



ET-2224CI
PET-2224CI



ET-2228CI
PET-2228CI

Ethernet I/O Module with 4/8-ch AO

Features

- Web Server for Configuration
- Support Modbus TCP/UDP and MQTT Protocols
- 2-port Ethernet Switch (LAN Bypass) for Daisy-chain Wiring
- Supports Dual-watchdog
- I/O Pair Connection (Push and Pull)
- Open Wire Detection for Current Outputs
- Built-in I/O
 - ET-2224CI / PET-2224CI: 4-ch AO
 - ET-2228CI / PET-2228CI: 8-ch AO
- 3000 VDC Channel-to-channel Isolation



Introduction

(P)ET-2224CI/(P)ET-2228CI is a 4/8-channel analog output module with channel-to-channel isolation. All analog output channels can be individually configured with output ranges, including 0 ~ 5 V, 0 ~ 10 V, 4 ~ 20 mA, and 0 ~ 20 mA. The module can be set as voltage or current outputs via the software. It offers configurable AO power-on value and safe value settings, as well as open wire detection for each 4 ~ 20 mA output channel. The module complies with the RF (Radiated, radio-frequency) immunity of IEC 61000-4-3 standard and provides EMS (EFT/ESD/Surge) protection, and 3000 VDC I/O isolation to enhance noise protection capabilities in industrial environments.

Moreover, the module supports I/O Pair-Connection functionality, allowing the establishment of AI-to-AO pairing connections with the remote module via Ethernet. Once configured, remote AI data can be written to local AO channels in Pull mode via Modbus TCP.

(P)ET-2224CI/(P)ET-2228CI supports the MQTT protocol, serving as a publisher and subscriber of messages. When connected to an MQTT Broker Server, it can publish real-time statuses of I/O in the form of topics and receive messages from subscribed topics. If a disconnection occurs between the module and the broker during communication, its mechanism for reconnecting can automatically restore the connection. Additionally, its Keep-Alive Interval mechanism ensures a continuous connection with the broker.

System Specifications

Model	ET-2224CI ET-2228CI	PET-2224CI PET-2228CI
Software		
Built-in Web Server	Yes	
CPU Module		
CPU	32-bit ARM	
Watchdog Timer	Module, Communication (Programmable)	
Isolation		
2-way Isolation	Ethernet: 1500 VDC I/O: 3000 VDC	I/O: 3000 VDC
EMS Protection		
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	
LED Indicators		
Status	Run, Ethernet, AO, O/C (Note)	Run, Ethernet, PoE, AO, O/C (Note)
Ethernet		
Ports	2 x RJ-45, 10/100 Base-Tx, Switch Ports	

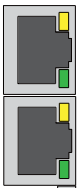
Model		ET-2224CI ET-2228CI	PET-2224CI PET-2228CI
PoE		-	Yes
LAN bypass		Yes	
Access Control		Password and IP Filter	
Protocol		Modbus TCP, Modbus UDP, MQTT	
Power			
Reverse Polarity Protection		Yes	
Consumption	ET/PET-2224CI	5.4 W (max.)	5.6 W (max.)
	ET/PET-2228CI	9.0 W (max.)	9.6 W (max.)
Powered from PoE	PET-2224CI	-	IEEE 802.3af, Class2
	PET-2228CI		IEEE 802.3af, Class3
Powered from Terminal Block		+10 ~ +48 VDC	
Mechanical			
Casing		Metal	
Dimensions (mm)		33 x 184 x 129 (W x L x H)	
Installation		DIN-Rail Mounting / Wall mounting (Optional ASO-0015)	
Environment			
Operating Temperature		-25 ~ +75℃	
Storage Temperature		-40 ~ +80℃	
Humidity		0 ~ 90% RH, Non-condensing	

Note: 8 "O/C" LEDs on the front panel serve as Open Wire Detection indicators for current outputs.

