



FTC921

Small and smart tracker

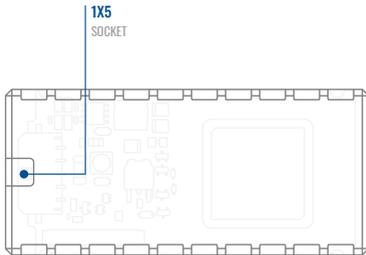
Quick Manual v1.5

CONTENT

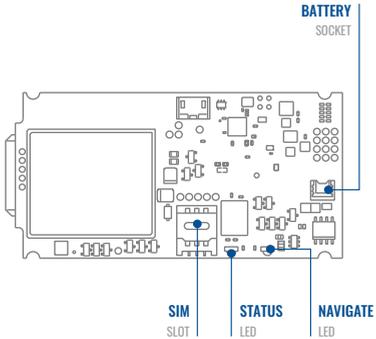
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KNOW YOUR DEVICE

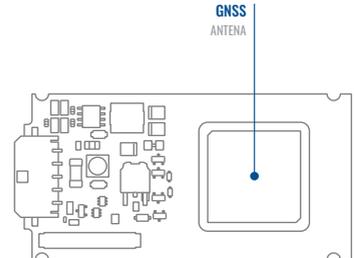
TOP VIEW



BOTTOM VIEW (WITHOUT COVER)



TOP VIEW (WITHOUT COVER)



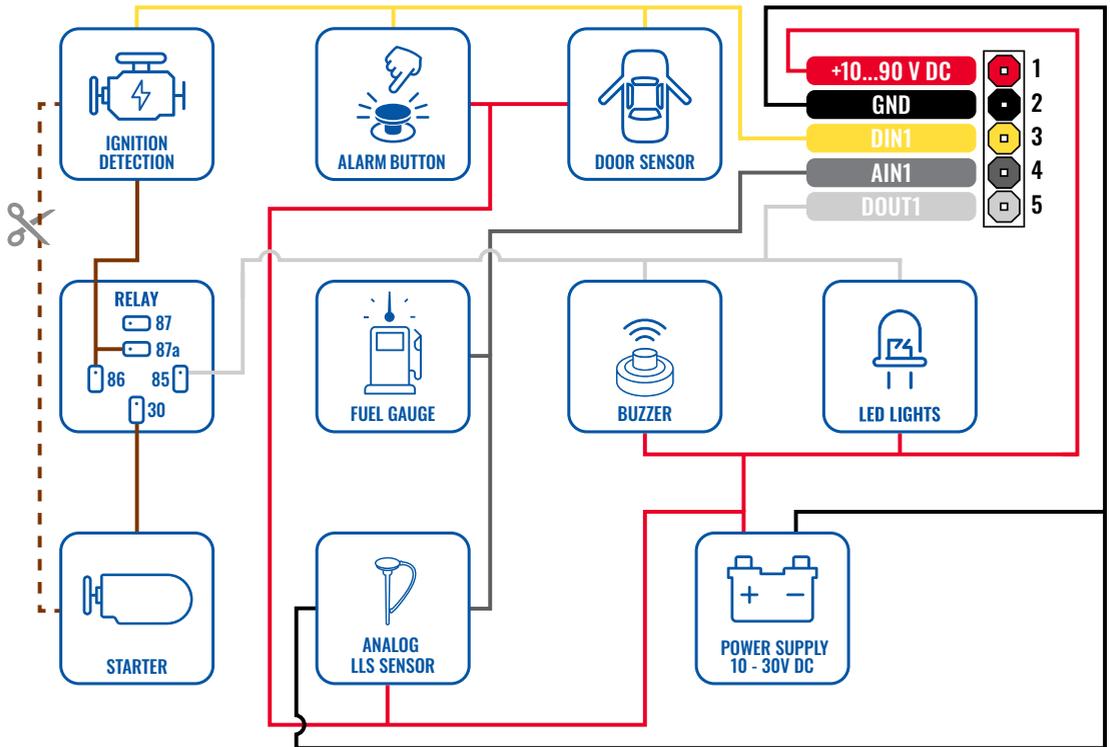
PINOUT

PIN NUMBER	PIN NAME	DESCRIPTION
1	VCC (10-90) VDC (+)	(Red) Power supply (+10-90 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: 0-90 V DC
5	DOUT1	(White) Digital output. Open collector output. Max. 0,5 A DC



