

### Features

- Multi-function=4 AO + 4 DI + 4 DO
- Source Type Current Output
- 16-bit Analog Output
- Individual Channel Configuration
- Open Wire Detection for Current Output
- 8 kV ESD Protection
- Power-on Value Setting
- Safe Value Setting
- Wide Operating Temperature Range: -25 to +75°C



### Introduction

The M-7024U is a multi-function module that includes 4 analog output channels, 4 digital input channels, 4 digital output channels. It provides a programmable output range on all analog outputs channels (0 ~ 5 V, +/-5 V, 0 ~ 10 V, +/-10 V, +4 ~ +20 mA or 0 ~ +20 mA). Each analog output channel can be configured for an individual range and the module also features per-channel open wire detection for +4 ~ +20 mA outputs, together with 8 kV ESD Protection as well as 2500 VDC intra-module isolation. Options for configuring power-on and safe values are also included.

### Applications

- Building Automation
- Machine Automation
- Remote Diagnosis
- Factory Automation
- Remote Maintenance
- Testing Equipment

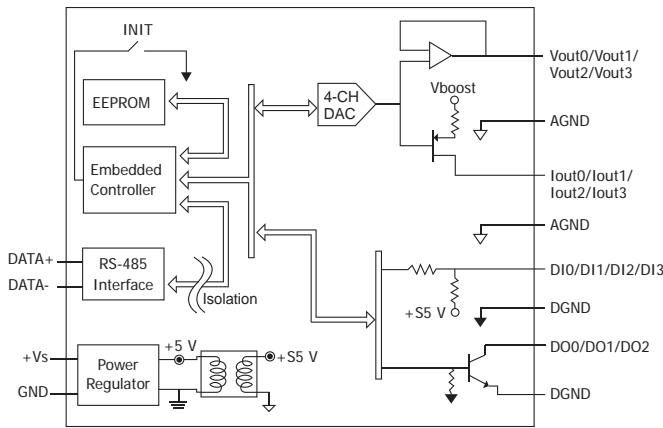
### I/O Specifications

Model	M-7024U	M-7024UD
<b>Analog Output</b>		
Channels	4	
Current Output Wiring	Source	
Range	0 ~+5 VDC, ±5 VDC, 0 ~ +10 VDC, ±10 VDC, 0 ~ +20 mA, +4 ~ +20 mA	
Resolution	16-bit	
Accuracy	±0.02% of FSR	
DA Output Response Time	10 ms per channel	
Programmable Output Slope	Voltage	0.0625 ~ 512 V/Second
	Current	0.125 ~ 1024 mA/Second
Current Output Capacity	1000 Ω	
Open Wire Detection	Yes, for 4 ~ 20 mA only	
Short Circuit Protection	Yes	
Power-on Value	Yes, Programmable	
Safe Value	Yes, Programmable	
<b>Digital Input</b>		
Channels	4	
Wet Contact	ON Voltage Level	+1 Vdc Max.
	OFF Voltage Level	+4 ~ 30 Vdc
Dry Contact	ON Voltage Level	Close to GND
	OFF Voltage Level	Open
	Effective Distance for Dry Contact	500 M Max.
Counters	Max. Count	65535 (16-bit)
	Max. Input Frequency	100 Hz
	Min. Pulse Width	5 ms
Input Impedance	-	
Overvoltage Protection	+60 Vdc	
<b>Digital Output</b>		
Output Channels	4	
Type	Open Collector	
Sink/Source (NPN/PNP)	Sink	
Load Voltage	+3.5 Vdc ~ +50 Vdc	
Max. Load Current	700 mA/Channel	
Overvoltage Protection	60 Vdc	
Overload Protection	1.4 A (with short-circuit protection)	
Power-on Value	Yes, Programmable	
Safe Value	Yes, Programmable	

