

TELTONIKA
FMM920
Tracker
Smart and
Small



TELTONIKA FMM920 Tracker Smart and Small User Guide

[Home](#) » [teltonika](#) » TELTONIKA FMM920 Tracker Smart and Small User Guide 

Contents

- 1 TELTONIKA FMM920 Tracker Smart and Small
- 2 Specifications
- 3 Product Information
- 4 Product Usage Instructions
- 5 KNOW YOUR DEVICE
- 6 PINOUT
- 7 WIRING SCHEME
- 8 SET UP YOUR DEVICE
- 9 PC CONNECTION (WINDOWS)
- 10 HOW TO INSTALL USB DRIVERS (WINDOWS)
- 11 CONFIGURATION
- 12 QUICK SMS CONFIGURATION
- 13 MOUNTING RECOMMENDATIONS
- 14 LED INDICATIONS
- 15 BASIC CHARACTERISTICS
- 16 ELECTRICAL CHARACTERISTICS
- 17 SAFETY INFORMATION
- 18 CERTIFICATION AND APPROVALS
- 19 WARRANTY
- 20 WARRANTY DISCLAIMER
- 21 FAQs
- 22 Documents / Resources
 - 22.1 References



TELTONIKA FMM920 Tracker Smart and Small



Specifications

- **Model:** FMM920
- **Type:** Small and smart tracker
- **Quick Manual Version:** 2.6

Product Information

The FMM920 is a small and smart tracker designed for telematics applications. It features various inputs and outputs for monitoring and controlling devices.

Product Usage Instructions

Know Your Device:

The device includes various components such as a power cable, micro-USB port, LED indicators, battery socket, and micro-SIM slot. Refer to the manual for detailed pinout information.

Set Up Your Device:

1. Micro-SIM Card Installation:

1. Carefully remove the FMM920 cover using a plastic pry tool.
2. Insert the Micro-SIM card with the cut-off corner facing forward into the slot.
3. Remove the adhesive tape protection.
4. Place the battery inside the casing and connect it to the PCB.
5. Reattach the cover to complete the setup.

2. PC Connection (Windows):

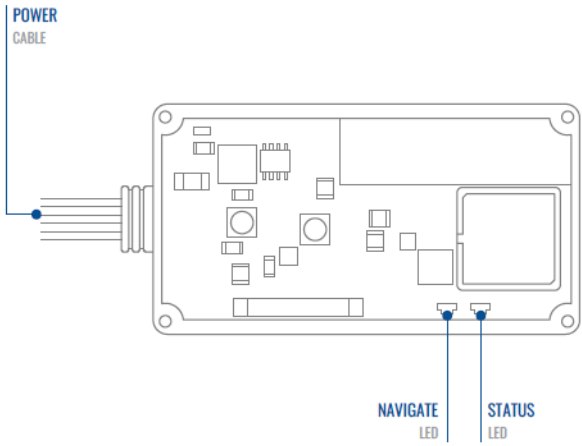
1. Download and install the necessary USB drivers for Windows from the provided link.
2. Connect the device to your computer for configuration.

3. Configuration:

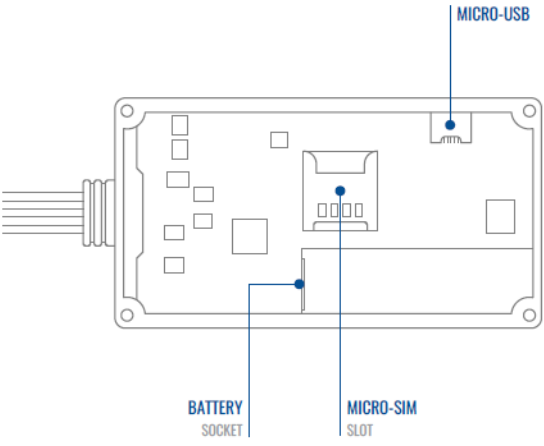
Customize device settings using Teltonika Configurator software on a Windows OS. Ensure you have the required .NET Framework installed.

