TELTONIKA

FMT100

Special and small waterproof tracker
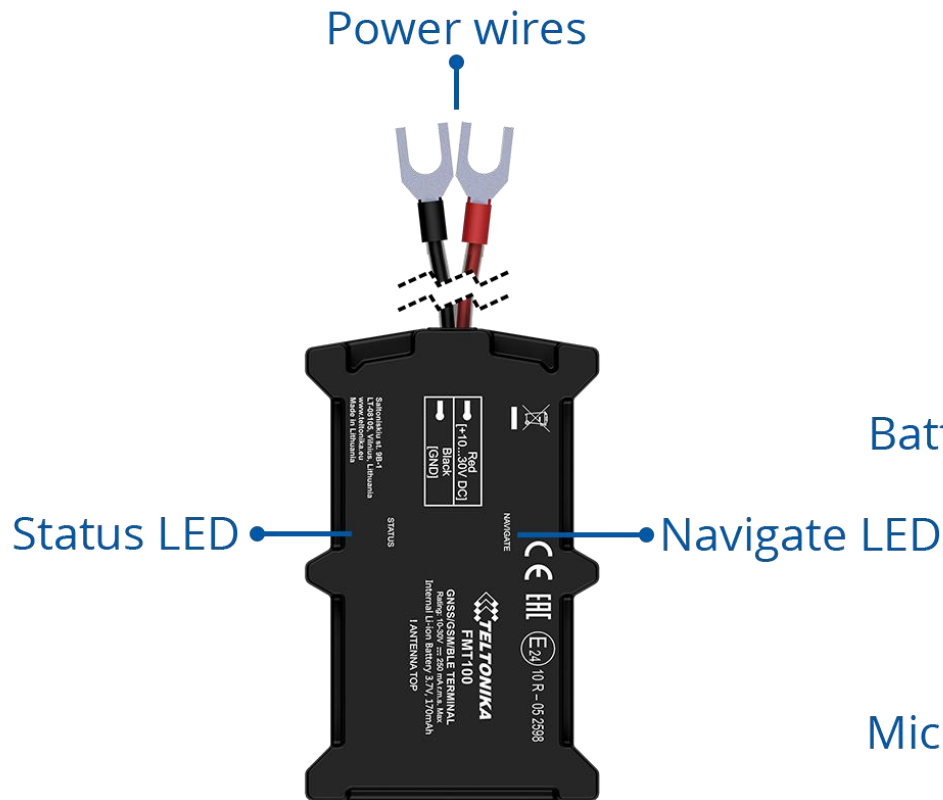
Quick Manual
v1.5

Table of Contents

Know your device

Top view

Power wires

Status LED   Navigate LED

Bottom view
(without cover)

Battery socket

Micro-SIM slot   Micro-USB

Figure 1 FMT100 device view

Pinout

Table 1 Pinout

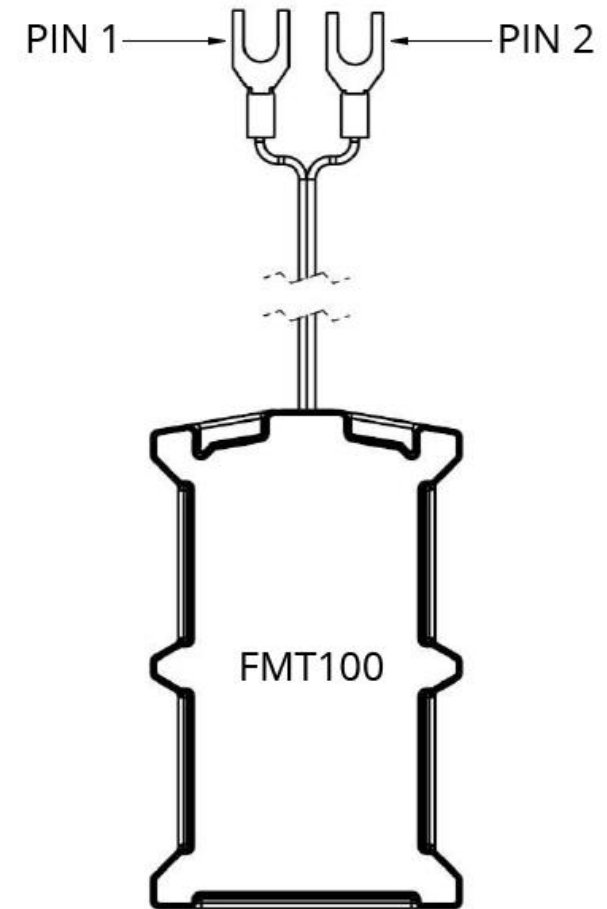| Pin number	Pin name	Description
1	**VCC** (10-30)V DC (+)	**(Red)** Power supply (+10-30 V DC)
2	**GND** (-)	**(Black)** Ground

