Honeywell

TR100 Wall Module

CONNECTED DEVICE FOR COMMERCIAL BUILDINGS

INSTALLATION INSTRUCTIONS



GENERAL

Trademark Information

- BACnet™ is a registered trademark of ASHRAE Inc.
- Sylk™ is a trademark of Honeywell International Inc.

Product description

The Honeywell TR100 Wall Module is an advanced, highly configurable device providing building automation connectivity well-suited for Commercial building applications. TR100 can replace existing Honeywell wall modules using the existing tools familiar to installers. The wall modules utilize Sylk™ communication, which is polarity insensitive and uses two wires. This device supports BACnet™ MS/TP and Modbus™ RTU communications via RS-485 bus, which is necessary for typical HVAC building control systems. Additionally, this bus enables future firmware updates and enhances functionality as they become available on the market.

DIMENSIONS

Wall module

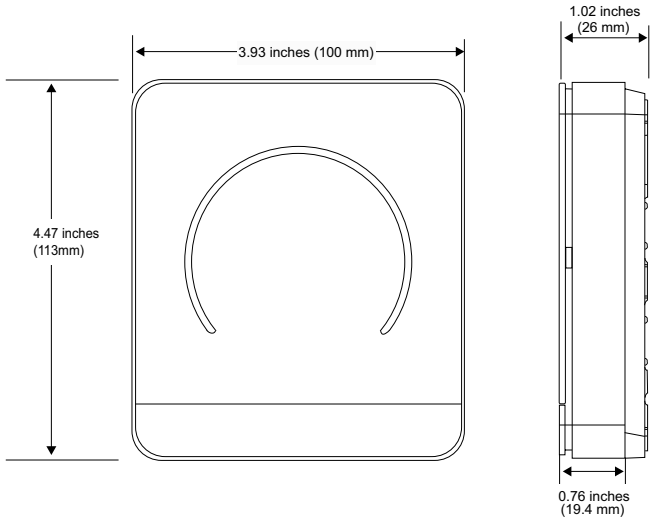


Fig. 1 Wall Module Dimensions

Deco plate

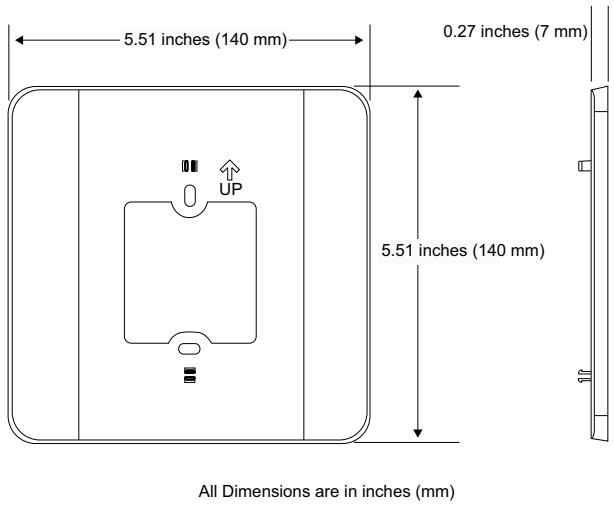


Fig. 2 Deco plate Dimensions

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ORDERING INFORMATION

Table 1 Part numbers

Part number	Sensors
TR100-T-G	Temperature
TR100-TH-G	Temperature, Humidity
TR100-THC-G	Temperature, Humidity and CO2

Table 2 Accessories

Part number	Details
TRTC-DECOPLATE-1	TR100 deco plate.

GENERAL SAFETY INSTRUCTIONS

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 wall module 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 wall module.

IMPORTANT:

To avoid electrical interference, which can cause erratic performances, keep wiring runs as short as possible and do not run wall module 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 On-board Temperature Sensor

Install the TR100 wall module about 4 feet (1.2 meter) above the floor in an area with good air circulation at average temperature. (See Fig. 3). Confirm mounting height meets Americans with Disabilities Act requirements.

