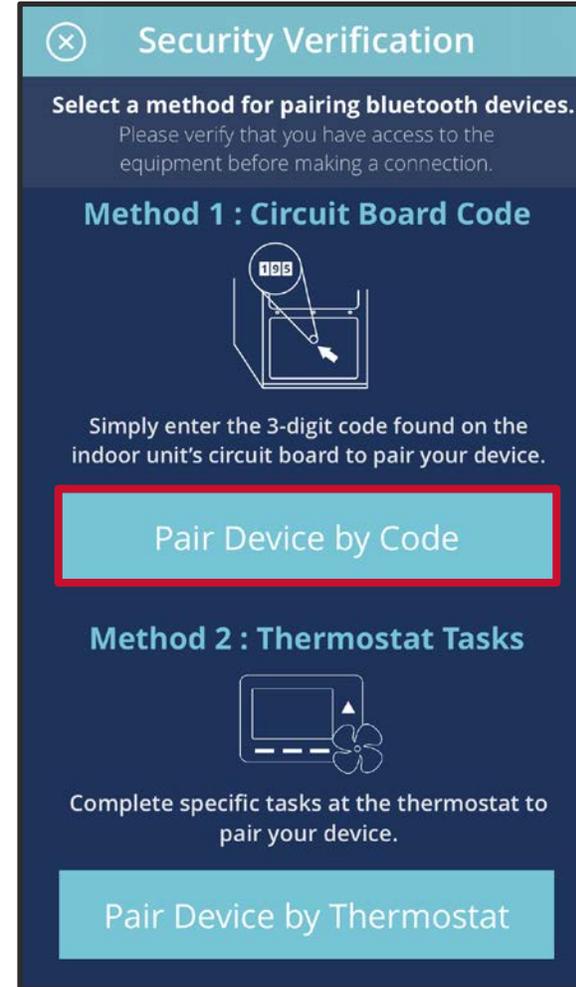
CoolCloud™ HVAC App

Pairing to indoor equipment using circuit board code

- You will be prompted for a 3-digit access code shown on the three seven segment displays.
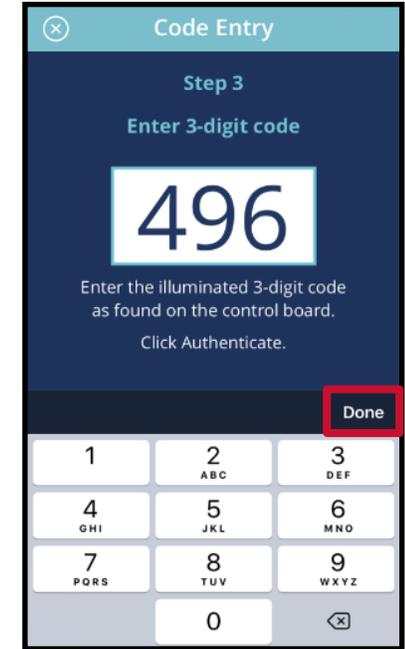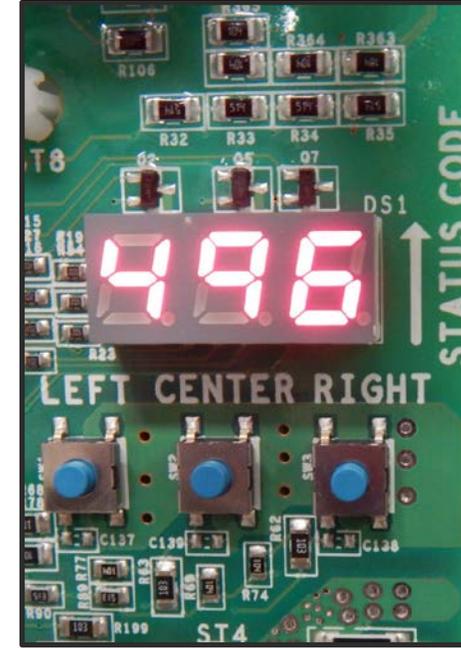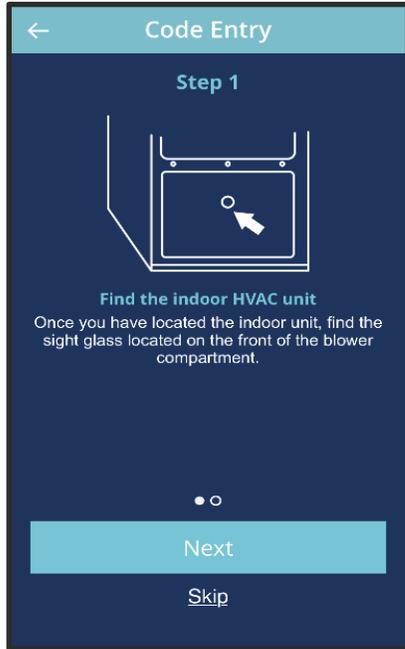
- If the code is visible, it can be entered in the Code Entry screen shown on the right.

Agenda

Amana Smart Thermostat

System Configurations

Installing Amana Smart Thermostat
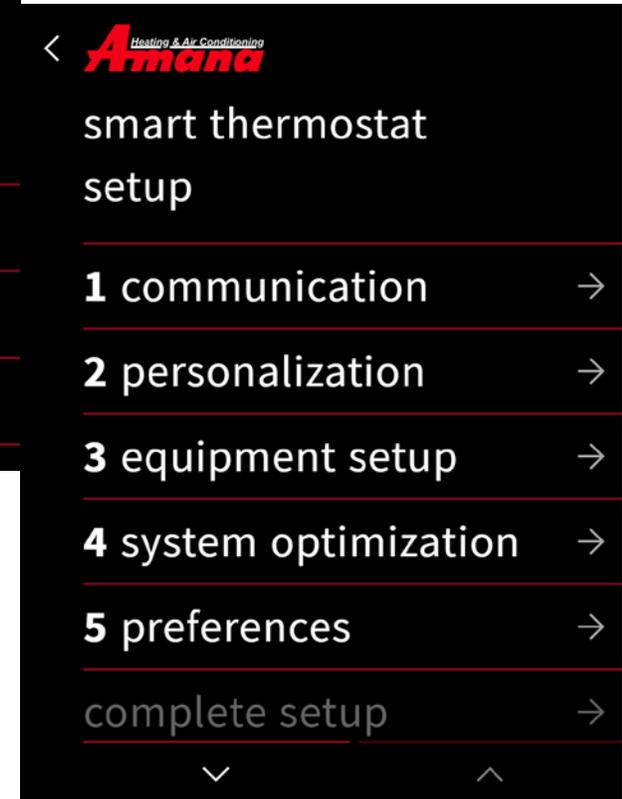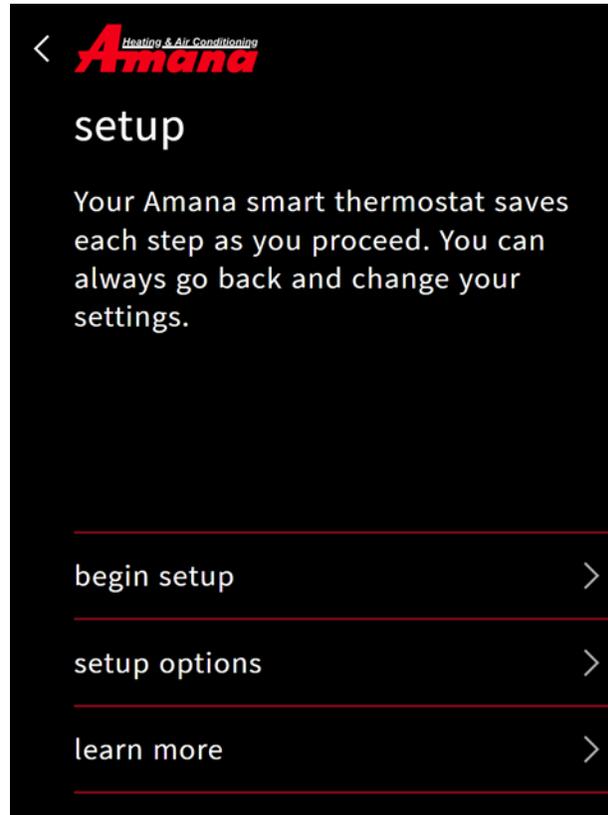
Commissioning Amana Smart Thermostat

Full Set-up

Dealer Navigation

Homeowner Navigation

Mobile Apps

Amana Heating & Air Conditioning

Commissioning Amana Smart Thermostat

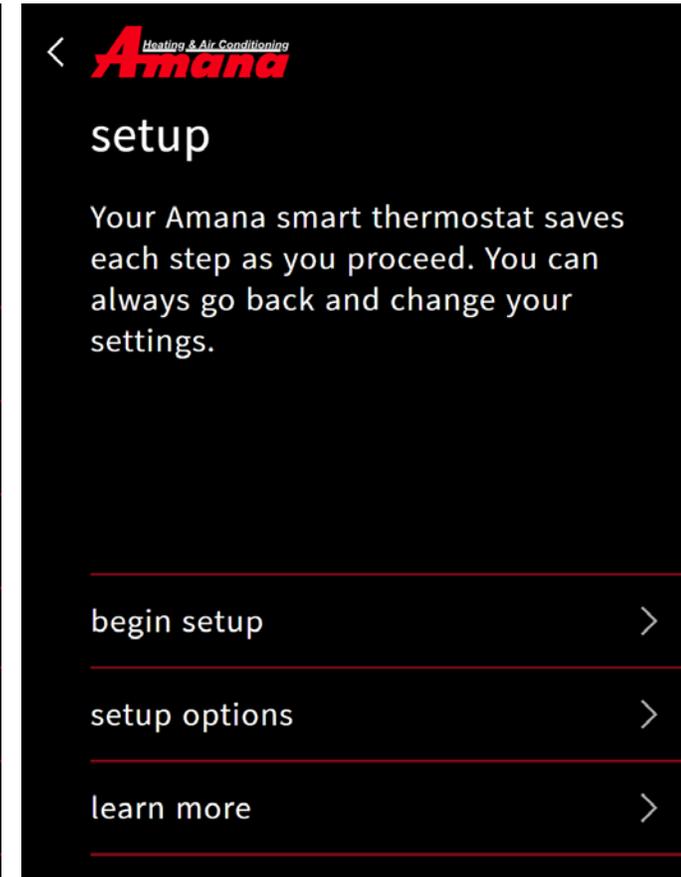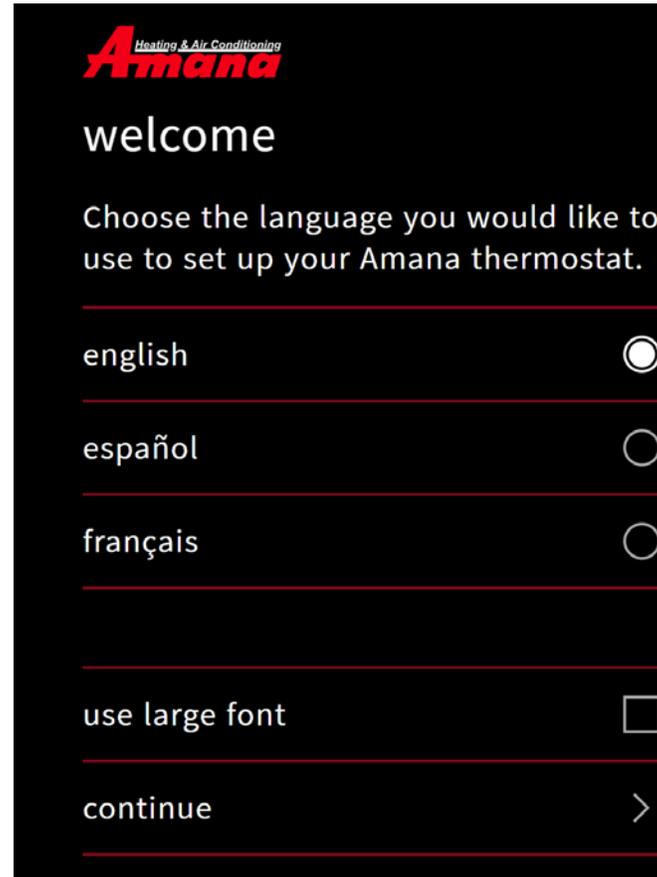- Begin set-up: walks installers through the entire commissioning process to ensure the system is configured properly and ready for the homeowner to use.

  - Enables random access to any setting.

  - Remembers settings as they are entered.

  - Individual may stop and restart as needed.

- The screens are populated based on the model numbers of the equipment, matched to a database of device configuration settings.

- Start-up screen is displayed upon powering the thermostat.
- The welcome screen displays preferences to choose from.
- Version of the thermostat is displayed on the learn more screen.
- Selecting setup options allows you to factory reset the thermostat.

welcome

Choose the language you would like to use to set up your Amana thermostat.

english ⦿
español ○
français ○

use large font ☐

continue ›

setup

Your Amana smart thermostat saves each step as you proceed. You can always go back and change your settings.

begin setup ›
setup options ›
learn more ›

Agenda

Amana Smart Thermostat

System Configurations

Installing Amana Smart Thermostat

Commissioning Amana Smart Thermostat

Full Set-up

Dealer Navigation

Homeowner Navigation

Mobile Apps

Amana Heating & Air Conditioning

Start-up

- **Tapping begin set-up starts the five step set-up process:**
  - Communication.
  - Personalization.
  - Equipment Set-up.
  - System Optimization.
  - Preferences.

Note: All steps must be completed and reviewed before completing set-up to ensure the system is configured properly and ready for the homeowner to use.

For detailed menu settings:

https://amana-hac.com/resources
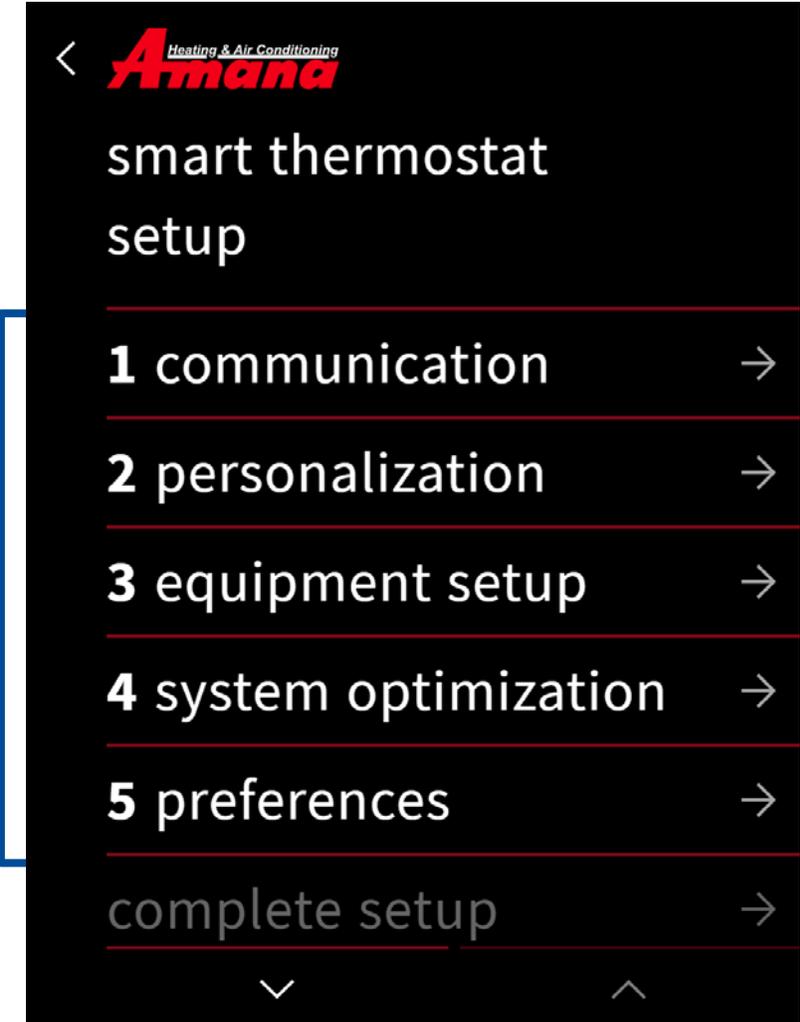
Full Set-up

Step 1 - Communication

- Configures **Communication Networks**.

- Select home Wi-Fi to search for networks.

- With **Wi-Fi configured**, the system can check the software version and update software to the **latest** version **automatically**.

Note:

  - A warning is generated if the router is not password protected.