Figure 2 FMT100 pinout

Set up your device

How to insert Micro-SIM card and connect the battery

1. Unscrew **6 screws** counterclockwise.
2. Remove the **cover.**
3. Insert **Micro-SIM** card as shown with **PIN request disabled** or read our **Wiki** how to enter it later with **Teltonika Configurator**. Make sure that Micro-SIM card **cut-off corner** is pointing forward to slot.
4. Connect the **battery** as shown to device. Position the battery in place where it does not obstruct other components.
5. After **configuration**, see "**PC Connection (Windows)**", attach device **cover** back and **screw** in all screws.
6. Device is ready to be mounted.
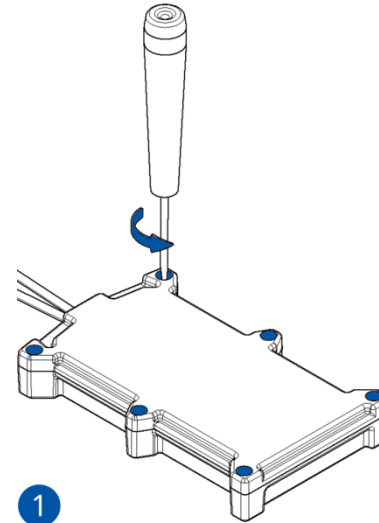
Figure 3 Unscrew screws
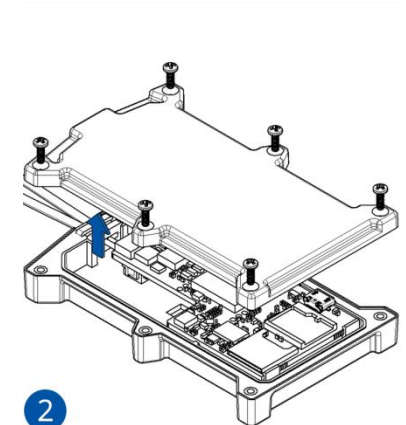
Figure 4 Cover removal
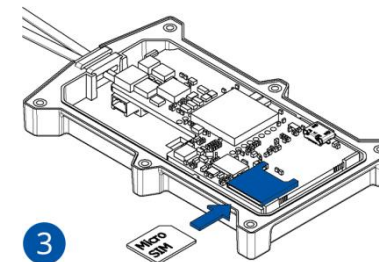
Figure 5 Micro-SIM card insert

Figure 6 Battery connection

Figure 7 Attaching cover back

Figure 8 Device is ready

PC Connection (Windows)

