R6I-AST Sensor
Integral Preamplifier
Acoustic Emission Sensor

Description and Features
PAC’s integral preamp sensors were specifically engineered to attain high sensitivity and have the capability to drive long cables without the need for a separate preamplifier. Incorporating a low-noise input, 40 dB preamplifier and a filter all inside the sensor housing, these transducers are completely enclosed in metal stainless steel (or aluminum) housings that are treated to minimize RFI/EMI interference. Care has also been taken to thermally isolate the critical input stage of the preamplifier in order to provide excellent temperature stability over the range of -35º to 75º C.

Their integrated Auto Sensor Test (AST*) capability allows these sensors to pulse as well as receive. This feature lets you verify the sensor coupling and performance at any time throughout the test.

Applications
Due to its high sensitivity and low resonant frequency properties, this sensor can be used for applications such as metal and FRP structures including pipelines or storage tanks in petroleum, refineries, chemical plants, and offshore platforms.

Operating Specifications

- **Dynamic**
  - Peak Sensitivity, Ref V/(m/s) ............... 117 dB
  - Peak Sensitivity, Ref V/µbar .............. -23 dB
  - Operating Frequency Range .......... 40 - 100 kHz
  - Resonant Frequency, Ref V/(m/s) .......... 55 kHz
  - Resonant Frequency, Ref V/µbar .......... 98 kHz
  - Directionality..................................... +/-1.5 dB

- **Environmental**
  - Temperature Range ...................... -35 to 75ºC
  - Shock Limit ...................................... 500 g
  - Completely shielded crystal for maximum RFI/EMI immunity

- **Physical**
  - Dimensions ...................... 1.13” diameter x 1.6” h
  - ........................................ (29 x 40 mm)
  - Weight ........................................ 98 grams
  - Case Material ...................... Stainless Steel (304)
  - Face Material ......................... Ceramic
  - Connector ........................................ BNC
  - Connector Locations ..................... Side

Ordering Information and Accessories
- R6I .............................................. R6I-AST
- Cable (specify cable length) ............. 1234 - X
- Magnetic Hold-Down ..................... MHR6I
- Amplifier ........................................ AE2A

Sensors include
- NIST Calibration Certificate & Warranty

*AST — Auto Sensor Testing feature allows AE systems to control the sensor as a pulser and a receiver at the same time. It can therefore characterize its own condition as well as send out a simulated acoustic emission wave that other sensors can detect, so the condition of the nearby sensors also can be tested.

Frequency response of the R6I-AST. Calibration based on ASTM E1106; Calibration based on ASTM E976.