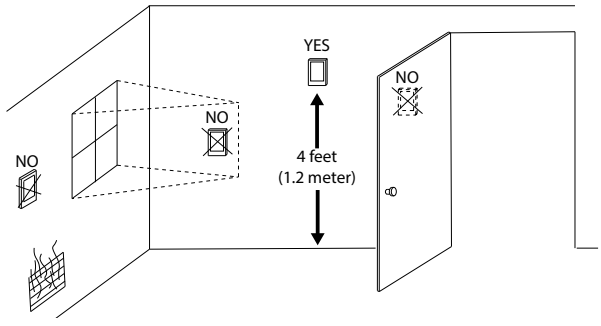


Fig. 3 On-board temperature sensor

REGULATORY INFORMATION

WEEE (Waste of Electrical and Electronic Equipment)

WEEE DIRECTIVE

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.

Professional Installation Warning

When performing any work (installation, mounting, startup), all manufacturer instructions and in particular Honeywell TR100 Wall Module Pocket Guide - 31-00675 and Honeywell TR100 Wall Module User Guide - 31-00674 are to be observed.

- TR100 Wall Module may be installed and mounted only by authorized and trained personnel.
- Rules regarding electrostatic discharge should be followed.
- If TR100 Wall Module is modified in any way, except by the manufacturer, all warranties concerning operation and safety are invalidated.
- Make sure that the local standards and regulations are observed at all times.
- Use only accessory equipment which comes from or has been approved by Honeywell.
- It is recommended that out-of-the-box devices be kept at room temperature for at least 24 hours before applying power. This is to allow any condensation resulting from low shipping/storage temperatures to evaporate.
- Do not open TR100 Wall Module, as it contains no user serviceable parts inside.

Approvals and Certifications

— Investigated according to United States Standard UL- 60730-1, and UL60730-2-9.
— Investigated according to Canadian National Standard(s) C22.2, No. 205-M1983 (CNL-listed).
— CE declarations according to EMC Directive 2014/30/EU.
— UK declarations according to Electromagnetic Compatibility Regulations 2016.
— Product standards are EN 60730-1 and EN 60730-2-9.
— TR100 Wall Module is Class B digital apparatus and complies with Canadian ICES-003.

FCC regulations

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, and (2) this device must accept any interference received, including interference that may cause undesired operation.

CAUTION

Changes or modifications to this unit not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

• Prudence: Les changements ou modifications apportés à cet appareil non expressément approuvés par la partie responsable de la conformité pourraient annuler le droit de l'utilisateur à utiliser l'équipement.

NOTE:

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.

• Limited by local law regulations, version for North America does not have region selection option.

SAFETY INFORMATION AS PER EN60730-1

TR100 Wall Module is intended for residential and commercial environments.

TR100 Wall Module is an independently mounted electronic control system with fixed wiring.

TR100 Wall Module is used for the purpose of building HVAC control and is suitable for use only in non-safety controls for installation on or in appliances.

NOTE:
All images used in this document are for illustrative purposes only and may not match the actual product.

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.

Table 3 Product Code

Product/Part Code	Substance Name	CAS Number
Only TR100 wall module mainboard PCBA	Lead	7439-92-1
	Lead oxide	1317-36-8

SPECIFICATIONS

Power Characteristics

Parameter	Specifications
Power Supply	Rated Voltage: 24 VAC 50/60 Hz Input Voltage Range: (1) 24 VAC 50/60 Hz, 20 to 30 VAC (2) 24 VDC, 20 to 30 VDC or (3) Power over Sylk™ communication
Power Consumption (Display ON)	Max. 3.2 VA @ 24 VAC (0.8 W-0.9 W@ 24 VDC/Sylk™)

Display

Parameter	Specifications
Display Type	16 BPP TFT display with CTP
Resolutions	320 x 240 pixel
Active Display Area	2.4 inches (60.96 mm) diagonally
Backlight	LCD (Dimmable)
LED Color Ring	Blue (Cooling) Orange (Heating)

Operating Environment

Parameter	Specifications
Ambient Operating Temperature	32 to 122 °F (0 to 50 °C)
Ambient Operating Humidity	10 to 90 % relative humidity (non-condensing)
Storage Temperature	-40 to 150 °F (-40 to 65.5 °C)
Protection Class	IP20

