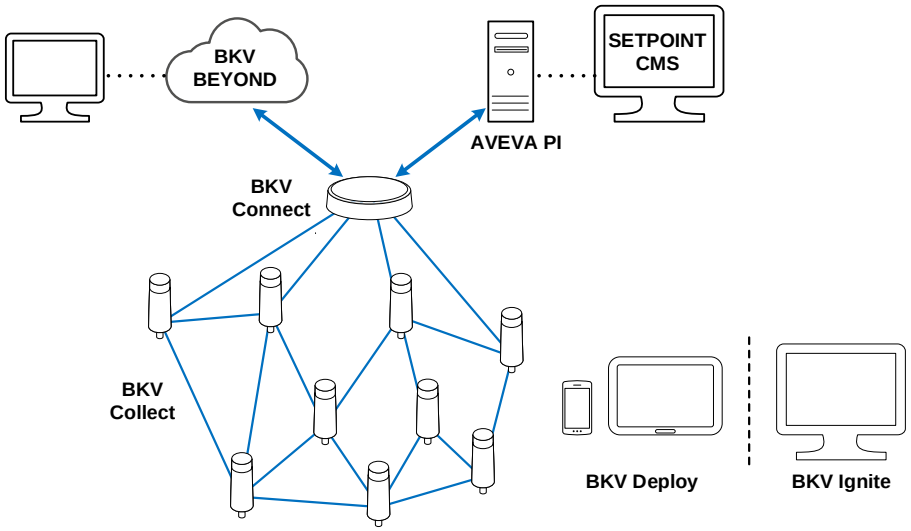
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Product specifications and ordering information
BKV Wireless Sensor Solution



Overview

When there is a need for high density of connected devices, a mesh network is the perfect solution for connectivity. In a mesh network, devices transmit their own sensor data and act as a relay for other devices. Relays provide the best and most efficient communication path to a gateway.

The BKV Connect 1 & 2 gateways connect a mesh network of a few to several dozens of wireless devices to a backend. They exchange data with the mesh network and can process, store, and send data to local or cloud backends. BKV Connect 1 & 2 can be connected to the internet over a wired Ethernet connection or wirelessly over a Wi-Fi or cellular connection (LTE CAT M1 or 2G).

The BKV Connect 2 (gateway in protective enclosure) can be used in outdoor or industrial environments that require a higher degree of water and dust protection.

The BKV Collect 6 & 6 Ex is a wireless battery-operated sensor for condition monitoring and predictive maintenance. It measures tri-axial vibration and surface temperature of rotating equipment, such as pumps, motors and compressors.

Abnormal machine vibrations or high temperatures may give early signs of failure due component imbalance, misalignment, wear or improper use of equipment.

The BKV Collect 6 & 6 Ex operates in a mesh network and transmits sensor data directly or via other BKV Collect 6 & 6 Ex to a BKV Connect 1 & 2. Typically, the data is sent from the BKV Connect 1 & 2 to a backend (BKV BEYOND or Setpoint CMS based on AVEVA PI) for storage and further analysis. Once the BKV Collect 6 & 6 Ex is switched on, it starts automatically to measure and transmit data at pre-configured intervals.

Depending on the configuration a BKV Collect 6 & 6 Ex can send raw vibration data and/or pre-calculated values, such as RMS velocity, Fast Fourier Transform (FFT), Crest factor and many more via the gateway.

BKV Collect 6 Ex (wireless sensor for hazardous areas) variant is designed for vibration and temperature monitoring of rotating equipment in potentially explosive atmospheres.

For further information, read the instructions.

This Quickstart Guide is no substitute for the detailed instructions.
Please make sure to read the detailed instructions in the BKV Wireless Sensor Solution Instructions or at www.bkvibro.com.

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Specifications

For additional information and specifications refer to the following documents:

Document	Number
BKV Wireless Sensor Solution, Instructions	C108377
BKV Connect 1 & 2 / BKV Collect 6 & 6 Ex, Quickstart Guide	C108376

BKV Connect 1 & 2	
Type	Gateway to connect BKV Collect wireless sensors
Mesh network wireless communication	2.4 GHz ISM band low energy mesh radio network (maximum power +4dBm)
Power source	BKV Connect 1: 5V DC BKV Connect 2: Voltage range 85-264 VAC, frequency range 47-440 Hz, power consumption 30 VA maximum
Connectivity	2G, LTE CAT M1 Wi-Fi 2.4 GHz Ethernet RJ45
Cyber security - Sensor to gateway communication	All communication, including protocol headers, is protected by 128-bit encryption key.
Cyber security - Gateway/App to host network communication	Usernames and passwords (unique to each gateway) Iptables for firewall MQTT over HTTPS/Secure Websockets using TLS 1.2
Sensor to gateway (direct) maximum range (depending on plant topology)	Theoretical: Up to 100 m (328 ft) with low complex data and infrequent data transmission Typical: Up to 50-60 m (164-197 ft) with default configuration Obstructions: < 10 m (< 32.8 ft) in case of obstructions (concrete walls, metal covers, etc.)
Dimensions	BKV Connect 1: ø95 x 18.3 mm (ø3.74 x 0.72 in) BKV Connect 2: 180 mm x 130 mm x 81 mm (7.1 x 5.12 x 3.19 in) (excluding cable sealing clamps)
Weight	BKV Connect 1: approx. 340 g (12 oz) BKV Connect 2: approx. 640 g (22.6 oz)
Material	BKV Connect 1: Polycarbonate BKV Connect 2: Polycarbonate & TPE (gaskets)
Operating temperature range	BKV Connect 1: 0°C to +50 °C (32°F to +122 °F) BKV Connect 2: -20°C to +50 °C (-4°F to +122 °F)
Relative humidity range	20 - 90% (non condensing)
Storage temperature range	-40°C to +85 °C (-40°F to +185 °F)
Degree of protection	BKV Connect 1: IP20 BKV Connect 2: IP66/ IP67

