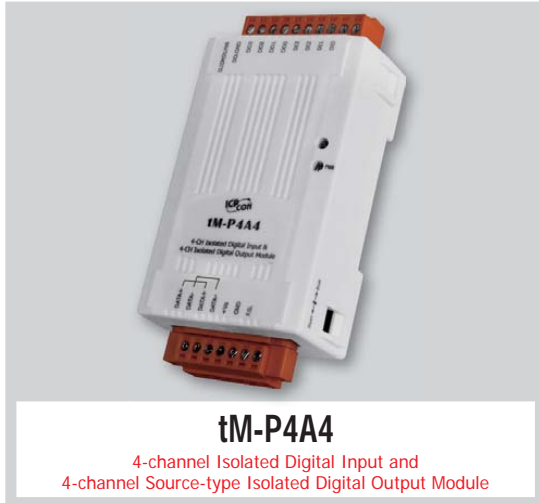




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Tiny RS-485 Remote I/O Modules



tM-P4A4

4-Channel Isolated Digital Input and
4-Channel Source-type Isolated Digital Output Module

Introduction

The tM-P4A4 provides 4 channels for digital input and 4 channels for digital output, each of which features photocouple isolation. The tM-P4A4 supports source-type output with short circuit protection, while input is sink-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 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 |
| 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 | 0.5 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 |

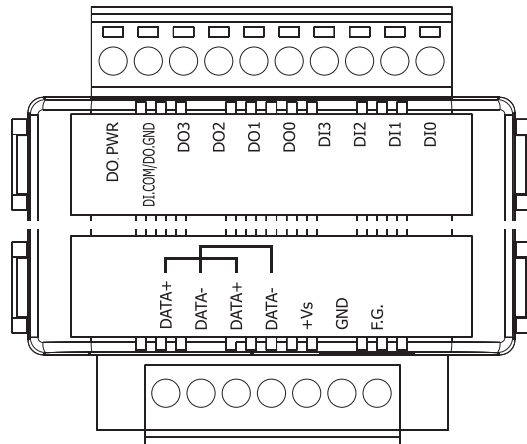
tM-P4A4

Features

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



Pin Assignments



I/O Specifications

| Digital Input/Counter | | |
|--------------------------|----------------------------------|----------------|
| Input Channels | 4 | |
| Type | Wet Contact (Sink) | |
| On Voltage Level | +3.5 Vdc ~ 50 Vdc | |
| 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 Vdc | |
| Digital Output | | |
| Output Channels | 4 | |
| Type | Isolated Open Collector (Source) | |
| Max. Load Current | 650 mA/channel | |
| Load Voltage | +10 Vdc ~ +40 Vdc | |
| Overvoltage Protection | 47 Vdc | |
| Overload Protection | Yes | |
| Short Circuit Protection | Yes | |
| Power-on Value | Yes, Programmable | |
| Safe Value | Yes, Programmable | |

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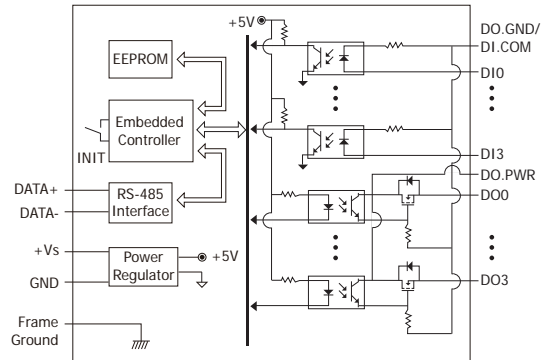
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Wire Connections

| Digital Input/Counter | ON State Readback as 1 | OFF State Readback as 0 |
|-----------------------|------------------------|-------------------------|
| | +3.5 ~ +50 Vdc | OPEN or <1 Vdc |
| Sink | | |
| | Relay ON | Relay OFF |
| Drive Relay | | |
| Resistance Load | | |

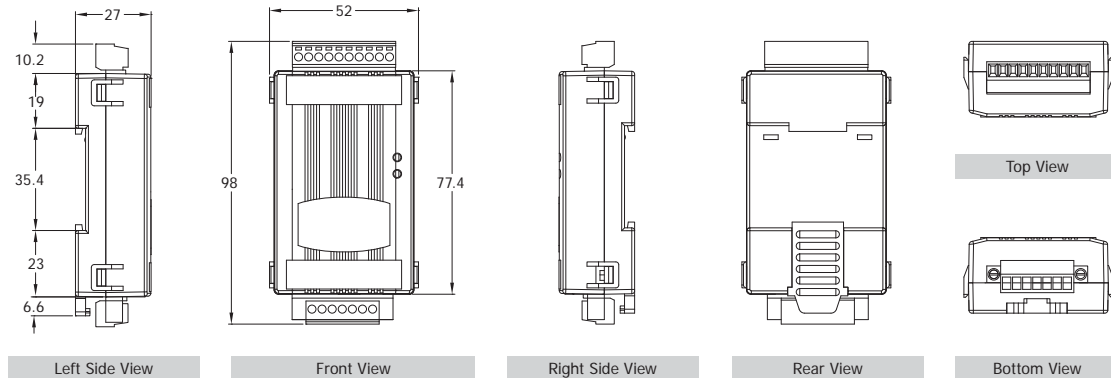
Block Diagram



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Tiny RS-485 Remote I/O Modules

Dimensions (Units: mm)



Ordering Information

| | |
|-------------------|---------------------------------------------------------------------------------------------------|
| tM-P4A4 CR | 4-channel Isolation Digital Input and 4-channel Source-type Isolated Digital Output Module (RoHS) |
|-------------------|---------------------------------------------------------------------------------------------------|

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) |

tM-P4A4