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RS-485 Remote I/O Modules



I-87016W

2-channel Isolated Strain Gauge Input Module

Introduction

Around our surroundings, there are numerous examples of converting force into a measurable electrical output; In most cases, we need a strain gauge or a load cell. But the question is that how do we deal with these electrical outputs?

I-87016W is definitely your NO.1 choice! It not only processes the data from load cells or strain gauges, but also features linear mapping that generates intuitive and synchronic results for you; by user-defined correspondent table, I-87016W converts the data into weight directly!

Applications

- Industrial Automation
- Industrial Machinery
- Building Automation
- Semiconductor Fabrication
- Control Systems

System Specifications

Communication		
Interface	RS-485	
Format	N, 8, 1	
Baud Rate	1200 ~ 115200 bps	
Protocol	DCON	
Dual Watchdog	Yes, Module (1.6 Seconds), Communication (Programmable)	
Safe Value (When Host Fail or Communication Fail)	Yes	
Power-on Preset Value	Yes	
LED Indicator/Display		
System LED Indicator	1 LED as Power/Communication Indicator	
I/O LED Indicator	4 LEDs as Digital Input/Digital Output status Indicators	
Isolation		
Intra-Module Isolation, Field-to-Logic	3000 V _{DC}	
EMS Protection		
ESD (IEC 61000-4-2)	4 kV Contact for Each Terminal	
	8 kV Air for Random Point	
Power		
Power Consumption	Typical	1.1 W
	Maximum	2.5 W
Mechanical		
Dimensions (W x L x H)	30 mm x 102 mm x 115 mm	
Environment		
Operating Temperature	-25 ~ +75°C	
Storage Temperature	-40 ~ +85°C	
Humidity	10 ~ 95% RH, Non-condensing	

Features

- Strain Gauge Measurement
- High Resolution: 16-bit
- Excitation Voltage Output : 0 ~ 10 V
- Individual Channel Configuration
- 2-channel Digital Inputs
- 2-channel Digital Outputs
- 3000 Vdc Intra-Module Isolation
- RoHS Compliant
- Wide Operating Temperature Range: -25 ~ +75°C



I/O Specifications

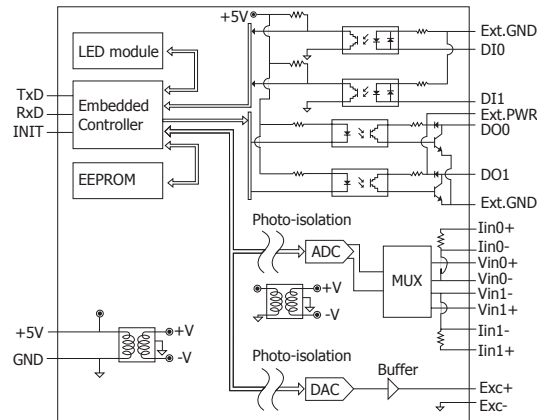
Analog Input		
Channels	2	
Range	+/-15 mV, +/- 50 mV, +/-100 mV, +/-500 mV, +/-1 V _{DC} , +/-2.5 V _{DC} -20 mA ~ +20 mA (No External Resistor Required)	
Strain Gauge Type	Full-bridge, Half-bridge, and Quarter-bridge	
Resolution	16-bit	
Individual Channels Configurable	Yes	
Accuracy	±0.05% of FSR (Voltage), ±0.1% of FSR (Current)	
Sampling Rate	2 Hz (Total) or 10 Hz (Total)	
-3dB Bandwidth	15.7 Hz (10 Hz mode)/ 5.24 Hz (2 Hz mode)	
Zero Drift	+/- 0.5 µV/°C	
Span Drift	+/- 25 ppm/°C	
Common Mode Rejection	150 dB min.	
Normal Mode Rejection	100 dB	
Input Impedance	> 400 kΩ (Voltage), 125 Ω (Current)	
Overvoltage Protection	30 V _{DC}	
Long-distance Strain Gauge Measurement	Yes	
Individual Channel Configurable	Yes	
Excitation Voltage Output		
Channels	1	
Range	0 ~ +10 V _{DC}	
Resolution	16-bit	
Max. Output Load current	80 mA	
Accuracy	+/- 0.05% of FSR	
Output Capacity	10 V _{DC} @ 80 mA	
Drift	+/- 50 ppm/°C	
Digital Input		
Channels	2	
Contact	Wet	
Sink /Source (NPN /PNP)	Sink	
On Voltage Level	+3.5 V _{DC} ~ 50 V _{DC}	
Off Voltage Level	+1 V _{DC} Max.	
Input Impedance	10 KΩ, 0.66 W	
Event Counter	Channels	2
	Max. Input Frequency	50 Hz
	Min. Pulse Width	10 ms
Channel to Channel Isolation		Yes
Digital Output		
Channels		2
Type		Open Collector
Sink /Source (NPN /PNP)		Sink
Load Voltage		+3.5 V _{DC} ~ 50 V _{DC}
Max. Load Current		700 mA/channel
External Power Reversed Protection and Short Circuit Protection		Yes
Overheating Protection		Yes

