

DI-5B42 2-Wire Transmitter Interface Modules

FEATURES

- Isolated +20VDC Current Loop Supply
- Provides Isolation for Non-isolated 2-wire Transmitters
- High Level Voltage Output: +1V to +5V
- 1500Vrms Transformer Isolation
- ANSI/IEEE C37.90.1-1989 Transient Protection
- Input Protected to 240VAC Continuous
- 100dB CMR
- 100Hz Signal Bandwidth
- $\pm 0.05\%$ Accuracy
- $\pm 0.02\%$ Linearity
- CSA Certified
- Mix and Match DI-5B Types

DESCRIPTION

Each DI-5B42 2-wire transmitter interface module provides a single channel which accepts a 4 to 20 mA process current input and provides a standard +1 to +5V output signal (see block diagram). An isolated +20VDC regulated power supply is provided to power the current transmitter. This allows a 2-wire loop powered transmitter to be directly connected to the DI-5B42 without requiring an external power supply. The regulated supply will provide a nominal +20VDC at a loop current of 4mA to 20mA.

The DI-5B42 will provide a 1500V isolation barrier for non-isolated 2-wire field transmitters. It can also be used when additional isolation is required between an isolated 2-wire transmitter and the input stage of the control room computer.

The 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 $\pm 50V$ 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.

A precision 20Ω current conversion resistor is supplied with the module. All field inputs are fully protected from accidental connection of power-line voltages up to 240VAC. The module has a 3dB bandwidth of 100Hz.

Signal filtering is accomplished with a six-pole filter, with two poles on the field side of the isolation barrier, and the other four on the computer side.

