TELTONIKA | Telematics

FMC880

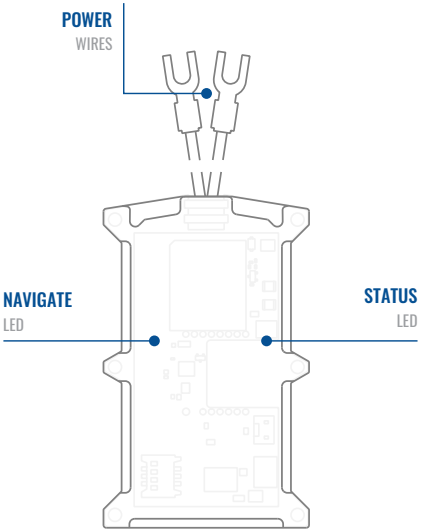
Simple and small waterproof tracker

Quick Manual v1.7

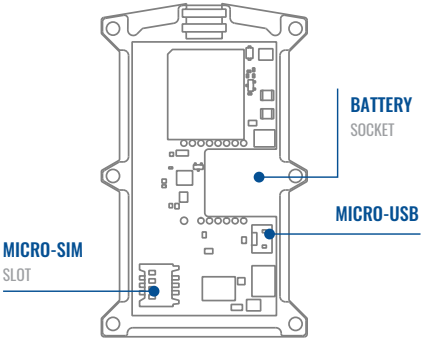
CONTENT

KNOW YOUR DEVICE

TOP VIEW

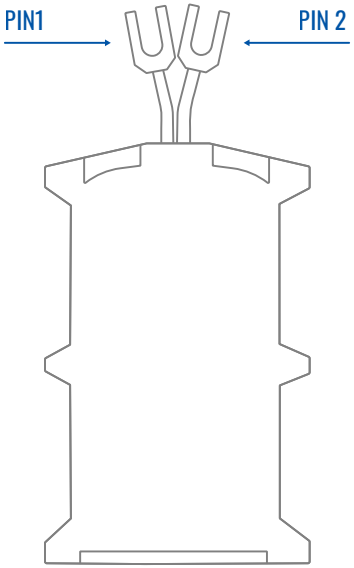


TOP VIEW (WITHOUT COVER)



PINOUT

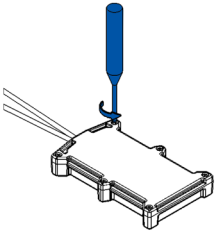
PIN NUMBER	PIN NAME	DESCRIPTION
1	VCC (10-30)V DC (+)	(Red) Power supply (+10-30 V DC)
2	GND (-)	(Black) Ground



FMC880 socket pinout

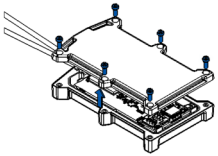
SET UP YOUR DEVICE

HOW TO INSERT MICRO-SIM CARD AND CONNECT THE BATTERY



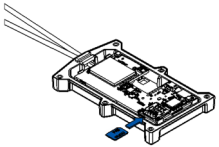
1 UNSCREW SCREWS

Unscrew **6 screws** counter clockwise.



2 COVER REMOVAL

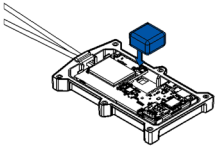
Remove the **cover.**



3 MICRO-SIM CARD INSERT

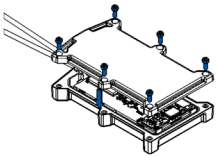
Insert **Micro-SIM** card as shown with **PIN request disabled** or read our Wiki how to enter it later with **Teltonika Configurator**[1]. Make sure that Micro-SIM card **cut-off corner** is pointing forward to slot.

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



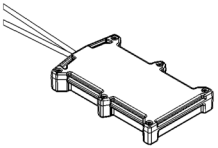
4 BATTERY CONNECTION

Connect the battery as shown to device. Position the battery in place where it does not obstruct other components.



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.

PC CONNECTION (WINDOWS)

1. Power-up FMC880 with **DC voltage (10 – 30 V)** power supply using **supplied power cable**. LED's should start blinking, see **"LED indications[1]"**.
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)[2]"**
   - Using **Bluetooth**
     - FMC880 **Bluetooth** is enabled by default. Turn on Bluetooth on your PC, then select **Add Bluetooth or other device** > **Bluetooth.** Choose your device named – **"FMC880_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.

[1] wiki.teltonika-gps.com/view/FMC880_LED_status

[2] Page 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.

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

CONFIGURATION

At first FMC880 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.

