

R50α Sensor

General Purpose, 500 kHz Resonant Frequency Acoustic Emission Sensor

Description and Features

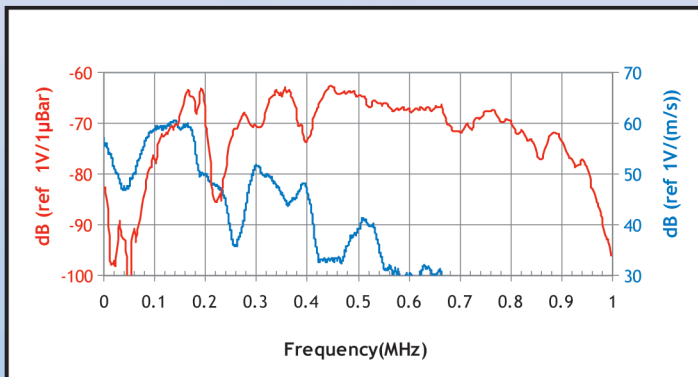
The Alpha series family of sensors features SMA connectors versus the Microdot connectors found on PAC's RXX series of passive sensors. The Alpha series includes R3α, R6α, R15α, R30α R50α, R80α and WSα sensors. The major improvements in Alpha series over the RXX series include:

- Use of the more popular SMA type of connector.
- Cavity is machined from a solid stainless steel rod making for a simpler and more robust design.
- Dramatically increased thickness of the ceramic shoe for better mechanical stability.
- Distance from the bottom of the ceramic shoe to the bottom edge of sensor cavity increased for better insulation resistance and ground avoidance.
- Introduced a 30-degree angle at the bottom edge of the sensor cavity.

All these improvements make the Alpha series sensors more robust, reliable and greatly reduce the possible grounding of the cavity to the structure caused by wet environment.

Application

This sensor is useful in very noisy plant and process monitoring applications and is particularly suited to such applications as welding monitoring and control.



Frequency response of the R50α. Calibration based on ASTM E1106; Calibration based on ASTM E976.

Operating Specifications

Dynamic

Peak Sensitivity V/(m/s); [V/μbar] 62 [-62] dB
 Operating Frequency Range 100 - 700 kHz
 Resonant Freq. V/(m/s); [V/μbar] 100 [500] kHz
 Directionality..... ±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 0.88" h (19 x 22.4 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

R50α R50α or R50a
 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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