



TC300 Commercial Thermostat

CONNECTED DEVICE FOR COMMERCIAL BUILDINGS

MOUNTING & INSTALLATION INSTRUCTIONS

INTRODUCTION

TC300 Commercial Touchscreen Thermostat is designed to be wall-mounted indoors. Mount in a clean, dry location away from windows, air ducts, and other places where environmental factors may affect temperature and humidity readings. If you mount the Thermostat on the interior of an outside wall, thoroughly insulate it so the outside air behind the sensor does not affect the sensor reading.

To meet the requirements of the Americans with Disabilities Act, mount no higher than 48" from the floor and with a minimum clear floor space of 30" X 48" (760 X 1220 mm).

Supported Documents

- TC300 Commercial Thermostat Datasheet (31-00645)
- TC300 Commercial Thermostat User Guide (31-00644)
- TC300 Commercial Thermostat Pocket guide (31-00648)
- TC300 Deco Plate Pocket guide (31-00657)
- TC300 BACnet Integration guide (31-00646)
- TC300 Safety Sheet (31-00643)

When installing this product

1. Read these instructions carefully. Failure to follow them could damage the product or cause a hazardous condition.
2. Check the ratings given in the instructions and marked on the product to make sure the product is suitable for your application.
3. Installer must be a trained, experienced service technician.
4. After installation is complete, check the product operation.
5. Be sure wiring complies with all applicable codes, ordinances, and regulations.

WARNING

Electrical Shock Hazard.

Can cause severe injury, death or property damage.

Disconnect the power supply before beginning installation to prevent electrical shock and equipment damage. More than one power supply may have to be disconnected.



MERCURY NOTICE

If this control is replacing a control that contains mercury in a sealed tube, do not place your old control in the trash. Dispose of it properly. Contact your local waste management authority for instructions regarding recycling and the proper disposal of an old control. If you have questions, contact Honeywell Customer Care Center.

Location

Do not install the Thermostat unit where it can be affected by:

- drafts or dead spots behind doors and in corners.
- hot or cold air from ducts.
- radiant heat from sun or appliances.
- concealed pipes and chimneys.
- unheated (uncooled) areas such as an outside wall behind the thermostat.

IMPORTANT

To avoid electrical interference, which can cause erratic performances, keep wiring runs as short as possible and do not run thermostat wires adjacent to the line voltage electrical distribution systems. Use shielded cable. The cable shield must be grounded only at the controlled equipment case.

USING ONBOARD TEMPERATURE SENSOR

Install the Thermostat about 4 ft. (1.2m) above the floor in an area with good air circulation at average temperature. (See Fig. 1). Confirm mounting height meets Americans with Disabilities Act requirements.

USING EXTERNAL TEMP./HUM. SENSORS

When using the remote-mounted temperature (and humidity) sensor(s) to sense ambient conditions, install the Thermostat in an area that is accessible for setting and adjusting the temperature and settings.

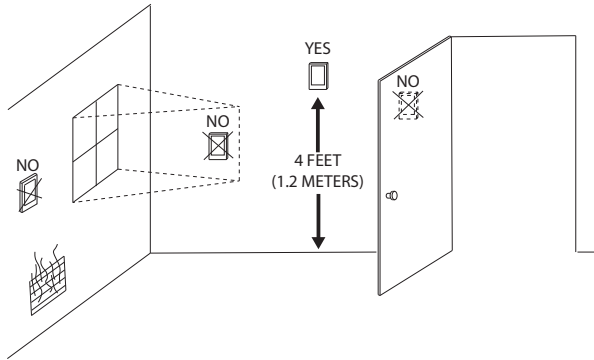


Fig. 1. Typical mounting location of the thermostat

WEEE



WEEE (Waste of Electrical and Electronic Equipment)

- At the end of the product life, dispose of the packaging and product in an appropriate recycling center.
- Do not dispose of the device with the usual domestic refuse.
- Do not burn the device.

