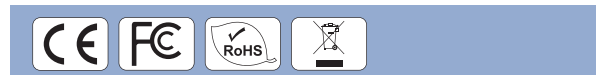## Strain Gauge Multifunction Module

Features

- PoE and Regular Ethernet Options
- Built-In Web Server
- Web HMI
- Modbus/TCP, Modbus/UDP Protocol
- Communication Security
- Dual Watchdog
- Operating Temperature: -25 ~ +75 °C
- I/O Pair Connection
- Built-In I/O
  - □ Strain Gauge Input: 2 Channels
  - □ AO: 1 Channels
  - □ DI/Counter: 2 Channels
  - □ DO: 2 Channels

ET-7016
Regular Ethernet Version

PET-7016
PoE Version

Introduction

The ET-7000/PET-7000, a web-based Ethernet I/O module, features a built-in web server which allows configuration, I/O monitoring and I/O control by simply using a regular web browser. Remote control is as easy as surfing the Internet.

Besides, with the web HMI function, no more programming or HTML skills are required; creating dynamic and attractive web pages for I/O monitoring and I/O control would be fun to engineers ever after. The ET-7000/PET-7000 offers easy and safe access for users from anytime and anywhere! In addition, the ET-7000/PET-7000 also supports Modbus/TCP protocol that makes perfect integration to SCADA software.

Furthermore, PET-7000 features "PoE" that not only data but also power is carried through an Ethernet cable. This feature makes installation of PET-7000 a piece of cake. Imagine that no more unnecessary wires, only an Ethernet cable takes care of everything in the field.

The ET-7016/PET-7016 is a strain gauge module, there are 2-channel analog inputs, 1-channel excitation voltage output, 2-channel digital inputs and 2-channel digital outputs module. It provides programmable input range on all analog inputs (+/-1 mV, +/-50 mV, +/-100 mV, +/-500 mV, +/-1 V, and +/-2.5 V) and supports full-bridge, half-bridge, and quarter-bridge. Each analog input is allowed to configure an individual range. Excitation voltage outputs are 0 ~ 10 V range with 60 mA driving efficient. Digital outputs can be set alarm outputs.

Applications

Building Automation, Factory Automation, Machine Automation, Remote Maintenance, Remote diagnosis, Testing Equipment.

System Specifications

Models	ET-7016	PET-7016
Software		
Built-In Web Server	Yes	
Web HMI	Yes	
I/O Pair Connection	Yes	
Communication		
Ethernet Port	10/100 Base-TX with Auto MDI/MDI-X	
Protocol	Modbus/TCP, Modbus/UDP	
Security	ID, Password and IP Filter	
Dual Watchdog	Yes, Module (0.8 second), Communication (Programmable)	
LED Indicators		
L1 (System Running)	Yes	
L2 (Ethernet Link/Act)	Yes	
L3 (Ethernet 10/100 M Speed)	Yes	
PoE Power	-	Yes
2 Way Isolaiton		
Ethernet	1500 V_{DC}	-
I/O	2500 V_{DC}	2500 V_{DC}
EMS Protection		
ESD (IEC 61000-4-2)	4 kV Contact for each terminal and 8 kV Air for random point	
EFT (IEC 61000-4-4)	+/-4 kV for Power	
Power Requirements		
Reverse Polarity Protectionn	Yes	
Powered from terminal block	Yes, 10 ~ 30 V_{DC}	Yes, 12 ~ 48 V_{DC}
Powered from PoE	-	Yes, IEEE 802.3af, Class1
Consumption	3.5 W	5.1 W
Mechanical		
Dimensions (W x L x D)	72 mm x 123 mm x 35 mm	
Installation	DIN-Rail or Wall mounting	
Environment		
Operating Temperature	-25 °C ~ +75 °C	
Storage Temperature	-30 °C ~ +80 °C	
Humidity	10 ~ 90% RH, non-condensing	

ET-7000/PET-7000 Series (Web based)

