

# BB-HS-104T2505402

## Temperature / Low-power Vibration Sensor

250 mV/g Accelerometer, 0-3.3V Output, Ultra Low-power, M12



### Features

- Low voltage
- Ultra-low power consumption
- Temperature output
- M12 connector
- Voltage output proportional to acceleration (optional signal conditioning cable available)
- Use with Advantech Wizzard wireless sensing kits and nodes (sold separately)

### Introduction

This 250 mV/g accelerometer is specifically selected for use with Advantech's Wizzard Wireless Mesh Sensing Solutions (such as node model BB-WSD2M3101P2K). The transmitter vibration/temperature sensor is manufactured to high industrial specifications and rigorous ISO quality standards.

Optional magnetic mounting base model BB-MH112-1A provides a secure, semi-permanent point of connection to flat or curved surfaces with an operating temperature up to +120 °C (+248 °F).

The sensor provides a voltage signal proportional to the acceleration measurement. Use optional cable# BB-WSDCBL-ACL-2 to rectify and average the sensor output. The cable has an M12 connector and also provides signal conditioning.

Model# BB-WSD2M3101P2K is an industrial mesh node featuring an M12 connector and two second Power Out for sending vibration and temperature data to an IoT network. Battery power is provided on M12 connector pin for two seconds before taking each reading. The node can be used to supply power to low-power sensors that require up to 2 seconds to become stable including sensor# BB-HS-104T2505402.

### Ordering Information

Model No.	Description
BB-HS-104T2505402	Ultra Low-Power Temperature/Vibration Sensor

### Accessories – Sold Separately

BB-MH112-1A – Magnetic mounting base  
(One base included with Wizzard Condition Based Monitoring Kit #BB-WSK-CBM2.)

BB-WSDCBL-ACL-2 – M12 cable, AC to DC conversion, signal conditioning  
(One cable included with Wizzard Condition Based Monitoring Kit #BB-WSK-CBM2.)

BB-WSD2M3101P2K – Wizzard Mesh industrial node, M12, 2s power out  
(One node included with Wizzard Condition Based Monitoring Kit #BB-WSK-CBM2.)

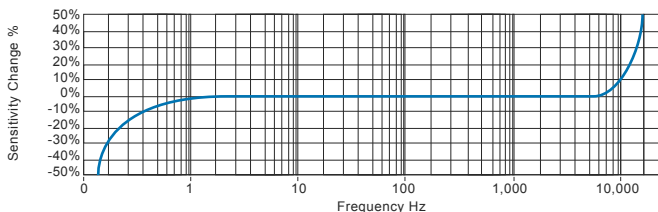


AC-DC M12 Cable  
# BB-WSDCBL-ACL-2  
(optional, sold separately)

M12 Industrial Node  
# BB-WSD2M3101P2K  
(optional, sold separately)



### Typical Frequency Response (at 250 mV/g)



### Industries

- Building Services
- Pulp & Paper
- Mining
- Metals
- Utilities
- Automotive
- Water
- Pharmaceutical

### Applications

- Fans
- Motors
- Pumps
- Compressors
- Centrifuges
- Conveyors
- Air Handlers
- Gearboxes
- Rolls
- Dryers
- Presses
- Cooling
- VAC
- Spindles
- Machine Tooling
- Process Equipment

### Wizzard Condition Based Monitoring Starter Kit

Model# BB-WSK-CBM-2

#### Included Hardware

- (1) Wizzard Mesh Wireless Sensor Node Model# BB-WSD2M3101P2K (2 analog inputs, M12 connector, external antenna)
- (1) BB-HS-104T2505402, ultra-low power temperature/vibration sensor
- (1) BB-MH112-1A, magnetic mounting base
- (1) BB-WSDCBL-ACL-2, M12 cable with signal conditioning
- (1) SmartSwarm 342 Ethernet Network Gateway – with Wizzard board.  
(Note: one gateway supports up to 100 wireless sensor nodes.)

#### Included Software

Cloud license for WebAccess/DMP device management and configuration tool.  
Node-RED flow with Web server for:

- Real time data display
- Historian trending
- Visual and email/SMS alerts
- External data source integration (weather, Twitter feeds, and more)



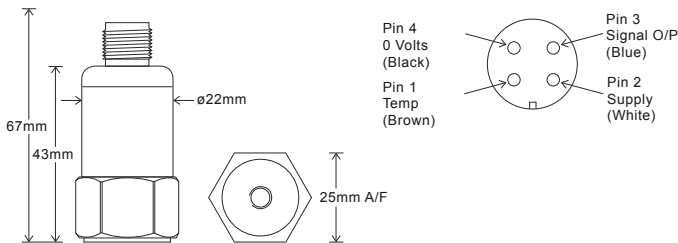
BB-HS-104T2505402

## Specifications

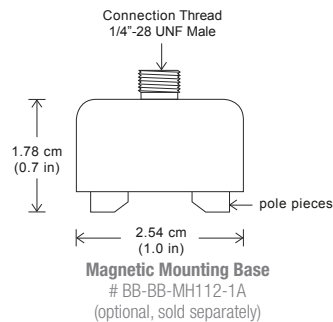
Technical Performance	
Mounted Base Resonance (resonant frequency)	25 kHz (1,500 kcpm) (nominal)
Sensitivity	250 mV/g ± 8% Nominal 80 Hz at +22 °C
Frequency Response	0.3Hz (18 cpm) to 10 kHz (600 kcpm) ± 10%
Isolation	Base isolated
Range	± 8g @ 3.3 power
Transverse Sensitivity	< 5%
Amplitude Linearity	± 1.0%
Temperature Output	-10.9 mV/°C standard °C - Option 150°C 3.3V supply, min. - Output 0 °C 2.1V 10 °C 1.99V
Temperature Scaling - sensor and Model BB-WSDCBL-ACL-2 cable (see ordering table)	0V = 365.54 °F 3.3V = -176.688 °F
Vibration Scaling - sensor and Model BB-WSDCBL-ACL-2 cable (see ordering table)	1.4V = 0g 3.3V = 7.6g
Mechanical	
Case Material	Stainless steel
Sensing Element/Construction	PZT/Shear
Mounting Torque	8Nm
Weight	125 gm (nominal), body only
Screed Cable Assembly	HS-AC010 - straight HS-AC011 - right angle
Mounting Threads	1/4-28" UNF male
Cable / Connector	M12
Magnetic Mounting Base (optional, sold separately)	1" diameter 1/4-28" UNF male thread 40 lb. pull strength 0.7" height

Electrical	
Electrical Noise	< 500µg
Power Requirements	3.3V nominal
Current Consumption	100µA nominal at 5V supply (60µA at 1.8V)
Bias Voltage	50% of supply voltage
Setting Time	1 second
Output Impedance	100 Ohms, maximum
Case Isolation	>10 <sup>8</sup> Ohms at 500V
Environmental	
Operating Temperature Range	-50 to +125 °C
Sealing	IP67
Maximum Shock	5000g
Regulatory – Approvals / Standards / Directives	
EMC: EN 61326-1:2013	
RoHS-3 (2011/65/EU amended by 2015/863/EU), CE, WEEE	

### Mechanical Drawing - Sensor



### Mechanical Drawing - Magnetic Mounting Base



### Installation Detail

Vibration sensor should be firmly fixed to a flat surface (spot face surface may be needed to be produced and cable anchored to sensor body.)

