



Installation Instructions

Tracer™ AH541 Controller

Keep this document at or near the controller for access to calibration and cleaning instructions for the operator display. For more detailed installation instructions, refer to the appropriate controller instruction guide.

Order Numbers

BMTA000AAC00 BMTA000AAC01
BMTA000BAC00 BMTA000BAC01

3270 3402

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 2020

BAS-SVN106D-EN

© 2020 Trane



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 practices.
- NOTICE** Indicates a situation that could result in equipment or property-damage only accidents.

2 Verifying Model Number for Local Power Requirements

Before installing the controller, verify the correct model for local power requirements, located on the shipping label of on the product label inside the enclosure.

Table 1. Model numbers

Model	Description
BMTA000AAC00	120 Vac
BMTA000AAC01	120 Vac, with operator display
BMTA000BAC00	230 Vac, Conformity European CE marked
BMTA000BAC01	230 Vac, with operator display, CE marked

Selecting a Mounting Location

Ensure that the location meets the operating environment requirements and clearance requirements described in the following sections. The controller must be installed indoors. Trane recommends locating the controller:

- 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.

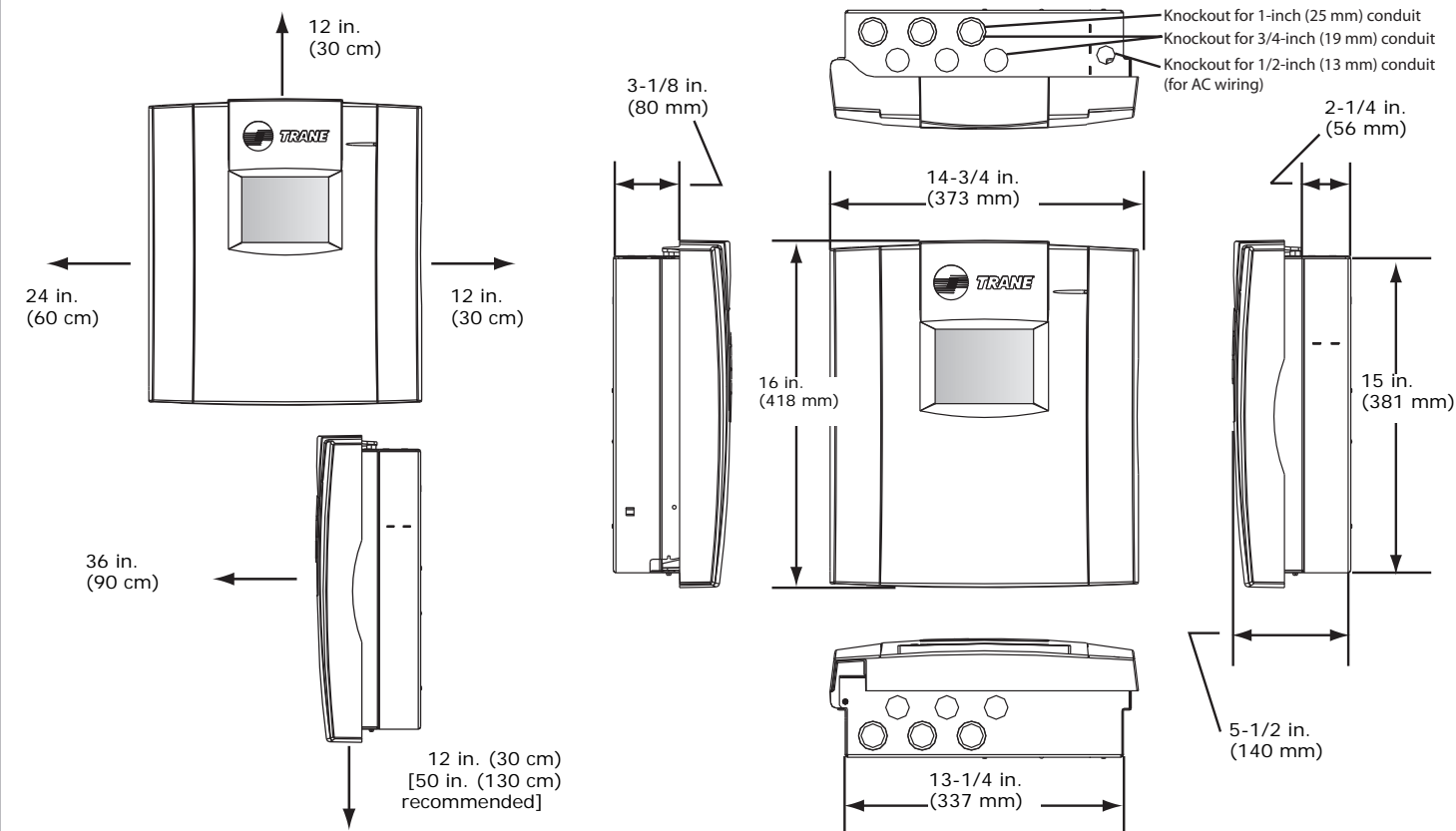
3 Storage and Operating Specifications

Table 2. Specifications

Temperature:	• Without display: -40°F to 158°F (-40°C to 70°C) • With display: 32°F to 122°F (0°C to 50°C)
Humidity:	5–95% non-condensing
Power requirements:	98–132 Vac or 196–264 Vac, 1 A maximum, 1 phase, 50 or 60 Hz
Weight:	Mounting surface must be able to support 25 lb. (12 kg)
Dimensions:	16 ½ in. × 14 ¾ in. × 5 ½ in. (418 mm × 373 mm × 140 mm)
Altitude:	6500 ft (2000 m)
Installation:	U.L. 840: Category 3
Pollution:	U.L. 840: Degree 2

4 Controller Clearances