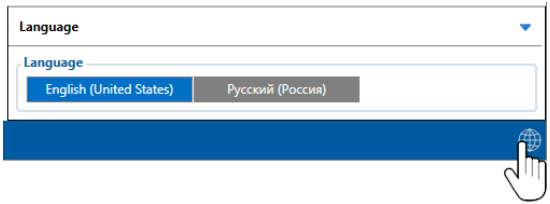
[1] wiki.teltonika-gps.com/view/Teltonika_Configurator

[2] wiki.teltonika-gps.com/view/Teltonika_Configurator_versions

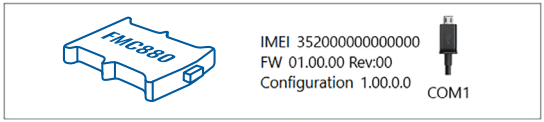
MS .NET REQUIREMENTS

Operating system	MS .NET Framework version	Version	Links
Windows Vista Windows 7 Windows 8.1 Windows 10	MS .NET Framework 4.6.2	32 and 64 bit	**www.microsoft.com**[1]

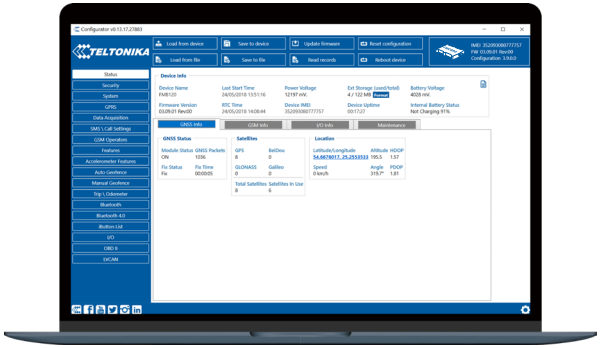
1 dotnet.microsoft.com/en-us/download/dotnet-framework/net462



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.



Configuration process begins by pressing on connected device.



After connection to Configurator **Status window** will be displayed.

Various **Status window**[1] tabs display information about **GNSS**[2], **GSM**[3], **I/O**[4], **Maintenance**[5] and etc. FMC880 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:

Load from device – loads configuration from device.

Save to device – saves configuration to device.

Load from file – loads configuration from file.

Save to file – saves configuration to file.

Update firmware – updates firmware on device.

Read records – reads records from the device.

Reboot device – restarts device.

Reset configuration – sets device configuration to default.

Most important configurator section is **GPRS** – where all your server and **GPRS settings**[6] can be configured and **Data Acquisition**[7] – where data acquiring parameters can be configured. More details about FMC880 configuration using Configurator can be found in our **Wiki**[8].

[1] wiki.teltonika-gps.com/view/FMC880_Status_info

[2] wiki.teltonika-gps.com/view/FMC880_Status_info#GNSS_Info

[3] wiki.teltonika-gps.com/view/FMC880_Status_info#GSM_Info

[4] wiki.teltonika-gps.com/view/FMC880_Status_info#I.2FO_Info

[5] wiki.teltonika-gps.com/view/FMC880_Status_info#Maintenance

[6] wiki.teltonika-gps.com/view/FMC880_GPRS_settings

[7] wiki.teltonika-gps.com/view/FMC880_Data_acquisition_settings

[8] wiki.teltonika-gps.com/view/FMC880_Configuration

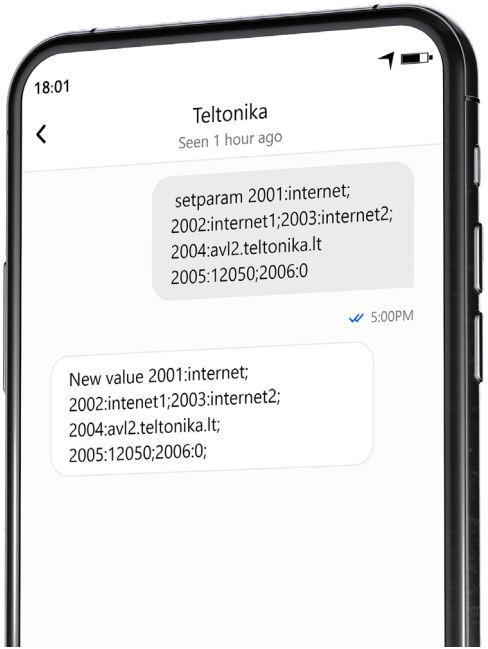
QUICK SMS CONFIGURATION

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:

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

RECORDS SENDING TO SERVER:

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, FMC880 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

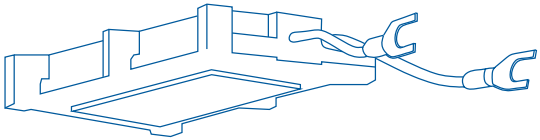
[2] wiki.teltonika-gps.com/view/Template:FMB_Device_Family_Parameter_list

MOUNTING RECOMMENDATIONS

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 **(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 **(Example of device mounting)**.