KNOW YOUR DEVICE

TOP VIEW (WITHOUT COVER)

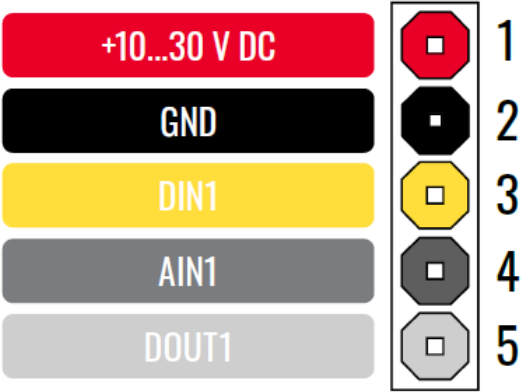


BOTTOM VIEW (WITHOUT COVER)



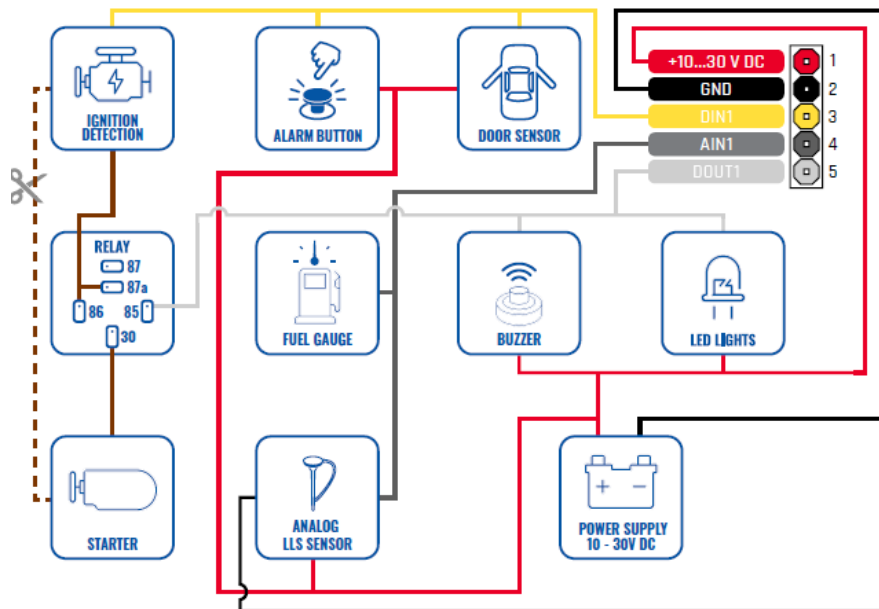
PINOUT

PIN NUMBER	PIN NAME	DESCRIPTION
1	VCC (10-30) V DC (+)	(Red) Power supply (+10 -30 V DC)
2	GND (-)	(Black) Ground
3	DIN1	(Yellow) Digital input, channel 1. DEDICATED FOR IGNITION INPUT
4	AIN1	(Grey) Analog input, channel 1. Input range: 0-30 V DC
5	DOUT1	(White) Digital output. Open collector output. Max. 0,5 A DC



FMM920 pinout

WIRING SCHEME



SET UP YOUR DEVICE

1. COVER REMOVAL

Gently remove the FMM920 cover using a plastic pry tool from both sides.

2. MICRO-SIM CARD INSERT

Insert Micro-SIM card as shown with PIN request disabled or read Security info1 how to enter it later in Configurator. Make sure that the Micro-SIM card cut-off corner is pointing forward to the slot. wiki.teltonika-gps.com/view/FMM920_Security_info

3. REMOVING PROTECTION

Remove the adhesive tape protection.



4. PLACING BATTERY

Place the battery inside the casing of the FMM920. Make sure the adhesive tape sticks to the casing.

5. CONNECTING BATTERY

Connect the internal battery to the FMM920 PCB.

6. ATTACHING COVER BACK

Attach the device cover back. The device is ready to be connected

PC CONNECTION (WINDOWS)

- Power-up FMM920 with DC voltage (10 – 30 V) power supply using power wires. LEDs should start blinking, see “LED indications1”.
- Connect the device to the computer using a Micro-USB cable or Bluetooth® connection:
 - Using Micro-USB cable
 - You will need to install USB drivers, see “How to install USB drivers (Windows)2”
 - Using Bluetooth® wireless technology
 - FMM920 Bluetooth is enabled by default. Turn on the Bluetooth® connection on your PC, then select Add

Bluetooth or other device > Bluetooth. Choose your device named – “FMM920_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 here¹.
2. Extract and run TeltonikaCOMDriver.exe.
3. Click Next in the driver installation window.
4. In the following window click the Install button.
5. Setup will continue installing the driver and eventually, the confirmation window will appear. Click Finish to complete the setup.

