

1. Asset5 User manual (FCC)

Purpose of This Document

The purpose of this user manual is to provide information about the Asset5 vehicle and asset tracking devices. This user manual describes the main features of the device and how to use it.

Document Changelog

Version	Date	Modification
1.0	2025-05-05	Initial version.

Safety Information

The following information is provided to ensure safe operation of the device. Please read it carefully before you start using the device!

	If the enclosure of the device is damaged, or the insulation of the wires is damaged, disconnect the power supply cables from the power supply source.
	All wireless data transferring equipment produces interference that may affect other devices placed nearby.
	The device can be installed or dismantled only by qualified personnel!
	The device must be firmly fastened in a predefined location. The predefined location is described in the installation instructions.
	The configuration must be performed using a 2nd safety class computer (with an autonomic power supply).
	Make sure that the device is installed in a location where it will not be subjected to harsh environmental conditions for extended time periods.
	Any installation and/or handling during a lightning storm is prohibited.
	Caution! If an incorrect type of battery is used for replacement, there is a high explosion risk. Dispose of used batteries according to the environmental requirements.
	For configuration use cables that were purchased from Ruptela. Ruptela is not responsible for any harm or damage caused while using the wrong cables.

	Attention! Do not connect the wires marked red (power supply) and black (chassis) to the wrong battery poles. The device has reverse polarity protection, however, if connected incorrectly, the device will not work.
	Disconnect the device from the vehicle's power supply before dismounting it.
	Do not disassemble the device without ensuring that the harness is not connected to an external power source.
	Install the device in a restricted access location, not accessible or visible to the driver.
	Waste equipment should not be disposed of with other household waste. The product must be taken to separate collection points at the product's end-of-life.

FCC compliance 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.

Operation is subject to the following two conditions:

- (1) this device may not cause interference, and
- (2) this device must accept any interference, including interference that may cause undesired operation of the device.

Notations

The following notations are used in this document to highlight important information:

Bold text

Used to indicate user interface elements or for emphasis.

Italic text

Used to indicate items that belong to a list and can be selected.

Note

	Used to indicate items that belong to a list and can be selected.
---	---

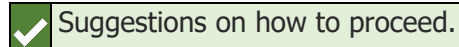
Caution

	Used to mark actions that require caution when handling the product.
---	--

Warning

	Used to mark actions that may cause irreversible damage if performed incorrectly.
---	---

Tip



Suggestions on how to proceed.

Acronyms and Abbreviations

2G – Second Generation Cellular Technology

AIN – Analog Input

APN – Access Point Name

DC – Direct Current

DIN – Digital Input

DOUT – Digital Output

HDOP – Horizontal Dilution of Precision

GLONASS – Global Navigation Satellite System

GMT – Greenwich Mean Time

GNSS – Global Navigation Satellite System

GPRS – General Packet Radio Service

GPS – Global Positioning System

GSM – Global System for Mobile Communications

LED – Light Emitting Diode

LTE – Long-Term Evolution

PCB – Printed Circuit Board

SMS – Short Message Service

TCP – Transmission Control Protocol

UDP – User Datagram Protocol

USB – Universal Serial Bus

VCOM – Virtual Communication Port

Indication LED Patterns

Colour	Pattern	Description
Green	Blinking 0.1 s each 2 s	Bluetooth is advertising
	Blinking 0.1 s each 0.5 s	Bluetooth is connected

	Always ON	Bootloader mode
Red	Blinking 0.1s each 0.5 s	Modem trying to attach OR link to server open
	Blinking 0.1 s each second	Modem connected
	Blinking 0.1 s each 5 seconds	Modem in sleep mode
	Blinking 0.2 s each second	Modem init
	Always ON	Bootloader mode

Physical Characteristics

Dimensions	70 mm × 56 mm × 28 mm
Weight	120 ± 1 g
Housing material	Plastic
Ingress protection	IP68

Technical Characteristics

Environmental Specifications

Temperature	Operating: -35 to +70 °C Storage: -20 to +45 °C
Relative humidity	5% to 95% Non-condensing

