Backplane Systems Technology Pty Ltd
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Proudly Australian-Owned Since 1989

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 souce-type using a wire connecion. All input channels can be used an 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

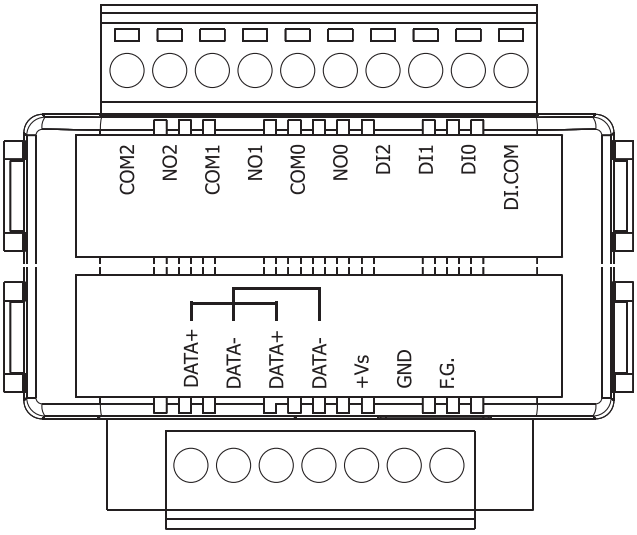
Model	tM-P3R3	tM-PD3R3
Communication		
Interface	RS-485	
Format	(N, 8, 1), (N, 8, 2), (O, 8, 1), (E, 8, 1)	
Baud Rate	1200 ~ 115200 bps	
Protocol	DCON, Modbus/RTU, Modbus/ASCII	
Dual Watchdog	Yes, Module (2.3 seconds), Communication (Programmable)	
LED Indicators		
Power	1 LED as Power Indicator	
Isolation		
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

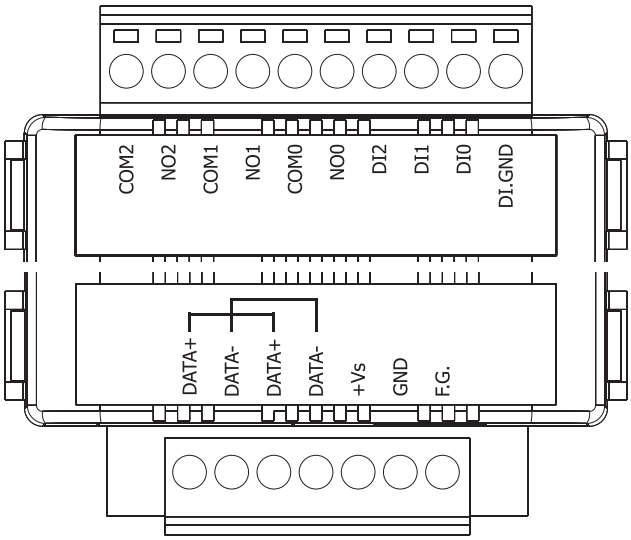
Model		tM-P3R3	tM-PD3R3
Digital Input/Counter			
Channels		3	
Type		Wet Contact (Sink, Source)	Dry Contact (Source)
Wet Contact	ON Voltage Level	+3.5 VDC ~ 50 VDC	-
	OFF Voltage Level	+1 VDC Max.	-
Dry Contact	ON Voltage Level	-	Close to GND
	OFF Voltage Level	-	Open
Counters	Max. Count	65535 (16-bit)	
	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

