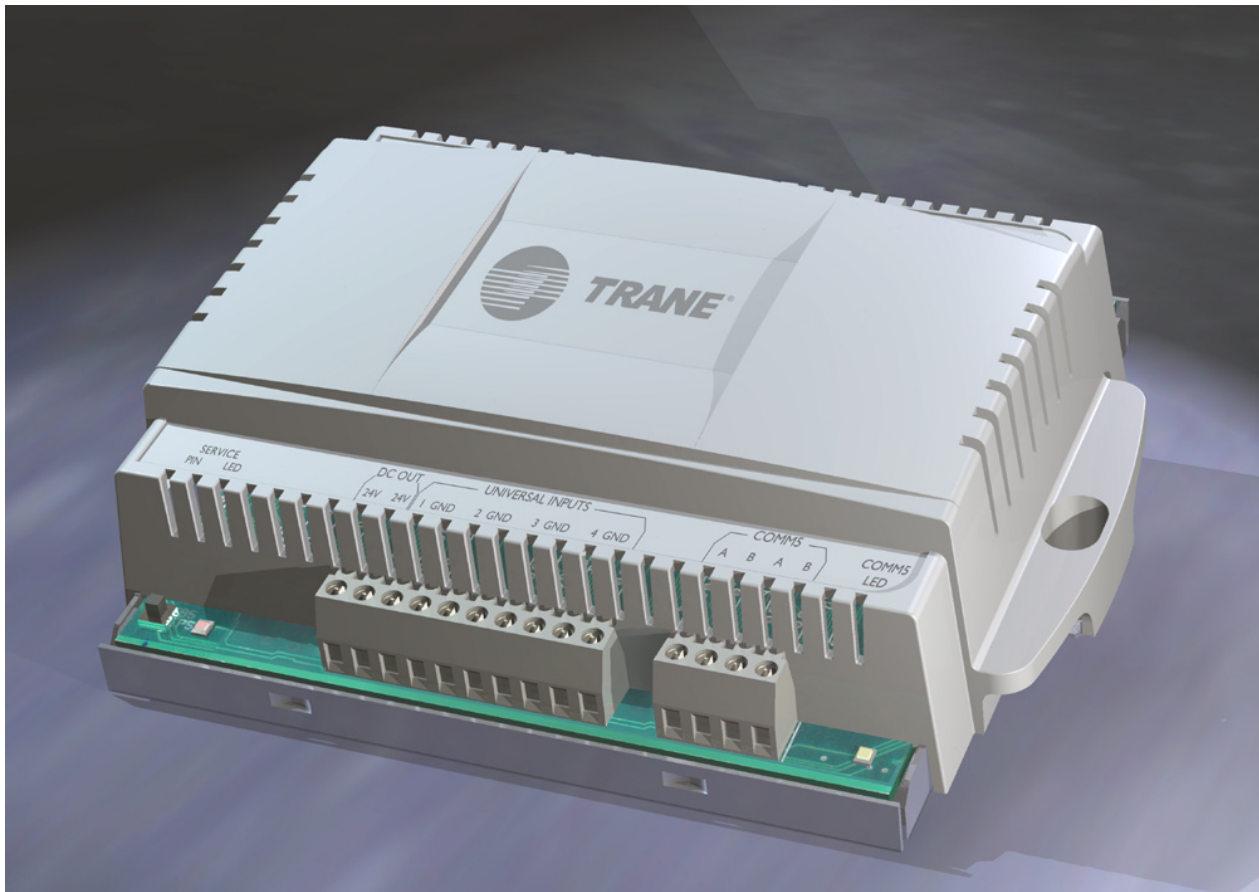




Product Catalog

# Tracer® Controller

MP503 Input/Output





# Introduction

## Warnings, Cautions, and Notices

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.

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The three types of advisories are defined as follows:

<b>⚠ WARNING</b>	Indicates a potentially hazardous situation which, if not avoided, could result in death or serious injury.
<b>⚠ CAUTION</b>	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.
<b>NOTICE</b>	Indicates a situation that could result in equipment or property-damage only accidents.

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## Agency Listings and Compliance

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

## Revision History

BAS-PRC009D-EN

- Added Agency Listings and Compliance statement.

