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ZENNER OD2 IoT Gateway Instruction Manual

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ZENNER OD2 IoT Gateway

ZENNER OD2 IoT Gateway PRODUCT

General information

Intended use
Operational safety is only guaranteed if the product is used as intended by the manufacturer. No liability is assumed for damage caused by other applications. Any modifications are only permitted with approval from the manufacturer. Otherwise the manufacturer's declaration is invalidated.

Safety instructions
If it is necessary to establish a new power connection, the installation and commissioning must only be performed by trained qualified specialists. Only trained qualified electricians may work on electrical systems. They must be able to assess the work assigned to them at all times, detect any potential sources of danger and adopt

appropriate safety measures. The installation work must only be performed in a de-energized state. Valid specifications and standards are to be observed. During assembly of the gateway, the applicable national standards are to be observed on setting up antennae systems.

Product description

Intended use

The ZENNER IoT Gateways use high-performance LoRaWAN® technology, whose excellent building penetration and long-range network coverage generally ensure the connectivity of IoT sensors even under challenging environmental and installation conditions.
The Outdoor Gateway is ideally suited for LoRa network coverage in rural and urban areas to receive values from multiple sensors. The device can be used across various sectors for a variety of IoT applications and is an integral part of ZENNER IoT system solutions. With a few gateways, entire cities can already be covered.
Due to the very robust housing made of coated aluminum, the Outdoor Gateway is very resilient to extreme weather conditions and is characterized by a high degree of reliability. In addition to the two external LoRa antennas, the ZENNER IoT Gateway Outdoor also uses an external LTE antenna to ensure the best possible connection to the backend.

Scope of delivery

The gateway is delivered in a partially assembled state. Depending on the assembly situation to be implemented, various preparations and assembly steps are necessary. Furthermore, it may be necessary to acquire additional assembly materials that are not included in the scope of delivery.

- Gateway – pre-mounted on the mounting bracket
- Mounting bracket with nuts, spring ring and washers
- 2x spacer sleeves for mounting bracket 2x 868 MHz LoRaWAN®-Antennas
- Network cable (5 m)
- Cable ties
- 2x RJ45 connector
- Equipotential bonding cable (16 mm²)
- Power cord for PoE injector

Installation location
In order to gain optimum LoRaWAN network coverage, an installation location which is as high as possible is recommended due to various technological advantages. For example, if an attic is available with potential installation space, this installation location should be preferred.
After selecting the preferred installation location, you should test the cellular network connection in this location prior to attaching it.

Mounting preparation

For power supply of the IoT Gateway Outdoor you need the PoE Injector incl. power cord.
A 5m network cable incl. RJ45 connectors and PG gland is already connected to the gateway (see ill. 6).

ZENNER OD2 IoT Gateway PRODUCT FIG4

If the cable length is not sufficient or a network cable is already present, you can cut the mounted network cable, pull off the PG gland and use the supplied RJ45 connectors to crimp your network cable. In this case, special tools are needed. It is also recommended to perform a function test of the cable after crimping.

Installation

Pole mounting

Attach the mounting bracket incl. mounted housing to the desired pole using the u-shaped mounting hardware. To do this, you must attach the spacer sleeves to the mounting hardware and then tighten each side with a washer, spring washer, and nut.
Check that the gateway is stably attached to the pole.

Wall mounting

Check whether there are any lines running at the selected mounting location.
For wall mounting, use the 4 slotted holes (2 at the top, 2 at the bottom) on the mounting bracket.
Mark drilling holes on the wall according to the hole spacing and use a spirit level. Note the length of the network cable (range to the PoE Injector).
Drill holes, fix dowels and screws (not included, e.g. M8) in the holes.
Attach mounting bracket incl. housing to the wall. Make sure that the correct side of the mounting bracket is facing up. Please refer to ill. 3.

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Electrical connection

PoE injector

Connect the power cord to the PoE Injector.
Then connect the network cable of the gateway to the "PoE" port of the PoE Injector.
If local network access should be used, the corresponding cable is to be connected to the "Data" port. If local network access is to be used, the corresponding cable must be connected to the "Data" port.

ZENNER OD2 IoT Gateway PRODUCT FIG2

Antennas

The following illustration shows the usual arrangement and mounting positions of the antennas.
Note: The specifications of the LoRaWAN antennas differ from the LTE broadband antenna. Please take care not to mix up the antennas or connections!

ZENNER OD2 IoT Gateway PRODUCT FIG3

Attach the antennas and make sure to tighten the lock nuts accordingly (wrench size SW19).
Now connect the antennas with the antenna cables and the connectors on the housing using the following connection layout.

