



## Installation Instructions

# Tracer® MP581 Controller

### Order No:

BMTM000AAD00  
 BMTM000AAD01  
 BMTM000BAD00  
 BMTM000BAD01  
 BMTM000DAB00

This installation instruction provides the procedures for:

- Mounting the Controller
- Wiring AC Power
- Installing the Main Circuit Board
- Setting Up and Adjusting the Operator Display

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### 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.

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## 1 Warnings, Cautions, and Notices

Read this manual thoroughly before operating or servicing this unit. 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

### 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-including industry replacements for CFCs such as HCFCs and HFCs.

### 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.

## 2 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 electrical codes.

### WARNING

**Personal Protective Equipment Required!**  
 Installing/servicing this unit could result in exposure to electrical, mechanical and chemical hazards. Before installing/servicing this unit, technicians MUST put on all Personal Protective Equipment (PPE) recommended for the work being undertaken. ALWAYS refer to appropriate SDS sheets and OSHA guidelines for proper PPE. When working with or around hazardous chemicals, ALWAYS refer to the appropriate SDS sheets and OSHA guidelines for information on allowable personal exposure levels, proper respiratory protection and handling recommendations. If there is a risk of arc or flash, technicians MUST put on all necessary Personal Protective Equipment (PPE) in accordance with NFPA70E for arc/flash protection PRIOR to servicing the unit. Failure to follow recommendations could result in death or serious injury.

### 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.

### Verifying Model Number for Local Power Requirements

Before installing the controller, verify the correct model for local power requirements (refer to the following table). The model number is located on the shipping label or on the product label inside the enclosure.

## 3

**Note:** The BMTM000DAB00 requires firmware that was installed at the factory, Version 4.00.002 for UUKL listing. All other boards require firmware Version 4.00.007 or newer to function correctly.

MP581 Models	Description
BMTM000AAD00	120 Vac
BMTM000AAD01	120 Vac with Operator Display
BMTM000BAD00	230 Vac Conformity European CE Marked
BMTM000BAD01	230 Vac with Operator Display, CE Marked
BMTM000DAB00	120 Vac UUKL Listed

### Selecting Mounting Location

The controller must be installed indoors in the following recommended locations:

- Near the controlled equipment to reduce wiring.
- Where service personnel have easy access.
- Where it is easy to see the operator display.
- Where public access is restricted to minimize the possibility of tampering or vandalism.

### NOTICE

**Avoid Equipment Damage!**  
 Install the controller in a location that is out of direct sunlight. Failure to do so may cause the controller to overheat.

## 4 Operating Environment Requirements

<b>Temperature:</b>	From 32°F to 122°F (0°C to 50°C)
<b>Humidity:</b>	10–90% non-condensing
<b>Power Requirements:</b>	98–132 Vac or 196–264 Vac, 1 A maximum, 1 phase, 50 or 60 Hz
<b>Weight:</b>	Mounting surface must be able to support 25 lb. (12 kg)
<b>Dimensions:</b>	16.50 in. × 14.75 in. × 5.50 in. (418 mm × 373 mm × 140 mm)
<b>Altitude:</b>	6,500 ft (2,000 m)
<b>Installation:</b>	Category 3
<b>Pollution:</b>	Degree 2

### Enclosure Dimensions, Clearances, and Mounting

Prior to mounting, ensure there is proper clearance. Refer to the following illustration.