BAS-PRC009-EN

- Cost Savings: Update to mount plate and metal enclosure to remove metal screw/nut and use plastic PEM nut. Change to figure illustrations.



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## Product Overview

The Tracer MP503 input/output (I/O) module is a configurable, multi-purpose device used to provide data monitoring and binary control as part of a building automation system (BAS).

Communication between the module and a BAS occurs over a LonTalk communication link.

The Tracer MP503 I/O module is in a compact enclosure. It can monitor a wide variety of sensed conditions and provide equipment start/stop, or other switched states, based on communicated commands from a peer device or higher level BAS.

The Tracer MP503 I/O module includes four universal inputs and four binary outputs.

### Universal Inputs

Each of the four universal inputs can be configured for use with any of the following:

- Trane 10 kW thermistor temperature sensor
- 0–20 mA or 0–10 Vdc sensor
- Binary (dry-contact) device

### Binary outputs

Each of the four binary outputs can be controlled independently, as commanded from a peer control device or higher level BAS



# Features

## Application Flexibility

Tracer MP503 I/O modules may be located anywhere in a building, wherever up to four monitoring and/or four binary control points are needed. By connecting the Tracer MP503 to a LonTalk network, input data can be sent from and commands can be sent to the Tracer MP503.

The Tracer MP503 I/O module can be used in a wide variety of monitoring and control applications. Typical applications include monitoring of the following:

- Room, duct, or water temperatures
- Relative humidity in rooms or ductwork
- Pressure sensing, including duct static pressure and hydronic differential pressures
- Status of fan or pump operation

The outputs can be used for on/off functions including:

- Fan control
- Pump control
- Lighting control
- Staging of heating or cooling equipment.

## Easy Installation

The Tracer MP503 is suitable for indoor mounting in a variety of locations. Screw terminals that are clearly labeled ensure that wires are connected quickly and accurately. A compact enclosure design simplifies installation in small spaces

## Configurable Inputs

Each of the four universal inputs can be easily configured using the Trane Tracker (BMTK) light-commercial system controller or the Rover service software tool. Each input is individually selectable for input signal type, and the value of the input signal is then transmitted to any other peer device on the LonTalk network or BAS.

## Internal 24 Vdc Sensor Power Supply

The Tracer MP503 has a built-in 80 mA, 24 Vdc power supply capable of powering 4–20 mA transmitting sensors. This capability eliminates the need for auxiliary power supplies. Any of the four inputs can be used with 4–20 mA sensors.

## 12-bit Analog-to-Digital (A/D) Conversion

The four universal inputs of the Tracer MP503 provide very precise sensing of measured variables through the use of high-resolution analog-to-digital converters.

## Output Status LEDs

Light-emitting diodes (LEDs) located on the Tracer MP503 board indicate the status of each of the four binary outputs. An LED lights up whenever its respective binary output is energized. With a glance at these visual indicators, you can tell if the associated controlled device is on or off.



## Features

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### Output Default Options

Each of the four binary outputs has a default state provided to ensure fail-safe operation of controlled equipment in the event of a system-level communications loss. The output can be configured to default to off or on, or can maintain its current state.

