



FMB202

Advanced waterproof tracker

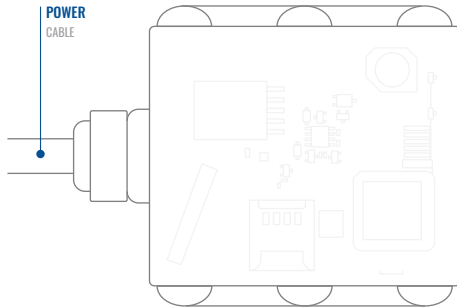
Quick Manual v1.4

CONTENT

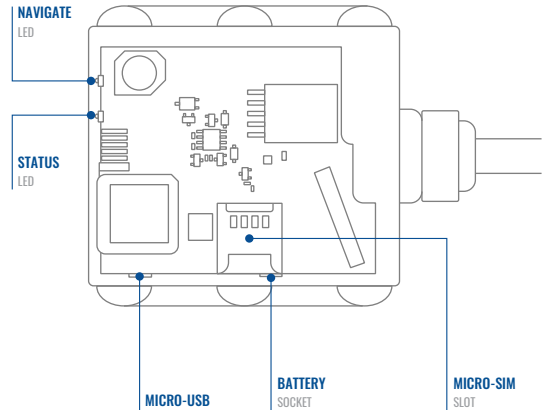
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KNOW YOUR DEVICE

TOP VIEW



TOP VIEW (WITHOUT COVER)



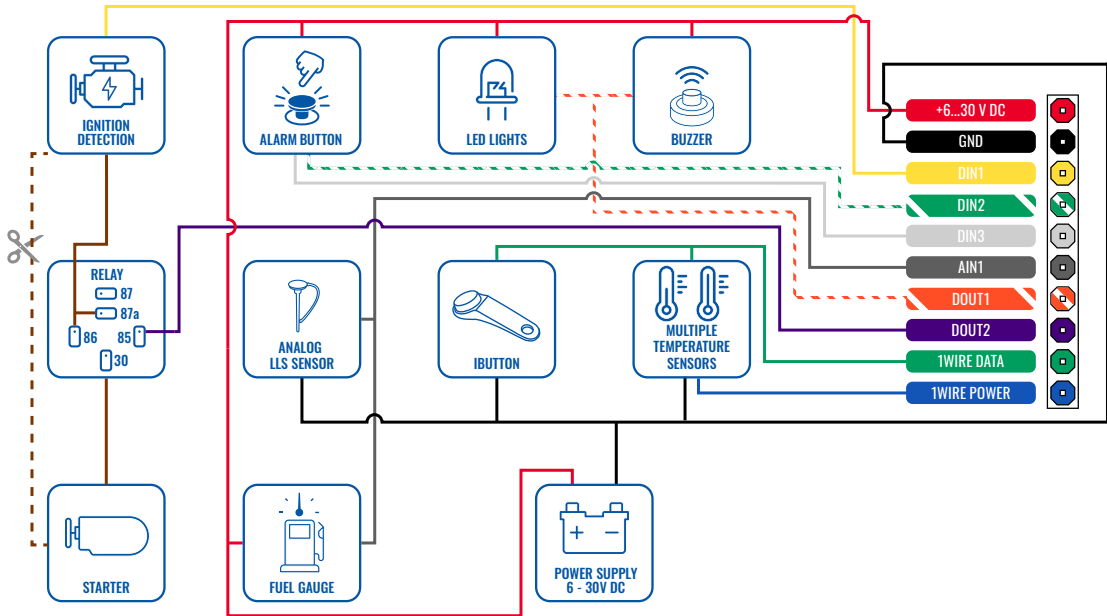
PINOUT

PIN NAME	DESCRIPTION
VCC (6-30)V	Power supply (6-30) V DC (+).
GND (-)	Ground pin. (6-30) V DC (-)
DIN 1	Digital input, channel 1.
DIN 2	Digital input, channel 2.
DIN 3	Digital input, channel 3.
AIN 1	Analog input, channel 1. Input range: 0-30 V DC.
DOUT 1	Digital output, channel 1. Open collector output. Max. 3,3 A DC..
DOUT 2	Digital output, channel 2. Open collector output. Max. 3,3 A DC.
1WIRE DATA	Data for 1-Wire devices.
1WIRE POWER	+3,8 V output for 1-Wire devices.



