8B42

2-wire Transmitter-interface Modules

DESCRIPTION

The 8B42 module family is 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 (Figure below).

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

Signal filtering is accomplished with a 3-pole filter optimized for time and frequency response which provides 60dB per decade of normal-mode rejection above 100Hz.

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 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

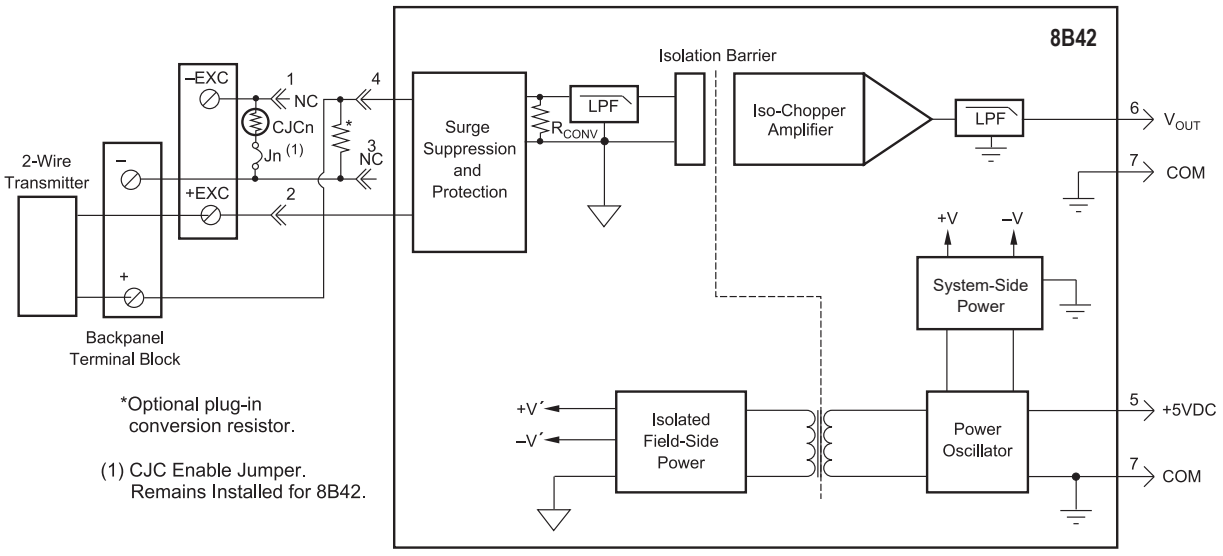
- +12VDC Loop Supply
- Provides Isolation for Non-isolated 2-wire Transmitters
- High-level Voltage Outputs
- 1500Vrms Isolation
- ANSI/IEEE C37.90.1 Transient Protection
- Input Protection to 40VAC Continuous
- 100dB CMR
- 100Hz Bandwidth
- ±0.05% Accuracy
- ±0.02% Linearity
- Low Drift with Ambient Temperature
- UL/cUL Listed
- CE Compliant
- ATEX Compliance Pending
- Manufactured per RoHS III Directive 2015/863
- Mix and Match Module Types on Backpanel

BENEFITS

- Protects User Equipment from Lightning and Industrial Equipment Power-line Voltage
- Reduces Electrical Noise in Measured Signals
- Convenient System Expansion and Repair

APPLICATIONS

- Designed for Embedded Applications
  - PC/104 Embedded Solutions
  - Compact PCI Systems
  - VMEbus Systems
  - PXI Systems
- Designed for Industrial Plant Environments
- High-vibration Environments



8B42 Block Diagram - For Module Dimensions and Pinouts, See Page 3-40

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Specifications

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

Module	8B42
Input Range	4-20mA
Input Resistance	
Normal	35Ω
Power Off	35Ω
Input Protection	
Continuous	40VAC
Transient	ANSI/IEEE C37.90.1
Loop Supply Voltage	12VDC
Loop Supply Protection	40VAC
CMV, Input to Output	1500Vrms (max)
Transient, Input to Output	ANSI/IEEE C37.90.1
CMR (50Hz or 60Hz)	100dB
NMR	60dB per Decade Above 100Hz
Accuracy(1)	±0.05% Span
Linearity	±0.02% Span
Stability	
Offset	±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	140mA
Power Supply Sensitivity	±200ppm/%
Mechanical Dimensions (h)x(w)x(d)	1.11" x 1.65" x 0.40" (28.1mm x 41.9mm x 10.2mm)
Environmental	
Operating Temperature Range	–40°C to +85°C
Storage Temperature 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	Performance B

NOTES:
*Contact factory or your local Dataforth sales office for maximum values.
(1) Includes linearity, hysteresis, and repeatability.

Ordering Information

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

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