Electrical Specifications

Power supply range	2.5 – 4.2 V DC
Internal battery	2xLiSOCl ₂ , 3.6 V 2200 mAh
Protections	Battery short circuit protection, Reverse polarity protection, Electrostatic discharge protection on SIM card slot
Power consumption	Normal operation of MCU: 2 mA @ 3.6 V DC Bluetooth LE enabled: + 5 mA
Operating @ 3.6 V DC	Modem attaching and data sending average: +100 mA GNSS acquisition average: +10 mA
Power consumption	As low as 10 µA

Power supply range
Hibernating mode

2.5 – 4.2 V DC

Connectivity

Cellular	Asset5-LTE-EMEA: LTE Cat1.bis: B1/B3/B5/B7/B8/B20/B28 GSM: 850/900/1800/1900 MHz (GPRS multi-slot class 12) Asset5-LTE-LA: LTE Cat1.bis: B2/B3/B4/B5/B7/B8/B28/B66 GSM: 850/900/1800/1900 MHz (GPRS multi-slot class 12) Asset5-LTM-GL: LTE Cat1.bis: B1/B2/B3/B4/B5/B8/B12/B13/B18/B19/B20/B25/B28/B66 NB-IoT: B1/B2/B3/B4/B5/B8/B12/B13/B18/B19/B20/B25/B28/B66/B71 GSM: 850/900/1800/1900 MHz (GPRS multi-slot class 33)
GNSS module	Antenna: Internal: Positioning systems: GPS, GLONASS, Galileo, BeiDou Augmentation systems: QZSS, SBAS (WAAS, GAGAN, EGNOS, MSAS) Tracking sensitivity: -166 dBm Acquisition sensitivity: -147 dBm Reacquisition sensitivity: -159 dBm Cold start duration: 28 s Hot start: As low as 1 s Navigation update rate: 1 Hz Horizontal position accuracy: 1.5 m Number of tracking channels: 47
BLE module	BLE version: 6.0 Low energy

Interfaces

Action button	Push 1 second to trigger BLE advertisement
----------------------	--

ON/OFF switch	Turn the power circuit On/Off
Indication LED	Shows the status of modem and Bluetooth LE
SIM slot	Nano SIM (4FF)

Features

Internal storage	1920 records, 560 beacon records
Accelerometer	Built-in 3-axis (motion sensing, g-force up to 4 g)

For the device to work, you first need to insert a nano SIM card. To do so, open the device housing and perform the actions described below:

Opening the Device

Disassemble by prying the cover off evenly from both sides of the cove. Use a plastic pry tool. Once the cover is sufficiently open, take it off by hand.

 The use of inappropriate tools or excessive force may cause permanent damage to the device.



Inserting a SIM Card and turn on the Device

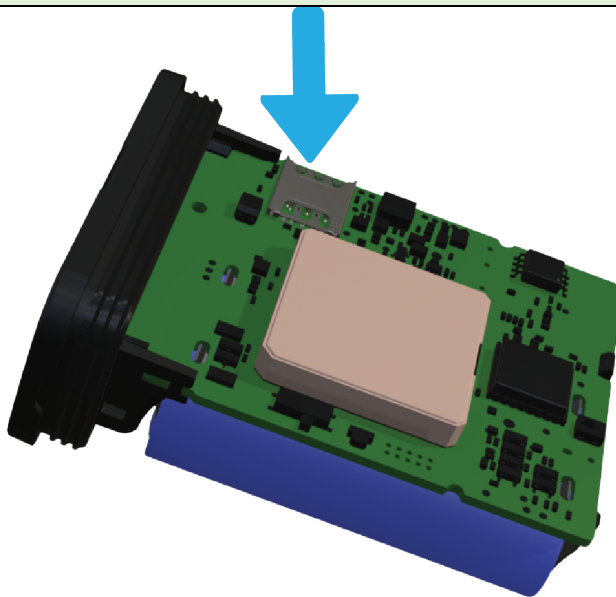
Insert your SIM card into the device as shown in the image below. The microchip must be facing down.