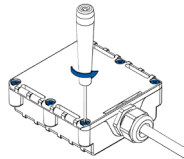
FMB202 wires

WIRING SCHEME



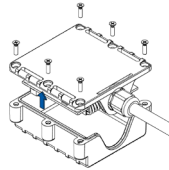
SET UP YOUR DEVICE

HOW TO INSERT MICRO-SIM CARD



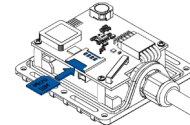
1 UNSCREW SCREW

Unscrew 6 screws counterclockwise that are located on the **bottom** of the device.



2 COVER REMOVAL

Remove the **cover**

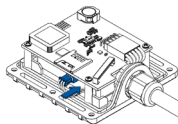


3 MICRO-SIM CARD INSERT

Insert **Micro-SIM** card as shown with **PIN request disabled** or read our [Wiki¹](#) how to enter it later in [Teltonika Configurator²](#). Make sure that Micro-SIM card **cut-off corner** is pointing forward to slot.

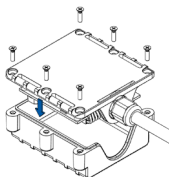
¹wiki.teltonika.lt/index.php?title=FMB202_Security_info

²wiki.teltonika.lt/view/Teltonika_Configurator



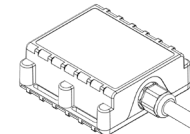
4 PLACING BATTERY

Connect **battery** as shown to device.



5 ATTACHING COVER BACK

After **configuration**, see "[PC Connection \(Windows\)](#)", attach device **cover** back and screw in all screws.



6 DEVICE IS READY

Device is ready to be mounted.

¹ Page 7

PC CONNECTION (WINDOWS)

1. Power-up FMB202 with **DC voltage (10 – 30 V)** power supply using **supplied power cable**. LED's should start blinking, see "**LED indications**".
2. Connect device to computer using **Micro-USB cable** or Bluetooth connection:
 - Using Micro-USB cable
 - You will need to install USB drivers, see "**How to install USB drivers (Windows)**"¹
 - Using **Bluetooth**
 - FMB202 **Bluetooth** is enabled by default. Turn on Bluetooth on your PC, then select **Add Bluetooth or other device > Bluetooth**. Choose your device named – "**FMB202_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.

¹wiki.teltonika-gps.com/view/FMB202_LED_status

²Page 6, "How to install USB drivers"

HOW TO INSTALL USB DRIVERS (WINDOWS)

1. Please download COM port drivers from [here](#)¹.
2. Extract and run **TeltonikaCOMDriver.exe**.
3. Click **Next** in driver installation window.
4. In the following window click **Install** button.
5. Setup will continue installing the driver and eventually the confirmation window will appear. Click **Finish** to complete the setup.

¹teltonika.lt/downloads/en/FMB202/TeltonikaCOMDriver.zip

CONFIGURATION

At first FMB202 device will have default factory settings set. These settings should be changed according to the users needs. Main configuration can be performed via [Teltonika Configurator](#)¹ software. Get the latest **Configurator** version from [here](#)². Configurator operates on **Microsoft Windows OS** and uses prerequisite **MS .NET Framework**. Make sure you have the correct version installed.

¹ wiki.teltonika-gps.com/view/Teltonika_Configurator

² 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 Framework 4.6.2	32 and 64 bit	www.microsoft.com ¹
Windows 10			

