Installer’s Guide

Smart Thermostat

*CONT24P

⚠ SAFETY WARNING

Only qualified personnel should install and service the equipment. The installation, starting up, and servicing of heating, ventilating, and air-conditioning equipment can be hazardous and requires specific knowledge and training. Improperly installed, adjusted or altered equipment by an unqualified person could result in death or serious injury. When working on the equipment, observe all precautions in the literature and on the tags, stickers, and labels that are attached to the equipment.

May 2026

CNTR-SVN004A-EN

Introduction

There are a lot of choices when it comes to buying a thermostat, but only one combines 100 years of HVAC experience and the latest connected home technology to empower your customers to take control of their comfort from anywhere. We proudly connect you to a professional-grade thermostat that you can offer your customers with confidence and that will keep you connected with them even after the initial install.

Warnings, Cautions, and Notices

Safety advisories appear throughout this manual as required. Your personal safety and the proper operation of this machine depend upon the strict observance of these precautions.

The three types of advisories are defined as follows:

⚠ WARNING	Indicates a potentially hazardous situation which, if not avoided, could result in death or serious injury.
⚠ CAUTION	Indicates a potentially hazardous situation which, if not avoided, could result in minor or moderate injury. It could also be used to alert against unsafe practices.
NOTICE	Indicates a situation that could result in equipment or property-damage only accidents.

Important Environmental Concerns

Scientific research has shown that certain man-made chemicals can affect the earth's naturally occurring stratospheric ozone layer when released to the atmosphere. In particular, several of the identified chemicals that may affect the ozone layer are refrigerants that contain Chlorine, Fluorine and Carbon (CFCs) and those containing Hydrogen, Chlorine, Fluorine and Carbon (HCFCs). Not all refrigerants containing these compounds have the same potential impact to the environment. Trane advocates the responsible handling of all refrigerants.

Important Responsible Refrigerant Practices

Trane believes that responsible refrigerant practices are important to the environment, our customers, and the air conditioning industry. All technicians who handle refrigerants must be certified according to local rules. For the USA, the Federal Clean Air Act (Section 608) sets forth the requirements for handling, reclaiming, recovering and recycling of certain refrigerants and the equipment that is used in these service procedures. In addition, some states or municipalities may have additional requirements that must also be adhered to for responsible management of refrigerants. Know the applicable laws and follow them.

⚠ WARNING

Proper Field Wiring and Grounding Required!

Failure to follow code could result in death or serious injury.

All field wiring MUST be performed by qualified personnel. Improperly installed and grounded field wiring poses FIRE and ELECTROCUTION hazards. To avoid these hazards, you MUST follow requirements for field wiring installation and grounding as described in NEC and your local/state/national electrical codes.

⚠ WARNING

Personal Protective Equipment (PPE) Required!

Failure to wear proper PPE for the job being undertaken could result in death or serious injury.

Technicians, in order to protect themselves from potential electrical, mechanical, and chemical hazards, MUST follow precautions in this manual and on the tags, stickers, and labels, as well as the instructions below:

- **Before installing/servicing this unit, technicians MUST put on all PPE required for the work being undertaken (Examples; cut resistant gloves/ sleeves, butyl gloves, safety glasses, hard hat/ bump cap, fall protection, electrical PPE and arc flash clothing). ALWAYS refer to appropriate Safety Data Sheets (SDS) and OSHA guidelines for proper PPE.**
- **When working with or around hazardous chemicals, ALWAYS refer to the appropriate SDS and OSHA/GHS (Global Harmonized System of Classification and Labelling of Chemicals) guidelines for information on allowable personal exposure levels, proper respiratory protection and handling instructions.**
- **If there is a risk of energized electrical contact, arc, or flash, technicians MUST put on all PPE in accordance with OSHA, NFPA 70E, or other country-specific requirements for arc flash protection, PRIOR to servicing the unit. NEVER PERFORM ANY SWITCHING, DISCONNECTING, OR VOLTAGE TESTING WITHOUT PROPER ELECTRICAL PPE AND ARC FLASH CLOTHING. ENSURE ELECTRICAL METERS AND EQUIPMENT ARE PROPERLY RATED FOR INTENDED VOLTAGE.**

⚠ WARNING

Follow EHS Policies!

