

Ceramic Shear Accelerometer

Type 8274A..., 8276A...

Light Weight, Charge Mode, Accelerometer

Small envelop size and light weight, the 8274A5, 8276A5 are general purpose vibration measuring accelerometers designed for OEM applications.

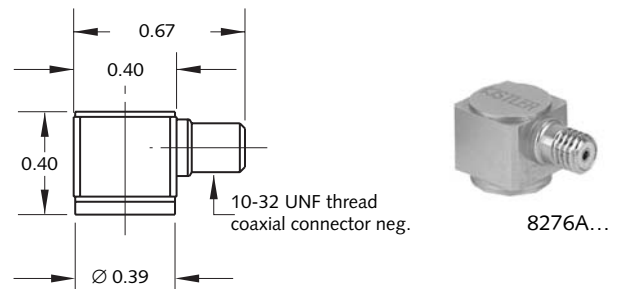
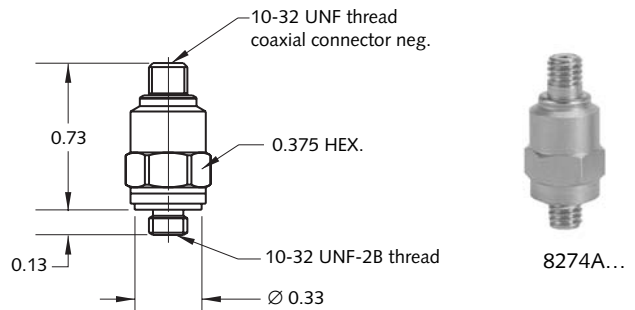
Containing identical sensing elements, the two models in this family of accelerometers differ in mounting attachment (adhesive or stud), envelope configuration (side or top connector) and frequency response.

- High impedance, charge mode
- Ceramic Shear sensing element
- Wide frequency response
- Low transverse sensitivity
- Lightweight
- Rugged connector for repeated connections
- Priced for OEM applications

Description

The 8274A5, 8276A5 are high impedance, charge mode accelerometers designed for vibration measurements in single to multichannel applications. The unique connector design is rugged and maintains excellent integrity with repeated connections. The ceramic sensing element components have been carefully designed to provide the level of performance most often required in general purpose vibration measurements. Kistler's shear technology assures high immunity to base strain, thermal transients and transverse accelerations. Other outstanding features include high frequency response, lightweight and hermetic sealing.

Within this small, lightweight package is a robust, shear mode, ceramic sensing element, providing a significant charge output. The measurement range is adjustable when used with a laboratory style charge amplifier. The Type 5050 In-Line Charge Converter is a lower cost alternative to the laboratory amplifier allowing the measurement system to take on the appearance of the traditional voltage mode accelerometer and power supply/coupler.



Application

Types 8274A5, 8276A5 are multipurpose accelerometers, useful for many low level measurement applications. The wide bandwidth and rugged construction are ideal for impact and vibration related applications including condition monitoring and vehicle testing. These sensors offer excellent performance and cost advantages for demanding applications. Contact Kistler for OEM and quantity discounts.

CE Compliant Information

Because high impedance, charge mode accelerometers contain no electronics, CE certification to the EMC Directive is not appropriate. When a high impedance accelerometer is used with a CE certified signal conditioner (i.e., charge amplifier...), it is said that this system is CE compliant.

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Technical Data

| Type | Units | 8274A5 | 8276A5 |
|--|------------------|---------------|----------------------|
| Acceleration Range | g | ±2000 | ±2000 |
| Acceleration Limit | g _{pk} | ±2500 | ±2500 |
| Threshold nom. | g _{rms} | 0.01* | 0.01* |
| Sensitivity nom. | pC/g | -5.5 | -5.5 |
| Resonant Frequency mounted, nom. | kHz | 50 | 40** |
| Frequency Response | ±5% | Hz | 1...7000** |
| | ±7% | Hz | - |
| Amplitude Non-Linearity | %FSO | ±1 | ±1 |
| Insulation Resistance | @ 75 °F | Ω | 1 x 10 ¹¹ |
| | @ 330 °F | Ω | 1 x 10 ¹⁰ |
| Capacitance | pF | 580 | 580 |
| Transverse Sensitivity typ. (max. 5%) | % | 1.5 | 1.5 |
| Environmental: | | | |
| Base Strain Sensitivity @ 250 µε | g/µε | 0.002 | 0.0005** |
| Shock Limit (1ms pulse) | g _{pk} | 5000 | 5000 |
| Temperature Coefficient of Sensitivity | %/°F | 0.06 | 0.06 |
| Temperature Range Operating | °F | -65 ... 330 | -65 ... 330 |
| Construction: | | | |
| Sensing Element | type | ceramic/shear | ceramic/shear |
| Housing/ Base | material | titanium | titanium |
| Sealing - Housing/ Connector | type | hermetic | hermetic |
| Connector | type | 10-32 | 10-32 |
| Weight | grams | 4 | 4 |
| Mounting | type | stud | wax/adhesive |
| Mounting Torque | lbf-in | 18 | - |

* Depends on charge amplifier quality, sensitivity and time constant settings
** Wax mounted

1 g = 9.80665 m/s², 1 inch = 25.4 mm, 1 gram = 0.03527 oz, 1 lbf-in = 0.1129 Nm

Mounting

Reliable and accurate measurements require that the mounting surface be clean and flat. The sensors can be attached to the structure utilizing the integral stud, wax or adhesive. The Operating Instruction Manual for the 8274 and 8276 series provides detailed information regarding mounting surface preparation and proper application of adhesive.

Optional Accessories

- | | Type |
|-------------------------------|-------------|
| • adhesive mounting pad | 8436 |
| • mounting magnet | 8452A |
| • mounting cube for 8274/8774 | 8524 |
| • mounting cube for 8276/8776 | 8526 |

Accessories Included

- | | Type |
|---------------------------|-------------|
| • mounting wax for 8276A5 | 8432 |

Ordering Key

Connector Location

| | |
|------|-----|
| top | 4A5 |
| side | 6A5 |

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