



tM-P3POR3

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

Introduction

The tM-P3POR3 provides 3 digital input channels and 3 PhotoMOS relay output channels, each of which features photocouple isolation. All output channels are PhotoMOS relays, while input is based on a 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. PhotoMOS relays provide a faster response time, greater electrical endurance and no spike. 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

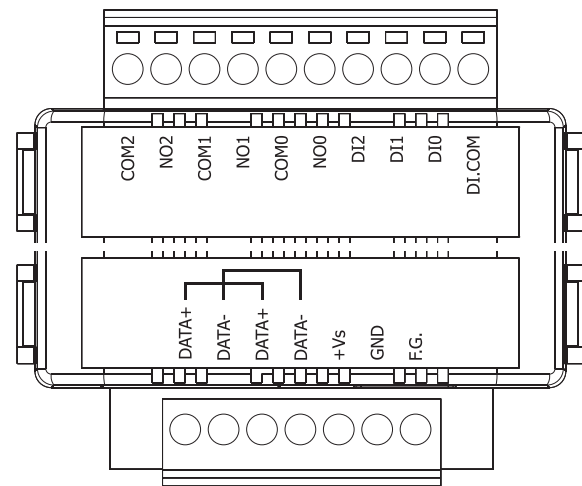
Communication	
Interface	RS-485
Format	(N, 8, 1), (N, 8, 2), (O, 8, 1), (E, 8, 1)
Baud Rate	1200 ~ 115200 bps
Protocol	DCON, Modbus/RTU, Modbus/ASCII
Dual Watchdog	Yes, Module (2.3 seconds), Communication (Programmable)
LED Indicators	
Power	1 LED as Power Indicator
Isolation	
Intra-module Isolation, Field-to-Logic	3750 Vdc for Digital Input 2000 Vdc for PhotoMOS Relay Output
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	0.4 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

Features

- PhotoMos Relay Outputs
- Source- or Sink-type Digital Inputs
- Photocouple Isolation
- No Arcing, No Bounce, and No Switching Noise
- All DI Channels Can Be Used As 16-bit Counters
- Dual Watchdog
- Configurable Power-on Value Settings
- Configurable Safe Value Settings
- Wide Operating Temperature Range: -25 ~ +75°C



Pin Assignments



I/O Specifications

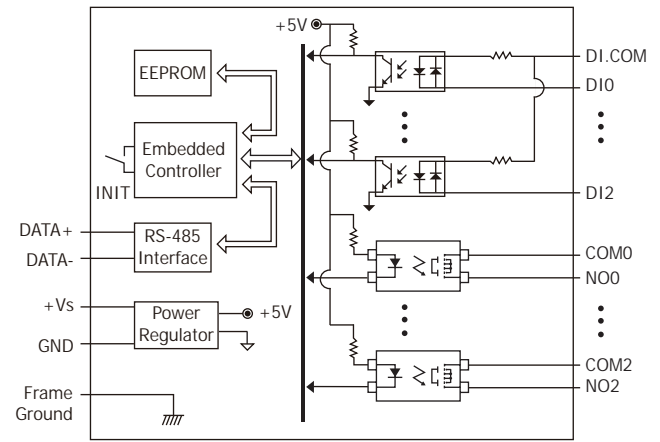
Digital Input/Counter		
Input Channels	3	
Type	Wet Contact (Sink, Source)	
On Voltage Level	+3.5 Vdc ~ 50 Vdc	
Off Voltage Level	+1.0 Vdc Max.	
Input Impedance	10 KΩ, 0.66 W	
Counters	Channels	3
	Max. Count	65535 (16-bit)
	Max. Input Frequency	100 Hz
	Min. Pulse Width	5 ms
Overvoltage Protection	70 Vdc	
PhotoMOS Relay Output		
Output Channels	3	
Relay Type	PhotoMOS Relay	
Operating Load Voltage Range	80 V (AC peak or DC)	
Continuous Load Current	1 A Max.	
Peak Load Current	3 A, (1 ms, 1 shot)	
Output Off State Leakage Current	1 uA	
Operate Time	5 ms (Max.)	
Release Time	0.5 ms (Max.)	
Electrical Endurance	No Arcing, No Bounce, and No Switching Noise	
Power-on Value	Yes, Programmable	
Safe Value	Yes, Programmable	

Wire Connections

Digital Input/Counter	ON State Readback as 1	OFF State Readback as 0
Sink	+3.5 ~ +50 Vdc	OPEN or <1.0 Vdc
Source	+3.5 ~ +50 Vdc	OPEN or <1.0 Vdc

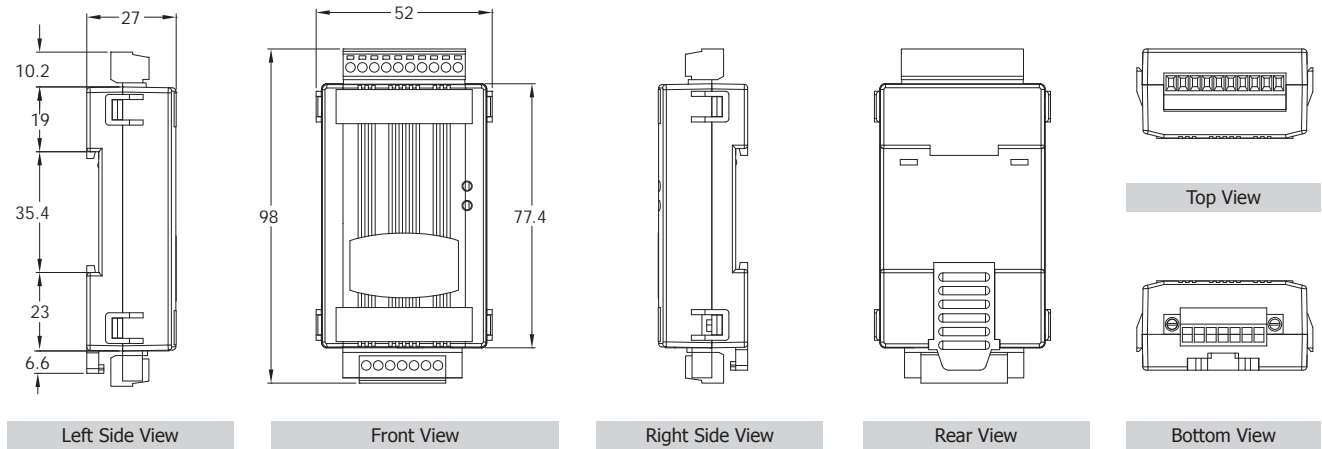
PhotoMOS Relay	ON State Readback as 1	OFF State Readback as 0
Relay Output		

Block Diagram



2
3
Tiny RS-485 Remote I/O Modules

Dimensions (Units: mm)



Ordering Information

tM-P3POR3 CR	3-ch Isolation Digital Input and 3-ch PhotoMOS Relay Output Module(RoHS)
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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)

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