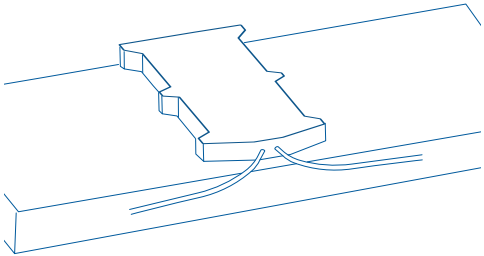
1 DOUBLE SIDED TAPE ON THE BACK

CONNECTING POWER WIRE

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



2 EXAMPLE OF DEVICE MOUNTING

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	QJAB0: Quectel EG915U-EU with AG3335 QKAB0: Quectel EG915U-LA with AG3335
Technology	LTE CAT 1/GSM/GPRS/GNSS/ BLUETOOTH

GNSS	
GNSS	L1: GPS, GLONASS, GALILEO, BEIDOU, SBAS*, QZSS* L5: GPS, GALILEO, BEIDOU
Receiver	L1: 75 channel L5: 60 channel
Tracking sensitivity	-165 dBM
Position Accuracy	< 1.8 m CEP
Velocity Accuracy	< 0.1 m/s (within +/- 15% error)
Hot start	< 1 s
Warm start	< 24 s
Cold start	< 35 s

*Optional modes available with custom firmware applications, for more information contact your sales manager

CELLUAR

2G bands	GSM: B2/B3/B5/B8
4G bands	QJAB0: LTE FDD (CAT 1): B1/B3/B5/B7/B8/B20/B28 QKAB0: LTE FDD (CAT 1): B2/B3/B4/B5/B7/B8/B28/B66
Data transfer	LTE FDD (CAT 1): Max. 10 Mbps (DL) / Max. 5 Mbps (UL) GSM (GPRS): Max. 85.6 Kbps (DL) / Max. 85.6 Kbps (UL)
Transmit power	Class 5 for GSM850/900: 30±5dBM Class 3 for GSM1800/1900: 29±5dBM Class 3 for LTE-FDD: 26±5dBM Bluetooth: 5.54±2dBM Bluetooth LE: -4.26±2dBM
Data support	SMS (TEXT, PDU), Network protocols (TCP, UDP, TLS, EGTS, MQTT)

POWER

Input voltage range	10 - 30 V DC with overvoltage protection
Back-up battery	170 mAh Li-Ion battery 3.7 V
Internal fuse	3A, 125V
Power consumption	At 12V < 5.5 mA (Ultra Deep Sleep) At 12V < 6.5 mA (Deep sleep) At 12V < 12 mA (Online Deep Sleep) At 12V < 13 mA (GPS Sleep) At 12V < 40 mA (nominal with no load) At 12V < 75 mA (with full Load / Peak)

BLUETOOTH

Specification	4.0 + LE
Supported peripherals	**Temperature and Humidity sensor**[1], OBDII dongle, Inateck Barcode Scanner, Universal BLE sensors support

INTERFACE

GNSS antenna	Internal High Gain
GSM antenna	Internal High Gain
USB	2.0 USB Micro B
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

[1] teltonika.lt/product/bluetooth-sensor

OPERATING ENVIRONMENT

Operating temperature (without battery)	-40 °C to +85 °C
Storage temperature (without battery)	-40 °C to +85 °C
Operating temperature (with battery)	0 °C to +40 °C
Storage temperature (with battery)	-20 °C to +45 °C
Operating temperature (with battery)	0 °C to +40 °C
Operating humidity	5% to 95% non-condensing
Operating temperature (with battery)	-20 °C to +40 °C
Storage temperature (with battery)	-20 °C to +45 °C
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**[2]
Sleep modes	**GPS Sleep**, **Online Deep Sleep**, **Deep Sleep**, **Ultra Deep Sleep**[3]
Configuration and firmware update	**FOTA Web**[4], **Teltonika Configurator**[5] (USB, Bluetooth)
SMS	Configuration, Events, Debug
GPRS commands	Configuration, Debug
Time Synchronization	GPS, NITZ, NTP
Ignition detection	Accelerometer, External Power Voltage

[2] wiki.teltonika-gps.com/view/FMC880_Features_settings

[3] wiki.teltonika-gps.com/view/FMC880_Sleep_modes#Deep_Sleep_mode

[4] wiki.teltonika-gps.com/view/FOTA_WEB

[5] wiki.teltonika-gps.com/view/Teltonika_Configurator

SAFETY INFORMATION

This message contains information on how to operate FMC880 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 device operation.
- Before unmounting the device from vehicle, ignition **MUST be OFF.**

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 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.

Teltonika is not responsible for any harm caused by wrong cables used for connection between PC and FMC880

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/view/FMC880

The **RoHS**[1] 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).

[1] wiki.teltonika-gps.com/view/FMC880_RoHS

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

CHECK ALL CERTIFICATES

All newest certificates may be found in our **Wiki**[2].

[2] wiki.teltonika-gps.com/view/FMC880_Certification_%26_Approvals

WARRANTY

We guarantee our products 24-month warranty[1] 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 RMA**[1]

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