Ensure that the selected controller location provides sufficient clearance space as shown in the illustrations below.



5 Mounting and Wiring

The following describes how to mount the enclosure and wire high-voltage power to the controller.

To mount the enclosure:

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

Drill holes for #10 (5 mm) screws or #10 wall anchors. Use wall anchors if the mounting surface is dry wall or masonry. Insert wall anchors if needed. Secure the enclosure to the mounting surface with the enclosed #10 (5 mm) screws.

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

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

Important: Ensure the correct controller model for 120 Vac or 230 Vac.

To ensure proper operation of the controller, install the power supply circuit in accordance with the following 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.
- High-voltage wiring requires three-wire 120/230 Vac service (line, neutral, ground).

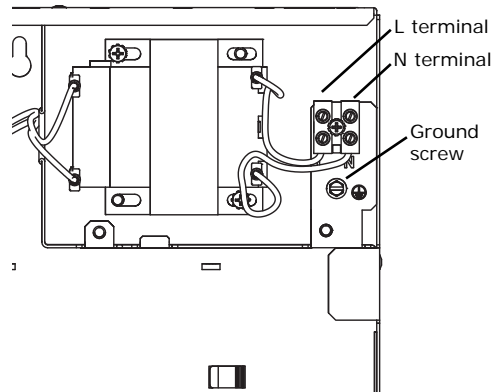
Note: The transformer voltage utilization range is 98–132 Vac (120 Vac nominal) or 196–264 Vac (230 Vac nominal). The panel automatically detects whether the current is 50 or 60 cycle.

6

Mounting and Wiring (continued)

To connect high-voltage power wires:

1. Lock open the supply-power disconnect switch.
2. At the top-right corner of the enclosure, remove the knockout for ½-inch (13 mm) conduit.
3. Open or remove the enclosure door if it is already installed.
4. Inside of the enclosure at the top-right corner, remove the high-voltage area cover plate.
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.



WARNING

Hazardous Voltage!

The cover plate must be in place when the controller is operating. Failure to replace the cover could result in death or serious injury.

9. Replace the cover.
10. On a label, record the location of the circuit breaker panel and the electrical circuit. Attach the label to the cover plate.

