



# WS $\alpha$ Sensor

## General Purpose, Wideband Frequency Acoustic Emission Sensor

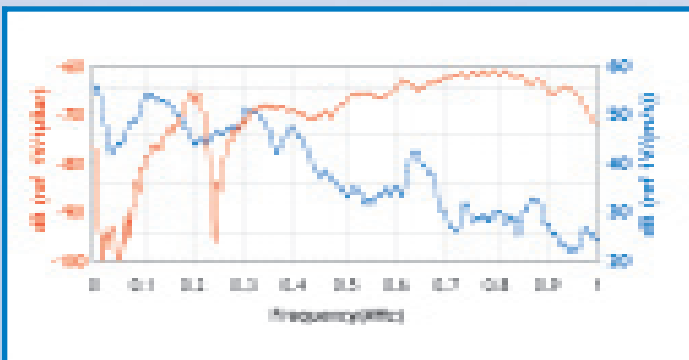
### Description and Features

The WS $\alpha$  sensor is a single-ended, wideband frequency, Acoustic Emission sensor. Featuring a SMA connector within an integrated stainless steel cavity, the WS $\alpha$  is machined from a solid rod. A 30-degree angle at the bottom edge of the sensor cavity reduces the risk of electric shorts from the sensor cavity to conductive test surfaces.

The WS $\alpha$  takes advantage of the general Alpha series (consisting of R3 $\alpha$ , R6 $\alpha$ , R15 $\alpha$ , R30 $\alpha$ , R50 $\alpha$ , R80 $\alpha$  and WS $\alpha$  sensors) sensor features and the WD sensor's high sensitivity and wideband frequency range.

### Application

Wideband sensors are typically used in research applications or other applications where a high fidelity AE response is required. In research applications, wideband AE sensors are useful where frequency analysis of the AE signal is required and in helping determine the predominant frequency band of AE sources for noise discrimination and selection of a suitable lower cost, general purpose AE sensor. In high fidelity applications, various AE wavemodes can be detected using wideband sensors, providing more information about the AE source and distance of the AE event.



Frequency response of the WS $\alpha$ . Calibration based on ASTM E1106;  
Calibration based on ASTM E976.

### Operating Specifications

#### Dynamic

Peak Sensitivity V/(m/s); [V/ $\mu$ bar] ..... 55 [-62] dB  
 Operating Frequency Range ..... 100 - 1000 kHz  
 Resonant Freq. V/(m/s); [V/ $\mu$ bar] ..... 125 [650] kHz  
 Directionality.....  $\pm 1.5$  dB

#### Environmental

Temperature Range ..... -65 to 175°C  
 Shock Limit ..... 500 g  
 Completely enclosed crystal for RFI/EMI immunity

#### Physical

Dimensions..... 0.75" dia x 0.84" h (19 x 21.4 mm)  
 Weight..... 32 grams  
 Case Material..... Stainless Steel  
 Face Material..... Ceramic  
 Connector..... SMA  
 Connector Locations ..... Side  
 Seal ..... Epoxy  
 Sensor to Preamp Cable (1 or 2 meters)..... 1232-X-SMA

### Ordering Information and Accessories

WS $\alpha$  ..... WS $\alpha$  or WSa  
 Magnetic Hold-Down ..... MHR15A  
 Preamplifier..... 0/2/4, 2/4/6  
 Preamp to System Cable (specify length in meters) ..... 1234 - X

#### Sensors include

NIST Calibration Certificate & Warranty



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