wiki.teltonika-gps.com/images/d/d0/TeltonikaCOMDriver.zip

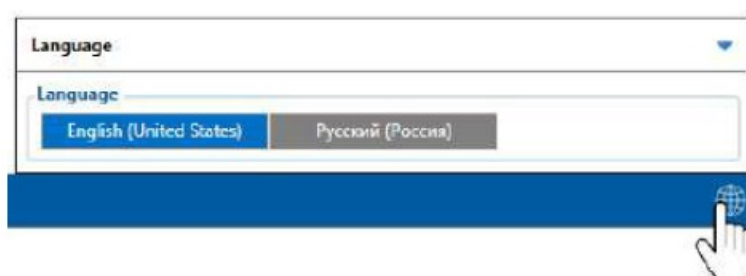
CONFIGURATION

At first, the FMM920 device will have default factory settings set. These settings should be changed according to the user's needs. The main configuration can be performed via Teltonika Configurator¹ software. Get the latest Configurator version from here². Configurator operates on Microsoft Windows OS and uses the prerequisite MS .NET Framework. Make sure you have the correct version installed.

- wiki.teltonika-gps.com/view/Teltonika_Configurator
- wiki.teltonika-gps.com/view/Teltonika_Configurator_versions

MS .NET REQUIREMENTS

Operating system	MS .NET Framework version	Version	Links
Windows Vista			
Windows 7			
Windows 8.1	MS .NET 5.0	32 and 64 bit	www.microsoft.com ¹
Windows 10			











Downloaded Configurator will be in a compressed archive. Extract it and launch Configurator.exe. After launch software language can be changed by clicking ? in the right bottom corner.



The configuration process begins by pressing on the connected device.



After connection to Configurator Status window will be displayed. Various Status window¹ tabs display information about GNSS², GSM³, I/O⁴, Maintenance⁵, etc. FMM920 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 the device using the Save to Device button. Main buttons offer the following functionality:

-  **Load from the device** – loads configuration from the device.
-  **Save to device** – saves the configuration to the device.
-  **Load from file** – loads configuration from file.
-  **Save to file** – saves the configuration to file.
-  **Update firmware** – updates the firmware on the device.
-  **Read records** – reads records from the device.
-  **Reboot device** restarts the device.
-  **Reset configuration** – sets device configuration to default.

The most important configurator section is GPRS – where all your server and GPRS settings⁶ can be configured and Data Acquisition⁷ – where data acquiring parameters can be configured. More details about FMM920 configuration using Configurator can be found in our Wiki⁸.

1. wiki.teltonika-gps.com/view/FMM920_Status_info
2. wiki.teltonika-gps.com/view/FMM920_Status_info#GNSS_Info
3. wiki.teltonika-gps.com/view/FMM920_Status_info#GSM_Info
4. wiki.teltonika-gps.com/view/FMM920_Status_info#I.2FO_Info
5. wiki.teltonika-gps.com/view/FMM920_Status_info#Maintenance
6. wiki.teltonika-gps.com/view/FMM920_GPRS_settings
7. wiki.teltonika-gps.com/view/FMM920_Data_acquisition_settings
8. wiki.teltonika-gps.com/view/FMM920_Configuration

QUICK SMS CONFIGURATION

The default configuration has optimal parameters present to ensure the 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»

1

2

3

4

5

6

Note:

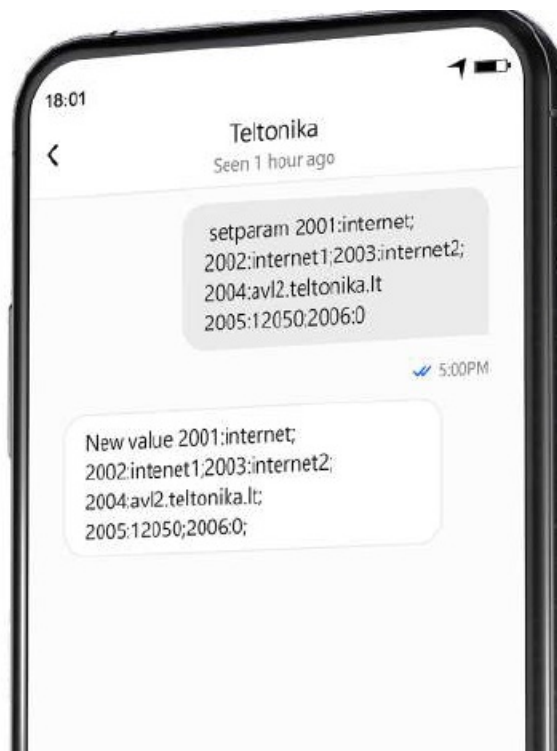
Before SMS text, two space symbols should be inserted.