1. Power-up FMT100 with **DC voltage (10 – 30 V)** power supply using **power wires**. LED's should start blinking, see "<u>LED indications</u>".
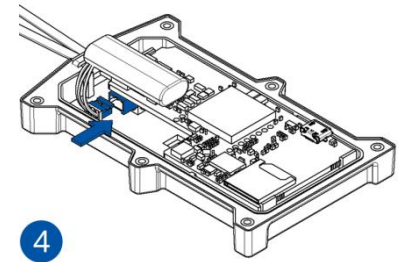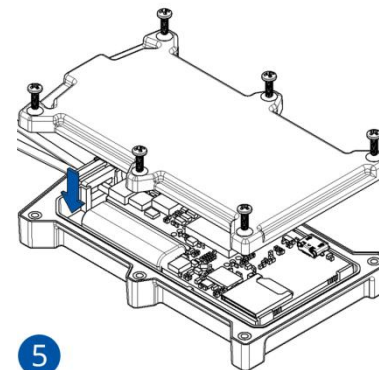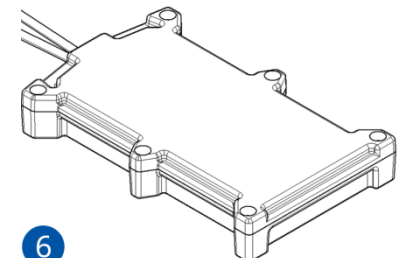2. Connect device to computer using **Micro-USB cable** or **Blue-tooth** connection:
   - Using **Micro-USB cable**
     - You will need to install USB drivers, see "<u>How to install USB drivers (Windows)</u>"
   - Using **Blue-tooth**
     - FMT100 Blue-tooth is enabled by default. Turn on **Blue-tooth** on your PC, then select **Add Blue-tooth or other device** > **Blue-tooth**. Choose your device named – "**FMT100_last_7_imei_digits**", without **LE** in the end. Enter default password **5555**, press **Connect** and then select **Done**.
3. You are now ready to use the device on your computer.

How to install USB drivers (Windows)

1. Please download COM port drivers from <u>here</u>.
2. Extract and run **TeltonikaCOMDriver.exe**.
3. Click **Next** in driver installation window.
4. In the following window click **Install** button.

Setup will continue installing the driver and eventually the confirmation window will appear. Click **Finish** to complete the setup.

Configuration (Windows)

At first FMT100 device will have default factory settings set. These settings should be changed according to the user's needs. Main configuration can be performed via <u>Teltonika Configurator</u> software. Get the latest **Configurator** version from <u>here</u>. Configurator operates on **Microsoft Windows OS** and uses prerequisite **MS .NET Framework**. Make sure you have the correct version installed.

Table 2 MS .NET requirements

MS .NET requirements			
Operating system	MS .NET Framework version	Version	Links
Windows Vista Windows 7 Windows 8.1 Windows 10	MS .NET Framework 4.6.2	32 and 64 bit	www.microsoft.com

Downloaded **Configurator** will be in compressed archive. Extract it and launch **Configurator.exe**. After launch software language can be changed by clicking 🌐 in the right bottom corner (<u>Figure 9 Language selection</u>).
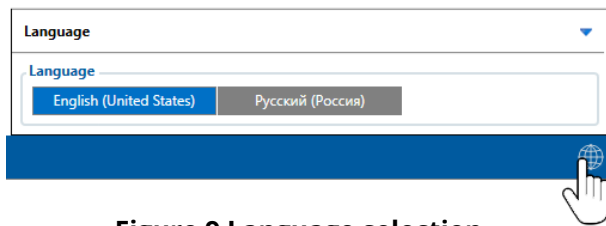
Figure 9 Language selection

Configuration process begins by pressing on connected device (Figure 10 Device connected via USB).