This symbol on our product shows a crossed-out “wheelebin” as required by law regarding the Waste of Electrical and Electronic Equipment (WEEE) disposal. This indicates your responsibility to contribute to saving the environment by proper disposal of this Waste i.e. Do not dispose of this product with your other wastes. To know the right disposal mechanism please check the applicable law.

Regulation (EC) No 1907/2006

According to Article 33 of Reach Regulation be informed that the substances listed below may be contained in these products above the threshold level of 0.1% by weight of the listed article.

Product/Part Code	Substance Name	CAS Number
Only TC300 thermostat mainboard PCBA	Lead	7439-92-1
	Lead oxide	1317-36-8

Power supply guidelines and requirements

The thermostat uses 24VAC power from a UL Listed Class-2 24VAC transformer (not provided in the kit). It also uses a half-wave rectifier to convert the AC power supply to onboard power. This enables multiple devices with half-wave power supplies to be powered from a single, grounded transformer.

⚠ WARNING

Half wave devices and full wave devices must not use the same AC transformer.

You must maintain wiring polarity. Failure to do so can result in equipment damage. If the HVAC equipment has an internal circuit board that is powered by the same transformer that will power the Thermostat, verify that it is NOT full wave.

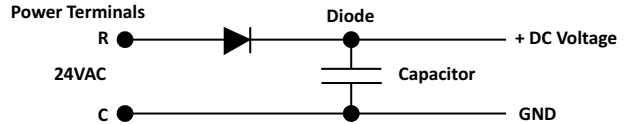


Fig. 2. Power terminals

Power supply wire sizing

Long power supply wiring runs require selecting the wire gauge appropriately. If the wire gauge is inadequate the increased resistance and associated voltage drop may result in insufficient voltage supply to the Thermostat. The recommended wire gauge guidelines are as follows.

Min. Load = 4VA (all DOs OFF, No Sylk sensor).

If the 14-18AWG wire is used for R, C terminal,

Max. Load = 4A, 96VA (all DOs ON).

If the 20-22AWG wire is used for R, C terminal

Max. Load = 3A, 72VA (all DOs ON).

If the 24-26AWG wire is used for R, C terminal,

Max. Load = 2A, 48VA (all DOs ON).

DO1, DO2, DO3, DIO1, and DIO2 all relay outputs are powered from the external transformer. The minimum load includes Thermostat and analog outputs at full load (Max. 10V voltage output with 2Kohms load).

Every relay output is N.O. (Normally Open) contacts with a maximum switch rating of 24VAC @1A (24VA). The allowed maximum load is 96VA, which assumes all 5 relay output loads are powered from the transformer. Actual power requirements depend on connected loads.

IMPORTANT

Use an UL Class 2 rated Transformer or a lesser capable transformer.

! WARNING

Ensure that Thermostat power connections only use R and C terminals. COM should only be used for analog inputs/outputs. Failure to follow these instructions may result in Thermostat operational and communication failures or equipment damage.

Mounting wallplate on the drywall

Mount the wallplate vertically on the wall. It supports 14-26AWG (0.2-1.5mm² for solid or stranded, max 2.5mm² for solid) wires.

NOTE: If you are using a TC300 Deco plate for thermostat mounting, refer to the Deco plate pocket guide (31-00657) also.

- At the bottom of the thermostat, loosen the Security screw using a screwdriver by turning it counterclockwise direction.

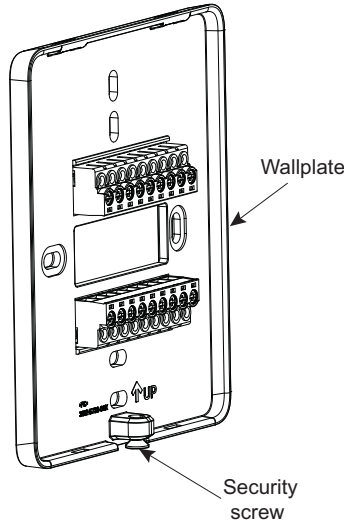


Fig. 3. Loosen the security screw

- Before mounting the wallplate, make sure that the thermostat wires are stripped to the length marked on the wallplate.

