

DI-8B50/51 Analog Voltage Input Modules, 20kHz Bandwidth

FEATURES

- Accepts Millivolt and Voltage Level Signals
- High Level Voltage Output
- 1500Vrms Transformer Isolation
- ANSI/IEEE C37.90.1 Transient Protection
- Input Protected to 240VAC Continuous
- 100dB CMR
- Up to 20kHz Signal Bandwidth
- $\pm 0.10\%$ Accuracy
- $\pm 0.05\%$ Linearity
- Low Drift with Ambient Temperature
- 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-8B50 and DI-8B51 module isolates, filters, and amplifies a voltage input signal and provides an analog voltage output.

Signal filtering is accomplished with a multiple pole filter optimized for time and frequency response which provides 70dB of normal-mode-rejection at 60Hz. One pole of this filter is on the field side of the isolation barrier for anti-aliasing, and the remaining poles are on the system side.

A special input circuit on the DI-8B50 and DI-8B51 modules 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, $\pm 5\%$.

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

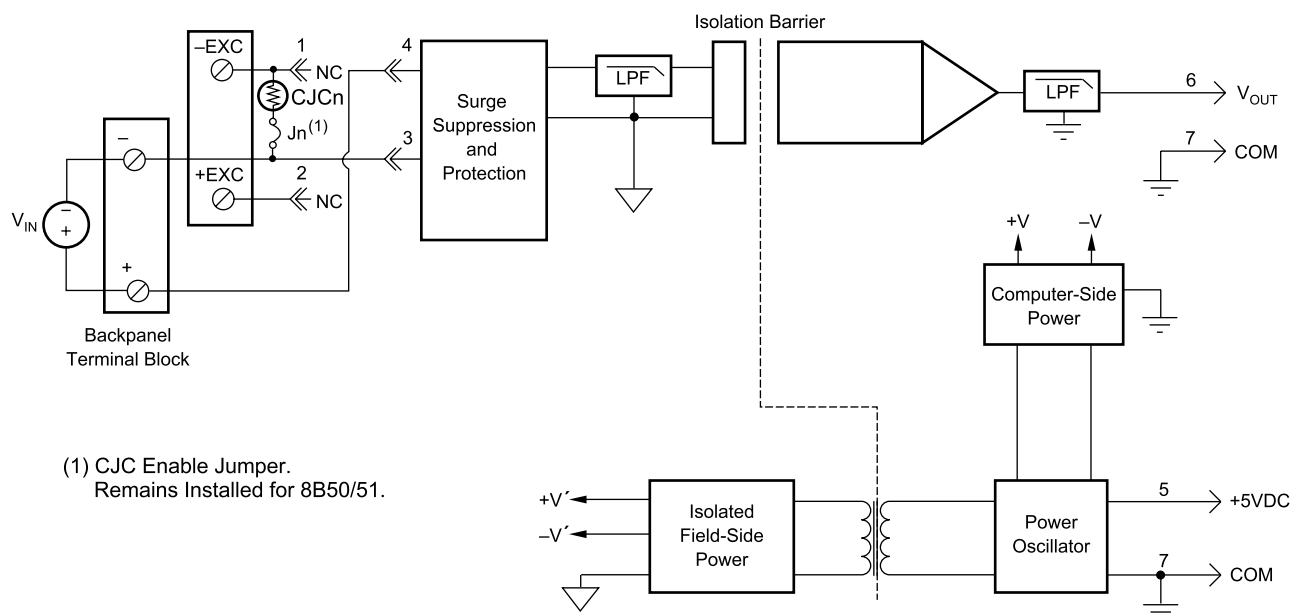
SPECIFICATIONS

Typical at $T_A = +25^\circ\text{C}$ and +5V Power

	DI-8B50	DI-8B51
Input Range	$\pm 20\text{mV}$ to $\pm 100\text{mV}$	$\pm 1\text{V}$ to $\pm 60\text{V}$
Input Bias Current	$\pm 0.5\text{nA}$	$\pm 0.05\text{nA}$
Input Resistance		
Normal	50M Ω	500k Ω (minimum)
Power Off	100k Ω	500k Ω (minimum)
Overload	100k Ω	500k Ω (minimum)
Input Protection	240VAC ANSI/IEEE C37.90.1	
Continuous ¹		
Transient		
CMV, Input to Output	1500Vrms max	
Transient, Input to Output	ANSI/IEEE C37.90.1	
CMR (50Hz or 60Hz)	100dB	
NMR (-3dB at 20kHz)	100dB per decade above 20kHz	
Accuracy ²	$\pm 0.05\%$ Span	
Linearity	$\pm 0.02\%$ Span	
Stability		
Offset	$\pm 10\text{ppm}/^\circ\text{C}$	$\pm 10\text{ppm}/^\circ\text{C}$
Gain	$\pm 50\text{ppm}/^\circ\text{C}$	$\pm 75\text{ppm}/^\circ\text{C}$
Noise	500 μVrms	
Output, 100kHz		
Bandwidth, -3dB	20kHz (15kHz DI-8B50-01)	
Rise Time, 10 to 90% Span	25 μs	
Output Range	-5V to +5V	
Output Protection	Continuous Short to Ground ANSI/IEEE C37.90.1	
Transient		
Power Supply Voltage	+5VDC $\pm 5\%$	
Power Supply Current	25mA typ; 50mA max.	
Power Supply Sensitivity	$\pm 50\text{ppm}/\%$	
Mechanical Dimensions	1.11" \times 1.65" \times 0.40" (28.1mm \times 41.9mm \times 10.2mm)	
Environmental		
Operating Temperature	-40 $^\circ\text{C}$ to +85 $^\circ\text{C}$	
Storage Temperature	-40 $^\circ\text{C}$ to +85 $^\circ\text{C}$	
Relative Humidity	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 linearity, hysteresis, and repeatability.		

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Block Diagram



Ordering Information

Model Number	Input Range
DI-8B50-01	-20mV to +20mV
DI-8B50-02	-50mV to +50mV
DI-8B50-03	-100mV to +100mV
DI-8B51-01	-1V to +1V
DI-8B51-02	-5V to +5V
DI-8B51-03	-10V to +10V
DI-8B51-07	-20V to +20V
DI-8B51-09	-40V to +40V
DI-8B51-12	-60V to +60V



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