Failure to follow instructions below could result in death or serious injury.

- **All Trane personnel must follow the company's Environmental, Health and Safety (EHS) policies when performing work such as hot work, electrical, fall protection, lockout/tagout, refrigerant handling, etc. Where local regulations are more stringent than these policies, those regulations supersede these policies.**
- **Non-Trane personnel should always follow local regulations.**

⚠ WARNING

Cancer and Reproductive Harm!

This product can expose you to chemicals, including lead, which are known to the State of California to cause cancer and birth defects or other reproductive harm. For more information go to www.P65Warnings.ca.gov.

⚠ WARNING

Safety Hazard!

Failure to follow instructions below could result in death or serious injury or property damage.

This unit is not to be used by persons (including children) with reduced physical, sensory, or mental capabilities, or lack of experience and knowledge, unless they have been given supervision or instruction concerning the use of the appliance by a person responsible for their safety.

Do not allow children to play or climb on the unit or to clean or maintain the unit without supervision.

⚠ WARNING

Out of Phase Transformers!

Failure to follow instructions could result in equipment damage or personal injury.

On two transformer systems, the transformers MUST be in phase to maintain proper function. Measure the voltage across RC and RH. If more than 12 Volts AC is present between RC and RH, then the transformers are NOT in phase. To correct this condition, reverse the secondary low voltage connections at either the Heating or Cooling transformer.

⚠ WARNING

Electrical Shock Hazard!

Failure to follow instructions below could result in death or serious injury.

Disconnect electrical power before starting installation or servicing, and leave power disconnected until installation or service is completed.

⚠ WARNING

Voltage Requirements!

Failure to follow instructions could result in equipment damage or personal injury.

Do not use on circuits exceeding specified voltage. Higher voltage will damage control and could cause shock or fire hazard. Thermostat installation and all components of the control system shall conform to Class II circuits per the NEC code.

⚠ WARNING

Safety Hazard!

Failure to follow instructions below could result in death or serious injury.

All phases of the installation must conform to NATIONAL, STATE, AND LOCAL CODES. For additional information, please contact your local distributor.

Important: *MERCURY NOTICE*

This product does not contain mercury. However, this product may replace a product that contains mercury. Mercury and products containing mercury must not be discarded in household trash. Refer to thermostat-recycle.org for location to send product containing mercury.

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Table of Contents

General

Contents

- Smart thermostat
- Screws and anchors
- Quick Start guide
- Sub-base

For wi-fi connection:

- The homeowner’s compatible iOS or Android device
- Your customer’s Wi-Fi network name (SSID) and password

Compatibility

Table 1. Mobile device compatibility

Operating System	Compatibility
iOS	Yes
Android	Yes

Table 2. Smart home platform compatibility

Operating System	Compatibility
Amazon Alexa	Yes
Google Assistant	Yes

Table 3. Router compatibility

Router Type	Compatibility
Single-band router with 2.4 GHz or 5.0 GHz band	Yes
Dual-band router with 2.4 and/or 5.0 GHz bands	Yes

HVAC System Compatibility and Configuration

System Type(s):

- Conventional gas/electric, heat pump, and dual fuel systems
- Conventional boiler systems (froced air and radiant)
- Conventional HVAC system: 2 Heat / 2 Cool
- Heat pump systems: Up to 5 stages heat / 2 stages cool (3 stages of auxiliary heat - 2 compressor stages)
- Heat pump switchover valve: selectable "with cool or with heat"

