



tM-P3R3

tM-PD3R3

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

Features

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



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

System Specifications

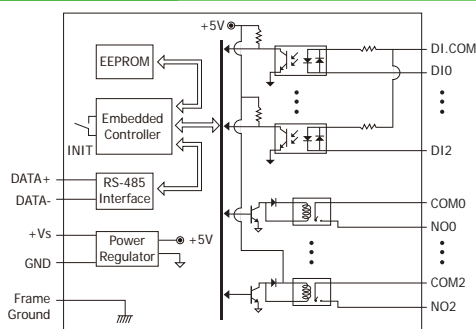
Model	tM-P3R3	tM-PD3R3
CPU Module		
Watchdog Timer	Yes, Module (2.3 seconds), Communication (Programmable)	
Isolation		
Intra-module Isolation	3750 Vdc	
EMS Protection		
EFT (IEC 61000-4-4)	±4 kV for Power	
EFT (IEC 61000-4-2)	±4 kV Contact for Each Terminal ±8 kV Air for Random Point	
LED Indicators		
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	Yes, 10 ~ 30 Vdc	
Mechanical		
Dimensions (W x L x H)	52 mm x 98 mm x 27 mm	
Installation	DIN-Rail Mounting	
Environmental		
Operating Temperature	-25 ~ +75 °C	
Storage Temperature	-30 ~ +75 °C	
Humidity	10 ~ 95% RH, Non-condensing	

I/O Specifications

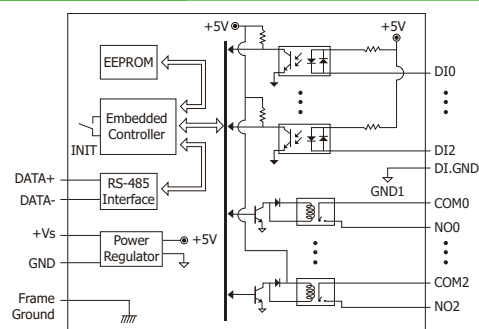
Model	tM-P3R3	tM-PD3R3
Digital Input/Counter		
Channels	3	
Type	Wet Contact, Sink/Source	Dry Contact, Source
Wet Contact, ON Voltage Level	+3.5 VDC ~ +50 VDC	-
Wet Contact, OFF Voltage Level	+1 VDC Max.	-
Dry Contact, ON Voltage Level	-	Close to GND
Dry Contact, OFF Voltage Level	-	Open
Max. Counts	65535 (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)	
Surge Strength	250 VAC or 30 VDC	
Power on Value	Yes, Programmable	
Safe Value	Yes, Programmable	

Internal I/O Structure

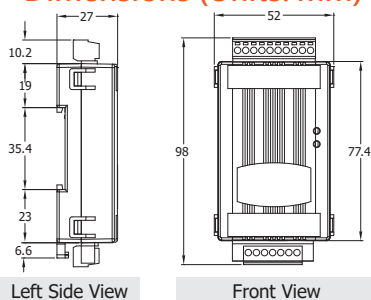
tM-P3R3



tM-PD3R3



Dimensions (Units: mm)

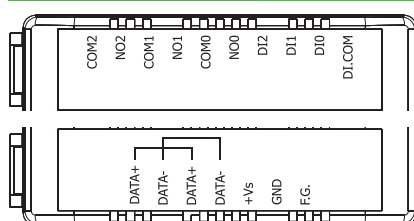


Left Side View

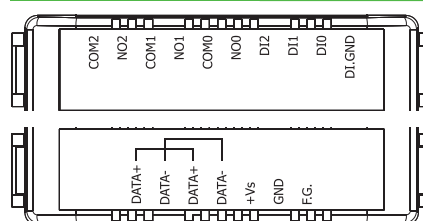
Front View

Pin Assignments

tM-P3R3



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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	Relay Close	Relay Open

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)