

DI-5BICP-Peak and DI-5BICP-RMS

FEATURES

- Interfaces to Common ICP® Style Transducers
- High Level Voltage Outputs
- Built-In Constant Current Excitation Source
- True RMS Output Option

DESCRIPTION

Models DI-5BICP-PEAK and DI-5BICP-RMS provide a cost-effective method for interfacing common ICP® style transducers to DATAQ Instruments' wide range of data acquisition products. ICP® transducers, such as piezoelectric accelerometers and microphones, feature built-in signal conditioning and low impedance outputs, but do require an external excitation power supply. This must be provided as a current-mode source, since the transducer's output resistance changes as a function of applied force or acceleration. Constant current excitation transforms this variable resistance to a variable voltage that is directly proportional to the measured phenomena.

The constant current source of DI-5BICP amplifiers yields 5.3 mA DC excitation with a compliance voltage of 8-12 VDC. The amplifiers feature AC coupling to remove the DC component of the transducer's signal so that only dynamic waveform information is passed through the amplifier. Gain for both amplifier models is fixed to 1, although many of DATAQ Instruments data acquisition products feature programmable gain per channel. This feature may be applied to yield greater sensitivities when required.

Model DI-5BICP-PEAK is simply a unity gain amplifier with a built-in constant current excitation source. This amplifier should be used when the application demands a complete reproduction of the force or acceleration waveform. Model DI-5BICP-RMS expands on this basic design by providing a true rms converter that is useful for lower speed trending of the true rms value of the applied force or acceleration.

Note: Both modules come with galvanic isolation (or electrical isolation) between power supply, sensor and analog output.

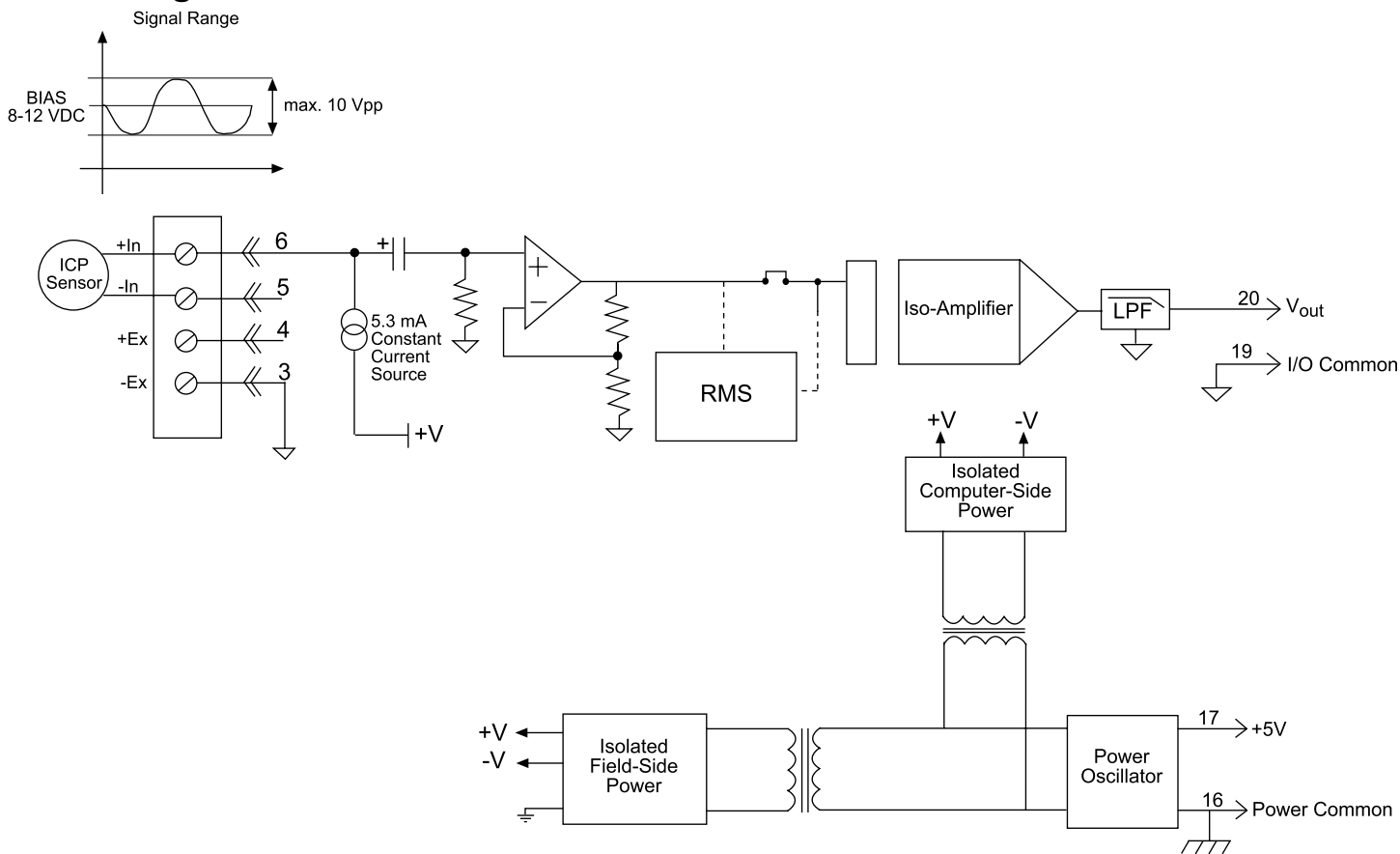
SPECIFICATIONS

Typical at T_A = +25°C and +5V Power

	DI-5BICP-PEAK	DI-5BICP-RMS
Input mode	Pass-through Voltage	True rms
Input range	±5V	
Input Resistance	Normal 330 nF / 470 kΩ Power Off 330 nF / 470 kΩ	
Gain	0dB	
Signal Input Protection	26VDC or Peak AC	
Excitation	Mode Constant Current Magnitude 5.3mA DC Compliance Voltage 8-12 VDC	
CMV, Input to Output	1000 VDC or Peak AC	
CMR (50Hz to 60Hz)	120 dB	
NMR	95dB @ 60Hz, 90dB @ 50Hz	
Accuracy (10Hz to 1KHz)	±0.5% of FSR	
Accuracy (20Hz to 15KHz, sinusoidal)		±1% of FSR
Nonlinearity	±0.25% FSO	N/A
Stability	±50 ppm / K	N/A
Output Noise	2mV rms	
Bandwidth, -3db	20Hz to 15KHz	
Settling Time	microseconds	
Rise Time, 10 to 90% of Span	15 microseconds	
Output Range	±5 V	0 to 3.535 V
Output Resistance	>2KΩ	
Output Protection	Continuous Short to Ground	
Output Current Limit	20 mA	
Power Supply Voltage	5 VDC	
Power Supply Current	In-rush 250 mA Steady State 150 mA	
Mechanical Dimensions	2.28" × 2.26" × 0.60" (58mm × 57mm × 15mm)	
Environmental	Operating Temperature 0 to +70°C Storage Temperature -40 to +85°C Relative Humidity 0 to 95%, non-condensing	

DI-5BICP-Peak and DI-5BICP-RMS

Block Diagram



Ordering Information

Model Number	Input Range	Output Range
DI-5BICP-PEAK	±5V	±5V
DI-5BICP-RMS	±5V	0 to 3.535V



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