

8B42

2-Wire Transmitter Interface 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 8B42 module provides power to a current transmitter, then isolates, filters and amplifies the resulting process current input signal and provides an analog voltage output.

Current to voltage conversion is accomplished internal to the module to ensure high accuracy.

Signal filtering is accomplished with a three-pole filter optimized for time and frequency response which provides 60dB per decade of normal-mode-rejection above 100Hz. 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 8B42 module provides protection against accidental connection of power-line voltages up to 40VAC. Clamp circuits on the I/O and power terminals protect against harmful transients.

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

- +15VDC Loop Supply
- Provides Isolation for Non-Isolated 2-Wire Transmitters
- High Level Voltage Outputs
- 1500Vrms Isolation
- ANSI/IEEE C37.90.1 Transient Protection
- Input Protected to 40VAC Continuous
- 110dB CMR
- 100Hz Bandwidth
- ±0.05% Accuracy
- ±0.02% Linearity
- Low Drift with Ambient Temperature
- UL Listing Pending
- Mix and Match Module Types on Backpanel

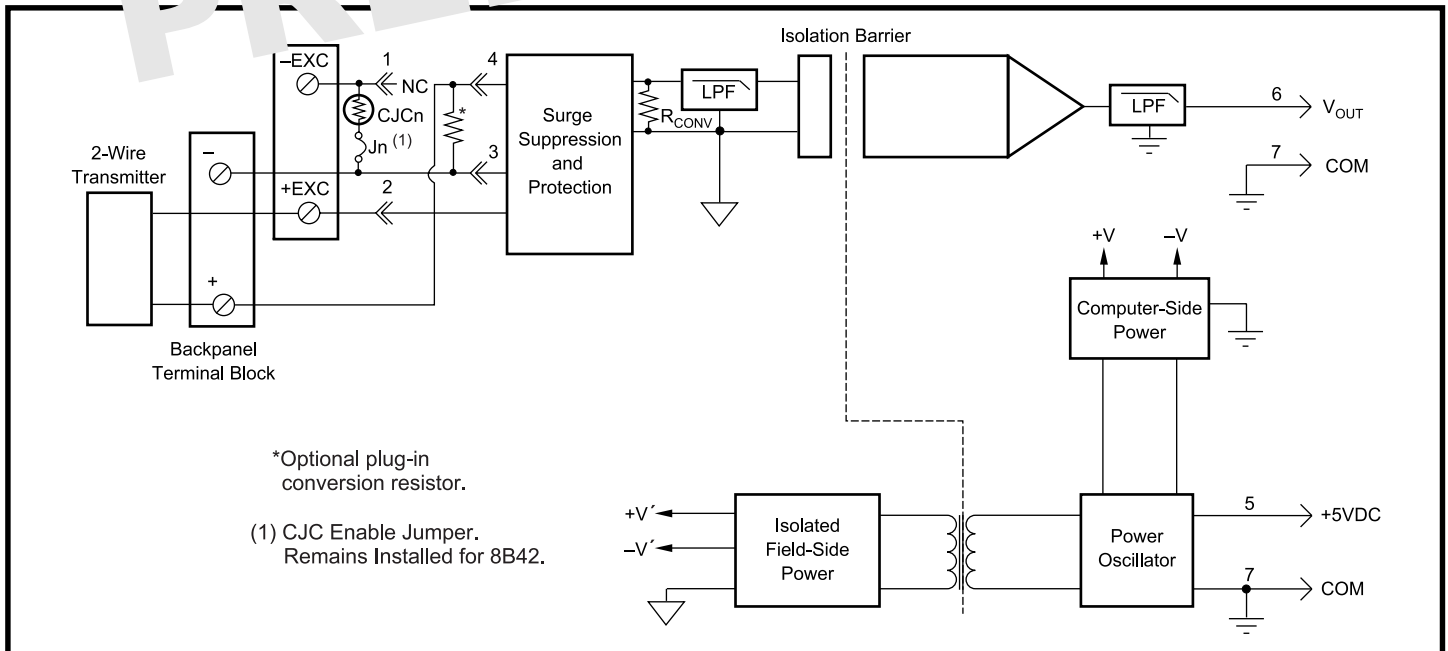


Figure 1: 8B42 Block Diagram

Specifications Typical at $T_A = +25^\circ\text{C}$ and +5V power

Module	8B42
Input Range	4mA to 20mA
Input Resistance	
Normal	<50Ω
Power Off	<50Ω
Input Protection	
Continuous	40VAC
Transient	ANSI/IEEE C37.90.1
Loop Supply Voltage	15VDC
Loop Supply Protection	120VAC
CMV, Input to Output	1500Vrms max
Transient, Input to Output	ANSI/IEEE C37.90.1
CMR (50Hz or 60Hz)	100dB
NMR	100dB per decade above 100Hz
Accuracy ⁽¹⁾	±0.05% Span
Nonlinearity	±0.02% Span
Stability	
Output	±25ppm/°C
Gain	±75ppm/°C
Noise	
Output, 100kHz	500μVrms
Bandwidth, -3dB	100Hz
Response Time, 90% Span	5ms
Output Range	0V to +5V
Output Protection	Continuous Short to Ground
Transient	ANSI/IEEE C37.90.1
Power Supply Voltage	+5VDC ±5%
Power Supply Current	125mA
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:

(1) Includes nonlinearity, hysteresis and repeatability.

Ordering Information

Model	Input Range	Output Range
8B42-01	4mA to 20mA	0V to +5V
8B42-02	4mA to 20mA	+1V to +5V

PRELIMINARY