8B40/41

Voltage Input Modules, Wide 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 8B40 or 8B41 module isolates, filters and amplifies a voltage input signal and provides an analog voltage output.

Signal filtering is accomplished with a multiple 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 remaining poles are on the system side.

A special input circuit on the 8B40 and 8B41 modules provides protection against accidental connection of power-line voltages up to 50VAC.

Isolation is provided by optical 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 Transformer Isolation
- ANSI/IEEE C37.90.1 Transient Protection
- Input Protected to 50VAC Continuous
- 100dB CMR
- 20kHz Signal Bandwidth
- ±0.10% Accuracy
- ±0.05% Linearity
- Low Drift with Ambient Temperature
- CSA, FM and CE Certifications Pending
- Mix and Match Module Types on Backpanel

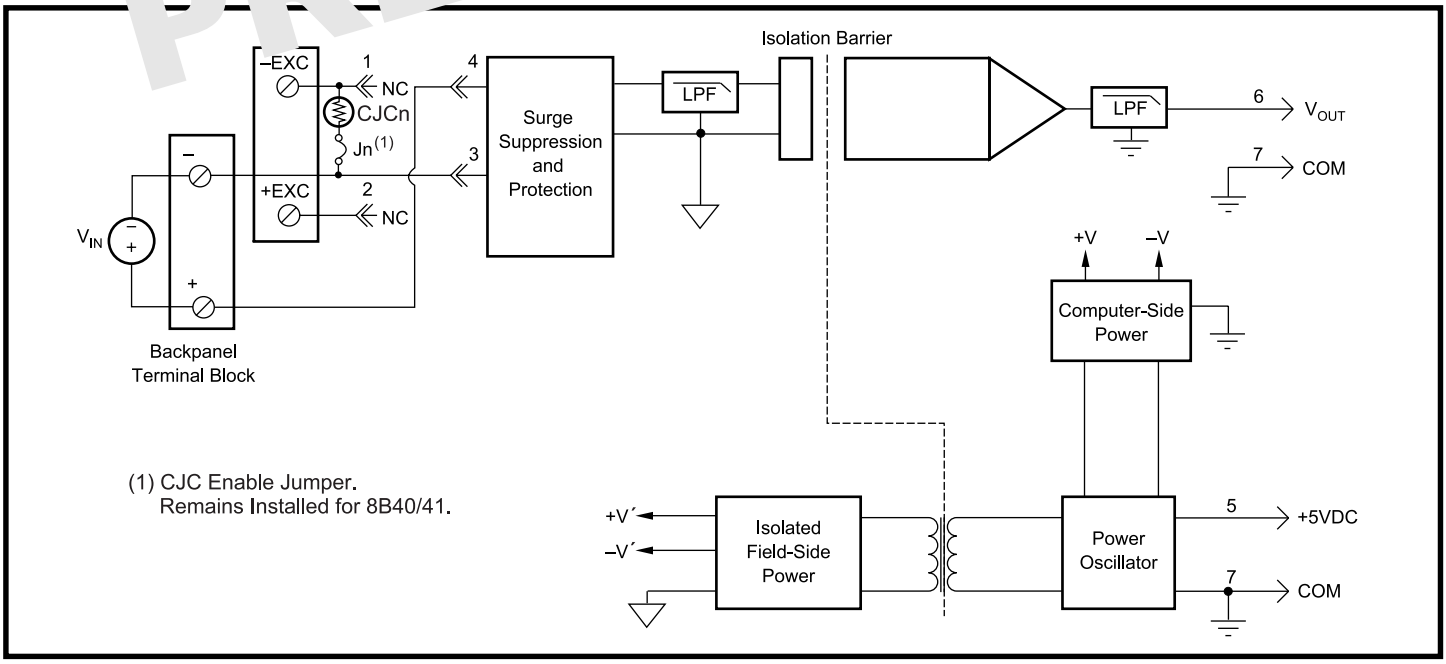

Figure 1: 8B40/41 Block Diagram

Specifications

Typical at T_A=+25°C and +5V power

Module	8B40	8B41
Input Range	±10mV to ±100mV	±1V to ±60V
Input Bias Current	±0.5nA	±0.05nA
Input Resistance		
Normal	50MΩ	500kΩ
Power Off	150kΩ	500kΩ
Overload	150kΩ	500kΩ
Input Protection		
Continuous	50VAC	*
Transient	ANSI/IEEE C37.90.1	*
CMV, Input to Output	1500Vrms max	*
Transient, Input to Output	ANSI/IEEE C37.90.1	*
CMR (50Hz or 60Hz)	100dB	*
NMR (–3dB at 20kHz)	100dB per Decade above 20kHz	*
Accuracy(1)	±0.10% Span	*
Nonlinearity	±0.05% Span	*
Stability		
Offset	±10ppm/°C	*
Gain	±50ppm/°C	±75ppm/°C
Noise		
Output, 100kHz	5mVrms	*
Bandwidth, –3dB	20kHz	*
Rise Time, 10 to 90% Span	15µs	*
Output Range	See Ordering Information	*
Output Protection	Continuous Short to Ground	*
Transient	ANSI/IEEE C37.90.1	*
Power Supply Voltage	+5VDC ±5%	*
Power Supply Current	225mA	*
Power Supply Sensitivity	±50ppm/%	*
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	–40°C to +85°C	*
Storage Temp. Range	–40°C to +85°C	*
Relative Humidity	0 to 95% Noncondensing	*
Emissions EN61000-6-4	ISM, Group 1	*
Radiated, Conducted	Class A	*
Immunity EN61000-6-2	ISM, Group 1	*
RF	Performance A ±0.5% Span Error	*
ESD,EFT,Surge,Voltage Dips	Performance B	*

NOTES:
* Same specification as 8B40.
(1) Includes nonlinearity, hysteresis and repeatability.

Ordering Information

Model	Input Range	Output Range
8B40-01	–10mV to +10mV	-5V to +5V
8B40-02	–50mV to +50mV	-5V to +5V
8B40-03	–100mV to +100mV	-5V to +5V
8B41-01	–1V to +1V	-5V to +5V
8B41-02	–5V to +5V	-5V to +5V
8B41-03	–10V to +10V	-5V to +5V
8B41-04	–1V to +1V	0V to +5V
8B41-05	–5V to +5V	0V to +5V
8B41-06	–10V to +10V	0V to +5V
8B41-07	–20V to +20V	-5V to +5V
8B41-08	–20V to +20V	0V to +5V
8B41-09	–40V to +40V	-5V to +5V
8B41-10	–40V to +40V	0V to +5V
8B41-12	–60V to +60V	-5V to +5V
8B41-13	–60V to +60V	0V to +5V