

8B43

DC LVDT 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 8B43 module isolates, filters, and amplifies a voltage input signal and provides an analog voltage output (Figure 1).

The 8B43 can interface to transducers that will operate on a 10V excitation voltage and up to 30mA excitation current.

Signal filtering is accomplished with a 5-pole filter optimized for time and frequency response which provides 100dB per decade of normal-mode rejection above 1kHz. 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 8B43 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 transformer 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.

Features

- Interfaces to DC Linear Voltage Displacement Transducers
- High-Level Voltage Outputs
- 1500Vrms Isolation
- ANSI/IEEE C37.90.1 Transient Protection
- Input Protection to 240VAC Continuous
- 100dB CMR
- 1kHz Signal Bandwidth
- ±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

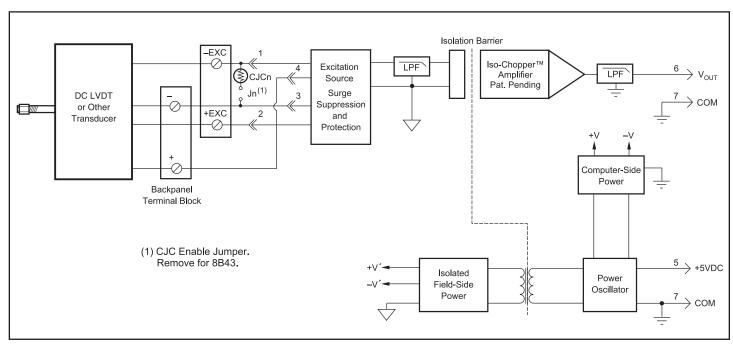


Figure 1: 8B43 Blok Diagram



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

| - | |
|---|---|
| Module | 8B43 |
| Input Range Input Bias Current Input Resistance Normal Power Off Overload Input Protection Continuous(1) Transient | ± 1 V to ± 5 V ± 0.05 nA ± 0.05 nA ± 0.05 nA ± 0.05 nA ± 0.05 0 (minimum) ± 0.05 0 (minimum) ± 0.05 0 (minimum) ± 0.05 0 ANSI/IEEE C37.90.1 |
| Excitation Voltage Current Load Regulation Stability Protection | +10V ±5mV 5mA min, 30mA max 15ppm/mA 50ppm/°C 120VAC |
| CMV, Input to Output Transient, Input to Output CMR (50Hz or 60Hz) NMR (-3dB at 1kHz) | 1500Vrms max ANSI/IEEE C37.90.1 100dB 100dB per Decade above 1kHz |
| Accuracy ⁽²⁾ Linearity Stability Offset Gain Noise Output, 100kHz Bandwidth, -3dB Response Time, 90% Span | ±0.05% Span ±0.02% Span ±25ppm/°C ±100ppm/°C 500µVrms 1kHz 550µs |
| Output Range Output Protection Transient | See Ordering Information Continuous Short to Ground ANSI/IEEE C37.90.1 |
| Power Supply Voltage Power Supply Current Power Supply Sensitivity | +5VDC ±5% 160mA Full Exc. Load ±100ppm/% |
| Mechanical Dimensions (h)(w)(d) | 1.11" x 1.65" x 0.40" (28.1mm x 41.9mm x 10.2mm) |
| Environmental Operating Temp. Range Storage Temp. 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 |
|---------|-------------|--------------|
| 8B43-01 | -1V to +1V | -5V to +5V |
| 8B43-02 | -2V to +2V | -5V to +5V |
| 8B43-03 | -3V to +3V | -5V to +5V |
| 8B43-04 | -4V to +4V | -5V to +5V |
| 8B43-05 | -5V to +5V | -5V to +5V |
| 8B43-11 | -1V to +1V | 0V to +5V |
| 8B43-12 | -2V to +2V | 0V to +5V |
| 8B43-13 | -3V to +3V | 0V to +5V |
| 8B43-14 | -4V to +4V | 0V to +5V |
| 8B43-15 | -5V to +5V | 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) 240VAC 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.