

# 8B50/51

## Voltage Input Modules, 20kHz Bandwidth

### **Description**

8B modules are an optimal solution for monitoring real-world process signals and providing high-level signals to a data acquisition system. Each 8B50 or 8B51 module isolates, filters, and amplifies a voltage input signal and provides an analog voltage output (Figure 1).

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 20kHz. 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 8B50 and 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 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**

- · Accepts Millivolt and Voltage Level Signals
- High-Level Voltage Outputs
- 1500Vrms Isolation
- ANSI/IEEE C37.90.1 Transient Protection
- Input Protection to 240VAC Continuous
- 100dB CMR
- 20kHz 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

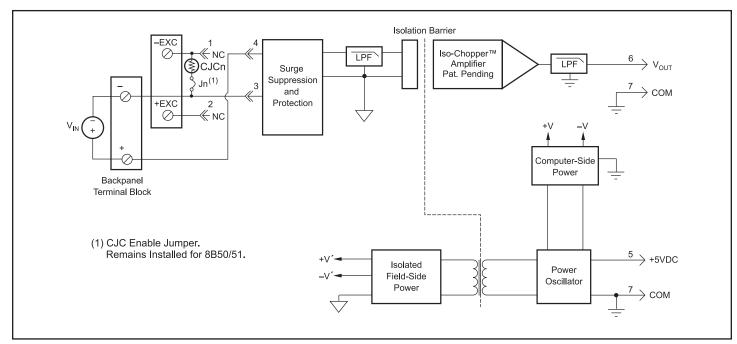


Figure 1: 8B50/51 Blok Diagram



#### **Specifications** Typical\* at T<sub>A</sub> = +25°C and +5VDC power

Module	8B50	8B51
Input Range Input Bias Current Input Resistance	±20mV to ±100mV ±0.5nA	±1V to ±60V ±0.05nA
Normal Power Off Overload	50ΜΩ 100kΩ 100kΩ	$500$ k $\Omega$ (minimum) $500$ k $\Omega$ (minimum) $500$ k $\Omega$ (minimum)
Input Protection Continuous <sup>(1)</sup> Transient	240VAC ANSI/IEEE C37.90.1	*
CMV, Input to Output Transient, Input to Output CMR (50Hz or 60Hz) NMR (–3dB at 20kHz)	1500Vrms max ANSI/IEEE C37.90.1 100dB 100dB per Decade above 20kHz	* * *
Accuracy <sup>(2)</sup> Linearity Stability	±0.05% Span ±0.02% Span	*
Offset Gain Noise	±10ppm/°C ±50ppm/°C	* ±75ppm/°C
Output, 100kHz Bandwidth, –3dB Rise Time, 10 to 90% Span	500μVrms 20kHz (15kHz, 50-01) 25μs	* *
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% 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 Temp. Range Storage Temp. Range Relative Humidity Emissions EN61000-6-4	-40°C to +85°C -40°C to +85°C 0 to 95% Noncondensing ISM, Group 1	* * *
Radiated, Conducted Immunity EN61000-6-2 RF ESD, EFT	Class A ISM, Group 1 Performance A ±0.5% Span Error Performance B	* * *

### **Ordering Information**

Model	Input Range	Output Range
8B50-01	-20mV to +20mV	-5V to +5V
8B50-02	-50mV to +50mV	-5V to +5V
8B50-03	-100mV to +100mV	-5V to +5V
8B50-04	-20mV to +20mV	0 to +5V
8B50-05	-50mV to +50mV	0 to +5V
8B50-06	-100mV to +100mV	0 to +5V
8B51-01	-1V to +1V	-5V to +5V
8B51-02	-5V to +5V	-5V to +5V
8B51-03	-10V to +10V	-5V to +5V
8B51-04	-1V to +1V	0V to +5V
8B51-05	-5V to +5V	0V to +5V
8B51-06	-10V to +10V	0V to +5V
8B51-07	-20V to +20V	-5V to +5V
8B51-08	-20V to +20V	0V to +5V
8B51-09	-40V to +40V	–5V to +5V
8B51-10	-40V to +40V	0V to +5V
8B51-12	-60V to +60V	-5V to +5V
8B51-13	-60V to +60V	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.

<sup>\*</sup>Contact factory or your local Dataforth sales office for maximum values. \* Same specification as 8B50.

<sup>(1) 240</sup>VAC between +Input terminal and -Input, +EXC, or -EXC terminals. 120VAC between -Input and +EXC or -EXC terminals.

<sup>120</sup>VAC between +EXC and -EXC terminals.

<sup>(2)</sup> Includes linearity, hysteresis and repeatability.