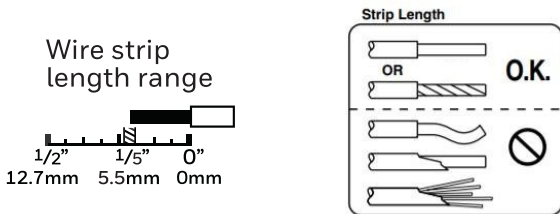


Fig. 4. Wire strip length

- Position and level the wallplate along the wall and mark the drilling location using a pencil.

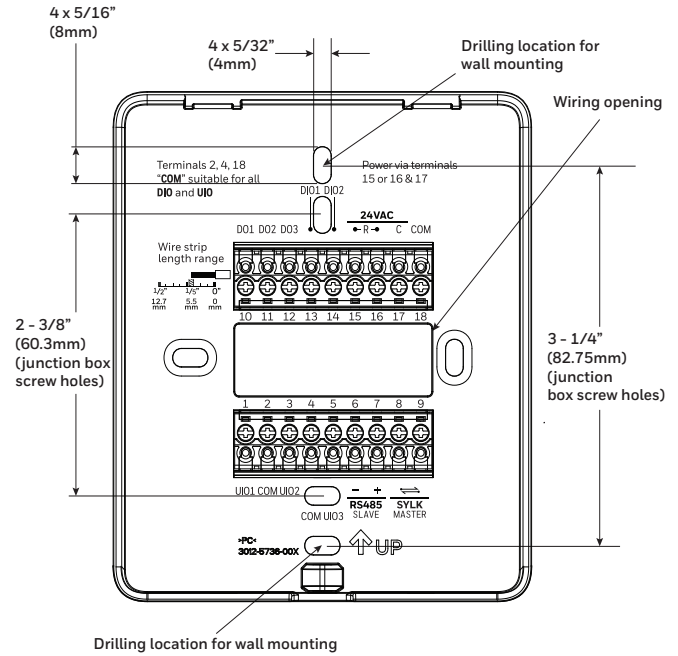


Fig. 5. Wallplate drilling locations

- Remove the wallplate and drill two pilot holes on the wall, on the marks. For drywall, drill 3/16" (5mm) holes. For firmer material such as plaster, drill 7/32" (6mm) holes.
- Gently tap anchors (provided in the kit) into the pilot holes until flush with the wall.
- Pull the wires through the wiring opening of the wallplate and position the wallplate over the mounting holes. See Fig. 8 Wiring.
- Insert the screws into the holes and tighten (screw torque 0.1Nm).

Mounting the wallplate on the junction box (optional)

TC300 can support vertical mounting of US 2"x4" junction box, vertical and horizontal mounting of 75*75mm, 86*86 and European round(ø71 for German and ø75 for French) junction boxes.

NOTE: Use TC300 Deco plate for mounting if you are not using US 2"x4" or UK 75*75mm junction boxes. Refer to the Deco plate pocket guide (31-xxxxx).

- Install the junction box and perform the wiring as per its manufacturer's instructions.

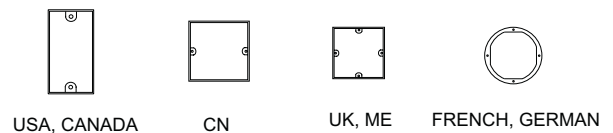


Fig. 6. Various junctions boxes

- Before mounting the wallplate, make sure that the thermostat wires are stripped to the length marked on the wallplate.

3. Pull the wires through the wiring opening of the wallplate and position the wallplate along the junction box to align the mounting holes. For junction box screw holes, refer to Fig. 5.
4. Insert the screws into the holes and tighten them.