Specifications

Table 4. *CONT24P1S52DA

Specification	Description
Dimensions	3.434" w x 5.714" h x 0.872" d
Touchscreen Display	2.163" w x 3.801" h (4.360 diagonal)
Configurations	Heat Pump, Heat/Cool, Dual Fuel, Heat Only, Cooling Only
Maximum Number of Stages	5 Stages Heat, 2 Stages Cooling
Storage/Operating Temperature	-40°F to 175°F, 0% to 90% RH non-condensing
Input Power	24 VAC
Power Consumption	3.6W average typical, 4.32W peak typical (at 24VAC)
Wire Usage	18 AWG
System Modes	Auto, Heating, Cooling, Off, Emergency Heat
Fan Modes	Auto, On, Circulate
Auxilliary Heat Lockout	25°F to 70°F, 1F resolution
Compressor Heat Lockout	5°F to 70°F, 5F resolution
Cooling Setpoint Temperature Range	60°F to 99°F, 1F resolution
Heating Setpoint Temperature Range	55°F to 90°F, 1F resolution
Indoor Temperature Display Range	32˚F to 99˚F (with 0˚F indoor temperature offset)
Outdoor Temperature Display Range	-35°F to 140°F (with 0˚F indoor temperature offset)
Indoor Humidity Display Range	0% to 100%, 1% resolution
Minimum Cycle Off Time Display	Compressor: 5 minutes

Features

- Wi-Fi: 2.4 Ghz and 5 Ghz dual-band, Wi-Fi 6 compatible
- Bluetooth capable for optional full commissioning with Technician App
- Control from a smartphone, tablet, or computer
- Geo Fencing
- Diagnostics Ready
- Compatible with most conventional 24 volt systems
- Cooling, heating, heat pump and dual fuel
- 7 Day programmable with up to 4 schedules per day
- Three day weather forecast
- Enhanced dehumidification (BK terminal)
- Indoor relative humidity display
- 1 auxiliary dry contact for control of: a whole house humidifier, dehumidifier, or ventilation system
- Push terminals
- Integrated water level
- Screen access restrictions
- Test modes and alert diagnostics
- Over-the-air software upgrades
- Color: Black

Installation

Install smart thermostat, referring to these terminal definitions, cross references and wiring diagrams as needed:

Table 5. Terminal definitions

Thermostat Sub-base Terminals	Conventional System Connection	Heat Pump System Connection
RC[a]	Power for cooling, 24V	Power for cooling, 24V
RH/R[a]	Power for heating, 24V	Power for heating, 24V
B/C[b]	Common wire, 24V	Common wire, 24V
Y1	1st stage cool	1st stage compressor operation
Y2	2nd stage cool	2nd stage compressor operation
W1	1st stage heat	1st stage auxiliary heat
W2	2nd stage heat	2nd stage auxiliary heat
W3	3rd stage heat	3rd stage auxiliary heat
G	Indoor blower (fan)	
O/B	Heat pump changeover, zone panel or 3-wire hot water zone valve connection.	Heat pump changeover type (reversing value). Reversing valve position with cooling is an “O” signal and heating is a “B” signal.
AUX (+/-)	Used for accessory	

[a] Two transformer systems (separate RC and RH wires), clip jumper located on the backplate to the right of the terminals.
[b] Required

Let thermostat rest in conditioned space for 5 minutes or longer before power up to prevent temperature out of range alert.

Figure 1. Wiring diagrams

Note: *Wiring diagrams subject to change without notice.*

Configuration

Optimized Configuration via Bluetooth with Trane Technician App

Speed up install time and quickly configure your system from your mobile device using the Trane Technician App.

Thermostat comes with Bluetooth set to Temporarily On. If you do not see your device in your Technician App device search, ensure that thermostat Bluetooth is not set to Off under **Menu > Settings > Connect > Bluetooth**.

Configure the thermostat to the appropriate system type. On the thermostat, press **Menu > Service > Technician Access > Installer Setup**.

Refer to the menu options below as needed.

Table 6. HVAC configuration

Menu Item	Options [Default]	Description
Outdoor Equipment Type	None, [Cooling Only], Heat Pump	Select the type of outdoor unit installed
Outdoor Unit Stages	[Single], Two Stage	Select the number of outdoor unit stages
Indoor Unit Type	[Gas/Oil], Electric, Hydronic Radiant, Hydronic Forced Air	Select the type of indoor unit installed
Indoor Heat Stages	[Single], Two Stage, Three Stage	Select the number of indoor heat stages
Indoor Blower Type	[Non-Variable], Variable	Select the indoor blower type (Constant Torque motors are considered non-variable speed)
SOV Operation	[with Cooling], with Heating	Select which mode of operation energizes the switch-over valve
Low Stage Compressor Airflow- Comp Clg	55% - 80%, [80%]	Select the 1st stage cooling airflow for a two stage single compressor unit
Low Stage Compressor Airflow- Comp Htg	55% - 80%, [80%]	Select the 1st stage heating airflow for a two stage single compressor unit