   - Compatible with 5Ghz routers which supports 2.4Ghz

 - Equipment type displays the equipment selected on start up.
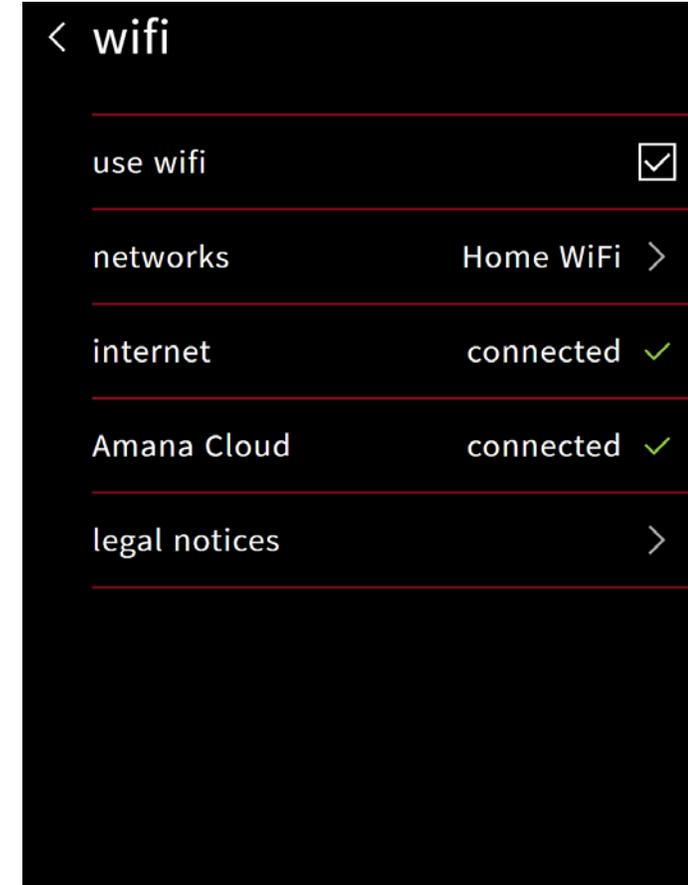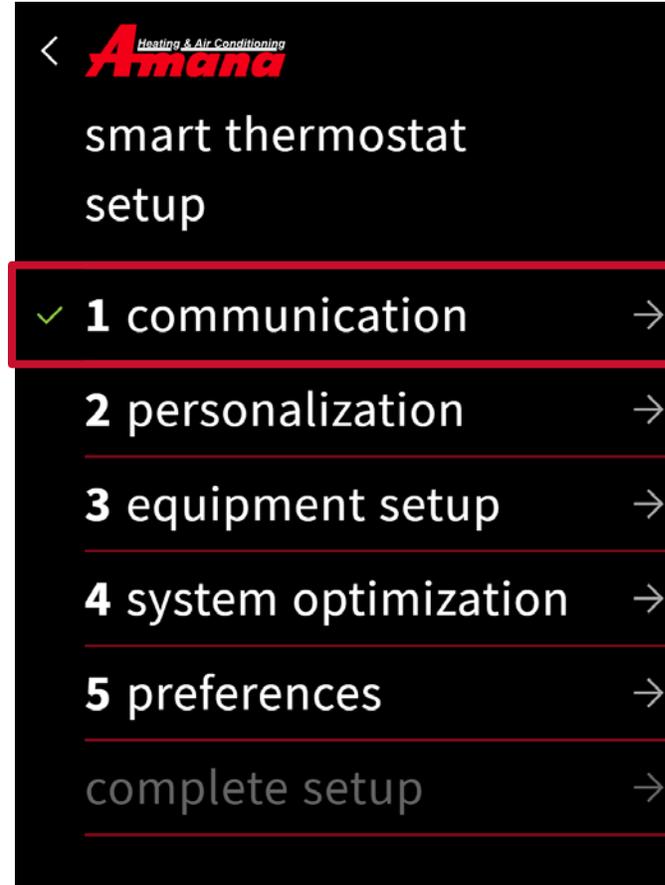
Step 2 - Personalization

- Tapping the **personalization tab** allows you to edit default information.
- Personalization displays:
  - Language.
  - Large font selection.
  - Date & Time.
    - If Wi-Fi is connected, date & time are set automatically.
  - Thermostat Name.
  - Degree Units.

Note: A green check mark appears next to items reviewed from the set-up menu.

Full Set-up
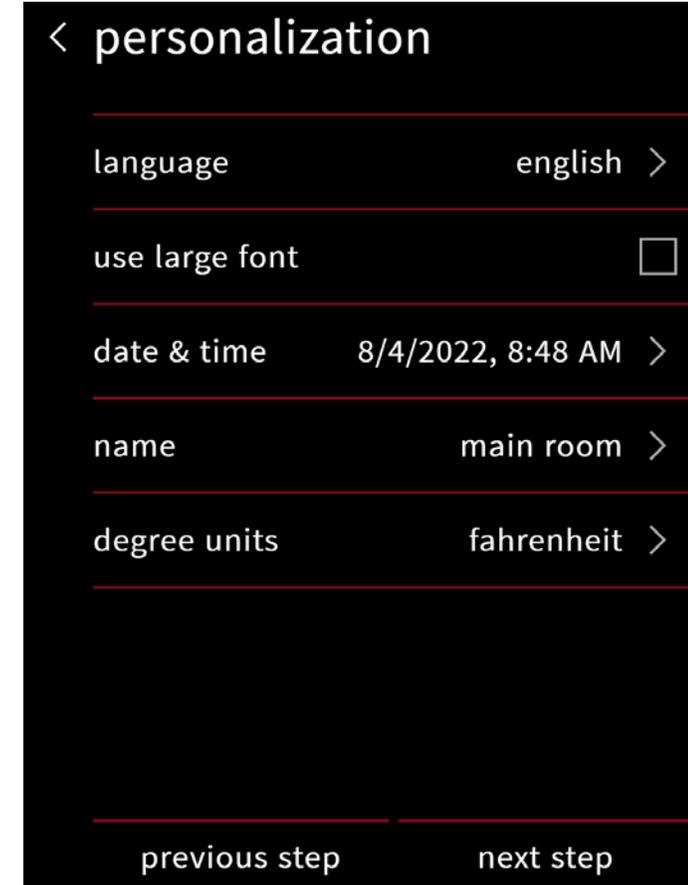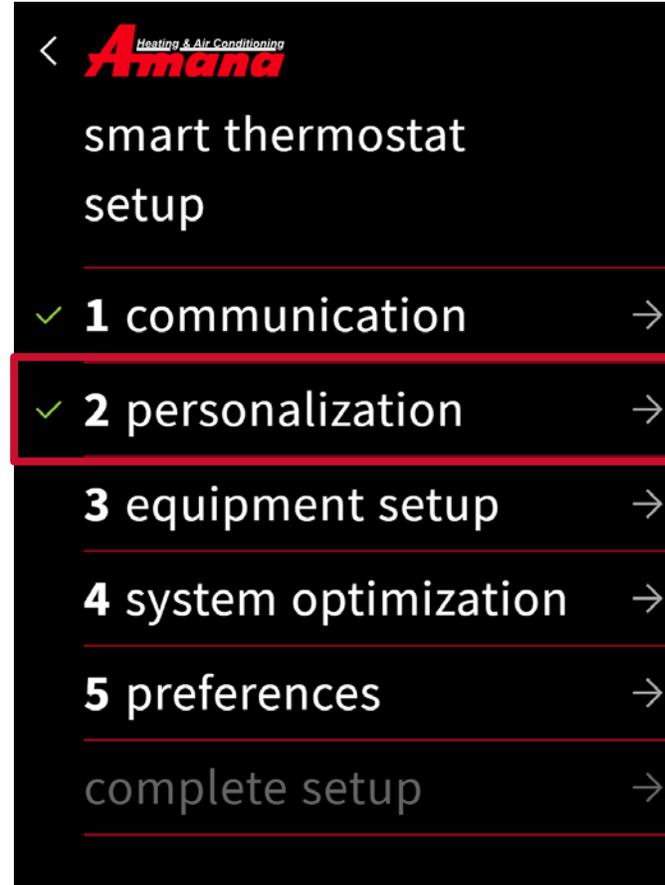
Step 3 - Equipment Set-up

- Displays equipment found by searching the communication network, or by adding/removing equipment and accessories from the preset list.

- The unit that is identified determines the list of configurations that will be displayed

  - View unit Specifications.

  - Configure

    - **Cool settings**
    - **Heat Settings**
    - **Heat Pump Settings**
    - **Aux alarm**
    - **Heater Kit**

https://amana-hac.com/resources
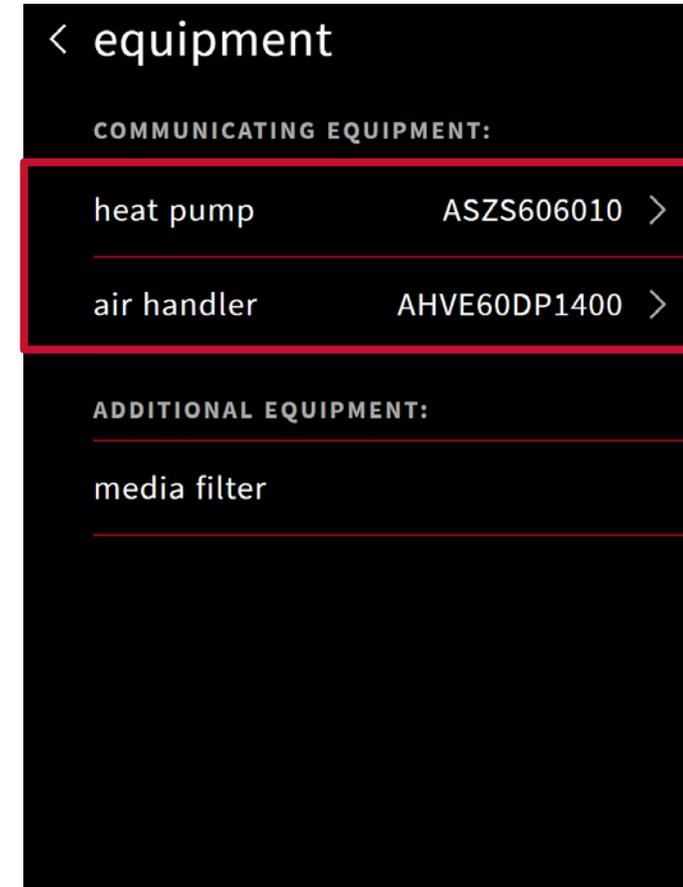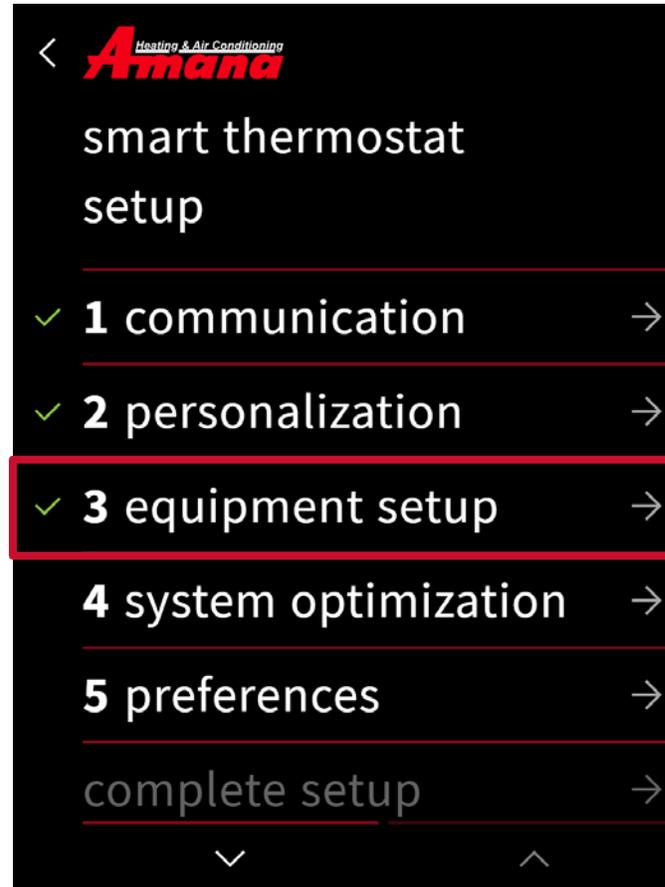
Amana Smart Thermostat

Added equipment

- The Amana Smart Thermostat is compatible with multiple accessories.
  - Humidifier
  - Dehumidifier
    - You can Install the humidifier and dehumidifier by using aux
      - Recommend using an isolation relay between auxiliary device and thermostat.
  - UV Bulb
  - Electronic Filter
  - HEPA filter
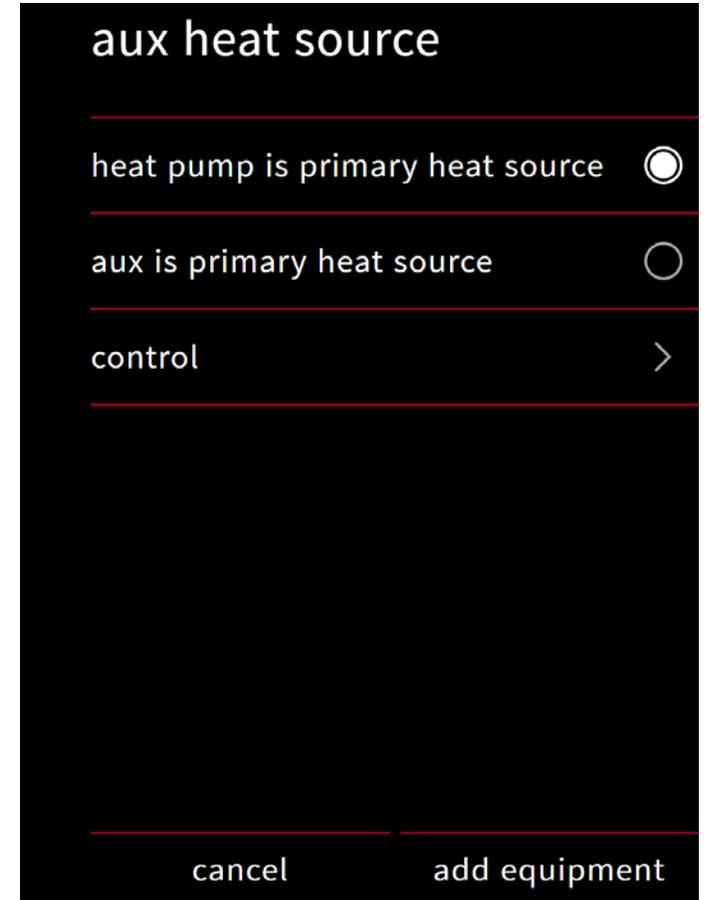 - EWC Zone Board.

Humidifier

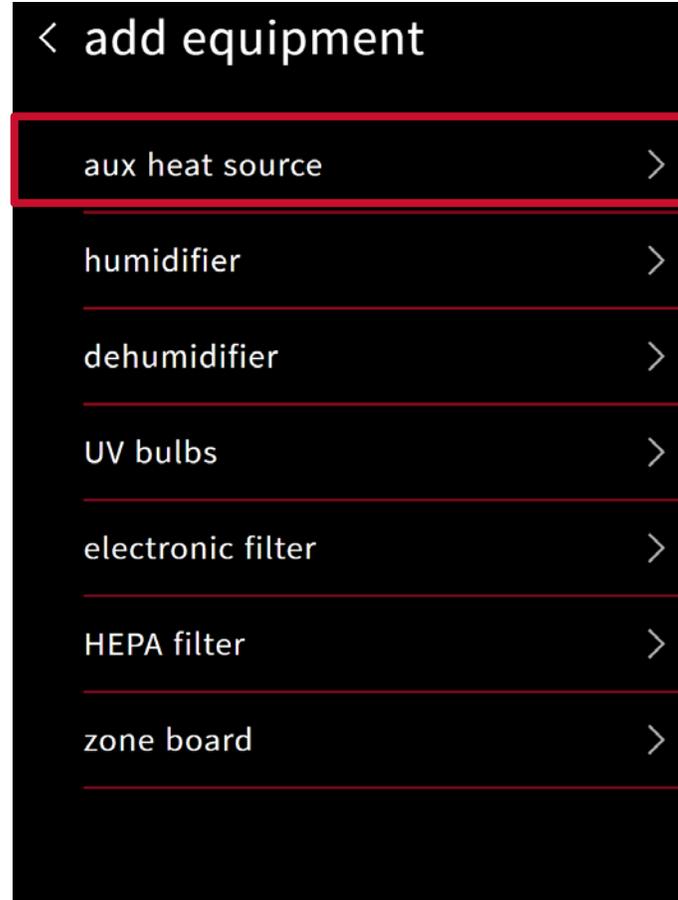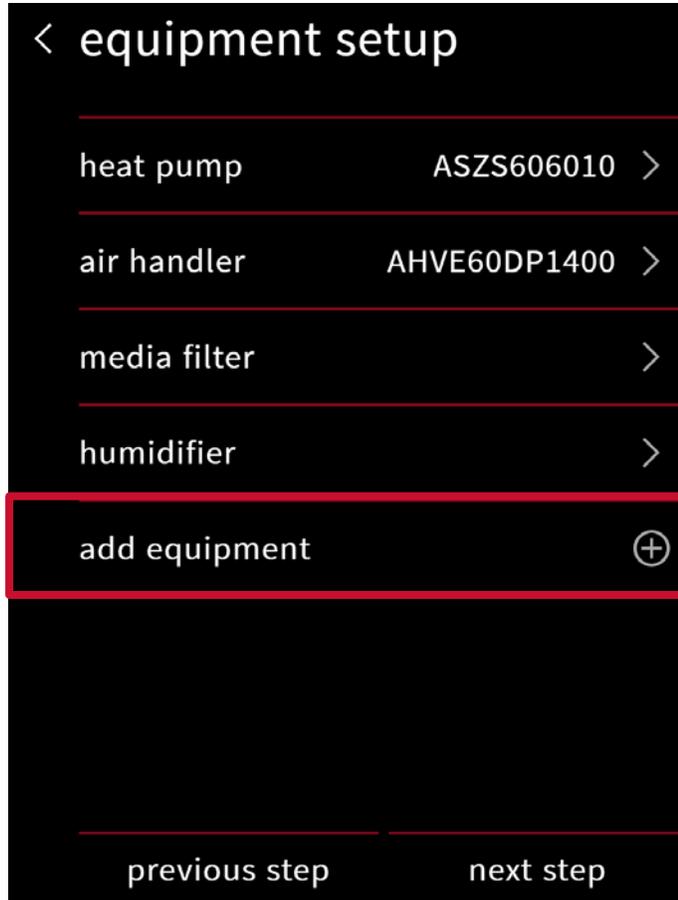**Dehumidifier**