Accessories ordering part numbers

Table 1. Accessories Part Numbers

TRTC-DECOPLATE-1	TC300 deco plate for NA junction boxes
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Terminal identification

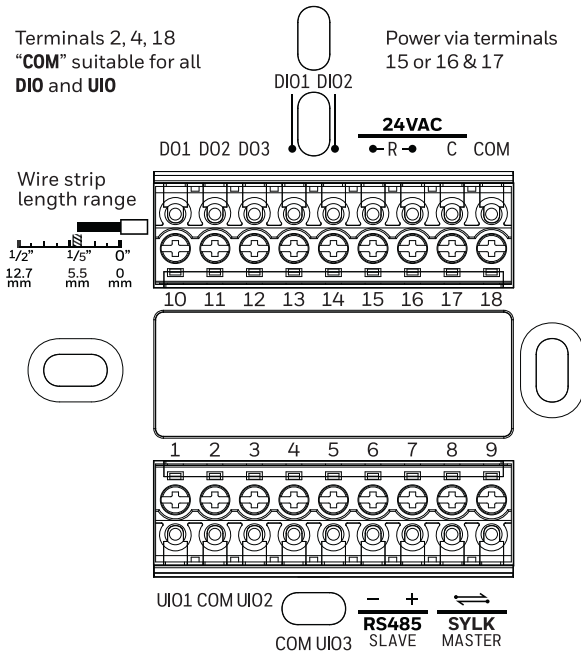


Fig. 7. Thermostat terminal assignments

⚠ WARNING

Do NOT wire the thermostat to line voltage.

Table 2. Terminal Identification

Terminal Name	Terminal Label	Description
UIO1	UIO1	Universal input/output
COM	COM	Common
UIO2	UIO2	Universal input/output
COM	COM	Common
UIO3	UIO3	Universal input/output

Table 2. Terminal Identification

Terminal Name	Terminal Label	Description
RS485 SLAVE	-	BACnet/Modbus Communications
RS485 SLAVE	+	BACnet/Modbus Communications
SYLK MASTER	↔	Sylk bus
SYLK MASTER	↔	Sylk bus
DO1	DO1	Configurable relay output
DO2	DO2	Configurable relay output
DO3	DO3	Configurable relay output
DIO1	DIO1	Configurable relay output, configurable analog/relay input
DIO2	DIO2	Configurable relay output, configurable analog/relay input
24VAC POWER	R	24VAC power from Class2 transformer
24VAC POWER	C	24VAC common (Neutral) from Class2 transformer
COM	COM	Common

Wiring the wallplate

IMPORTANT

All wiring must comply with local electrical codes and ordinances.

NOTE: Supports 14-26AWG (0.2-1.5mm² for solid or stranded, max 2.5mm² for solid) wires.

Follow equipment manufacturer wiring instructions when available. A letter code is located near each terminal for identification.



CAUTION

Power must not be connected while wiring.

Wiring a unit that is powered may result in electrical shock and/or equipment damage.

1. Connect wires to the terminals. See Fig. 7 for terminal assignments and Table 2 for terminal descriptions.
2. Loosen the terminal screw, and insert the solid wire (twist if it is stranded) into the wiring terminal hole directly.
3. Tight the terminal screw using the Phillips screwdriver (screw torque 0.4Nm).

