

1 Description

Brüel & Kjær Accelerometer Type 5985-C with the build-in Line Drive preamplifier is based on the current modulating Constant Voltage Line Drive (CVLD) technique. It offers superior immunity to EMI, EMP and magnetic field interference. Moreover, the accelerometer's extreme robustness, hermetical sealing and wide temperature range makes Type 5985-C ideally suited for use in the most hostile environments, even in radiation-intensive environments such as nuclear power plants.

Another main feature of Type 5985-C is its reliable and proven Delta Shear® design, which provides excellent overall operational characteristics, a relatively high resonance frequency, high isolation from base strains and temperature transients and better sensitivity-to-mass ratio than similar techniques.

The following product data are typical values for Type 5985-C at approx. +23°C, unless measurement uncertainty or tolerance is specified. All uncertainty values are specified at 2σ (i.e., expanded uncertainty using a coverage factor of 2). Calibration data is traceable to the National Institute of Standards and Technology, USA and Physikalisch-Technische Bundesanstalt, Germany.

2 Dynamic Characteristics

2.1 Sensitivity	150 μA/g \pm10%
2.2 Dynamic Range	>100 dB
2.3 Max. output signal (peak)	10 g
2.4 Frequency Range	
2.4.1 \pm 10%	1Hz to 10kHz
2.4.2 \pm 5%	3 Hz to 5kHz
2.5 Mounted Resonance Frequency	>24 kHz
2.6 Transverse sensitivity	<5%
2.7 Transverse Resonance Frequency	>12 kHz

3 Electrical Characteristics

3.1 Warm up time (10% of final bias)	40 seconds
3.2 Bias current	+10 to +12 mA
3.3 Bias voltage	15 to 20 Vdc
3.4 Output impedance	>100 kΩ
3.5 Case to signal ground insulation	>50 MΩ

3.6 Noise

3.6.1	Noise (1 Hz BW) at 100 Hz	<50 µg
3.6.2	Noise (1 Hz BW) at 1 kHz	<10 µg
3.6.3	Noise (1 Hz BW) at 10 kHz	<10 µg

4 Environmental Characteristics

4.1	Temperature range	-10 to + 100°C (14 to 212°F)
4.2	MTBF	> 100 000 hrs
4.3	Temperature transient sensitivity	< 0.005 g/°C
4.4	Acoustic Sensitivity	<30 µg (in any 1/3 oct. band 80 to 10kHz)
4.5	Magnetic sensitivity	<40 µg/Gauss
4.6	Base Strain Sensitivity (@ 250 µε)	<0.001 g/µε
4.7	Radiation, silicon (total dosage)	10 MRAD
4.8	Maximum non-destructive shock	Witstands Grade A, Class 1, Type A shock
4.9	Humidity	Hermetically sealed

5 Physical Characteristics

5.1	Case material	Stainless Steel, AISI 316 L
5.2	Sensing element	PZ 23
5.3	Construction	Delta Shear®, Centre Bolt Mounted
5.4	Weight (Without cable)	135 grams
5.5	Mounting Surface Flatness	< 8 µm
5.6	Mounting Surface Roughness	< 3 µm
5.7	Mounting (10- 32 UNF- 2B Captive Screw)	
5.7.1	Thread	10-32 UNF-2B
5.7.2	Length	1 ¼"
5.7.3	Mounting Torque	1.8 Nm

5.8 Integral Cable

5.8.1 Connector	Open-End
5.8.2 Length	24 ft or 7.3 m
5.8.3 Material	Poly-ethylene Co-polymer

6 Calibration Data Supplied

6.1 Reference Sensitivity (@ 160 Hz and 24°C)	$\mu\text{A}/\text{ms}^{-2}$ and $\mu\text{A}/\text{g}$
6.2 Frequency Response	10 Hz to 10 kHz
6.3 Acceleration Limit	
6.3.1 Distortion at 2g RMS	%
6.4 Noise (RMS, BW = 1 Hz)	
6.4.1 Noise at 100 Hz, 1 kHz, 10kHz	μg

