



# Installation Instructions

## Tracer XM30 Expansion Module



Ordering Number: X13651537010

X39641148-01

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

The Tracer XM30 Expansion Module provides additional points when needed for Tracer UC400 applications. Each expansion module has a total of 4 points that can be configured using any combination of analog or binary inputs and analog outputs (refer to the section, "XM 30 Installation Guidelines and General Information"). A maximum of eight (8) expansion modules can be added to a Tracer UC400. However, the use of a PM014 DC power supply is required for applications requiring more than two XM30 modules.

#### Packaged Contents

- One (1) XM30 expansion module
- One (1) bag of 2-pin and 4-pin terminal connectors
- One (1) IMC wiring harness

**Important:** Visually inspect contents for obvious defects or damage. All components have been thoroughly inspected before leaving the factory. Any claims for damage incurred during shipment should be filed immediately with the carrier.

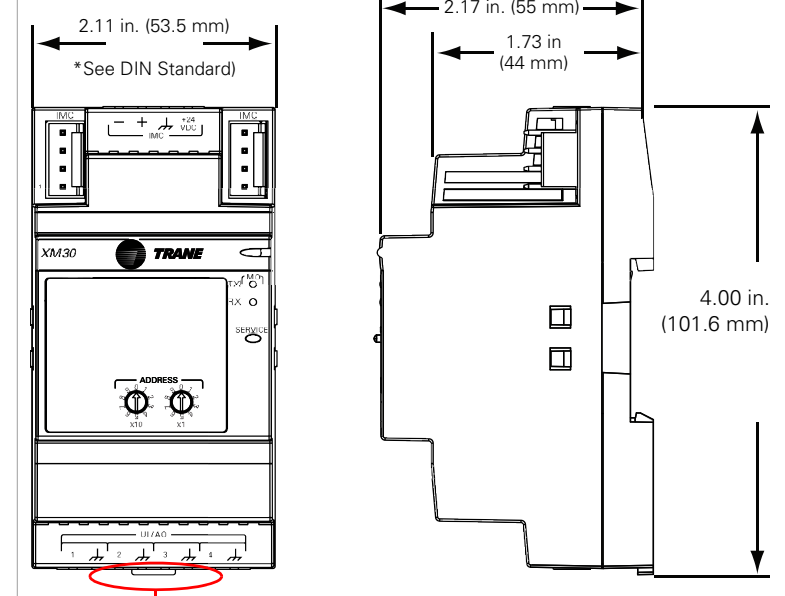
#### Required Tools for Mounting and Wiring

A 1/8 inch, flat-bladed screwdriver is required to perform functions such as setting rotary addressing switches, tightening or loosening screw

### 2 Storage and Operating Environment Specifications

Storage	
Temperature:	-67°F to 203°F (-55°C to 95°C)
Relative humidity:	5% to 95% (noncondensing)
Operation	
Temperature:	-40°F to 158°F (-40°C to 70°C)
Humidity:	5% to 95% (noncondensing)
Power:	24 Vdc ±10%, 120 mA
• Mounting weight of controller:	• Mounting surface must support .27 lb. (.122 kg)
• Mounting weight of controller with terminal connectors:	• Mounting surface must support .31 lb. (.142 kg)
Environmental rating (enclosure):	NEMA 1
Installation:	UL 840: Category 3
Pollution:	UL 840: Degree 2
Agency Compliance	
• UL916 PAZX- Open Energy Management Equipment	
• UL94-5V Flammability	
• CE Marked	
• FCC Part 15, Subpart B, Class B Limit	