ET-7016/PET-7016

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✅ I/O Specifications

Strain Gauge Input	
Input Channels	2 (Differential)
Input Type	+/-15 mV, +/-50 mV, +/-100 mV, +/-500 mV, +/-1 V, +/-2.5 V, +/-20mA, 10 ~ 20 mA, 4 ~ 20 mA
Strain Gauge Type	Full-Bridge, Half-Bridge, and Quarter-Bridge
Individual Channel Configuration	Yes
Resolution	16-bit
Sampling Rate	10 Samples/Sec. (Total)
Accuracy	+/-0.05%
Zero Drift	+/-0.5 uV/°C
Span Drift	+/-25 ppm/°C
Overvoltage Protection	30 V_{DC}
Input Impedance	Voltage Input: >400 kΩ, Current Input: 125 Ω
Common Mode Rejection	150 dB min.
Normal Mode Rejection	100 dB
Excitation Voltage Output	
Output Channels	1
Output Range	0 ~ 10 V
Max. Output Load Current	60 mA
Accuracy	+/-0.05% of FSR
Drift	+/- 50 ppm/°C
Power On Value	Yes
Digital Input/Counter	
Input Channels	2
Type	Wet (Sink or Source)
Off Voltage Level	+1 V_{DC} max.
On Voltage Level	+3.5 V_{DC} ~ +50 V_{DC}
Counters — Channels	2
Counters — Max. Counts	4,294,967,285 (32-bit)
Counters — Max. Input Frequency	100 Hz
Counters — Min. Pulse Width	5 ms
Overvoltage Protection	70 V_{DC}
Digital Output	
Output Channels	2
Type	Isolated Open Collector (Sink)
Max. Load Current	700 mA/Channel
Load Voltage	+ 5 V_{DC} ~ + 50 V_{DC}
Overvoltage Protection	60 V_{DC}
Overload Protection	1.4 A
Short-circuit Protection	Yes
Power On Value	Yes, Programmable
Safe Value	Yes, Programmable

✅ Excitation Voltage

Strain Gauge	Quarter-Bridge	Half-Bridge	Full-Bridge
120R	7.0V	7.0V	3.5V
350R	10V	10V	10V

✅ Ordering Information

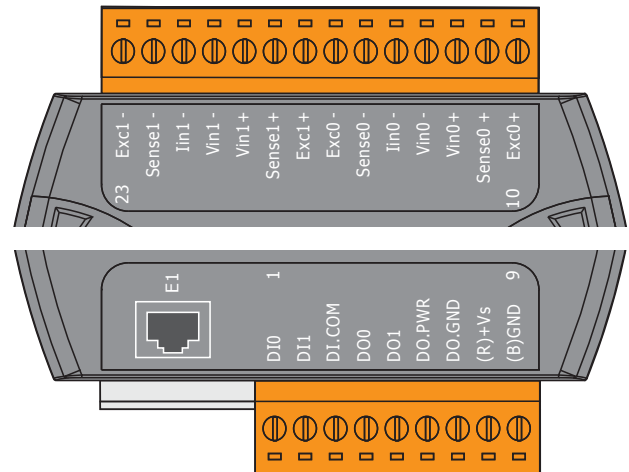|	
ET-7016 CR	2-channel strain gauge, 2-channel digital input and 2-channel digital Output module (RoHS)
PET-7016 CR	2-channel strain gauge, 2-channel digital input and 2-channel digital Output PoE module (RoHS)

✅ Accessories

	NS-205 CR	Unmanaged 5-port Industrial Ethernet Switch; requires 24 V_{DC} Input (RoHS)
	NS-205PSE CR	Unmanaged Ethernet switch with 4-PoE and 1 RJ45 uplink; requires 48 V_{DC} Input (RoHS)
	NS-205PSE-24V CR	Unmanaged Ethernet switch with 4-PoE and 1 RJ45 uplink; requires 24 V_{DC} Input (RoHS)
	MDR-20-24 CR	24V/1A, 24 W Power Supply with DIN-Rail Mounting (RoHS)
	DIN-KA52F-48 CR	48V/0.52A, 25 W Power Supply with DIN-Rail Mounting (RoHS)

✅ Pin Assignment

✅ Wire Connection

Bridge Sensor/Load Cell/Strain Gauge		
Full Bridge	Half Bridge	Quarter Bridge

Digital Input/ Counter	Readback as 1	Readback as 0
Sink	+10 ~ +50 V_{DC}	OPEN or <4 V_{DC}
Source	+10 ~ +50 V_{DC}	OPEN or <4 V_{DC}

Output Type	ON State Readback as 1	OFF State Readback as 0
Drive Relay		
Resistance Load		