



tM-P3R3

tM-PD3R3

3-channel Isolated Digital Input and
3-channel Relay Output Module

Features

- Relay Outputs
- tM-P3R3
- Wet Contact Source- or Sink-type Digital Inputs
- tM-PD3R3
- Dry Contact Source-type Digital Inputs
- Photocouple Isolation
- All Channels Can Be Used As 16-bit Counters
- Dual Watchdog
- Configurable Power-on Value Settings
- Configurable Safe Value Settings
- Cost-effective
- Wide Operating Temperature Range: -25 ~ +75°C



Introduction

The tM-P3R3/tM-PD3R3 provides 3 channels for digital input and 3 channels for relay output, each of which features photocouple isolation. All output channels are form A type relays, while input is based on sink- or source-type using a wire connection. All input channels can be used as 16-bit counters. There are options for configuring power-on and safe digital output values. 4 kV ESD protection and 3750 VDC intra-module isolation are also provided.

Applications

- All Types of On/Off Control
- Industrial Automation
- Industrial Machinery
- Building Automation
- Food and Beverage Systems
- Semiconductor Fabrication
- Control Systems

System Specifications

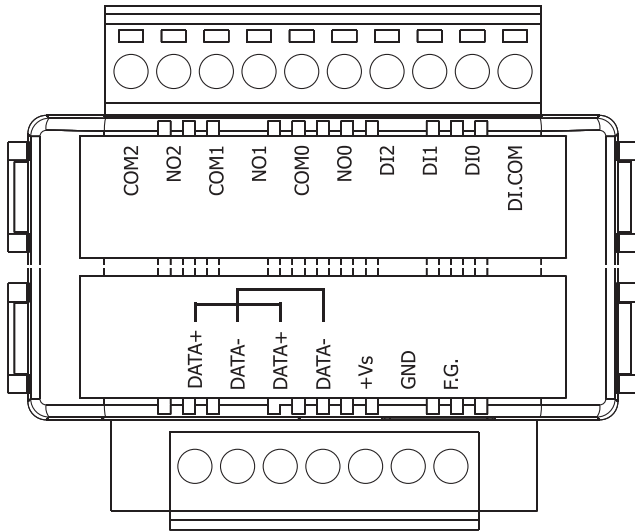
| Model | tM-P3R3 | tM-PD3R3 |
|--|---|------------|
| Communication | | |
| Interface | RS-485 | |
| Format | (N, 8, 1), (N, 8, 2), (O, 8, 1), (E, 8, 1) | |
| Baud Rate | 1200 ~ 115200 bps | |
| Protocol | DCON, Modbus/RTU, Modbus/ASCII | |
| Dual Watchdog | Yes, Module (2.3 seconds), Communication (Programmable) | |
| LED Indicators | | |
| Power | 1 LED as Power Indicator | |
| Isolation | | |
| Intra-module Isolation, Field-to-Logic | 3750 VDC | |
| EMS Protection | | |
| ESD (IEC 61000-4-2) | ±4 kV Contact for Each Terminal ±8 kV Air for Random Point | |
| EFT (IEC 61000-4-4) | ±4 kV for Power | |
| Power Requirements | | |
| Reverse Polarity Protection | Yes | |
| Powered from Terminal Block | Yes, 10 ~ 30 VDC | |
| Consumption | 0.8 W Max. | 0.9 W Max. |
| Mechanical | | |
| Dimensions (W x L x H) | 52 mm x 98 mm x 27 mm | |
| Installation | DIN-Rail Mounting | |
| Environment | | |
| Operating Temperature | -25 ~ +75°C | |
| Storage Temperature | -30 ~ +75°C | |
| Humidity | 10 ~ 95% RH, Non-condensing | |