Table 7. Accessory configuration

Menu Item	Options [Default]	Description
Aux Port	[None], Humidifier, Dehumidifier, Ventilator	Select what accessory will be assigned to the Aux port
Filtration Type	Air Cleaner, [Media Filter]	Select the filter type installed
UV Light Installed	Yes, [No]	Select whether a UV Light is installed
Humidifier - Frost Control[(a)]	[Off], Low, High	Select how the humidifier will be controlled.
Humidifier - Fan Control	[with Heat Call], without Heat Call	Select when the humidifier is allowed to operate
Dehumidifier - Control	[Stand Alone], with Cooling Call	Select when the dehumidifier is allowed to operate [Stand Alone]
Dehumidifier - Fan Control Run Fan With Dehumidifier	[Yes], No	Select if the indoor fan should operate with a call for dehumidifier operation [Stand Alone]
Ventilator - Minimum Run Time	0 - 60 minutes, [5 minutes]	Select the minimum runtime per hour for ventilation system
Ventilator Fan Action	[with Blower], without Blower	Select if the indoor fan should operate with a call for ventilation operation
Outdoor Temperature Ventilation Override	[Off], On	Select whether an outdoor temperature override is allowed (Outdoor temperature sensor must be connected and enable to allow this setting to be selected)
Minimum Outdoor Temperature	-10˚F - 50˚F, [0 degrees]	Select the minimum outdoor temperature that ventilation is allowed

Table 7. Accessory configuration (continued)

Menu Item	Options [Default]	Description
Maximum Outdoor Temperature	80˚F - 110˚F, [100 degrees]	Select the maximum outdoor temperature that ventilation is allowed
Accumulate Overridden Runtime	[4 hours recover based on outdoor conditions] 24 hours recover based on outdoor conditions, 4 hours recover to maintain minimum ventilation, 24 hours recover to maintain minimum ventilation,	Select when to recover missed ventilation runtime due to outdoor conditions exceeding the minimum/ maximum outdoor temperature setting (the first two options will not meet ASHRAE 62.2 Standard for minimum ventilation requirements)

(a) If [Off] is selected for humidifier - Frost Control will use RH% control (Humidified Target)

Table 8. Sensor configuration

Menu Item	Options [Default]	Description
Outdoor Temperature Sensor(a)	[None], Internet ODT, Wired ODT	Select whether an outdoor temperature sensor has been connected
Outdoor Temperature Calibration - Wired Only	-5˚F to 5˚F, [0˚F]	Outdoor temperature calibration when Wired ODT is chosen
Indoor Remote Sensor		Requires wireless indoor remote sensor to pair

(a) Internet ODT requires ZIP/Postal code entry

Table 9. Comfort settings

Menu Item	Options [Default]	Description
Enhanced Dehumidification(a)	[Off], On	Select if enhanced dehumidification features are enabled (variable speed blower must be selected)
Smart Continuous Fan(b)	[Off], On	Select to enable or disable Smart Continuous Fan
Control Response Rate(c)	Slow, [Medium], Fast	Select the response rate of the control
Aggressive Recovery(d)	[Off], On	Select whether aggressive recovery is enabled with a 2 degrees or more setpoint change
Warm Air Discharge(e)	[Off], On	Select if warm air discharge features are enabled (variable speed blower must be selected)
Optimal Start(f)	[Off], On	Select to enable or disable Optimal Start

(a) The feature reduces airflow of the variable speed blower to remove moisture when indoor humidity has exceeded the dehumidified target.
(b) This feature will turn off the indoor blower when the indoor humidity is above the dehumidification target and the fan mode is set to On or Circulate. The smart continuous fan operates only when the system mode is set to Cooling and there is no active call for cooling.
(c) This feature will increase or decrease the responsiveness of the proportional-integral algorithm.
(d) This feature will increase the speed of which the proportional-integral algorithm adjusts the equipment staging.
(e) When selected On, the indoor heating airflow will be limited to 80% on a call for heat pump heating. This only applies to heat pump with no call for aux heat.
(f) This feature will start system operation beforehand to reach the setpoint at the start of schedule periods. A schedule must be set to utilize this feature.