¹ dotnet.microsoft.com/en-us/download/dotnet-framework/net462

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»
```

1

2

3

4

5

6

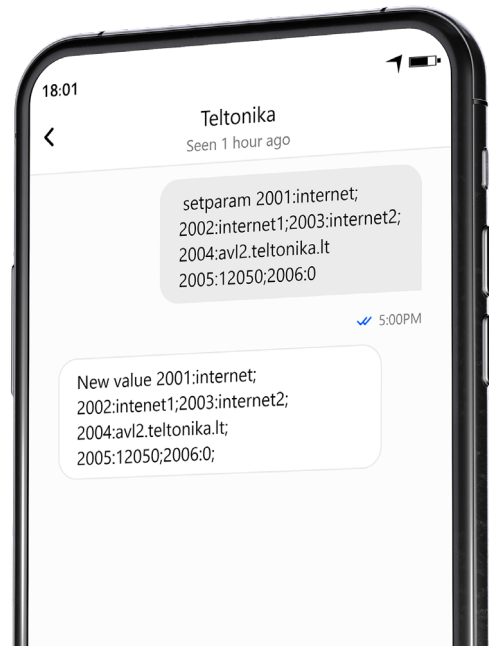
Note: Before SMS text, two space symbols should be inserted.

GPRS SETTINGS:

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

SERVER SETTINGS:

- 4 2004 – Domain
- 5 2005 – Port
- 6 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 STOP IF:



1 HOUR PASSES
while vehicle is
stationary and
ignition is off



EVERY 120 SECOND
it is sent to the server
If device has made a
record

DEVICE MAKES A RECORD ON MOVING IF ONE OF THESE EVENTS HAPPEN:



PASSES
300 seconds



VEHICLE DRIVES
100 meters



VEHICLE TURNS
10 degrees



SPEED DIFFERENCE
between last coordinate
and current position is
greater than 10 km/h

After successful SMS configuration, FMB202 device will synchronize time and update records to configured server. Time intervals and default I/O elements can be changed by using [Teltonika Configurator](#)¹ or [SMS parameters](#)².

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 chosen wire. Depending on car, this may happen in 5 to 30 minutes period.
- When module is connected, measure 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 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.
- Ignition is connected to the ignition relay output. As alternative, any other relay, which has power output when ignition is on, may be chosen.

CONNECTING GROUND WIRE

- 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 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	TM2500
Technology	GSM, GPRS, GNSS, BLUETOOTH

GNSS

GNSS	GPS, GLONASS, GALILEO, BEIDOU, SBAS, QZSS, DGPS, 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	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	6-30 V DC with overvoltage protection
Back-up battery	400 mAh Ni-MH battery 7.2 V (2.88 Wh)
Power Consumption	At 12V < 1,9 mA (Ultra Deep Sleep ¹)
	At 12V < 3,7 mA (Deep Sleep ²)
	At 12V < 4 mA (Online Deep Sleep ³)
	At 12V < 11,6 mA (GPS Sleep ⁴)
	At 12V < 28,3 mA (nominal)

BLUETOOTH

Specification	4.0 + LE
Supported peripherals	Temperature and Humidity sensor ⁵ , Headset ⁶ , OBDII dongle ⁷ , Inateck Barcode Scanner

PHYSICAL SPECIFICATION

Dimensions	72,5 x 73 x 27,3 mm (L x W x H)
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¹ wiki.teltonika-gps.com/view/FMB202_Sleep_modes#Ultra_Deep_Sleep_mode

² wiki.teltonika-gps.com/view/FMB202_Sleep_modes#Online_Deep_Sleep_mode

³ wiki.teltonika-gps.com/view/FMB202_Sleep_modes#Online_Deep_Sleep_mode

⁴ wiki.teltonika-gps.com/view/FMB202_Sleep_modes#GPS_Sleep_mode

⁵ wiki.teltonika.lt/product/bluetooth-sensor/

⁶ wiki.teltonika.lt/view/How_to_connect_Blue-tooth_Hands_Free_adapter_to_FMB_device

⁷ wiki.teltonika.lt/view/How_to_connect_OBD_II_Bluetooth_Dongle_to_FMB_device

Device+case+battery weight	With 400 mAh bat. - 170 g With 1800 mAh bat. - 210 g
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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	IP67
Battery storage temperature	-20 °C to +45 °C for 1 month -20 °C to +35 °C for 6 month

FEATURES

Sensors	Accelerometer
Scenarios	Green Driving, Over Speeding detection, Jamming detection, GNSS Fuel Counter, DOUT Control Via Call, Excessive Idling detection, Immobilizer, iButton Read Notification, Unplug detection, Towing detection, Crash detection, Auto Geofence, Manual Geofence, Trip ⁸
Sleep modes	GPS Sleep ⁴ , Online Deep Sleep ³ , Deep Sleep ² , Ultra Deep Sleep ¹

⁸ wiki.teltonika-gps.com/view/FMB202_Features_settings

Configuration and firmware update	FOTA Web ⁹ , FOTA ¹⁰ , Teltonika Configurator ¹¹ (USB, Bluetooth), FMBT mobile application ¹² (Configuration)
SMS	Configuration, Events, DOUT control, Debug
GPRS commands	Configuration, DOUT control, Debug
Time Synchronization	GPS, NITZ, NTP
Fuel monitoring	LLS (Analog), OBDII dongle ¹³
Ignition detection	Digital Input 1, Accelerometer, External Power Voltage, Engine RPM (OBDII dongle)

⁹wiki.teltonika.lt/view/FOTA_WEB

¹⁰wiki.teltonika.lt/view/FOTA

¹¹wiki.teltonika.lt/view/Teltonika_Configurator

¹²teltonika.lt/product/fmbt-mobile-application/

