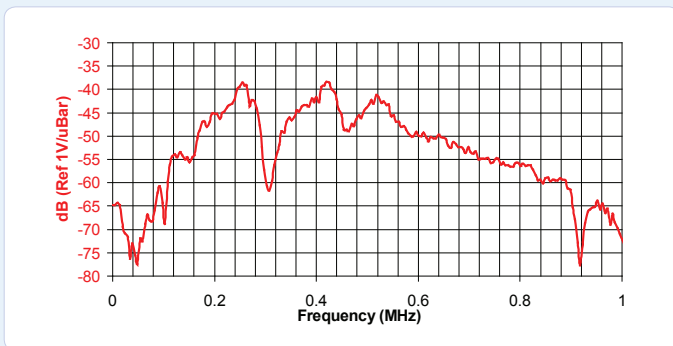
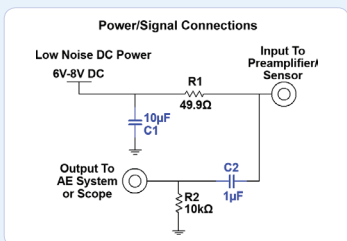
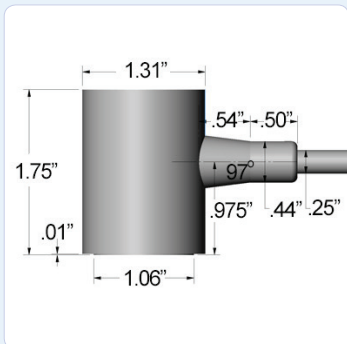


### ISPKWDIUC Sensor

#### Intrinsically Safe Underwater Sensor



#### DESCRIPTION AND FEATURES

The ISPKWDIUC is a wideband acoustic emission sensor with an integral cable. It is designed to meet the intrinsic safety (IS) requirements and can operate in underwater conditions. The sensor features a 26 dB low power, low noise preamplifier that can drive up to 200 meters of cable. The special polymer coatings on the sensor along with an integral waterproof cable make it 100% insulated and non-conductive. The sensor can be used to depths of 1000 psi.

#### APPLICATIONS

The sensor can be readily used for structural health monitoring in environments requiring intrinsic safety. It can be used for the monitoring of structures like pipelines, pressure vessels and storage tanks in petroleum refineries, chemical plants and offshore platforms.

#### OPERATING SPECIFICATIONS

##### Dynamic

|                                  |             |
|----------------------------------|-------------|
| Peak Sensitivity, Ref 1V/(m/s)   | 80 dB       |
| Peak Sensitivity, Ref 1V/μbar    | -38 dB      |
| Operating Frequency Range        | 100-800 kHz |
| Resonant Frequency, Ref 1V/(m/s) | 125 kHz     |
| Resonant Frequency, Ref 1V/μbar  | 530 kHz     |
| Directionality                   | +/-1.5 dB   |

##### Environmental

|                                                  |              |
|--------------------------------------------------|--------------|
| Temperature Range                                | -55° to 70°C |
| Shock Limit                                      | 500 g        |
| Completely enclosed crystal for RFI/EMI immunity |              |

##### Physical

|                     |                                        |
|---------------------|----------------------------------------|
| Dimensions          | 1.31"OD X 1.75"H<br>33 mm OD X 45 mm H |
| Weight              | 98 grams                               |
| Case Material       | Stainless Steel/Epoxy                  |
| Face Material       | Ceramic                                |
| Connector           | BNC on integral cable                  |
| Connector Locations | Side                                   |

##### Electrical

|                            |                                |
|----------------------------|--------------------------------|
| Gain                       | 26 dB                          |
| Preamp DC power            | 5-7 V                          |
| Grounding                  | Isolated from mounting surface |
| Noise level at input       | <3 μV                          |
| Preamplifier dynamic range | >87 dB                         |
| Preamplifier impedance     | 50 ohm                         |

##### Certifications

|                                     |
|-------------------------------------|
| Ex ia IIC T6, -55°C ≤ Ta ≤ 70°C     |
| Ex ia IIIC T85°C, -55°C ≤ Ta ≤ 70°C |

#### ORDERING INFORMATION AND ACCESSORIES

|                                         |           |
|-----------------------------------------|-----------|
| ISPKWDIUC                               | ISPKWDIUC |
| Cable (specify length in 'XX' m)        | XX        |
| IS Zener Barrier/Preamplifier Interface | 1281      |

##### Sensors include

NIST Calibration Certificate & Warranty

