

DI-5B33 Isolated True RMS Input Modules

FEATURES

- Interfaces RMS Voltage (0 – 300V)
- Designed for Standard Operation with Frequencies of 45Hz to 1000Hz (Extended Range to 20Khz)
- Compatible with Standard Current and Potential Transformers
- $\pm 0.25\%$ Factory Calibrated Accuracy (Accuracy Class 0.2)
- 1500 VRMS Continuous Transformer Based Isolation
- Input Overload Protected to 480V Max (Peak AC and DC) or 10A RMS Continuous
- ANSI/IEEE C37.90.1-1989 Transient Protection
- Regulatory Compliance (To Be Determined)

DESCRIPTION

Each DI-5B33 True RMS input module provides a single channel of AC input which is converted to its True RMS dc value, filtered, isolated, amplified, and converted to a standard voltage output (see block diagram).

The DI-5B modules are designed with a completely isolated computer side circuit which can be floated to $\pm 50V$ 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.

The field voltage input signal is processed through a preamplifier and RMS converter on the field side of the isolation barrier. The converted dc signal is then chopped by a proprietary chopper circuit and transferred across the transformer isolation barrier, suppressing transmission of common mode spikes and surges. The computer side circuitry reconstructs, filters and converts the signal to industry standard outputs. Modules are powered from +5VDC, $\pm 5\%$.