### 3 XM30 Dimensions



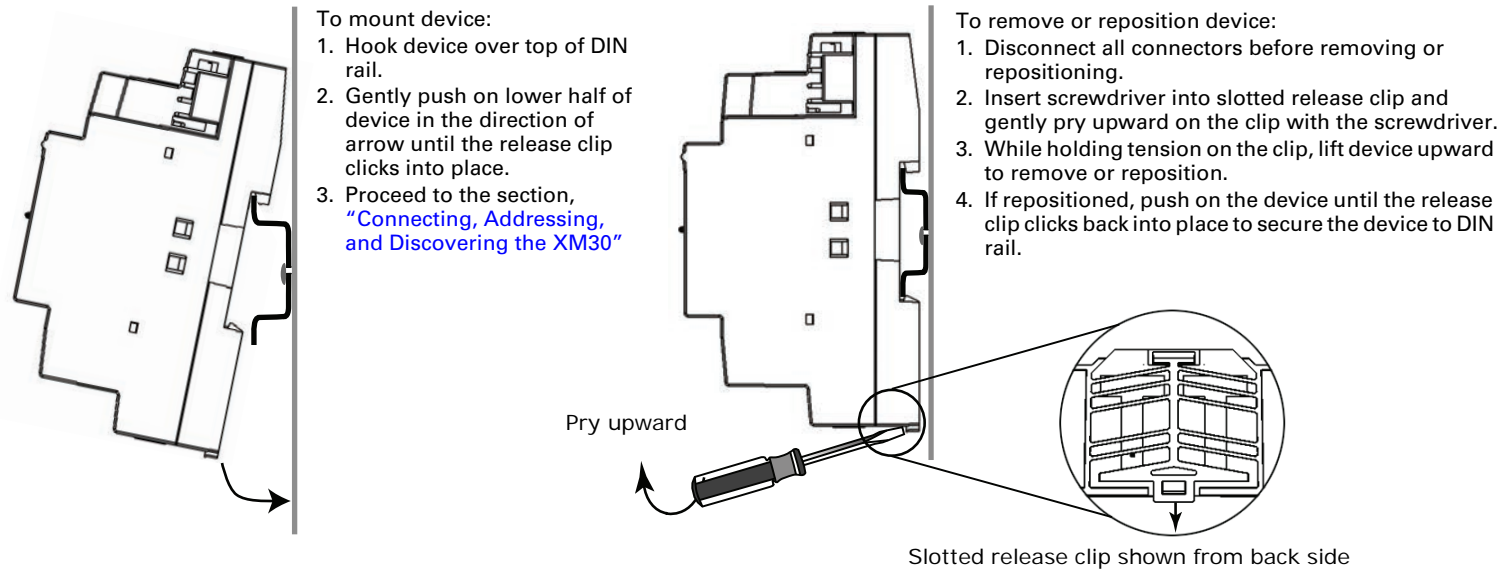
**Important:** Slotted release clip shown– if removing or repositioning the controller, the user must remove connectors before proceeding. (Refer to "XM 30 Installation Guidelines and General Information")

\*DIN Standard 43 880, Built-in Equipment for Electrical Installations, Overall Dimensions and Related Mounting Dimensions

### 4 Mounting or Removing the XM 30

To mount or remove the XM30 from DIN rail, follow the illustrated instructions below:

**NOTICE**  
Avoid Equipment Damage! Do not use excessive force to install device on to the DIN rail. Excessive force could result in damage to the plastic enclosure.



