



R80α Sensor

General Purpose, 800 kHz Resonant Frequency Acoustic Emission Sensor

Description and Features

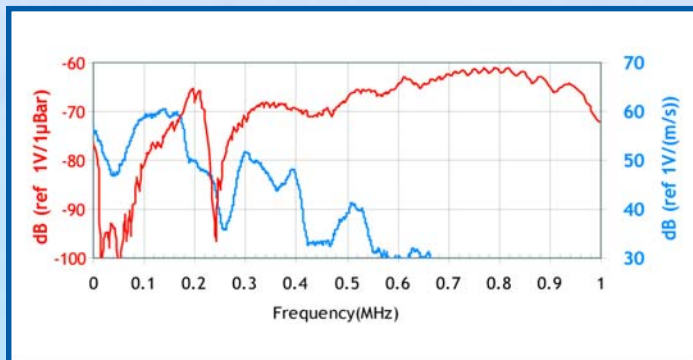
The Alpha series family of sensors features SMA connectors versus the Microdot connectors found on PAC's RXX series of passive sensors. The Alpha series includes R3α, R6α, R15α, R30α R50α, R80α and WSα sensors. The major improvements in Alpha series over the RXX series include:

- 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

High frequency AE sensors such as the R80α are often used in a high noise environments on applications such as brittle crack detection and processing of AE signals with high frequency components.



Frequency response of the R80α. Calibration based on ASTM E1106; Calibration based on ASTM E976.

Operating Specifications

Dynamic

Peak Sensitivity V/(m/s); [V/μbar].....	58 [-62] dB
Operating Frequency Range	200 - 1000 kHz
Resonant Freq. V/(m/s); [V/μbar] ...	200 [800] 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 0.84" 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

R80α	R80α or R80a
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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