

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
- $\pm 0.05\%$ Accuracy
- $\pm 0.02\%$ 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.

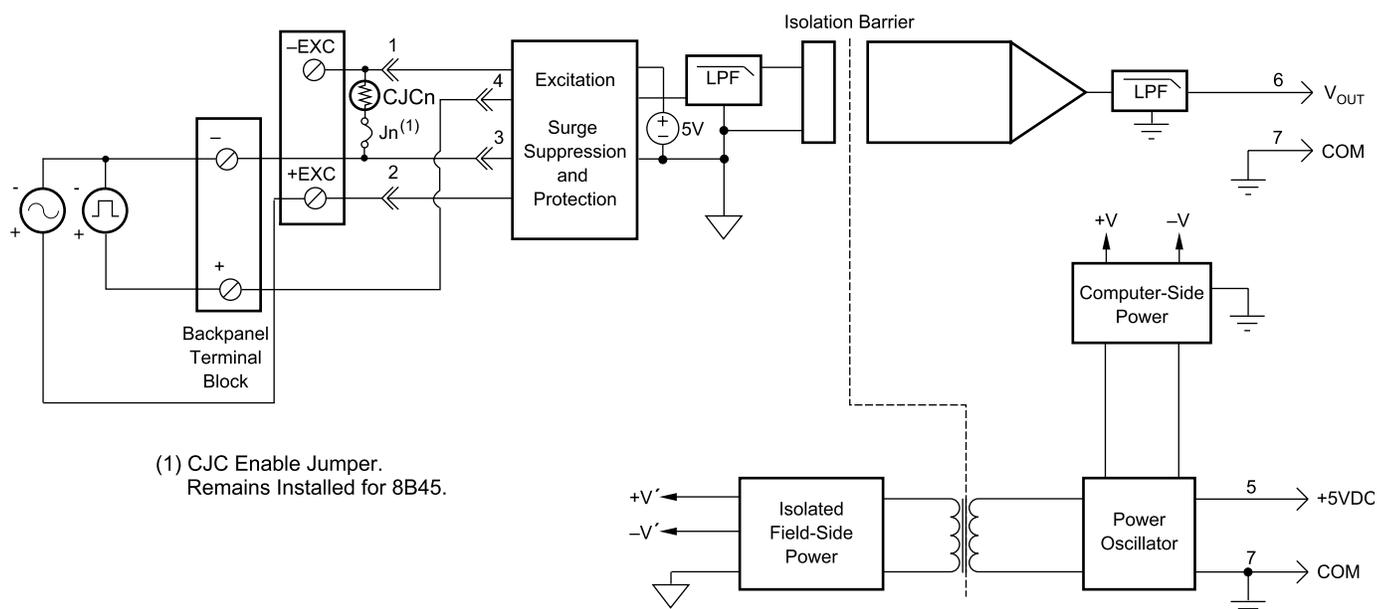
SPECIFICATIONS

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 100mVp-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 | 68k Ω 68k Ω 68k 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 | | $\pm 0.05\%$ Span |
| Nonlinearity | | $\pm 0.02\%$ 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 | | 160ms, 80ms, 35ms, 16ms, 8.5ms, 3.4ms, 1.6ms, 0.8ms |
| 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 | | 45mA |
| 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 |
| 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. | | |

DI-8B45 Frequency Input Modules

Block Diagram



Ordering Information

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



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