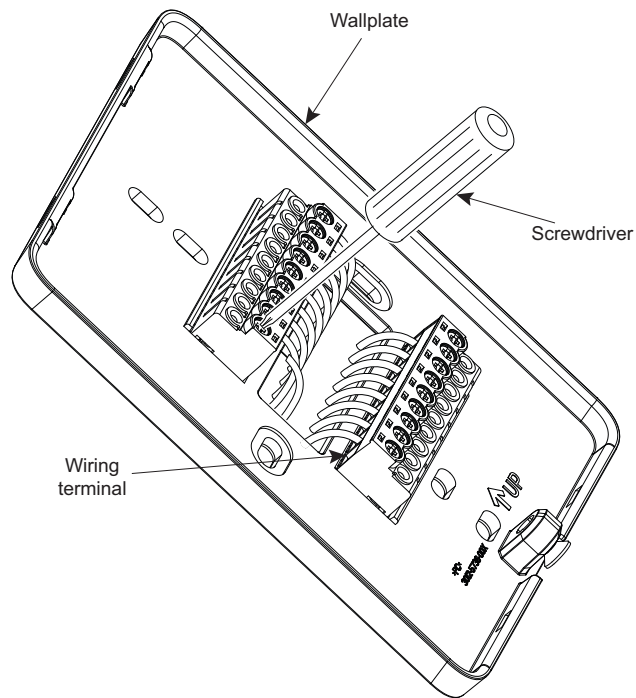


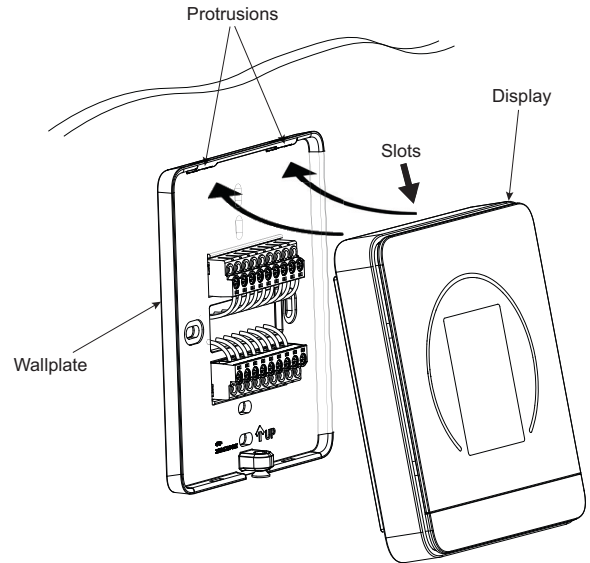
Fig. 8. Wiring

4. Push excess wire back into the hole.
5. Check for loose or frayed wire that may cause a short.

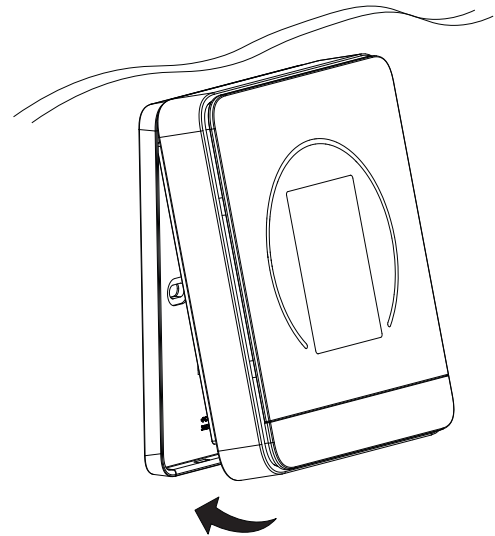
Mounting the display unit

After all wiring is completed, install the display onto the wallplate.

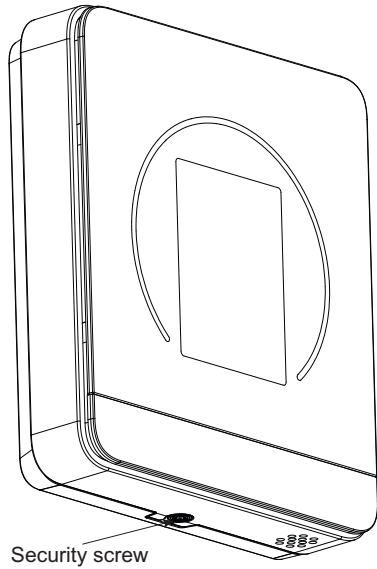
1. Hold the display unit in forward tilted position and align the slots in the display unit with the protrusions on top of the wall plate.



