R50I-AST Sensor
Integral Preampifier
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
This sensor is useful in very noisy plant and process monitoring applications and is particularly well suited to such applications as welding monitoring and control.

Operating Specifications

Dynamic
- Peak Sensitivity, Ref V/(m/s) ................. 88 dB
- Peak Sensitivity, Ref V/µbar ................. -26 dB
- Operating Frequency Range ............. 300 - 550 kHz
- Resonant Frequency, Ref V/(m/s) .......... 320 kHz
- Resonant Frequency, Ref V/µbar ............ 500 kHz
- Directionality ...................................... +/-1.5 dB

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

Physical
- Dimensions .................. 1.13” diameter x 1.16” h
- .................. (29 x 30 mm)
- Weight ............................................ 70 grams
- Case Material .................. Stainless Steel (304)
- Face Material .................. Ceramic
- Connector .................. BNC
- Connector Locations ................. Side

Ordering Information and Accessories
- R50I ........................................... R50I-AST
- Cable (specify cable length) ................. 1234 - X
- Magnetic Hold-Down .................. MHR50I
- 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 R50I-AST. Calibration based on ASTM E1106; Calibration based on ASTM E976.