



Tiny RS-485 Remote I/O Modules



Introduction

The tM-P4C4 provides 4 channels for digital input and 4 channels for digital output, each of which features photocouple isolation. The tM-P4C4 supports sink-type output with short circuit protection, while input is 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 V_{oc} 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

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 _{oc}
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 _{dc}
Consumption	0.5 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

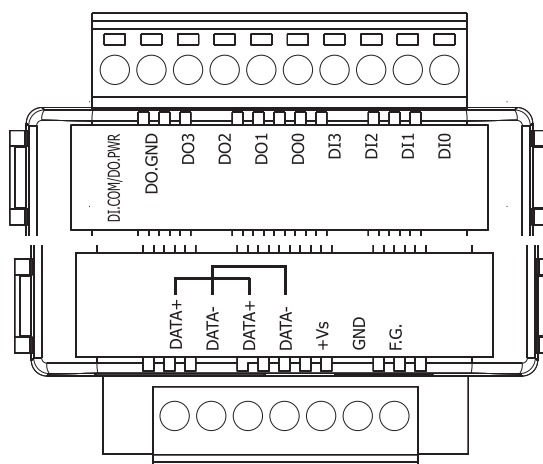
Digital Input & Digital Output

Features

- Sink-type Digital Outputs
- 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 °C ~ +75 °C



Pin Assignments



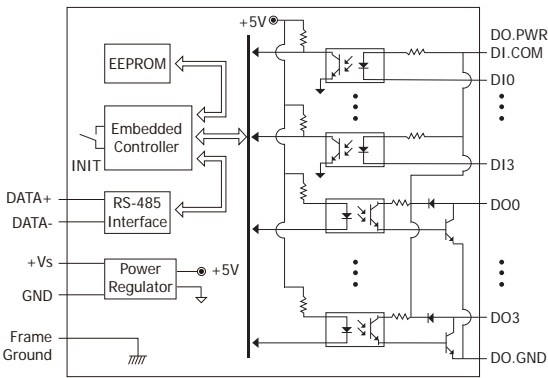
I/O Specifications

Digital Input/Counter		
Input Channels		4
Type		Wet Contact (Source)
On Voltage Level		+3.5 V _{DC} ~ 50 V _{DC}
Off Voltage Level		+1 V Max.
Input Impedance		10 KΩ, 0.66 W
Counters	Channels	4
	Max. Count	65535 (16-bit)
	Max. Input Frequency	100 Hz
	Min. Pulse Width	5 ms
Overvoltage Protection		70 V _{DC}
Digital Output		
Output Channels		4
Type		Isolated Open Collector (Sink)
Max. Load Current		700 mA/channel
Load Voltage		3.5 V _{DC} ~ 50 V _{DC}
Overvoltage Protection		60 V _{DC}
Overload Protection		Yes
Short Circuit Protection		Yes
Power-on Value		Yes, Programmable
Safe Value		Yes, Programmable

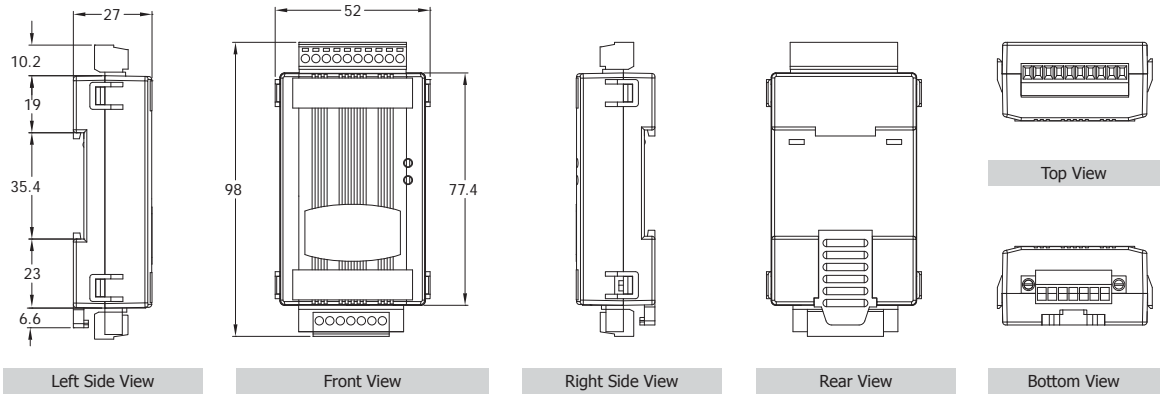
Wire Connections

Digital Input/Counter	ON State Readback as 1	OFF State Readback as 0
	+3.5 ~ +50 Vdc	OPEN or <1 Vdc
Source		
	DIx 10K DI.COM/DO.PWR To other channels	DIx 10K DI.COM/DO.PWR To other channels
Output Type	ON State Readback as 1	OFF State Readback as 0
	Relay ON	Relay OFF
Drive Relay		
	DI.COM/DO.PWR DOx DO.GND	DI.COM/DO.PWR DOx DO.GND
Resistance Load		
	DI.COM/DO.PWR DOx DO.GND	DI.COM/DO.PWR DOx DO.GND

Block Diagram



Dimensions (Units: mm)



Ordering Information

tM-P4C4 CR	4-channel Isolation Digital Input and 4-channel Isolation Digital Output Module (RoHS)
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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)