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 VDC intra-module isolation are also provided.

### 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

### System Specifications

#### 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, ±6 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: 0.5 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

### 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 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

### I/O Specifications

#### Digital Input/Counter

<table>
<thead>
<tr>
<th>Channels</th>
<th>4</th>
</tr>
</thead>
<tbody>
<tr>
<td>Type</td>
<td>Wet Contact, Source</td>
</tr>
<tr>
<td>ON Voltage Level</td>
<td>+3.5 VDC ~ +50 VDC</td>
</tr>
<tr>
<td>OFF Voltage Level</td>
<td>+1 V Max.</td>
</tr>
<tr>
<td>Max. Counts</td>
<td>65535 (16-bit)</td>
</tr>
<tr>
<td>Frequency</td>
<td>100 Hz</td>
</tr>
<tr>
<td>Min. Pulse Width</td>
<td>5 ms</td>
</tr>
<tr>
<td>Input Impedance</td>
<td>10 KΩ, 0.66 W</td>
</tr>
<tr>
<td>Overvoltage Protection</td>
<td>70 VDC</td>
</tr>
</tbody>
</table>

#### Digital Output

<table>
<thead>
<tr>
<th>Channels</th>
<th>4</th>
</tr>
</thead>
<tbody>
<tr>
<td>Type</td>
<td>Isolated Open Collector, Sink</td>
</tr>
<tr>
<td>Load Voltage</td>
<td>+3.5 VDC ~ +50 VDC</td>
</tr>
<tr>
<td>Max. Load Current</td>
<td>700 mA/channel</td>
</tr>
<tr>
<td>Overvoltage Protection</td>
<td>60 VDC</td>
</tr>
<tr>
<td>Overload Protection</td>
<td>Yes</td>
</tr>
<tr>
<td>Short-Circuit Protection</td>
<td>Yes</td>
</tr>
<tr>
<td>Power on Value</td>
<td>Yes, Programmable</td>
</tr>
<tr>
<td>Safe Value</td>
<td>Yes, Programmable</td>
</tr>
</tbody>
</table>
### Internal I/O Structure

- **EEPROM**
- **Embedded Controller**
- **RS-485 Interface**
- **Power Regulator**
- **+Vs**
- **Ground**
- **DIGITAL IN/OUT**

### Pin Assignments

![Pin Assignments Diagram]

### Wire Connections

<table>
<thead>
<tr>
<th>Digital Input/Counter</th>
<th>ON State Readback as 1</th>
<th>OFF State Readback as 0</th>
</tr>
</thead>
<tbody>
<tr>
<td>Source</td>
<td>+3.5 ~ +50 Vdc</td>
<td>OPEN or &lt;1 Vdc</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Output Type</th>
<th>ON State Readback as 1</th>
<th>OFF State Readback as 0</th>
</tr>
</thead>
<tbody>
<tr>
<td>Drive Relay</td>
<td>10K</td>
<td></td>
</tr>
<tr>
<td>Resistance Load</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### Dimensions (Units: mm)

![Dimensions Diagram]

### Ordering Information

**tM-P4C4 CR**

- 4-channel Isolation DI (Wet) and 4-channel Isolation DO (Sink, NPN) Module (RoHS)