

6.4. Multi Function/Strain Gauge Modules

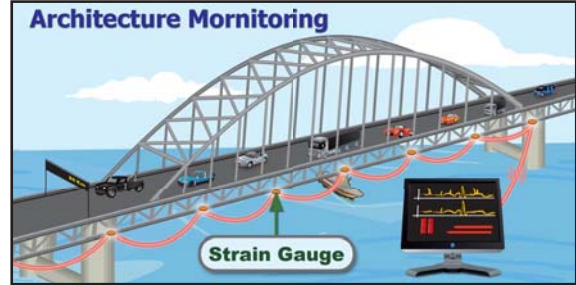
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• Selection Guide

▣ Strain Gauge Introduction

A strain gauge is a resistive sensor. The measurement of strain is usually made using a Wheatstone bridge circuit with excitation voltage. The variation in strain can be calculated based on the measured voltage. The resistance of the gauge varies when the gauge is compressed or stretched. With the characteristic, it can be applied to measure stress or the growth of the crack or movement in buildings, foundations, and other structures to ensure the safety.

▣ Applications



Multi-function Module (Parallel/Serial Bus)			
Models	I-87016W	I-87026PW	I-8026PW
Pictures	NEW 	Available soon 	Available soon 
Analog Input			
Channel	2	6	6
Range	±15 mV, ±50 mV, ±100 mV, ±500 mV, ±1 V _{DC} , ±2.5 V _{DC} , ±20 mA	±150 mV, ±500 mV, ±1 V, ±5 V, ±10 V, ±20 mA	±10 V _{DC} , ±5 V _{DC} , ±20 mA (Jumper Select)
Strain Gauge Type	Full-Bridge, Half-Bridge, Quarter-Bridge	-	-
Resolution	16-bit	16-bit	12-bit
Accuracy	±0.05% of FSR (Voltage), ±0.1% of FSR (Current)	±0.1% of FSR	±0.2% of FSR
Sampling Rate	10 Hz	10 Hz	35 kHz
Input Impedance	> 400 kΩ (Voltage), 125 Ω (Current)	2 MΩ (Voltage), 125 Ω (Current)	2M Ω
Over Voltage Protection	30 V _{DC}	240 V _{rms}	-
Long Distance Strain Gauge Measurement	Yes	-	-
Individual Channel Configurable	Yes	Yes	Yes
Analog Output			
Channel	1	2	2
Range	0 ~ +10 V _{DC}	±10 V, ±5 V, 0 ~ 10 V, 0 ~ 5 V, 0 ~ 20 mA, 4 ~ 20 mA	±10 V _{DC}
Resolution	16-bit	12-bit	12-bit
Accuracy	±0.05% of FSR	±0.1% of FSR	±0.2% of FSR
Output Capacity	10 V @ 80 mA	10 V @ 20 mA	10 V @ 20 mA
Digital Input			
Channel	2	2	3
Contact	Wet	Wet	Wet
Sink /Source (NPN /PNP)	Sink	Sink	Sink, Source
on Voltage Level	3.5 ~ 50 V _{DC}	3.5 ~ 50 V _{DC}	10 ~ 30 V _{DC}
off Voltage Level	1 V _{DC} max.	1 V _{DC} max.	4 V _{DC} max.
Low Pass Filter	Yes	Yes	-
Digital Output			
Channel	2	2	3
Type	Open Collector	Open Collector	Open Collector
Sink /Source (NPN /PNP)	Sink	Sink	Sink
Load Voltage	5 ~ 50 V _{DC}	5 ~ 50 V _{DC}	5 ~ 30 V _{DC}
Max. Load Current	700 mA/channel	700 mA/channel	100 mA/channel
System			
Dual Watchdog	Yes	Yes	-
Data Bus	Serial	Serial	Parallel
Isolation	3000 V _{DC}	2500 V _{DC}	2500 V _{DC}
Power Consumption	2.5 W	2.5 W	3 W
Connector	Terminal Block	Terminal Block	Terminal Block
Optional Accessories	-	-	-

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