DI-8B38 Strain Gage Input Modules, Wide/Narrow Bandwidth

FEATURES

- Interfaces to 300Ω Thru $2k\Omega$ Full-Bridge Strain Gages
- High Level Voltage Outputs
- 1500Vrms Transformer Isolation
- ANSI/IEEE C37.90.1 Transient Protection
- Input Protected up to 240VAC Continuous
- 100dB CMR
- 3Hz or 8kHz Signal Bandwidth
- $\pm 0.05\%$ Accuracy
- $\pm 0.02\%$ Linearity
- Low Drift with Ambient Temperature
- UL, CSA, FM and CE Certifications Pending.
- Mix and Match Module Types

DESCRIPTION

DI-8B modules are an optimal solution for monitoring real-world process signals and providing high level signals to a data acquisition system. Each DI-8B38 module isolates, filters and amplifies a full-bridge strain gage input signal and provides an analog voltage output.

The 8B38 can interface to tranducers with a nominal resistance of 100Ω to $2k\Omega$ (dependent upon the model). Bridge excitation is provided from the module with a stable 10.00V or 3.33V source. Full scale sensitivities of 2mV/V and 3mV/V are offered as standard.

Signal filtering is accomplished with a five-pole filter optimized for time and frequency response which provides 100dB per decade of normal-moderejection above the filter cutoff frequency. One pole of this filter is on the field side of the isolation barrier for anti-aliasing, and the other four are on the system side.

A special input circuit on the DI-8B38 module provides protection against accidental connection of power-line voltages up to 240VAC. Clamp circuits on the I/O and power terminals protect against harmful transients.

Isolation is provided by optical coupling to suppress transmission of common mode spikes or surges. The module is powered from ± 5 VDC, ± 5 %.

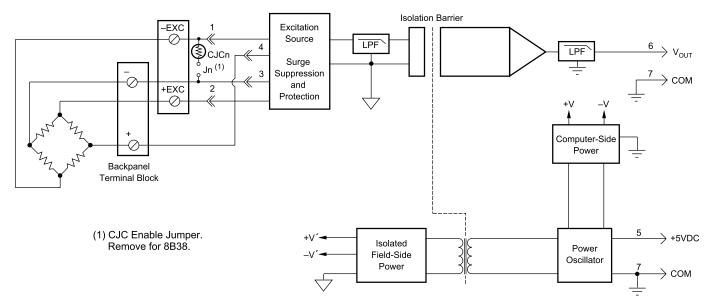
The modules are designed for installation in Class I, Division 2 hazardous locations and have a high level of immunity to environmental noise.

SPECIFICATIONS

Input Range $\pm 10 \text{mV}$ to $\pm 100 \text{mV}$ Input Bias Current $\pm 0.5 \text{nA}$ Input ResistanceS0MΩNormal $50M\Omega$ Power Off $100 \text{k}\Omega$ Overload $100 \text{k}\Omega$ Input Protection 240VAC Continuous' 240VAC Transient $ANSI/IEEE$ C37.90.1Excitation Output (~1) $\pm 3.33 \text{ V} \pm 2m \text{V}$ Load Resistance 100Ω to $2 \text{k}\Omega$ Excitation Output (~2x, -5x) $\pm 100 \text{V} \pm 5m \text{V}$ Load Resistance 300Ω to $2 \text{k}\Omega$ Excitation Stability 500pm/°C Excitation Foretection 120VAC CMV, Input to Output 1500Vrms maxTransient, Input to Output 100dB NMR 100dB per decade above 8kHz Nonlinearity $\pm 0.02\%$ SpanStability $0ffset$ $\pm 25 \text{ppm/°C}$ $\pm 25 \text{ppm/°C}$ $\pm 25 \text{ppm/°C}$ $\pm 25 \text{ppm/°C}$ Noise 160ms Output, 100 \text{Hz} $1500 \mu \text{Vrms}$ Bandwidth, -3dB 8kHz AtHz 3Hz Response Time, 90% Span $70 \mu \text{s}$ Output ProtectionContinuous Short to Ground ANSI/IEEE C37.90.1Output ProtectionContinuous Short to Ground ANSI/IEEE C37.90.1Output, 100 \text{Hz} $1500 \mu \text{Vrms}$ Bandwidth, -3dB 8kHz 3Hz 3Hz Response Time, 90% Span $70 \mu \text{s}$ Output ProtectionContinuous Short to Ground ANSI/IEEE C37.90.1Powe	SPECIFICATIONS Typical at $T_A = +25^{\circ}C$ and $+5V$ Power						
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Storage Temperature -40°C to +85°C		-40° C to $+85^{\circ}$ C					
Relative Humidity 0 to 95% Noncondensing	Relative Humidity	0 to 95% Noncondensing					
¹ 240VAC between + and -/+EXC/-EXC terminals. 120VAC between - and +EX EXC terminals and between +EXC and -EXC terminals.			C between - and +EXC/-				
² Includes nonlinearity, hysteresis, and repeatability.	² Includes nonlinearity, hystere	esis, and repeatability.					

DI-8B38 Strain Gage Input Modules, Wide/Narrow Bandwidth

Block Diagram



Ordering Information

Model Number	Bandwidth	Input Range	Bridge Resistance	Exc.	Sens.
DI-8B38-01	8kHz	±10mV	100Ω to $2k\Omega$	+3.333V	3mV/V
DI-8B38-02	8kHz	±30mV	300Ω to $2k\Omega$	+10.0V	3mV/V
DI-8B38-05	8kHz	±20mV	300Ω to $2k\Omega$	+10.0V	2mV/V
DI-8B38-31	3Hz	±10mV	100Ω to $2k\Omega$	+3.333V	3mV/V
DI-8B38-32	3Hz	±30mV	300Ω to $2k\Omega$	+10.0V	3mV/V
DI-8B38-35	3Hz	±20mV	300Ω to $2k\Omega$	+10.0V	2mV/V



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