

BALLUFF
BAV MA-OD-00033 Smart
Reordering System



BALLUFF BAV MA-OD-00033 Smart Reordering System User Guide

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BALLUFF BAV MA-OD-00033 Smart Reordering System



Specifications

- **Product Name:** BAV MA-OD-00033-__ Smart Reordering System
- **Battery Type:** Varta CR AH-R, CR17450, 3.0V
- **Wireless Range:** Up to 400 cm
- **LED Indicators:** Red and Yellow LEDs
- **CE Mark:** Compliance with EU Directive

Product Usage Instructions

Smart Reordering System

The CE Mark verifies that our products meet the requirements of the current EU Directive.

About this guide

Validity

This guide provides all the necessary information for the installation and connection of the optical wireless sensor BAV MA-OD-00033-__.

It applies to the following models (country-specific versions):

- BAV MA-OD-00033-01 (Germany)
- BAV MA-OD-00033-02 (USA/Canada)
- BAV MA-OD-00033-04 (Mexico)
- BAV-MA-OD-00033-05 (Brazil)

Read this guide and the other applicable documents completely before installing and operating the product.

Other applicable documents

Additional information about this product can be found at www.balluff.com on the product page.

Reasonably foreseeable misuse

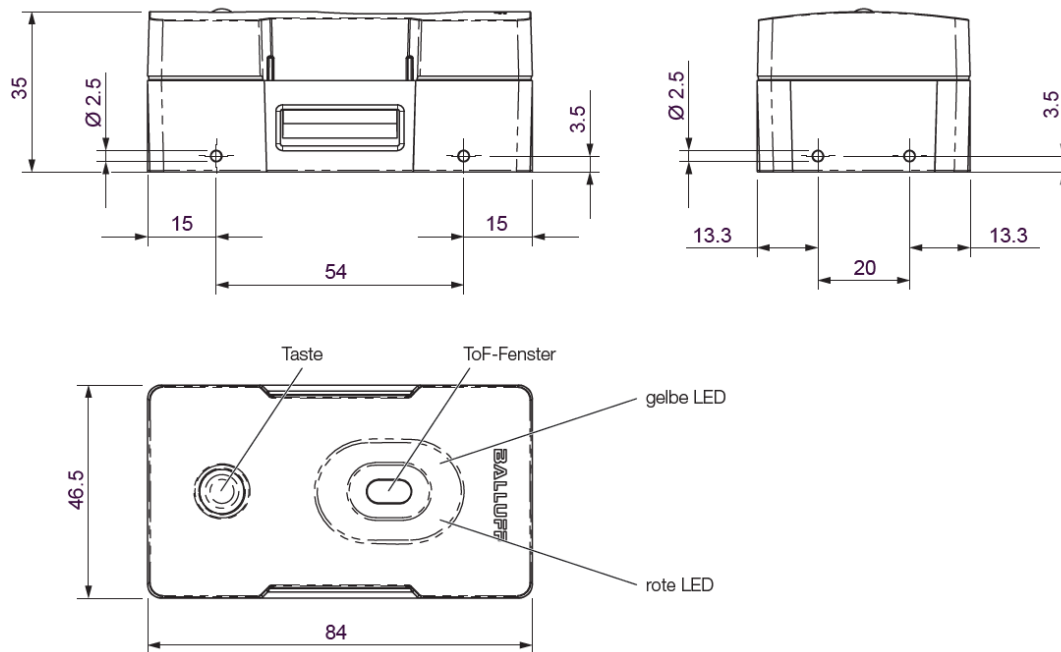
The product is not intended for the following applications and areas and may not be used there:

- In safety-oriented applications in which personal safety depends on the device function
- In explosive atmospheres
- In food applications

Intended use

The optical wireless sensor is a device for monitoring and transmitting fill level data via LoRaWAN technology. The operation of this device is subject to further regulations in certain countries which must be observed (see appendix at the end of the document). Proper function according to the specifications in the technical data is only assured when the product is used solely as described in the user's guide and the respective documents as well as in compliance with the technical specifications and requirements and only with suitable original Balluff accessories. Otherwise, it is deemed non-intended use. Non-intended use is not permitted and will result in the loss of warranty and liability claims against the manufacturer.