I/O Specifications

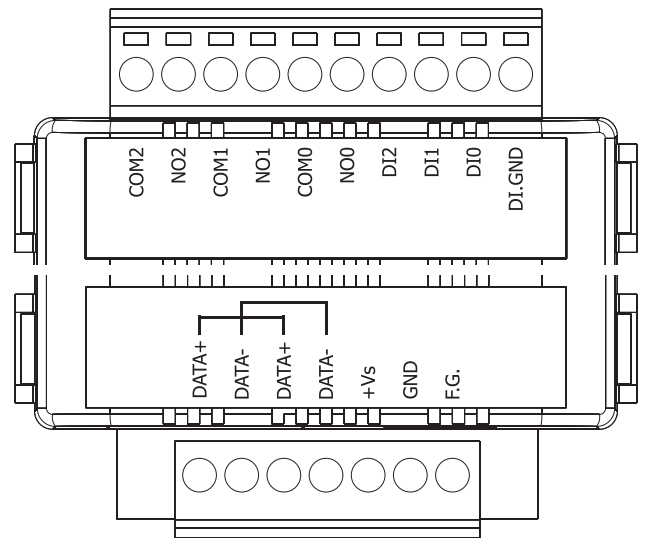
| Model | tM-P3R3 | tM-PD3R3 |
|----------------------------------|--|---|
| Digital Input/Counter | | |
| Channels | 3 | |
| Type | Wet Contact (Sink, Source) | Dry Contact (Source) |
| Wet Contact | ON Voltage Level | +3.5 Vdc ~ 50 Vdc |
| | OFF Voltage Level | +1 VDC Max. |
| Dry Contact | ON Voltage Level | - |
| | OFF Voltage Level | Close to GND Open |
| Counters | Max. Count | 65535 (16-bit) |
| | Max. Input Frequency | 100 Hz |
| | Min. Pulse Width | 5 ms |
| Input Impedance | 10 kΩ, 0.5 W | - |
| Overvoltage Protection | 70 VDC | - |
| Relay Output | | |
| Output Channels | 3 | |
| Type | Power Relay, Form A (SPST N.O.) | |
| Operating Voltage Range | 250 VAC or 30 VDC | |
| Max. Load Current | 5 A | |
| Operating Time | 6 ms | |
| Release Time | 3 ms | |
| Electrical Life (Resistive load) | VDE | 5 A @250 VAC 30,000 ops (10 ops/minute) at 75°C 5 A @30 VDC 70,000 ops (10 ops/minute) at 75°C |
| | UL | 5 A @250 VAC/30 VDC 6,000 ops 3 A @250 VAC/30 VDC 100,000 ops |
| Mechanical Life | 20,000,000 ops at no load (300 ops/minute) | |
| Power-on Value | Yes, Programmable | |
| Safe Value | Yes, Programmable | |