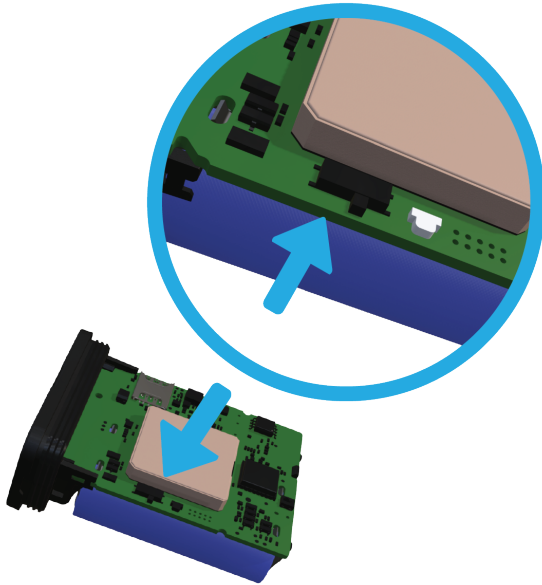
An industrial grade SIM is strongly recommended if the device will be exposed to temperatures higher than 40° C.



Use a non-prepaid SIM card to ensure that the balance does not suddenly run out and cause connectivity issues.

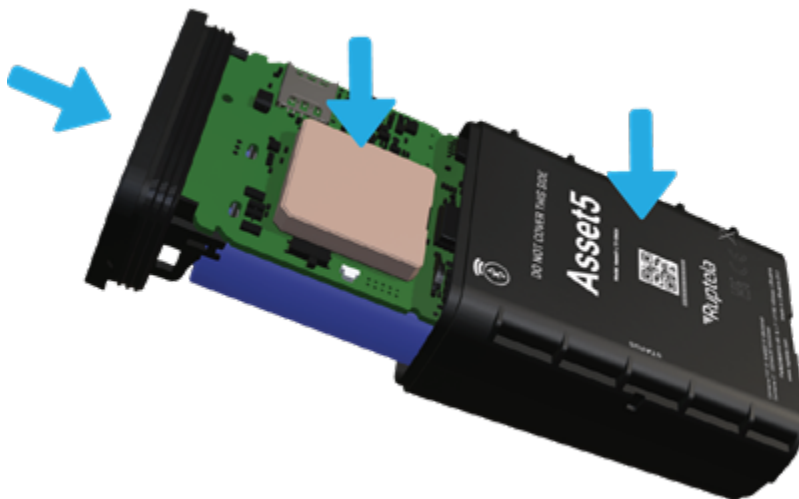


Check If ON/OFF switch is in ON position before assembling device back together. If switch is flipped to ON position **RED** LED will start blinking.



Assembling the Device

 Align the Device as shown in the picture below, PCB antenna needs to face the same direction as the Device label. Then push the cover down on the bottom housing till the cover snugly closed.



Check if BLE is Advertising

Click the Action button on the top of the cover. If BLE is advertising **GREEN** LED will be blinking.



Device is ready to be paired and configured.

i **Asset5** can be configured only with **mDMP** mobile application

mobile Device Management Platform (mDMP)

mDMP is used to configure and manage the tracking devices.

Download mDMP from APP Stores:

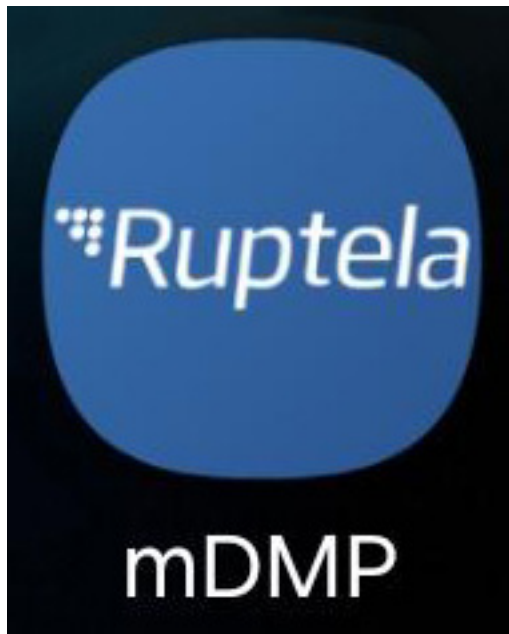
- **Android**

i Smart Device has to support Android 9.0 or newer to connect to the tracking device

