

Product Data

Industrial Accelerometer — Type 8315

USES:

- Permanent vibration monitoring of a wide variety of machines in elevated temperature industrial environments

FEATURES:

- Withstands temperatures of up to 250°C

- Delta Shear® piezoelectric element configuration for low sensitivity to environmental influences
- Electrically balanced and insulated for low noise in strong electromagnetic fields
- Uni-Gain® sensitivity used, meaning all accelerometers are pre-adjusted to $\pm 2\%$ of their nominal sensitivity
- Optional permanently mounted cables to suit different applications
- Exceptionally rugged design

This piezoelectric absolute-vibration measuring accelerometer is part of a family of robust **industrial transducers** specially designed for use in heavy-duty and severe-service applications for measuring industrial machine vibrations.

It is suitable for use with the Type 3540 COMPASS system or other permanently installed machine condition monitoring systems.

General information on these transducers can be found in the overview product data sheet that covers industrial transducers.



General Application

This extremely rugged accelerometer is suitable for most practical vibration measurements on a wide range of machines. Because it can be used at temperatures of up to 250°C, it is an excellent 'general-purpose' industrial accelerometer.

For systems where a preamplifier is required to drive long cable lengths, Brüel & Kjær's charge amplifier Type 2661 is available.

Design Features

The 8315 employs the Delta Shear® piezoelectric element configuration which gives a high frequency response with low base strain, low thermal transient sensitivity and high sensitivity-to-mass ratio.

Uni-Gain® sensitivity is used by the 8315, which means that accelerometers can be interchanged without affecting the sensitivity, since all are pre-adjusted during manufacture to

within 2% of their nominal sensitivity.

The 8315 also has a balanced output. This together with the double-shielded twisted cable largely eliminates noise pick-up, such as that caused by electromagnetic interference, arc-welding and radio transmitters, and effectively removes the problem of ground-loops.

Various cable types, connectors and cable lengths are available for different applications.

Specifications 8315

General Specifications

All values are at 25°C, unless otherwise stated.

Dynamic

Sensitivity (axial):..... 10 pC/ms⁻², ±2%
 Measuring range (peak):..... 20000 ms⁻²
 Frequency response (see graph below):
 +10%0.1 to 8100 Hz
 +5%0.2 to 5900 Hz
 Mounted resonance frequency, typ.....27 kHz
 Transverse response:
 resonance frequency, typical9 kHz
 maximum sensitivity.....< 4%
 Temperature response..... see graph below
 Polarity positive
 (acceleration directed from base into body)

Environmental

Max. acceleration limits (peak):
 shock 20000 ms⁻²
 continuous vibration 20000 ms⁻²

Temperature range-74 to +250°C
 Base strain sensitivity, typical0.02 ms⁻²/μϵ
 (in base plane at 250 μϵ)
 Temp. transient sensitivity, typical..0.05 ms⁻²/°C
 (3 Hz LLF, 20 dB/decade)
 Electromagnetic sensitivity, typical 4 ms⁻²/T
 (50 Hz, 0.03 T)
 Acoustic sensitivity, typical0.001 ms⁻²
 (at 154 dB SPL, 2 to 100 Hz)
 Minimum leak resistance (20°C).....20000 MΩ
 Capacitance 4 nF (2-pin diff. output)

Physical

Weight (cable not included) 102 g
 Case material stainless steel AISI 904L
 Piezoelectric element construction:
 design configuration Delta-Shear
 material PZ23
 Mounting 3 x M4. ARINC

Accessories

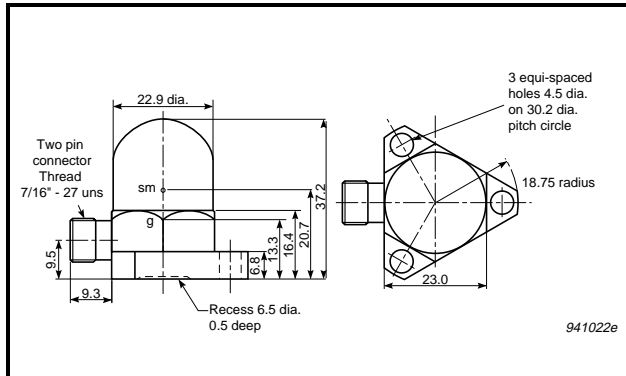
Accessories included:

3 M4 mounting screws..... YS8406
 3 Allen screws..... YS8406
 1 Hex-key..... QA0122
 1 10-32UNF x 0.5 in steel stud YQ2960
 1 template..... QA0146
 1 individual calibration chart..... BC0117

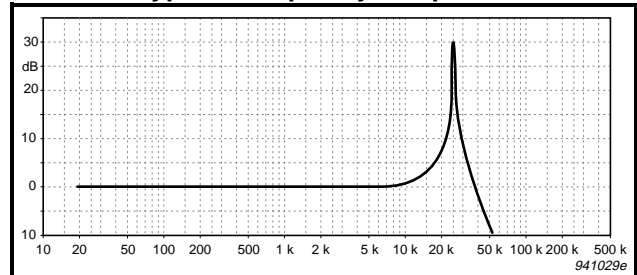
Accessories available:

Mounting plate WS0647
 Stainless steel conduit for cable..... WQ0084
 Mounting plate for conduit WQ0084 WA0113
 Glue for mounting plates..... WQ0732
 (-50 to +150°C)
 Video showing complete mounting BJ0203
 Cable options..... see "Ordering Information"

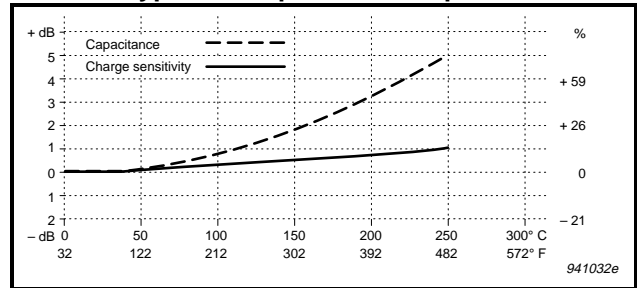
Mechanical Dimensions



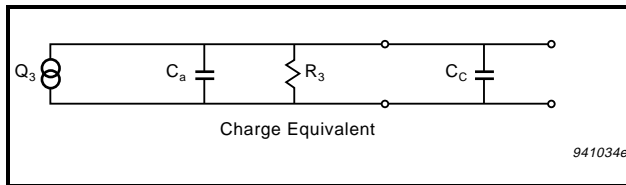
Typical Frequency Response



Typical Temperature Response



Electrical Connections



Ordering Information

When ordering, indicate the order specification number in the table on the right and cable length in metres that corresponds to the desired cable type and connector to be factory mounted.

Example: "8315-UA 1008-20 m" corresponds to 20 metres of open-ended cable AC 0077 (250°C) mounted to the accelerometer.

Call B&K for ordering special cables and/or connectors.

For more information on cables and connectors, refer to the overview product data sheet that covers industrial transducers.

Cable / Connector	Temp.	Order Spec.	
AC 0077	JP 0209	250°C	UA 1007
	open ended	250°C	UA 1008

Cable / Connector	Temp.	Order Spec.	
AC 0202	JP 0209	250°C	UA 1011
	JP 0210	250°C	UA 1012

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



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