



Nexiot Globehopper Crossmodal 2.0 Ex / AX.2A

- Technical Data
- Certifications
- Installation Guide

Document version:
2019-02-21 REV.1



1 Version History

| Description | Date | Author |
|-------------|--------------------|--------|
| Created | 2019-02-21 – REV.1 | ERO |

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3 Technical Data

| | | | |
|----------------------|---------------------------------------|------------------------------------|-----------------------|
| Product | Globehopper Crossmodal 2.0 Ex / AX.2A | | |
| ID | AX.2A | | |
| Physical | Size | 363 x 104 x 47 mm | |
| | Weight | 1400 g | |
| Environmental | Operating temperature | -40°C ... 85°C | |
| | ATEX ambient temperature | -35°C ... 60°C | |
| Energy | Battery type | Li-Ion | |
| | Nominal battery voltage | 3.7 V | |
| | Battery capacity | 26800 mAh | |
| | Battery certification | UN38.3 Certified | |
| | Energy harvesting source | Solar panel | |
| GNSS | Supported networks | GPS/QZSS, GLONASS, Galileo, BeiDou | |
| | No. of channels | 72 | |
| Cellular | Frequency bands | 3G (HSPA) | 800/850/900/1900/2100 |
| | | 2G (GSM) | 850/900/1800/1900 |
| IEE 802.15.4 | Frequency range | 2405 ... 2480 MHz | |
| NFC | Frequency | 13.56 MHz (passive) | |

4 Certifications

Environment:

RoHS

WEEE

DIN EN 61373:2010 Category 1, Class A

(Vibrations and shocks for rail)

DIN EN 60529 (IP66/IP67)

ATEX IP66/IP67

ATEX:

ATEX Certification Number: EPT 18 ATEX 3048 X
2014/34/EU

EN\IEC 60079-0

EN\IEC 60079-11

Ex II 2 GD

Ex ib IIC T4 Gb

Ex ib IIIC T135°C Db

Product Safety:

EN 62368

EMC:

ETSI 301 489 *(Radio Communications)*

EN 55024

EN 50121-3-2 *(ESD for Rail)*

BATTERY:

UN38.3



5 Product Information

5.1 Safety Notice

1. Do not drop the device.
2. Do not open the device.
3. Do not expose device to conditions other than those in chapter "Technical Data".
4. **Warning:** Device contains a Lithium battery. Danger of fire if punctured, crushed or otherwise forcefully damaged, exposed to heat above the values given in the chapter "Technical Data".

5.2 Functional Description

The Globehopper Crossmodal 2.0 Ex / AX.2A is a smart sensor for industrial asset monitoring and tracking. It is power independent with a battery and a solar panel and it remains powered for the lifetime of the asset it is attached to (6-10 years depending on conditions). It is intended to monitor railway wagons, containers, trucks, trailers, crates or other similar objects. Do not use this device for any other purposes. Nexiot AG is not liable for any damage to property or personal injury that result from unintended use.

5.3 Warning Label

Due to a specific plastic used in the product housing, it may be possible for an Electrostatic Discharge to occur if improper handling of the device is performed. The warning ("Electrostatic Discharge hazard") informs the users to read the following Instructions before performing any installation or maintenance related task. Importantly - this warning is relevant only if Nexiot Globehopper Crossmodal 2.0 Ex / AX.2A Ex device is handled inside a Hazardous area.

5.4 Installation Instructions

It is not permitted to perform an installation of Nexiot device from inside a Hazardous area. If the installation of the Nexiot device is performed outside of a Hazardous area, then there are no special safety considerations or steps required.

5.5 Maintenance Instructions

This device is maintenance free. For best performance, please clean the solar panel on every service interval of your asset. The cleaning of Nexiot device can be performed both inside and outside of a Hazardous area using a damp cloth to avoid any Electrostatic Discharge risk. It is not possible to replace the battery.