**Important:** Follow recommended installation procedures if using other manufacturer's DIN rails and enclosures.

### 5 XM 30 Installation Guidelines and General Information

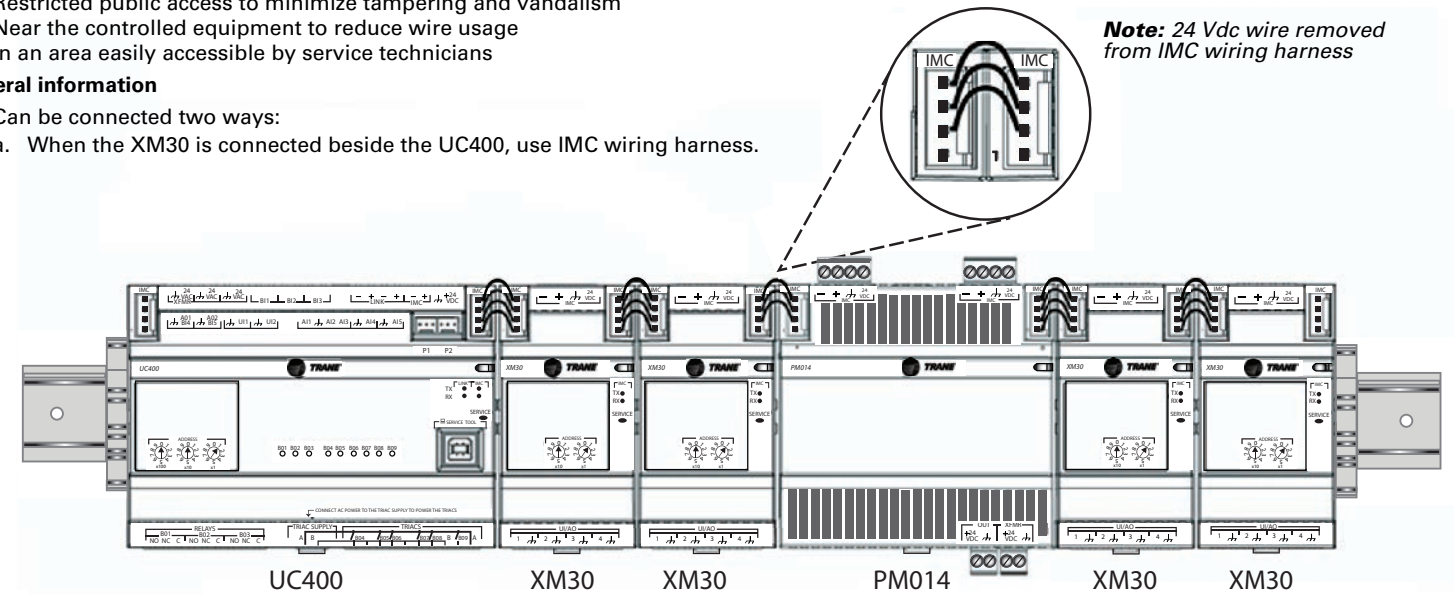
#### Installation Guidelines

Before installing the XM30, follow these locating guidelines:

- In an environment protected from weather elements
- Restricted public access to minimize tampering and vandalism
- Near the controlled equipment to reduce wire usage
- In an area easily accessible by service technicians

#### General information

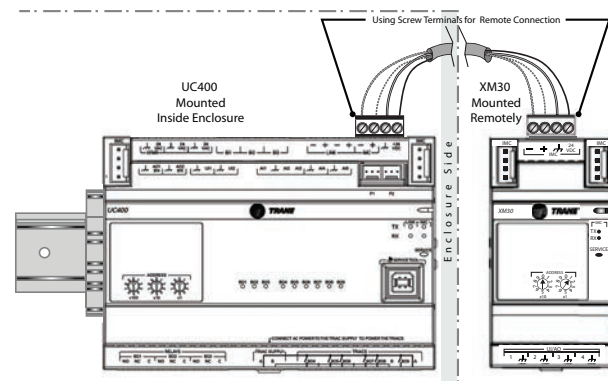
- Can be connected two ways:
  - a. When the XM30 is connected beside the UC400, use IMC wiring harness.



**Important:** 24 Vdc power is supplied by the UC400 for up to two (2) XM30 modules with a maximum power draw of 200 mA. The use of a PM014 DC power supply is required for applications that require three to eight XM30 modules. (Refer to the illustration below for wiring instructions and to the Power Supply Module PM014 Installation, Operation and Troubleshooting Manual [BAS-SVX33].)

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- b. When the XM30 is connected remotely (meaning, not located inside the same enclosure as the UC400), use screw terminal connectors. Refer to the illustration on the below.



- Requires 18-22 AWG, stranded, tinned-copper, shielded, twisted-pair wire if installed outside enclosure or if the supplied IMC wiring harness is not used.
- Power wiring for one (1) remote mounted XM30 module to a UC400 is limited to 656 ft (200 m).
- If two XM30 modules are mounted remotely, the sum of the power wiring lengths should not exceed 500 feet or 152 meters.
- Wiring length limit for IMC communications is 200 meters.
- When wiring with terminal connectors, strip the wires to expose 0.28 inch (7 mm) of bare wire. Insert each wire into a terminal connector and tighten the terminal screw. A tug test is recommended after tightening.
- The UC400 IMC screw terminal connectors have a current limit of 200 mA.
- Mount on DIN rail horizontally or vertically (allow for proper ventilation clearance).
- I/O points of XM30 expansion modules are configured with the Tracer TU service tool.

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**Table 1. XM30 Power Budget**

XM30 Base DC Current Draw	35 mA	Per XM30
Resistive Input	0.5 mA	Each
Analog Inputs	0 mA	Each
Binary Inputs and Binary Pulse Accumulator Inputs	15 mA	Each

#### Input/Output Terminal Warning Requirements

Maximum Wire Lengths		
	Inputs	Outputs
Binary	1,000 ft (300 m)	Not Applicable
0–20 mA	1,000 ft (300 m)	1,000 ft (300 m)
0–10 Vdc	1,000 ft (300 m)	300 ft (100 m)
Thermistor/Resistive/RTD	300 ft (100 m)	Not Applicable

- All wiring must be in accordance with the National Electrical Code™ and local codes.
- 18–22 AWG stranded, tinned-copper, shielded, twisted-pair wire is recommended for 0–10 Vdc input/output and thermistor/resistive/RTD input wiring.
- 18–22 AWG stranded copper wire is recommended for 0–20 mA input/output and binary input wiring.