GPRS SETTINGS:

1. 2001 – APN
2. 2002 – APN username (if there are no APN usernames, an empty field should be left)
3. 2003 – APN password (if there are no APN passwords, an empty field should be left)

SERVER SETTINGS:

1. 2004 – Domain
2. 2005 – Port
3. 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 OF MOVING IF ONE OF THESE EVENTS HAPPENS:

-  **300 seconds** passes
-  **VEHICLE DRIVES** 100 meters
-  **VEHICLE TURNS** 10 degrees
-  **SPEED DIFFERENCE** between the last coordinate and current position is greater than 10 km/h

DEVICE MAKES A RECORD ON STOP IF:

-  **1 HOUR PASSES** while the vehicle is stationary and ignition is off

RECORDS SENDING TO SERVER:

-  **IF THE DEVICE HAS MADE A RECORD** it is sent to the server every 120 seconds

After successful SMS configuration, the FMM920 device will synchronize time and update records to the configured server. Time intervals and default I/O elements can be changed by using Teltonika Configurator1 or SMS parameters2.

1. wiki.teltonika-gps.com/view/Teltonika_Configurator
2. wiki.teltonika-gps.com/view/Template:FMB_Device_Family_Parameter_list

MOUNTING RECOMMENDATIONS

CONNECTING WIRES

- Wires should be fastened to the other wires or non-moving parts. Try to avoid heat emitting and moving objects near the wires.
- The connections should not be seen very clearly. If factory isolation was removed while connecting wires, it should be applied again.
- If the wires are placed in the exterior or in places where they can be damaged or exposed to heat, humidity, dirt, etc., additional isolation should be applied.
- Wires cannot be connected to the board computers or control units.

CONNECTING POWER SOURCE

- Be sure that after the car computer falls asleep, power is still available on the chosen wire. Depending on the car, this may happen in a 5 to 30-minute period.
- When the module is connected, measure the voltage again to make sure it did not decrease.
- It is recommended to connect to the main power cable in the fuse box.
- Use 3A, 125V external fuse.

CONNECTING IGNITION WIRE

- Be sure to check if it is a real ignition wire i. e. power does not disappear after starting the engine.
- Check if this is not an ACC wire (when the key is in the first position, most of the vehicle electronics are available).
- Check if power is still available when you turn off any of vehicles devices.
- The ignition is connected to the ignition relay output. As an alternative, any other relay, that has power output when ignition is on, may be chosen.

CONNECTING GROUND WIRE

- The ground wire is connected to the vehicle frame or metal parts that are fixed to the frame.
- If the wire is fixed with the bolt, the loop must be connected to the end of the wire.
- For better contact scrub paint from the spot where the loop is going to be connected.

LED INDICATIONS

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

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

BASIC CHARACTERISTICS

MODULE

Name	FMM920-Q3IB0: Quectel BG95-M3 with Teltonika TM2500
Technology	LTE Cat M1/NB-IoT/GSM/GPRS/GNSS/BLUETOOTH® LE

GNSS

GNSS	GPS, GLONASS, GALILEO, BEIDOU, QZSS, AGPS
Receiver	33 channel
Tracking sensitivity	-165 dBm
Accuracy	< 3 m
Hot start	< 1 s
Warm start	< 25 s
Cold start	< 35 s

CELLUAR

Technology	LTE Cat M1/NB-IoT/GSM
2G bands	GPRS: B2/B3/B5/B8
4G bands	Cat M1: B1/B2/B3/B4/B5/B8/ B12/ B13/B18/B19/ B20/B25/B27/ B28/ B66/B85 Cat NB2: B1/B2/B3/B4/B5/B8/ B12/ B13/B18/B19/ B20/B25/B28/B66/ B71/B85
Data transfer	BG95: Cat M1: Max. 588Kbps (DL)/ Max.1119Kbps (UL) Cat NB2: Max. 127Kbps (DL)/Max. 158.5Kbps (UL) GPRS: Max. 107Kbps (DL)/Max. 85.6Kbps (UL)
Transmit power	Class 4 for GSM850/900: 32±2dBm Class 1 for GSM1800/1900: 30±2dBm Class 3 for LTE-TDD: 23±2.7dBm Class 3 for LTE-FDD: 23±2.7dBm Bluetooth: 4.57dBm +/-2dBm Bluetooth LE: -4.83dBm +/-2dBm

