

# **PRODUCT DATA**

# Brüel & Kjær<sup>®</sup> Piezoelectric Accelerometers CCLD Underwater Accelerometer Type 5958-A

This rugged underwater accelerometer is suitable for most practical vibration measurements in wet or seawater conditions, such as seabed installations, submersible craft, offshore oil installations, sea-going vessels, etc. In addition to use in conditions of extreme humidity, it is also ideal for monitoring machines that are immersed in various types of fluids such as those found inside gearboxes, pumps, pipelines, etc.

#### Uses

- Underwater measurements to 450 meters depth
- Measurement in harsh environments wet, submerged, or oily environments

#### Features

- Low impedance CCLD<sup>\*</sup> preamplifier
- · Electrically insulated and internally shielded
- Integral cable
- Corrosion resistant
- · Highly resistant to oil, solvents and other fluids

### Characteristics

The transducer features an integral cable terminating in a BNC connector. The accelerometer and cable jacket material is highly resistant to oils, solvent, fats, greases and gasoline. Standard cable length is 10, 30 and 50 metres. For individual cable lengths up to 200 metres, please consult your local sales representative.



The construction of Type 5958-A is a DeltaShear<sup>®</sup> design, which incorporates three piezoelectric elements and three masses arranged in a triangular configuration around a centre post. This design gives a high sensitivity-to-mass ratio, a relatively high resonance frequency and high isolation from base strain and temperature transients.

#### Calibration

Each transducer is individually calibrated using state-of-the-art random FFT technology, providing a 1600-point high-resolution calibration (magnitude and phase) ultimately giving a unique characterisation and securing the integrity of the vibration measurement.

#### Fig. 1 Typical amplitude response of Type 5958-A



#### Individual Frequency Response

\* Constant current line drive, also known as DeltaTron<sup>®</sup> (ICP and IEPE compatible)

All values are typical at 25 °C (77 °F) unless measurement uncertainty is specified.

	UNIT	5958-A-010	5958-A-030	5958-A-050	
	DYNAMIC CHARAC	TERISTIC			
Voltage Sensitivity (@ 159.2 Hz)	mV/ms <sup>-2</sup> (/g)	1 (10) ±5%			
Measuring Range	ms <sup>-2</sup> (g)	± 5000 (500)			
Frequency Response		See typical amplitude response			
Mounted Resonance Frequency	kHz	45			
Amplitude Response ±10%	Hz	0.3 to 11000			
Residual Noise (1 Hz to 22 kHz)	ms <sup>-2</sup> RMS	<0.015			
Transverse Sensitivity	%	<5			
Transverse Resonance Frequency	kHz	14			
ELECTRICAL CHARACTERISTICS					
Bias Voltage at Room Temperature	V DC	12 ±1			
Bias Voltage in Temperature Range	V DC	10 to 15			
Output Impedance	Ω	<100			
Power Supply	mA	3 to 20			
Unloaded Supply Voltage	V	24 to 30			
Insulation Resistance (case to shield)	MΩ	>10			
EN	/IRONMENTAL CHAR	ACTERISTICS			
Temperature Range	°C (°F)	- 50	to +100 (– 58 to +	·212)	
Enclosure Rating		IP 68			
Max. Pressure	Pa	4.5 × 10 <sup>6</sup>			
Max. Operational Sinusoidal Vibration	ms <sup>-2</sup> (g) pk	± 5000 (500)			
Max. Operational Shock	ms <sup>-2</sup> (g) pk	± 20000 (2000)			
Base Strain Sensitivity @ 250 $\mu\epsilon$	ms <sup>-2</sup> (g)/μ strain	0.05 (0.0051)			
Thermal Transient Sensitivity	ms <sup>−2</sup> /°C		<1		
Magnetic Sensitivity (50 Hz, 0.038 Tesla)	ms <sup>-2</sup> (g)/T		7 (0.71)		
PHYSICAL CHARACTERISTICS					
Dimensions		1/4" - 28 1/4" - 28 UNF - 28	55 mm	↓ 5.5 mm ø	
				060206	
Weight in Air, including 0.15 m cable	gram (oz)	44 (1.55)			
Case Material		Stainless steel AISI 904L			
Jacket Material – Cable		Polyurethane			
Jacket Material – Housing		NBR (nitrile rubber)			
Length of Integral Cable	m (ft)	10 (32.8)	30 (98.4)	50 (164.0)	
Connector		BNC			
Mounting Stud		1/4-inch- 28 UNF-2A			

#### COMPLIANCE WITH STANDARDS

The CE marking is the manufacturer's declaration that the product meets the requirements of the applicable EU directives.

CM mark indicates compliance with applicable ACMA technical standards – that is, for telecommunications, radio communications, EMC and EME.

China RoHS mark indicates all items shipped to China have to be marked as to whether the items are compliant or non-compliant with the Chinese restriction of hazardous substances.

WEEE mark indicates compliance with the EU WEEE Directive.

## Ordering Information

Туре 5958-А-010	Underwater Accelerometer, 1 mV/m <sup>s</sup> , BNC (M) connector,
Туре 5958-А-030	Underwater Accelerometer, 1 mV/m <sup>s</sup> , BNC (M) connector, 30 m cable
Туре 5958-А-050	Underwater Accelerometer, 1 mV/m <sup>s</sup> , BNC (M) connector, 50 m cable

Type 5958-A accelerometers include:

Carrying boxCalibration Chart

CALIBRATION SERVICES		
ACC-M-CAI	Accelerometer, monoaxial, Accredited Initial Calibration	
ACC-M-CAF	Accelerometer, monoaxial, Accredited Calibration	
ACC-M-CTF	Accelerometer, monoaxial, Traceable Calibration	
ACC-M-EW- CNT	Accelerometer, monoaxial, Extended Warranty Contract	

Additional accessories, cables and services are available (see www.hbkworld.com)

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