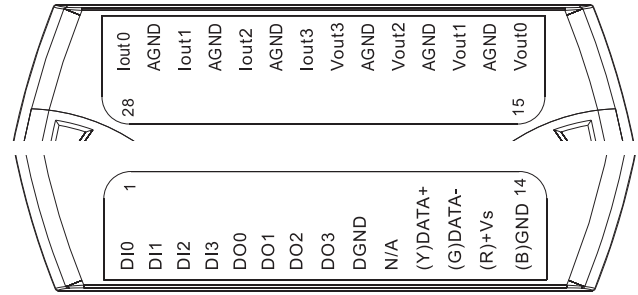
### System Specifications

Model	M-7024U	M-7024UD
<b>Communication</b>		
Interface	RS-485	
Bias Resistor	No (Usually supplied by the RS-485 Master. Alternatively, add a tM-SG4 or SG-785.)	
Format	(N, 8, 1) (N, 8, 2) (E, 8, 1) (O, 8, 1)	
Baud Rate	1200 to 115200 bps	
Protocol	Modbus RTU, DCON	
Dual Watchdog	Yes, Module (1.6 Seconds), Communication (Programmable)	
<b>LED Indicators/Display</b>		
System LED Indicator	Yes, 1 as Power/Communication Indicator	
I/O LED Indicators	-	4 LEDs as Analog Output Fault Indicators 4 LEDs as Digital Input Indicators 4 LEDs as Digital Output Indicators
7-segment LED Display	-	
<b>Isolation</b>		
Intra-module Isolation, Field-to-Logic	2.5 kVdc	
<b>EMS Protection</b>		
ESD (IEC 61000-4-2)	±8 kV Contact for each Terminal	
EFT (IEC 61000-4-4)	±4 kV for Power Line	
Surge (IEC 61000-4-5)	-	
<b>Power</b>		
Reverse Polarity Protection	Yes	
Input Range	+10 ~ +30 Vdc	
Consumption	4 W	4.5 W
<b>Mechanical</b>		
Dimensions (L x W x H)	123 mm x 72 mm x 35 mm	
Installation	DIN-Rail or Wall Mounting	
<b>Environment</b>		
Operating Temperature	-25 to +75°C	
Storage Temperature	-40 to +85°C	
Humidity	10 to 95% RH, Non-condensing	

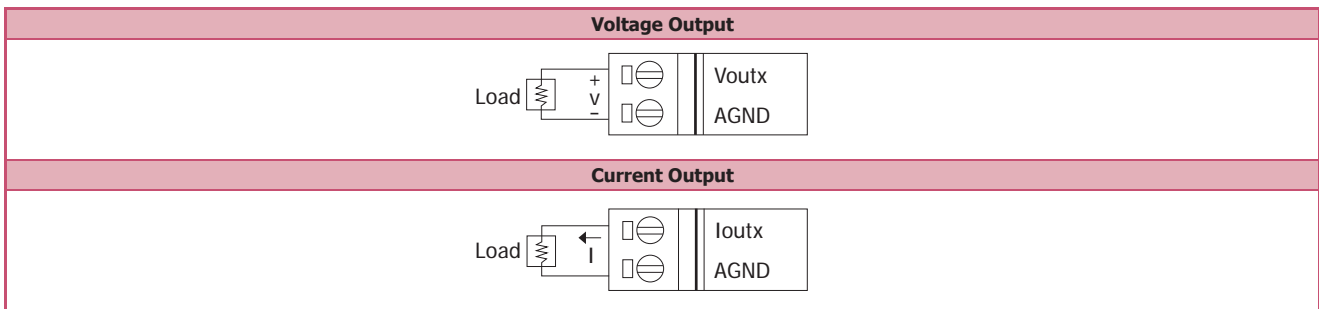
### Internal I/O Structure



### Pin Assignments



### Wire Connections



Digital Input/Counter	ON State Readback as 1	OFF State Readback as 0
	+1 Vdc Max.	+4 ~ 30 Vdc
Wet Contact (Sink)		
Dry Contact (Source)		
Digital Output	ON State Readback as 1	OFF State Readback as 0
Open Collector (Sink)		

### Ordering Information

<b>M-7024U-G CR</b>	4-channel Analog Output, 4-channel Digital Input and 4-channel Digital Output Module using the DCON and Modbus Protocols (Gray Cover) (RoHS)
<b>M-7024UD-G CR</b>	M-7024U with LED Display (Gray Cover) (RoHS)

### Accessories

	tM-7520U CR	RS-232 to RS-485 Converter (RoHS)
	tM-7561 CR	USB to RS-485 Converter (RoHS)
	tM-SG4 CR	RS-485 Bias and Termination Resistor Module (RoHS)

	I-7514U CR	4-channel RS-485 Hub (RoHS)
	SG-770 CR	7-channel Differential or 14-channel Single-ended Surge Protector (RoHS)
	SG-3000 Series	Signal Conditioning Modules for Thermocouple, RTD, DC Voltage, DC Current and Power Input Transformers

M-7024U/M-7024U