- **iOS**

i Smart Device has to support IOS 17 or newer to connect to the tracking device

Install the APP on you Smart device (phone or tablet), mDMP icon will appear on you screen. Click it to open the APP.



Connect Tracking Device to mDMP

There are two ways you can connect tracking device to the app, Connect via Bluetooth or Connect via QR code.

Start by pushing **Action button** on the device for one second to start BLE advertisement.



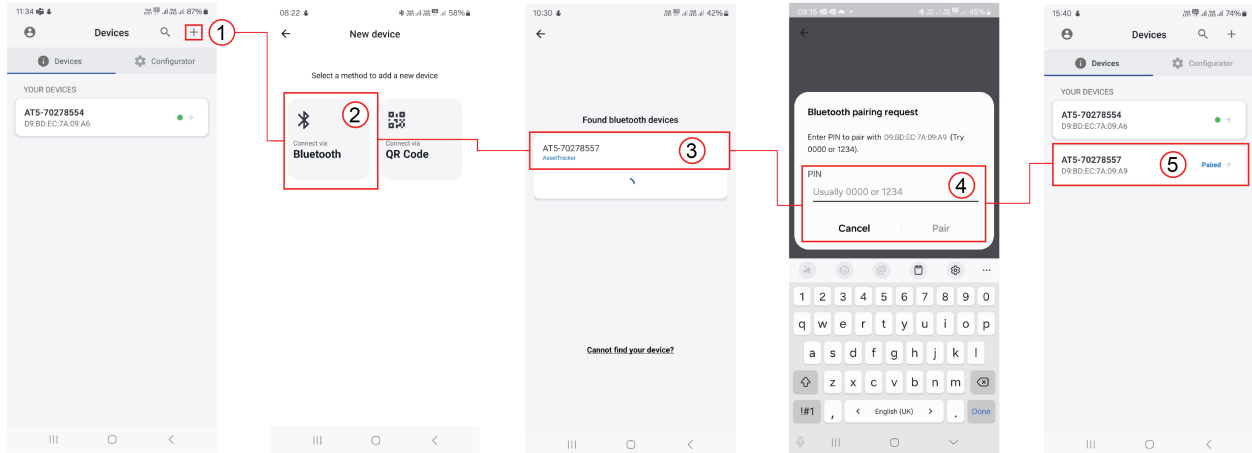
Connecting via Bluetooth

1. Click on **+** icon to add new device
2. Select **Connect via Bluetooth**
3. Press **Action button** on the device to start advertising, and wait till device is found on the mDMP, then select it.

- Bluetooth pairing request window will appear, PIN code is required to pair to the device. Enter PIN code and click Pair.

i PIN code for brand new devices are last 6 digits of IMEI number

- Once the device is pair it will appear in devices window.