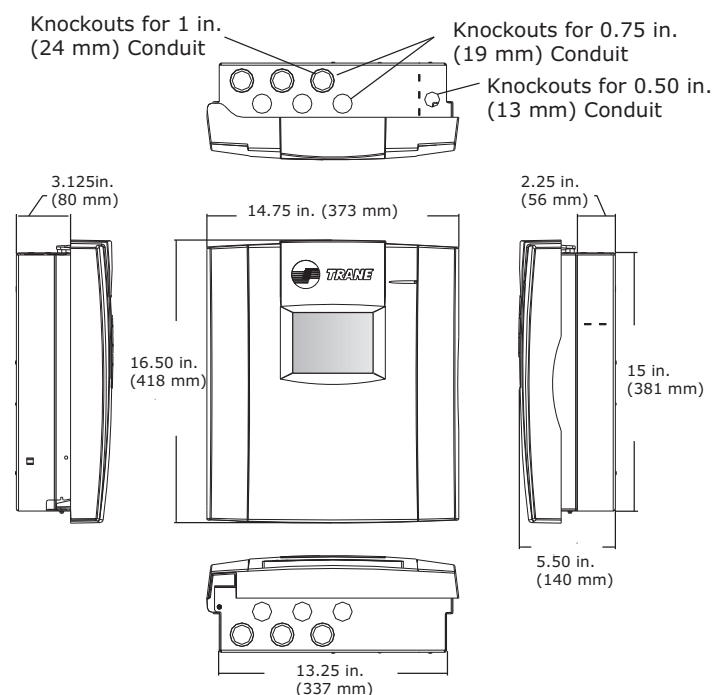
1. Use the enclosure as a template and mark the location of the four (4) mounting holes on the mounting surface.
2. Set aside the enclosure and drill holes for the screws at the marked locations.

**Note:** Drill holes for #10 (5 mm) screws or #10 wall anchors. Use wall anchors if the mounting surface is dry wall or masonry.

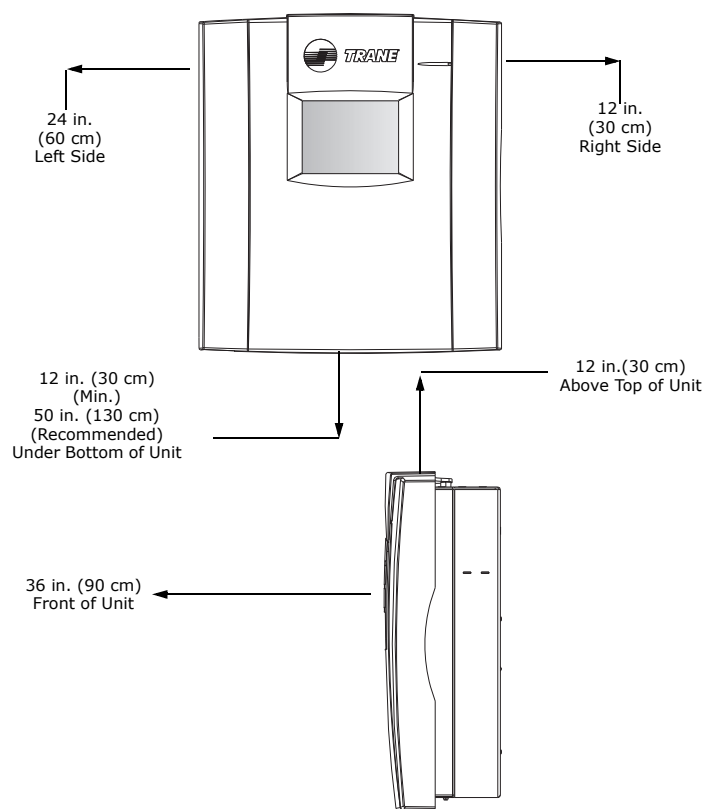
3. If needed, insert the wall anchors.

Secure the enclosure to the mounting surface with the enclosed #10 (5 mm) screws.

## 5 Enclosure Dimensions



## 6 Minimum Clearances



## 7 Wiring High Voltage AC Power

### WARNING

**Hazardous Voltage!**  
 Disconnect all electrical power, including remote disconnects, before servicing. Follow proper lockout/tagout procedures to ensure the power cannot be inadvertently energized. Failure to disconnect power before servicing could result in death or serious injury.

### NOTICE:

**Use Copper Conductors Only!**  
 Unit terminals are designed to accept copper conductors only. Other conductors may cause equipment damage.

