



**M-2224CI**

**M-2228CI**

Channel to Channel Isolation 4/8-channel differential analog Outputs

### Features

- M-2224CI: 4-channel differential analog outputs
- M-2228CI: 8-channel differential analog outputs
- Current, Voltage Output
- Open Wire Detection for Current Output
- RF Immunity
- Short Circuit Protection
- Dual Watchdog



### Introduction

The M-2224CI/ M-2228CI is a 4-channel/ 8-channel analog differential output module with 3000 VDC channel-to-channel isolation. It provides a programmable output range on all analog output channels (0 ~ 5 V, 0 ~ 10 V, +4 ~ +20 mA or 0 ~ +20 mA). Each analog output channel can be configured for an individual range and provides an RF immunity level matching that defined by the IEC 61000-4-3 standard. The module also features per-channel open wire detection for +4 ~ +20 mA outputs, together with 4 kV ESD protection as well as 3000 VDC intra-module isolation. Options for configuring power-on and safe values are also included.

### System Specifications

Module	M-2224CI	M-2228CI
<b>CPU Module</b>		
CPU	32-bit ARM	
Watchdog Timer	Module, Communication (Programmable)	
<b>Isolation</b>		
Intra-module Isolation	3000 VDC	
<b>EMS Protection</b>		
EFT (IEC 61000-4-4)	±4 kV for Power Line	
ESD (IEC 61000-4-2)	±4 kV Contact for each Terminal ±8 kV Air for Random Point	
Surge (IEC 61000-4-5)	±2 kV for Power Line	
<b>LED Indicators</b>		
Status	1 x Power and Communication	
<b>COM Ports</b>		
Ports	1 x RS-485	
Baud Rate	1200 ~ 115200 bps	
Data Format	(N, 8, 1) (N, 8, 2) (E, 8, 1) (O, 8, 1)	
Protocol	Modbus RTU, DCON	
Bias Resistor	10 kΩ	
<b>Power</b>		
Reverse Polarity Protection	Yes	
Input Range	+10 ~ +48 VDC	
Consumption	4.6 W Max.	8.8 W Max.
<b>Mechanical</b>		
Dimensions (mm)	33 x 184 x 129 (W x L x H)	
Installation	DIN-Rail Mounting	

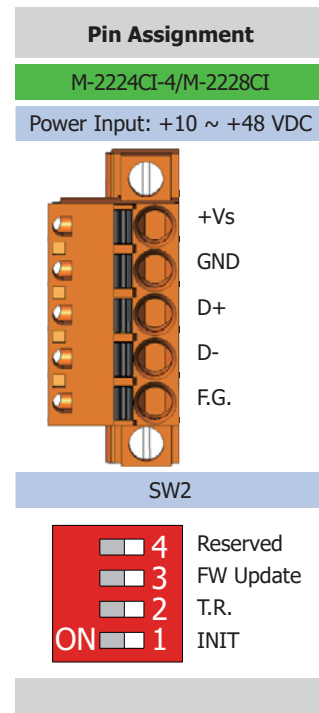
Module	M-2224CI	M-2228CI
<b>Environment</b>		
Operating Temperature	-25 ~ +75 °C	
Storage Temperature	-30 ~ +80 °C	
Humidity	10 ~ 90% RH, Non-condensing	

### I/O Specifications

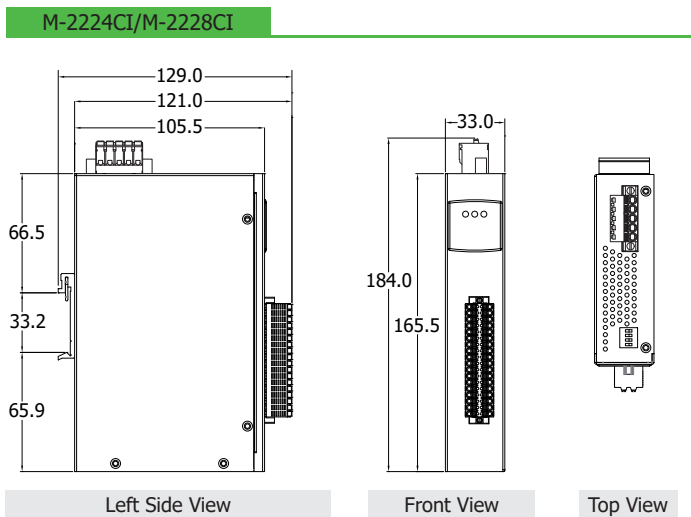
Module	M-2224CI	M-2228CI
<b>Analog Output</b>		
Channels	4 Differential	8 Differential
Range	Voltage	0 ~ +5 VDC, 0 ~ +10 VDC
	Current	0 ~ +20 mA, +4 ~ +20 mA
Resolution	12-bit	
Accuracy	±0.1% of FSR	
Short Circuit Protection	Yes	
DA Output Response Time	10 ms per channel	
Programmable Output Slope	Voltage	0.0625 ~ 512 V/Second
	Current	0.125 ~ 1024 mA/Second
Open Wire Detection	+4 ~ +20 mA	
Current Output Capacity	500 Ω	
Voltage Output Capability	10 V @ 10 mA	
Channel-to-Channel Isolation	3000 VDC	
Power-on Value	Yes	
Safe Value	Yes	

## Pin Assignments

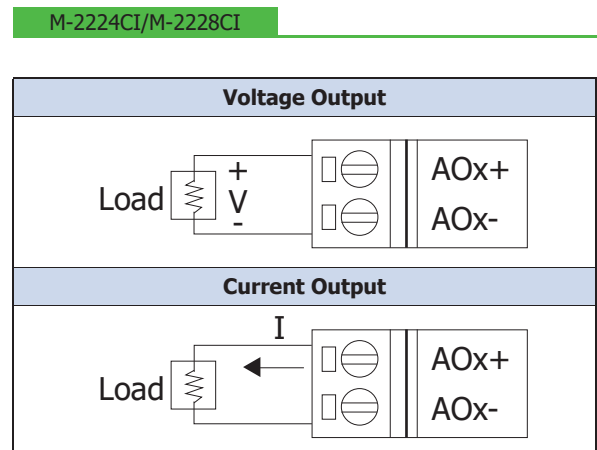
Pin Assignment		Terminal No.	Pin Assignment	
M-2224CI	M-2228CI		M-2224CI	M-2228CI
AO0-	AO0-	02	01	AO0+
		04	03	
	AO1-	06	05	AO1+
		08	07	
AO1-	AO2-	10	09	AO1+
		12	11	
	AO3-	14	13	AO3+
		16	15	
AO2-	AO4-	18	17	AO2+
		20	19	
	AO5-	24	23	AO5+
		26	25	
		28	27	
AO3-	AO6-	30	29	AO3+
		32	31	
		34	33	
AO7-		36	35	AO7+



## Dimensions (Units: mm)



## Wire Connections



## Ordering Information

<b>M-2224CI CR</b>	4-ch Channel to Channel Isolation Differential Analog Output Module using the DCON and Modbus Protocols (RoHS)
<b>M-2228CI CR</b>	8-ch Channel to Channel Isolation Differential Analog Output Module using the DCON and Modbus Protocols (RoHS)