



## 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 V<sub>DC</sub> 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 V <sub>DC</sub> for Digital Input 2000 V <sub>DC</sub> 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 V <sub>DC</sub>
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

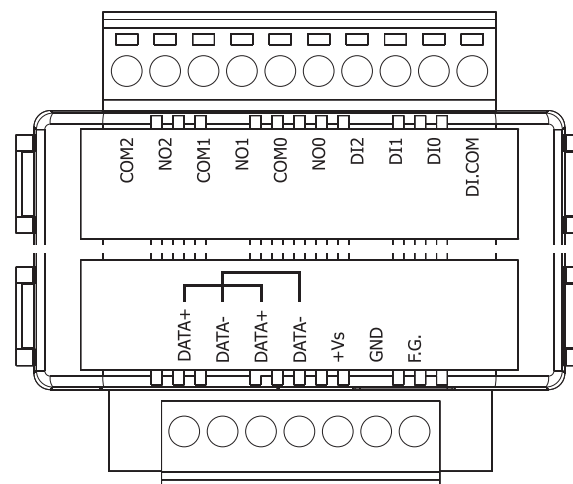
## Digital Input & PhotoMOS Relay Output

### Features

- PhotoMOS Relay Outputs
- Source- or Sink-type Digital Inputs
- Photocouple Isolation
- All DI Channels Can Be Used As 16-bit Counters
- Embedded Dual Watchdog
- Configurable Power-on Value Settings
- Configurable Safe Value Settings
- Wide Operating Temperature Range: -25 ~ +75°C



## Pin Assignments



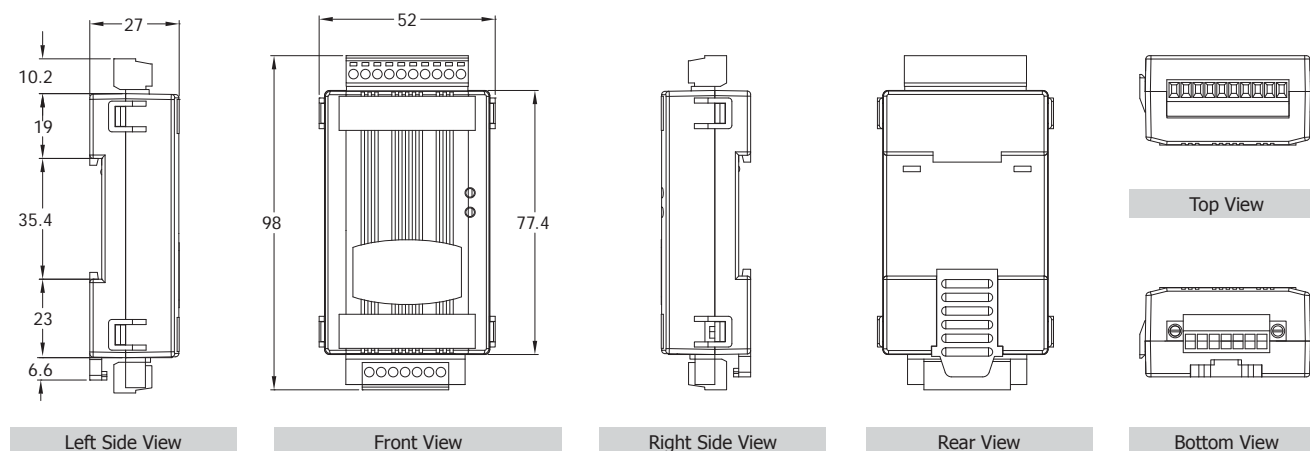
## I/O Specifications

Digital Input/Counter		
Input Channels		3
Type		Wet Contact (Sink, Source)
On Voltage Level		+3.5 V <sub>DC</sub> ~ 50 V <sub>DC</sub>
Off Voltage Level		+1.0 V <sub>DC</sub> 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 V <sub>DC</sub>
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
Operating Time		5 ms (Max.)
Release Time		0.5 ms (Max.)
Power-on Value		Yes, Programmable
Electrical Endurance		Long Life and No Spike
Safe Value		Yes, Programmable

## Block Diagram

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

3



™ Series

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

	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)