Onboard Sensor

Parameter	Specifications
Temperature	Resolution: 1 °F (0.5 °C) Accuracy: ±1 °F (0.5 °C) at room temperature
Humidity	Range: 20~90 % RH Resolution: 1 % RH Control Accuracy: ±3 % RH at room temperature
CO2	Measure Range: 400-5000 ppm Sensor output resolution: 1 ppm Accuracy: ± (50 ppm ± 2.5 % reading) @ 400-1000 ppm ± (50 ppm ± 3 % reading) @ 1001-2000 ppm ± (40 ppm ± 5 % reading) @ 2001-5000 ppm

Electrical Characteristics

Parameter	Specifications
Rated Impulse Voltage	500 V
Construction of Control	Independently Mounted Control
Operation Method	Type 1 Action
Pollution Degree	2
Purpose of Control	Operating Control

Communication Technologies

Parameter	Specifications
Sylk™	Honeywell Sylk™
BACnet™ MS/TP	(9.6, 19.2, 38.4, 57.6, 76.8, 115.2 Kbps)
Modbus™ RTU	0.3 to 115.2 Kbps

Compliance

Certificates	Standards
CE FCC ICES Prop65 REACH RoHs UK UL/cUL BTL	BS EN 60730-1 BS EN 60730-2-9 EN60730-1 EN60730-2-9 ICES-003 Title 47part 15 subpart B UL60730-1 UL60730-2-9

HARDWARE OVERVIEW

Terminal Identification

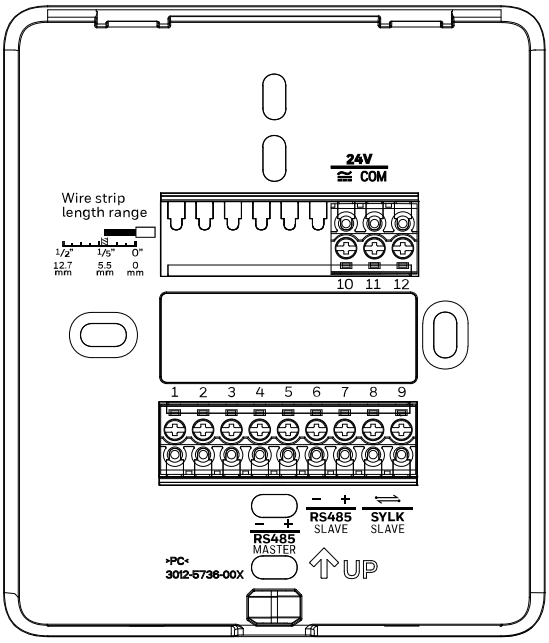


Fig. 4 Wall module Terminal Assignments

WARNING
Do NOT wire the Wall module to line voltage.

Table 4 Terminal Identification

Terminal Numbers	Terminal Label	Terminal Name	Label Description
4	-	RS485 MASTER	Reserved for future use
5	+		
6	-	RS485 SLAVE	BACnet™ MS/TP, Modbus™ RTU Communications
7	+		
8	⇌	Sylk™ SLAVE	Sylk™, slave, power input
9			
10	≅	24 V POWER	24 VAC power from Class-2 transformer, 24 VDC positive pole
11	COM	COM	24 VAC common (Neutral) from Class-2 transformer, 24 VDC common

POWER SUPPLY

Power supply guidelines and requirements (Non-Honeywell Devices)

The wall module uses 24 VAC power from an UL Listed Class- 2 24 VAC transformer (not provided in the kit). It also uses a half-wave rectifier to convert the AC power supply to on-board power. This enables multiple devices with half-wave power supplies to be powered from a single, grounded transformer. **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 wall module, verify that it is NOT full wave.

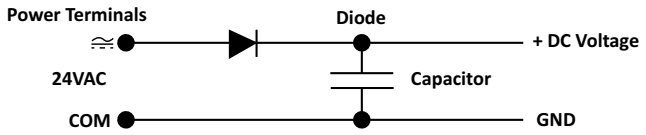


Fig. 5 Power Terminals

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 an insufficient voltage supply to the Wall module.