Construction



Safety notes

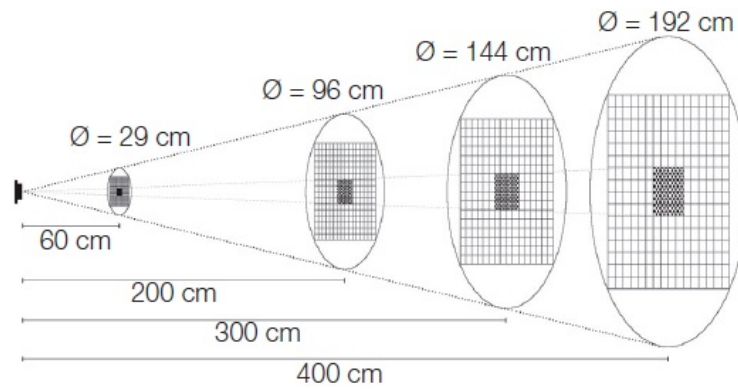
Activities such as installation, connection and commissioning may only be carried out by qualified personnel. Qualified personnel are persons whose technical training, knowledge and experience as well as knowledge of the relevant regulations allows them to assess the work assigned to them, recognize possible hazards and take appropriate safety measures. The operator is responsible for ensuring that local safety regulations are observed. In particular, the operator must take steps to ensure that a defect in the product will not result in hazards to persons or equipment. The product may only be opened to replace the battery. It must not be modified or altered. If defects and unrepairable faults occur in the product, take the product out of service and secure it against unauthorized use. Batteries are installed in the product. Attention must be paid to compliance with the ambient conditions. Heating of the batteries can lead to a fire. Only replace the battery with a Varta CR AH-R, model CR17450, voltage 3.0 V battery. There is a fire or explosion hazard if other batteries are used.

Facility

1. Mount the sensor using the included screws.
2. Remove the old battery and insert a new Varta CR AH-R battery with the correct polarity.
3. Dispose of the old battery properly and keep batteries away from children.

Functionality

The sensor wirelessly transmits distance data via LoRaWAN to a nearby gateway. This data is usually then forwarded over a network to a LoRaWAN network server, where it is processed further. When the sensor is used in conjunction with the Smart Reordering System, the data is forwarded to the Smart Reordering application where it is used for automatic fill level monitoring. The ToF sensor (Time of Flight sensor) has a viewing range of 40 to 4000 mm and an exit angle of 27°. Depending on the distance to the respective object, this results in a corresponding area (ToF window) that can be monitored. The exit angle can be reduced via downlink in order to set a smaller measurement area in confined spaces. If the sensor is used with the Smart Reordering System, the focus setting is made directly in the software.



To activate the sensor or switch it to Shipping Mode:

- Press the button to activate the sensor.
- Press and hold the button to switch the sensor to Shipping Mode.

Operating and display elements

Button: Press the button < 300 ms and > 10 s produces no sensor reaction.

Function	Operation
Activate sensor from shipping mode.	Press button for 3...10 s until the yellow LED lights up.
Set sensor to shipping mode.	Press and hold the button until the yellow and red LEDs light up simultaneously.
Reset sensor (Reset).	Press the button until the yellow and red LEDs flash.

LEDs

LED	Cause – Sensor behavior
Red LED flashes quickly ten times.	Internal Error – Sensor switches to error state.
Red LED flashes slowly five times and then lights up for five seconds.	Measurement failed – Sensor switches to error state.
Yellow and red LEDs flash slowly three times simultaneously.	LoRa Join failed – Sensor tries to reconnect to the gateway first every 4 minutes and then every hour.
Yellow LED lights up for two seconds.	A distance measurement is performed with subsequent data transmission via LoRaWAN.
Yellow LED flashes two times.	Data was successfully transmitted.
Yellow LED flashes three times.	Data was successfully received.

LED Indicators

- Red LED blinks rapidly ten times.
- Yellow and red LEDs blink together three times slowly.
- Yellow LED stays lit for two seconds.
- Yellow LED blinks twice or thrice.
- Successful data reception indicated by LED status.

Battery replacement

DANGER

Fire and explosion hazard

Pay attention to the specified battery type. There is a fire or explosion hazard if other batteries are used.

- Only replace the battery with a Varta CR AH-R, model CR17450, voltage 3.0 V battery.

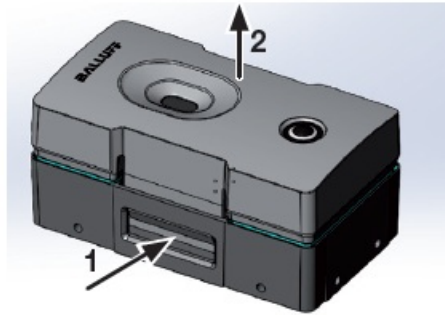
CAUTION

Risk of fire and burns

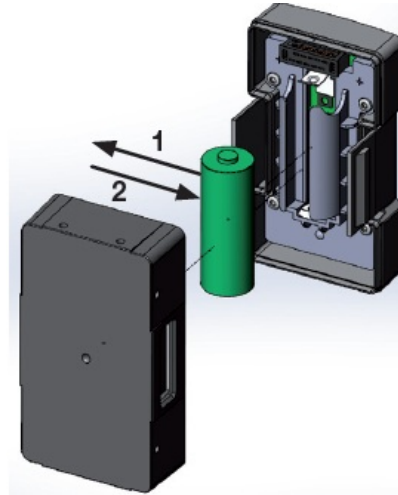
- Store the battery in its original packaging until use.
- Keep the battery out of reach of children.
- Do not recharge or disassemble batteries, or heat them above the temperature specified by the manufacturer or burn them.