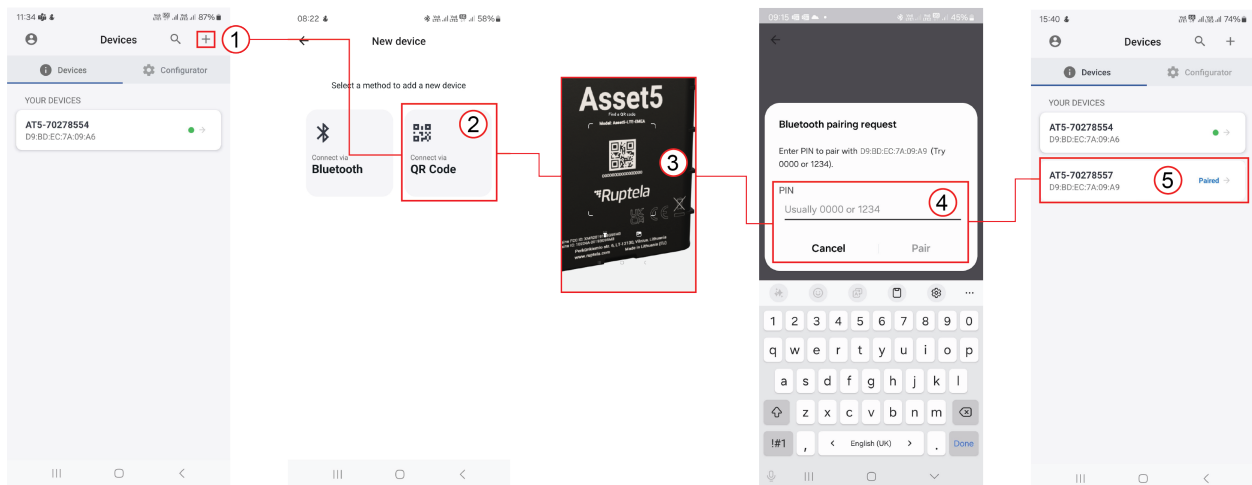


Connecting via QR code

- Click on + icon to add new device
- Select **Connect via QR Code**
- Press **Action button** on the device to start advertising, and scan the QR Code on the device label.
- Bluetooth pairing request window will appear, PIN code is required to pair to the device. Enter PIN code and click Pair.

i PIN code for brand new devices are last 6 digits of IMEI number

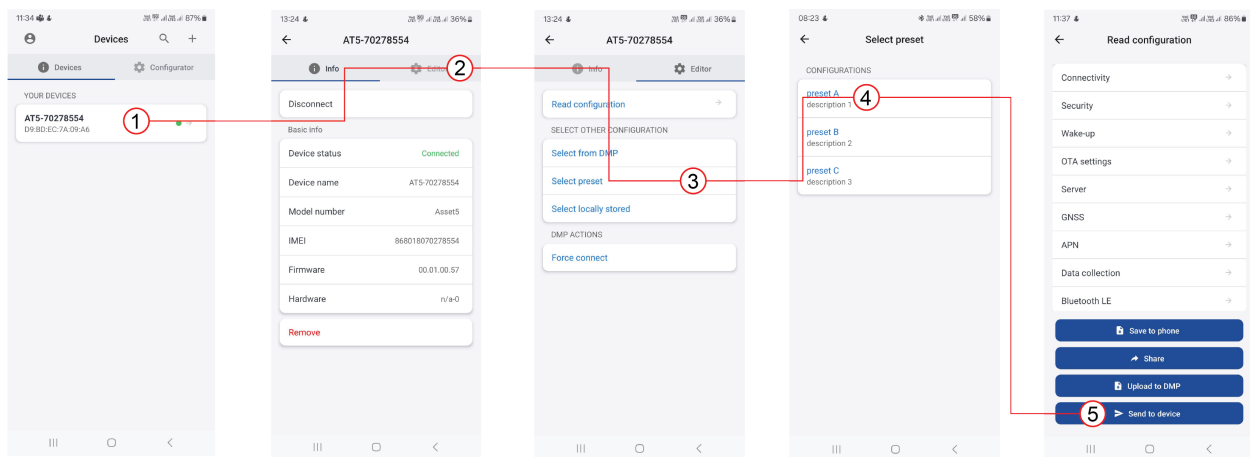
- Once the device is pair it will appear in devices window.



Configure the Tracking Device

Upload preset Configuration

1. Select a Device.
2. Click on **Editor**.
3. Select **Select**.
4. Select one of presets
5. Click **Send to device**



Device is configured with preset settings

Activating device

In order to transfer device from **Shipping mode** to **Active mode**, press **Action button** for 5 seconds.



Required Tools

Before starting the installation, make sure you have the following tools:

- Zip-ties or double-sided tape
- Asset5 Holder (Optional)

Installation Recommendations



Make sure the installation is carried out only by qualified personnel!