7

Installing the Main Circuit Board

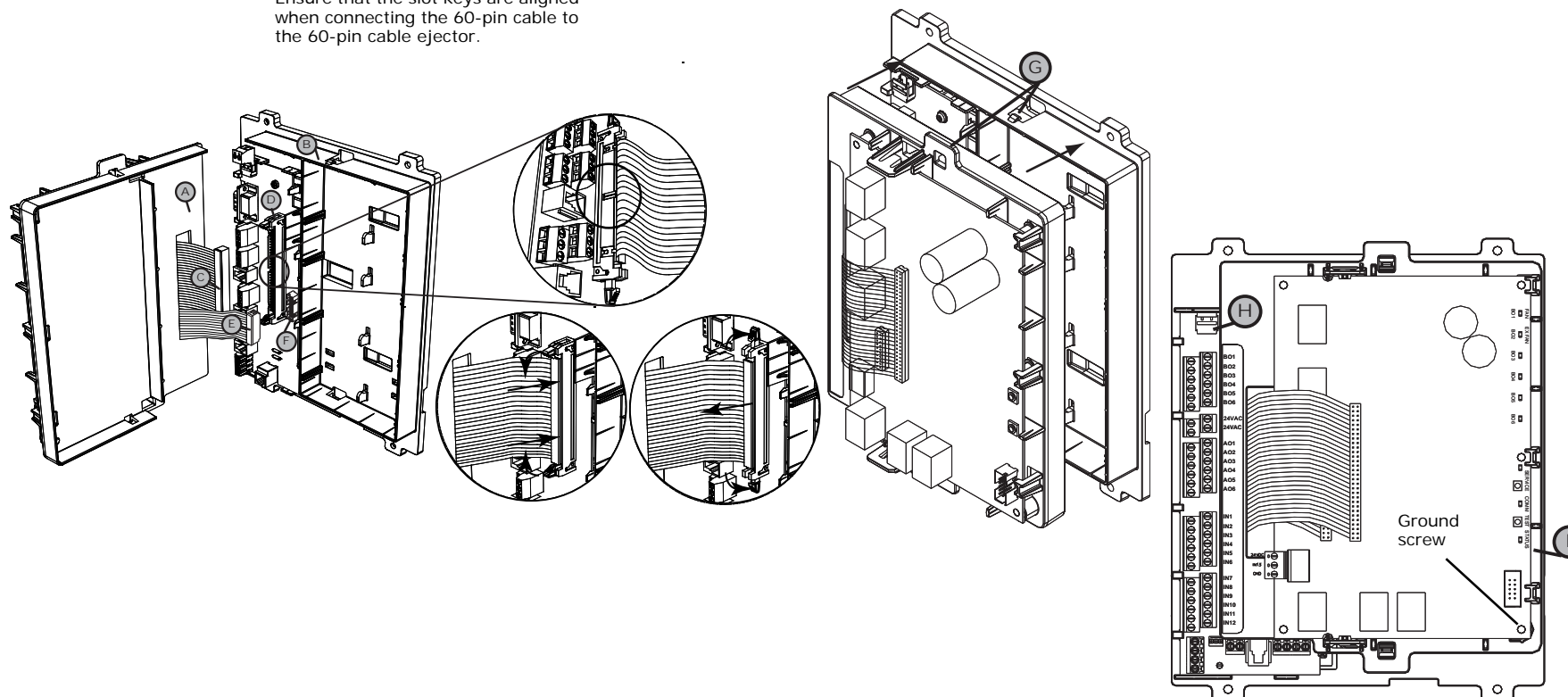
The controller does not ship with the top plastic frame installed. The board can be kept in the office and programmed while the enclosure is mounted and wired. After programming has been completed, connect the circuit board to the termination board. To begin, verify that the 24 Vac power cable is not connected to the termination board and then install the main circuit board.

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 ejector tabs collapse and snap over the ends of the cable. 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.

Note: For controllers with an operator display, connect the operator-display cable to the circuit board.

4. Install the supplied grounding screw (M3.5 x 49) into the assembly and turn it into the sheet metal backing.
5. Connect the 24 Vac power cable to the termination board (H). The green status LED will light (I).

Ensure that the slot keys are aligned when connecting the 60-pin cable to the 60-pin cable ejector.



