

8B36



Potentiometer Input Modules

Description

8B modules are an optimal solution for monitoring real-world process signals and providing high-level signals to a data acquisition system. Each 8B36 input module isolates, filters, and amplifies a single channel of potentiometer input and provides an analog voltage output (Figure 1).

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, canceling the effects of lead resistances. The excitation currents are small (equal to or less than 0.25mA) which minimizes self-heating of the potentiometer.

Signal filtering is accomplished with a 3-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 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.

Features

- Interfaces to Potentiometers up to $10,000\Omega$
- · High-Level Voltage Output
- 1500Vrms Isolation
- ANSI/IEEE C37.90.1 Transient Protection
- Input Protection to 240VAC Continuous
- 120dB CMR
- 70dB NMR at 60Hz
- ±0.05% Accuracy
- ±0.02% Linearity
- Low Drift with Ambient Temperature
- C-UL-US Listed
- CE Compliant
- ATEX Compliance Pending
- · Mix and Match Module Types on Backpanel

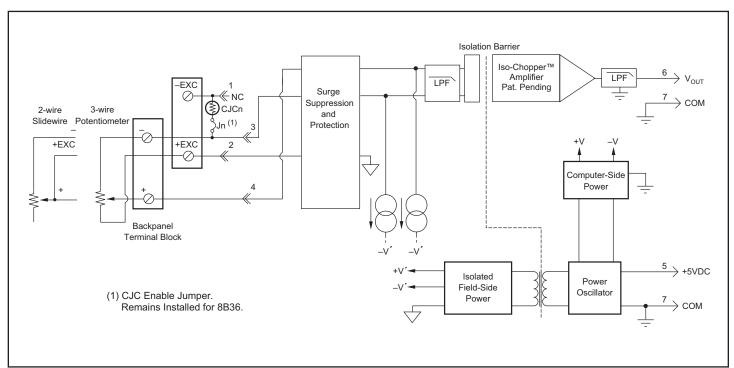


Figure 1: 8B36 Blok Diagram



Specifications Typical* at T_A = +25°C and +5VDC power

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Module	8B36
Input Range Input Resistance Normal Power Off Overload Input Protection Continuous ⁽¹⁾ Transient	0 to 10kΩ 50MΩ 200kΩ 200kΩ 240VAC ANSI/IEEE C37,90,1
Sensor Excitation Current	0.25mA; 100Ω, 500Ω, 1kΩ Sensor
Lead Resistance Effect	0.10mA; 10kΩ Sensor ±0.01Ω/Ω; 100Ω, 500Ω, 1kΩ Sensor ±0.02Ω/Ω; 10kΩ Sensor
CMV, Input to Output Transient, Input to Output CMR (50 or 60Hz) NMR	1500Vrms max ANSI/IEEE C37.90.1 120dB 70dB at 60Hz
Accuracy ⁽²⁾ Linearity Stability Offset Gain Noise Output, 100kHz Bandwidth, –3dB Response Time, 90% Span	±0.05% Span ±0.02% Span ±20ppm/°C ±50ppm/°C 200µVrms 3Hz 150ms
Output Range Output Protection Transient Open Input Response Open Input Detection Time	0V to +5V Continuous Short to Ground ANSI/IEEE C37.90.1 Downscale 1s
Power Supply Voltage Power Supply Current Power Supply Sensitivity	+5VDC ±5% 25mA ±75ppm/%
Mechanical Dimensions (h)(w)(d)	1.11" x 1.65" x 0.40" (28.1mm x 41.9mm x 10.2mm)
Environmental Operating Temperature Range Storage Temperature Range Relative Humidity Emissions EN61000-6-4 Radiated, Conducted Immunity EN61000-6-2 RF ESD, EFT	-40°C to +85°C -40°C to +85°C 0 to 95% Noncondensing ISM, Group 1 Class A ISM, Group 1 Performance A ±0.5% Span Error Performance B

Ordering Information

Model	Input Range	Output Range
8B36-01	0 to 100Ω	0V to +5V
8B36-02	0 to 500Ω	0V to +5V
8B36-03	0 to 1kΩ	0V to +5V
8B36-04	0 to 10kΩ	0V to +5V

Installation Notes:

- 1.) This Equipment is Suitable for Use in Class I, Division 2, Groups A, B,C, D, or Non-Hazardous Locations Only.
- 2.) WARNING Explosion Hazard Substitution of Any Components May Impair Suitability for Class I, Division 2.
- 3.) WARNING Explosion Hazard Do Not Disconnect Equipment Unless Power Has Been Switched Off or The Area is Known to be Non-Hazardous.

^{*}Contact factory or your local Dataforth sales office for maximum values.

 ^{(1) 240}VAC between +Input terminal and -Input, +EXC, or -EXC terminals.
 120VAC between +EXC and -EXC terminals.
 120VAC between +EXC and -EXC terminals.
 (2) Includes linearity, hysteresis and repeatability.