DI-5B32 Analog Current Input Modules

FEATURES

- Accepts MilliAmp Level Signals
- High Level Voltage Outputs
- 1500Vrms Transformer Isolation
- ANSI/IEEE C37.90.1-1989 Transient Protection
- Input Protected to 240VAC Continuous
- 160dB CMR
- 95dB NMR AT 60Hz, 90dB AT 50Hz
- ±0.05% Accuracy
- ±0.02% Linearity
- CSA Certified
- Mix and Match DI-5B Types

DESCRIPTION

Each DI-5B32 current input module provides a single channel of analog input which is filtered, isolated, amplified, and converted to a high level analog voltage output (see block diagram). This voltage output is logic switch controlled, which allows these modules to share a common analog bus without the requirement of external multiplexers.

The DI-5B modules are designed with a completely isolated computer side circuit which can be floated to ±50V from Power Common, pin 16. This complete isolation means that no connection is required between I/O Common and Power Common for proper operation of the output switch. If desired, the output switch can be turned on continuously by simply connecting pin 22, the Read-Enable pin to I/O Common, pin 19.

A precision 20Ω current conversion resistor is supplied with the DI-5B32 module (see block diagram for installation details).

Signal filtering is accomplished with a six-pole filter which provides 95dB of normal-mode rejection at 60Hz and 90dB at 50Hz. Two poles of this filter are on the field side of the isolation barrier, and the other four are on the computer side.

After the initial field-side filtering, the input signal is chopped by a proprietary chopper circuit. Isolation is provided by transformer coupling, again using a proprietary technique to suppress transmission of common mode spikes or surges. The module is powered from +5VDC, ±5%.

A special input circuit on the DI-5B32 modules provides protection against accidental connection of power-line voltages up to 240VAC.

SPECIFICATIONS

Typical at T_A = +25ºC and +5V Power

	DI-5B32
Input Range	0mA to 20mA or 4mA to 20mA
Input Resistor	
Value	20.00Ω
Accuracy	±0.1%
Stability	±10ppm/ºC
Input Protection	
Continuous	240Vrms max
Transient	ANSI/IEEE C37.90.1-1989
CMV, Input to Output	
Continuous	1500Vrms max
Transient	ANSI/IEEE C37.90.1-1989
CMR (50Hz or 60Hz)	160dB
NMR	95dB at 60Hz, 90dB at 50Hz
Accuracy*	±0.05% span ±0.05% (I_Z)
Nonlinearity	±0.02% Span
Stability	
Input Offset	±50nA/ºC
Output Offset	±20µV/ºC
Gain	±25ppm/ºC
Noise	
Input, 0.1Hz to 10Hz	10nArms
Output, 100kHz	200µVrms
Bandwidth, -3dB	4Hz
Response Time, 90% Span	0.2s
Output Range	0 to +5V
Output Resistance	50Ω
Output Protection	Continuous Short to Ground
Output Selection Time (to ±1mV of V_{out})	6µs at C_{load} = 0 to 2000pF
Output Current Limit	±14mA max
Output Enable Control	
Max Logic "0"	+0.8V
Min Logic "1"	+2.4V
Max Logic "1"	+36V
Input Current, "0,1"	0.5µA
Power Supply Voltage	+5VDC ±5%
Power Supply Current	30mA
Power Supply Sensitivity	±20µV/% RTI**
Mechanical Dimensions	2.28" × 2.26" × 0.60" (58mm × 57mm × 15mm)
Environmental	
Operating Temperature	-40ºC to +85ºC
Storage Temperature	-40ºC to +85ºC
Relative Humidity	0 to 95% Noncondensing
RFI Susceptibility	±0.5% Span Error at 400MHz, 5W, 3ft

*Includes nonlinearity, hysteresis and repeatability; I_Z is the input voltage that results in 0V output.

**RTI=Referenced to input.

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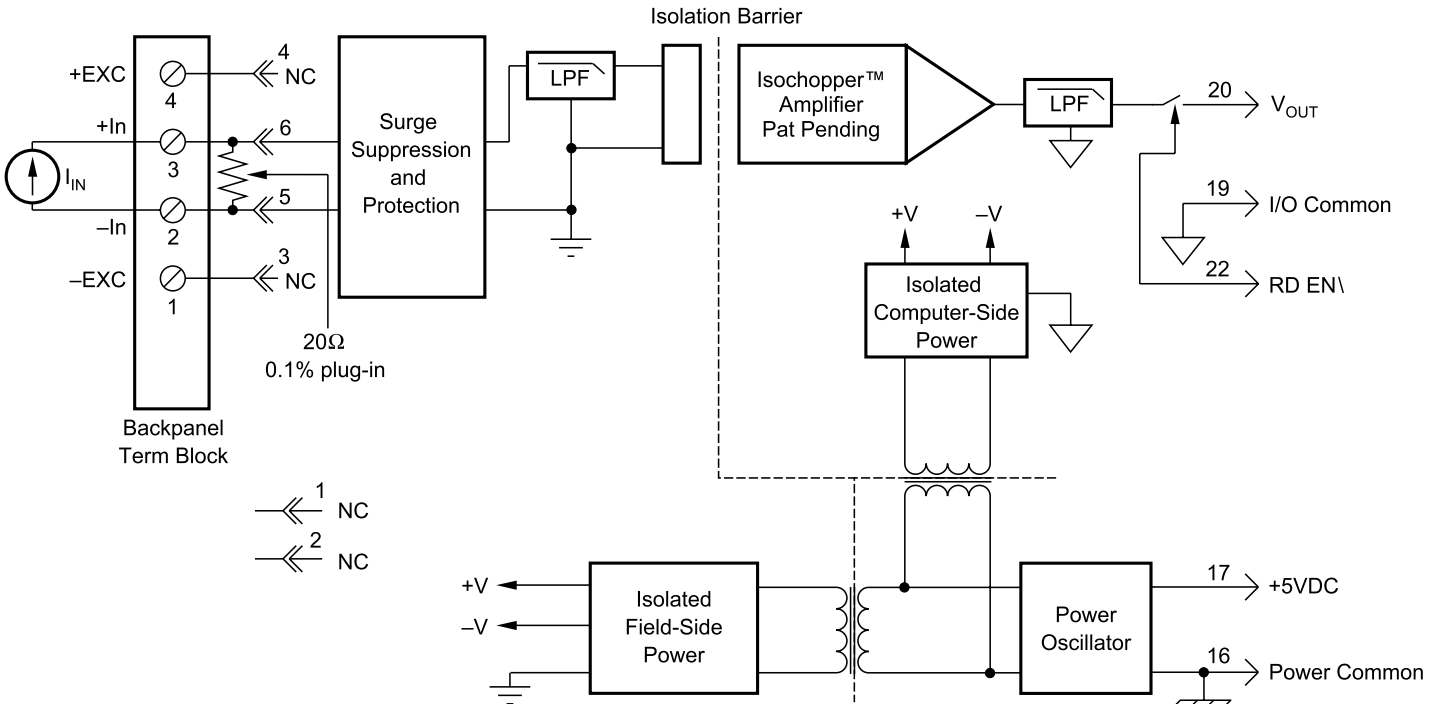
Block Diagram



Ordering Information

Model Number	Input Range	Output Range
DI-5B32-01	4mA to 20mA	0V to +5V
DI-5B32-02	0mA to 20mA	0V to +5V

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