EWC Zone Board

Full Set-up

Add equipment – auxiliary heat

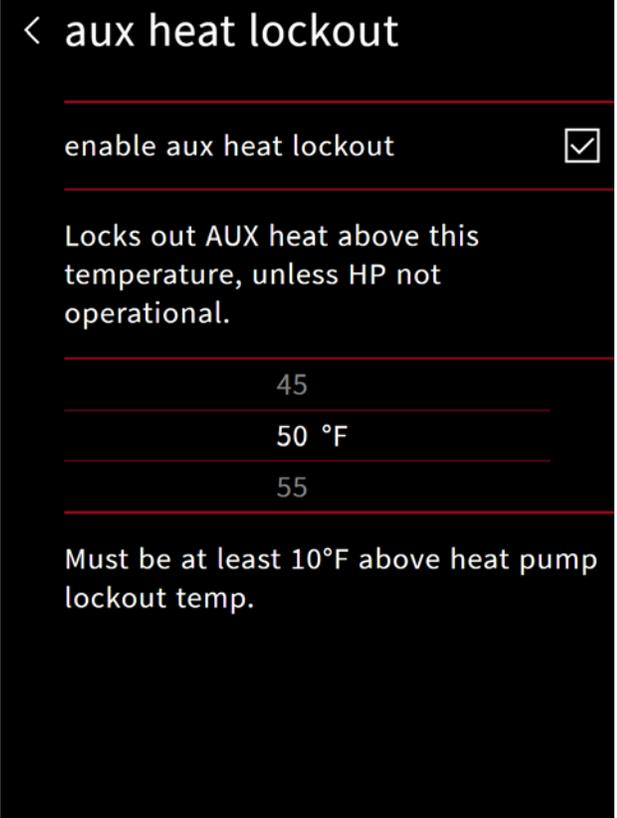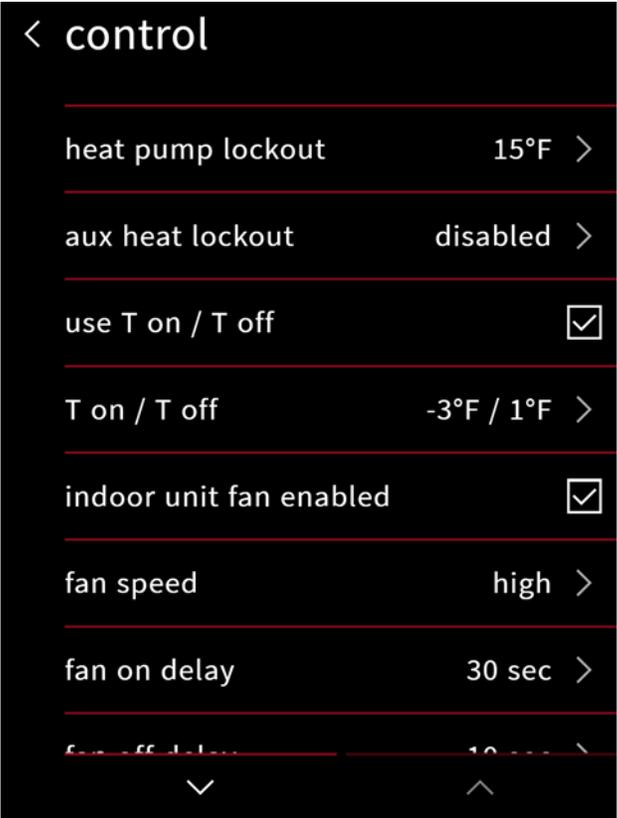- Selecting add equipment will allow you to configure an auxiliary heat source.

*Aux heat source is the only control option for an AC only outdoor unit.

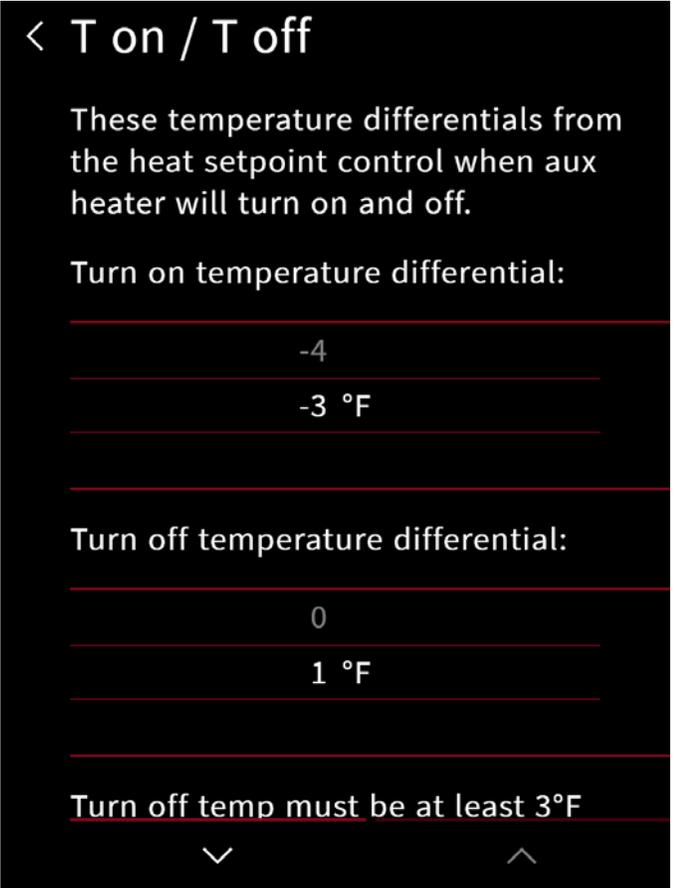# Aux Heat Setup on Amana Smart Thermostat

Secondary heat settings

- The control section will allow you to adjust settings such as lockouts and secondary heat activation temperature.

* **Emergency Heat mode will appear as a system mode when connected to heat pump units and can be used to directly turn on the aux heat source if enabled.**

< control

heat pump lockout	15°F >
aux heat lockout	disabled >
use T on / T off	☑
T on / T off	-3°F / 1°F >
indoor unit fan enabled	☑
fan speed	high >
fan on delay	30 sec >
fan off delay	10 sec >

∨   ∧

< aux heat lockout

enable aux heat lockout   ☑

Locks out AUX heat above this temperature, unless HP not operational.

45
50 °F
55

Must be at least 10°F above heat pump lockout temp.

T on/T off Control

- T on and T off provide an alternative control method to having the main AC/heat pump control the aux heat source using its PI control algorithm.
  - T on/T off is the only control option for aux heat with AC- only outdoor units
  - If the indoor unit is a gas furnace, or is an air handler with a heater strip, these heat sources will be controlled around the heat setpoint by the demand-based PI control algorithm.
  - When T on/T off is selected, the aux heat source will be controlled independently using these settings.
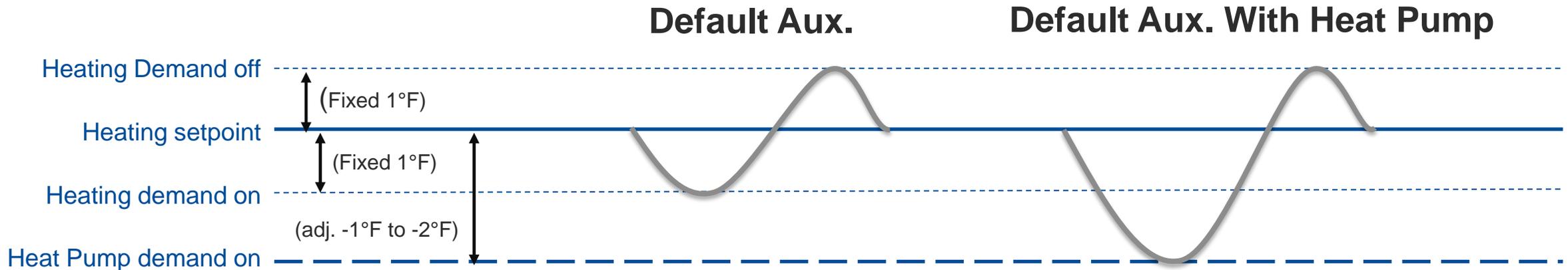
< control

heat pump lockout   15°F >

aux heat lockout   disabled >

use T on / T off   ☑

T on / T off   -3°F / 1°F >

indoor unit fan enabled   ☑

fan speed   high >

fan on delay   30 sec >

< T on / T off

These temperature differentials from the heat setpoint control when aux heater will turn on and off.

Turn on temperature differential:

-4

-3 °F

Turn off temperature differential:

0

1 °F

Turn off temp must be at least 3°F

DAIKIN

Amana
Heating & Air Conditioning

Aux Heat Control

- When heat pump is the primary heat source:
    - Heat pump lockout temperatures are adjustable from -20°F to 65°F in 5°F increments. (default 15°F)
    - Auxiliary heat lockout temperatures are adjustable from -10°F to 75°F in 5°F increments. (default 50°F)

Auxiliary heat demand:
    - T on differential is adjustable from -7°F to -3°F in 1°F increments (default -3°F)
    - T off differential is adjustable from -4°F to 1°F in 1°F increments (default 1°F)

Default Heat Pump   **Default Heat Pump With Aux.**

Heating Demand off
(Fixed 1°F)
Heating setpoint
(Fixed 1°F)
Heating demand on
(-4°F to 1°F)
Aux demand off
(adj. -7 °F to -3°F)
Aux demand on

Aux Heat Control

- When auxiliary heat is the primary heat source:
  - Heat pump lockout temperatures are adjustable from -20°F to 65°F in 5°F increments. (default 15°F)
  - Setpoint differential can be set at -9°F, -7°F, -4°F, and -2°F. (default -2°F)

  Heat pump demand:
  - T on differential can be set at -1°F or -2°F. (default -1°F)
 - T off differential is fixed at 1°F.

Default Aux.   **Default Aux. With Heat Pump**

Heating Demand off

(Fixed 1°F)

Heating setpoint

(Fixed 1°F)

Heating demand on

(adj. -1°F to -2°F)

Heat Pump demand on

Step 4 – system optimization

- System optimization displays:
  - System test.
    - **Inverters only.**
  - Charge mode.
    - **Inverters only.**
  - Optional test.
  - Error history.
    - Logs alerts with an error code.
      - **White = not critical**
      - **Yellow = critical**
  - Calibration.
    Thermostat must be in OFF mode.
    - Wait 30 minutes before calibration for the thermostat to equalize.
  - Status.

Full Set-up
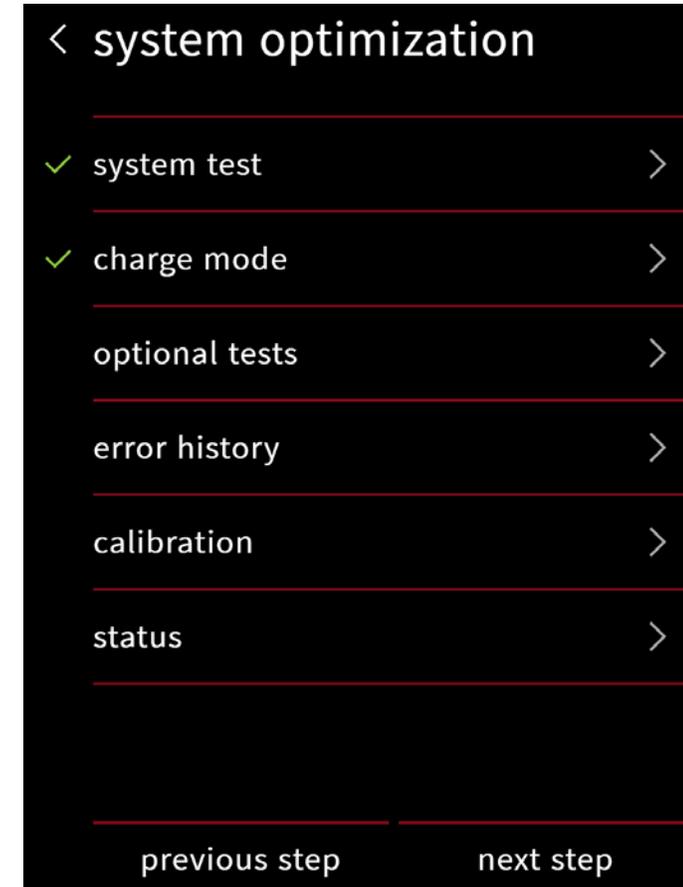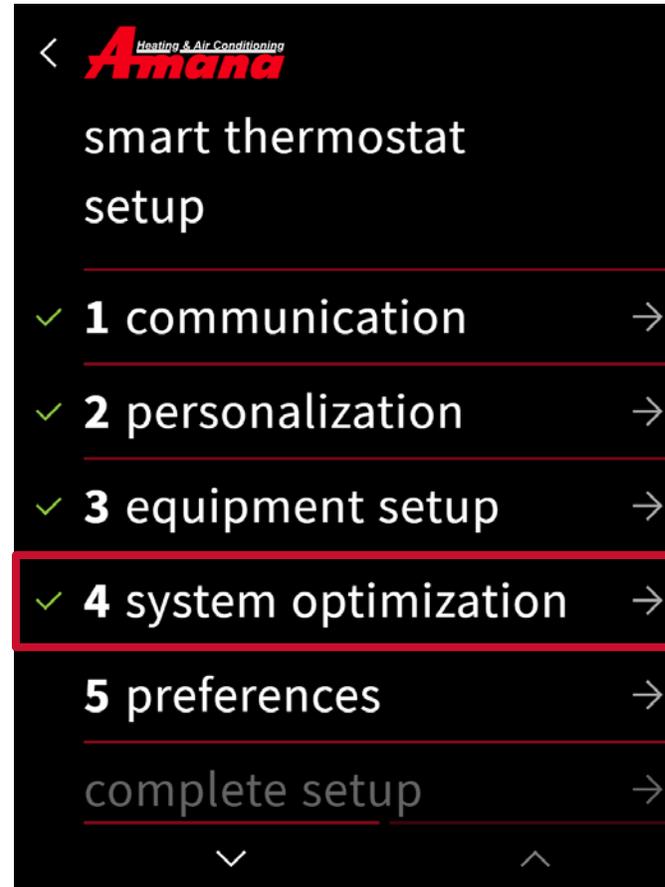
System test

- Running system test is required for the inverter units before proceeding to complete set-up.
  - You cannot stop this test.
- To proceed through the set-up process, the system test needs to be completed without any errors.
- When the tests are completed, the run test screen is displayed.
  - System test is complete only when display code E11 notice clears from the seven segment LED display on the heat pump or air conditioner.

< system optimization

✓ system test >

✓ charge mode >

optional tests >

error history >

calibration >

status >

previous step   next step

< system test

run test >

This is approximately a 5-15 minute test. If the thermostat is set to cool mode, the system will enter charge mode upon completion, otherwise it will stop.
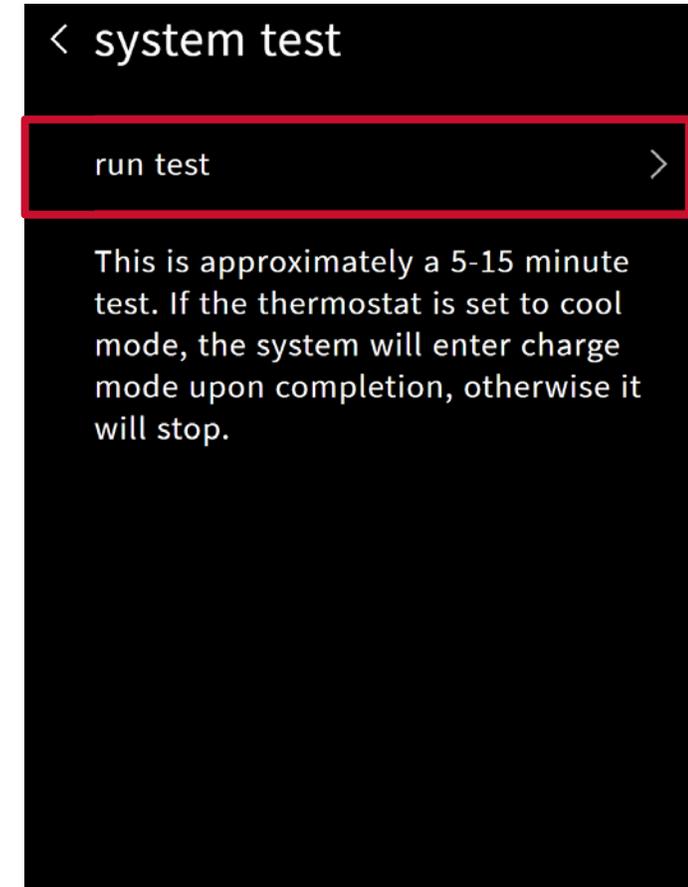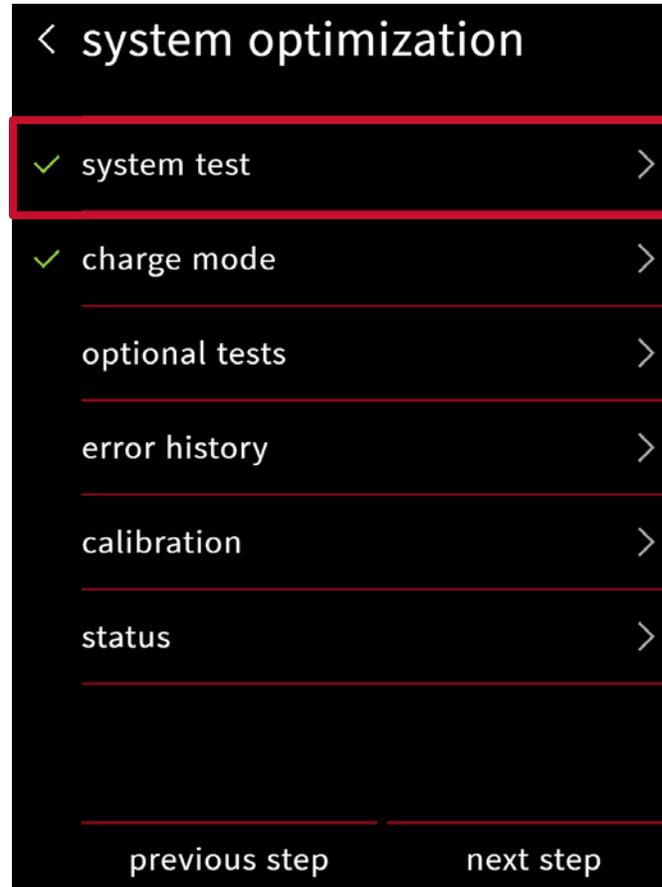
Full Set-up

Charge mode

- Selecting charge mode allows for a steady system operation to allow for refrigerant charging of the system via the suction charge port.

