ET-7016 **PET-7016**

2-channel Strain Gauge and DIO Module

Features

- Built-in Web Server
- Web HMI
- Support for both Modbus TCP and Modbus UDP Protocols
- Communication Security
- Dual Watchdog
- Wide Operating Temperature Range: -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

Introduction

The ET-7016/PET-7016 is a web-based Ethernet I/O module that features a built-in web server which allows remote configuration, I/O monitoring and I/O control simply by using a regular web browser. Remote control is as easy as surfing the Internet. In addition, the web HMI function means that programming or HTML skills are no longer required so creating dynamic and attractive web pages for I/O monitoring and I/O control purposes will be more fun for engineers in the future. The ET-7016/PET-7016 offers easy and safe access for users at anytime and from anywhere, and also supports the Modbus TCP protocol that ensures perfect integration with SCADA software. Furthermore, the PET-7016 features "PoE", meaning that not only is data transmitted through an Ethernet cable but also power making installation of the PET-7016 a piece of cake. Imagine no more unnecessary wires with only an Ethernet cable being required to take care of everything in the field.

The ET-7016/PET-7016 is a strain gauge module providing are 2 analog input channels, 1 excitation voltage output channel, 2 digital input channels and 2 digital output channels module. It provides a 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. The range for each analog input is allowed to be configured individually. Excitation voltage output can be in the range of 0 ~ 10 V with a 60 mA driving efficiency. Digital outputs can also be set as alarm outputs. The ET-7016/PET-1016 can also provide long-distance strain gauge measurement that compensates for the loss of voltage resulting from long-distance measurements.

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	
√	PoE	-	Yes
√	Protocol	Modbus TCP, Modbus UDP	
√	Security	ID, Password and IP Filter	
√	Dual Watchdog	Yes, Module (0.8 seconds), 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 Isolation		
	Ethernet	1500 VDC	-
	I/O	2500 VDC	2500 VDC
	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 Protection	Yes	
	Powered from Terminal Block	Yes, 10 ~ 30 VDC	Yes, 12 ~ 48 VDC
	Powered from PoE	-	Yes, IEEE 802.3af, Class1
	Consumption	4.2 W	5.3 W
	Mechanical		
	Dimensions (W x L x H)	72 mm x 123 mm x 35 mm	
	Installation	DIN-Rail or Wall Mounting	
	Environment		
	Operating Temperature	-25 ~ +75°C	
	Storage Temperature	-30 ~ +80°C	
	Humidity	10 ~ 90% RH, Non-condensing	

I/O Specifications

Strain Gauge Input		
	Channels	2 (Differential)
√	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/Second (Total)
	Accuracy	+/-0.05%
	Zero Drift	+/-0.5 μV/°C
	Span Drift	+/-25 ppm/°C
√	Overvoltage Protection	30 VDC
	Input Impedance	Voltage Input: >400 kΩ, Current Input: 125 Ω
	Common Mode Rejection	150 dB min.
	Normal Mode Rejection	100 dB
Excitation Voltage 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		
	Channels	2
	Contact	Wet
	Sink/Source (NPN/PNP)	Sink/Source
	Off Voltage Level	+1 VDC Max.
	On Voltage Level	+3.5 VDC ~ +50 VDC
√	Counters: Channels	2
	Counters: Max. Count	4,294,967,285 (32-bit)
	Counters: Max. Input Frequency	100 Hz
	Counters: Min. Pulse Width	5 ms
	Overvoltage Protection	70 VDC
Digital Output		
	Channels	2
	Type	Isolated Open Collector
	Sink/Source (NPN/PNP)	Sink
	Max. Load Current	700 mA/Channel
	Load Voltage	+ 5 VDC ~ + 50 VDC
	Overvoltage Protection	60 VDC
	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

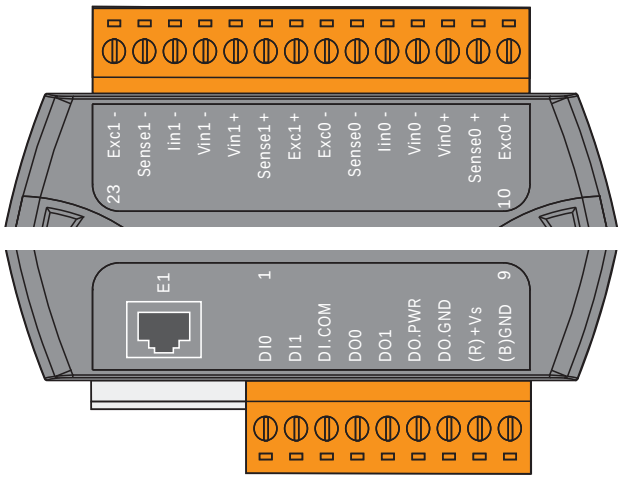
Ordering Information

ET-7016 CR	2-channel Strain Gauge and DIO Module (RoHS)
PET-7016 CR	2-channel Strain Gauge and DIO Module with PoE (RoHS)

Accessories

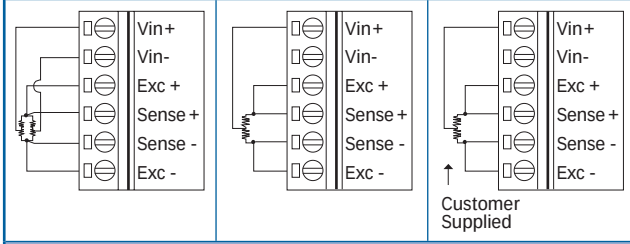
NS-205 CR	Unmanaged 5-port Industrial Ethernet Switch; requires a 24 VDC Input (RoHS)
NS-205PSE CR	Unmanaged Ethernet switch with 4-PoE and 1 RJ45 uplink; requires a 48 VDC Input (RoHS)
NS-205PSE-24V CR	Unmanaged Ethernet switch with 4-PoE and 1 RJ45 uplink; requires a 24 VDC Input (RoHS)
MDR-20-24 CR	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 Assignments

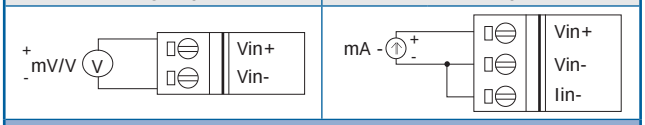


Wire Connections

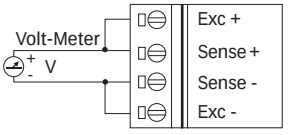
Bridge Sensor/Load Cell/Strain Gauge

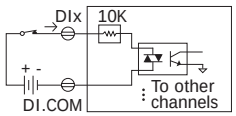
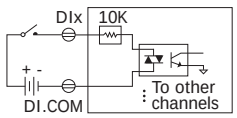
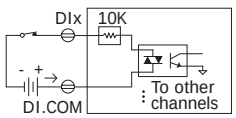
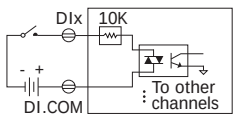


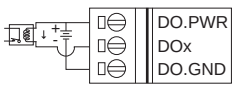
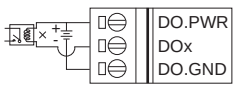
Analog Input



Analog Output



Digital Input/ Counter	Readback as 1	Readback as 0
	+10 ~ +50 VDC	OPEN or <4 VDC
Sink		
	+10 ~ +50 VDC	OPEN or <4 VDC
Source		

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