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BKV Collect 6 & 6 Ex	
Type	Triaxial MEMS based vibration sensor with integrated temperature measurement
Vibration measurement	Acceleration: RMS, peak, peak-peak Velocity: RMS, peak, peak-peak Others: Kurtosis, Crest factor and raw data (time waveform)
Frequency range	10 - 6300 Hz +- 3dB
Dynamic range	2, 4, 8 or 16g (configurable)
Sampling rate	26.7 kHz
Default configuration	Triaxial acceleration and temperature measurement A-RMS, Crest factor and v-RMS (10-1000 Hz): every 12 hours Raw data (time waveform): every 24 hours Sample amount: 36.864 per axis = 110.592 in total Dynamic range: 4G
Temperature measurement range	-40°C to +105 °C (-40°F to +221 °F)
Mesh network wireless communication	2.4 GHz ISM band low energy mesh radio network (maximum power +4 dBm)
Power source	Non replaceable 3.6V A lithium thionyl chloride (LI-SOCI2) battery
Battery lifetime	Based on default configuration up to 5 years (depending on configuration and surrounding conditions). Main effect on battery life is caused by: Ambient temperature, update frequency, data processing, amount of samples, sending data and routing of sensors
Cyber security - Sensor to gateway communication	All communication, including protocol headers, is protected by 128-bit encryption key.
Hazardous area rating (only for BKV Collect 6 Ex)	ATEX/IECEx: II 2 G Ex ib IIC T4 Gb II 2 D Ex ib IIIC T135°C Db 40°C ≤ Ta ≤ +60°C | -40°F ≤ Ta ≤ +140°F
Dimensions	78.5 x 28 mm (3.09 x 1.1 in)
Weight	129 g (4.55 oz)
Mounting	Inbuilt M8 threaded stud
Material	Body: 316 stainless steels Top cap: PE HD
Operating temperature range	-40°C to +85 °C (-40°F to +185 °F)
Storage temperature range	Not exceeding +30°C (86° F) is recommended
Degree of protection	IP67