- The system will stop when the "stop test" button is pressed or once the test is complete.

Note: For proper charging of a system, please see equipment installation manual.
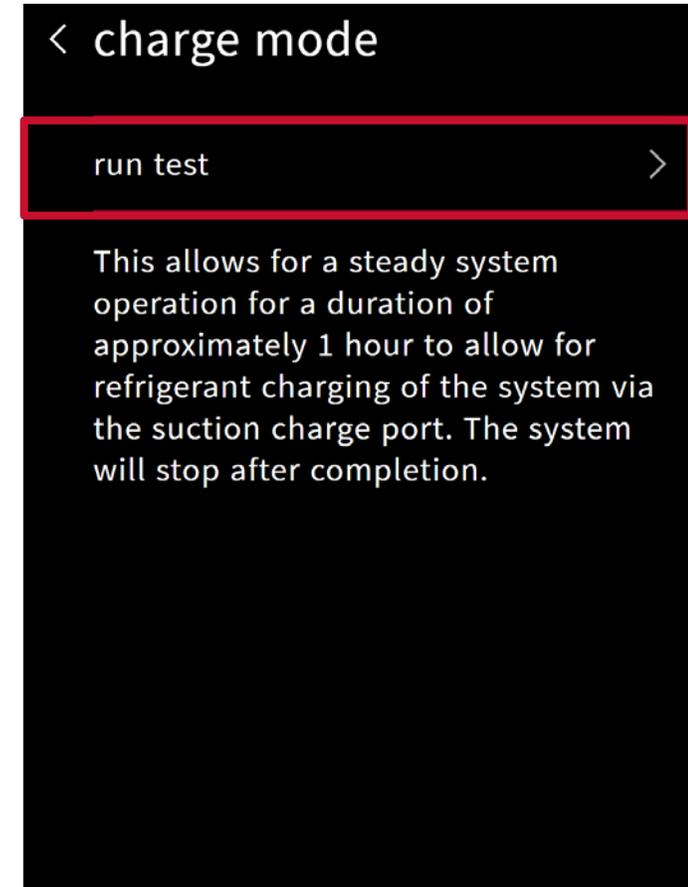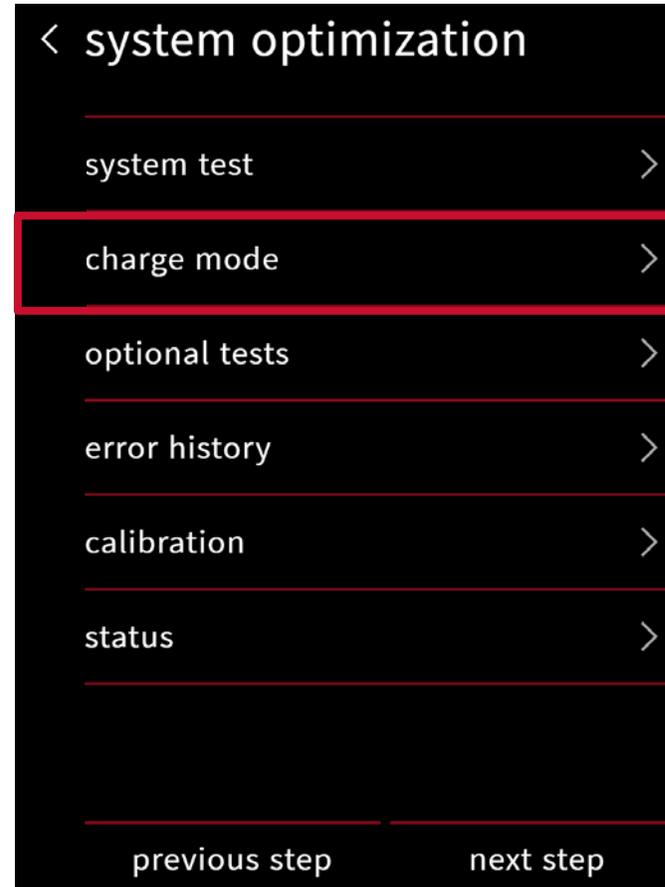
Optional tests

- Each optional test has a short description.
- Optional tests display a stop test button while test is running.
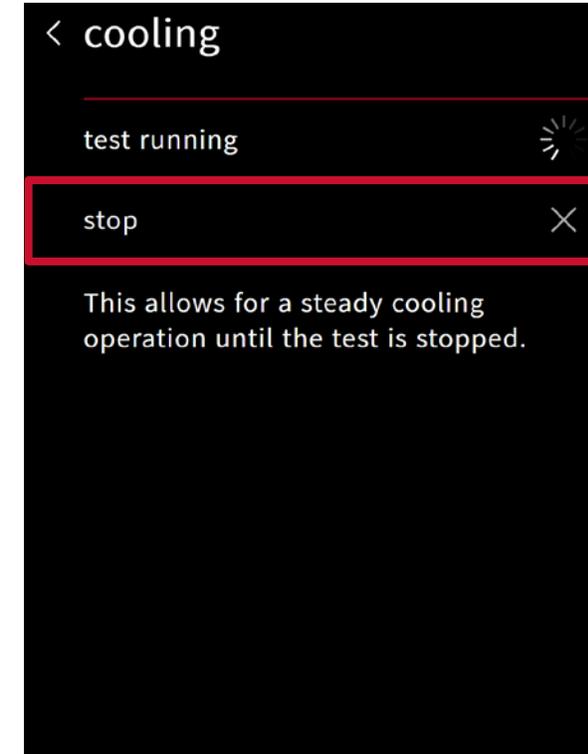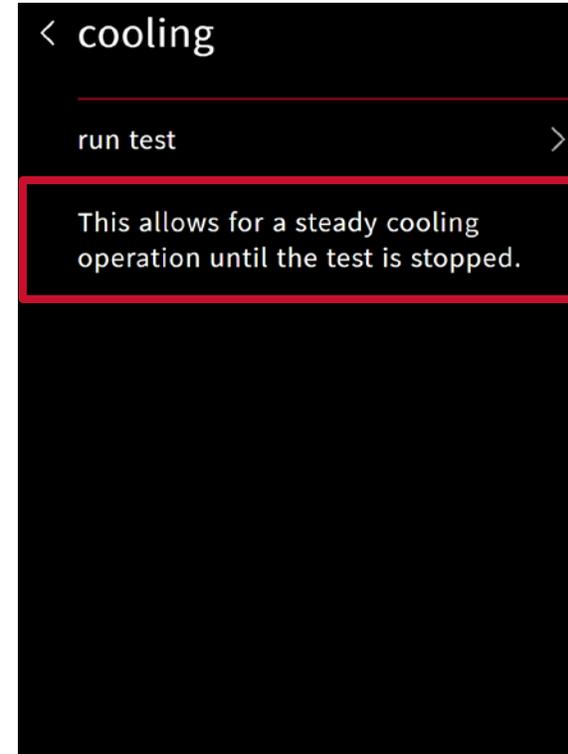
Note: Thermostat will only display tests that the system can perform.

Full Set-up

Status

- The status menu displays data pertaining to the selected equipment.

- The scrollable list can be accessed any time by returning to the installer set-up screen.
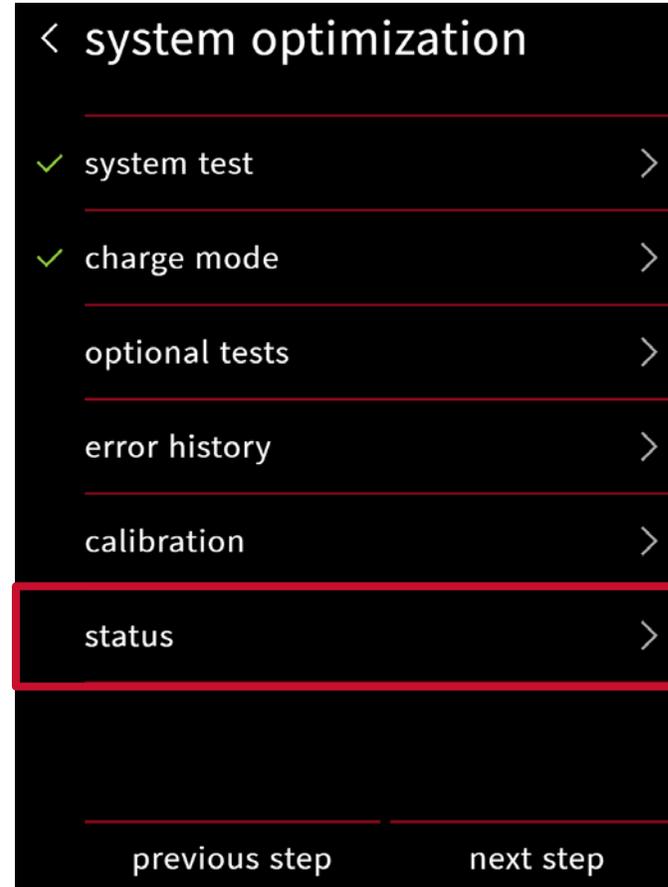
Full Set-up

Step 5 - preferences

- There are four preference settings to choose from in order to optimize your systems performance.
  - Cool/Heat
  - House settings
  - Dealer information
  - Reminders

Note: Changing preferences is not required, but reminders and dealer contact information should be inputted.
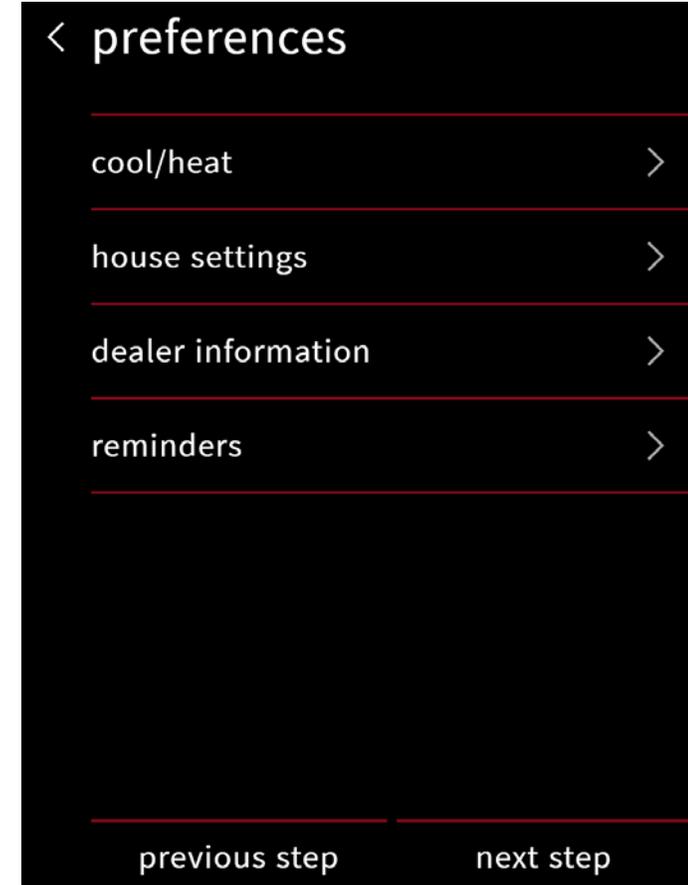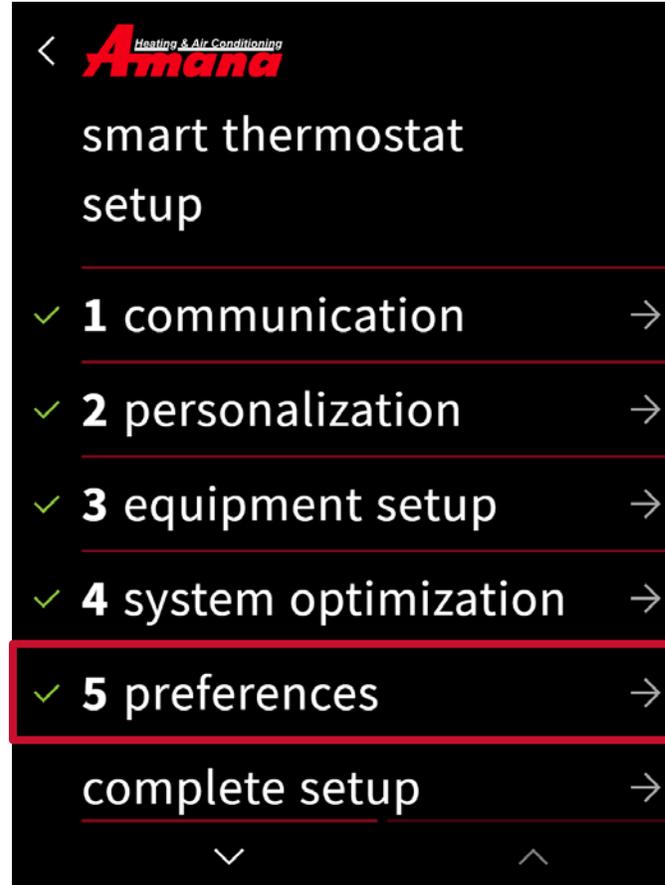
Full Set-up

Dealer information

- Selecting allows you to enter and review the dealer's information.
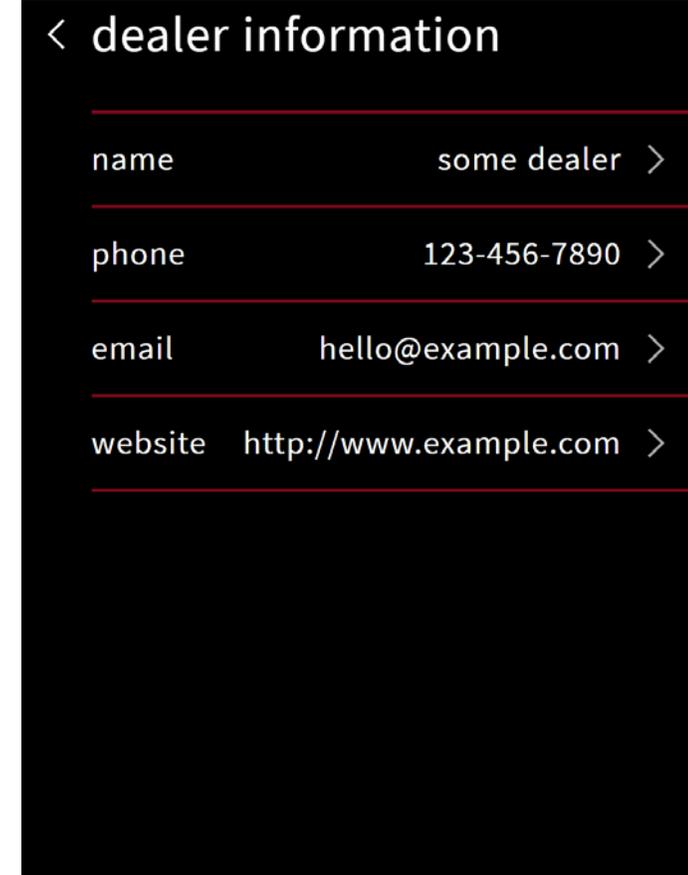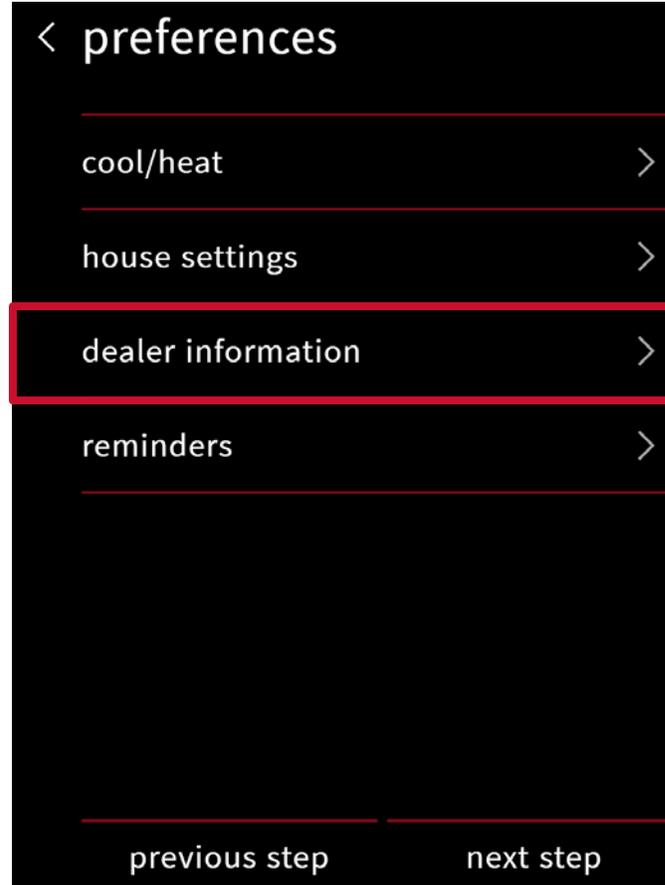
Reminders

- The number of reminders are based on the installed equipment with accessories.
- Once the equipment has been added, a **1 – 24-month** service reminder can be selected depending on the installed equipment.

