

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
- $\pm 0.10\%$ Accuracy
- $\pm 0.05\%$ 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 $\pm 100\text{mV}$ 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, $\pm 5\%$.

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 $T_A = +25^\circ\text{C}$ and +5V Power

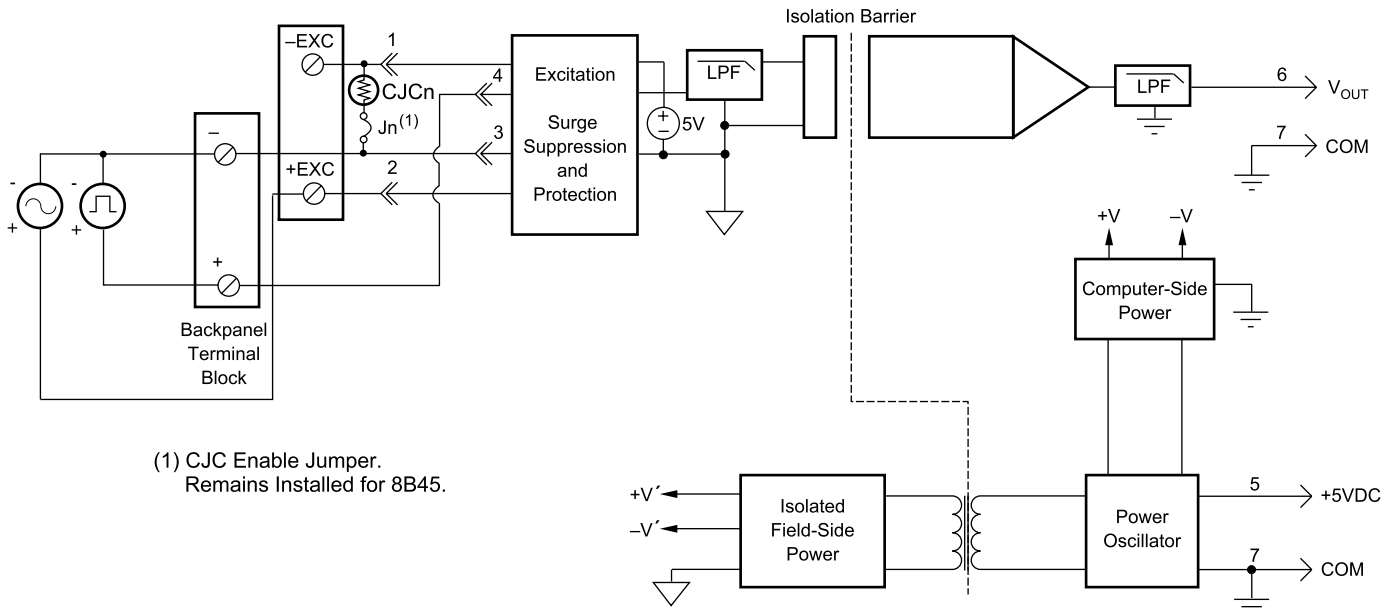
		DI-8B45
Input Range		0Hz to 100kHz
Input Threshold	Minimum Input Maximum Input Minimum Pulse Width TTL Input Low TTL Input High	Zero Crossing 200mVp-p 350Vp-p TTL, 170Vp-p Zero Crossing 4 μ s 0.8V max 2.4V min
Input Hysteresis	Zero Crossing TTL	$\pm 50\text{mV}$ 1.5V
Input Resistance	Normal Power Off Overload	200k Ω 200k Ω 200k Ω
Input Protection	Continuous ¹ Transient	240Vrms max ANSI/IEEE C37.90.1
Excitation		+5V at 8mA max
CMV, Input to Output	Continuous Transient	1500Vrms max ANSI/IEEE C37.90.1
CMR (50Hz or 60Hz)		100dB
Accuracy ²		$\pm 0.10\%$ Span
Nonlinearity		$\pm 0.05\%$ Span
Stability	Offset Gain	$\pm 25\text{ppm}/^\circ\text{C}$ $\pm 100\text{ppm}/^\circ\text{C}$
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	Transient	Continuous Short to Ground ANSI/IEEE C37.90.1
Power Supply Voltage		+5VDC $\pm 5\%$
Power Supply Current		110mA
Power Supply Sensitivity		$\pm 50\text{ppm}/\%$
Mechanical Dimensions		1.11" \times 1.65" \times 0.40" (28.1mm \times 41.9mm \times 10.2mm)
Environmental	Operating Temperature Storage Temperature Relative Humidity	-40 $^\circ\text{C}$ to +85 $^\circ\text{C}$ -40 $^\circ\text{C}$ to +85 $^\circ\text{C}$ 0 to 95% Noncondensing

¹240VAC between + and -/+EXC/-EXC terminals. 120VAC between - and +EXC/-EXC terminals and between +EXC and -EXC terminals.

²Includes nonlinearity, hysteresis, and repeatability.

DI-8B45 Frequency Input Modules

Block Diagram



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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