2. Carefully pivot the display onto the wall plate to ensure proper engagement of pins with terminal blocks while ensuring engagement of protrusions and slots is maintained as shown in step 1.



3. Gently tighten the Security screw using a screwdriver by turning it in the clockwise direction (screw torque 0.1Nm).

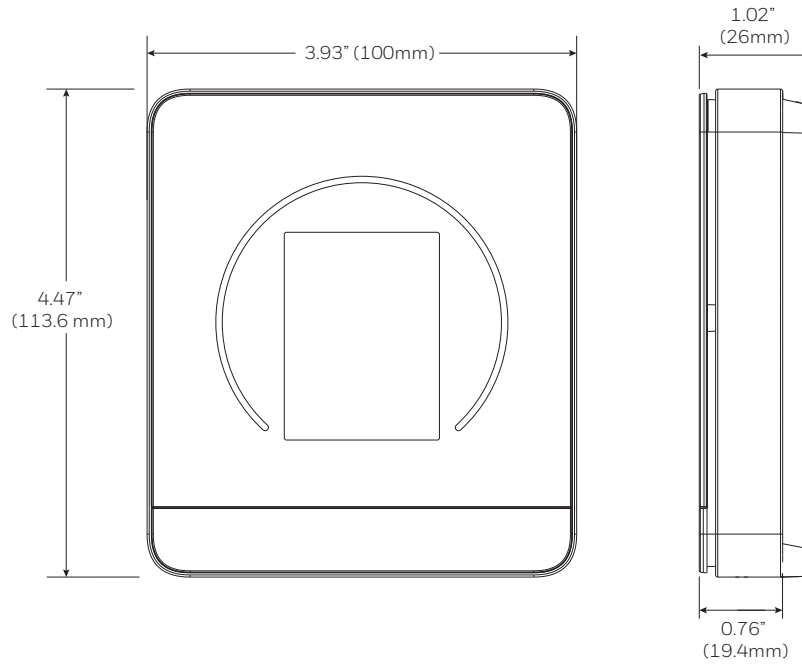


Dismounting the display unit

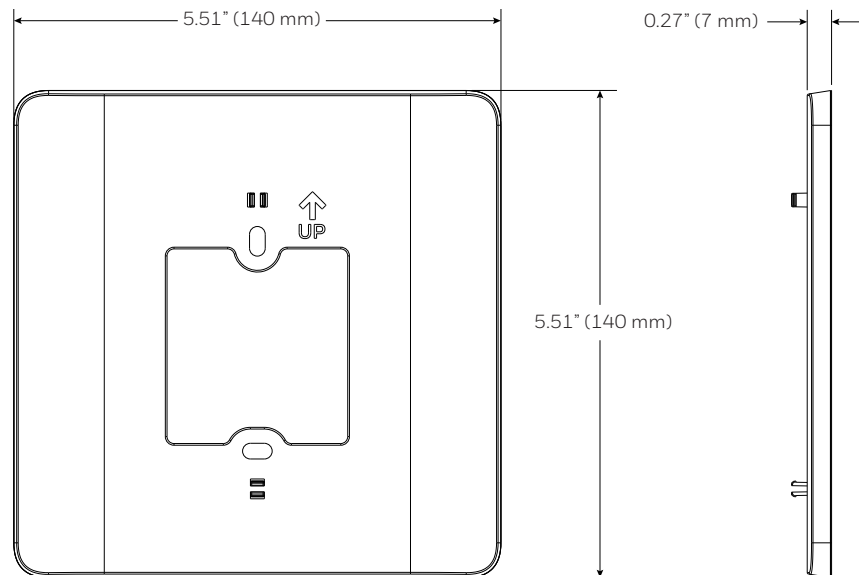
1. Unscrew the security screw.
2. Detach the bottom side by pulling the display unit out and detach the top side.

DIMENSIONS

Thermostat



Decoplate



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31-00642-01 | Rev. 10-23

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