# Slim Type Ethernet I/O Modules

## ICP DAS

### ET-2217H    PET-2217H
Ethernet I/O Module with 8-ch High Speed AI

### ⊞ Features

■ Web Server for Configuration

■ Support TCP Streaming, Modbus TCP/UDP, MQTT, and SNMP V2c Protocols

■ 2-port Ethernet Switch (LAN Bypass) for Daisy-chain Wiring

■ Supports Dual-watchdog

■ I/O Pair Connection (Push and Pull)

■ Built-in I/O

 ☐ 8-ch High Speed AI (Differential)

CE   UKCA   RoHS

### ▣ Introduction

(P)ET-2217H is an 8-channel differential high-speed analog input module. All analog input channels can be individually configured with input ranges including ±2.5 V, 0-5V, ±5 V, 0-10 V, ±10 V, 0-20 mA, 4-20 mA, and ±20 mA. The module can be set as voltage or current inputs via the DIP switch and provides up to 50 VDC overvoltage protection, as well as 50 mA overcurrent protection at 50 VDC/VAC. The sampling rate of (P)ET-2217H is 8 KHz for all channels, and it utilizes TCP streaming continuous transmission mode to record voltage and current values. The module also provides EMS (EFT/ESD/Surge) protection and 3000 VDC I/O isolation to enhance noise protection capabilities in industrial environments.

### ▣ System Specifications

| Model | ET-2217H | PET-2217H |
|---|---|---|
| **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 | Run, Ethernet, PoE |
| **Ethernet** | | |
| Ports | 2 x RJ-45, 10/100 Base-Tx, Switch Ports | |
| PoE | - | Yes |
| LAN bypass | Yes | |
| Access Control | Password and IP Filter | |
| Protocol | Modbus TCP, Modbus UDP, MQTT, SNMP V2c, TCP Streaming (Access data by SDK library) | |
| **Power** | | |
| Reverse Polarity Protection | Yes | |
| Consumption | 2.5 W (max.) | 2.7 W (max.) |
| Powered from PoE | - | IEEE 802.3af, Class1 |
| Powered from Terminal Block | +10 ~ +48 VDC | |
| **Mechanical** | | |
| Casing | Metal | |
| Dimensions (mm) | 33 x 127 x 117 (W x L x H) | |
| Installation | DIN-Rail Mounting / Wall mounting (Optional ASO-0015) | |
| **Environment** | | |
| Operating Temperature | -25 ~ +75 °C | |
| Storage Temperature | -40 ~ +80 °C | |
| Humidity | 10 ~ 90% RH, Non-condensing | |

## ■ I/O Specifications

| Model | | ET-2217H | PET-2217H |
|---|---|---|---|
| **Analog Input** | | | |
| Channels | | 8 Differential | |
| Type | | Voltage, Current (DIP switch selectable) | |
| Range | Voltage | ±2.5 V, 0 ~ +5 V, ±5 V, 0 ~ +10 V, ±10 V | |
| | Current | 0 ~ +20 mA, ±20 mA, +4 ~ +20 mA | |
| Resolution | | 16-bit | |
| Accuracy | Voltage | ±0.1% of FSR | |
| | Current | ±0.15% of FSR | |
| Sampling Rate | | 8K Hz (total channels, TCP Streaming) | |
| Input Impedance | Voltage | 20 MΩ | |
| | Current | 136 Ω | |
| Common Voltage Protection | | ±200 VDC | |
| Overvoltage Protection | | +50 VDC | |
| Overcurrent Protection | | 50 mA at 50 VDC (max.) | |
| Individual Channel Configuration | | Yes | |

## ■ Data Transmission Mode

### Continuous Transmission

After starting A/D acquisition, data is continuously transmitted to the Host PC And you can specify the required channels for collection.