Note: The homeowner can edit service reminders.

preferences	
cool/heat	>
house settings	>
dealer information	>
reminders	>

previous step   next step

reminders	
electronic filter	4 months >
HEPA filter	6 months >
media filter	3 months >
UV bulbs	24 months >
dehumidification filter	6 months >
service reminder	6 months >
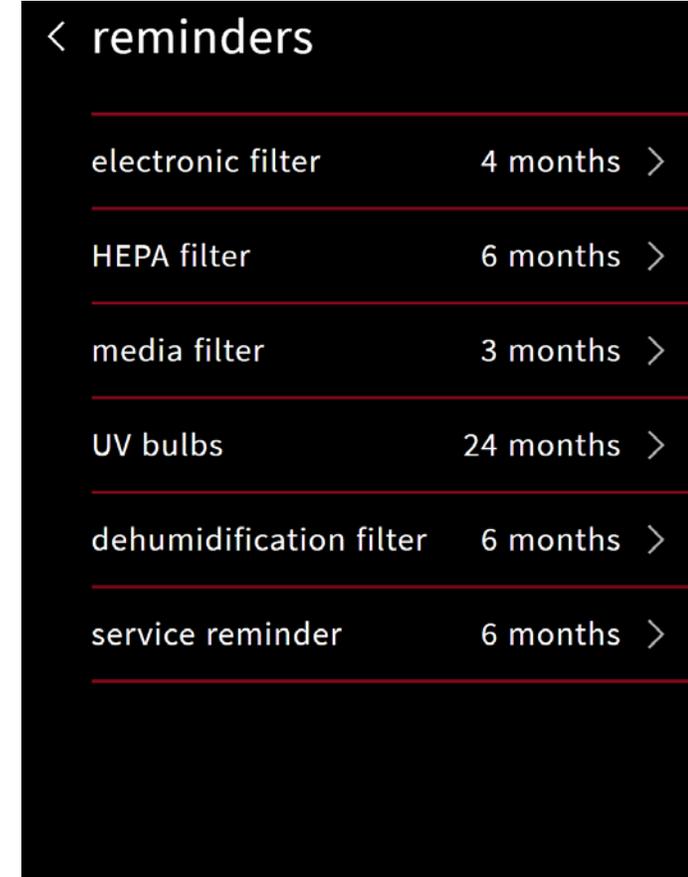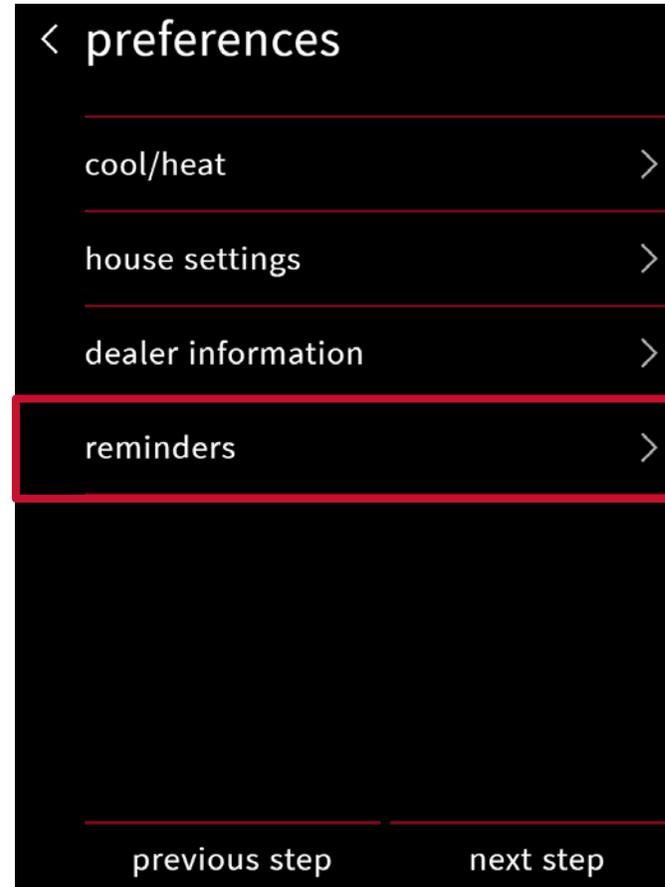
Full Set-up

Final step - complete set-up

- Selecting complete set-up will conclude the full set-up of the thermostat and display normal mode for you to navigate and verify settings.

Reminder: All steps must be reviewed before completing full set-up.
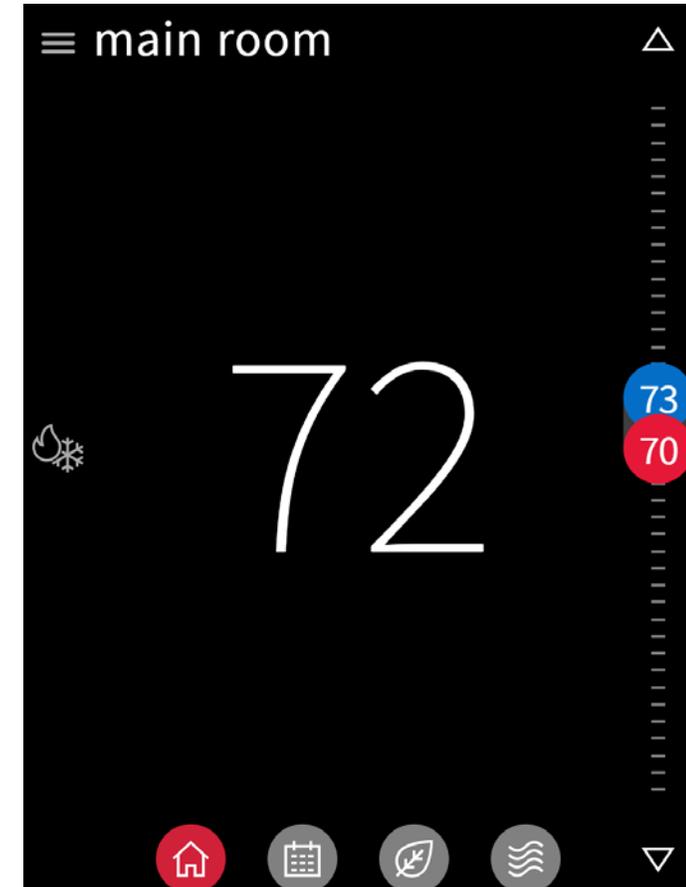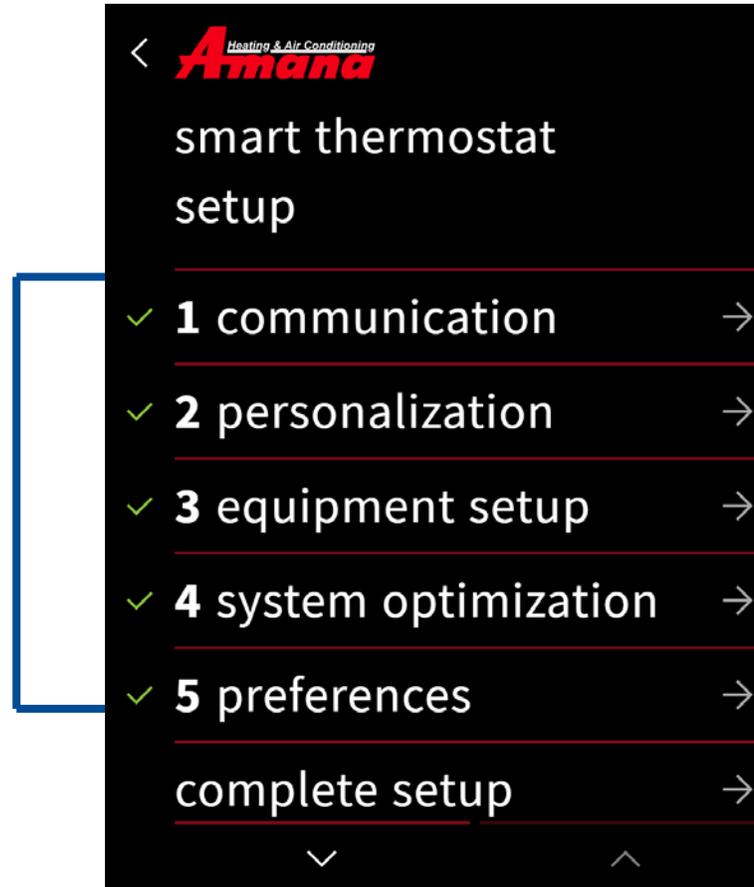
Agenda

Amana Smart Thermostat

System Configurations

Installing Amana Smart Thermostat

Commissioning Amana Smart Thermostat
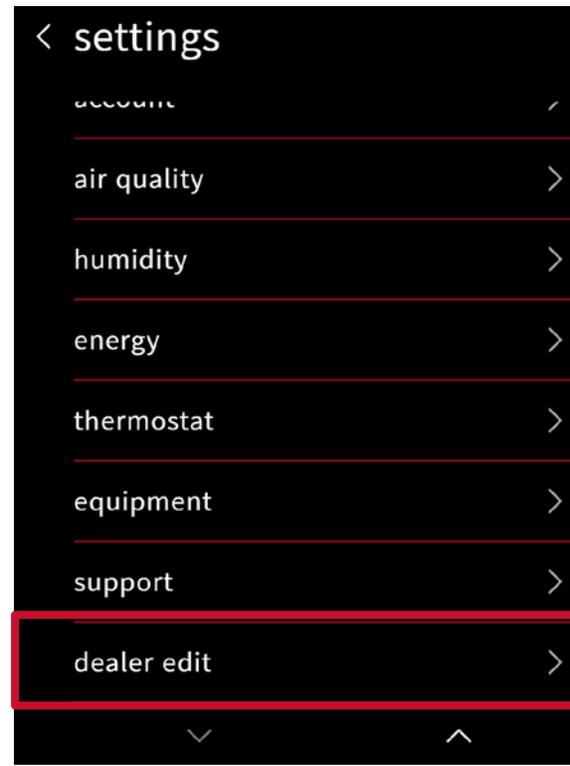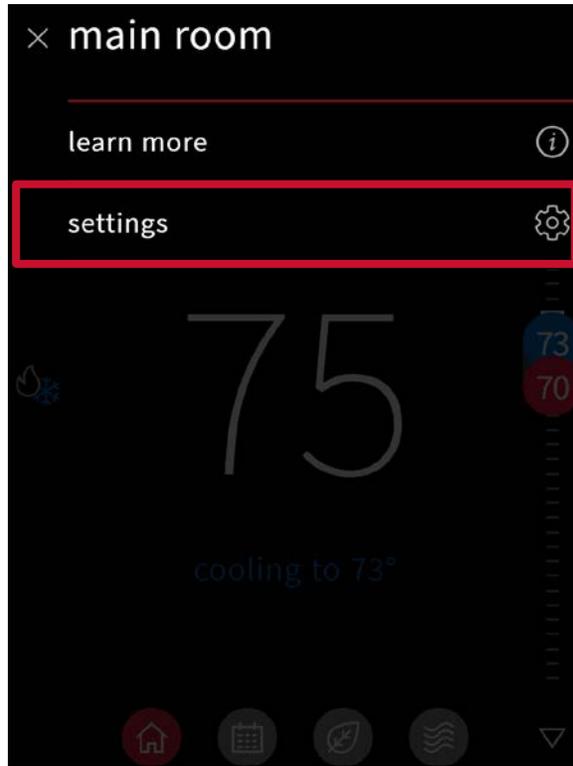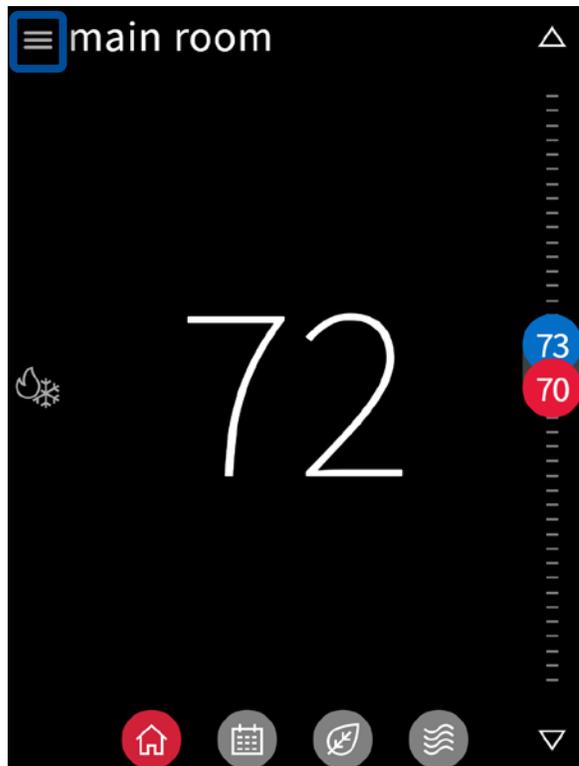
Full Set-up

Dealer Navigation

Homeowner Navigation

Mobile Apps

Amana
Heating & Air Conditioning

Dealer edit

- Navigating to **dealer edit** will allow you to access or revisit the installer set-up screen.

- Advanced adjustments to the Amana Smart Thermostat will be made here.
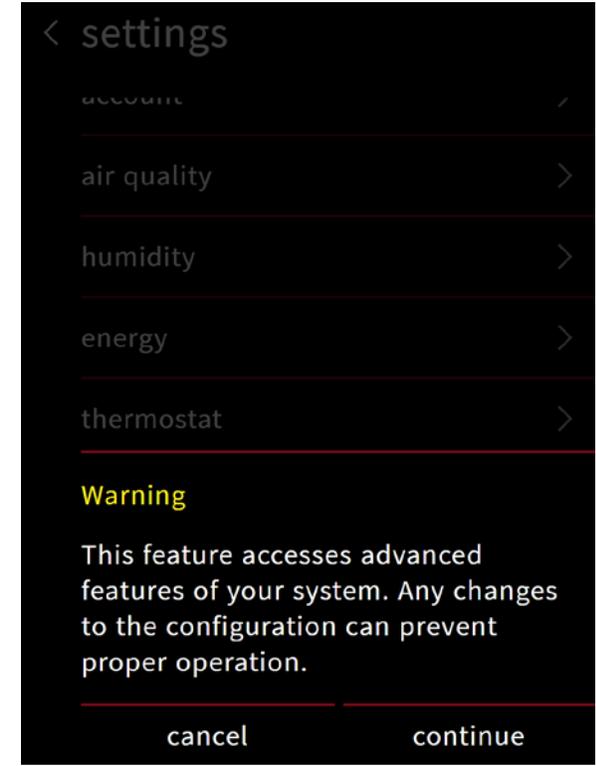
Dealer Navigation

- Acknowledging the prompt enables you to tap the learn more icon.

- The icon displays the installer code, giving you access to the installer set-up screens.
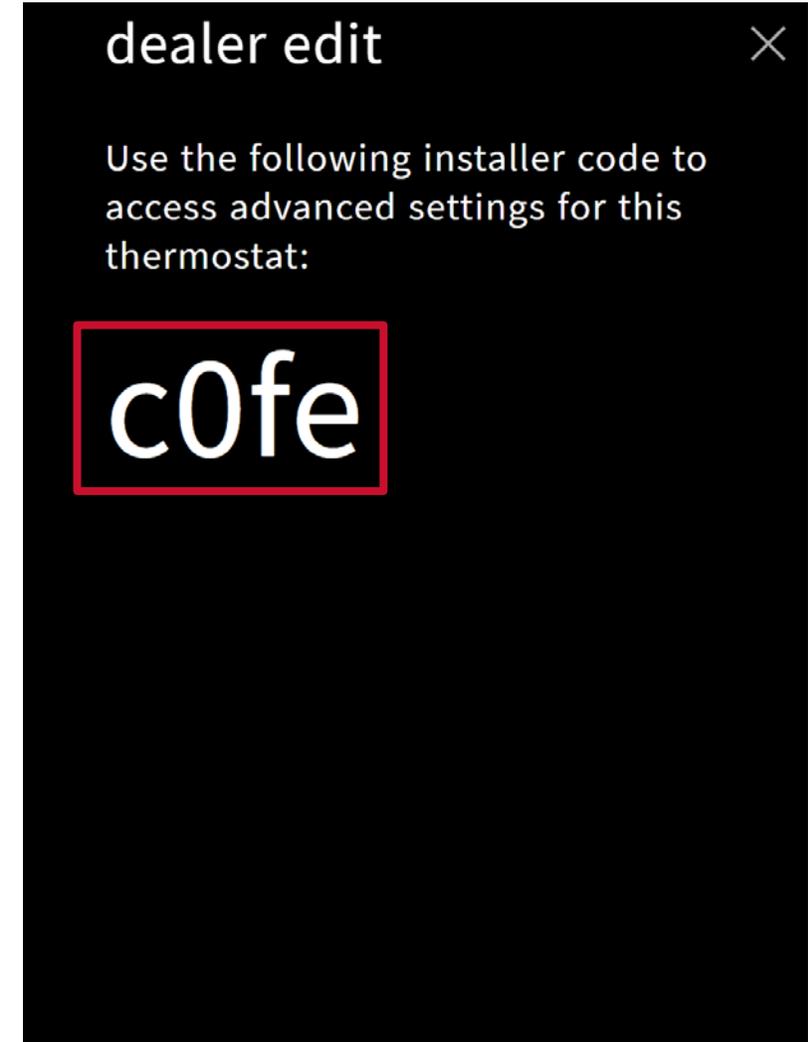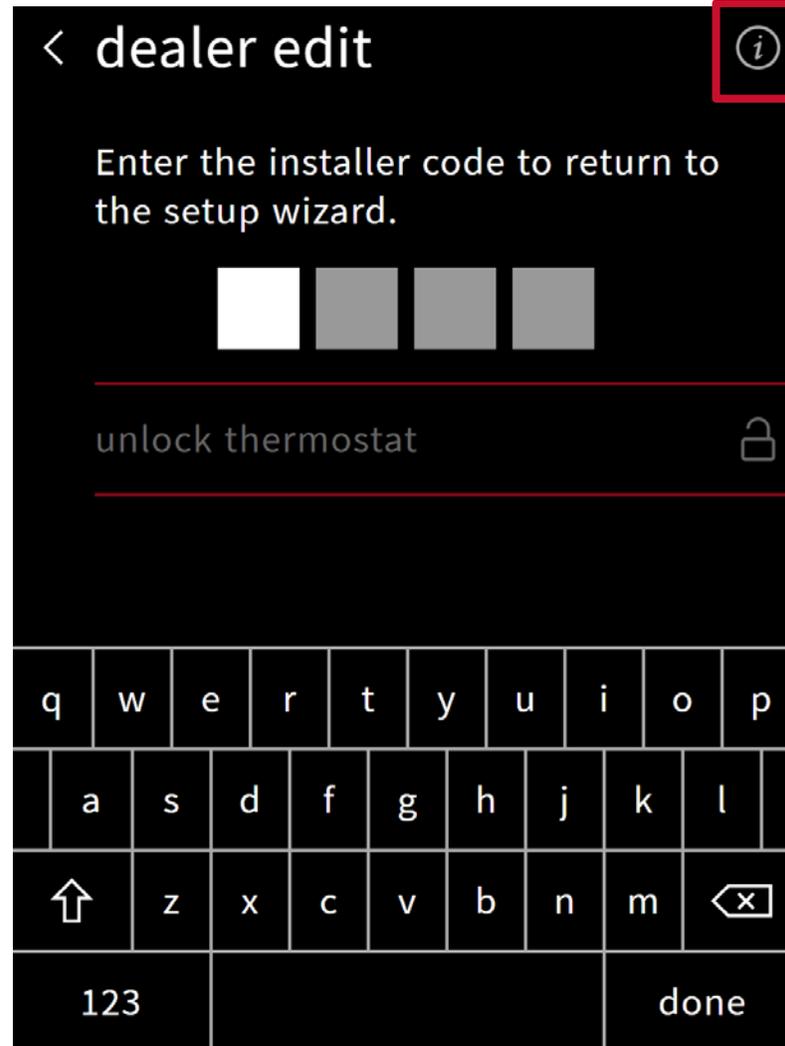
Agenda