Pin Assignments

tM-P3R3

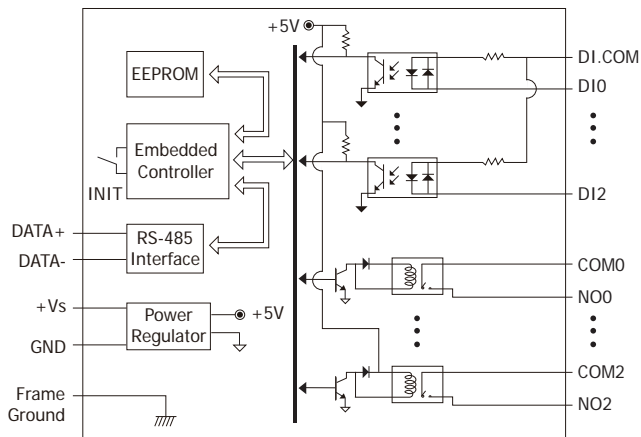


tM-PD3R3

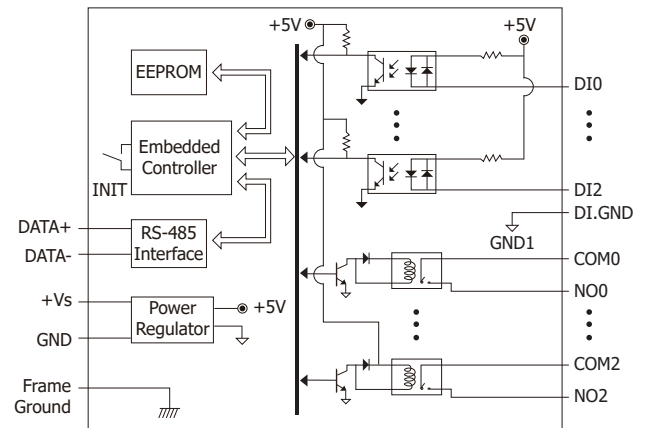


Block Diagram

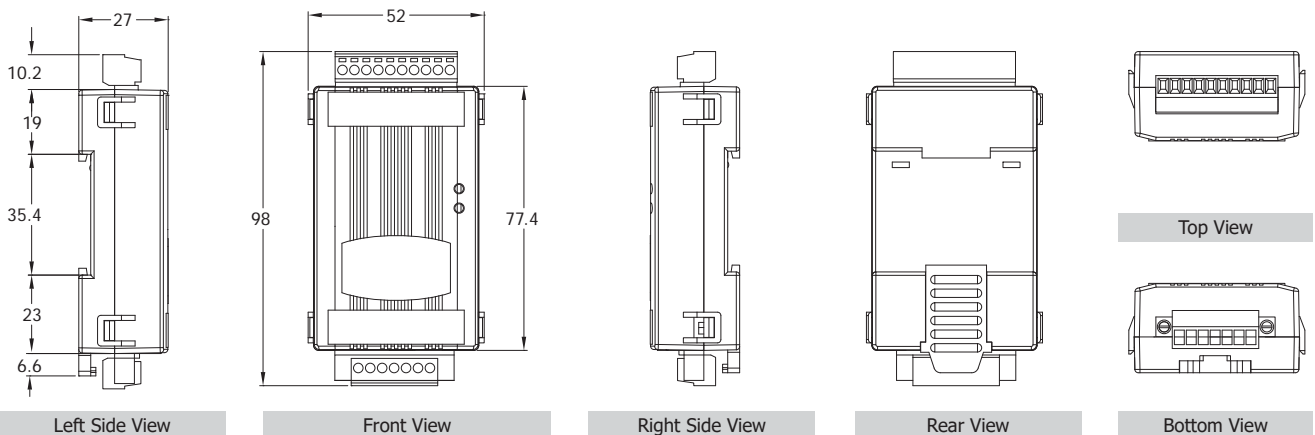
tM-P3R3



tM-PD3R3



Dimensions (Units: mm)



tM-P3R3 / tM-PD3R3

Wire Connections

| Model | tM-PD3R3 | |
|-------------|------------------------|-------------------------|
| Input Type | ON State Readback as 1 | OFF State Readback as 0 |
| Dry Contact | Close to GND | Open |
| | | |

| Model | tM-P3R3 | |
|----------------------|------------------------|-------------------------|
| Input Type | ON State Readback as 1 | OFF State Readback as 0 |
| Wet Contact (Sink) | +3.5 ~ +50 VDC | OPEN or <1 VDC |
| | | |
| Wet Contact (Source) | +3.5 ~ +50 VDC | OPEN or <1 VDC |
| | | |

| Power Relay | ON State Readback as 1 | OFF State Readback as 0 |
|--------------|------------------------|-------------------------|
| Relay Output | | |

Ordering Information

| | |
|-------------|---|
| tM-P3R3 CR | 3-channel Isolation Digital Input(Wet Contact) and 3-channel Relay Output Module(RoHS) |
| tM-PD3R3 CR | 3-channel Isolation Digital Input(Dry Contact) and 3-channel Relay Output Module (RoHS) |

Related Products

| | | | | | |
|--|-------------|--|--|--------------|---|
| | tM-7561 CR | Isolated USB to RS-485 Converter (RoHS) | | tM-7510U CR | Isolated RS-485 Repeater (RoHS) |
| | tM-7520U CR | Isolated RS-232 to RS-485 Converter (RoHS) | | MDR-20-24 CR | 24W Single Output Industrial DIN-Rail Power Supply (RoHS) |