- Dispose of used batteries promptly.

1. Press both clips at the side (1) and open housing (2).



2. Remove battery (1) and insert new battery with correct polarity (2). The poles are marked with “+” and “-”.



3. Close housing and ensure that the two clips snap into place.
4. Dispose of the used batteries promptly. Keep battery out of reach of children, do not disassemble and do not throw them into the fire.

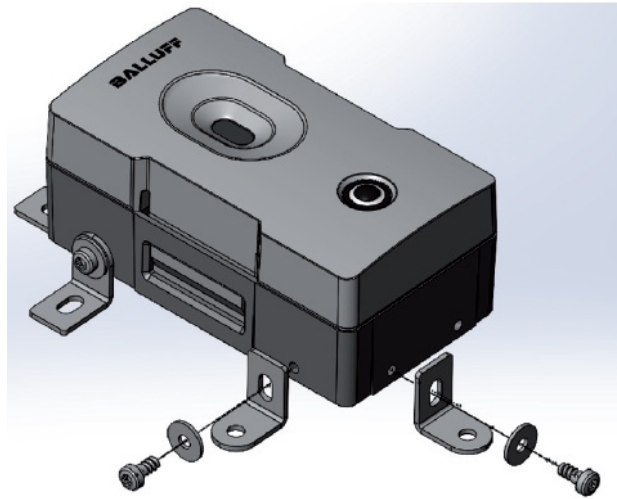
Installation

There are two bore holes on each side for fastening the sensor to the attached brackets. In addition, a Velcro strip is included for quick mounting of the sensor. If the sensor is fastened with this Velcro strip, the installation height may not exceed 2 m.

- Mount the sensor so that the ToF window (see Figure) is positioned directly above or in front of the material to be monitored.

Installation using mounting bracket

1. Install the mounting bracket at the sensor using the enclosed screws.
2. Screw the mounting bracket to a surface.



Technical data

The sensor is predominantly in Idle mode with power consumption of $< 1 \text{ mA}$. Every 10 minutes the sensor is activated, performs a measurement and sends these values to the control console via LoRa radio. In this time the power consumption is $< 50 \text{ mA}$ for a few seconds.

Accessories

Accessories for this product can be found at www.balluff.com on the product page.

Appendix

There are further requirements that must be observed for the following countries.

USA

This device complies with part 15 of the FCC Rules.

Operation is subject to the following two conditions:

1. This device may not cause harmful interference, and
2. this device must accept any interference received, including interference that may cause undesired operation.

Changes or modifications not expressly approved by the party responsible for compliance voids the user's authority to operate this equipment.

Canada

This device contains licence-exempt transmitter(s)/ receiver(s) that comply with Innovation, Science and Economic Development Canada's licence-exempt RSS(s).

Operation is subject to the following two conditions:

1. This device may not cause interference.
2. This device must accept any interference, including interference that may cause undesired operation of the device.

This equipment complies with FCC and IC radiation exposure limits set forth for an uncontrolled environment. This equipment should be installed and operated with minimum distance of 20 cm between the radiator and your body. This transmitter must not be co-located or operating in conjunction with any other antenna or transmitter.



Headquarters und Technical Service Hub Region EMEA

Balluff GmbH
Schurwaldstrasse 9
73765 Neuhausen a.d.F.
Germany

Technical Service Hub Region APAC

Balluff Automation (Shanghai) Co., Ltd.
No. 800 Chengshan Rd, 8F, Buidling A,
Yunding International Commercial Plaza
200125, Pudong, Shanghai
China

Technical Service Hub Region Americas

Balluff Inc.
8125 Holton Drive
Florence, KY 41042
USA

FAQ


What should I do if the LED indicators do not light up?

If the LEDs do not light up as expected, check the battery connection and replace the battery if necessary following the specified type and polarity.

Can I use a different battery than the specified Varta CR AH-R?

No, using a different battery type may pose a fire or explosion hazard. Always replace the battery with a Varta CR AH-R, CR17450, 3.0V battery.

Documents / Resources

 The left column of the table contains the Balluff logo at the top and a small image of a black, rectangular electronic component below it. The component has some text on it, including 'BAV MA-OD-00033'.	<p>BALLUFF BAV MA-OD-00033 Smart Reordering System [pdf] User Guide BAV MA-OD-00033, BAV MA-OD-00033 Smart Reordering System, Smart Reordering System, Reordering System, System</p>
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References

- [User Manual](#)

[Manuals+](#), [Privacy Policy](#)

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