Amana Smart Thermostat

System Configurations

Installing Amana Smart Thermostat

Commissioning Amana Smart Thermostat

Full Set-up

Dealer Navigation

Homeowner Navigation

Mobile Apps

Amana Heating & Air Conditioning

Normal mode

- Normal mode allows you to view messaging, temperature, and access settings to adjust parameters placed by the installer.

- Navigating is accomplished by tapping icons.
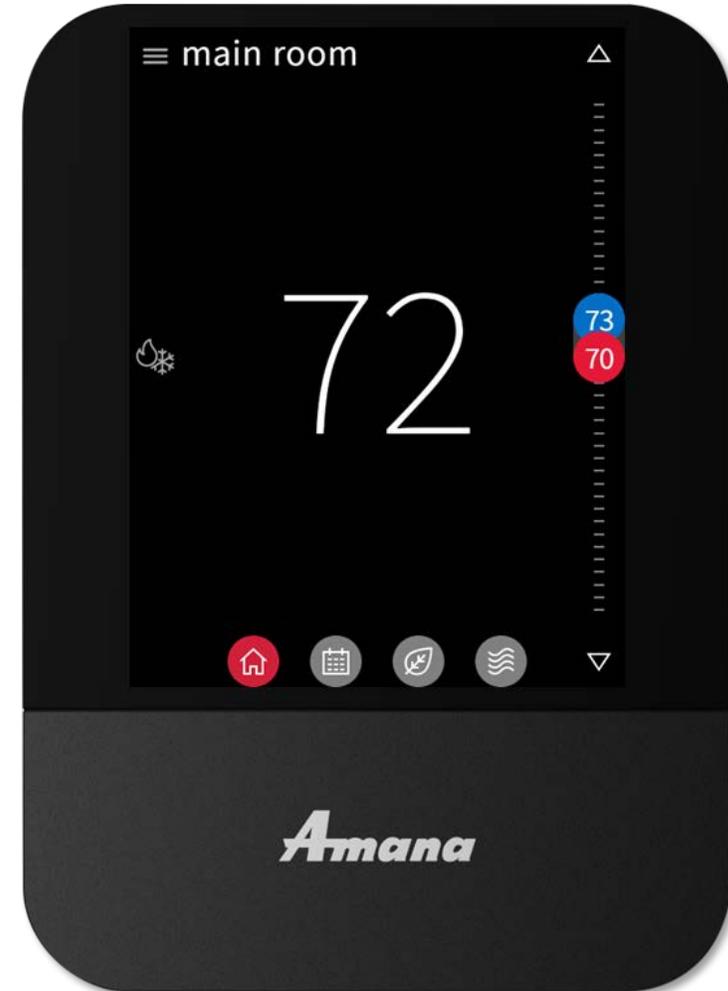
Homeowner Navigation

Adjust control

- Tapping the system mode icon allows you to select:
  - Auto. (cool & heat)
  - Cool.
  - Heat.
  - Off.
  - Emergency heat. (heat pump only)
- Tapping the arrow will adjust setpoints that are displayed. You can also tap, hold, and slide the setpoint icons to the desired temperature.

Arrows

System Mode Icon

≡ main room

72

73
70

Arrows
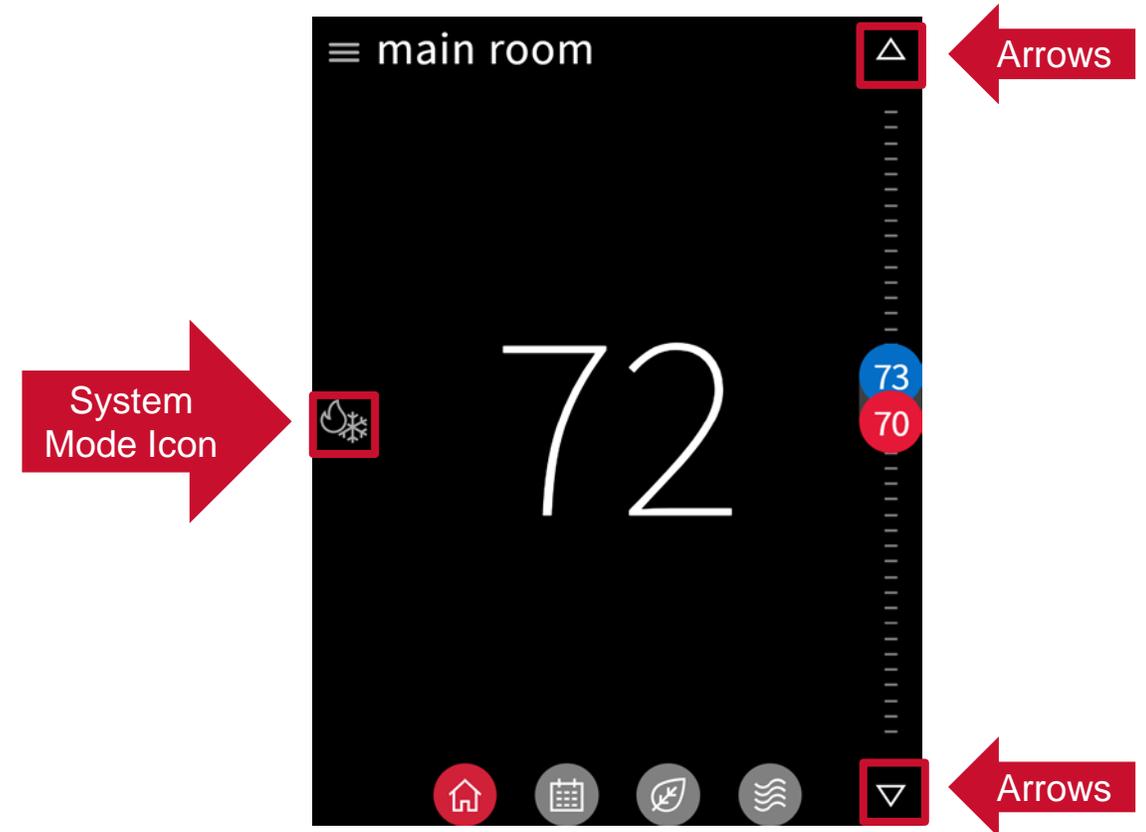
Schedule

- The schedule is presented as 7 days, displaying one day at a time, with 24 hours fitting on the screen.

  - 4 events can be scheduled in a 24-hour period.

- You can use the drop-down menu or swipe to enable schedule editing.

- Copy and paste is a feature that makes scheduling seamless.

Note: Unlike other screens, scheduling requires saving edits before exiting the mode.
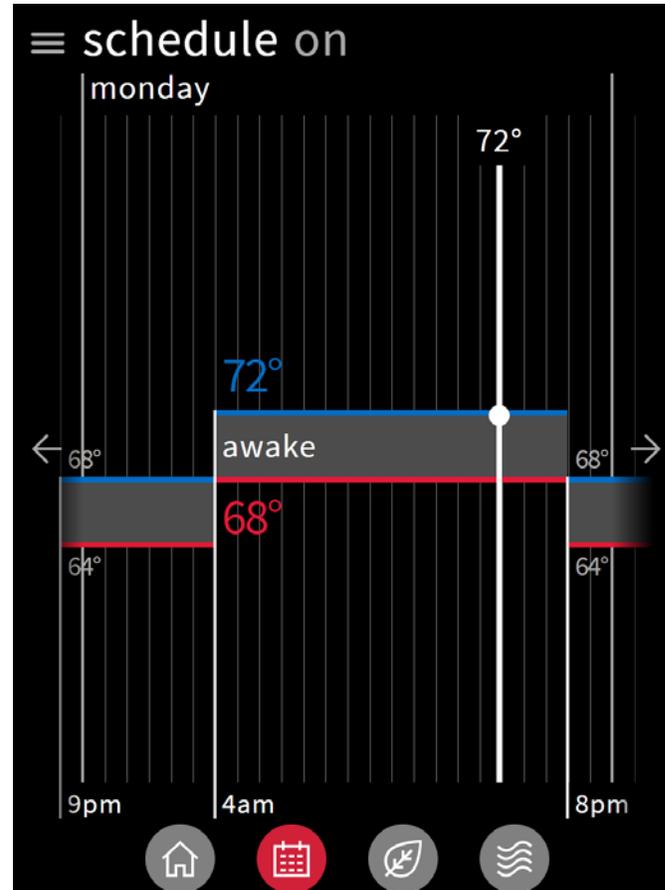
Away

- The away screen displays the current state (on/off) and the away cooling/heating setpoints used when away is on.

  - on/off is selected from drop down menu.

- User can change the values of the setpoints by dragging the numbers or the comfort range up and down.

- With the mobile application, enabling geo-fencing will automatically switch to away mode when **outside** the radius.

  - Settings must be configured in the mobile application.
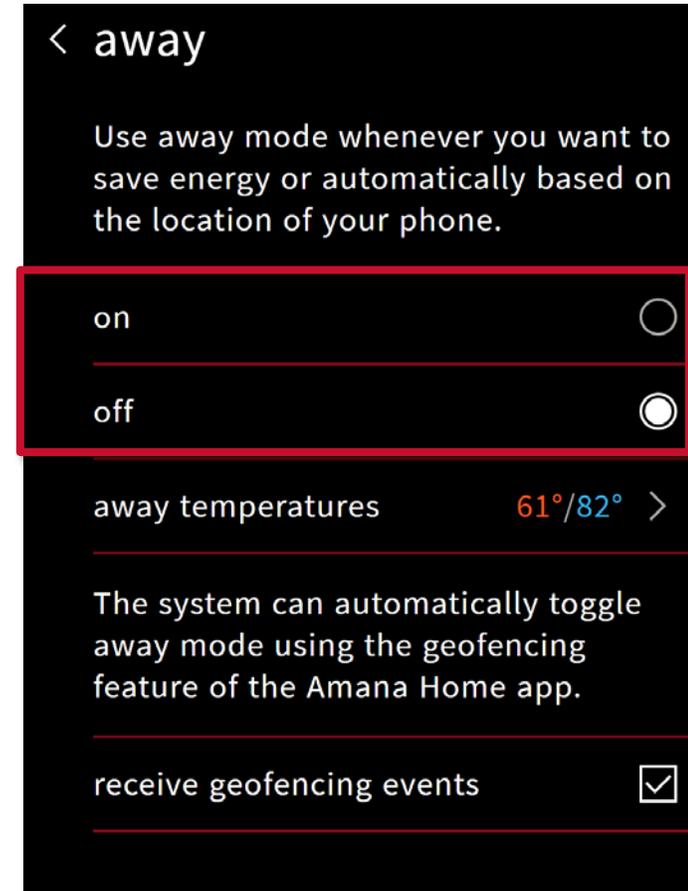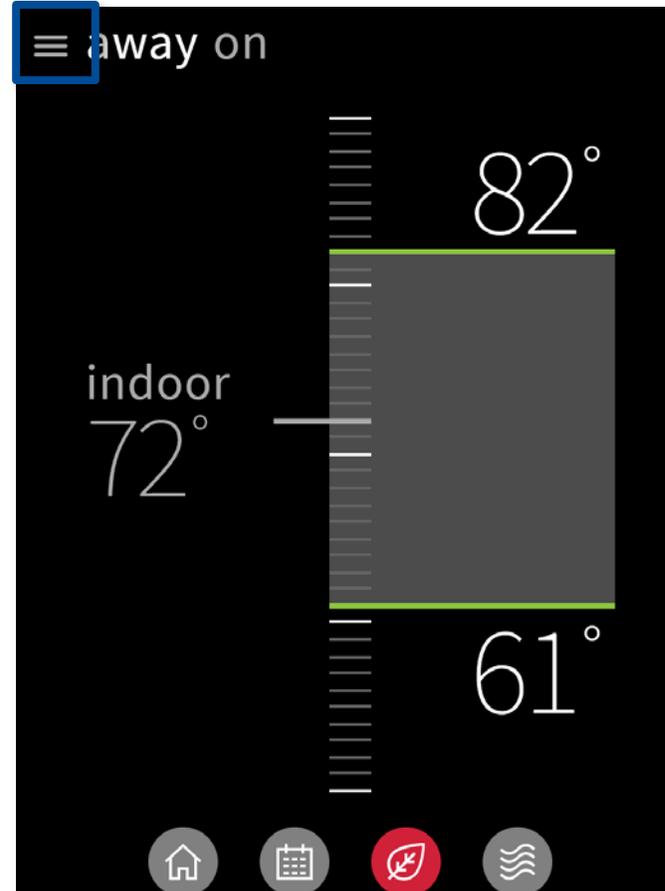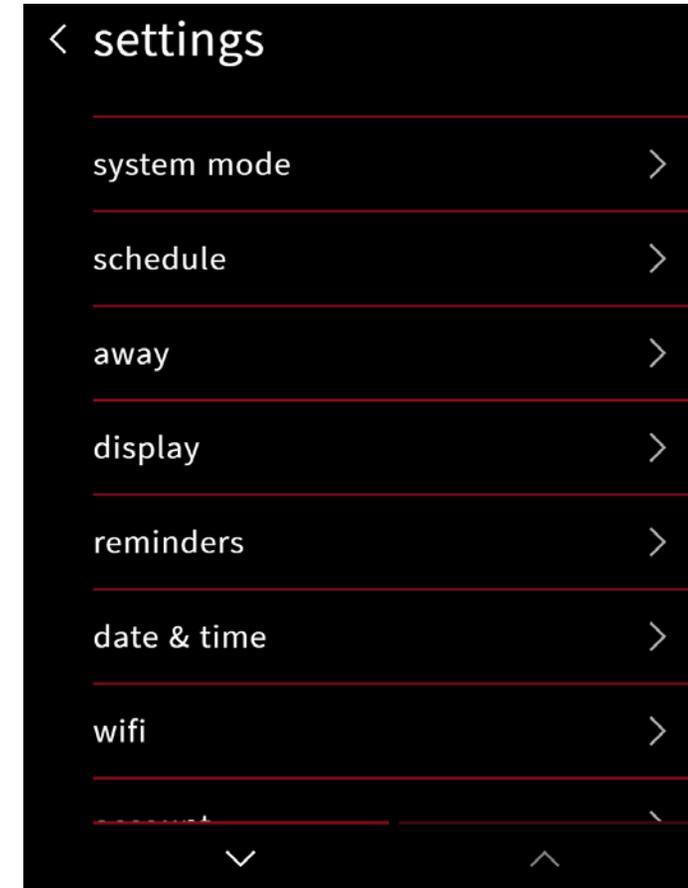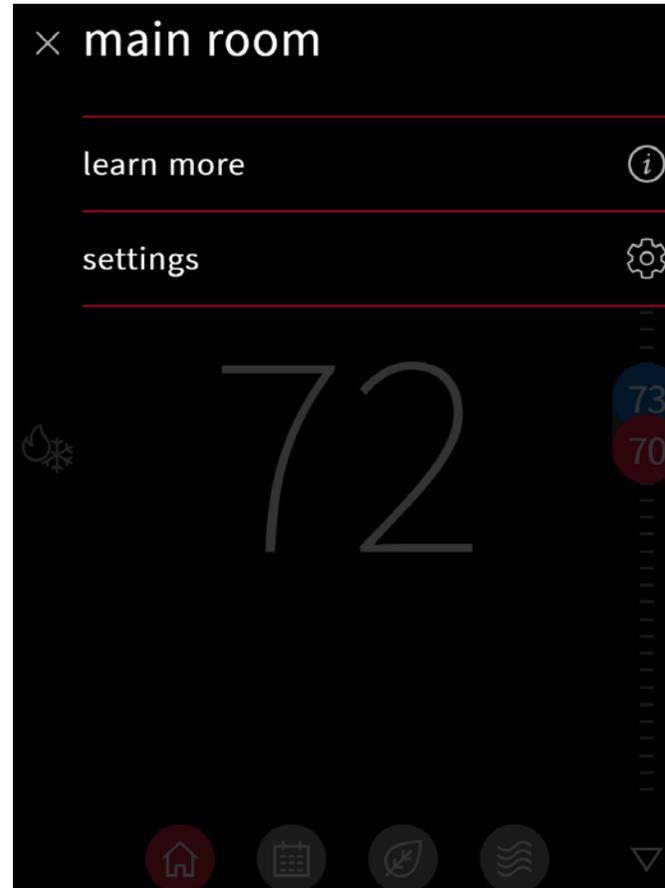
Homeowner Navigation

