



## tM-DA1P1R1

1-channel AO, 1-channel DI and  
1-channel Power Relay Module

### Features

- Isolated Analog Output
- Isolated Digital Input
- Power Relay Output
- Configurable Power-on Value Settings
- Configurable Safe Value Settings
- 4 kV ESD Protection
- 3 kV Intra-module Isolation



### Introduction

The tM-DA1P1R1 is an RS-485 Interface module that offers 1 analog output channel, 1 digital input channel and 1 relay output channel. Analog output resolution is 12-bit with an output range of 0~10V and 0~20mA. The Digital input channel is dry contact type and provides a 16-bit counter function. The Relay output type is a Form C, and all I/O terminals provide 4 kV ESD protection and 3 kV intra-module isolation.

### Applications

- Industrial Automation
- Industrial Machinery
- Building Automation
- Dimmer Control
- Food and Beverage Systems
- Semiconductor Fabrication
- Control Systems

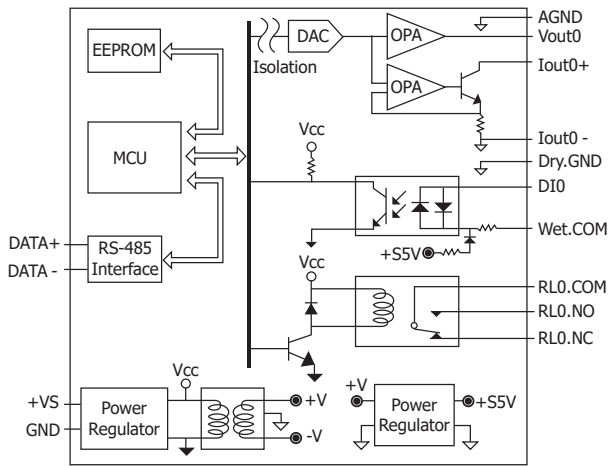
### System Specifications

CPU Module	
Watchdog Timer	Communication (Programmable)
Isolation	
Intra-module Isolation	2500 Vdc
EMS Protection	
EFT (IEC 61000-4-4)	±4 kV for Power
EFT (IEC 61000-4-2)	±4 kV Contact for Each Terminal ±8 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	1.8 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 ~ +80 °C
Humidity	10 ~ 95% RH, Non-condensing

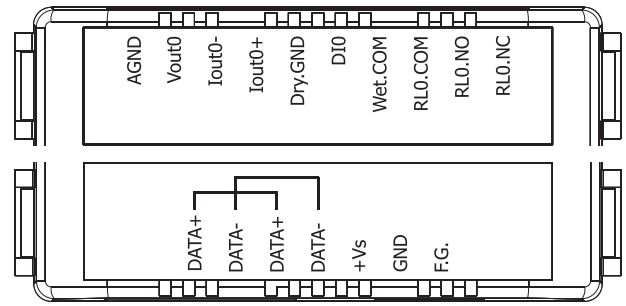
### I/O Specifications

Analog Output	
Channels	1
Type	Voltage Current
Range	0 ~ 10 V, 0 ~ 20 mA, 4 ~ 20 mA
Resolution	12-bit
Accuracy	±0.1% of FSR
DA Output Response Time	10 ms
Voltage Output Capability	20 mA
Current Load Resistance	500 Ω
Digital Input/Counter	
Channels	1
Type	Dry Contact, Source Wet Contact, Sink/Source
Wet Contact, ON Voltage Level	+3.5 ~ +50 VDC
Wet Contact, OFF Voltage Level	+1 VDC Max.
Dry Contact, ON Voltage Level	Close to GND
Dry Contact, OFF Voltage Level	Open
Max. Counts	65535 (16-bit)
Frequency	100 Hz
Min. Pulse Width	5 ms
Input Impedance	10 KΩ, 0.5 W
Overvoltage Protection	70 VDC
Relay Output	
Channels	1
Type	Power Relay, Form C
Contact Rating	NO : 10 A @ 250 VAC NC : 6 A @ 250 VAC
Operate Time	15 ms Max.
Release Time	5 ms Max.
Electrical Endurance	5 X 10 <sup>4</sup> OPS
Mechanical Endurance	1 X 10 <sup>7</sup> OPS
Surge Strength	250 VAC or 30 VDC
Power on Value	Yes, Programmable
Safe Value	Yes, Programmable

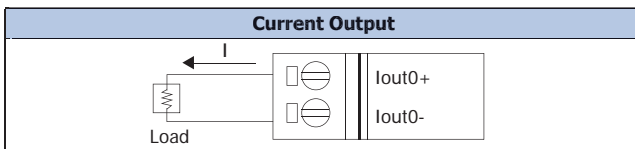
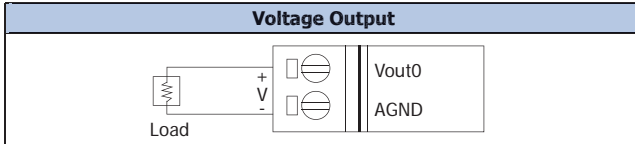
## Internal I/O Structure



## Pin Assignments

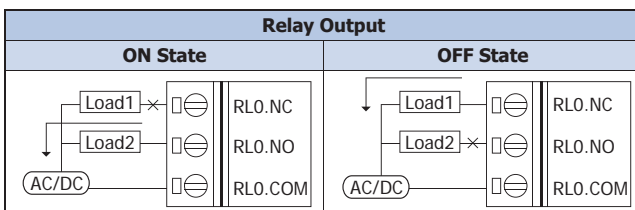


## Wire Connections

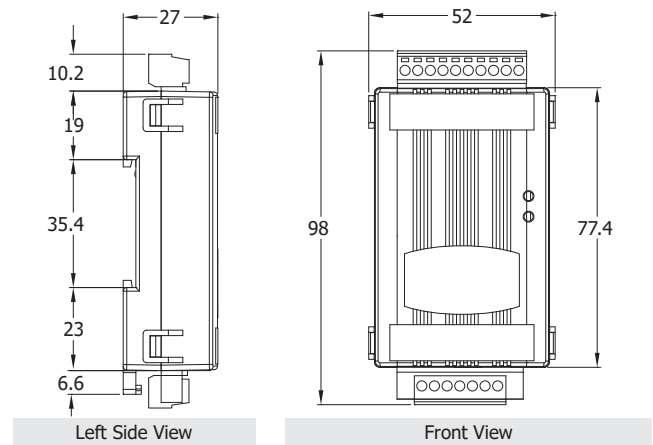


**Digital Input/Counter**

Wiring	ON State Readback as 1	OFF State Readback as 0
	Close to Dry.GND	Open
Dry Contact	DI0 Dry.GND	DI0 Dry.GND
	+3.5 ~ +50 VDC	+1 VDC Max.
Wet Contact	DI0 Wet.COM	DI0 Wet.COM
	+3.5 ~ +50 Vdc	+1 Vdc Max.



## Dimensions (Units: mm)



## Ordering Information

tM-DA1P1R1 CR	1-channel Isolated AO, 1-channel Isolated DI (Wet) and 1-channel Power Relay Module (RoHS)
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