Table 10. Lockout settings

Menu Item	Options [Default]	Description
Auxillary Heat Lockout	[Off], On	Enable auxiliary heat lockout (10˚ minimum separation when enabling auxiliary heat lockout and compressor heat lockout)
Auxillary Heat Lockout Settings	25˚F - 70˚F, [45˚F]	Select an outdoor temperature to prevent auxiliary heat above the selected outdoor temperature
Compressor Lockout	[Off], On	Enable compressor heat lockout (10˚ minimum separation when enabling auxiliary heat lockout and compressor heat lockout)
Compressor Lockout Setting	5˚F - 70˚F, [30˚F]	Select an outdoor temperature to prevent compressor heating below the selected outdoor temperature

Table 10. Lockout settings (continued)

Menu Item	Options [Default]	Description
Defrost Heater Balance Point W1	[Off], On	Enable defrost heater balance for W1, W2 and W3 (only applicable when indoor heat is electric or hydronic)
Defrost Heater Balance Point W1 Setting	40˚F - 55˚F, [55˚F]	Select an outdoor temperature to disallow 1st, 2nd and 3rd stage of indoor heat during defrost above this temperature
Defrost Heater Balance Point W2	[Off], On	Enable defrost heater balance for W1 and W2 (only applicable when indoor heat is electric or hydronic)
Defrost Heater Balance Point W2 Setting	10˚F - 50˚F, [40˚F]	Select an outdoor temperature to disallow 1st, and 2nd stage of indoor heat during defrost above this temperature
Defrost Heater Balance Point W3	[Off], On	Enable defrost heater balance for W3 (only applicable when indoor heat is electric or hydronic)
Defrost Heater Balance Point W3 Setting	5˚F - 45˚F, [25˚F]	Select an outdoor temperature to disallow 3rd stage of indoor heat during defrost above this temperature

Software Updates

To take full advantage of the features and benefits of the Priority Smart Thermostat, the controls should have the latest software revision installed. When the Priority is connected to a Trane Home account, software updates will occur automatically and do not require user intervention.

The software may also be manually updated. This procedure requires the Trane Technician App. Download the Technician App by scanning the QR code at **Menu > Service > Technician Access > Get Technician App**.

Update via SoftAP

Enable SoftAP to allow the Technician App to send software updates to the thermostat.

To access:

Menu > Service > Technician Access > Software Update

Dealer Code

When the system is enrolled with a Home App account, a dealer code can be entered to populate the dealer's contact information. The code is the dealer's registered phone number listed on ComfortSite or ASDealerNet.

Basic Operation

System Mode

The system has five System Modes which can be selected:

- **Heating:** system only operates in heating mode
- **Cooling:** system only operates in the cooling mode
- **Off:** system will not operate in heating or cooling mode
- **Emergency Heating:** system will run the indoor heat source only (only available when the outdoor unit type is a heat pump)
- **Auto:** Switch automatically between heating and cooling to meet setpoints based on indoor temperature setpoint or within 1°F of cooling setpoint

There is a minimum deadband between heating and cooling setpoints of 3°F (4°F when zoning is applied).

Fan Mode

The system has three fan mode options:

- **Auto:** fan only runs with a call for heating or cooling
- **On:** fan runs continuously
- **Circ:** fan runs a user-selected minimum amount of time each hour

Air Cleaner Mode

When an air cleaner is installed, the system has three Air Cleaner modes:

- **Auto:** air cleaner operates only with a call for fan operation
- **Quick:** air cleaner operates for 3-hours with blower at 100%
- **Allergy:** air cleaner operates for 24-hours with blower at 100%