Figure 10 Device connected via USB

After connection to Configurator **Status window** will be displayed (Figure 11 Configurator Status window).
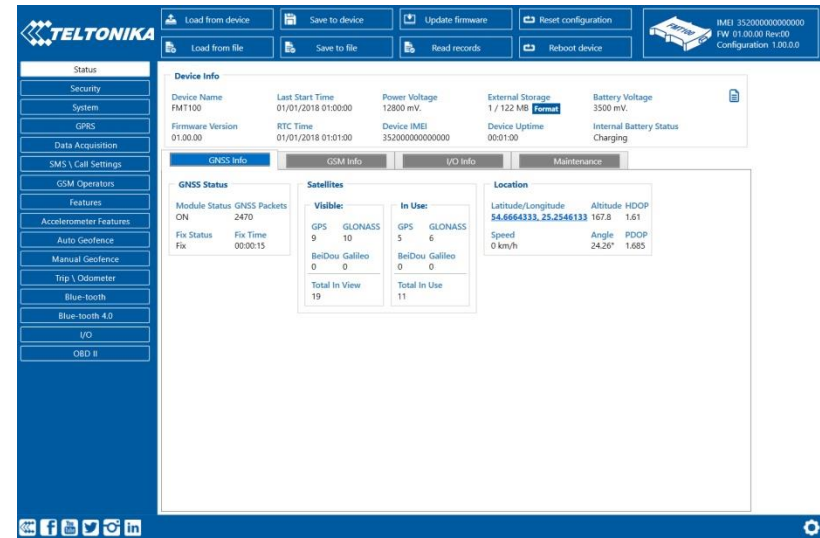
Figure 11 Configurator Status window

Various **Status window** tabs display information about **GNSS**, **GSM**, **I/O**, **Maintenance** and etc. FMT100 has one user editable profile, which can be loaded and saved to the device. After any modification of configuration the changes need to be saved to device using **Save to device** button. Main buttons offer following functionality:

1. **Load from device** – loads configuration from device.

2. **Save to device** – saves configuration to device.

3. **Load from file** – loads configuration from file.

4. **Save to file** – saves configuration to file.

5. **Update firmware** – updates firmware on device.

6. **Read records** – reads records from the device.

7.   **Reboot device** – restarts device.

8.   **Reset configuration** – sets device configuration to

       default.

Most important configurator section is **GPRS** – where all your server and **GPRS settings** can be configured and **Data Acquisition** **–** where data acquiring parameters can be configured.
More details about FMT100 configuration using Configurator can be found in our **Wiki**.

Quick SMS configuration

Default configuration has optimal parameters present to ensure best performance of track quality and data usage.

Quickly set up your device by sending this SMS command to it:

```
"  setparam 2001:APN;2002:APN_username;2003:APN_password;2004:Domain;2005:Port;2006;0"
```

Note: Before SMS text, two space symbols should be inserted.

GPRS settings:

- 2001 – APN
- 2002 – APN username (if there are no APN username, empty field should be left)
- 2003 – APN password (if there are no APN password, empty field should be left)

Server settings:

- 2004 – Domain
- 2005 – Port
- 2006 – Data sending protocol (0 – TCP, 1 – UDP)
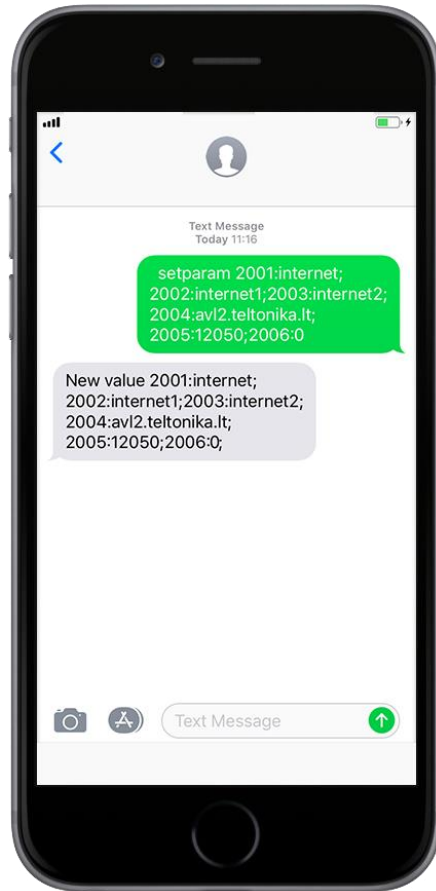
Default configuration settings

Movement and ignition detection:

Vehicle movement will be detected by accelerometer
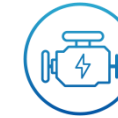
Ignition will be detected by vehicle power voltage between 13,2 – 30 V

Device makes a record **On Moving** if one of these events happen:

300 seconds passes

Vehicle turns 10 degrees

Vehicle drives 100 meters

Speed difference between last coordinate and current position is greater than 10 km/h

Device makes a record **On Stop** if:

1 hour passes while vehicle is stationary and ignition is off

Records sending to server:

If device has made a record it is sent to the server every 120 seconds

After successful SMS configuration, FMT100 device will **synchronize time** and **update records** to **configured server**. Time intervals and default I/O elements can be changed by using **Teltonika Configurator** or **SMS parameters**.

Mounting recommendations

- Device fastening
  - Locate the battery in your vehicle. If present remove the battery cover to access the battery.
  - There is a double sided tape on the back of the device (**Figure 12 Double sided tape on the back**), use it to attach the device on the battery, so that the GNSS antenna and LEDs indicators are facing up (**Figure 13 Example of device mounting**).

Figure 12 Double sided tape on the back

- Connecting power wire
  - Device power wire is designed to be directly connected to the positive terminal fastener of the vehicle battery (**Figure 13 Example of device mounting**).

- Connecting ground wire
  - Device ground wire is designed to be directly connected to the negative terminal fastener of the vehicle battery (**Figure 13 Example of device mounting**).
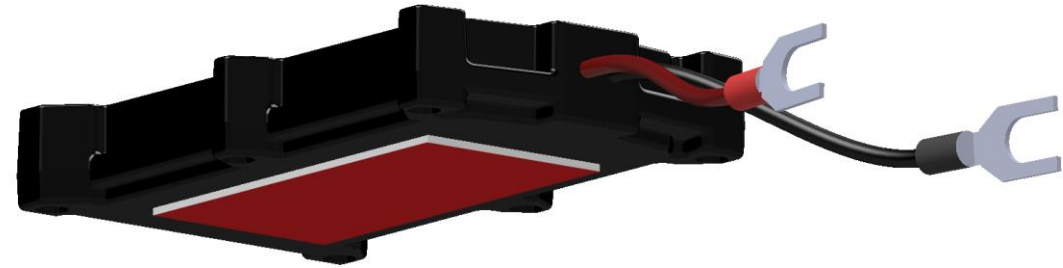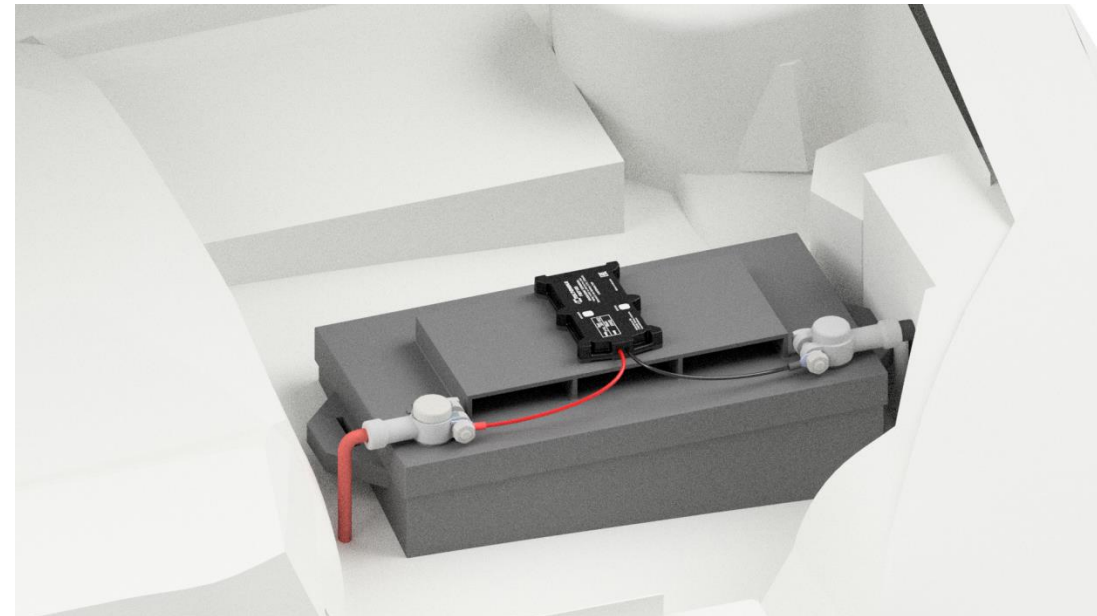

