



tM-P3R3 **tM-PD3R3**

3-channel Isolation Digital Input and
3-channel Power Relay Module

Features

- tM-P3R3
  - Wet Contact: Source- or Sink-type Digital Inputs
- tM-PD3R3
  - Dry Contact: Source-type Digital Inputs
- Relay Outputs
- Photocoupler Isolation
- All DI Channels Can Be Used As 16-bit Counters
- Configurable Power-on Value and Safe Value Settings
- Dual Watchdog

Introduction

The tM-P3R3/tM-PD3R3 provides 3 channels for digital input and 3 channels for relay output, each of which features photocoupler isolation. All output channels are Form A-type relays. The digital input channels of the tM-P3R3 can be configured as either sink- or source-type through wiring, while the digital input channels of the tM-PD3R3 are dry contact (source-type). 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 Kinds 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
CPU Module		
Watchdog Timer	Module, Communication (Programmable)	
Isolation		
Intra-module Isolation	3750 VDC	
EMS Protection		
EFT (IEC 61000-4-4)	±4 kV for Power	
ESD (IEC 61000-4-2)	±4 kV Contact for Each Terminal ±8 kV Air for Random Point	
LED Indicators		
Status	1 x Power and Communication	
COM Ports		
Ports	1 x RS-485	
Baud Rate	1200 ~ 115200 bps	
Data Format	(N, 8, 1), (N, 8, 2), (O, 8, 1), (E, 8, 1)	
Protocol	DCON, Modbus RTU, Modbus ASCII	
Power		
Reverse Polarity Protection	Yes	
Consumption	0.8 W max.	0.9 W max.
Powered from Terminal Block	10 ~ 30 VDC	
Mechanical		
Dimensions (mm)	52 x 98 x 27 (W x L x H)	
Installation	DIN-Rail Mounting	
Environmental		
Operating Temperature	-25 ~ +75 °C	
Storage Temperature	-30 ~ +75 °C	
Humidity	10 ~ 95% RH, Non-condensing	

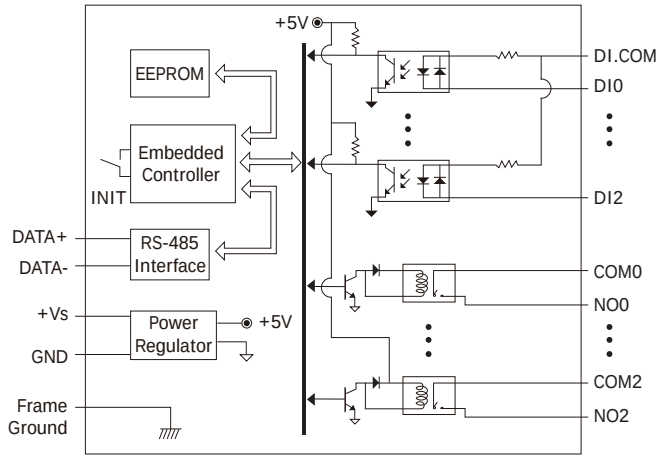
I/O Specifications

Model		tM-P3R3	tM-PD3R3
Digital Input/Counter			
Channels		3	
Type		Wet Contact	Dry Contact
Sink/Source (NPN/PNP)		Sink/Source	Source
ON Voltage Level	Dry	-	Close to GND
	Wet	+3.5 ~ +50 VDC	-
OFF Voltage Level	Dry	-	Open
	Wet	+1 VDC max.	-
Max. Counts		65535 (16-bit)	
Frequency		100 Hz	
Min. Pulse Width		5 ms	
Input Impedance		10 kΩ, 0.5 W	-
Overvoltage Protection		70 VDC	-
Relay Output			
Channels		3	
Type		Power Relay, Form A (SPST N.O.)	
Operate Time		6 ms	
Release Time		3 ms	
Electrical Endurance	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 5 A @30 VDC 70,000 ops (10 ops/minute) at 75°C	
Mechanical Endurance		20,000,000 ops at no load (300 ops/minute)	
Power on Value		Programmable	
Safe Value		Programmable	