The recommended wire gauge 14-26 AWG (0.2-1.5 mm^2 for solid or stranded, max 2.5mm^2 for solid) wires.

⚠ WARNING

Ensure that TR100 Wall module power connections only use ≂ and COM terminals. COM should only be used for analog inputs/outputs. Failure to follow these instructions may result in Wall module operational and communication failures or equipment damage.

MOUNTING

Mounting wall plate on the Drywall

Follow below instructions to mount the Honeywell TR100 Wall module on the drywall.
Mount the wall plate vertically on the wall.

NOTE:
If you are using a TR100 Deco plate for wall module mounting, refer to the Deco plate pocket guide (31-00657).

1. Loosen the security screw (located at the bottom of the wall module) by turning it in counterclockwise direction.

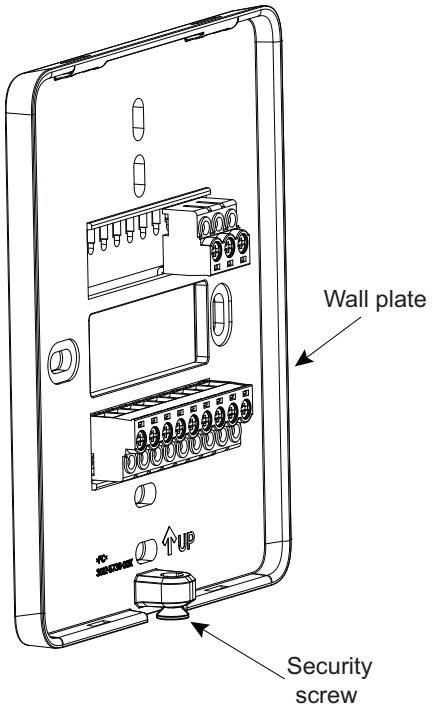


Fig. 6 Loosen the Security Screw

2. Before mounting the wall plate, make sure that the Wall module wires are stripped to the length marked on the wall plate.

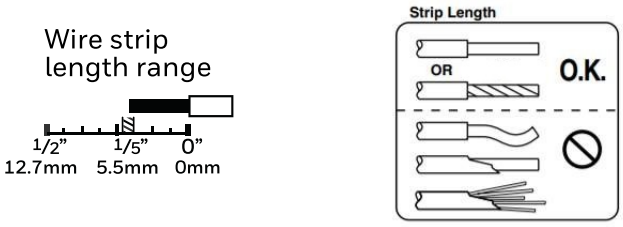


Fig. 7 Wire Strip Length

3. Position and level the wall plate along the wall and mark the drilling location using a pencil.

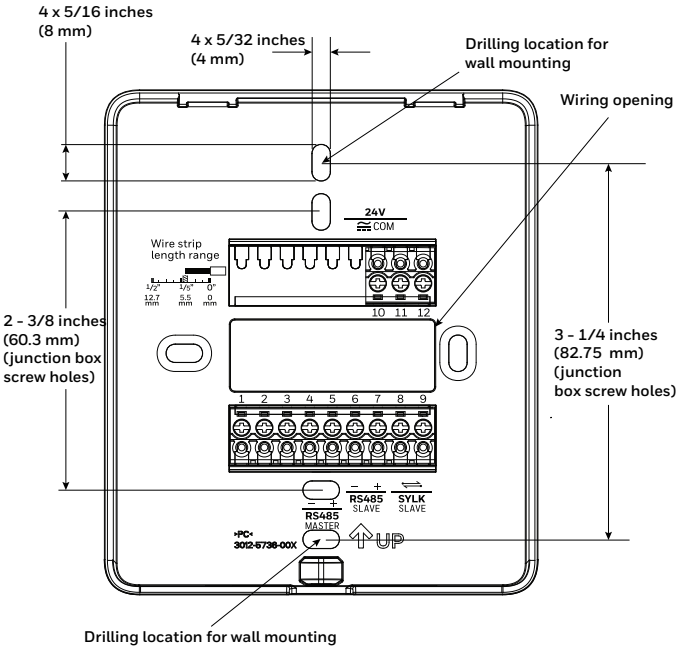


Fig. 8 Wall plate Drilling Locations

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

Mounting the Wall plate on the Junction Box (Optional)

TR100 can support vertical mounting of US 2"x 4" junction box, vertical and horizontal mounting of 75 x 75 mm, 86 x 86 and European round (ø71 for German and ø75 for French) junction boxes.