I/O Specifications

Model		ET-2224CI PET-2224CI	ET-2228CI PET-2228CI
Analog Output			
Channels		4	8
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		For 4 ~ 20 mA only	
Voltage Output Capability		10 V @ 10 mA	
Current Load Resistance		500 Ω	
Individual Channel Configuration		Yes	
Channel-to-channel Isolation		3000 VDC	
Power-on Value		Programmable	
Safe Value		Programmable	

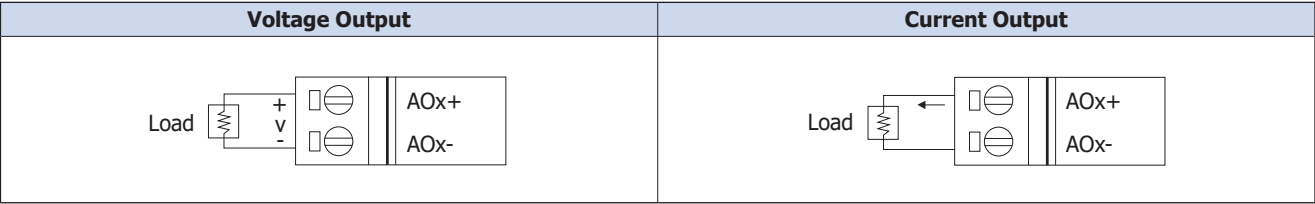
Pin Assignments

Top Side of ET-2224CI/ET-2228CI		
Power Input: +10 ~ +48 VDC	Ethernet	SW
 +Vs GND N/A N/A F.G.	 ETH1 ETH2	 0: Run 1-E: Run IP F: Init

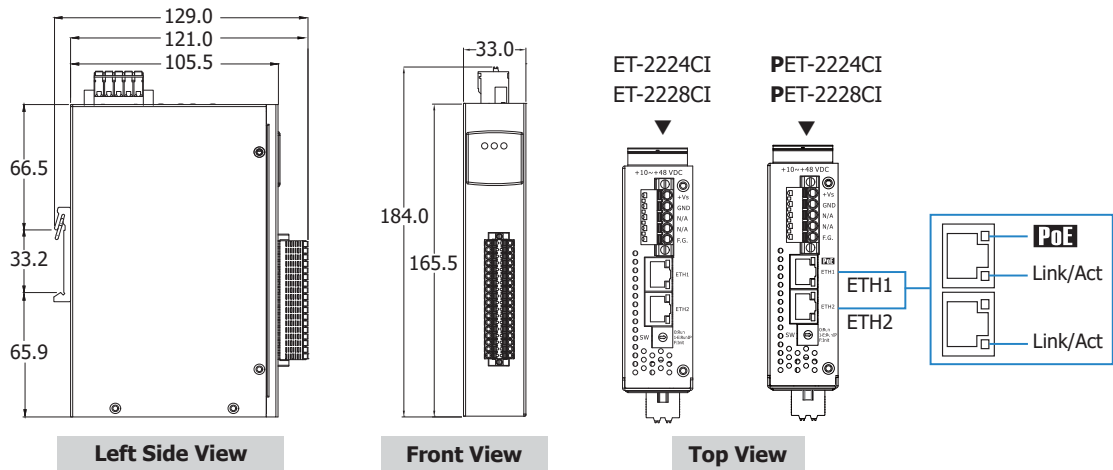
Pin Assignment	(P)ET-2224CI	Pin Assignment
AO0-	02	01 AO0+
	04	03
	06	05
	08	07
AO1-	10	09 AO1+
	12	11
	14	13
	16	15
AO2-	18	17 AO2+
	20	19
	22	21
	24	23
	26	25
	28	27
AO3-	30	29 AO3+
	32	31
	34	33
	36	35

Pin Assignment	(P)ET-2228CI	Pin Assignment
AO0-	02	01 AO0+
	04	03
AO1-	06	05 AO1+
	08	07
AO2-	10	09 AO2+
	12	11
AO3-	14	13 AO3+
	16	15
AO4-	18	17 AO4+
	20	19
	22	21
AO5-	24	23 AO5+
	26	25
	28	27
AO6-	30	29 AO6+
	32	31
	34	33
AO7-	36	35 AO7+

Wire Connections



Dimensions (Units: mm)



Ordering Information

ET-2224CI CR	Ethernet I/O Module with 2-port Ethernet Switch, 4-ch AO (RoHS)
PET-2224CI CR	PoE I/O Module with 2-port Ethernet Switch, 4-ch AO (RoHS)
ET-2228CI CR	Ethernet I/O Module with 2-port Ethernet Switch, 8-ch AO (RoHS)
PET-2228CI CR	PoE I/O Module with 2-port Ethernet Switch, 8-ch AO (RoHS)

Accessories

ASO-0015 CR	Wall Mount Kit (W: 28 mm) (RoHS)
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