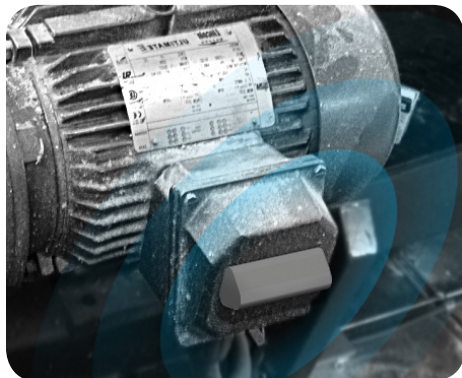


BEEKs™ Industrial Beacons



BLE BEACONS FOR CONDITION MONITORING, ASSET LOCATION OR OTHER APPLICATIONS

- **Accurate** - High resolution, wireless vibration and temperature sensor efficiently provides insights to equipment status.
- **Multi-Purpose** - Used as promotional / way-finding beacons or industrial sensor network.
- **Rapid Implementation** - Gather real-time data on item location and equipment condition with minimal infrastructure.

TECHNOLOGY HIGHLIGHTS:

- Bluetooth Smart 4.1 compliant beacons
- Highly accurate sensors to monitor vibration and temperature
- New data every 2 minutes
- Up to 3 years battery lifetime
- Over-the-air central management via Bluzone and BluFi™
- Fast and easy roll-out, equipment agnostic

BEEKs™ Bluetooth Low-Energy (BLE) beacons are among the most advanced beacons in the industry.

HID Condition Monitoring Services include a range of specialized BEEKs sensor beacons for capturing vibration and temperature. This sensor data is sent via BluFi gateways to the Bluzone Cloud to perform operational analysis for motorized equipment performance and operating behavior. Alerts according to policy are received via e-mail or web service.

Condition monitoring beacons with advanced condition monitoring cloud services aims to warn about future equipment failure by the utilization of AI algorithms evaluating vibration sensor trends over time. Equipment agnostic, high-resolution, 3-axis vibration and temperature monitoring provides anomaly detection that indicates when a piece of rotating machinery has deviated from its normal operating state, which can be used in the inspections workflow to improve maintenance practices. High-bandwidth raw sensor data can also be provided for further analysis by third-party tools.

Industrial beacons with status monitoring cloud services provide information on start or stop of (vibrating) equipment,

temperature being outside a given range, etc. BEEKs beacons can easily be retrofitted on almost any type of equipment to receive immediate wireless monitoring.

BEEKs can be centrally managed remotely through the Bluzone™ cloud to transfer new messages, firmware updates, policies and battery status checks. Their unique design allows

BEEKs to broadcast reliably even in densely populated WiFi environments.

In addition to Industrial and Condition Monitoring, BEEKs beacons are also available in multiple form factors and sensor configurations for other use cases; ID badges for Location Services or with anti-tamper sensors to raise an alarm upon removal. Being fully Apple iBeacon and Google Eddystone compatible, BEEKs beacons may also be used for any standard beacon application that provides location based promotional or way-finding services to smartphone users.

The extensible architecture allows organizations to combine deployments of Condition Monitoring with Location Services and/or promotional applications as needed.

APPLICATION AREAS:

Condition Monitoring (requires Bluzone™ cloud SaaS)

- Wireless status info on motorized equipment (on/off)
- Fault detection, based on vibration trends or temperature
- Reporting of equipment duty cycles
- Cold chain applications

Real-time location for assets (requires Bluzone™ cloud SaaS)

- Indoor position tracking of assets (Tools, portable equipment, vehicles)
- Position based alerting, heat-maps etc.

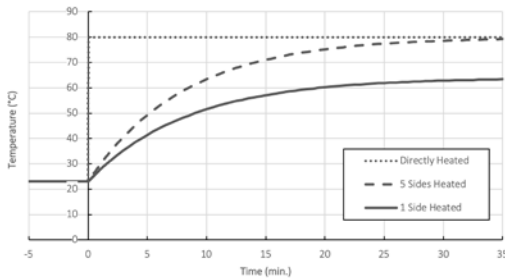
Retail advertisement

- BEEKs beacons may be used in iBeacon and/or Eddystone mode for advertising messages or location based services
- Central provisioning or monitoring via BluFi and Bluzone optionally possible

SPECIFICATIONS

BEEKs CM v2 Temperature Sensor Details [80° C input starting from ambient (23° C)]

Part	Input	Time constant (63% steady state)	Steady state offset
Temperature sensor installed on board	Oil bath, fully submersed	0.8 sec	0°C
Temperature sensor installed in beacon	Temperature chamber (5 sides heated)	8.1 min	0°C
Temperature sensor installed in beacon	Hot plate (1 side heated, 4 sides ambient cooled)	6.3 min	-16.3°



	BEEKs	
	Industrial v2	CM v2
Base Model Number	BVBI45G2	BVCM45G2
ELECTRONIC		
Bluetooth communication	Bluetooth Low Energy 4.1, 2.4 GHz ISM	
BLE Protocols	Eddystone, iBeacon, sBeacon	
Sensitivity	-97dBm	
Transmission power	-40dBm to +5dBm (~3 m to ~150 m line of sight range)	
Processor type	ARM Cortex M3 and M0	
Data rates	1Mbit/s / 2Mbit/s	
Memory	55KB Flash	
Sensors	Motion (+/- 8 g), Temperature -13° to +185° F (-25° to +85° C)	Motion, Vibration (3-axis, up to 25.6 KHz, +/- 64 g max. dynamic range, 16-bit), Temperature -13° to +185° F (-25° to +85° C)
PHYSICAL		
Length x Width	2.36 in x 0.83 x 0.98 in (60 x 21 x 25 mm)	
Mounting Method	3M VHB adhesive sticker	Epoxy glue (for Advanced Condition Monitoring)
Housing Material	Polycarbonate and ABS	
Color	Grey	
Weight	1 oz (28 g)	1.37 oz (39 g)
BATTERY		
Type	3.6V / 2600mAh - Primary Lithium	
Lifetime (depending on utilization)	up to 3 years	
CHEMICAL AND MECHANICAL RESISTANCE		
Water	IP67, 68° F (20° C), 3.3 ft (1 m) x 1 h	
Withstands Exposure To	Water and UV resistant	
THERMAL		
Storage	-22° to +185° F (-30° to +85° C)	
Operating Temperature	-13° to +185° F (-25° to +85° C)	
OTHER		
Speciality	General purpose industrial beacon for asset real-time location tracking and basic motion, on/off, and temperature (Status Monitoring SaaS required).	Condition Monitoring beacon for AI fault detection, epoxy potted, 25.6 kHz raw data streaming, vibration trend analysis (Advanced Condition Monitoring SaaS required). Also applicable to basic motion (on/off) and temperature (Status Monitoring).
Standards	FCC / CE / JRF / IC; BLE	
Options	512 KB Flash memory (for more advanced internal recording and machine learning with accurate per minute timestamp recordings), Epoxy glue (e.g. Loctite AA 330 or Devcon 5 minutes), 3M VHB tape	
Box Size	10 pcs.	
Warranty	1 year	



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