

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 ~ 10 V, 0 ~ 20 mA and 4 ~ 20 mA. The Digital input channel supports sink/source type connections and provides a 16-bit counter function. The Relay output type is a Form A and it provides 16 A load current. I/O terminals provide 4 kV ESD protection and 3 kV intra-module isolation.

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
Watchdog	Communication (Programmable)
LED Indicators	
Power	1 LED as Power Indicator
Isolation	
Intra-module Isolation, Field-to-Logic	2500 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	1.0 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

Features

- 1 Analog Output Channel
- 1 Digital Input Channel
- 1 Relay Output Channel
- Dual Watchdog
- Configurable Power-on Value Settings
- Configurable Safe Value Settings
- 4 kV ESD Protection
- 3 kV Intra-module Isolation
- Wide Operating Temperature Range: -25 ~ +75°C
- RoHS Compliant



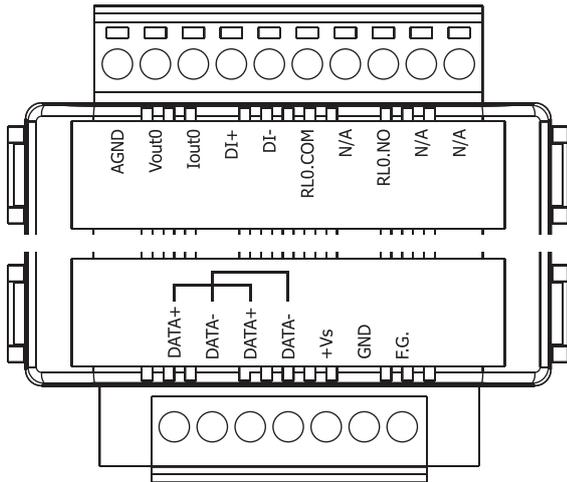
Applications

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

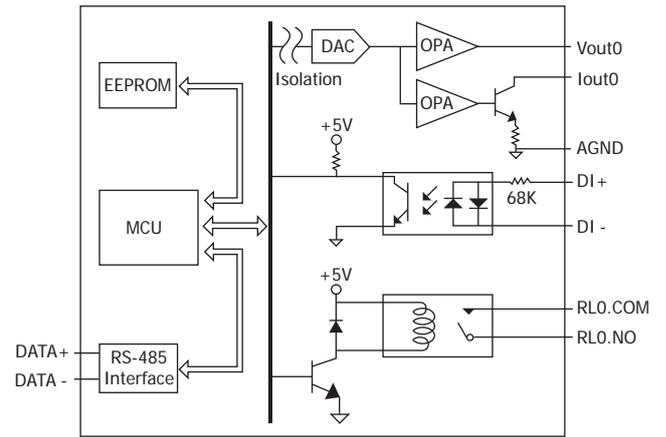
I/O Specifications

Analog Output		
Channels	1	
Type	0 ~ 10 V, 0 ~ 20 mA, 4 ~ 20 mA	
Resolution	12-bit	
Accuracy	+/-0.1% of FSR	
Zero Drift	Current Output	+/- 0.2 uA/°C
	Voltage Output	+/- 30 uV/°C
DA Output Response Time	10 ms	
Voltage Output Capability	20 mA	
Current Load Resistance	External 24 V : 1050 Ω	
Digital Input/Counter		
Channels	1	
Type	AC, Differential	
On Voltage Level	80 Vac ~ 250 Vac	
Off Voltage Level	30 Vac Max.	
Counters	Channels	1
	Max. Count	65535 (16-bit)
	Max. Input Frequency	100 Hz
	Min. Pulse Width	5 ms
Relay Output		
Channels	1	
Type	Power Relay, Form A	
Operating Load Voltage Range	250 Vac or 30 Vdc	
Max. Load Current	16 A	
Operating Time	15 ms max.	
Release Time	5 ms max.	
Mechanical Endurance	10000000 OPS	
Electrical Endurance	50000 OPS	
Power On and Safe Value	Yes, Programmable	