POWER

Input voltage range	10 - 30 V DC with overvoltage protection
Back-up battery	170 mAh Li-Ion battery (0.63 Wh)
Internal fuse	3A, 125 V
Power consumption	At 12V < 2 mA (Ultra Deep Sleep) At 12V < 3 mA (Deep Sleep) At 12V < 8 mA (Online Sleep) At 12V < 12 mA (GNSS Sleep) At 12V < 28 mA (Nominal with no load) At 12V < 250 mA Max. (with full Load / Peak)

BLUETOOTH® TECHNOLOGY

Specification	4.0 + LE
Supported peripherals	EYE beacon and sensor ¹ , OBDII dongle ² , Inateck Barcode Scanner, Universal Bluetooth® LE beacons and sensors support

INTERFACE

Digital Inputs	1
Digital Outputs	1
Analog Inputs	1
GNSS antenna	Internal High Gain
Cellular 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	79 x 43 x 12 mm (L x W x H)
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Weight	54 g
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OPERATING ENVIRONMENT	
Operating temperature (with battery)	-20 °C to +40 °C
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	IP54
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, DOUT Control Via Call, Excessive Idling detection, Unplug detection, Towing detection, Crash detection, Auto Geofence, Manual Geofence, Trip ³
Sleep modes	GPS Sleep, Online Deep Sleep, Deep Sleep, Ultra Deep Sleep ⁴
Configuration and firmware update	FOTA Web ⁵ , FOTA ⁶ , Teltonika Configurator ⁷ (USB, Bluetooth® wireless technology)
SMS	Configuration, Events, DOUT Control, Debug
GPRS commands	Configuration, Debug
Time Synchronization	GPS, NITZ, NTP
Fuel monitoring	LLS (Analog), OBDII dongle ⁸
Ignition detection	Digital Input 1, Accelerometer, External Power Voltage, Engine RPM (OBDII dongle ⁸)

1. gps.com/products/accessories/sensors-beacons
2. wiki.teltonika.lt/view/How_to_connect_OBD_II_Blue-tooth_Dongle_to_FMB_device
3. wiki.teltonika-gps.com/view/FMM920_Features_settings
4. wiki.teltonika-gps.com/view/FMM920_Sleep_modes
5. wiki.teltonika-gps.com/view/FOTA_WEB

6. wiki.teltonika-gps.com/view/FOTA
7. wiki.teltonika-gps.com/view/Teltonika_Configurator
8. wiki.teltonika-gps.com/view/How_to_connect_OBD_II_Bluetooth_Dongle_to_FMB_device

ELECTRICAL CHARACTERISTICS

CHARACTERISTIC DESCRIPTION	VALUE			
	MIN.	TYP.	MAX.	UNIT
SUPPLY VOLTAGE				
Supply Voltage (Recommended Operating Conditions)	+10		+30	V
DIGITAL OUTPUT (OPEN DRAIN GRADE)				
Drain current (Digital Output OFF)			120	μA
Drain current (Digital Output ON, Recommended Operating Conditions)			0.5	A
Static Drain-Source resistance (Digital Output ON)			300	mΩ
DIGITAL INPUT				
Input resistance (DIN1)	47			kΩ
Input voltage (Recommended Operating Conditions)	0		30	V
Input Voltage threshold		2.5		V
CHARACTERISTIC DESCRIPTION	VALUE			
	MIN.	TYP.	MAX.	UNIT
ANALOG INPUT				
Input Voltage (Recommended Operating Conditions)	0		30	V
Input resistance		150		kΩ
Measurement error on 12V		3		%
Additional error on 12V		360		mV
Measurement error on 30V		3		%
Additional error on 30V		900		mV

SAFETY INFORMATION

This message contains information on how to operate FMM920 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 SELV limited power source. The nominal voltage is +12 V DC. The allowed voltage range is +10...+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 the device's operation.
- When connecting the connection (1×5) cables to the vehicle, the appropriate jumpers of the power supply of the vehicle should be disconnected.
- Before dismounting the device from the vehicle, the 1×5 connection must be disconnected.
- The device is designed to be mounted in a zone of limited access, which is inaccessible to the operator. All related devices must meet the requirements of EN 62368-1 standard.
- The device FMM920 is not designed as a navigational device for boats.
- 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 that are placed nearby.
- The device must be firmly fastened in a predefined location.
- The programming must be performed using a PC with an autonomic power supply
- The device must be connected only by qualified personnel.
- Installation and/or handling during a lightning storm is prohibited.
- The device is susceptible to water and humidity.

