Teltonika FM1010

vehicle telematics unit that easily plugs into a vehicle's OBDII port of almost any car. It can't read telemetry data from vehicle diagnostic system, but controls ignition status in various ways and detects harsh driving. The possible applications for FM1010 are Fleet and mobile workforce management, Usage Based Insurance, Car Rental, and Teenage driver tracking. Teltonika FM1010 is a vehicle telematics unit that easily plugs into a vehicle's OBDII port of almost any car. It's the first OBDII tracker of Teltonika. It can't read telemetry data from vehicle diagnostic system, but controls ignition status in various ways and detects harsh driving. The possible applications for FM1010 are Fleet and mobile workforce management, Usage Based Insurance, Car Rental, and Teenage driver tracking.

Package contents

When you open the cardboard box, you'll see just Teltonika FM1010 device, supplied with a USB cable. If you use the tracking software that automatically configures the device, you'll hardly need that cable. Otherwise you can use it for manual configuration from a PC, or for firmware upgrade.

Most commonly Teltonika FM1010 comes with built-in backup battery (Li-ion, 170 mAh), that's already installed. However, if you are not sure, you'd rather check that yourself – you'll need to open the casing.

Optional accessories you might require for special cases:

- OBDII extension cable
- OBDII adaptor

Location and tracking

FM1010 model is embedded with GPS chip and also it has the support of GLONASS. It doesn't support Assisted GPS (A-GPS) technology, that's why acquiring of the signal might take some more time, but normally it does not exceed a couple of minutes. As the back-up, when no satellites signals are available, it uses Cell ID location (also known as LBS-tracking).
The tracking mode can be flexible configured: by distance, time and turning. We'd recommend to use the following parameters: distance 100m, time 60 sec, and on turning on 30 degrees. When there is no movement (detected by "Ignition" status), tracker sends data in a specified time interval (i.e. 180 seconds). That's quite convenient and useful for power saving.

OBDII data reading: none

Since Teltonika FM1010 is a basic tracker, it does not read any data from vehicle's diagnostic system, such as dashboard speed, engine RPM, coolant temperature, MIL, DTC codes, etc. Instead it only gets power supply from OBDII port and can measure up the board voltage.

Mobile networks

Standard quad-band GSM module allows to use FM1010 in most of the regions covered with 2G GSM netwrorks. The slot for a SIM card (normal size) is located on the butt-end of the device. There is no any sensor for SIM card slot opening.

Power supply

FM1010 gets the power from OBD II Connector Type A. The voltage level must be in the range of 10-16V. Device also features a built-in rechargeable Li-ion backup battery with the capacity of 170mAh. When fully charged it ensures about one hour of device operation in normal conditions.

"Ignition" status

There is a virtual "Ignition" flag in FM1010, which is determined by either:

- External power voltage – when the power level falls below a certain configured level (by default 13V), the "Ignition" is considered to be OFF, otherwise – ON.
- **Digital Input #1** – if there is positive signal on DIN #1 of the socket, the "Ignition" flag is ON.
- **Acceleration sensor** – when the built-in accelerometer detects movement, the "Ignition" flag is ON.

"Stop/Movement" mode

Teltonika FM1010 determines whether vehicle is on move or stopped by one of three methods (configurable by user):

Method	Moving	Stopped
by Board Voltage	If board voltage exceeds certain level (configurable, 10V by default)	If board voltage is lower than a certain level
by Acceleration	GNSS is fixed and speed is above 5 km/h	GNSS is fixed and speed is below 5 km/h or GNSS is not fixed
by GNSS	GNSS is fixed and speed is above 5 km/h	GNSS is fixed and speed is below 5 km/h or GNSS is not fixed

Two sleep modes

FM1010 is able to go to Sleep mode after configurable Sleep timeout. This timeout (defined period) starts counting when device is in STOP mode. After timeout is reached and all conditions for sleep mode are met, device goes to normal sleep or deep sleep mode:

- **Normal sleep mode.** While in normal sleep mode, FM1100 turns GNSS module OFF, but keeps GSM module ON. The device is not making any new periodic GPS records, just monitoring the events with the last known coordinates and sends them to tracking server. As a result power consumption decreases allowing saving vehicle's battery (below 2 mA).

FM1010 exists normal sleep mode when "Movement" mode detected or "Ignition" switches on.

- **Deep sleep mode.** While in deep sleep mode, FM1100 sets both GNSS receiver and GSM/GPRS module to OFF state, thus making impossible to wake up the device remotely. Battery consumption drops below 2 mA.

FM1100 exits deep sleep mode if at least one of following conditions is true:

- "Movement" mode is detected
- "Ignition" is turned on
- USB cable is connected

Driving behaviour monitoring

Teltonika FM1010 allows to monitor driving behaviour, making possible to use the device for insurance telematics. There are two configurable scenarios which designed for monitoring driving behaviour called Green Driving and Over Speeding.
Green Driving Scenario helps to inspect driver about harsh driving. Scenario continuously monitors: accelerating force, braking force and cornering angles. To prevent generating false events, harsh acceleration and harsh braking is monitored only when following conditions are fulfilled:

- "Ignition" flag (see above) is turned on
- Vehicle speed is equal or higher than 10 km/h

Harsh cornering is monitored only when following conditions are fulfilled:

- Ignition (Configured to be detected by Power Voltage, Ignition or Accelerometer) is turned on.
- Vehicle speed is equal or higher than 30km/h.

Over Speeding Scenario helps to prevent from exceeding fixed speed and inspects driver if needed.

Local and remote management

Unfortunately Teltonika FM1010 tracker can't be controlled over GPRS, though it supports firmware updating via GPRS (FOTA). However, there is a wide list of SMS commands in a human-friendly format, on which device always replies back. In particular, Server and APN settings can be applied remotely with SMS. To decrease the amount of SMS required for configuration SMS in binary format can be also used – and the most advanced GPS tracking software platforms allow to utilise that.
Alternatively, you can configure FM1010 from a PC using proprietary software (Teltonika Configurator) and standard USB-cable which is included into package.

LED Indication

FM1010 has two green LEDs located on the back panel, close to the SIM card slot. They are not very bright, and won't blind the driver at night, but help to understand what's the reason of the technical issue, when it occurs.

- Status LED: indicates GSM/GPRS mode
- Navigate LED: indicates GPS reception