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

FEATURES

- Interfaces to 300Ω Thru 2kΩ 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
- ±0.05% Accuracy
- ±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 2kΩ (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 +5VDC, ±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

Typical at T_A = +25ºC and +5V Power

	DI-8B38-0x	DI-8B38-3x
Input Range	±10mV to ±100mV	
Input Bias Current	±0.5nA	
Input Resistance Normal Power Off Overload	 50MΩ 100kΩ 100kΩ	
Input Protection Continuous[1] Transient	 240VAC ANSI/IEEE C37.90.1	
Excitation Output (-x1) Load Resistance	+3.333V ±2mV 100Ω to 2kΩ	
Excitation Output (-2x, -5x) Load Resistance	+10V ±5mV 300Ω to 2kΩ	
Excitation Load Regulation	15ppm/mA	
Excitation Stability	50ppm/°C	
Excitation Protection	120VAC	
CMV, Input to Output	1500Vrms max	
Transient, Input to Output	ANSI/IEEE C37.90.1	
CMR (50Hz or 60Hz)	100dB	
NMR	100dB per decade above 8kHz	
Accuracy[2]	±0.05% Span	
Nonlinearity	±0.02% Span	
Stability Offset Gain	 ±25ppm/ºC ±100ppm/ºC	 ±25ppm/ºC ±75ppm/ºC
Noise Output, 100kHz	 1500µVrms	 200µVrms
Bandwidth, -3dB	8kHz	3Hz
Response Time, 90% Span	70µs	160ms
Output Range	±5V	
Output Protection Transient	Continuous Short to Ground ANSI/IEEE C37.90.1	
Power Supply Voltage	+5VDC ±5%	
Power Supply Current	110mA No Exc. Load 150mA Full Exc. Load	
Power Supply Sensitivity	±50ppm/%	
Mechanical Dimensions	1.11" × 1.65" × 0.40" (28.1mm × 41.9mm × 10.2mm)	
Environmental Operating Temperature Storage Temperature Relative Humidity	 -40ºC to +85ºC -40ºC to +85ºC 0 to 95% Noncondensing	

[1]240VAC between + and -/+EXC/-EXC terminals. 120VAC between - and +EXC/-EXC terminals and between +EXC and -EXC terminals.

[2]Includes nonlinearity, hysteresis, and repeatability.

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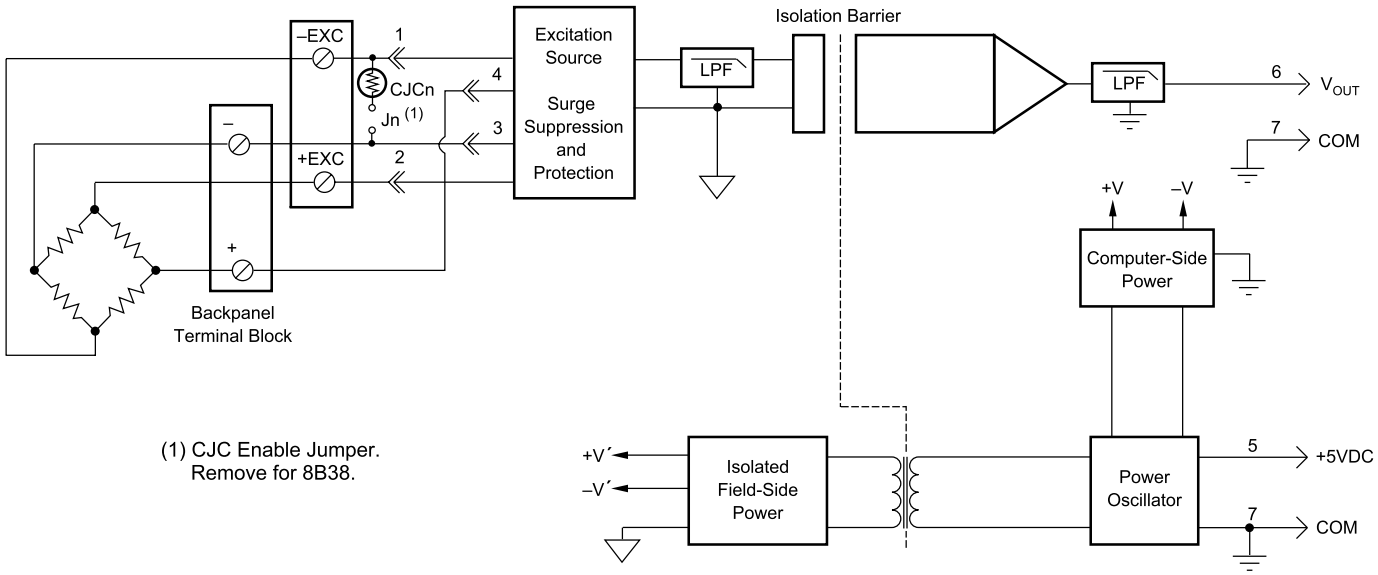
Block Diagram



(1) CJC Enable Jumper.
Remove for 8B38.

Ordering Information

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

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