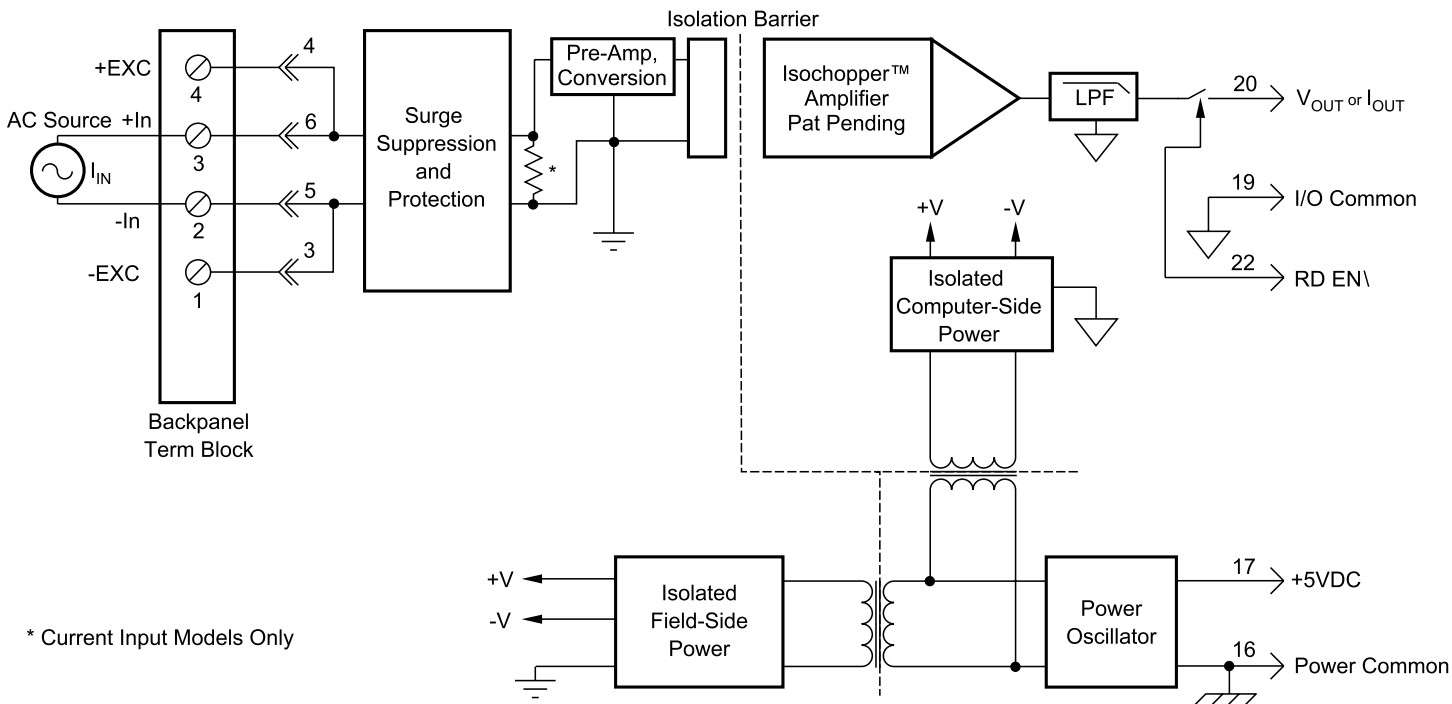
SPECIFICATIONS

Typical at $T_A = +25^\circ C$ and +5V Power

		DI-5B33
INPUT		
Signal Range		100mV to 300V rms
Standard Frequency Range		45Hz to 1000Hz
Extended Frequency Range		1kHz to 20kHz
Impedance		1M Ω $\pm 1\%$ shunted by 100pF
Coupling		AC
Protection*		480V (Peak AC & DC) ANSI/IEEE C37.90.1-1989
Continuous Transient		
ACCURACY**		
Sinusoid		$\pm 0.25\%$ Span $\pm 0.25\%$ Reading Additional Factor $\pm 0.75\%$ Reading Additional Factor
50/60Hz		
45Hz to 1kHz 1kHz to 20kHz		
Non-Sinusoid		$\pm 0.05\%$ Reading Additional Error $\pm 0.15\%$ Reading Additional Error $\pm 0.30\%$ Reading Additional Error $\pm 0.40\%$ Reading Additional Error
Crest Factor = 1 to 2		
Crest Factor = 2 to 3		
Crest Factor = 3 to 4 Crest Factor = 4 to 5		
Vs. Temperature		± 100 ppm/ $^\circ C$
ISOLATION (Common Mode)		
Input to Output, Input to Power		1500Vrms max ANSI/IEEE C37.90.1-1989
Continuous Transient		
Output to Power (Continuous)		50Vdc max
OUTPUT ENABLE CONTROL		
Selection Time		6.0 μ S @ $C_{load} = 0$ to 2000pF
Voltage		+0.8V +2.4V / +36V
Max Logic "0" Min / Max Logic "1"		
Current, "0,1"		0.5 μ A
OTHER		
Rejection (50-60Hz Common Mode)		100dB
Response Time (0 to 99%)		<400ms
Loop Voltage		+14Vdc min, +48Vdc max
Load Resistance (maximum)		(Loop Voltage -14) / (Loop Current)
Supply Voltage		+5VDC $\pm 5\%$
Supply Current		30mA
Supply Sensitivity		$\pm 200\mu$ V/% RTI
Environmental		-40 $^\circ$ C to +85 $^\circ$ C -40 $^\circ$ C to +85 $^\circ$ C 0 to 90% Noncondensing
Operating Temperature		
Storage Temperature Relative Humidity		
Mechanical Dimensions		2.28" \times 2.26" \times 0.60" (58mm \times 57mm \times 15mm)
*Module Rating Only.		
**At standard 60Hz factory calibration. For 10 to 100% rated span. Add an additional 0.25% error for 0 to 10% Span measurements. Accuracy includes nonlinearity, hysteresis and repeatability but not source or external shunt inaccuracy (if used).		

DI-5B33 Isolated True RMS Input Modules

Block Diagram



Ordering Information

Model Number	Input Range	Output Range
DI-5B33-01	100mV	0V to +5V
DI-5B33-02	1V	0V to +5V
DI-5B33-03	10V	0V to +5V
DI-5B33-04	150V	0V to +5V
DI-5B33-05	300V	0V to +5V



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