

PRODUCT DATA SHEET

R.45I Sensor

Very Low Frequency Sensor



DESCRIPTION AND FEATURES

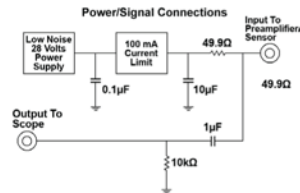
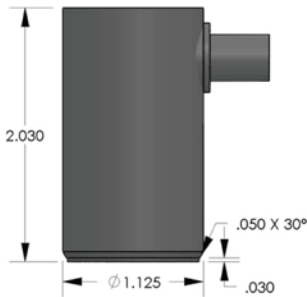
The R.45I is a very low frequency and High sensitivity, internally amplified AE sensor with a 20 kHz resonance frequency, 124 dB peak sensitivity and useful bandwidth from 1 to 30 kHz. The sensor has a standard BNC connector on the side of the sensor. The cavity is made from Stainless steel. It is approximately 2.0" (50 mm) high.

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, 40dB 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 -35° to 75° 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 before, during or after an AE test.

APPLICATIONS

This sensor is normally selected for structural health monitoring of concrete and geologic structures. It is also a good choice for pipeline leak detection.



OPERATING SPECIFICATIONS

Dynamic

Peak Sensitivity, Ref V/(m/s)..... 124 dB
Operating Frequency Range 1-30 kHz
Resonant Frequency, Ref V/(m/s).....20 kHz
Directionality +/-1.5 dB

Environmental

Temperature Range -35° to 75° C
Shock Limit500 g
Completely enclosed crystal for RFI/EMI immunity

Physical

Dimensions..... 1.125"OD X 2.0"H
28.6 mm OD X 50 mm H
Weight121 grams
Case Material..... Stainless Steel
Face Material..... Ceramic
Connector BNC
Connector Locations.....Side

Electrical

Gain 40 dB
Power Requirements20-30 VDC @ 25 mA
Dynamic Range..... > 87 dB
Noise Level (RMS RTI)..... < 3 µV
Output Drive Impedance..... 50 Ω
Grounding..... Case Grounding,
..... Isolated from mounting surface

ORDERING INFORMATION AND ACCESSORIES

R.45I R.45I
Cable (specify length in '-XX' m at end of PN) 1234-X
Magnetic Hold-Down MHR.45I
Amplifier Subsystems AE2A, AE5A

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.