ZENNER OD2 IoT Gateway PRODUCT FIG4

You can additionally fasten the antenna cables to the mounting bracket with cable ties.
The antennas are mounted identically for all variants us- ing the supplied lock rings and serrated lock washers. All antennas are connected to the gateway with the enclosed N-connection cables.

Equipotential bonding cable

The potential equalization cable (ground cable, 16 mm²) must be connected to the mounting support and a bonding rail.

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Note: Attaching the Equipotential bonding cable to a lightning rod is not permitted.

ZENNER OD2 IoT Gateway PRODUCT FIG6

Technical data and performance characteristics

- Suitable for LoRaWAN® IoT solutions from ZENNER
- Bidirectional LoRaWAN® radio communication
- Encrypted end-to-end data transmission (AES 128)
- No storage of meter readings on the gateway
- Plug & Play – Simple integration through pre-configured software
- Security patches and software updates are distributed in an automated manner

Technical data

- **Cellular network:** n/a
- **LAN:** RJ45
- **# LoRa channel:** 16 channels – two external antennas
- **TX power:** max. 27 dBm (500 mW) conducted
- **Frequency:** US-902
- **Power supply:** Power over Ethernet (PoE)
- **Antennas:** external: 2 x LoRa (antennas incl. mounting bracket included in scope of delivery)
- **Protection class:** IP67
- **Housing:** Aluminium, coated
- **Operating temperature:** 0 °C to +50 °C
- **Storage temperature:** – 40 °C to + 80 °C
- **Installation:** Wall, pole (bracket incl. grounding cable included in scope of delivery, galvanized steel)
- **Maintenance:** Remote firmware upgrades
- **Weight:** approx. 4.1 kg

ZENNER OD2 IoT Gateway PRODUCT FIG8

Dismantling

Disconnect the gateway's power supply and uncouple the network cable from the PoE Injector.
Pole mounting
Loosen the nuts of the mounting bracket. When doing so, you should always hold the mounting bracket with the housing. After completely loosening the nuts, you can pull the gateway off the u shaped mounting bracket.

Wall mounting
First remove the bottom two screws between the mounting bracket and the wall. Hold the mounting bracket with the housing and slowly loosen and remove the two upper bracket screws.

Federal Communication Commission Interference Statement

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

FCC Caution: Any changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate this equipment.
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.

IMPORTANT NOTE

Radiation Exposure Statement
This equipment complies with FCC radiation exposure limits set forth for an uncontrolled environment. This equipment should be installed and operated with minimum distance 20cm between the radiator & your body.
This transmitter must not be co-located or operating in conjunction with any other antenna or transmitter.
Country Code selection feature to be disabled for products marketed to the US/CANADA
Industry Canada statement:
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 radio transmitter [IC: 26631-OD2] has been approved by Innovation, Science and Economic Development Canada to operate with the antenna types listed below, with the maximum permissible gain indicated. Antenna types not included in this list that have a gain greater than the maximum gain indicated for any type listed are strictly prohibited for use with this device.

Type	Manufacture	Gain	Connector
Dipole	Auden	3.05	N type

Radiation Exposure Statement
This equipment complies with Canada radiation exposure limits set forth for an uncontrolled environment. This equipment should be installed and operated with minimum distance 20cm between the radiator & your body.

Professional installation instruction

Please be advised that due to the unique function supplied by this product, the device is intended for use with our interactive entertainment software and licensed third-party only. The product will be distributed through controlled distribution channel and installed by trained professional and will not be sold directly to the general public through retail store.

1. **Installation personal**

   This product is designed for specific application and needs to be installed by a qualified personal who has RF

   and related rule knowledge. The general user shall not attempt to install or change the setting.
2. **Installation location**

The product shall be installed at a location where the radiating antenna can be kept 20cm from nearby person in normal operation condition to meet regulatory RF exposure requirement.

3. **External antenna**

   Use only the antennas which have been approved by Zenner USA, Inc. The non-approved antenna(s) may produce unwanted spurious or excessive RF transmitting power which may lead to the violation of FCC/IC limit and is prohibited.

4. **Installation procedure**

   Please refer to user's manual for the detail.

5. **Warning**

   Please carefully select the installation position and make sure that the final output power does not exceed the limit set force in relevant rules. The violation of the rule could lead to serious federal penalty.

Documents / Resources

	ZENNER OD2 IoT Gateway [pdf] Instruction Manual OD2, 2ACOA-OD2, 2ACOAOD2, OD2 IoT Gateway, OD2, IoT Gateway