Test Modes

Table 11. Test modes

Mode	Settings	Description
Blower	Variable speed (35%, 50%, 75%, 100%) Non-variable speed 100%	Energizes indoor blower at the selected speed
Cool	Stage 1 Stage 2	Energizes the selected stage of cooling operation. The indoor blower will also operate at the speed required for the selected stage.
Compressor Heat	Stage 1 Stage 2	Energizes the selected stage of compressor heating operation. The indoor blower will also operate at the speed required for the selected stage.
Indoor Heat	Stage 1 Stage 2 Stage 3	Energizes the selected stage of indoor heating operation. The blower operation will be dependent on the indoor heat type: • **Electric** - blower energized during test mode but the blower speed is controlled by the indoor unit • **Fossil** - blower is controlled independently by the indoor unit during test mode • **Hydronic** - blower is energized during test mode
Compressor + Indoor Heat	Stage 1 Stage 2 Stage 3	Energizes compressor heat and selected stage of indoor electric heat/hydronic heat. The bower is energized and runs at the higher of the compressor heat air flow versus indoor heat air flow.
More	Aux Relay	Closes the normally open Aux contact. The blow is not energized during this test mode.

Troubleshooting

Table 12. Troubleshooting guide

Symptom	Possible Cause	Corrective Action
Display will not come on	Loss of 24VAC between R & B at the Control	1. Check R & B wiring 2. Check transformer for 24VAC output 3. Check for broken or shorted thermostat wire 4. Check for blown low voltage fuse 5. Check for tripped safety switch
Indoor temperature display is incorrect	1. Indoor temperature display needs calibration 2. Heat from the Control is being trapped within the body or space of the Control	1. Cailbrate temperature sensor from Menu>Settings>Thermostat> or use a remote temperature sensor 2. Move Control away from competing air stream or use a remote indoor sensor
Indoor humidity display is incorrect	Indoor humidity display needs calibration	1. Calibrate humidity sensor from Menu>Settings>Thermostat
Heating will not come on	1. System mode is not set to Heat/Auto or setpoint is set too low 2. Minimum off time delay is being enforced 3. Heating system may require service	1. Set mode to heat and raise the setpoint above the room temperature 2. Wait for 5 minutes and recheck heating equipment 3. Check/repair system
Cooling will not come on	1. System mode is not set to Cool/Auto or setpoint is set too high 2. Minimum off time delay is being enforced 3. Cooling system may require service	1. Set mode to cool and lower the setpoint below the room temperature 2. Wait for 5 minutes and recheck cooling equipment 3. Check/repair system
Heating or Cooling is displayed, but no warm or cool air is coming from registers	1. There is a fan delay as the heating or cooling equipment turns on 2. Equipment is not working properly	1. Wait a minute for blower delays and recheck registers 2. Check/repair system
Fan runs all the time	1. Fan mode is set to "On or Circulate" mode 2. Field wiring issue 3. There is a failure in the indoor unit	1. Check control settings to see if fan is set to "On or Circulate" 2. Check field wiring 3. Check indoor unit for failures (such as a tripped heating limit)
	Both compressor heat and indoor heat are being called simultaneously	No action required, symbol is for informational purposes only
Fan is set to ON but not running	1. Smart Continuous Fan is engaged 2. Field wiring issue 3. Blower motor is not functioning	1. If indoor humidity is higher than desired target, the blower will cycle off with the equipment. 2. Check field wiring 3. Check indoor unit for failures (such as tripped heating limit).
Cooling or Heating cycles too fast or too slow (narrow or wide temperature swings)	1. Check the location of the Control for drafts 2. Cycles per hour is improperly set	1. Seal air leaks behind Control. Relocate Control or apply remote indoor temperature sensor 2. Adjust the control repose rate in the Comfort Settings

Table 12. Troubleshooting guide (continued)

Symptom	Possible Cause	Corrective Action
Heat pump is not turning on; only furnace or electric heat strips are running	1. Outdoor temperature is blow compressor lockout temperatures setting 2. System mode is set Emergency Heat 3. Outdoor Unit may require service	1. Adjust the compressor lockout temperature setting if desired 2. Check/repair outdoor temperature sensor or wiring
Cannot change system mode to desired setting	Equipment is not configured properly	Check the standard installer set up screen to ensure equipment is peroperly configured

About Trane and American Standard Heating and Air Conditioning

Trane and American Standard create comfortable, energy efficient indoor environments for residential applications. For more information, please visit www.trane.com or www.americanstandardair.com.

CNTR-SVN004A-EN 29 May 2026
Supersedes (New)