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Ordering Information

BKV Connect 1
Gateway

BKV Connect 2
Gateway in protective enclosure

BKV Connect 2 NC
Gateway in protective enclosure NC (no cellular option) version

BKV Collect 6
Wireless sensor

BKV Collect 6 Ex
Wireless sensor for hazardous areas

AC-277
Magnetic epoxy mount adapter

AC-370
Glue mount adapter

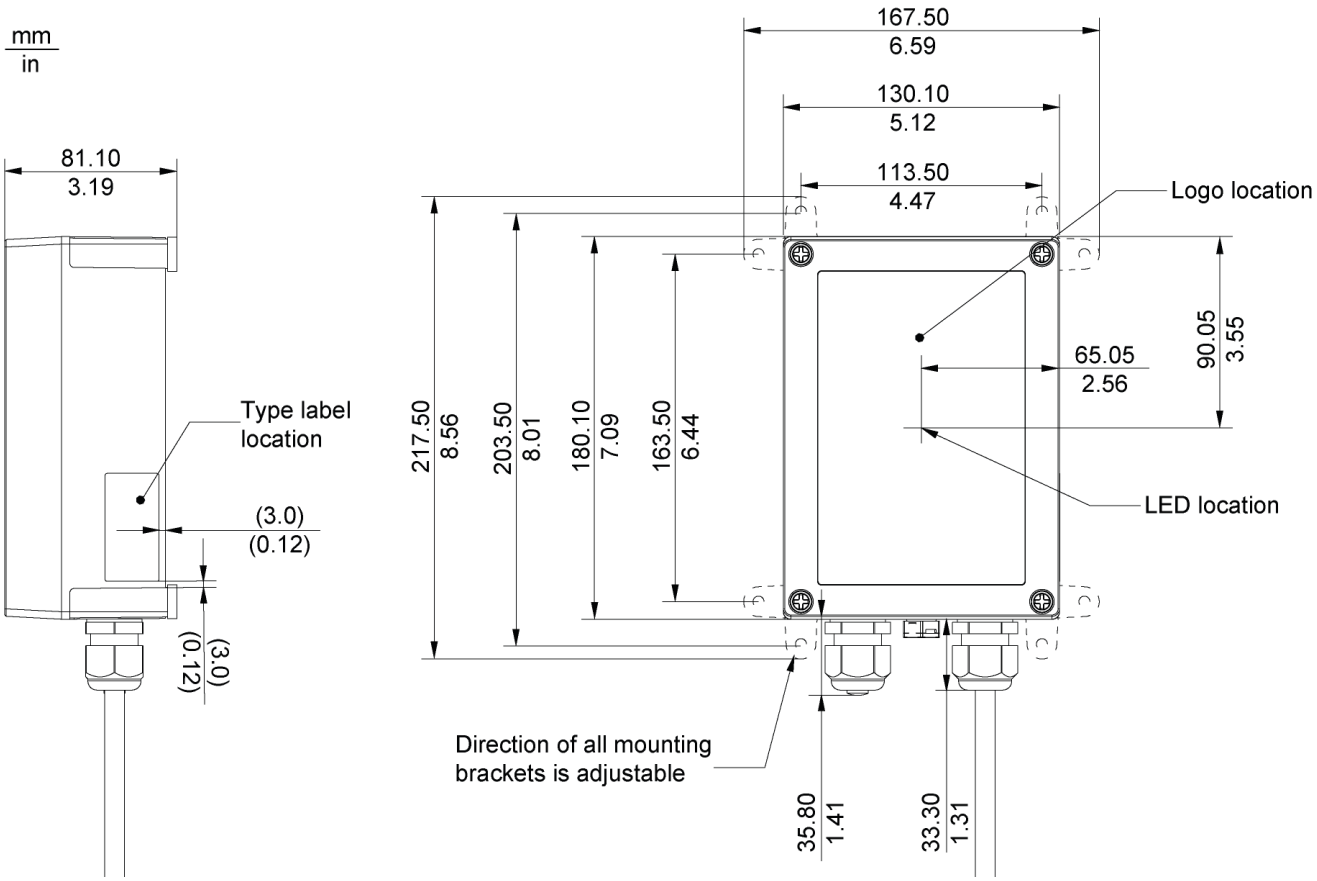
AC-371
Nut adapter

BKV Ignite
Access to pre-configuration tool BKV Ignite

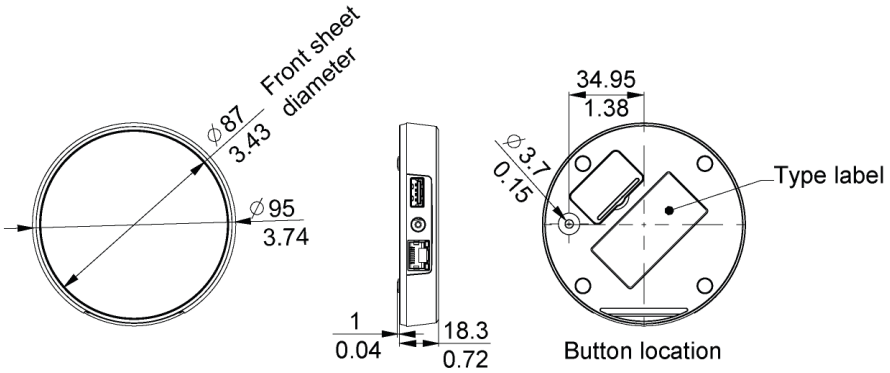
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Dimensions

BKV Connect 2



BKV Connect 1

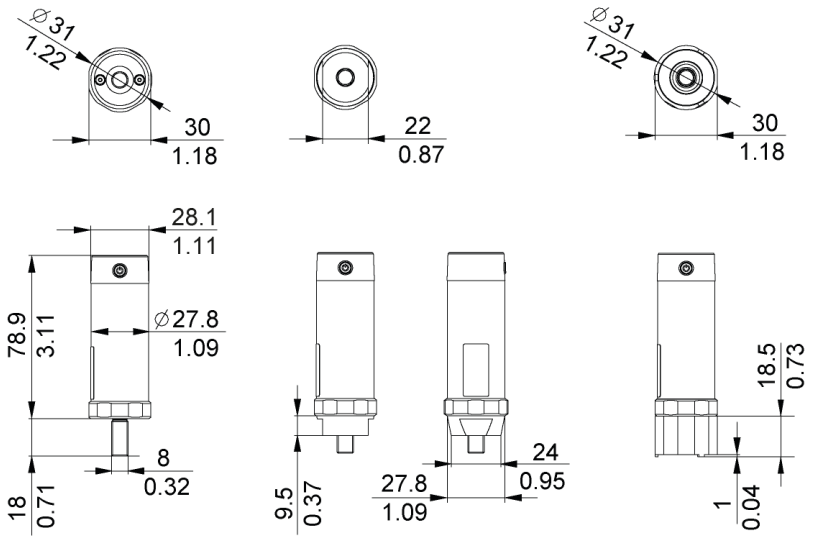


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Dimensions
BKV Collect 6 & 6 Ex

mm
in



Without adapter | Nut adapter | Glue mount adapter

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