Product Data

Industrial Accelerometer — Type 8325

USES:
- Permanent and off-line vibration monitoring of a wide variety of machines in industrial environments

FEATURES:
- DeltaTron® integral preamplifier used
- Case insulated and internally shielded
- Sealed to IP 67 for use in wet and dusty environments

General Application

The 8325 is a rugged accelerometer with a high sensitivity, ideally suited for permanent and off-line vibration monitoring of a wide variety of machines.

And because of its integral current-drive amplifier, it provides an excellent price-attractive solution for general-purpose multi-channel systems.

A constant-current power supply is required, such as Brüel & Kjær’s Type 3021 Current-Drive Multiplexer Module for COMPASS or a portable monitoring system such as the Type 2526 Data Collector.

Design Features

The 8325 uses an integral DeltaTron® preamplifier which provides a low impedance output, thus allowing inexpensive cables to be used, and provides excellent resistance to electromagnetic noise pick-up.

This accelerometer employs a mechanically pre-loaded annular-shear piezoelectric element configuration. This gives a high resistance to base bending and temperature transients.

The sturdy stainless steel case is designed specifically for rugged industrial applications and is sealed to IP 67 for use in wet and dusty environments. The case is insulated and internally shielded to minimize signal electromagnetic interference and ground-loops.

An integral-mounted Tefzel insulated cable is supplied as standard in 5, 10 and 15 metre lengths, with an open-ended connector for input into a junction box for permanent systems. For portable monitoring equipment, such as the Type 2526 Data Collector, a 1.5 metre cable with a BNC plug can be supplied. These cables have reduced triboelectric susceptibility since they are effectively bonded. Other cable types, connectors and cable lengths are also possible.
Specifications 8325

Dynamic
SENSITIVITY (axial): 10 mV/ms^2 ±5%
MEASURING RANGE (peak): 750 mV^2 at 100°C (212°F)
500 mV^2 at 125°C (257°F)
FREQUENCY RESPONSE (see graph below): 1 to 1000 Hz ±10%
MOUNTED RESONANCE FREQUENCY: 25 kHz

MEASURING RANGE (peak):
750 ms at <100°C (212°F)
500 ms at <125°C (257°F)

FREQUENCY RESPONSE (see graph below):
1 to 10000 Hz, ±10%

TEMPERATURE RESPONSE:
See graph below

POLARITY:
Positive (acceleration directed from base into body)

Electrical
POWER REQUIREMENT:
Constant Current: ±2 to ±20 mA
Voltage (unloaded): ±22 to ±28 V DC

MAXIMUM OUTPUT SIGNAL (peak): >7.5 V

BIAS VOLTAGE:
12 V at 4 mA
8 to 15 V at full temp. and current range

RESIDUAL NOISE:
<3x10^-3 ms^-2 (1 Hz to 22 kHz)

OUTPUT IMPEDANCE:
<100 W

GROUNDING (case to shield):
>100 MΩ

CAPACITANCE TO GROUND:
70 pF

Environmental
MAX. ACCELERATION LIMITS (peak):
Shock: 50000 ms^-2
Continuous Vibration: 5000 ms^-2

BASE STRAIN SENSITIVITY:
0.005 ms^-2/με (in base plane at 250 με)

TEMP. TRANSIENT SENSITIVITY:
0.05 ms^-2/°C (3 Hz LLF, 20 dB/decade)

PIEZOELECTRIC ELEMENT:
Design Config.: Pre-loaded annular shear
Material: PZ23
Mounting: 1/4" -28 UNF tapped centre hole

COMPLIANCE WITH STANDARDS:
CE-mark indicates compliance with: EMC Directive.

Safety
EN 61010–1 and IEC 1010–1: Safety requirements for electrical equipment for measurement, control and laboratory use.

EMC Emission
CISPR 22: Radio disturbance characteristics of information technology equipment. Class B Limits.

EMC Immunity
EN 50082–1: Generic immunity standard. Part 1: Residential, commercial and light industry.

Temperature

Humidity
IEC 68–2–3: Damp Heat: 95% RH (non-condensing at 40°C (104°F))

Enclosure
IEC 529: Protection Provided by Enclosure: IP67
**Ordering Information**

**Type 8325**  Industrial Accelerometer
Includes the following accessories:
- DB 3333: Steel stud ¼"-28 UNF
- DB 3116: Cable gland
- Individual calibration chart

**Optional Accessories**

<table>
<thead>
<tr>
<th>Accessory</th>
<th>Description</th>
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</thead>
<tbody>
<tr>
<td>EA 2000:</td>
<td>Mounting plate</td>
</tr>
<tr>
<td>WG 0084:</td>
<td>Stainless steel conduit for cable</td>
</tr>
<tr>
<td>UA 1281:</td>
<td>Glue for mounting plates (-50 to +150°C (-58 to +302°F))</td>
</tr>
<tr>
<td>UA 1282:</td>
<td>Magnet kit (discs, glue, etc.)</td>
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Cables:
When ordering, indicate the order specification number in the table on the right that corresponds to the desired cable, connector and cable length in metres to be factory mounted.

**Example:** 8325-H corresponds to 10 metre of open-ended cable AC 0141 (125°C (257°F)) attached to the accelerometer.

For more information on cables and connectors, refer to the Industrial Transducer Overview Product Data (BP 1509). Call your Brüel & Kjær representative for ordering special cables and/or connectors.

Maximum cable length for signal transmission can be calculated from the following:

$$ Length (m) = \frac{3.75 \times 10^5}{kHz \times ms^2} $$

Where kHz is max. freq. and ms$^{-2}$ max. peak vibration level, e.g. measuring up to 10kHz on a machine vibrating at 75 ms$^{-2}$, allows a max. cable of 500 m (valid for a 10 mA supply and 200 pF/m cable, such as AC 0141).

**Length (m) for Signal Transmission**

<table>
<thead>
<tr>
<th>Cable/Connector</th>
<th>Temp.</th>
<th>Order Spec.</th>
</tr>
</thead>
<tbody>
<tr>
<td>AC 0141</td>
<td>125°C</td>
<td>- G (5m)</td>
</tr>
<tr>
<td></td>
<td>125°C</td>
<td>- H (10m)</td>
</tr>
<tr>
<td></td>
<td>125°C</td>
<td>- I (15m)</td>
</tr>
<tr>
<td>BNC</td>
<td>125°C</td>
<td>- F (1.5m)</td>
</tr>
</tbody>
</table>

Brüel & Kjær reserves the right to change specifications and accessories without notice.