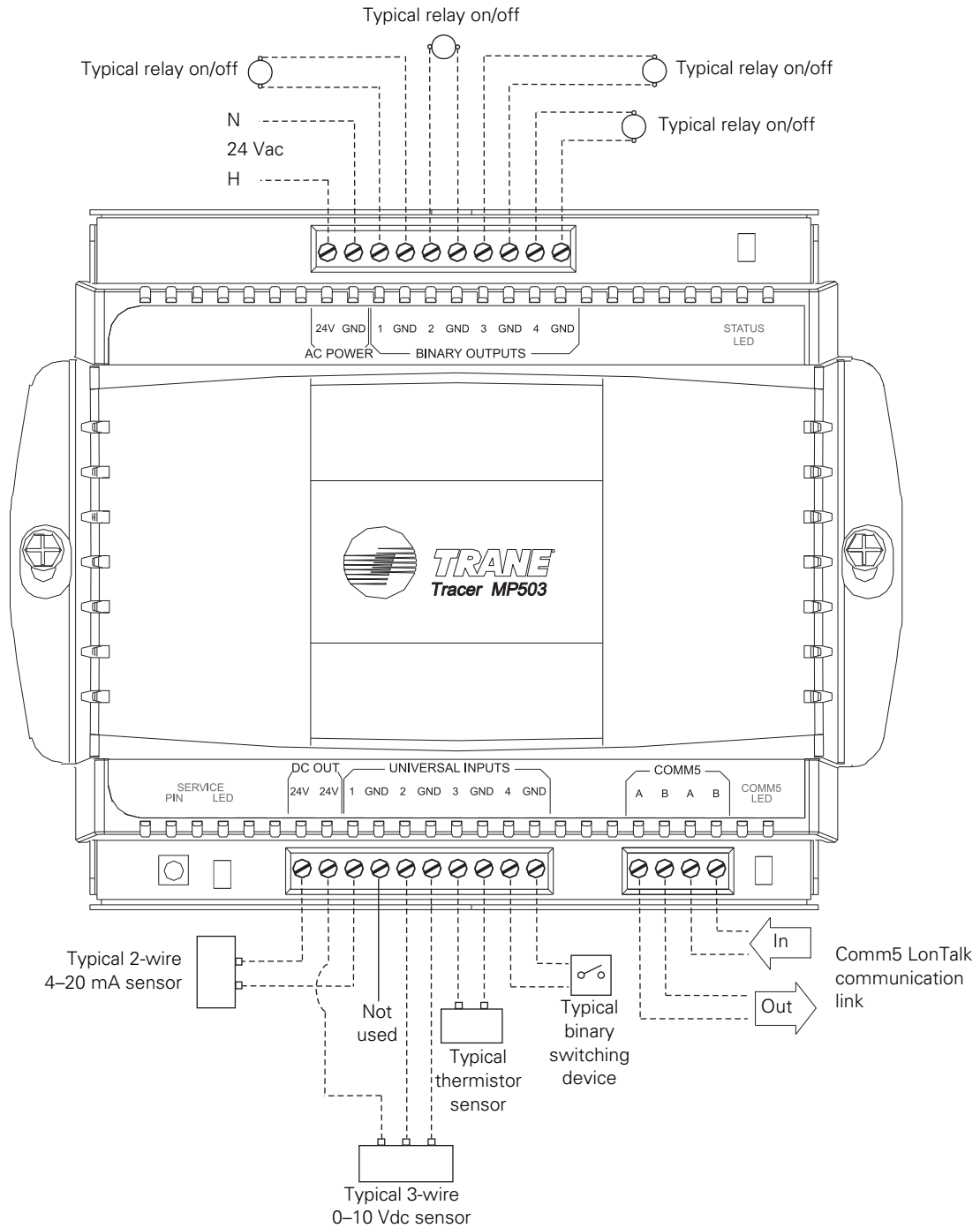
### Wide Ambient Operating Temperatures

The Tracer MP503 has an extended operating temperature range from  $-40^{\circ}\text{F}$  to  $158^{\circ}\text{F}$  (from  $-40^{\circ}\text{C}$  to  $70^{\circ}\text{C}$ ). Because of this extended range, the module can be placed in locations not suitable for other building control modules. If the module is used outdoors, it should be placed in a suitable NEMA-4 enclosure (not included), for weather protection.

### Interoperability

The Tracer MP503 I/O module communicates using the LonTalk FTT-10A communication protocol. The Trane implementation of this protocol is also referred to as Comm5. Comm5 allows the controllers to operate in peer-to-peer configuration and to communicate with other compatible building control systems. The module supports LonMark standard network variable types (SNVTs), allowing the module to be used with the Trane Tracer Summit and Tracker (BMTK) building control systems, as well as other building control systems that support the LonTalk protocol.

