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Lykaner N5 User Manual



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REVISION HISTORY

Ver.	Date	BACKGROUND (Reason for change)	Description of change	Sections changed	Approver	Author
0.1	01/12/2022	Document Creation	Adding initial information in draft format and defining different sections	All		SDR
0.2	02.01.2023	Content creation	All sections	All		SDR
0.3	23.01.2023	Version for Certification	All sections revisited,	All		SDR

Abbreviations

Abbreviation/Term	Definition
AP	Access Point
ACK	Acknowledgement
BSSID	Basic Service Set Identifier
DL	Downlink
FW	Firmware
N/A	Not Applicable
Downlink	Message from cloud to device
Firmware release version	Internal firmware version, firmware version flashed to device
Uplink	Message from device to cloud
LED	Light Emitting Diode

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1. INTRODUCTION

Lykaner N5 tracker is a device that enables the user to track the locations of a moving asset, such as containers and trollies. It is an industrial grade device and can work over several years without maintenance.

The core competence of the tracker is its smart motion algorithm, which allows sending messages (status messages and location update messages) only when motion event occurs and therefore the tracker ensures a long lifetime. In case there is no motion, the tracker sends a 'keep-alive' AP message every 1 day by default, which allows to minimise the tracker power consumption. Motion algorithm parameters and others can be configured via downlink message.

Lykaner N5 tracker has additional features such as 'temperature alarm' function, 'orientation detection' feature and 'low battery indication' feature that can be enabled via downlink configuration message.

The tracker is a one-time activation device. This means that once the device is activated at the stage of its installation on the asset it cannot be deactivated afterwards. To activate the device, the activation switch on the top of the enclosure should stay pressed for at least 3 sec(s). Once activated the device supports a full list of its functional features.

1.1. HW Description

Lykaner N5 tracker hardware contains the following components:

- Enclosure
- PCB
- Battery Pack
- Activation button
- NB-IoT Module
- MCU
- WiFi (RX)
- Acceleration Sensor
- Pressure Sensor*
- Temperature Sensor
- Magnetic Sensor*
- LED



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1.2. Technical Specification

Dimensions [mm] (L x W x H):	140 x 50 x 31,5
Weight (gr):	94
Material:	PC/PBT
Operation Temperature [°C]:	-20 to + 60
Protection Class:	IP69, IK8
Battery:	Not replaceable battery pack: Li-SoCl2, 2xER17505M-L
Maximum relative humidity:	
Mounting Method:	Screws, rivets, or double-sided tape
Certifications:	CE, UK-CA, FCC, CGF, PTCRB

1.3. Device Mounting Instructions

Lykaner N5 tracker can be mounted onto the asset using three different methods detailed as following:

- The unit can be mounted using rivets.

Recommended rivets: Gesipa Blind Rivets Aluminium/Steel Standard Flat Head with 5 x 16 mm

Recommended rivet Gun - Gesipa ACCUBIRD PRO



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- The unit can be mounted using bolts and nuts.

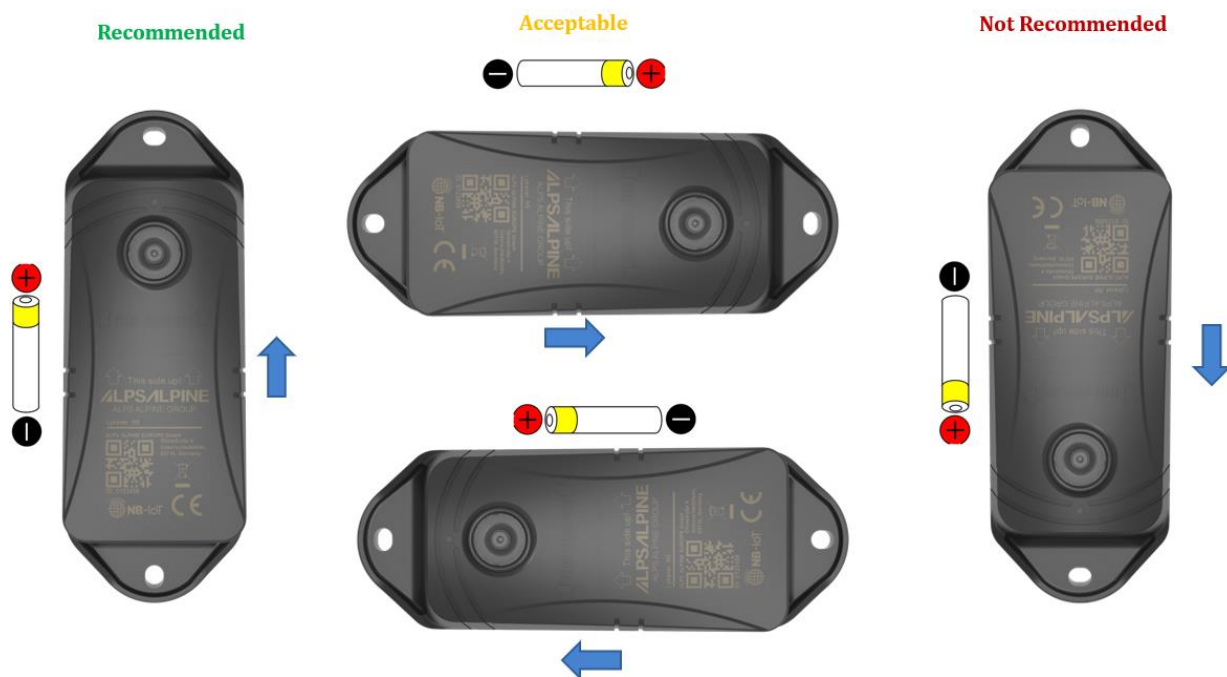
Recommended Bolt - M5 X 12mm (Bolt length depends on asset type)

