BXXA51 SERIES

IEPE Low-Noise High-Sensitivity Isolated Uniaxial Accelerometer

B11A51 | B12A51

5 / 10 V/g · ±1 / ±0.5 g · 0.1 … 400 Hz · 1.1 kg · MIL-C-5015 2-pin · Case isolated

The BXXA51 series are high-sensitivity, low-noise uniaxial IEPE accelerometers with a piezoelectric ceramic shear sensing element and wide-bandwidth frequency response. High-grade ceramics deliver long-term output stability, and a dedicated low-noise, low-impedance ASIC provides good low-frequency response and a high signal-to-noise ratio. A specially designed sensing core and double-shielded construction maximize sensitivity while minimizing electrical interference. The laser-welded stainless steel housing provides high sealing integrity.

FEATURES

- High-sensitivity design with dedicated low-noise ASIC
- Special sensing core maximizes sensitivity-to-noise ratio
- Good low-frequency response
- Double-shielded construction rejects common-mode interference

TYPICAL APPLICATIONS

- Bridge, building and civil structural measurement
- Measurements requiring a low noise floor

SPECIFICATIONS

MODEL	B11A51	B12A51	UNIT
PERFORMANCE			
Sensitivity (±5%) [1]	5000	10000	mV/g
	500	1000	mV/(m/s²)
Measurement range	±1	±0.5	g
Frequency range, ±5%	0.1–400		Hz
Frequency range, ±10%	0.05–500		Hz
Resonance frequency [2]	≥1.2k		Hz
Broadband resolution [2]	0.000001		g rms
Spectral noise [2] @ 10 Hz	0.05	0.06	μg/√Hz
@ 100 Hz	0.01	0.01	μg/√Hz
@ 1 kHz	0.003	0.004	μg/√Hz
Non-linearity [3]	≤1		%
Transverse sensitivity	≤5		%
Discharge time constant [2]	≥10		s

Specifications continued on next page

SPECIFICATIONS (CONTINUED)

MODEL	B11A51	B12A51	UNIT
ENVIRONMENTAL			
Sine vibration limit [4]	20		g rms
Shock limit [4]	100		g pk
Temperature range	-40 ~ 85		°C
	-40 ~ 185		°F
Temperature response [2]	See Fig. 3		—
Sealing	Laser welded, IP68		—
ELECTRICAL			
Excitation voltage	20 – 30		VDC
Constant current excitation	2 – 20		mA
Output impedance	≤100		Ω
Output bias voltage	8 – 12		V
Electrical isolation	$\geq 1 \times 10^8$		Ω
PHYSICAL			
Sensing element	Piezoelectric ceramic, shear		—
Housing material	Stainless steel		—
Size (ø × height)	ø57.2 × 71		mm
	ø2.252 × 2.795		in
Weight [2]	1100		g
	38.801		oz
Electrical connector	MIL-C-5015 2-pin, top		—
Mounting thread	1/4-28 × 5.6		—
Mounting torque	3.5		N·m
TEDS model number [5]	21151A	21251A	—

1 Measured at 160 Hz, 24 VDC, 4 mA excitation.
2 Typical value.
3 Per JB/T 6822-2018 §7.12.1 vibration testing method.
4 Limit of the mechanical structure in a non-powered state, not a working limit.
5 Dimensions may change slightly with the TEDS option.
— Not specified.

TYPICAL RESPONSE

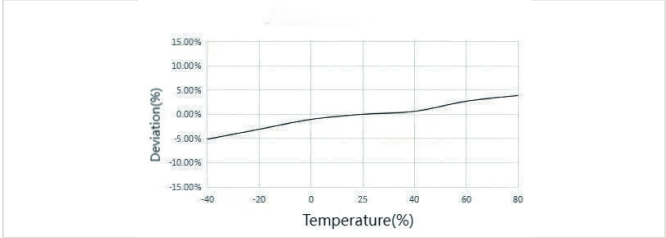

Fig. 3 — Typical temperature response

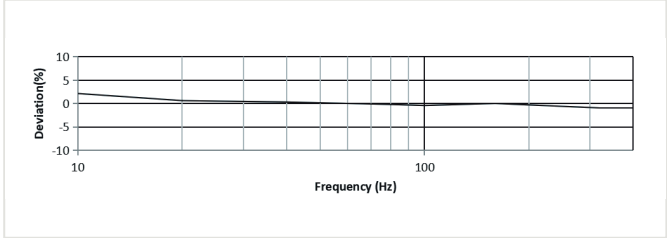

Fig. 4 — Typical frequency response

DIMENSIONS

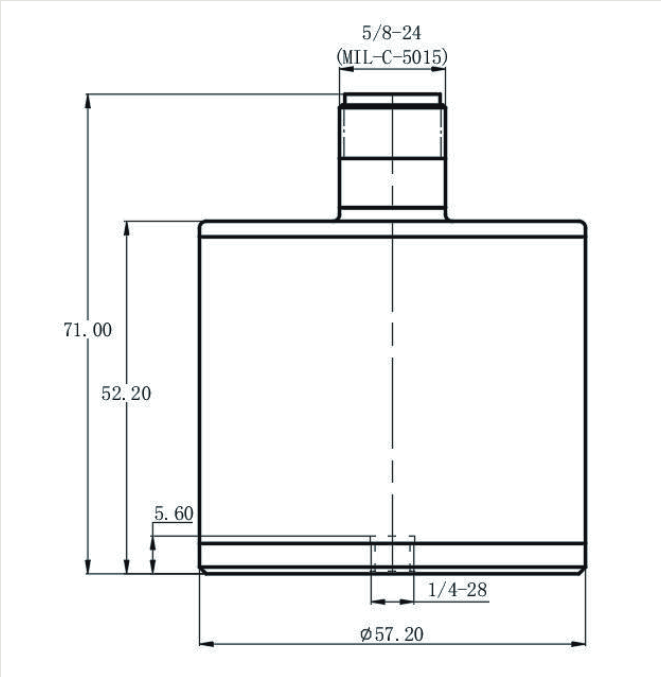

Fig. 2 — Dimensions, mm (all models)

RECOMMENDED ACCESSORIES

Cable **K12AH02**

CONNECTOR PIN-OUT

A	Signal +
B	Ground

ORDERING INFORMATION

ORDER	SENSITIVITY	RANGE	FREQUENCY ±5%	SHOCK LIMIT
B11A51	5000 mV/g	±1 g	0.1–400 Hz	100 g pk
B12A51	10000 mV/g	±0.5 g	0.1–400 Hz	100 g pk

SUPPLIED ACCESSORIES

– Product calibration certificate

CALIBRATION & COMPLIANCE

Every sensor is calibrated at 160 Hz (24 VDC, 4 mA) before shipment and ships with a product calibration certificate documenting measured sensitivity.

Vibration testing per JB/T 6822-2018. LNS Intelligent Technology is an ISO 9001:2015 certified manufacturer.

In the interest of continuous product improvement, LNS reserves the right to change specifications without notice. Values shown are typical unless stated otherwise.