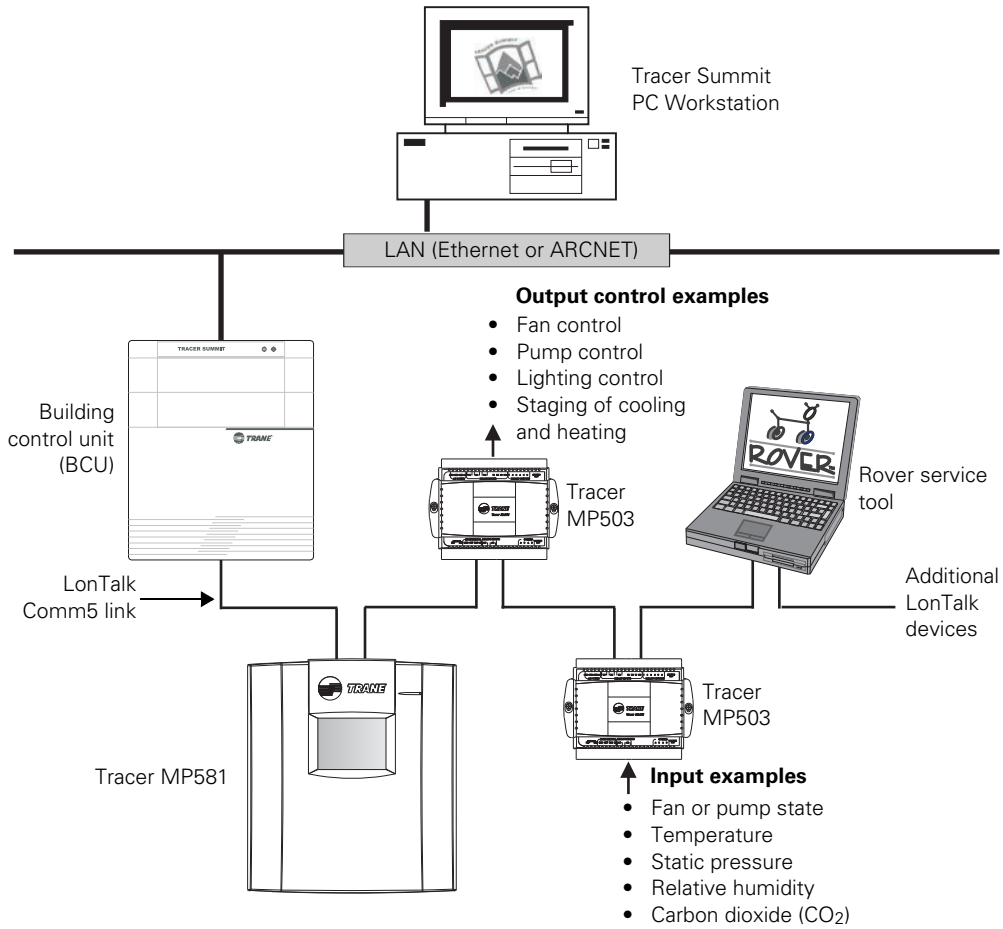
# Wiring Diagram



# Network Architecture

The Tracer MP503 can operate on a Tracer Summit building automation system (shown below), a Tracker (BMTK) system, or as part of a peer-to-peer network.

The Tracer MP503 can be configured using the Rover service tool for Tracer controllers or other PC-based service tools compliant with the EIA/CEA-860 standard. This tool can be connected at any accessible location on the LonTalk Comm5 communication link.