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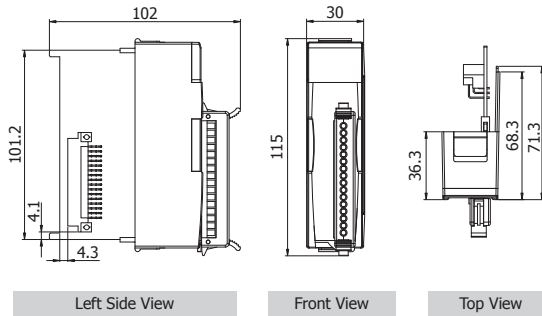
I-87KW Series

I-87016W

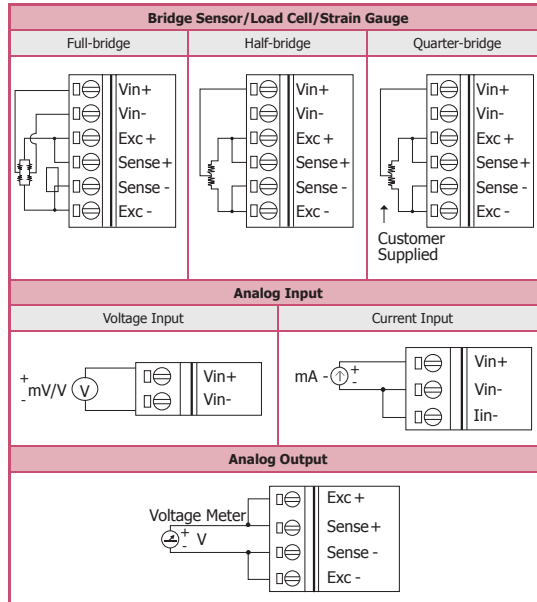
Internal I/O Structure



Dimensions (Units: mm)



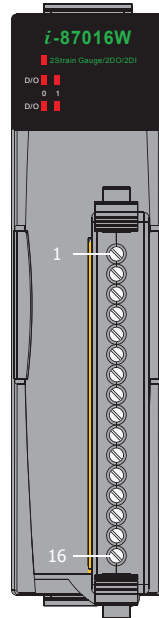
Wire Connections



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

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

Pin Assignments



Terminal No.	Pin Assignment
01	Vin0+
02	Vin0-
03	Iin0-
04	Vin1+
05	Vin1-
06	Iin1-
07	Exc+
08	Sense+
09	Sense-
10	Exc-
11	Ext.PWR
12	DO0/LO
13	DO1/HI
14	DI0/EV
15	DI1/EV
16	Ext.GND

Excitation Voltage

Strain Gauge	Quarter-bridge	Half-bridge	Full-bridge
120 R	9.0 V	9.0 V	4.5 V
350 R	10 V	10 V	10 V

Ordering Information

I-87016W-G CR	2-channel Isolated Strain Gauge Input Module (Gray Cover) (RoHS)
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Accessories

SG-770 CR	7 channel differential or 14 channel single-ended surge protector (RoHS)
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