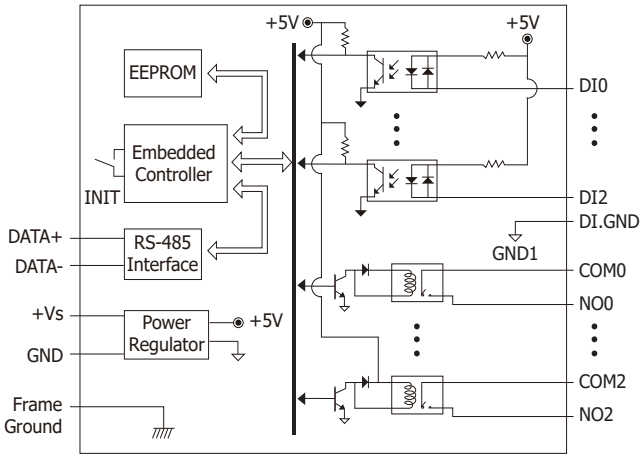
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Internal I/O Structure

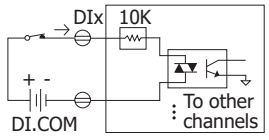
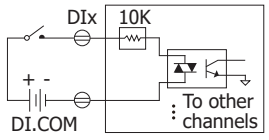
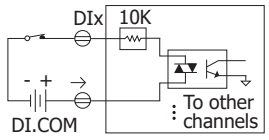
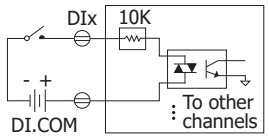
tM-P3R3

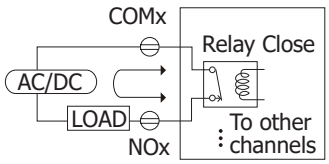
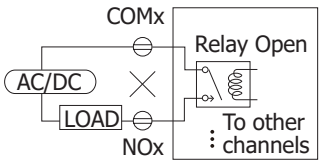


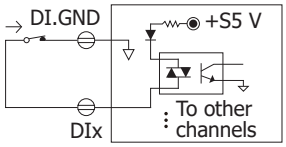
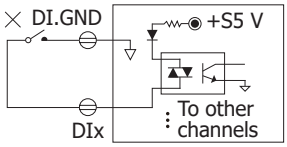
tM-PD3R3



Wire Connections

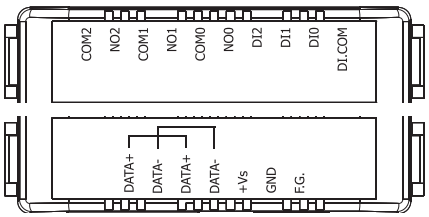
Model	tM-P3R3	
Input Type	**ON State Readback as 1**	**OFF State Readback as 0**
Wet Contact (Sink)	+3.5 ~ +50 VDC	OPEN or <1 VDC
		
Wet Contact (Source)	+3.5 ~ +50 VDC	OPEN or <1 VDC
		

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

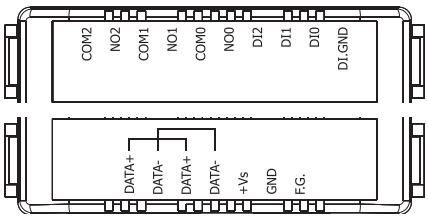
Model	tM-PD3R3	
Input Type	**ON State Readback as 1**	**OFF State Readback as 0**
Dry Contact	Close to GND	Open
		

Pin Assignments

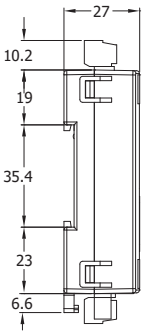
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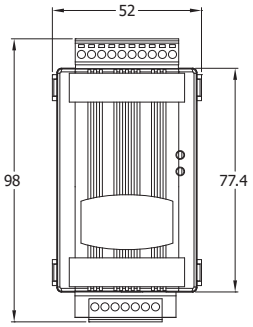
tM-PD3R3



Dimensions (Units: mm)



Left Side View



Front View

Ordering Information

tM-P3R3 CR	3-channel Isolation DI (Wet) and 3-channel Power Relay Module (RoHS)
tM-PD3R3 CR	3-channel Isolation DI (Dry) and 3-channel Power Relay Module (RoHS)

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