# Dimensions and Specifications

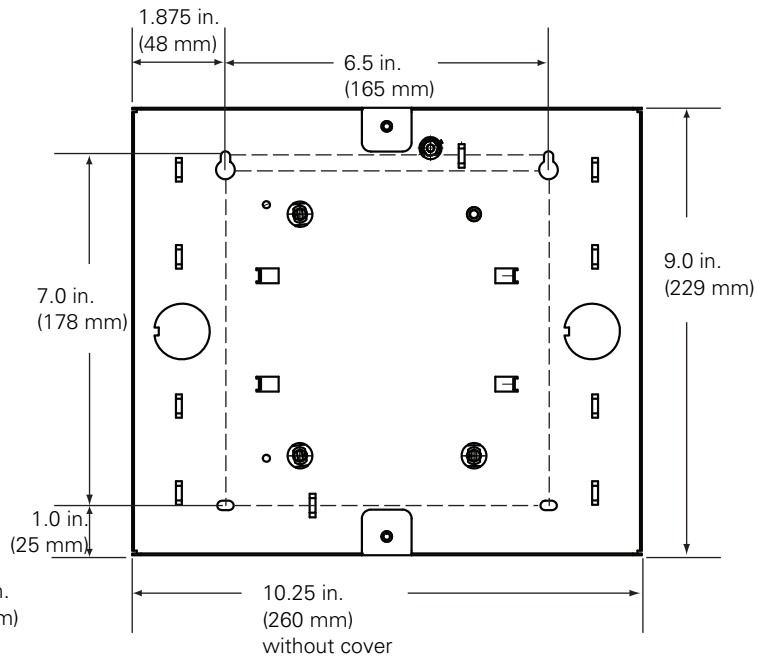
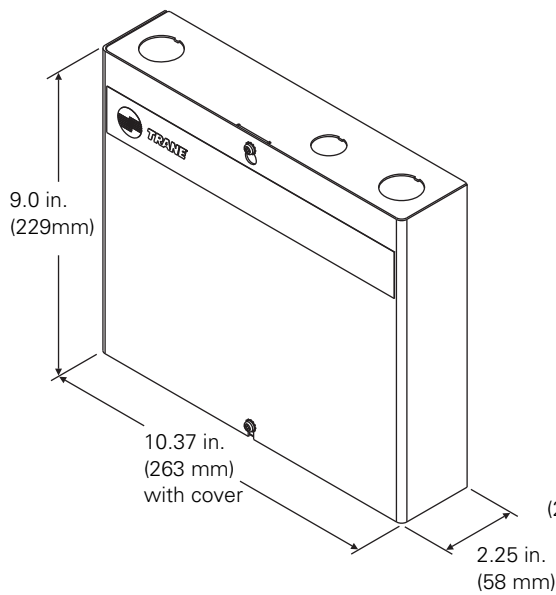
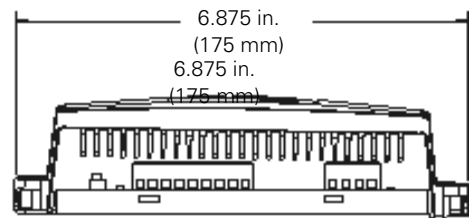
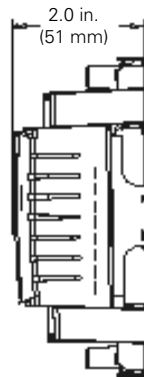
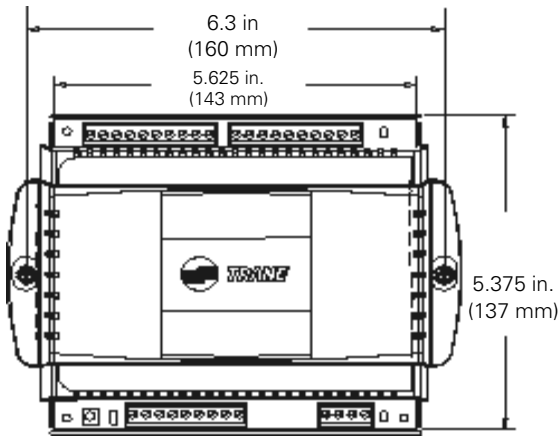
## Dimensions

### Plastic Cover Model Dimensions

- Height: 5.375 in. (137 mm)
- Width: 6.875 in. (175 mm)
- Depth: 2.0 in. (51 mm)

### Metal Enclosure Model Dimensions

- Height: 9.0 in. (229 mm)
- Width: 10.37 in. (263 mm)
- Depth: 2.25 in. (58 mm)





## Dimensions and Specifications

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### Power

- Supply: 20–30 Vac (24 Vac nominal) at 50/60 Hz
- Consumption: 10 VA plus 12VA (maximum) per binary output

### Operating Environment

- Temperature: From -40 to 158°F (-40 to 70°C)
- Relative humidity: From 5 to 95% non-condensing

### Storage Environment

- Temperature: From -40 to 185°F (-40 to 85°C)
- Relative humidity: From 5% to 95% non-condensing

### Analog-to-Digital Conversion

- 12-bit resolution

### Power Supply for Inputs

- 24 Vdc, 80 mA

### Outputs

- 24 Vac powered relays (12 VA maximum)

### Agency Listings/Compliance

***CE Immunity:***

EN 50082-1:1997

***CE Emissions:***

EN 50081-1:1992 (CISPR 22)

EN 61000-3-2, EN 610003-3

***UL/C-UL listed:***

Energy management system

UL 94-5V (UL flammability rating for plenum use)

FCC Part 15, Class A





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