DI-5B36 Potentiometer Input Modules

FEATURES

- Interfaces to Potentiometer up to 10,000 Ohms
- High Level Voltage Outputs
- 1500 Volt Transformer Isolation
- ANSI/IEEE C37.90.1-1989 Transient Protection
- Input Protected to 240VAC Continuous
- 160dB CMR
- 95dB NMR at 60Hz, 90dB at 50Hz
- CSA Certified
- Mix and Match DI-5B Types

DESCRIPTION

Each DI-5B36 Potentiometer input module provides a single channel of Potentiometer 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.

Excitation for the potentiometer is provided

from the module by two matched current sources. When using a three-wire potentiometer, this method allows cancellation of the effects of lead resistances. The excitation currents are very small (less than 1.0mA) which minimizes self-heating of the potentiometer. Signal filtering is accomplished with a sixpole filter which provides 95dB of normalmode-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 in the output stage. 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

A special input circuit on the DI-5B36 module provides protection against accidental connection of power-line voltages up to 240VAC.

common mode spikes or surges. The module

is powered from +5VDC, ± 5 %.

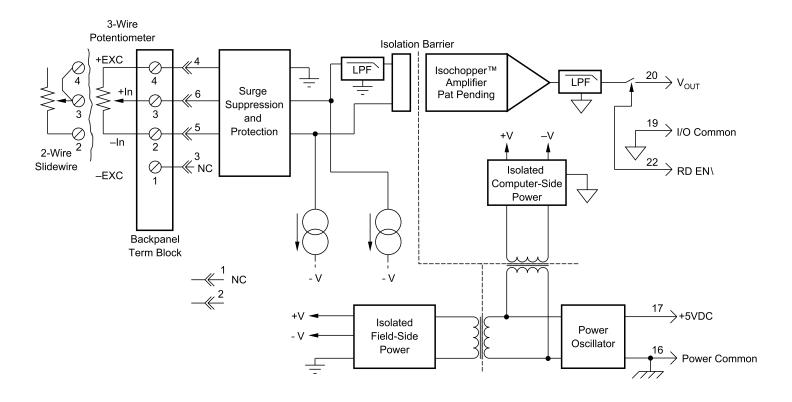
SPECIFICATIONS

Typical at $T_A = +25$ °C and +5V Power

SPECIFICATIONS Typical at $T_A = +25^{\circ}\text{C}$ and $+5\text{V}$ Power		
	DI-5B36	
Input Range	0 to 10KΩ	
Input Resistance	501.50	
Normal	50MΩ	
Power Off	40KΩ	
Overload	40ΚΩ	
Input Protection	2401/	
Continuous Transient	240Vrms max ANSI/IEEE C37.90.1-1989	
Sensor Excitation Current	0.25mA ; 100Ω , 500Ω , $1K\Omega$ sensor 0.10mA ; 10KW sensor	
Lead Resistance Effect	$\pm 0.01\Omega/\Omega$; 100Ω, 500Ω, 1KΩ sensor $\pm 0.02\Omega/\Omega$; 10KΩ sensor	
CMV Input to Output	_0.023232, 101t32 501501	
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*	±0.08% span	
Stability	1	
Input Offset	$\pm 0.004\Omega$ /°C; 100Ω , 500Ω , $1K\Omega$ sensor	
1	$\pm 0.010\Omega$ /°C; 10 K Ω sensor	
Output Offset	$\pm 20 \mu V/^{\circ} C$	
Gain	±50ppm of reading/°C	
Noise		
Input, 0.1Hz to 10Hz	0.2μVrms RTI**	
Output, 100kHz	200μVrms RTO**	
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	$6\mu s$ at $C_{load} = 0$ to $2000 pF$	
$(to \pm 1mV \text{ of } V_{out})$	ope at cloau o to 2000p1	
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"	0.5μΑ	
Power Supply Voltage	+5VDC ±5%	
Power Supply Current	30mA	
Power Supply Sensitivity	±20μV/% RTI**	
Mechanical Dimensions	$2.28" \times 2.26" \times 0.60"$	
	(58mm × 57mm × 15mm)	
Environmental	4000 4- 10500	
Operating Temperature	-40°C to +85°C -40°C to +85°C	
Storage Temperature Relative Humidity	0 to 95% Noncondensing	
RFI Susceptibility	±0.5% Span Error at 400MHz, 5W, 3ft	
*Includes nonlinearity, hysteresis and repeatability. **RTI/O=Referenced to input/output.		

DI-5B36 Potentiometer Input Modules

Block Diagram



Ordering Information

Model Number	Input Range	Output Range
DI-5B36-01	0 to 100Ω	0V to +5V
DI-5B36-02	0 to 500Ω	0V to +5V
DI-5B36-03	0 to 1kΩ	0V to +5V
DI-5B36-04	0 to $10 \mathrm{k}\Omega$	0V to +5V



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