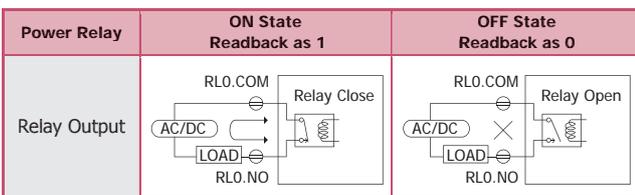
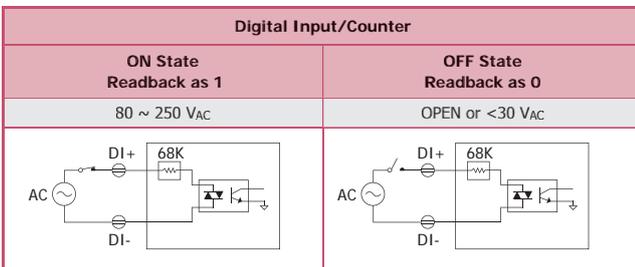
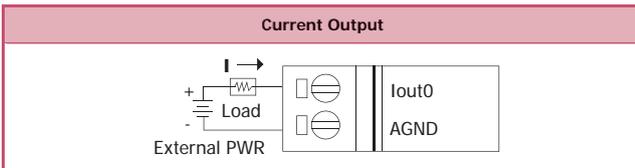
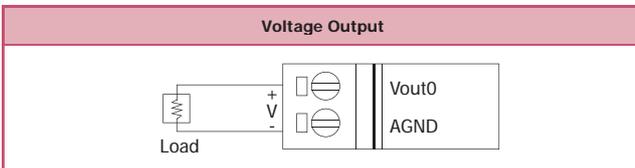
Pin Assignments



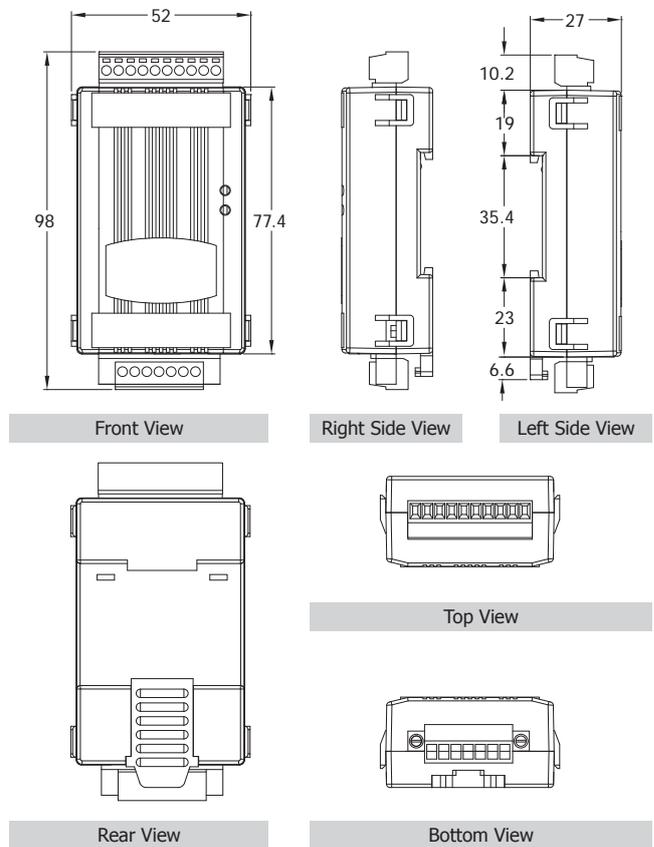
Block Diagram



Wire Connections



Dimensions (Units: mm)



Ordering Information

tM-DA1P1R1 CR	1-channel Isolated Analog Output, 1-channel Isolated Digital Input and 1-channel Relay 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)

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Tiny RS-485 Remote I/O Modules

tM-DA1P1R1