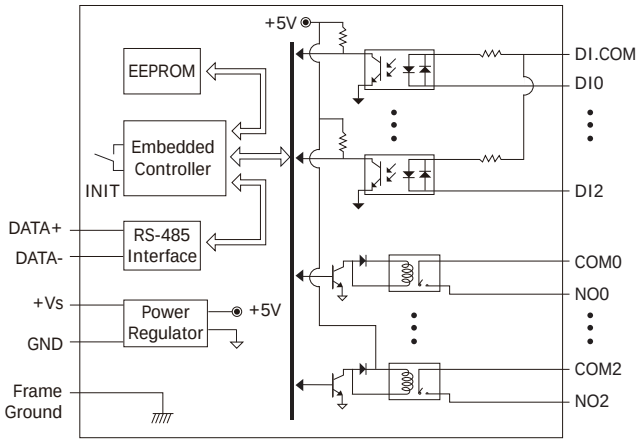


tM-PD3R3

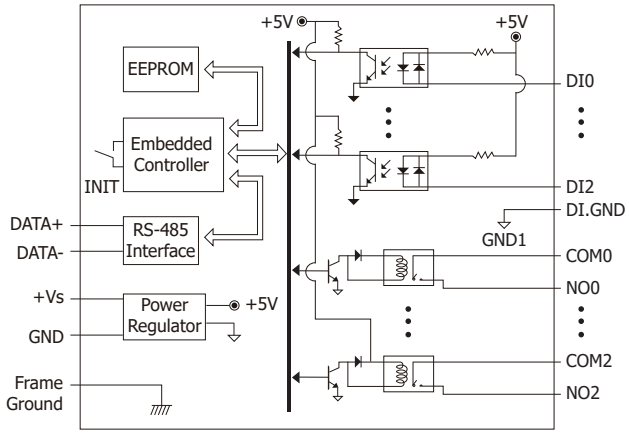


Block Diagram

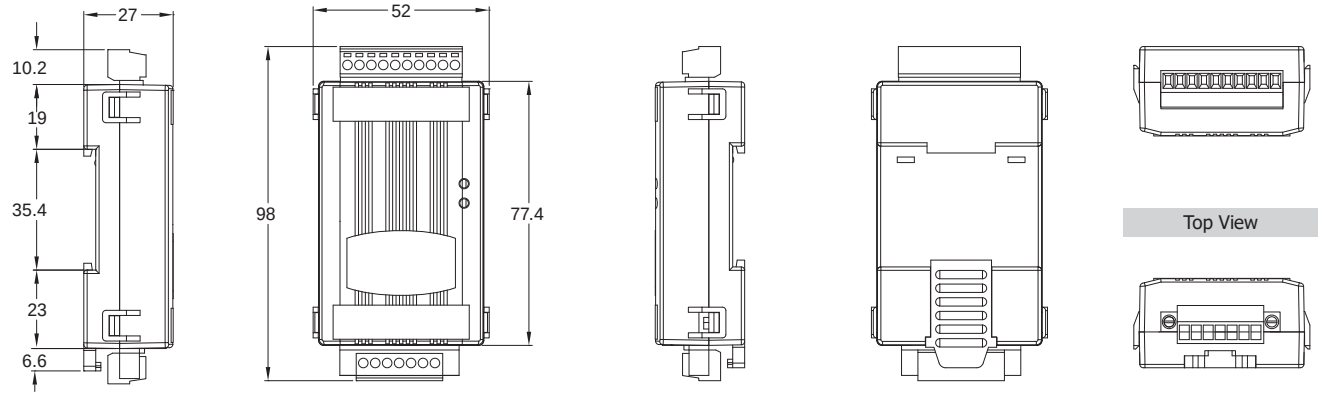
tM-P3R3



tM-PD3R3



Dimensions (Units: mm)



Left Side View | Front View | Right Side View | Rear View | Bottom View

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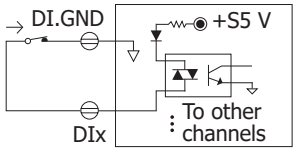
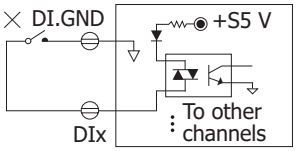
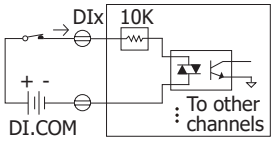
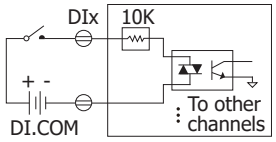
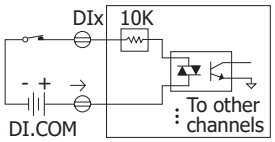
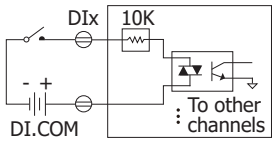
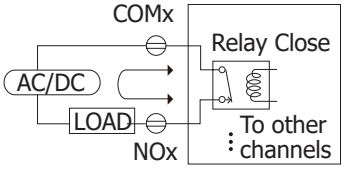
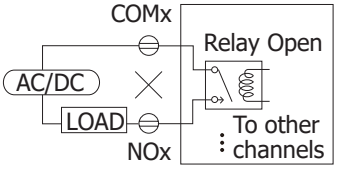
Wire Connections

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