ISR.45 Sensor
Intrinsically Safe
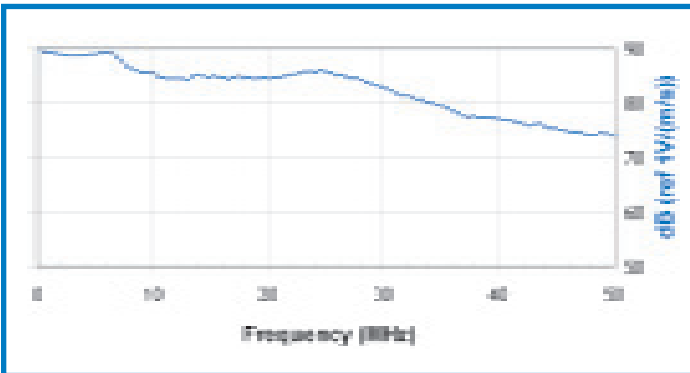## Acoustic Emission Sensor

Description and Features

The ISR.45 is our lowest resonant frequency sensor designed specially to meet Intrinsic Safety (IS) and IP65 environmental requirements. Certified as Intrinsically Safe (IS) for use with our 1276-2 IS Preamplifier and 1276-1 and 1278 IS ASL-C Subsystem, this sensor has a thicker ceramic wear-plate and an epoxy coating completely covering the sensor and cable exit. An IS voltage protection circuit is built into the sensor.

It has an integrated one-meter long differential cable with extruded TPE jacket and a pigtail for connecting into a 1276 or 1278 IS Preamplifier or Subsystem. The sensor has similar frequency response as the R.45 sensor. Its maximum operating temperature is 125°C.

Applications

This sensor is normally selected for structural health monitoring of large-scale concrete structures, geologic structures and for pipeline leak detection applications where large distances between sensors is required, where there is little acoustic background noise and where intrinsically safe sensors and instrumentation are required.

Frequency response of the ISR.45. Calibration based on ASTM E1106.

Operating Specifications

Dynamic

Peak Sensitivity, Ref V/(m/s) .... 87 dB
Operating Frequency Range .... 3 - 30 kHz
Resonant Frequency............................... 7 kHz
Directionality................................... +/-1.5 dB

Environmental

Temperature Range ....-45 to 125ºC
Shock Limit ....1,000 g
Completely shielded crystal for maximum RFI/EMI immunity

Physical

Dimensions.................... 1.32" diameter x 1.68" h
....(33 x 43 mm)
Weight.................. 155 grams with 1 meter cable
Case Material.................... Stainless Steel/Epoxy
Face Material....................................Ceramic
Connector... Pigtail
Connector Locations ....Side
Seal .... Epoxy
Sensor to Preamp Cable (1 meter) .... Integral

Ordering Information and Accessories

ISR.45 .... ISR.45
Preamplifier... 1276-2
ASL-4-20 ma Subsystem 1276-1
Preamp to System Cable 1276C
IS Zener Barrier 1276B

Other IS Sensors are available with various resonant frequencies.

Sensors include
NIST Calibration Certificate & Warranty

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ISO 9001

#23-08