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#### AC Power Warnings, Cautions, and Notices

##### ⚠ WARNING

**When wiring transformers to the UC 400 and PM 014 DC power supply hazardous voltage!**  
Disconnect all electric power, including remote disconnects, before servicing. Follow proper lockout and/or tagout procedures to ensure the power cannot be inadvertently energized. Failure to disconnect power before servicing could result in serious injury or death.  
(Refer to the Tracer UC400 Programmable Controller Installation Sheet [X39641064-01] and the PM014 Power Supply Module Installation Sheet [X39641159-01])

##### ⚠ CAUTION

**Personal Injury and Equipment Damage!**  
After installation, make sure to check that the 24 Vac transformer is grounded through the controller. Failure to check could result in personal injury and/or damage to equipment.

**Note:** Measure voltage between chassis ground and any other ground symbol on the module ( $V_{ac} \leq 4.0V$ ; must comply with National Electrical Code and local electrical codes).

**Important:** AC wiring must be in conformance with the specifications for each device and comply with National Electrical Code and local electrical codes.

##### NOTICE

**Equipment Damage!**  
Complete input/output wiring before applying power to the XM30. Failure to complete this task could cause damage to the controller or power transformer due to inadvertent connections to power circuits.

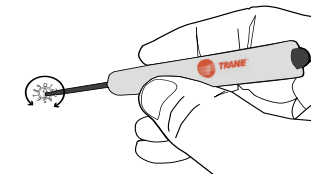
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#### Connecting, Addressing, and Discovering the XM30

The following steps explain how to connect and configure the XM30 with the UC400 controller using the Tracer TU service tool:

1. Disconnect the power from the UC400.
2. Set the two rotary dials on the front of XM30 to addresses 01 to 08, depending on the number of installed expansion modules.

Use a 1/8 inch flathead screwdriver to set rotary dials. Dial rotates either direction.

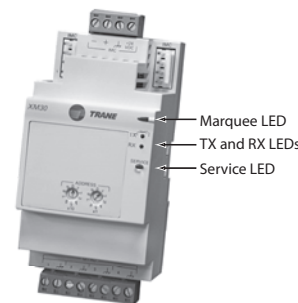


3. Connect the XM30 and the UC400, using either the provided IMC wiring harness or by running wire to the IMC/24 Vdc screw terminal connectors.

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4. Power up the UC400 and the XM30. The transmitting (TX) and receiving (RX) LEDs blink when communication occurs between the devices. Note the following LED activities on the front of the XM30:

- Marquee LED:
  - **Green;** if powered, application running, no faults or alarms.
  - **Solid red;** low power or malfunction or no application, processor not running.
  - **Sequencing when powered;** red and then to green.
- Service LED:
  - **Green;** when pressed and remains on while latched in service mode
  - **Not lit;** normal operation
  - **Sequence when powered;** one short green blink on power up during memory test and will stay green if memory test fails. When service is selected, a module will continue using its normal node number for communication. However, it will communicate as node 0 if given a chance, but this does not affect operation.



5. Open the Tracer TU service tool and then establish a direct connection to the UC400 using a USB cable.

**Note:** Using the TU adapter tool to connect through a zone sensor is not allowed for installation and discovery of the XM30 module due to communication conflict on the IMC link. The TU adapter tool may be used for device connection after installation and discovery are complete.

6. On the right-hand side of the TU screen, click on the **Controller Settings Utility** tab and then select the **Controller Settings** tab from the top of the screen.
7. Open the **Expansion Module** group box and check the appropriate box for each module that will be installed.
8. Select the expansion module type, if necessary.
9. Verify that the correct address is displayed for each module in the **Address** field. A rotary dial setting of **01 equals 1** in the **Address** field.

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10. Click the **Discover Device** button. This action will reset the XM30 and its transmitting/receiving (TX/RX) LEDs will blink when communication occurs between the devices. Tracer TU displays **Device Discovery Complete** when the discovery process is complete.

11. Click **Save** at the bottom of the screen. The additional expansion module points are now available for configuration with the Tracer TU service tool.

#### XM30 Configurable Connections

The table below provides information about the XM30 configurable connections.

##### Device Connections

Connection	Quantity	Types	Range
Inputs	Can be configured using any combination of analog or binary inputs/analog outputs	Thermistor	2252 Ω, 10k, 20k, 100kΩ
		Resistive (Setpoint)	100 Ω to 1 MΩ
		RTD	1 kΩ; platinum, Balco™ or nickel
		Current	0–20 mA (linear)
		Voltage	0–10 Vdc (linear)
		Binary	Dry Contact
		Pulse Accumulator	Minimum 20 milliseconds open or closed
Outputs		Current	0–20 mA @ 16V
		Voltage	0–16 Vdc @ 20mA
<b>Overall Point Total</b>	4		

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#### Agency Listings and Compliance

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

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