BoB Assistant V2 sensor

Presentation

The BoB Assistant V2 sensor is a LoRaWAN class A sensor that uses a disposable 3.6V A-type battery as power supply, and includes an internal antenna.

BoB Assistant makes a thorough analysis of the vibration signature of an industrial piece of equipment, ensuring its remote condition monitoring. The data is transmitted via a p
private LoRaWAN® radio frequency network.

With its **default configuration** BoB Assistant V2 is configured to:
- **Learn the vibration behavior in the first 7 days**.
- **Report** the activity and health of the monitored equipment **every 3 hours**.
- **Send alarms** (after the 7 days learning period) when **the 25% drift threshold** is crossed.
- **Report** the current equipment **state**.

Family code

The family code of BoB Assistant V2 devices is: 50-80-001-001 for Europe (EU868) version

LoRaWAN release

v1.0.2 Region Parameter rev B

Casing

Size: 78x75x51.3mm

Flammability rating: UL94 HB
Ingress protection: IP68

Documentation

For Quickstart instructions and device startup, please check the QuickStartGuide:

50-80-001-001_BoB_ASSISTANT_V2_QuickStartGuide

For detailed information on device modes of operations and frame description, please check the Reference Manual:

50-80-001-001_BoB_ASSISTANT_V2_Reference_Manual_V1.1

Installation and operation

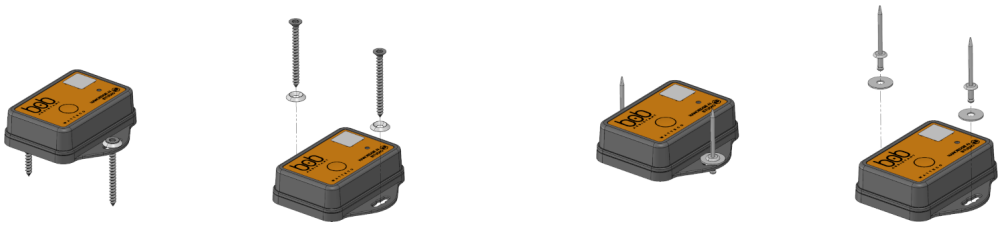
Installation

The casing is intended to be installed inside or outside a building.

The casing can be fastened using the magnets provided with the sensor or any other solution (double sided tape, screws, rivet...).

BoB Assistant will perform best on a newly installed equipment, or just after a maintenance operation. Before turning the device ON, make sure that the equipment is also ON.

Default configuration : magnets



Other fastening solutions: screw or rivet

Operation

Autonomy

The battery lifespan is around 3.5years. It is based on the default configuration at ambient temperature (+25°C) within the optimal operating range of the sensor via a LoRaW/ (one uplink frame), when the spreading factor used is SF12.

The disposable battery has a 2.1Ah capacity, of which 85% is considered as used.

The remaining battery level is sent with every frame and is calculated by the device, based on the time spent in the different modes of operation.

Human Machine Interface

The BoB Assistant sensor has a button and a RGB LED.

To Start-up the device, it is necessary to push the button for ~3s until the LED gets green. Release the button once the LED gets green.

=> Release the button

then

During initialization (~90s), the LED will remain Cyan/Skyblue

Then the device will display the status:

LED Sequence	Status	Troubleshooting
5x 	5x green LED = OK	-
10x 	10x red/pink LED = LoRaWAN problem	- Check device declaration on the LoRaWAN Network Server (NS), make sure that DEV_EUI, APP_EUI and APP_Key are all correctly declared on the NS. If you did not receive the keys for your device, please contact your distributor. - Check Network coverage on the BoB ASSISTANT installation location. If BoB ASSISTANT is out of range, you can either add a gateway if you run your own network operator to check for solutions.
10x 	10x red/blue LED = Vibration problem	Change BoB ASSISTANT location on the machine, and try to put it as close as possible to the vibration source, or on a less vibration-insulated element. BoB ASSISTANT perceives vibrations of very low amplitude (minimum 0.01g), there is surely a suitable place!
10x 	10x red/orange LED = Hardware problem	In this case, BoB ASSISTANT must be replaced and we invite you to contact our support team

To switch off the device, push the button for more than 10 seconds, until you get the Red LED.

After releasing the button, the device will send a message to warn that it has been powered off, will display the corresponding LED sequence (green/Orange/Red) and powers up to 10 minutes).

For more details on HMI interface, please check the Reference manual

Applicative layer

Codecs are available to decode frames: Downloads

The BoB Assistant device does not implement the ZCL library.
The applicative layer is based on 4 types of frames, defined by the first byte (Header) of the frame:

- STATE frame: 0x53
- LEARNING frame: 0x6C
- REPORT frame: 0x72
- ALARM frame: 0x61

For more details on frame content and decoding, please check the Reference manual

Default configuration

A default configuration is set:

- The device will sample the equipment vibration every 1 minute in learning mode, and every 10 minutes in monitoring mode
- The device reports the equipment health status and activity every 3 hours.
- The device sends an alarm message if the drift percentage goes over 25%.
- The device will send the equipment status (On / Off) each time the equipment starts/stops (can be disabled through downlink).

Frame examples

> ***All Downlink frames have to be sent on port 1***

Report frame

Report frame (sent every 3 hours in monitoring mode) / Received on port 1

For other frame example / description, please check the Reference manual

Configuration

Configure State message / send on port 1

For other Downlink frame example / description, please check the Reference manual