



## ET-2224CI ET-2228CI

Ethernet I/O Module with 2-port Ethernet Switch,  
4/8-channel differential analog outputs

### Features

- 3000 VDC Channel-to-Channel Isolation
- ET-2224CI
  - 4-channel differential analog outputs
- ET-2228CI
  - 8-channel differential analog outputs
- Built-in Web Server
- Open Wire Detection for Current Output
- RF Immunity
- Short Circuit Protection
- Support Modbus TCP/UDP Protocols
- Powerful 32-bit MCU Handles Efficient Network Traffic
- 2-port Ethernet Switch (LAN Bypass) for Daisy-Chain Wiring
- Dual Watchdog
- Easy Firmware Update via Ethernet
- Wide Operating Temperature Range: -25 ~ +75°C



### Introduction

The ET-2228CI is Channel to Channel Isolation analog output module that includes 8 differential analog output channels, and allows 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 provides an RF immunity level matching that defined by the IEC 61000-4-3 standard. Voltage and current outputs are programmable selectable, and the module also features per-channel open wire detection for +4 ~ +20 mA outputs, together with 4 kV ESD protection as well as 3750 VDC intra-module isolation. Options for configuring power-on and safe values are also included.

The ET-2224CI has the same specifications as the ET-2228CI but provides 4 differential analog input channels.

### System Specifications

Model	ET-2224CI	ET-2228CI
<b>System</b>		
CPU	32-bit ARM	
<b>Communication</b>		
Ethernet Port	2 x RJ-45, 10/100 Base-TX, Switch Ports	
Protocol	Modbus TCP, Modbus UDP	
Security	Password and IP Filter	
Dual Watchdog	Yes, Module, Communication (Programmable)	
LAN Bypass	Yes	
<b>LED Indicators</b>		
for System Running	Yes, 1 as Power/Communication Indicator	
for Ethernet Link/Act	Yes	
<b>2-Way Isolation</b>		
Ethernet	1500 VDC	
I/O	2500 VDC	
<b>EMS Protection</b>		
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 Line	
Surge (IEC 61000-4-5)	±2 kV for Power Line	
<b>Power</b>		
Reverse Polarity Protection	Yes	
Powered from Terminal Block	+10 ~ +48 VDC	
Consumption	6 W (Max.)	
<b>Mechanical</b>		
Dimensions (L x W x H)	176 mm x 33 mm x 130 mm	
Installation	DIN-Rail Mounting	

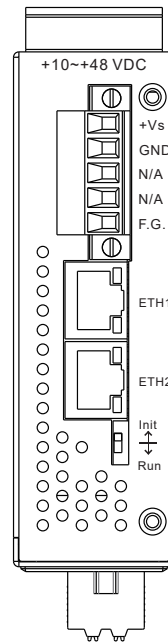
Model	ET-2224CI	ET-2228CI
<b>Environment</b>		
Operating Temperature	-25 ~ +75°C	
Storage Temperature	-30 ~ +80°C	
Humidity	10 ~ 90% RH, Non-condensing	

### I/O Specifications

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

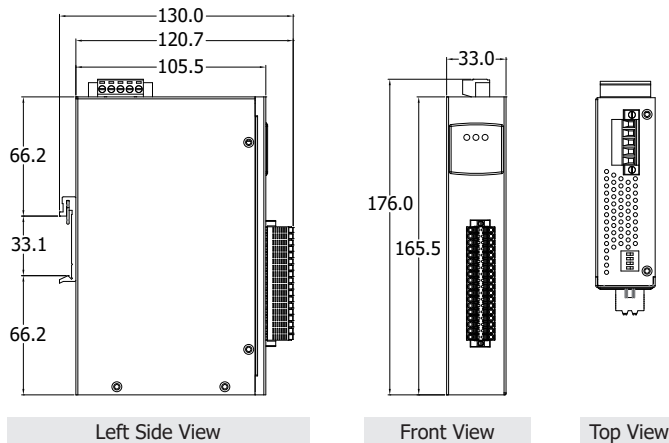
## Pin Assignments

Pin Assignment		Terminal No.	Pin Assignment	
ET-2224CI	ET-2228CI		ET-2224CI	ET-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	
		22	21	
	AO5-	24	23	AO5+
		26	25	
		28	27	
AO3-	AO6-	30	29	AO3+
		32	34	
		34	33	
	AO7-	36	35	AO7+

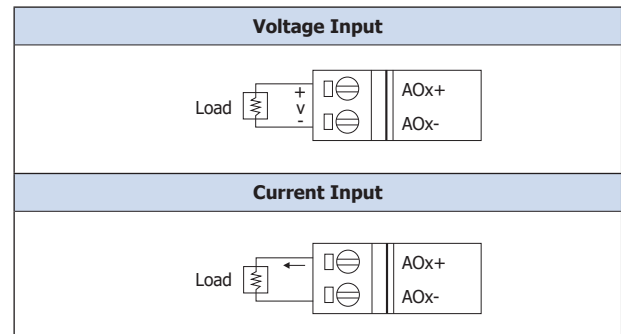


Pin Assignment	
Terminal No.	Pin Assignment
	+Vs
	GND
	N/A
	N/A
	F.G.
ETH1	
ETH2	

## Dimensions (Units: mm)







## Wire Connections



## Ordering Information

<b>ET-2224CI CR</b>	Ethernet I/O Module with 2-port Ethernet Switch, 4-channel differential analog outputs (RoHS)
<b>ET-2228CI CR</b>	Ethernet I/O Module with 2-port Ethernet Switch, 8-channel differential analog outputs (RoHS)

## Related Products

	NS-205 CR	Unmanaged 5-Port Industrial Ethernet Switch with Power Input +10 ~ +30 Vdc (RoHS)
	NS-208 CR	Unmanaged 8-port Industrial 10/100 Base-TX Ethernet Switch with Power Input +10 ~ +30 Vdc (RoHS)
	DIN-KA52F CR	24 V/1.04 A, 25 W Power Supply with DIN-Rail Mounting (RoHS)
	GPSU06U-6	24 V/0.25 A (max.) Power Supply