

ICP® PREAMPLIFIER / DIVIDER FOR TACHOMETER SIGNALS



The PulseDriver™ conditions a voltage pulsetrain from a magnetic pickup or similar sensor for input to standard ICP sensor signal conditioners. In addition, PulseDriver includes an adjustable divider circuit to compensate for ‘N per revolution’ pulse patterns. Rather than boosting data acquisition sample rates to accommodate the high frequency content of these high frequency pulse patterns (thus losing spectral resolution in the important vibration frequency range), test engineers can divide the pulse train down to a square wave with a fundamental frequency equal to the shaft speed. Front-panel rotary switches adjust the divide frequency of the unit by up to 255.

Standard BNC input and output connectors connect the PulseDriver to a tachometer pickup and ICP sensor signal conditioner. Either stand-alone ICP sensor signal conditioners from PCB Piezotronics or embedded signal conditioning common to most data acquisition front ends may be used to power a PulseDriver preamplifier. This allows test engineers to acquire tachometer or speed sensor data using the same signal conditioning system used for vibration and acoustic data, simplifying their test setup and equipment configuration.

BENEFITS:

- Simplifies the connection of tachometers to data acquisition systems through standard ICP sensor signal conditioning
- Offers versatility with versions available for both magnetic and optical tachometer pickups
- Eliminates need to oversample all channels due to high frequency tach signal by compensating for ‘N per revolution’ pulse patterns with integrated divider circuit
- Simplifies cable management for dynamic testing of rotating equipment



System Schematic

PulseDriver conditioners are designed to connect directly to ICP® sensor signal conditioners such as the standalone units offered by PCB Piezotronics, or the constant current supply circuitry built-in to common DSA's (Digital Signal Analyzers).

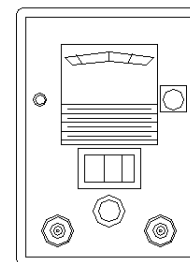
Tachometer/Speed Sensor



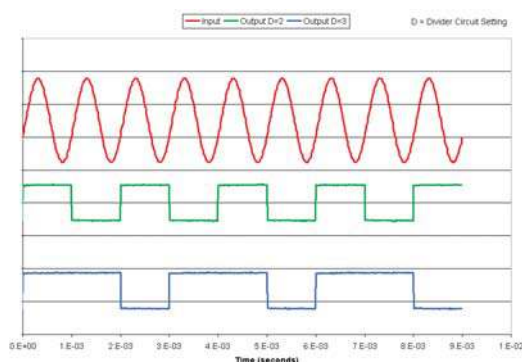
PulseDriver Conditioner



ICP Sensor Signal Conditioner



Output Characteristics



MULTIPLE PULSE COMPENSATION

The PulseDriver outputs a ± 1.5 volt square wave pulse. If 1 pulse per shaft revolution is required, the divider settings on the front panel can be set to the number of input pulses per revolution.

For example, for a measurement made on a 60 tooth gear, setting the divider to 60 will result in 1 pulse per rev to the data acquisition system.

Example waveforms are shown at left.

PERFORMANCE

Frequency Response	input pulses / second	0.1 to 20k
Input Signal Detection Threshold	V _{pk}	0.125
Divider Circuit Range		1 to 255
Output Signal	type	Square Wave Approximation
	V _{pp}	1
Oscillator Output Amplitude	mV _{pk}	500

ENVIRONMENTAL

Operating Temperature Range	°F (°C)	32 to 176 (0 to 80)
Storage Temperature Range	°F (°C)	32 to 176 (0 to 80)

ELECTRICAL

Excitation Voltage	VDC	18 to 30
Constant Current Excitation	mA	2 to 20
Input Impedance	kΩ	1100@ 0 Hz 100 @ 100 kHz
Max Input Voltage	V _{pk}	20

MECHANICAL

Size (H x W x D)	inches (mm)	1.18 x 3.67 x 1.33 (30,0 x 93,2 x 33,8)
Weight	oz (gm)	5.8 (165)
Input Connector	type	BNC jack
Output Connector	type	BNC plug



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