Figure 13 Example of device mounting

LED indications

Table 3 Navigation LED indications

Behaviour	Meaning
Permanently switched on	GNSS signal is not received
Blinking every second	Normal mode, GNSS is working
Off	GNSS is turned off because: Device is not working or Device is in sleep mode
Blinking fast constantly	Device firmware is being flashed

Table 4 Status LED indications

Behaviour	Meaning
Blinking every second	Normal mode
Blinking every two seconds	Sleep mode
Blinking fast for a short time	Modem activity
Off	Device is not working or Device is in boot mode

Characteristics

Basic characteristics

Table 5 Basic characteristics

Module	
Name	TM2500
Technology	GSM, GPRS, GNSS, BLUE-TOOTH
GNSS	
GNSS	GPS, GLONASS, GALILEO, BEIDOU, SBAS, QZSS, DGPS, AGPS
Receiver	33 channel
Tracking sensitivity	-161 dBM
Accuracy	< 3 m
Hot start	< 1 s
Warm start	< 25 s
Cold start	< 35 s
Cellular	
Technology	GSM
2G bands	Quad-band 850 / 900 / 1800 / 1900 MHz
Data transfer	GPRS Multi-Slot Class 12 (up to 240 kbps), GPRS Mobile Station Class B
Data support	SMS (text/data)

Power

Input voltage range	10 - 30 V DC with overvoltage protection
Internal fuse	3 A, 125 V
Back-up battery	170 mAh Li-Po battery 3.7 V (0.63 Wh)
Power consumption	At 12V < 2,5 mA (Ultra Deep Sleep) At 12V < 5 mA (Deep Sleep) At 12V < 5,5 mA (Online Deep Sleep) At 12V < 6,5 mA (GPS Sleep) At 12V < 24 mA (nominal with no load) At 12V < 0.25 A Max. (with full Load / Peak)

Blue-tooth

Specification	4.0 + LE
Supported peripherals	Temperature and Humidity sensor, Headset, OBDII dongle, Inateck Barcode Scanner

Interface

GNSS antenna	Internal High Gain
GSM antenna	Internal High Gain
USB	2.0 Micro-USB
LED indication	2 status LED lights
SIM	Micro-SIM
Memory	128MB internal flash memory

Physical specification

Dimensions	92,5 x 57,6 x 14 mm (L x W x H)
Weight	63 g

Operating environment

Operating temperature (without battery)	-40 °C to +85 °C
Storage temperature (without battery)	-40 °C to +85 °C
Operating humidity	5% to 95% non-condensing
Ingress Protection Rating	IP65
Battery charge temperature	0 °C to +45 °C
Battery discharge temperature	-20 °C to +60 °C
Battery storage temperature	-20 °C to +45 °C for 1 month -20 °C to +35 °C for 6 months

Features

Sensors	Accelerometer
Scenarios	Green Driving, Over Speeding detection, Jamming detection, GNSS Fuel Counter, Excessive Idling detection, Unplug detection, Towing detection, Crash detection, Auto Geofence, Manual Geofence, Trip
Sleep modes	GPS Sleep, Online Deep Sleep, Deep Sleep, Ultra Deep Sleep
Configuration and firmware update	FOTA Web, FOTA, Teltonika Configurator (USB, Blue-tooth), FMBT mobile application (Configuration)
SMS	Configuration, Events, Debug
GPRS commands	Configuration, Debug
Time Synchronization	GPS, NITZ, NTP
Fuel monitoring	OBDII dongle
Ignition detection	Accelerometer, External Power Voltage, Engine RPM (OBDII dongle)