### Guidelines

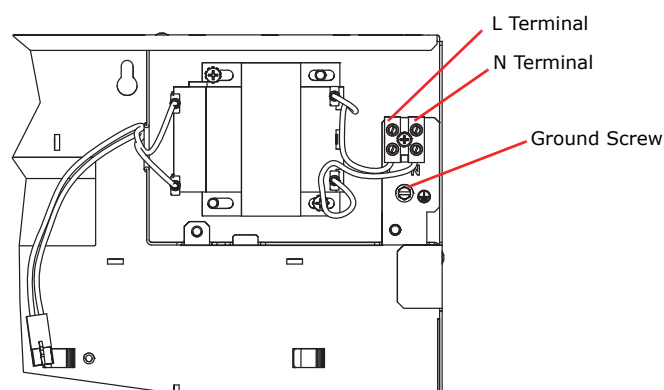
- The controller must receive power from a dedicated power circuit. Failure to comply may cause control malfunctions.
- A disconnect switch for the dedicated power circuit must be near the controller, within easy reach of the operator, and marked as the disconnecting device for the controller.
- High-voltage, power-wire conduits or wire bundles must not contain input/output wires. Failure to comply may cause the controller to malfunction due to electrical noise.
- High-voltage, power wiring must comply with the National Electrical Code™ (NEC) and applicable local electrical codes.

**Note:** High-voltage wiring requires a 3-wire, 120/230 Vac service (line, neutral, ground). The transformer voltage utilization range is 98–132 Vac (120 Vac nominal) or 196–264 Vac (230 Vac nominal). The panel automatically detects whether the current is 50 or 60 cycle.

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### Connecting High Voltage Wires

1. Lock open the supply-power disconnect switch.
2. Remove the knockout for ½-inch (13 mm) conduit located in the top right-hand corner of the enclosure.
3. Open or remove the enclosure door, if it is already installed.
4. Remove the high-voltage area cover plate located on the inside of the enclosure at the top right-hand corner.
5. Feed the high-voltage power wire into the enclosure.
6. Connect the line wire to the **L** terminal.
7. Connect the neutral wire to the **N** terminal.
8. Connect the green ground wire to the chassis ground screw. The ground wire should be continuous back to the circuit breaker panel.
9. Replace the cover plate.
10. Record the location of the circuit breaker panel and the electrical circuit on a label and attach it to the cover plate.



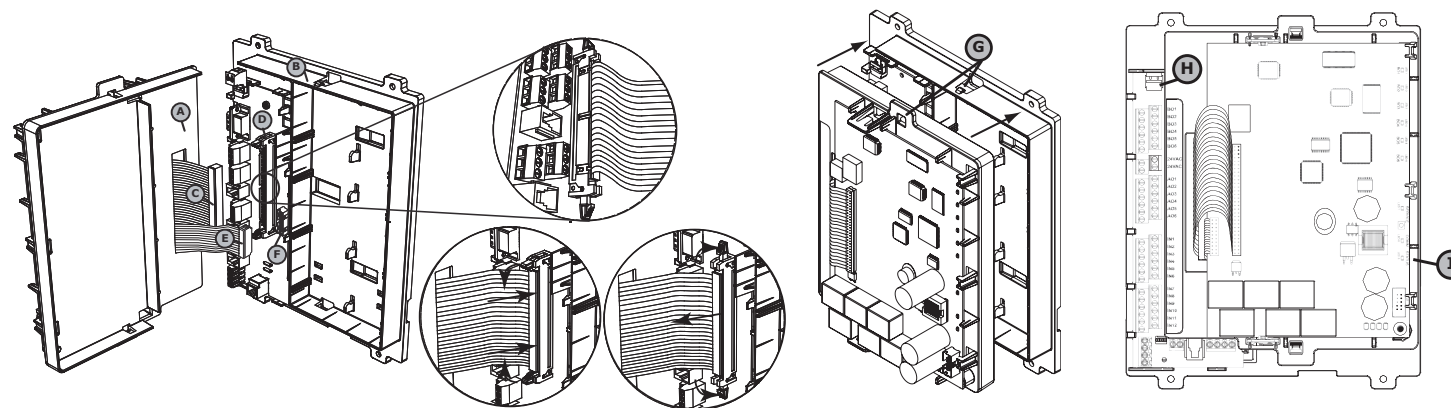
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### Installing the Main Circuit Board

The controller does not ship with the top plastic frame installed. The board can be kept in the office and programmed while the enclosure is mounted and wired. After programming has been completed, connect the circuit board to the termination board.

