

DI-8B34 Linearized 2- or 3-Wire RTD Input Modules

FEATURES

- Interfaces to 100Ω Platinum RTDs
- Linearizes RTD Signal
- 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
- 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-8B34 module isolates, filters, amplifies, and linearizes a single channel of temperature input from an RTD and provides an analog voltage output.

RTD excitation is provided from the module 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 RTD.

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-8B34 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°C and +5V Power

		DI-8B34
Input Range Limits		-200°C to +850°C (100Ω Pt)
Input Resistance	Normal Power Off Overload	50MΩ 200kΩ 200kΩ
Input Protection	Continuous ¹ Transient	240VAC ANSI/IEEE C37.90.1
Sensor Excitation Current		0.25mA
Lead Resistance Effect		±0.02°C/Ω ²
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 ³	DI-8B34-01 DI-8B34-02 DI-8B34-03 DI-8B34-04	Please Refer to Ordering Guide
Stability	Output Offset Gain	±20ppm/°C ±50ppm/°C
Noise	Output, 100kHz	200μVrms
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 ±5%
Power Supply Current		25mA
Power Supply Sensitivity		±25ppm/%
Mechanical Dimensions		1.11" × 1.65" × 0.40" (28.1mm × 41.9mm × 10.2mm)
Environmental	Operating Temperature Storage Temperature Relative Humidity	-40°C to +85°C -40°C to +85°C 0 to 95% Noncondensing
RTD Standards	Type Alpha Coefficient	100Ω Pt 0.00385

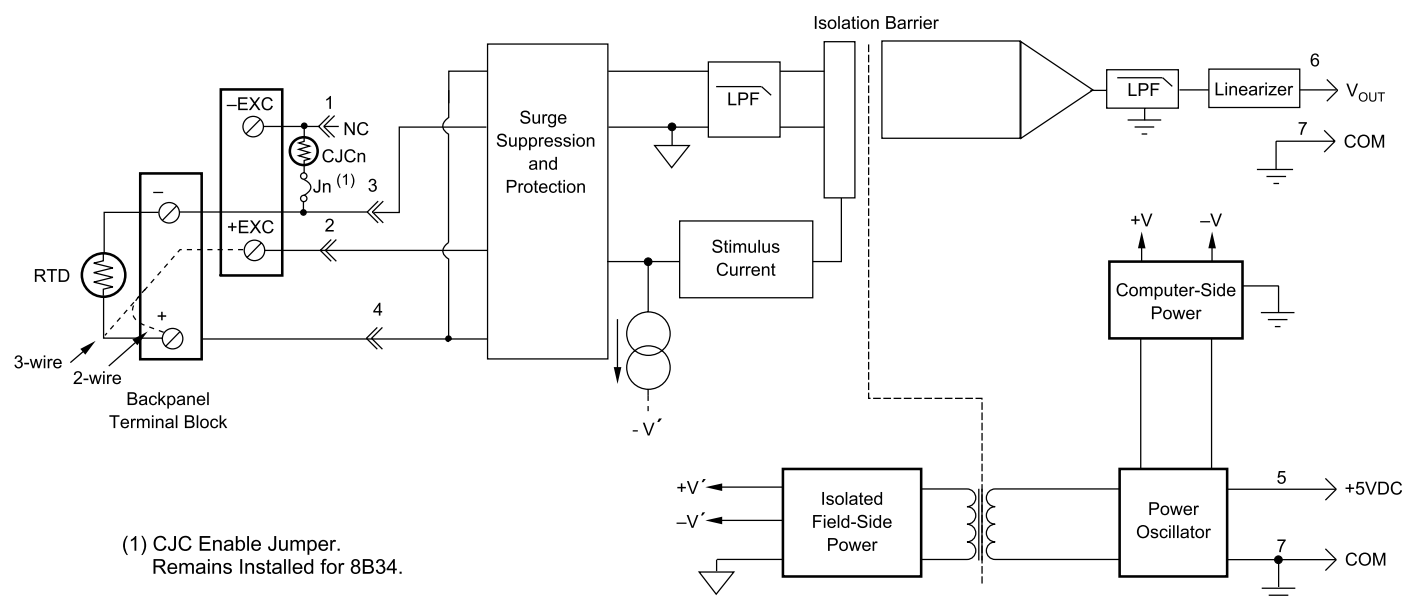
¹240VAC between + and - /+EXC/-EXC terminals. 120VAC between - and +EXC/-EXC terminals and between +EXC and -EXC terminals.

²Ω refers to the resistance in one lead.

³Includes conformity, hysteresis and repeatability.

DI-8B34 2- or 3-Wire RTD Input Module

Block Diagram



Ordering Information

Model Number	Input Range	Accuracy*
DI-8B34-01	-100°C to +100°C (-148°F to +212°F)	±0.20°C
DI-8B34-02	0°C to +100°C (+32°F to +212°F)	±0.10°C
DI-8B34-03	0°C to +200°C (+32°F to +392°F)	±0.20°C
DI-8B34-04	0°C to +600°C (+32°F to +1112°F)	±0.45°C

*Includes conformity, hysteresis, and repeatability.



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