8

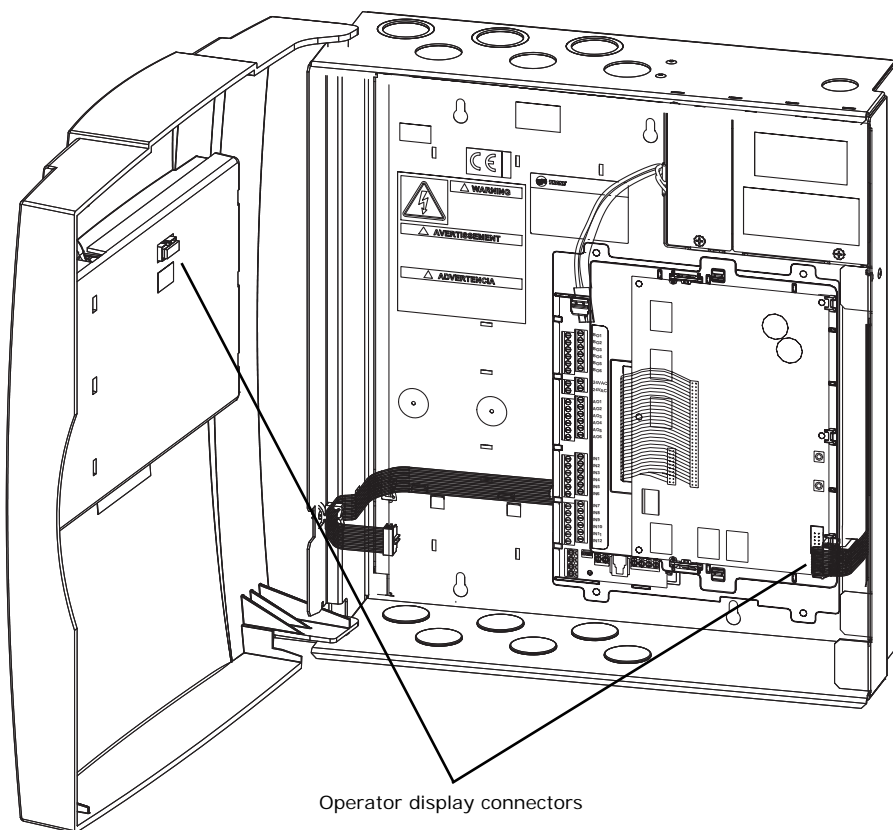
Installing the Enclosure Door

Note: Unpack the enclosure 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.

To install the enclosure door:

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.
3. Gently lower the door until it rests securely in the hinge holes.
4. Verify that the door swings freely on the hinges and that the magnetic latches hold the door securely when it is closed. For doors with an operator display, connect the operator-display cable to the operator-display connector on the door.

Note: The operator-display cable passes beneath the termination board on enclosures with factory-installed operator displays.



9

Operator Display Setup

The following instructions describe how to calibrate and adjust the operator display.

NOTICE

Avoid Equipment Damage!

To clean the operator display, use a cloth dampened with commercial liquid glass cleaner. Spraying water or cleaners directly on the screen may result in equipment damage.

To calibrate the operator display:

1. On the Home screen, press the Setup button and the Setup menu displays.
2. Press the Page Down button to view the Setup List screen on Page 2 of 2.
3. Press the Display Setup button and the Display Setup screen displays.
4. Press the Calibrate Touch Screen button and a calibration screen displays.

NOTICE

Avoid Equipment Damage!

Do Not allow the operator display to come in contact with sharp objects.


5. Touch the Target using a small, pliable, blunt object, such as a pencil eraser. Hold until the beeping stops. A second calibration screen displays.
6. Again, touch the Target with the object. Hold until the beeping stops. The Advanced Selection screen displays.
7. Press the Home button and the Home screen displays.

To adjust the brightness and contrast:

1. On the Home screen, press the Setup button and the Setup menu displays.
2. Press the Page Down button to view the Setup List screen on Page 2 of 2.
3. Press the Display Setup button and the Display Setup screen displays.
4. Press the Adjust Brightness and Contrast button and the Brightness and Contrast screen displays.
5. 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.
6. 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.
7. Press the Home button and the Home screen displays.

10

Tracer AH541 Declaration of CE Conformity

Manufacturer name:	Trane		
Manufacturer address:	4833 White Bear Parkway St. Paul, MN 55110, USA		
The manufacturer hereby declares that the product:			
Product name:	Tracer AH541 modular configurable controller		
Model numbers:	BMTA0008A800, BMTA0008B01, BMTA0008C00		
Conforms to the following standards or other normative documents:			
Electromagnetic emission (by Council directive 89/336/EEC)	EMC1000-4-2:2001 Radiated EN1000-3-2 Conducted EN1000-3-2 Amendment A1:1998	1995 Class B limit 1995 Class B limit	
Electromagnetic immunity (by Council directive 89/336/EEC)	EMC1000-4-2:1989 IEC 1000-4-2:1995 EN1000-4-2	+6.0 kV by contact +8.0 kV by air	
	IEC 1000-4-3:1995 EN1000-4-3:1995 Amendment A1:1998	10.0 V/m 80 to 1000 MHz	
	IEC 1000-4-4:1995 EN1000-4-4	+2.0 kV ac power lines +1.0 kV signal lines	
	IEC 1000-4-5:1995 EN1000-4-5	+2.0 kV	
	IEC 1000-4-6:1996 EN1000-4-6	10.0 V 0.15 to 80 MHz	
	IEC 1000-4-8:1993 EN1000-4-8		
	IEC 1000-4-11:1994 EN1000-4-11		
When and Where Issued Electromagnetic Emission: 08/08/2003 Electromagnetic Immunity: 11/18/2003			
Mark of Compliance:			
			
John Olson Design/Compliance Engineer European contact Societe Trane (Spain, France) 1, rue des Ameriques, B.P. 4 F-88191 Colbsey Cedex, France Phone: (33) 329 31 73 00 Fax: (33) 329 81 24 98			
This document validates CE conformity of the Tracer AH541 modular configurable controller.			

Trane - by Trane Technologies (NYSE: TT), a global climate innovator - creates comfortable, energy efficient indoor environments for commercial and residential applications. For more information, please visit trane.com or tranetechnologies.com.

Trane has a policy of continuous product and product data improvement and reserves the right to change design and specifications without notice. We are committed to using environmentally conscious print practices.