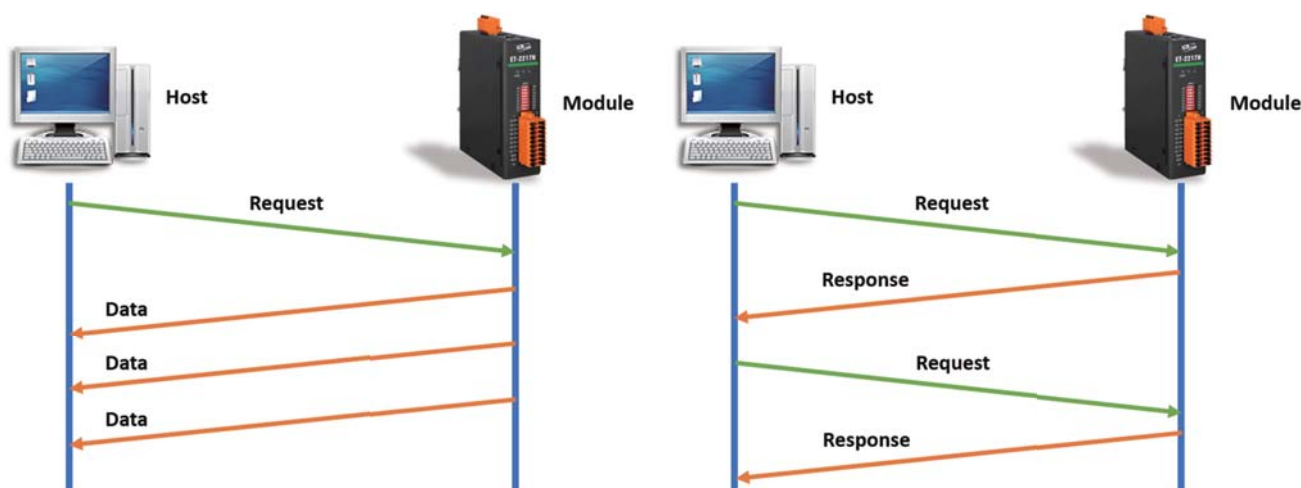| Total simultaneous sampling channels | Maximum sampling rate per channel |
|---|---|
| 8 | 1 KHz |
| 4 | 2 KHz |
| 2 | 4 KHz |
| 1 | 8 KHz |
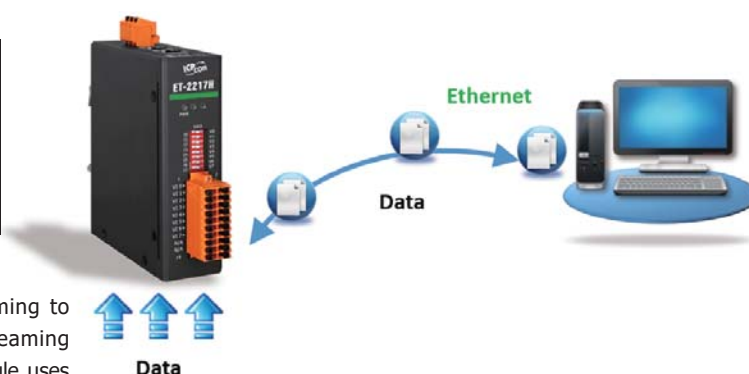


**The continuous collection mode** uses TCP streaming to transmit the collected data back to the PC. The streaming method of this module is that the firmware of the module uses polling scanning to sample data, and the data sampling rate is fixed.

The firmware polling scanning places the data in the module buffer. When the data reaches a certain amount, it is automatically sent to the host. The host sends a start collection command, and the module uses large data packets according to the above method, sending each packet to the host until the host sends a stop collection command to stop collecting data.
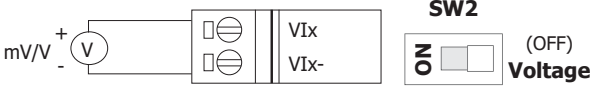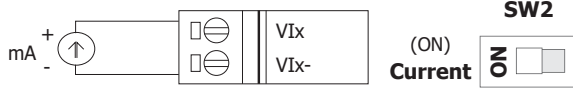
### Modbus/TCP (Command Response Mode)

This mode of the Modbus/TCP protocol is a commonly used communication method for acquisition modules. The firmware of the acquisition module will collect data at a fixed sampling rate and temporarily store it in the module memory (Modbus Register table). When the host sends a command to the module, the module will send the temporarily stored relevant data back to the host as needed.

## ◼ Software Specifications

| PC Software | |
|---|---|
| Support OS | Windows 7/8/10/11 and Linux |
| Utility | Configuration, graphically display and data logging |
| SDK | <u>Windows</u><br>◦ Microsoft VC, C#, VB.NET SDK API and Demo<br>◦ Python Demo<br>◦ NI LabVIEW Toolkit and Demo<br><u>Linux</u><br>◦ C/C++ library and Demo<br>◦ .NET library and Demo<br>◦ Python Demo |

## ◼ Wire Connections

| Voltage Input | Current Input |
|---|---|
| mV/V + V - → VIx / VIx- | mA + ↑ - → VIx / VIx- |
| SW2 (OFF) **Voltage** | SW2 (ON) **Current** |

## ◼ Pin Assignments

| Port | Pin Assignment |
|---|---|
| SW1 | 0: Run<br>1-E: Run IP<br>F: Init |
| PWR | F.G. |
| | GND |
| | + Vs |
| ETH1 | |
| ETH2 | |

| Pin Assignment | SW2 | Pin Assignment |
|---|---|---|
| I0 | | V0 |
| I1 | | V1 |
| I2 | | V2 |
| I3 | | V3 |
| I4 | | V4 |
| I5 | | V5 |
| I6 | | V6 |
| I7 | | V7 |

| Pin Assignment | Terminal No. | | Pin Assignment |
|---|---|---|---|
| VI 0+ | 01 | 02 | VI 0- |
| VI 1+ | 03 | 04 | VI 1- |
| VI 2+ | 05 | 06 | VI 2- |
| VI 3+ | 07 | 08 | VI 3- |
| VI 4+ | 09 | 10 | VI 4- |
| VI 5+ | 11 | 12 | VI 5- |
| VI 6+ | 13 | 14 | VI 6- |
| VI 7+ | 15 | 16 | VI 7- |
| N/A | 17 | 18 | N/A |
| N/A | 19 | 20 | N/A |
| | | | 20-pin Connector |