5.6 Device replacement Instructions

Remove the old device from your asset by counterboring the rivets and use the App to initiate unpairing process. Then, install the new device to your asset and use the Smartphone App to connect the new device to your asset.

5.7 Decommissioning an old device

Devices that are taken out of service must be sent back to Nexiot AG. Please consult our website for the shipping address. Nexiot AG will take care of proper recycling.

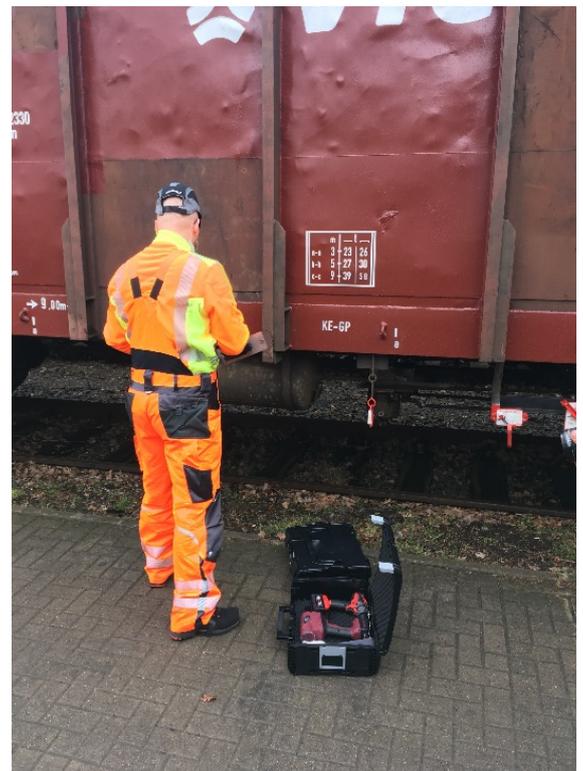
6 Installation & Mounting Guide

Required Equipment:

- Drill with 6.5 mm drill bit
- Riveting machine Rivdom Two2
- 2 pcs 6.4 mm rivets
- 1pcs Globehopper Crossmodal 2.0 Ex / AX.2A Device

Installation steps:

1. Take the equipment and sensors to the place of installation.
2. To avoid mistakes, the sensors need to be fixed to the wagons in a sequential order, which means it might be necessary for the assembly operator to climb over the wagons to reach the other side.
3. Determine the installation position for the sensor based on the mounting guidelines (see below)
4. Hold the Globehopper Crossmodal 2.0 Ex / AX.2A to the asset and drill two holes (6.5 mm diameter). Use the mounting holes of the Globehopper as stencil.
5. Fix the sensor onto the asset with two 6.4 mm blind rivets using a riveting machine. The sensor always needs to be mounted so that the solar panel is on left when viewed from the front.
6. Carry out the pairing of the sensor using the mobile app as described in the Mobile App Manual.



6.1 Mounting guidelines

See the following reference images for recommendations for mounting the Globehopper Crossmodal 2.0 Ex / AX.2A sensor in different configurations.

(continued on the next page)





6.2 General recommendations about sensor performance

The installation location of the sensor is very important for achieving the best performance. The GPS signal is very sensitive with regards to steel obstructions; therefore, the mounting position should be chosen so that the sensor is not affected by such obstructions. GPS satellites are circling the earth in an orbit of about 20'000km and their signal needs to be able to reach the sensor. Every obstacle will make it harder for the signal to reach the device.

Therefore, these rules should be applied to find the optimal mounting location:

- Avoid overhanging steel structures above or below the sensor. The top plate of the sensor should have an unobstructed view of the sky.
- Avoid overhanging structures in general
- Choose a place with as much sunlight as possible with as little exposure to brake dust as possible.

Examples of unfavorable installation locations:

- Shady, almost impossible to receive direct sunlight
- Very low, therefore exposed to a lot of brake dust
- Vertical installation
- Surrounded by steel, metal or other obstructions

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