

# Twelve Channel Strain Gage Spinning Amplifier

## Model AMPEH2-HS

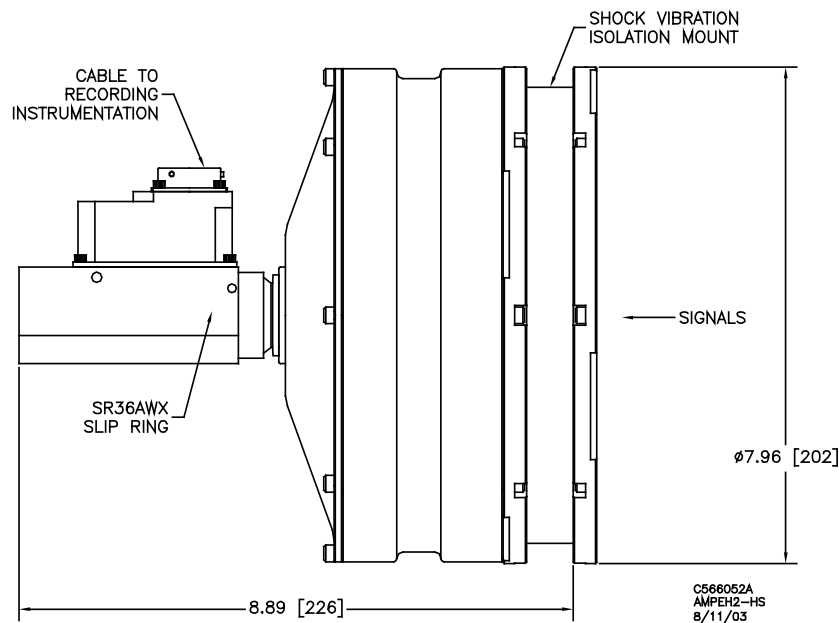
- Integrated weatherproof slip ring and amplifier assembly
- Highly accurate, low drift, differential input
- Remote positive/negative shunt calibration
- Remote bridge excitation On/Off capability
- Designed to withstand severe vibration
- Factory set gain, excitation voltage and shunt resistor values per customer specifications



## Description

Michigan Scientific's *Twelve Channel Strain Gage Spinning Amplifier* provides signal conditioning for up to twelve channels of strain gage data channels. This system is ideal for use on heavy duty rotating equipment. Superior data accuracy is achieved by locating the signal amplifiers on the rotating side of the slip ring. This configuration greatly improves signal quality because the amplifiers are located close to the sensor which reduces errors due to long lead wires, connector resistance variations, and electro-magnetic interference.

Each amplifier gain, bridge excitation voltage, and shunt calibration resistance can be independently set at the factory according to customer specifications. Features include remote positive/negative shunt calibration and bridge excitation on/off. All electrical components are sealed from the environment and suspended in a rugged enclosure designed to protect the components from vibration. The *Twelve Channel Strain Gage Spinning Amplifier* is ideally suited to be used in conjunction with Michigan Scientific's model *PS-AC-BF16 Amplifier Control and Filter System*.



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# Twelve Channel Strain Gage Spinning Amplifier

## Specifications

PARAMETER	SPECIFICATION
<b>BRIDGE EXCITATION</b>	Customer specified excitation level
Type	Constant Voltage
Magnitude	5, 10, or 17 V
Current Limit	100 mA
Temperature Coefficient	0.0005%/°C Max (0.00028 %/°F)
<b>REMOTE CALIBRATION</b>	Positive & negative solid state shunt calibration
Shunt value range	100 kΩ or greater
Shunt accuracy	0.1% or better
<b>GAIN</b>	Customer specified
Range	1 to 10,000 V/V
Accuracy @ 25°C, Gain = 500	± 2%
Temperature Coefficient	0.0014%/ °C
<b>OUTPUT</b>	
Range	±10 V
Capacitive Load	1000 pF Max
<b>VOLTAGE OFFSET *</b>	Referred to input of amplifier
Initial** @ 25°C, Gain = 500	±15 μV
Temperature Stability @ Gain = 500	± 0.2 μV /°C
Time Stability @ Gain = 500	±1.0 μV / Month
<b>INPUT VOLTAGE</b>	
Range	Varies with configuration
CMRR @ DC	128 dB
CMRR @ 60 Hz / 100 Hz	110 dB @ 100 Hz
<b>NOISE</b>	Referred to input of amplifier
0.01 - 10 Hz	0.8 μV p-p
DC - 1 Hz	--
<b>DYNAMIC RESPONSE</b>	
Frequency Response ± 3 dB / 1%	10 kHz / 1 kHz @ Gain 100
Slew rate	0.6 V/ μs
Settling Time 0.1% / 0.01% @ Gain=100	80 μs / 150 μs
<b>POWER REQUIREMENTS</b>	
Voltage @ 25°C	±13 to ±17 VDC
Current	±±15 mA plus Bridge Load (+15 mA additional during shunt calibration)
<b>POWER REQUIREMENTS</b>	
Voltage	± 15 VDC
Current	± 30 mA plus Bridge Load
<b>ENVIRONMENT</b>	
Specification	-25 to +85°C (-13 to +185°F)
Operation	-55 to +125°C (-67 to +257°F)
Storage	-65 to +150°C (-85 to +302°F)
* Upon bridge excitation voltage	
** Average (channel to channel)	