NOTE:
Use TR100 Deco plate for mounting if you are not using US 2 x 4" or UK 75 x 75 mm junction boxes. Refer to the Deco plate pocket guide (31-00657).

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

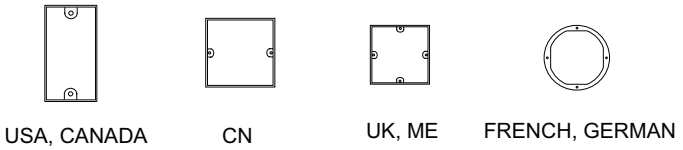


Fig. 9 Various Junctions Boxes

2. Before mounting the wall plate, make sure that the Wall module wires are stripped to the length marked on the wall plate.
3. Pull the wires through the wiring opening of the wall plate and position the wall plate along the junction box to align the mounting holes. For junction box screw holes, refer to *Fig 8 on Page 8*.
4. Insert the screws into the holes and tighten them.

Wiring the Wall plate

IMPORTANT:
All wiring must comply with local electrical codes and ordinances.

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.
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 0.4 Nm).

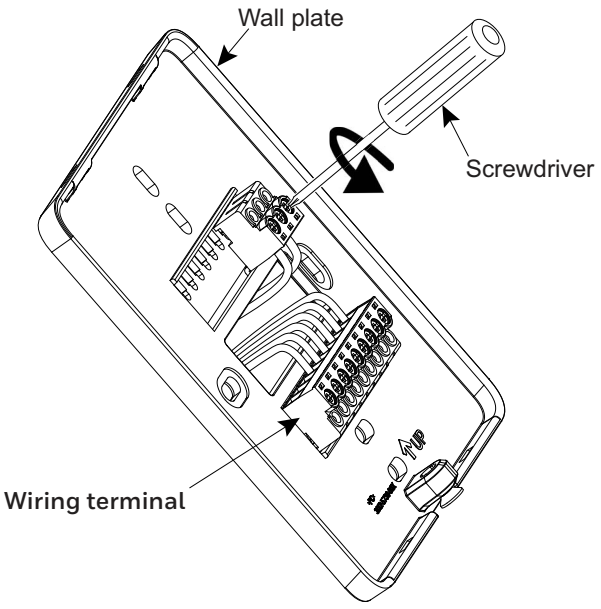


Fig. 10 Wiring

4. Push excess wires 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 wall plate.

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.

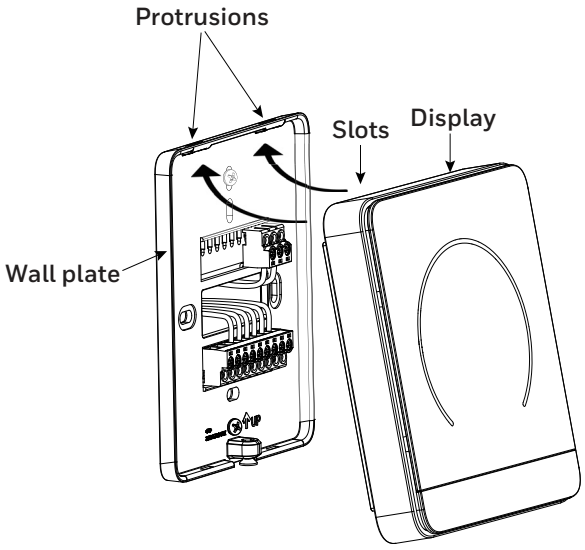


Fig. 11 Aligning the Slots

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.