Before starting the installation, decide where you will install the device. The installation location depends on the vehicle and the location of the OBD2 socket. Follow these recommendations to ensure that the device works properly:

- Install the device in a service access area (under the dashboard, behind the fuse box, etc.) as close to the top of the dashboard as possible
- Fix the device firmly to the attaching surface, make sure it does not move or shake
- Avoid installing the device near metal surfaces or cables
- Do not install the device near heat emitting or moving parts
- Install the device with an angle of up to 45° in any axis
- The device must be facing towards the sky (see the picture below)
- Make sure that the device is connected to the power supply and to the ignition source set in the Device Center engine detection if the ignition is to be captured via DIN

The internal antennas are very sensitive to the device's positioning. Wrong placement will result in reduced tracking accuracy!

There are two antennas in Asset5:

LTE Antenna on Top of The Device GNSS Antenna in Front of The Device



LTE Antenna on Top of The Device GNSS Antenna in Front of The Device

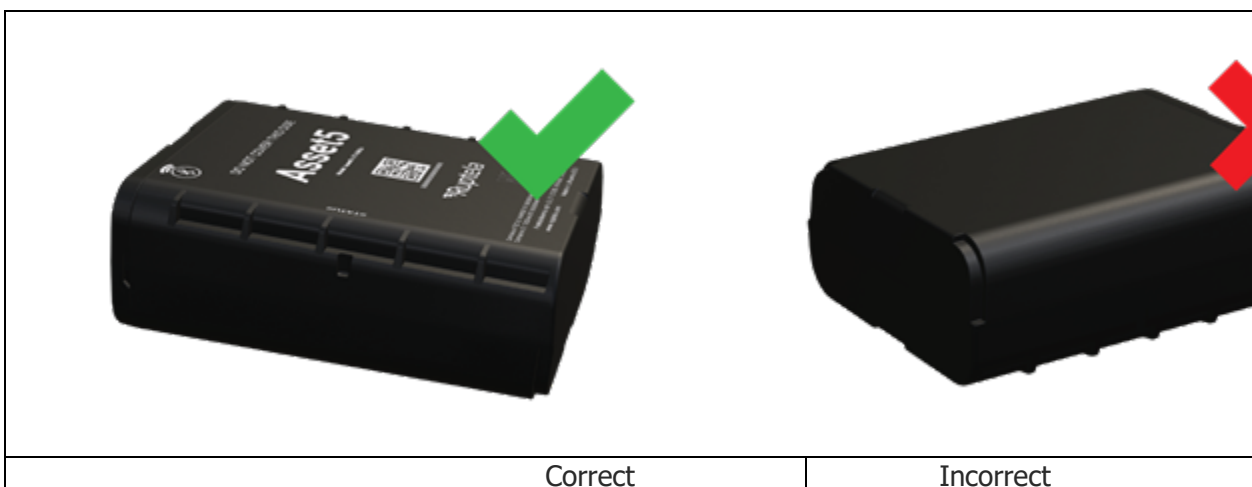
 DO NOT PLACE ANTENNAS DIRECTLY TO METAL SURFACES

Follow the recommendations:

- It is allowed to tilt up to 45 degrees on any axis, but the top surface in all cases must be facing up
- Install behind the dashboard
- Install as close to the windshield as possible
- Avoid installing near metal surfaces
- Do not install the device near heat emitting or moving parts

Fasten the device in the vehicle using zip-ties or double-sided tape.

Make sure it is secured tightly.





Incorrect device installation may result in reduced tracking accuracy.

Certification information

FCC	Federal Communications Commission (FCC) 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 generate, 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. This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation. 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. RF exposure warning This equipment complies with FCC radiation exposure limits set forth for an uncontrolled environment. This equipment must be installed and operated in accordance with provided instructions and the antenna(s) used for this transmitter must be installed to provide a separation distance of at least 20 cm from all persons and must not be collocated or operating in conjunction with any other antenna or transmitter.
------------	---