



I-7016(D)

2-ch 4-wire Strain Gauge Input Module



M-7016(D)



I-7016P(D)

1-ch 6-wire Strain Gauge Input Module

Features

- Long-distance Strain Gauge Measurement
 - Only for I-7016P(D)
- 1 or 2 Strain Gauge Measurement
- High Resolution: 16-bit
- Excitation Voltage Output: 0 ~ +10 V
- 50 Hz Event Counter for Digital Input
- High/Low Alarm for Digital Output
- Linear Mapping Function
- Built-in Dual Watchdog



Introduction

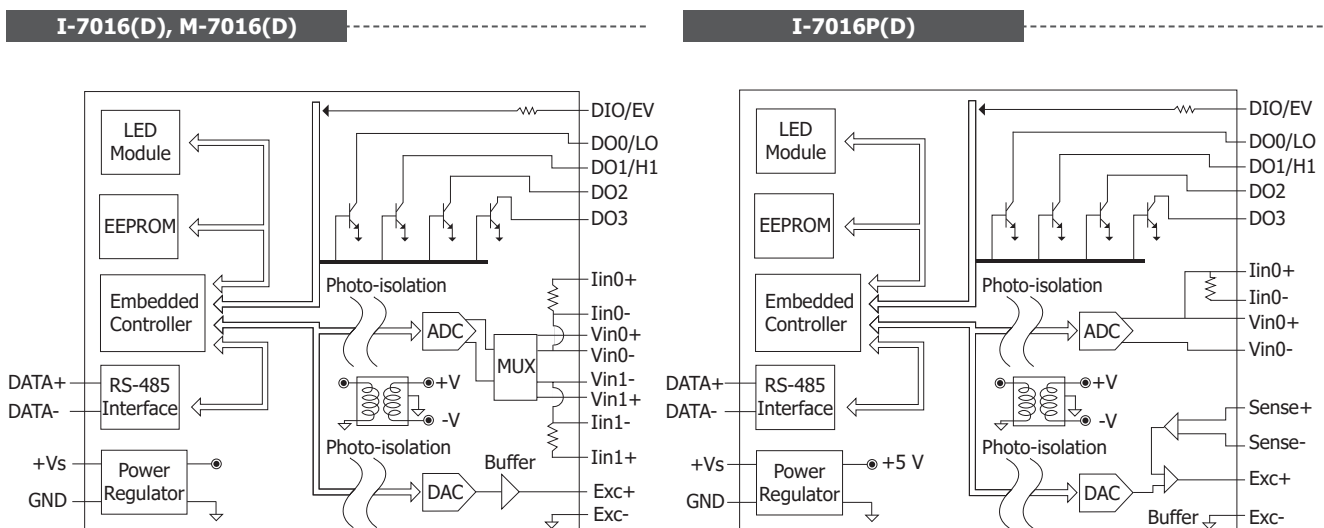
The I-7016 series modules are designed not only to process data from weighing sensors or strain gauges but also to provide linear mapping functionality. By using user-defined mapping tables, the measured data can be directly converted into weight. This series supports full-bridge strain gauges and offers 1-ch or 2-ch strain gauge input with configurable ranges, 1-ch excitation voltage output, 1-ch digital input that can function as a general input or a 50 Hz event counter, and 4-ch digital output that can be used for general output or high/low alarms. Additionally, the I-7016P(D) modules are specifically designed for long-range strain gauge measurements and provide 3000 VDC internal isolation, ensuring enhanced safety and reliability.

Specifications

Model	I-7016	I-7016D	I-7016P	I-7016PD
	M-7016	M-7016D		
CPU Module				
Watchdog Timer	Module, Communication (Programmable)			
Display				
5-Digit 7 Segment LED	-	Yes	-	Yes
Isolation				
Intra-module Isolation	1500 VDC		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			
LED Indicators				
Status	1 x Power and Communication			
Digital Input/Counter				
Channels	1			
Type	Dry Contact			
Sink/Source (NPN/PNP)	Source			
ON Voltage Level	Close to GND			
OFF Voltage Level	Open			
Max. Counts	65535 (16-bit)			
Frequency	50 Hz			
Input Impedance	3 kΩ			
Overvoltage Protection	±30 VDC			
Digital Output				
Channels	4			
Type	Open Collector			
Sink/Source (NPN/PNP)	Sink			
Load Voltage	+3.5 ~ +50 VDC			
Load Current	30 mA/channel			
Power on Value	Programmable			
Safe Value	Programmable			

