R.45I-LP Sensor Family
Low Power Integral Preamplifier Sensor

DESCRIPTION AND FEATURES
The family of R.45I-LP sensors is a low frequency, resonant, acoustic emission sensor with an integral, ultra-low noise, low power, filtered, 26 dB or 12 dB preamplifier, which can drive up to 250 meters of cable. This new sensor family represents an improvement in both noise and low power consumption performance, with noise level below 3 μV and power consumption of 25 mW. The sensors feature special polymer coatings making it 100% insulated and non-conductive. The 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 the test.

APPLICATIONS
The family of R.45I-LP sensors has been designed to be used with the Pocket AE, the Sensor Highway II, the Sensor Highway III, Express-8, USB Node, Wireless AE Nodes.

OPERATING SPECIFICATIONS
Dynamic
Peak Sensitivity, Ref 1V/(m/s) .................. 108 dB / 94 dB
Operating Frequency Range ...................... 1-60 kHz
Resonant Frequency ............................. 20 kHz
Directionalilty .................................. ±1.5 dB

Environmental
Temperature Range ............................... -35 to 80°C
Shock Limit .................................... 500 g

Physical
Dimensions* ...................................... 1.3” OD X 1.77” H
.................................................. 33 mm OD X 45.00 mm H
Case Material ................................. Stainless Steel
Face Material ...................................... Ceramic
Connector ........................................ BNC/SMB on integral cable
Connector Locations ............................. Side

Electrical
Electrical Gain ................................. 26 dB / 12 dB
Power Requirements .......................... 4.5-7 VDC
Operating/Max Current ....................... 5 mA
Noise Level (RMS RTI) ......................... < 3 μV

ORDERING INFORMATION AND ACCESSORIES
R.45I-LP-BNC...........2m cable, BNC connector, 26 dB Pre-amp
R.45I-LP12-BNC ......................... 12 dB Pre-amp
R.45I-LP-2 (or 5 or specified) ........... 2m or 5m or specified length
........................................... cable, SMB connector, 26 dB Pre-amp
R.45I-LP12-2 (or 5 or specified) ....... 12 dB Pre-amp
Magnetic Hold-Down ........................... MHR.45I
Amplifier Subsystem ......................... AE2A, AESA

Sensors include
Characterization 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 can also be tested.

† Due to variances in coating process, the height of coated sensors may vary within a tolerance of ±0.015 inches (.381 mm)