Air quality

- The air quality screen displays **indoor air** quality levels, **outdoor air** quality, and **weather** (when connected to the internet and paired with the app.)
  - The indoor air quality is based on filter life cycle and humidity values.
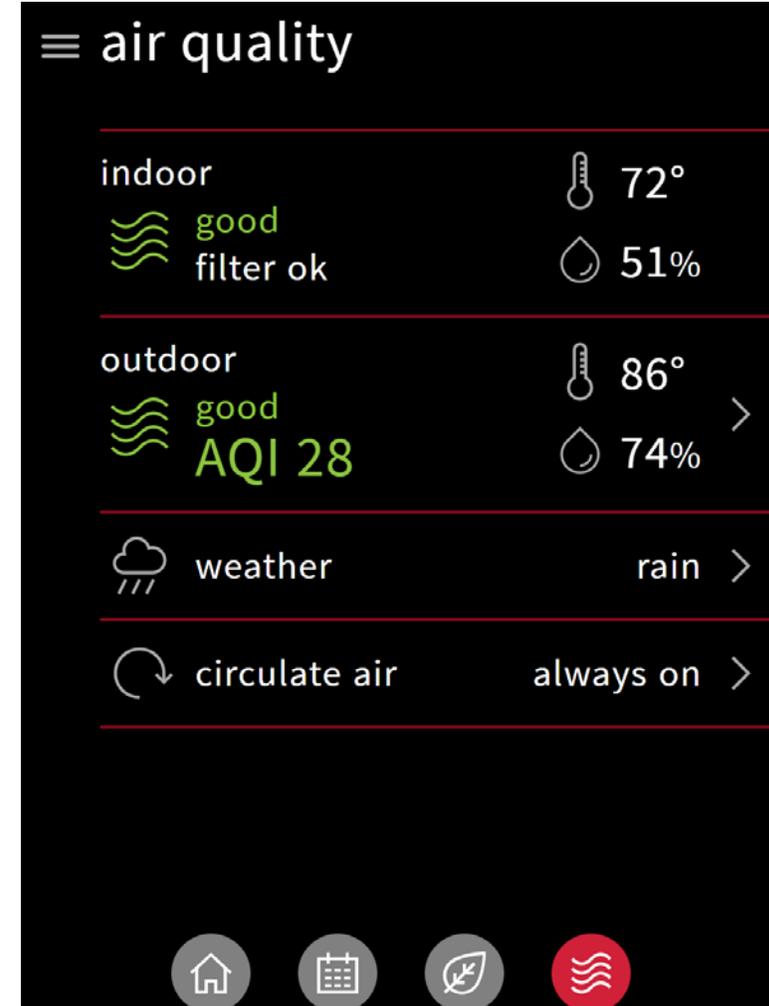
Homeowner Navigation

Settings

- Settings gives you access to additional supporting features:
  - Display.
    - Adjust and enable visual features.
  - Comfort.
    - Set target humidity.
  - Configuration.
    - App. account setup
    - Dealer information
    - Date & Time
    - Enable messages/view alerts
    - System components
    - Home Wi-Fi

Agenda

Amana Smart Thermostat

System Configurations

Installing Amana Smart Thermostat

Commissioning Amana Smart Thermostat

Full Set-up

Dealer Navigation

Homeowner Navigation

Mobile Apps

**Amana** Heating & Air Conditioning

- Setting up an account is a four-step process.

  1. Downloading the application from your IOS or Android application store.

     - Creating the account.

  2. Confirming your account.

  3. Adding the thermostats' location.

  4. Connecting the app to the thermostat.

Note: A **mobile device**, the **Amana Smart Thermostat** connected to **Wi-Fi** that is wired to a **communicating system** and a valid **email address** is needed to create a mobile account.
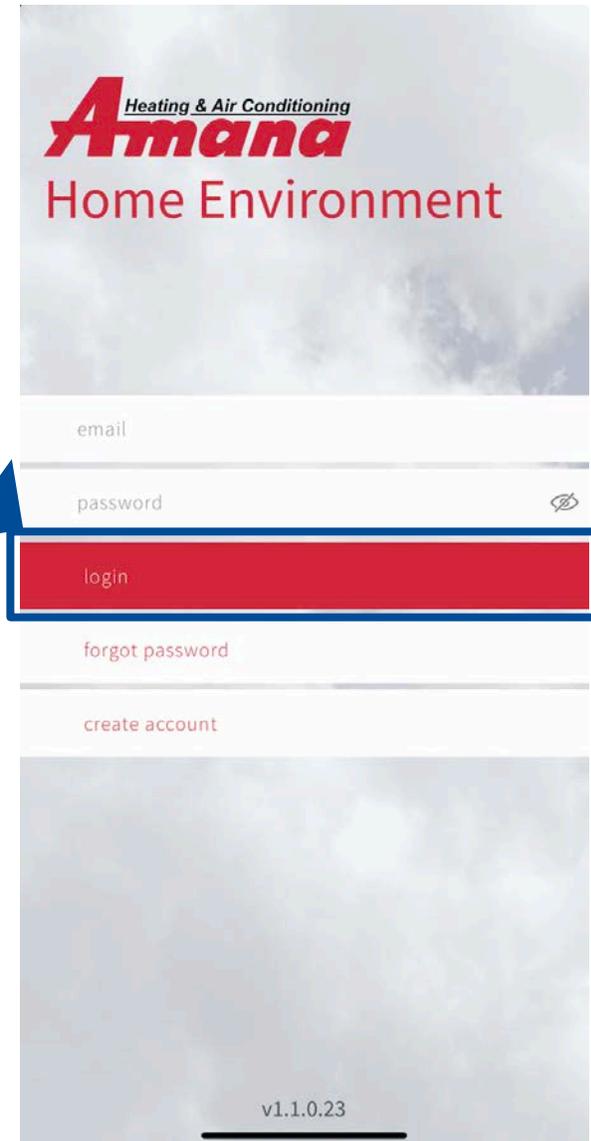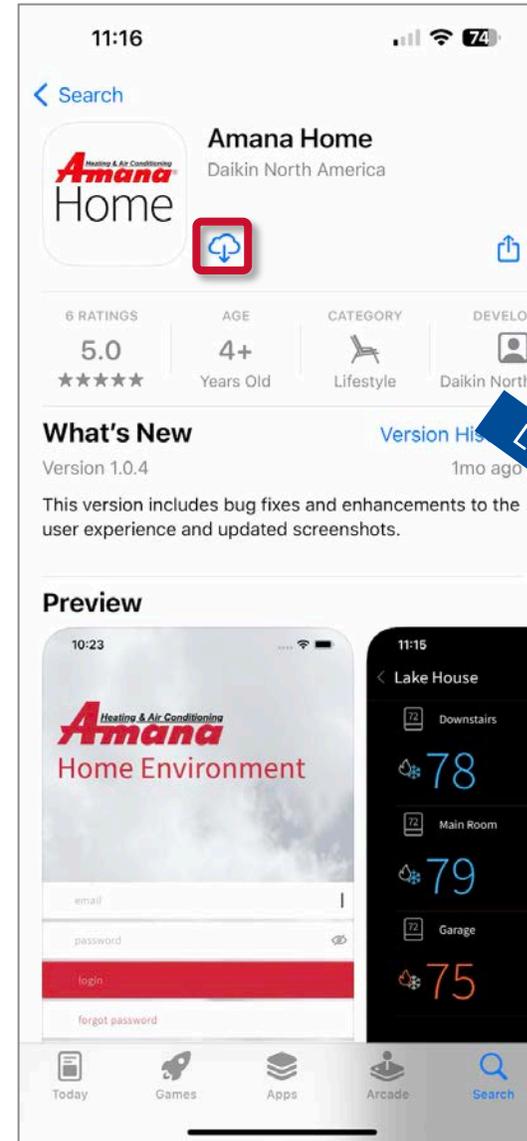
Step 1 - Create The Account

- Tapping create account button of the login screen will start the process.

- Before agreeing, read the terms and service, privacy statement, and other notices.

- Fill in your name, valid email address, and password.
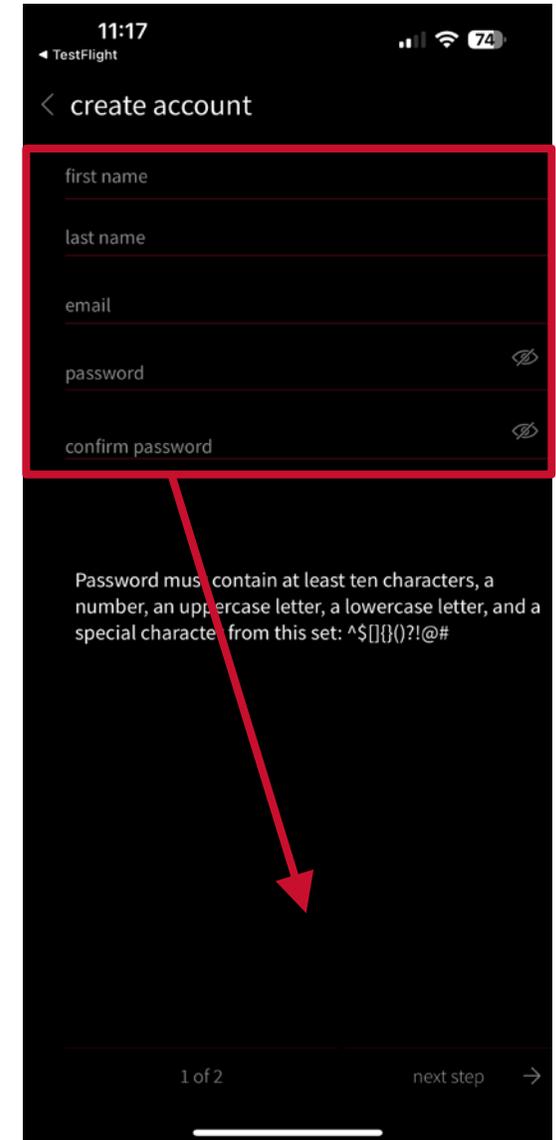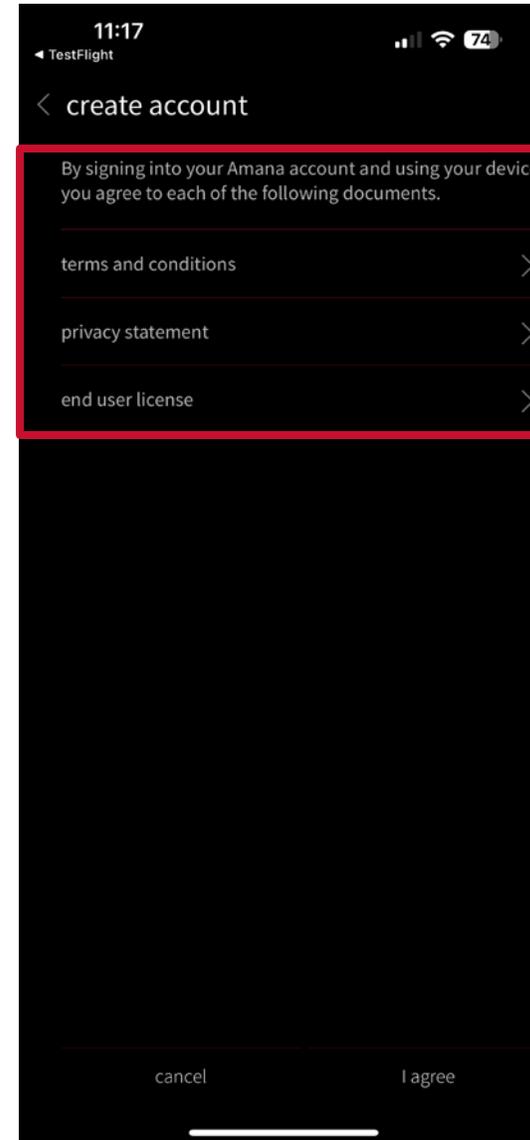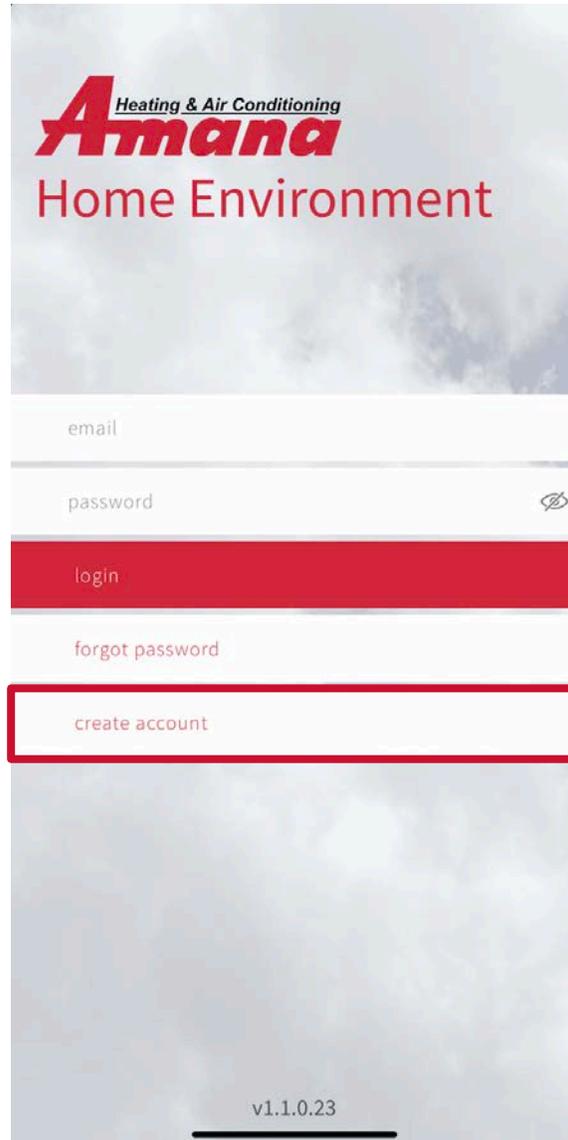
Step 2 - Confirming The Account

- You will be prompted to access the email address you provided when creating the account.

- A welcome email will appear in your inbox providing a six-digit code.