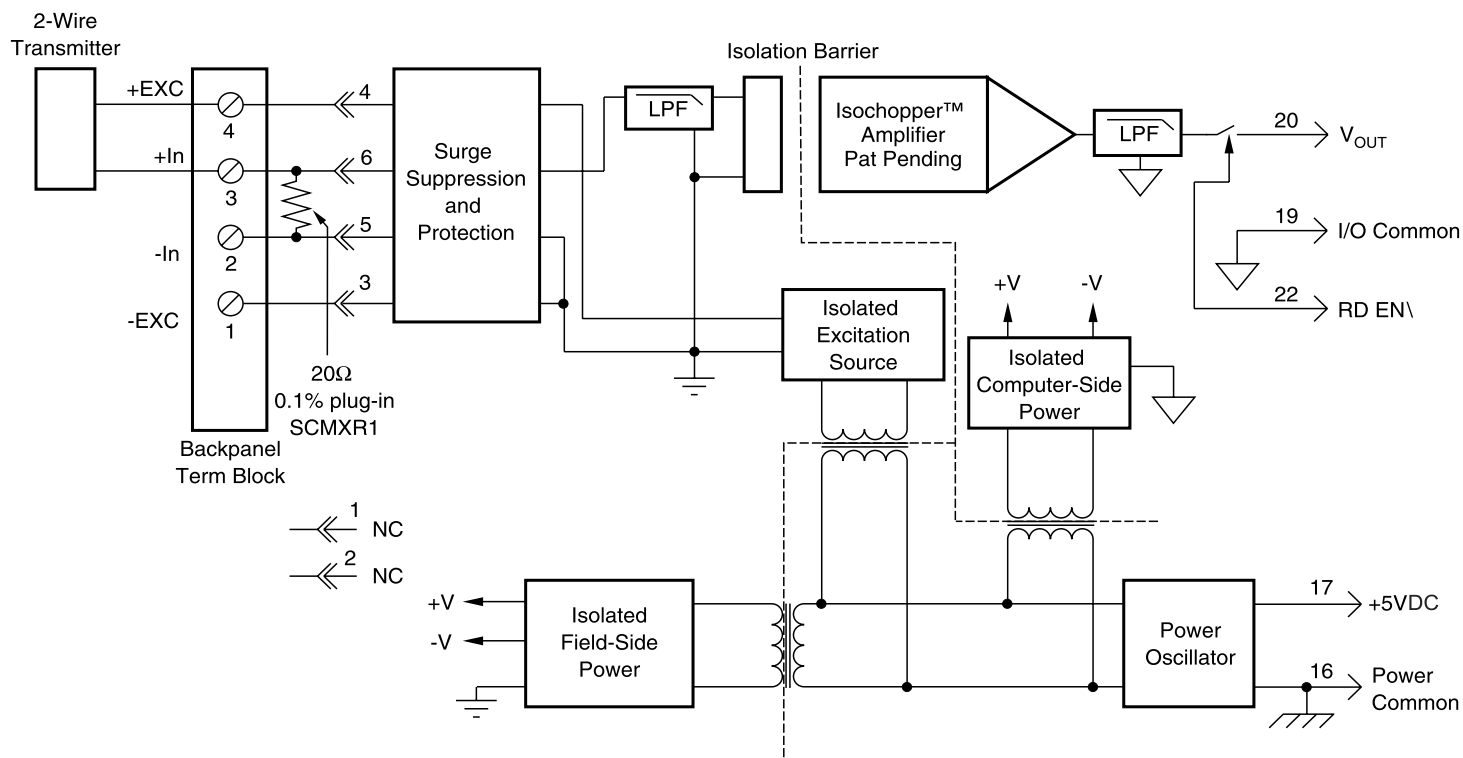
SPECIFICATIONS

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

		DI-5B42
Input Range		4mA to 20mA
Input Resistor	Value	20.00 Ω
	Accuracy	$\pm 0.1\%$
	Stability	$\pm 10\text{ppm}/^\circ\text{C}$
Loop Supply Voltage		Nominal 20V at 4mA to 20mA
Isolated Excitation Protection		240Vrms max ANSI/IEEE C37.90.1-1989
Input Protection	Continuous	240Vrms max ANSI/IEEE C37.90.1-1989
	Transient	
CMV, Input to Output		1500Vrms max ANSI/IEEE C37.90.1-1989
CMR (50Hz or 60Hz)	Continuous	100dB
	Transient	
NMR (-3db at 100Hz)		120db per decade above 100Hz
Accuracy*		$\pm 0.05\%$ Span $\pm 4\mu\text{A}$ RTI
Nonlinearity		$\pm 0.02\%$ Span
Stability	Input Offset	$\pm 1\mu\text{V}/^\circ\text{C}$
	Output Offset	$\pm 40\mu\text{V}/^\circ\text{C}$
	Gain	$\pm 25\text{ppm}/^\circ\text{C}$ of reading
Noise	Input, 0.1Hz to 10Hz	10nArms
	Output, 100kHz	500 μV rms
Bandwidth, -3dB		100Hz
Response Time, 90% Span		4ms
Output Range		+1V to +5V
Output Resistance		50 Ω
Output Protection		Continuous Short to Ground
Output Selection Time (to $\pm 1\text{mV}$ of V_{out})		6 μs at $C_{\text{load}} = 0$ to 2000pF
Output Current Limit		$\pm 20\text{mA}$ max
Output Enable Control	Max Logic "0"	+0.8V
	Min Logic "1"	+2.4V
	Max Logic "1"	+36V
	Input Current, "0,1"	0.5 μA
Power Supply Voltage		+5VDC $\pm 5\%$
Power Supply Current		180mA at load of 20mA 100mA at load of 4mA
Power Supply Sensitivity		$\pm 10\mu\text{V}/\%$ RTI*
Mechanical Dimensions		2.28" $\times$ 2.26" $\times$ 0.60" (58mm $\times$ 57mm $\times$ 15mm)
Environmental	Operating Temperature	-40 $^\circ\text{C}$ to +85 $^\circ\text{C}$
	Storage Temperature	-40 $^\circ\text{C}$ to +85 $^\circ\text{C}$
	Relative Humidity	0 to 95% Noncondensing
	RFI Susceptibility	$\pm 0.5\%$ Span Error at 400MHz, 5W, 3ft
*Includes nonlinearity, hysteresis and repeatability; RTI=Referenced to Input.		

DI-5B42 2-Wire Transmitter Interface Modules

Block Diagram



Ordering Information

Model Number	Input Range	Output Range
DI-5B42-01	4mA to 20mA	+1V to +5V



241 Springside Drive
Akron, Ohio 44333
330-668-1444

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