Electrical characteristics

Table 6 Electrical characteristics

Characteristic description	Value			
	Min.	Typ.	Max.	Unit
Supply Voltage				
Supply Voltage (Recommended Operating Conditions)	+10		+30	V

Safety information

This message contains information on how to operate FMT100 safely. By following these requirements and recommendations, you will avoid dangerous situations. You must read these instructions carefully and follow them strictly before operating the device!

- The device uses a 10 V...30 V DC power supply. The nominal voltage is 12 V DC. The allowed range of voltage is 10 V...30 V DC.
- To avoid mechanical damage, it is advised to transport the device in an impact-proof package. Before usage, the device should be placed so that its LED indicators are visible. They show the status of device operation.
- Before unmounting the device from vehicle, ignition **MUST be OFF**.
- All related devices must meet the requirements of EN 62368-1 standard.

Do not disassemble the device. If the device is damaged, the power supply cables are not *isolated* or the isolation is damaged, DO NOT touch the device before unplugging the power supply.

All wireless data transferring devices produce interference that may affect other devices which are placed nearby.

The device must be connected only by qualified personnel.

The device must be firmly fastened in a predefined location.

The programming must be performed using a PC with autonomic power supply.

The device is susceptible to water and humidity if the device housing is not properly closed.

Installation and/or handling during a lightning storm is prohibited.

Risk of explosion if battery is replaced by an incorrect type. Dispose of used batteries according to the instructions.

Battery should not be disposed of with general household waste. Bring damaged or worn-out batteries to your local recycling center or dispose them to battery recycle bin found in stores.

Certification and Approvals

- **FMT100 CE / RED**
- **FMT100 EAC**
- **FMT100 REACH**
- **FMT100 IP Rating**
- **FMT100 Declaration of IMEI assignment**
- **FMT100 Declaration of device operation temperature**
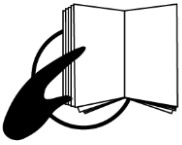
This sign on the package means that it is necessary to read the User's Manual before your start using the device. Full User's Manual version can be found in our Wiki.

This sign on the package means that all used electronic and electric equipment should not be mixed with general household waste.

Hereby, Teltonika declare under our sole responsibility that the above described product is in conformity with the relevant Community harmonization: European Directive 2014/53/EU (RED).

Warranty

TELTONIKA guarantees its products to be free of any manufacturing defects for a period of **24 months**. With additional agreement we can agree on a different warranty period, for more detailed information please contact our sales manager.

Contact us teltonika.lt/company/contacts

All batteries carry a reduced <u>6 month</u> warranty period.

If a product should fail within this specific warranty time, the product can be:

- Repaired
- Replaced with a new product
- Replaced with an equivalent repaired product fulfilling the same functionality
- TELTONIKA can also repair products that are out of warranty at an agreed cost.

Warranty Disclaimer

TELTONIKA PRODUCTS ARE INTENDED TO BE USED BY PERSONS WITH TRAINING AND EXPERIENCE. ANY OTHER USE RENDERS THE LIMITED WARRANTIES EXPRESSED HEREIN AND ALL IMPLIED WARRANTIES NULL AND VOID AND SAME ARE HEREBY EXCLUDED. ALSO EXCLUDED FROM THIS LIMITED WARRANTY ARE ANY AND ALL INCIDENTAL OR CONSEQUENTIAL DAMAGES INCLUDING BUT NOT LIMITED TO, LOSS OF USE OR REVENUE, LOSS OF TIME, INCONVENIENCE OR ANY OTHER ECONOMIC LOSS.

More information can be found at teltonika.lt/warranty-repair