To begin, verify that the 24 Vac power cable is not connected to the termination board and then install the main circuit board as shown.

1. Hold the top frame (**A**) at a 90° angle to the bottom frame (**B**).
2. Connect the 60-pin cable (**C**) to the 60-pin cable ejector slot (**D**) by pressing down firmly on the cable until the cable ejector tabs collapse and snap over the ends of the cable (refer to the bottom left inset above). Then, connect the 20-pin cable (**E**) to the 20-pin slot (**F**).
3. Align the snaps on the top frame (**G**) with the mounting locks on the bottom frame and then push the two frames together in the direction indicated by the arrows. For controllers with an operator display, connect the operator display cable to the circuit board.
4. Connect the 24 Vac power cable to the termination board (**H**). The green status LED will light (**I**).



**Important:** The 60-pin cable ejector is designed to eject the 60-pin cable when disconnecting. Refer to the lower right inset. Ensure that the slot keys are aligned when connecting the 60-pin cable to the 60-pin ejector.

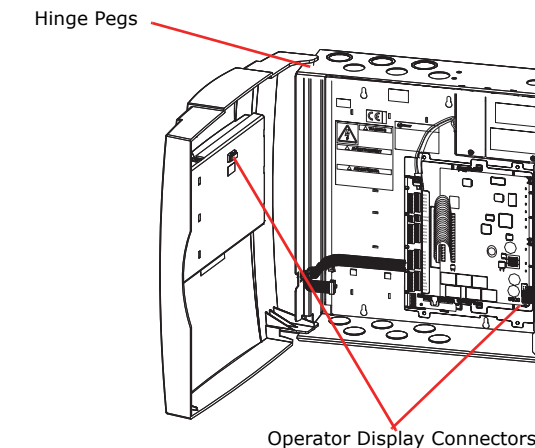
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### Installing the Enclosure Door

**Note:** Before installing, unpack the door and check for missing or damaged parts and any cracks in the plastic. Then, ensure that the magnetic latches and touch screen (if ordered) are installed.

1. Hold the door at a 90° angle from the enclosure.
2. Align the hinge pegs on the door with the hinge holes on the enclosure and gently lower the door until it rests securely in the hinge holes.
3. Verify that the door swings freely on the hinges and that the magnetic latches hold the door securely when closed.
4. For doors with an operator display, connect the operator-display cable to the operator-display connector on the door.

Observe that the operator-display cable passes beneath the termination board on enclosures with factory-installed operator displays.



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### Calibrating and Adjusting the Operator Display

#### Calibrating

1. On the Home screen, press the **Setup** button.
2. Press the **Page Down** button to view the next screen.
3. Press the **Calibrate Touch Screen** button.
4. Touch the **Target** using a small, pliable, blunt object, such as a pencil eraser. Hold until the beeping stops. A second calibration screen displays.

**Important:** Do not use sharp objects on the operator display screen.

5. Again, touch the Target with the object. Hold until the beeping stops. The touch screen is now calibrated.
6. Press the **Home** button.

To clean the operator display, use a soft cloth and glass cleaner. Spraying water or other type cleaners directly onto the screen could cause damage.

#### Adjusting Brightness/Contrast

1. On the Home screen, press the **Setup** button.
2. Press the **Page Down** button to view the next screen.
3. Press the **Adjust Brightness and Contrast** button.
4. To increase the brightness, press the buttons along the top row (in sequence) from left to right. To decrease the brightness, press the buttons from right to left.
5. To increase the contrast, press the buttons along the bottom row (in sequence) from left to right. To decrease the contrast, press the buttons from right to left.
6. Press the **Home** button.

#### Agency Listings and Compliance

The European Union (EU) Declaration of Conformity is available from your local Trane® Office.

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