Electric Drill - Torque Setting recommended value is between 1.15 to 1.25 Nm



- The unit can be mounted using pre-assembled industrial grade double-sided adhesive tape.

Recommended device mounting orientation for optimal battery usage are depicted in the below picture.



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1.3.1. Mechanical Enclosure Variants

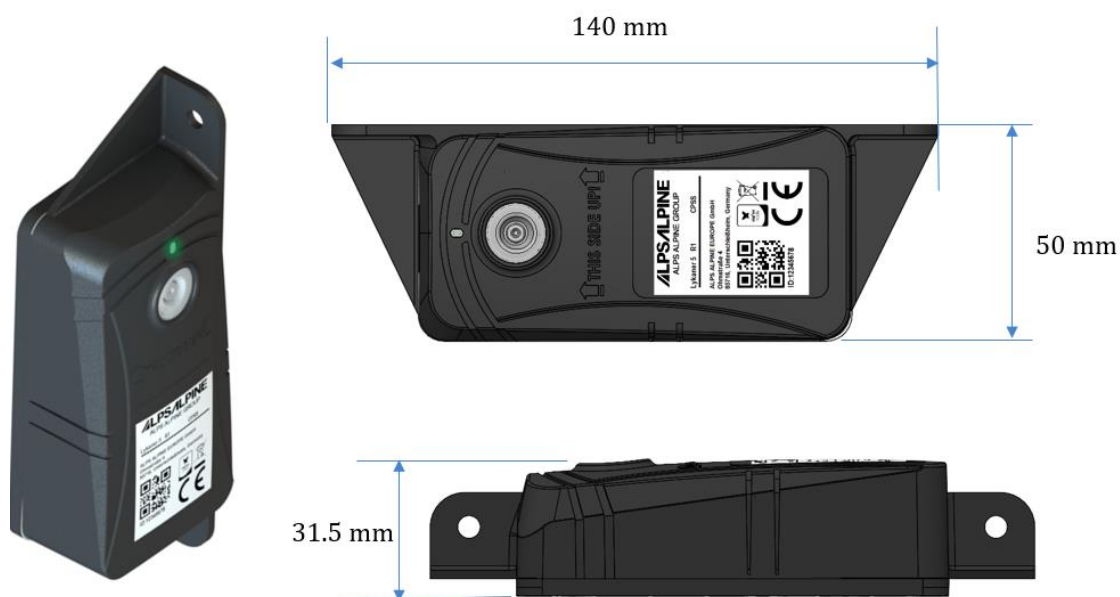
Lykaner N5 mechanical enclosure tool was designed to be high modular and easily adaptable to various kind of asset shape. The standard form factor is currently available in mass production quantity. The two other tool options can be considered in case of high potential demands.

Standard version



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Side Mount version



Wingless version

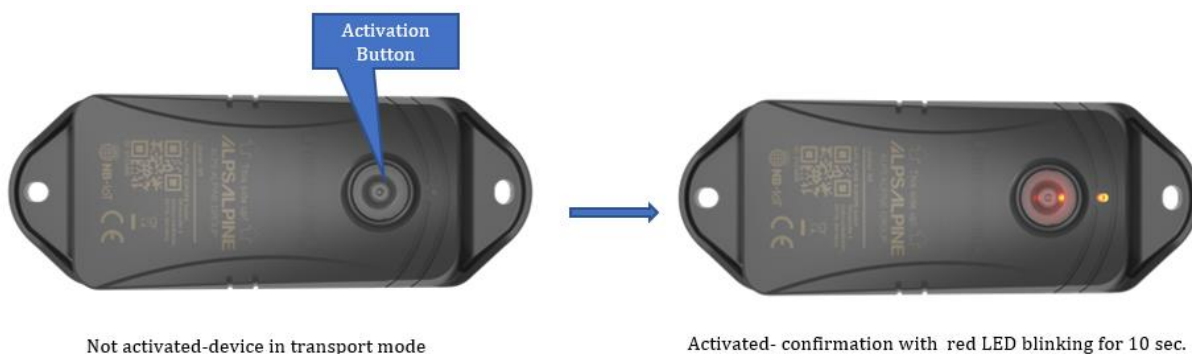


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2. DEVICE OPERATION

2.1. Activation

Lykaner N5 tracker is a one-time activation device, therefore once it is activated it cannot be deactivated afterwards. To activate the device, the activation switch on the top side of the enclosure (as shown in the picture below) should be pressed for at least 3 sec. The red coloured LED will blink for 10 sec to confirm the successful activation of the device.