Model	I-7016	I-7016D	I-7016P	I-7016PD
	M-7016	M-7016D		
Strain Gauge, Load Cell Input				
Channels	2		1	
Type	Full-Bridge Strain Gauge, Voltage, Current			
Range	Voltage: ± 15 mV, ± 50 mV, ± 100 mV, ± 500 mV, ± 1 V, and ± 2.5 V Current: ± 20 mA			
Wiring	4-wire		6-wire	
Accuracy	$\pm 0.05\%$ of FSR			
Resolution	16-bit			
Sampling Rate	1-ch Mode: 10 Hz 2-ch Mode: 2 Hz (total)		10 Hz	
Impedance	20 M Ω			
Long Distance Measurement	Yes			
Overvoltage Protection	± 5 VDC			
Excitation Voltage Output				
Channels	1			
Range	0 ~ +10 V			
Resolution	16-bit			
Accuracy	$\pm 0.05\%$ of FSR			
Max. Load Current	40 mA			
Power on Value	Programmable			
COM Ports				
Ports	1 x RS-485			
Baud Rate	1200 ~ 115200 bps			
Data Format	I-7000	(N, 8, 1)		(N, 8, 1)
	M-7000	(N, 8, 1) (N, 8, 2) (E, 8, 1) (O, 8, 1)		-
Protocol	I-7000	DCON		
	M-7000	Modbus RTU, DCON		
Power				
Reverse Polarity Protection	Yes			
Input Range	$+10$ ~ $+30$ VDC			
Consumption	2.4 W	3.0 W	1.3 W	
Mechanical				
Dimensions (mm)	72 x 123 x 35 (W x L x H)			
Installation	DIN-Rail Mounting			
Environment				
Operating Temperature	-25 ~ $+75$ °C			
Storage Temperature	-40 ~ $+85$ °C			
Humidity	10 ~ 95% RH, Non-condensing			

Internal I/O Structure

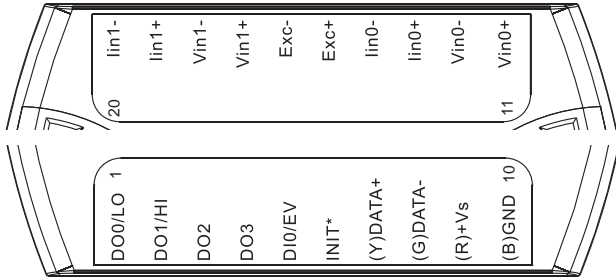


Applications

- Building Automation
- Machine Automation
- Remote Diagnosis
- Factory Automation
- Remote Maintenance
- Testing Equipment

Pin Assignments

I-7016(D), M-7016(D)



I-7016P(D)



Wire Connections

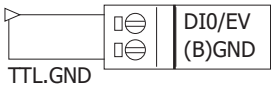
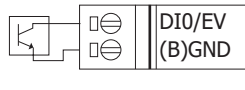
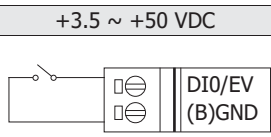
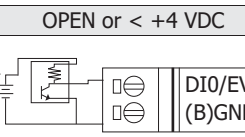
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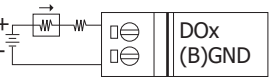
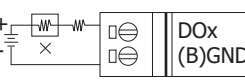
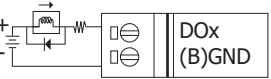
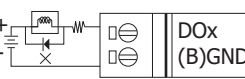
Bridge Sensor/Load Cell/Strain Gauge	Voltage Input	Current Input	Voltage Output

DI/Counter	Dry Contact	Output Type	ON State Readback as 1	OFF State Readback as 0
Readback as 1	Open	Resistance Load		
Readback as 0	Closed to GND	Inductance Load		

I-7016P(D)

Bridge Sensor/Load Cell/Strain Gauge	Voltage Input	Current Input	Voltage Output







Digital Input/Counter	Readback as 1	Readback as 0
Sink	+3.5 ~ +50 VDC 	OPEN or < +4 VDC 
	+3.5 ~ +50 VDC 	OPEN or < +4 VDC 

Output Type	ON State Readback as 1	OFF State Readback as 0
Resistance Load		
Inductance Load		

Ordering Information

I-7016 CR	2-ch 4-wire Strain Gauge Input Module using DCON Protocol (Blue Cover) (RoHS)
I-7016D CR	2-ch 4-wire Strain Gauge Input Module with LED Display using DCON Protocol (Blue Cover) (RoHS)
I-7016D-G CR	2-ch 4-wire Strain Gauge Input Module with LED Display using DCON Protocol (Gray Cover) (RoHS)
M-7016-G CR	2-ch 4-wire Strain Gauge Input Module using DCON and Modbus Protocols (Gray Cover) (RoHS)
M-7016D-G CR	2-ch 4-wire Strain Gauge Input Module with LED Display using DCON and Modbus Protocols (Gray Cover) (RoHS)
I-7016P CR	1-ch 6-wire Strain Gauge Input Module using DCON Protocol (Blue Cover) (RoHS)
I-7016PD CR	1-ch 6-wire Strain Gauge Input Module with LED Display using DCON Protocol (Blue Cover) (RoHS)

Accessories

tM-7520U CR 	Tiny Isolated RS-232 to RS-485 Converter (RoHS)
tM-7561 CR 	Tiny USB to Isolated RS-485 Converter with CA-USB18 Cable (RoHS)
tM-SG4 CR 	RS-485 Pull-high/Pull-low and Termination Resistor Module (RoHS)
I-7514U CR 	Isolated 4-channel RS-485 Repeater/Hub/Splitter (Gray Cover) (RoHS)
SG-770 CR 	7 or 14-channel Surge Protector (RoHS)
SG-3000 Series 	Signal Conditioning Modules for Thermocouple, RTD, DC Voltage, DC Current and Power Input Transformers