DI-8B45 Frequency Input Modules

FEATURES

- Accepts Frequency Input Signals 0 to 100kHz
- TTL or Zero-Crossing Signal Inputs
- High Level Voltage Outputs
- 1500Vrms Transformer Isolation
- ANSI/IEEE C37.90.1 Transient Protection
- Input Protected up to 240VAC Continuous
- 100dB CMR
- 70dB NMR at 60Hz
- ±0.10% Accuracy
- ±0.05% Linearity
- Low Drift with Ambient Temperature
- UL, CSA, FM and CE Certifications Pending
- Mix and Match Module Types

DESCRIPTION

DI-8B modules are an optimal solution for monitoring real-world process signals and providing high level signals to a data acquisition system. Each DI-8B45 module isolates and conditions a frequency input signal and provides an analog voltage output.

The frequency input signal can be either a TTL level or zero crossing with as little as ±100mV amplitude. Input circuitry for each signal type has built-in hysteresis to prevent spurious noise from corrupting the module output. TTL signals are applied to the + and - terminals while zero crossing signals are applied to the +EXC and - terminals. Reference the block diagram (p 2). A 5V excitation is available for use with magnetic pick-up or contact closure type sensors. The excitation is available on the -EXC terminal with return on the - terminal.

A special input circuit on the DI-8B45 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 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.

SPECIFICATIONS

Typical at T_A = +25ºC and +5V Power

	DI-8B45
Input Range	0Hz to 100kHz
Input Threshold	Zero Crossing
Minimum Input	200mVp-p
Maximum Input	350Vp-p TTL, 170Vp-p Zero Crossing
Minimum Pulse Width	4µs
TTL Input Low	0.8V max
TTL Input High	2.4V min
Input Hysteresis	
Zero Crossing	±50mV
TTL	1.5V
Input Resistance	
Normal	200kΩ
Power Off	200kΩ
Overload	200kΩ
Input Protection	
Continuous[1]	240Vrms max
Transient	ANSI/IEEE C37.90.1
Excitation	+5V at 8mA max
CMV, Input to Output	
Continuous	1500Vrms max
Transient	ANSI/IEEE C37.90.1
CMR (50Hz or 60Hz)	100dB
Accuracy[2]	±0.10% Span
Nonlinearity	±0.05% Span
Stability	
Offset	±25ppm/ºC
Gain	±100ppm/ºC
Noise	
Output Ripple	<10mVp-p at Input >2% Span
Response Time, 90% Span	300ms (-01); 175ms (-02); 50ms (-03); 30ms (-04); 30ms (-05); 15ms (-06); 15ms (-07); 2ms (-08)
Output Range	0 to +5V
Output Protection	Continuous Short to Ground
Transient	ANSI/IEEE C37.90.1
Power Supply Voltage	+5VDC ±5%
Power Supply Current	110mA
Power Supply Sensitivity	±50ppm/%
Mechanical Dimensions	1.11" × 1.65" × 0.40" (28.1mm × 41.9mm × 10.2mm)
Environmental	
Operating Temperature	-40ºC to +85ºC
Storage Temperature	-40ºC to +85ºC
Relative Humidity	0 to 95% Noncondensing

[1]240VAC between + and -/+EXC/-EXC terminals. 120VAC between - and +EXC/-EXC terminals and between +EXC and -EXC terminals.

[2]Includes nonlinearity, hysteresis, and repeatability.

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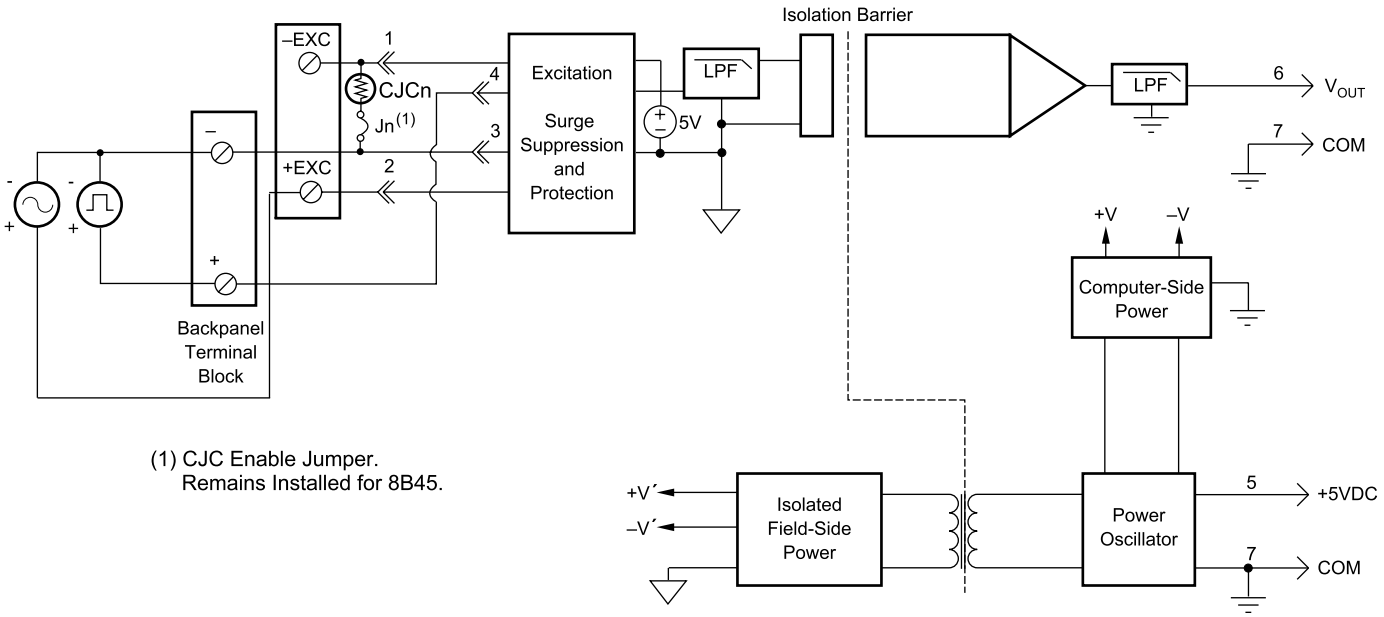
Block Diagram



(1) CJC Enable Jumper.
Remains Installed for 8B45.

Ordering Information

Model Number	Input Range
DI-8B45-01	0Hz to 500Hz
DI-8B45-02	0Hz to 1kHz
DI-8B45-03	0Hz to 2.5kHz
DI-8B45-04	0Hz to 5kHz
DI-8B45-05	0Hz to 10kHz
DI-8B45-06	0Hz to 25kHz
DI-8B45-07	0Hz to 50kHz
DI-8B45-08	0Hz to 100kHz

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241 Springside Drive
Akron, Ohio 44333
330-668-1444

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