- Entering the six-digit code on your phone app. will allow you to continue.
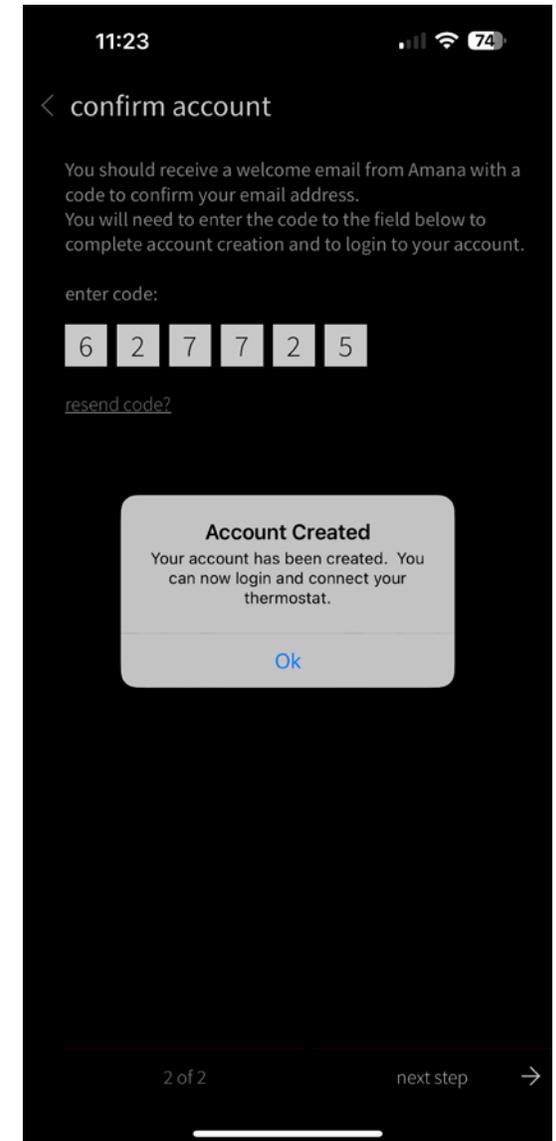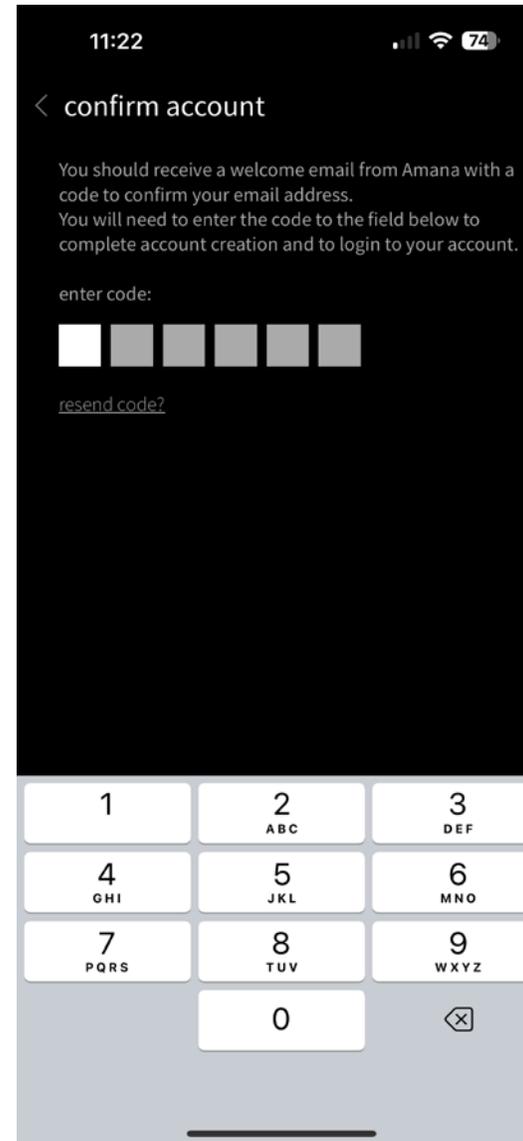
Step 3 - Adding The Thermostats Location

- Enter the email and password associated to your mobile account and tap the login button.
  - If you have forgotten your password, tap the forgot password link to recover information via email.
- Type the location name and address of where the thermostat is located to gather accurate information.
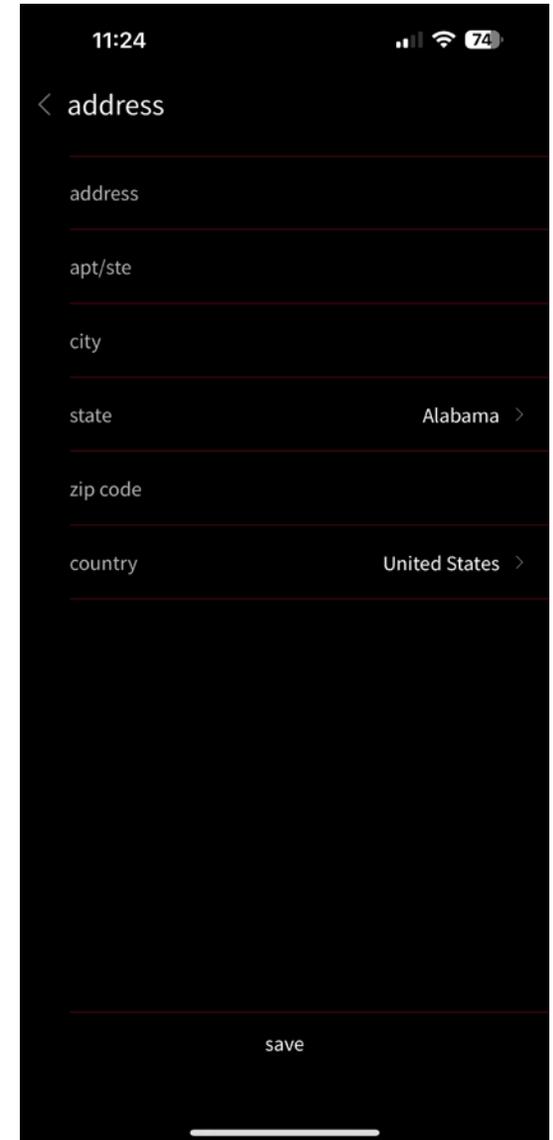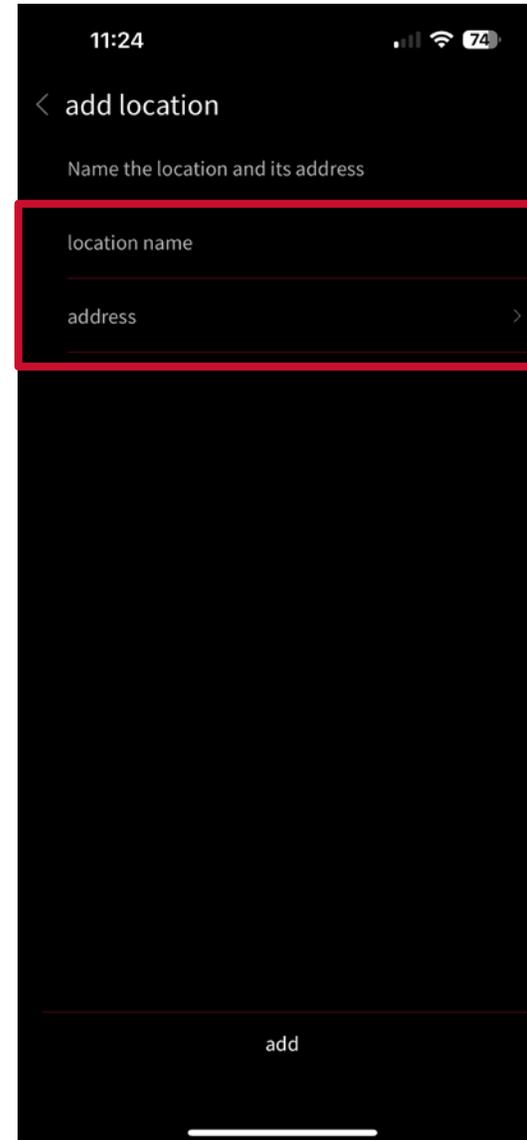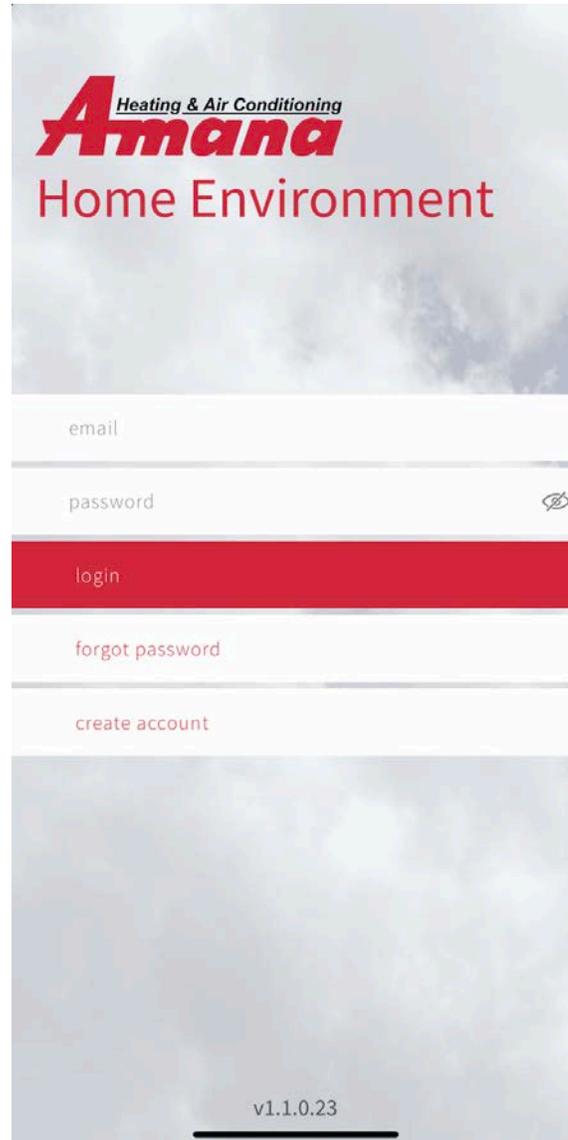
Step 4 - Connecting The App. To The Thermostat

- With Wi-Fi enabled on your thermostat, access your account to retrieve the six-digit code.

- Type the six-digit code displayed on your thermostat into the space provided on the mobile app.

- Tap connect to continue and operate the Amana Smart Thermostat from your mobile device.

Mobile App.
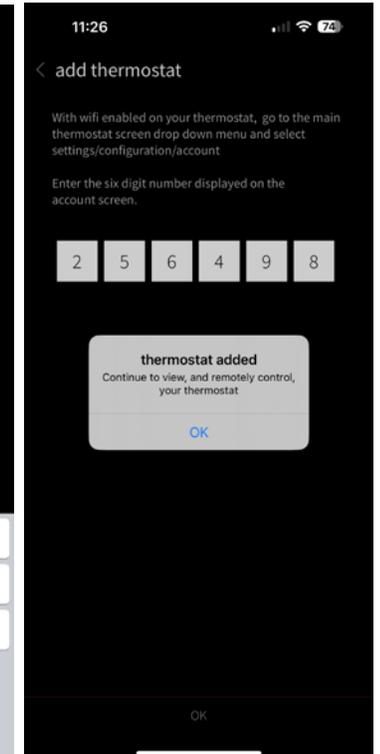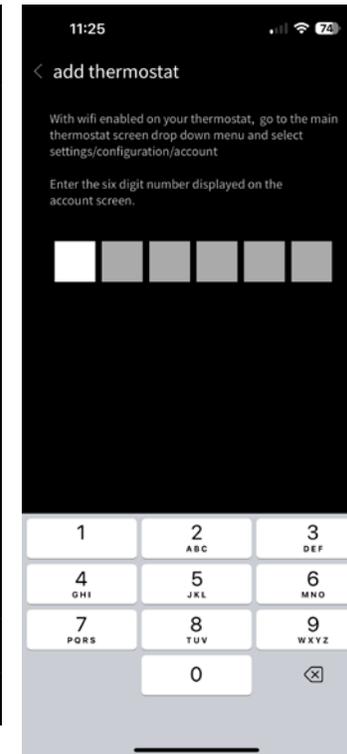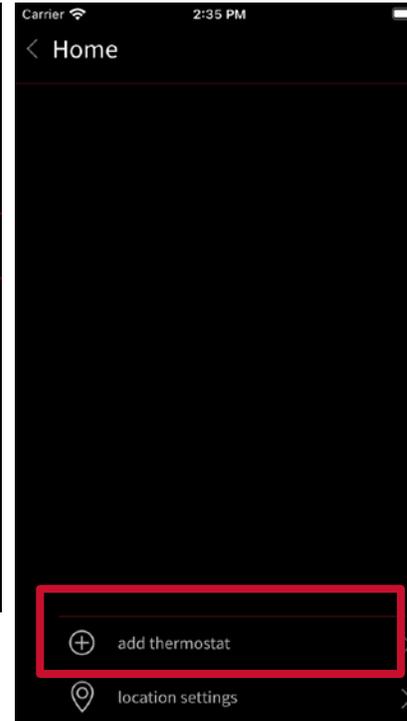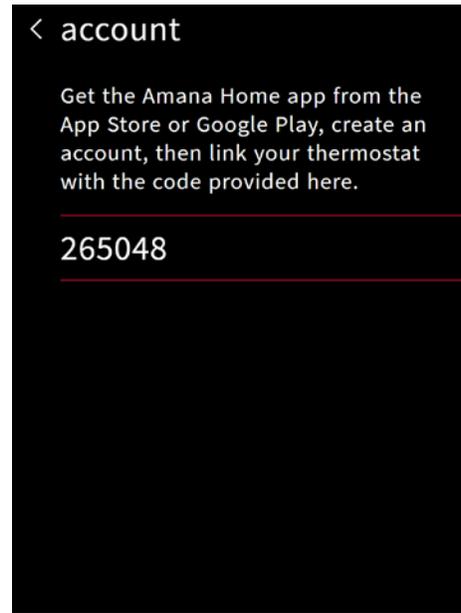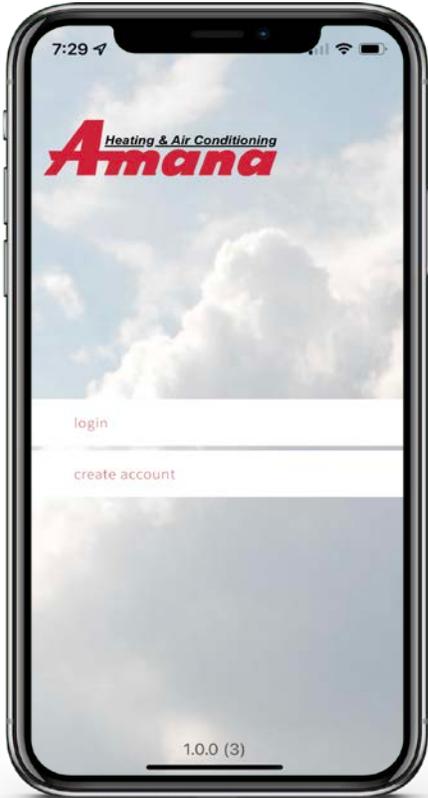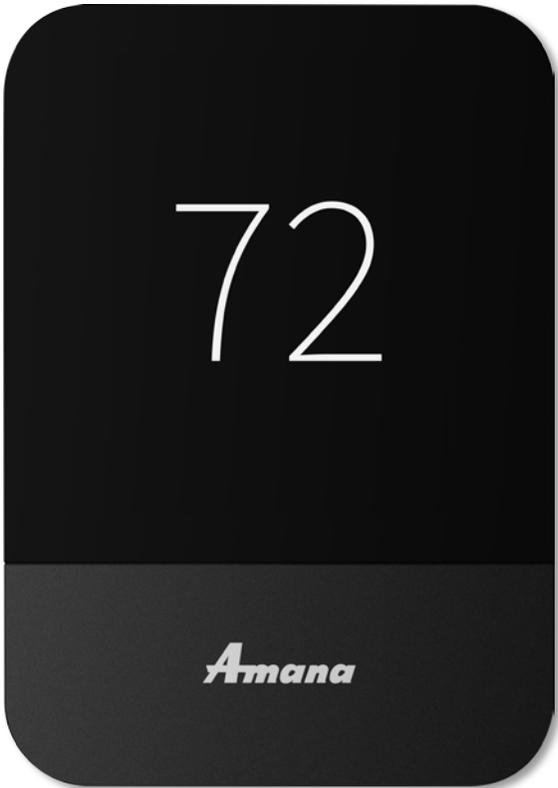
Visit https://amana-hac.com/resources *for additional information*

Assessment

TRC-9 Amana Smart Thermostat Installation & Commissioning

Rest assured.
It's an Amana® brand.

Assessment

1. When commissioning the Amana Smart Thermostat through full setup, what steps need to be reviewed before completing the setup?
   a) All steps. 🟢
   b) Communication and system optimization. 🔴
   c) Personalization, communication, and preferences. 🔴
   d) Equipment setup and communication. 🔴
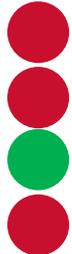
2. A _____ month service reminder can be selected depending on the installed equipment.
   a) 1-6. 🔴
   b) 1-9. 🔴
   c) 1-3. 🔴
   d) 1-24. 🟢

4. How high on an interior wall should the Amana Smart Thermostat be mounted?
   a) 3' 🔴
   b) 4' 🔴
   c) 5' 🟢
   d) 6' 🔴

Assessment

4. Communicating indoor units with a 4-pin connector supplied, will match ____ on the 4 pin with ____ on the indoor PCB.
   a) R, C, G, W1 / R, C, G, W1
   b) R, C, W1, Y1 / R, C, G, W1
   c) G, W1, W2, Y1 / 1, 2, R, C
   d) 1, 2, R, C / 1, 2, R, C

5. Do not install the Amana Smart Thermostat where it can be affected by radiant heat from the sun or appliances.
   a) True
   b) False

6. Measurement between data line 1 and 2 should read
   a) 0.06VDC
   b) 24VAC
   c) 0.6VAC
   d) 0.6VDC

Assessment

7. The maximum wire distance between the Amana Smart Thermostat and the indoor unit should not exceed 150 feet using 18-gauge wire.
    a) True 🔴
    b) False 🟢

8. At minimum, the system test should be run on inverter units before proceeding to complete the installation.
    a) True 🟢
    b) False 🔴

9. The unit that is identified determines the list of configurations that will be displayed.
    a) True 🟢
    b) False 🔴

Assessment

10. Which set-up tab allows you to add equipment?
    a) Personalization 🔴
    b) System optimization 🔴
    c) Equipment setup 🟢
    d) Communication 🔴

11. Wait __ minutes before calibration for the thermostat to equalize.
    a) 10 🔴
    b) 20 🔴
    c) 30 🟢
    d) 40 🔴

12. The system test can run for approximately _____ minutes.
    a) 2-4 🔴
    b) 4-6 🔴
    c) 5-10 🔴
    d) 5-15 🟢

Assessment

13. Which symbol indicates a step has been reviewed?
    a) !
    b) ✔
    c) #
    d) x

14. Once you start an optional test from the thermostat it cannot be stopped.
    a) True
    b) False

15. Error history logs alerts that are color coded, ___ being non-critical and ___being critical.
    a) Green, Yellow
    b) Blue, White
    c) White, Yellow
    d) Yellow, Red

Assessment

16. The version of the thermostat is displayed on the learn more screen.
    a) True. 🟢
    b) False. 🔴

17. What is needed to create a mobile account?
    a) The Amana Smart Thermostat, a Tablet, and a valid email address. 🔴
    b) A mobile device, the Amana Smart Thermostat connected to Wi-Fi that is wired to a communicating system and a valid email address is needed to create a mobile account. 🟢
    c) An indoor unit, an outdoor unit and the Amana Smart Thermostat. 🔴
    d) A mobile device connected to connected to Wi-Fi, an indoor unit and an outdoor unit. 🔴

Amana

Heating & Air Conditioning

DAIKIN