

DI-8B36 Potentiometer Input Modules

FEATURES

- Interfaces to Potentiometers up to 10,000 Ω
- High Level Voltage Outputs
- 1500Vrms Transformer Isolation
- ANSI/IEEE C37.90.1 Transient Protection
- Input Protected to 240VAC Continuous
- 120dB CMR
- 70dB NMR at 60Hz
- $\pm 0.05\%$ Accuracy
- $\pm 0.02\%$ 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-8B36 module isolates, filters and amplifies a single channel of potentiometer input and provides an analog voltage output.

Excitation for the potentiometer is provided by using two matched current sources. When using a 3-wire connection, this method allows equal currents to flow through the sensor leads, cancelling the effects of lead resistances. The excitation currents are small (0.25mA) which minimizes the self-heating of the potentiometer.

Signal filtering is accomplished with a three-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 other two are on the system side.

A special input circuit on the DI-8B36 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.

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

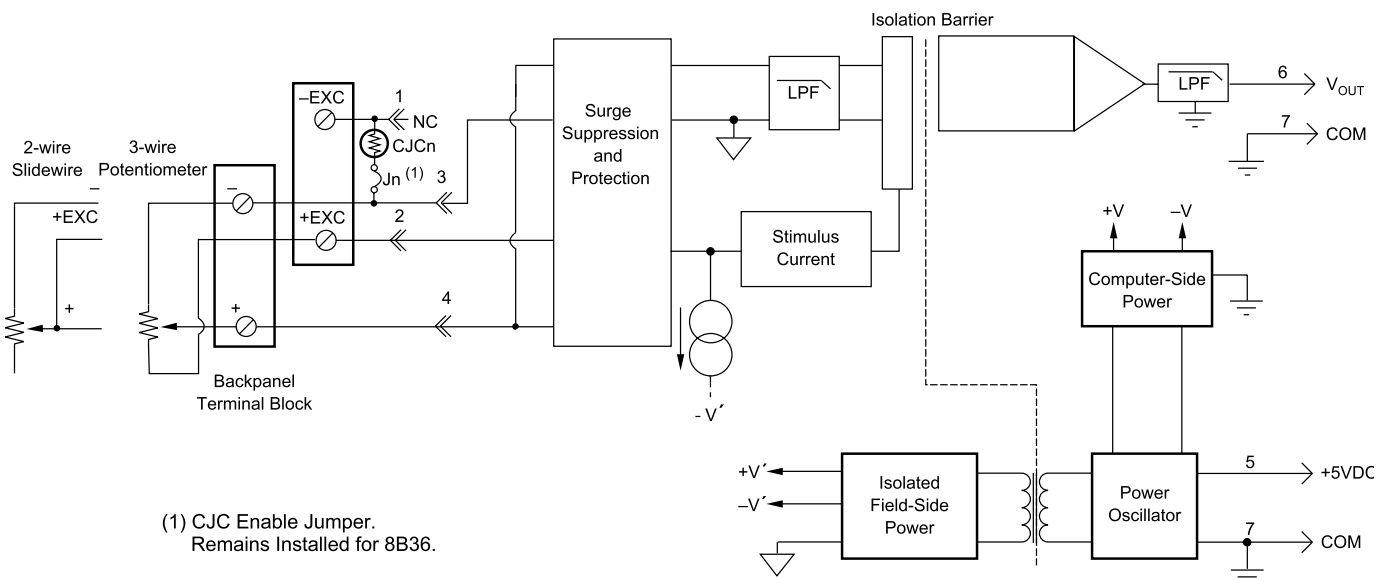
SPECIFICATIONS

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

		DI-8B36
Input Range		0 to 10k Ω
Input Resistance	Normal Power Off Overload	50M Ω 200k Ω 200k Ω
Input Protection	Continuous ¹ Transient	240VAC ANSI/IEEE C37.90.1
Sensor Excitation Current		0.25mA; 100 Ω , 500 Ω , 1k Ω Sensor 0.10mA; 10k Ω Sensor
Lead Resistance Effect		$\pm 0.01\Omega/\Omega$; 100 Ω , 500 Ω , 1k Ω Sensor $\pm 0.02\Omega/\Omega$; 10k Ω Sensor
CMV, Input to Output		1500Vrms max
Transient, Input to Output		ANSI/IEEE C37.90.1
CMR (50Hz or 60Hz)		120dB
NMR		70dB at 60Hz
Accuracy ²		$\pm 0.05\%$ Span
Nonlinearity		$\pm 0.02\%$ Span
Stability	Output Offset Gain	$\pm 20\text{ppm}/^\circ\text{C}$ $\pm 50\text{ppm}/^\circ\text{C}$
Noise	Output, 100kHz	250 μVrms
Bandwidth, -3dB		3Hz
Response Time, 90% Span		150ms
Output Range		0 to +5V
Output Protection	Transient	Continuous Short to Ground ANSI/IEEE C37.90.1
Power Supply Voltage		+5VDC $\pm 5\%$
Power Supply Current		20mA
Power Supply Sensitivity		$\pm 25\text{ppm}/\%$
Mechanical Dimensions		1.11" \times 1.65" \times 0.40" (28.1mm \times 41.9mm \times 10.2mm)
Environmental	Operating Temperature Storage Temperature Relative Humidity	-40 $^\circ\text{C}$ to +85 $^\circ\text{C}$ -40 $^\circ\text{C}$ to +85 $^\circ\text{C}$ 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.		

DI-8B36 Potentiometer Input Module

Block Diagram



Ordering Information

Model Number	Input Range
DI-8B36-01	0 to 100 Ω
DI-8B36-02	0 to 500 Ω
DI-8B36-03	0 to 1k Ω
DI-8B36-04	0 to 10k Ω



241 Springside Drive
Akron, Ohio 44333
330-668-1444

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