R15α Sensor

General Purpose, 150 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.

Applications
This general purpose sensor provides a good combination of high sensitivity and low-frequency rejection. These properties make the sensor very useful for monitoring common structures such as pipelines, vessels, bridges, and storage tanks in petroleum, refineries, chemical plants, offshore platforms, as well as factory and process monitoring applications.

Operating Specifications

Dynamic
Peak Sensitivity V/(m/s); [V/µbar] ...... 69 [-63] dB
Operating Frequency Range ..............50 - 200 kHz
Resonant Freq. V/(m/s); [V/µbar] .... 75 [150] 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” diam. x 0.88” h (19 x 22.4 mm)
Weight ........................................... 34 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
R15α .............................................. R15α or R15a
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

Due to continuing improvement, Physical Acoustics Corp. (PAC) reserves the right to amend specifications without notice. Copyright © 2005 MISTRAS Holdings Group. All Rights Reserved.