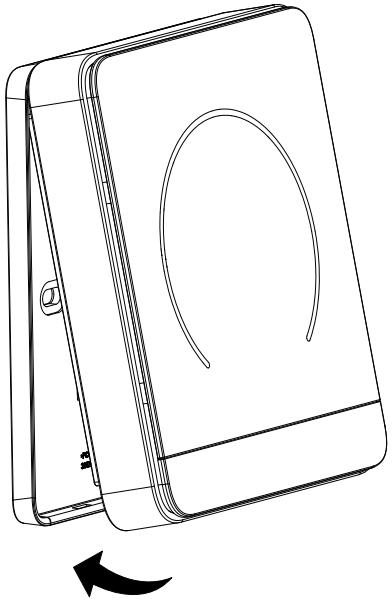


Fig. 12 Attach the Bottom Side

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

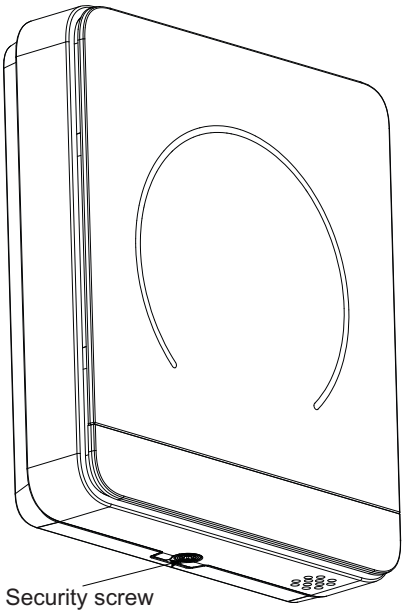


Fig. 13 Tighten the Security Screw

Dismounting the display unit

Dismounting the display unit onto the wall.

1. Gently loosen the security screw using a screwdriver by turning it in a counterclockwise direction.

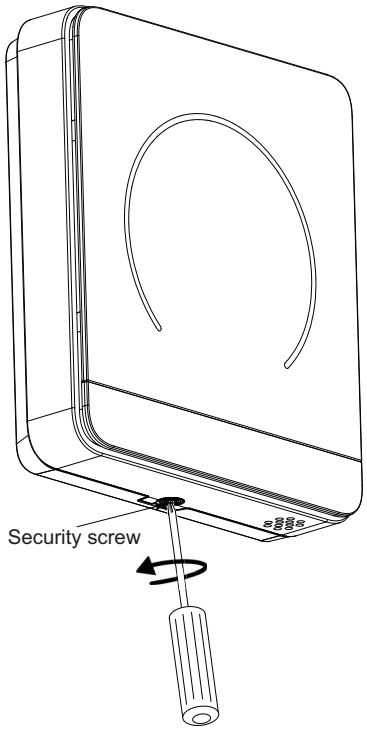


Fig. 14 Loosen the Security Screw

2. Detach the bottom side by pulling the display unit out and detach the top side.

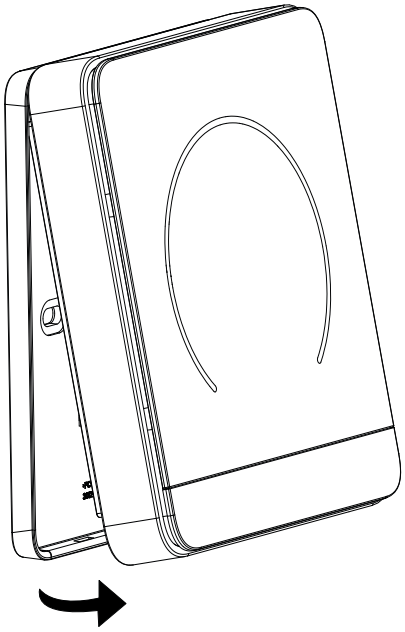


Fig. 15 Detach the Bottom Side

RELATED TECHNICAL LITERATURE

- TR100 Wall Module Data Sheet - 31-00671
- TR100 Wall Module User Guide - 31-00674
- TR100 Wall Module Pocket Guide - 31- 00675
- TRTC Decoplate Pocket Guide - 31-00657
- TR100 BACnet™ Integration Guide - 31-00676
- TR100 Modbus Integration Guide - 31-00748
- TR100 Safety Sheet - 31-00672

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