CERTIFICATION AND APPROVALS

This sign on the package means that it is necessary to read the User's Manual before you start using the device. The full Users Manual version can be found in our Wikil wiki.teltonika-gps.com/view/FMM920

- This sign on the package means that all used electronic and electric equipment should not be mixed with general household waste. Para maiores informações, consulte o site da ANATEL www.anatel.gov.br
- For more information, see the ANATEL website www.anatel.gov.br
- This equipment is not entitled to protection against harmful interference and must not cause interference in duly authorized systems.
- The standard aims to provide users with more detailed information than vague marketing terms such as waterproof.
- The Bluetooth word mark and logos are registered trademarks owned by Bluetooth SIG, Inc. and any use of such marks by I-JAB Teltonika Telematics is under license. Other trademarks and trade names are those of their respective owners.
- Hereby, Teltonika declares under our sole responsibility that the above-described product conforms with the relevant Community harmonization: European Directive 2014/53/ELJ (RED).
- I-JK Conformity Assessed (UKCA) marking is a conformity mark that indicates conformity with the applicable requirements for above described products sold within Great Britain.
- E-Mark and e-Mark are the European conformity marks issued by the transport sector, indicating that the products comply with relevant laws and regulations or directives. Vehicles and related products need to go

through the E-Mark certification process to be legally sold in Europe.

- The Australian standard AS/NZS 4417.1 and AS/NZS 4417.2 Marking of electrical products to indicate compliance with regulations – General rules for use of the mark provide general requirements for the use of the RCM including the location of the marking on the equipment and its dimensional requirements.
- REACH addresses the production and use of chemical substances and their potential impacts on both human health and the environment. Its 849 pages took seven years to pass, and it has been described as the most complex legislation in the Union's history and the most important in 20 years. It is the strictest law to date regulating chemical substances and will affect industries throughout the world.
- The RoHS1 is a directive regulating the manufacture, import, and distribution of Electronics and Electrical Equipment (EEE) within the EU, which bans from use of 10 different hazardous materials (to date)

DECLARATION OF IMEI ASSIGNMENT

The IMEI number is used by a GSM network to identify valid devices and therefore can be used to stop a stolen phone from accessing that network. For example, if a mobile phone is stolen, the owner can call their network provider and instruct them to blacklist the phone using its IMEI number. This renders the phone useless on that network and sometimes other networks too, whether or not the phone's subscriber identity module (SIM) is changed.

CHECK ALL CERTIFICATES

All the newest certificates may be found in our Wiki2.wiki.teltonika-gps.com/view/FMM920_Certification_%26_Approvals.

WARRANTY

- We guarantee our products a 24-month warranty¹ period.
- All batteries carry a 6-month warranty period.
- Post-warranty repair service for products is not provided.
- If a product stops operating 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
 - Replaced with a different product fulfilling the same functionality in case of EOL for the original product
- Additional agreements for an extended warranty period can be agreed upon separately.

WARRANTY DISCLAIMER

- Customers are only allowed to return products as a result of the product being defective, due to order assembly or manufacturing fault.
- Products are intended to be used by personnel with training and experience.
- Warranty does not cover defects or malfunctions caused by accidents, misuse, abuse, catastrophes, improper maintenance, or inadequate installation – not following operating instructions (including failure to heed warnings) or use with equipment with which it is not intended to be used.
- The warranty does not apply to any consequential damages.
- Warranty is not applicable for supplementary product equipment i. e. PSU, power cables, antennas) unless the accessory is defective on arrival.
- More information on what is RMA¹


- wiki.teltonika-gps.com/view/RMA_guidelines

FAQS



Q: How can I check the status of my device?

A: Use the various status window tabs to display information about GNSS, GSM, I/O, Maintenance, and more. You can also save configurations to the device for future use.

Documents / Resources

	TELTONIKA FMM920 Tracker Smart and Small [pdf] User Guide FMM920 Tracker Smart and Small, FMM920, Tracker Smart and Small, Smart and Small
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References

-  [Download .NET 5.0 Runtime](#)
-  [Anatel — Agência Nacional de Telecomunicações](#)
- [User Manual](#)

[Manuals+](#), [Privacy Policy](#)

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