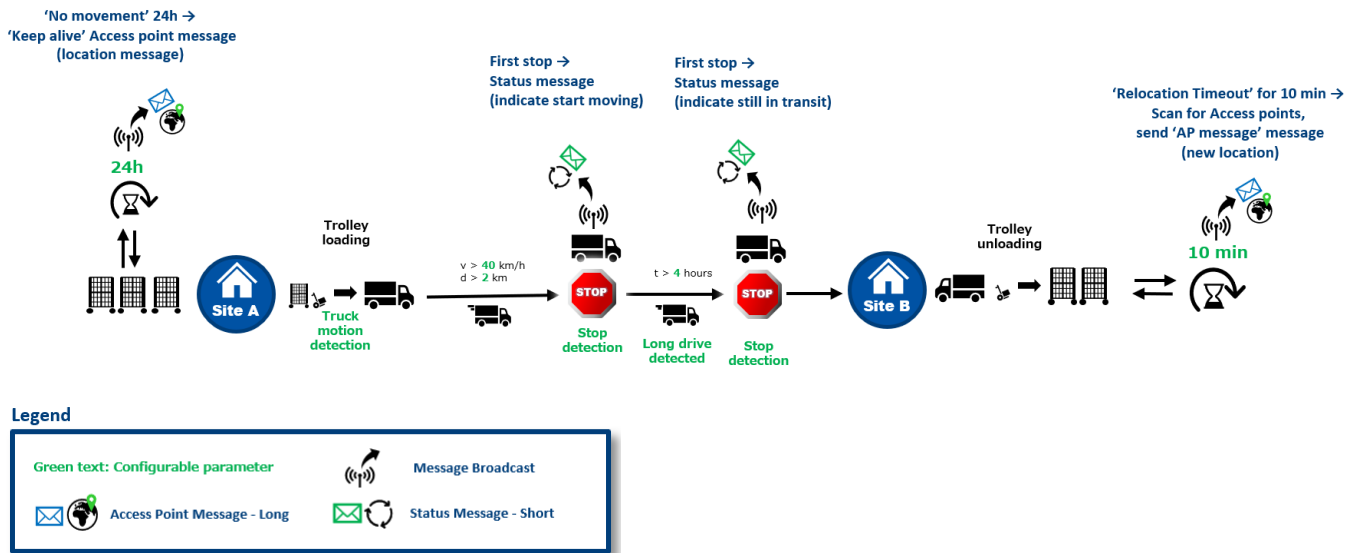
2.2. Deactivation

Lykaner N5 tracker is a one-time activation device, which remains activated after first activation.

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2.3. BASIC OPERATION

2.3.1. Normal Scenario -Motion Based Transitions



Firmware implemented according to state diagram. Note that speed and distance threshold are only estimated values and is not an absolute value, i.e., they are subjected to tolerances as actual speed is not measured by the device.

Note:

- The Long Drive (In-Transit Status Message) is sent out only when it is enabled via In-Transit Time Threshold in the downlink payload. In-Transit Status Message is enabled by default.
- Time thresholds mentioned in the diagram is only indicative. The period depends on motion detection state and duration - so it will always be specified interval plus the total duration of motion and/or motion detection. Also, it should be noted that any continuous vibration observed by the asset in the location where they are stored will result in extended period of motion detection algorithm execution and hence the device will refrain from transmitting any messages

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3. PACKAGING INFORMATION

3.1. Disposal



Make sure to respect the rules of electronic devices disposal within your own county.

Lykaner N5 tracker is registered at EAR Elektro-Altgeräte Register) and has a WEEE number (Waste of Electrical and Electronic Equipment).

3.2. Disclaimer

We make every effort to ensure that the information and technical details in this handbook are accurate and complete. Nevertheless, this document is not a contractual agreement and cannot be used as a reference for any warranty claims. The reception of the messages is highly dependent on the Nb-IoT network coverage and many other environmental factors, therefore ALPS ALPINE is not liable to any monetary impacts due to lost messages.

Due to IP69 certification, warranty is lost if the device is opened.

Further Notes

- Protection class only applies for undamaged housing
- Device should not be disassembled/repared or changed in any form
- The functionality may be affected by wireless networks around the device.
- There may be places where data transmission is not possible (e.g., weak / no network coverage).
- Location accuracy depends on the positioning technology used and may vary based on the area and availability of location information.
- Power consumption may vary depending on the firmware setting of the device.