## ◼ Appearance

**ET-2217H ▼**
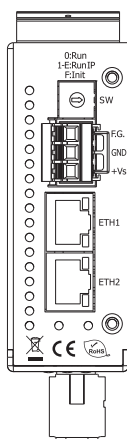
**PET-2217H ▼**

## ◼ Dimensions (Units: mm)



Left Side View    Front View    Right Side View    Rear View    Top View
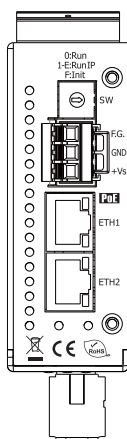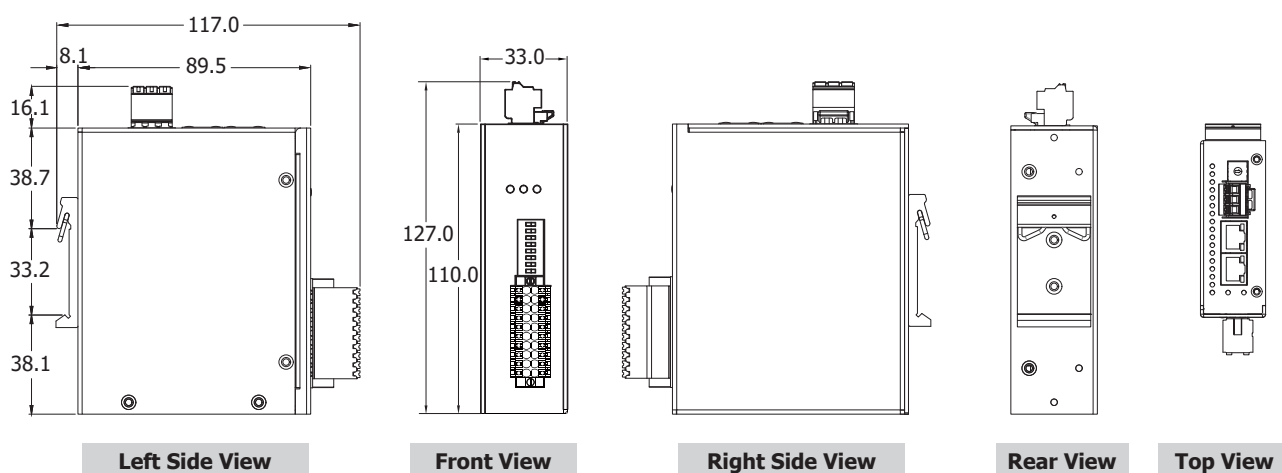
## ◼ ET-2217 Series Comparison Table

| | (P)ET-2217 | (P)ET-2217H | (P)ET-2217CI |
|---|---|---|---|
| Model |  |  |  |
| Ethernet | 2-port | 2-port | 2-port |
| PoE | Yes, PET-2217 | Yes, PET-2217H | Yes, PET-2217CI |
| Channels | 8 DIFF or 16 SE | 8 DIFF | 8 DIFF |
| Channel to Channel Isolation | No | No | Yes, 3000 VDC |
| Overvoltage Protection | 120 VDC | 50 VDC | 120 VDC |
| Overcurrent Protection | 50 mA at 110 VDC | 50 mA at 50 VDC | 50 mA at 110 VDC |
| Max. Sampling Rate | 200 Hz (total channels) | 8K Hz (total channels) | 200 Hz (per channel) |
| Data Logger | No | No | 320,000 records/ channel |
| Voltage/Current Inputs | DIP Switch | DIP Switch | Software |
| Terminals Block (Screw Locking) | Yes | Yes | Yes |
| Casing | Metal | Metal | Metal |
| Dimensions (mm) | 33 x 127 x 117 (W x L x H) | 33 x 127 x 117 (W x L x H) | 33 x 184 x 129 (W x L x H) |
| Operating Temperature | -25 ~ 75℃ | -25 ~ 75℃ | -25 ~ 75℃ |

## ◼ Ordering Information

| ET-2217H CR | Ethernet I/O Module with 2-port Ethernet Switch, 8-ch High Speed AI (RoHS) |
|---|---|
| PET-2217H CR | PoE I/O Module with 2-port Ethernet Switch, 8-ch High Speed AI (RoHS) |

## ◼ Accessories

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



ASO-0015

(P)ET-2000 + ASO-0015