¹³wiki.teltonika.lt/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)	+6		+30	V
DIGITAL OUTPUT (OPEN DRAIN GRADE)				
Drain current (Digital Output OFF)			120	μA
Drain current (Digital Output ON, Recommended Operating Conditions)	0.1		0.5	A
Static Drain-Source resistance (Digital Output ON)			120	mΩ
Input resistance (DIN1)		59.9		kΩ
Input resistance (DIN2, DIN3)		67.5		kΩ
Input voltage (Recommended Operating Conditions)	0		60	V
Input Voltage threshold (DIN1)	4	4	8	V

CHARACTERISTIC DESCRIPTION	VALUE			
	MIN.	TYP.	MAX.	UNIT
SUPPLY VOLTAGE				
Supply Voltage	2.5	2.7	3	V
INPUT VOLTAGE THRESHOLD (DIN2, DIN3)				
Analog Input				
Input voltage (Recommended Operating Conditions), Range 1	0		+10	V
Input resistance, Range 1		120		kΩ
Input Voltage (Recommended Operating Conditions), Range 2	0		+30	V
Input resistance, Range 2		146.7		kΩ
Output Supply Voltage 1-Wire				
Supply voltage		3.8		V
Output inner resistance	450		600	Ω
Output current (U _{out} > 3.0 V)			75	mA
Short circuit current (U _{out} = 0)			75	mA

SAFETY INFORMATION

This message contains information on how to operate FMB202 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 +6..+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.
- When connecting wires to the vehicle, the appropriate jumpers of the vehicle power supply should be disconnected.
- Before unmounting the device from the vehicle, wires 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 60950-1 standard.
- The device FMB202 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 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.



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



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



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



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](#)¹.

¹ wiki.teltonika-gps.com/index.php?title=FMB920



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).



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.



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.



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



The Declaration EAC and the Certificate EAC in conformity with the technical regulation TR CU of the EurAsEC Customs Union are EAC certification documents issued by independent organizations. Such organizations perform their function through laboratories accredited to the public agencies in charge of the supervision of metrology and standardization in the three countries of the EAC Custom Union, joining at the moment the certification system : Russia, Belarus, Kazakhstan, Armenia and Kyrgyzstan.



UK Conformity Assessed (UKCA) marking is a conformity mark that indicates conformity with the applicable requirements for above described products sold within Great Britain.



The RoHS1 is a directive regulating the manufacture, import and distribution of Electronics and Electrical Equipment (EEE) within the EU, which bans from use 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 for stopping 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.

PULSE 5A DECLARATION

ISO 16750-2:2012 applies to electric and electronic systems/components for road vehicles. It describes the potential environmental stresses and specifies tests and requirements recommended for the specific mounting location on/in the road vehicle.

DECLARATION OF DEVICE OPERATION TEMPERATURE

An operating temperature is the temperature at which an electrical or mechanical device operates. The device will operate effectively within a specified temperature range which varies based on the device function and application context, and ranges from the minimum operating temperature to the maximum operating temperature (or peak operating temperature). Outside this range of safe operating temperatures the device may fail.

CHECK ALL CERTIFICATES

All newest certificates may be found in our [Wiki](#)¹.

¹ wiki.teltonika-gps.com/view/FMB202_Certification_%26_Approvals

WARRANTY

We guarantee our products 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

¹ Additional agreement 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.
- 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](#)

¹ wiki.teltonika-gps.com/view/RMA_guidelines