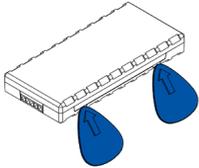
FTC921 pinout

WIRING SCHEME



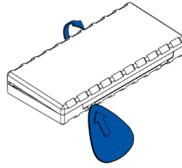
SET UP YOUR DEVICE

HOW TO INSERT MICRO-SIM CARD AND CONNECT THE BATTERY



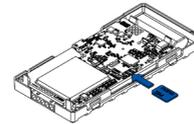
1 COVER REMOVAL

You will receive your device fully closed.



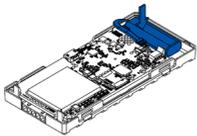
2 COVER REMOVAL

Gently remove side cover.



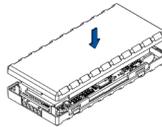
3 SIM CARD INSERT

Insert SIM card as shown. Make sure Nano-SIM card cut-off corner is pointing towards SIM slot.



4 BATTERY CONNECTION

Connect battery by pressing connector firmly to socket, ensure that both sides of connector locks properly.



5 DEVICE IS READY

Device is ready to be mounted.

PC CONNECTION (WINDOWS)

1. Power-up FTC921 with **DC voltage (10-90V)** power supply using **power wires**. LEDs should start blinking.
2. Connect device to computer using Micro-USB cable and install USB driver, see "[How to install USB drivers \(Windows\)](#)"¹

¹Page 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.

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

CONFIGURATION (WINDOWS)

At first FTC921 device will have default factory settings set. These settings should be changed according to the user's needs. Main configuration can be performed via **Teltonika Configurator tool**¹ (TCT).

¹[/wiki.teltonika-gps.com/view/FTC921](http://wiki.teltonika-gps.com/view/FTC921)

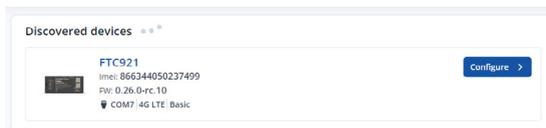
MS.NET REQUIREMENTS

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

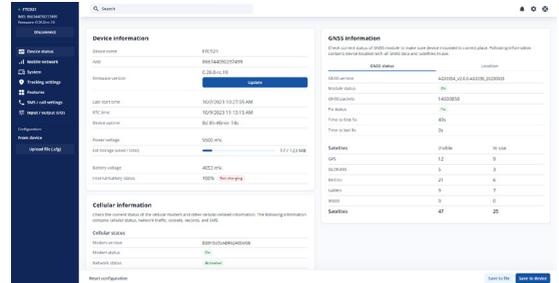
¹dotnet.microsoft.com/en-us/download/dotnet-framework/net462

Downloaded Telematics Configuration Tool (TCT) setup file will be in compressed archive, extract it and launch TelematicsConfigurationTool.Setup.exe

Once TCT is installed, launch it and you will see connected devices, press configure.



After connection Device status window will be loaded with device, GNSS and Cellular information.



- Save to device – saves configuration to device.
- Upload file (.cfg) – loads configuration from file.
- Save to file – saves configuration to file.
- Update – update device firmware.
- 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 collecting parameters can be setup p. More details about FTC921 configuration using TCT can be found on our [Wiki](#)¹.

¹wiki.teltonika-gps.com/view/FTC921_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»
```

1

2

3

4

5

6

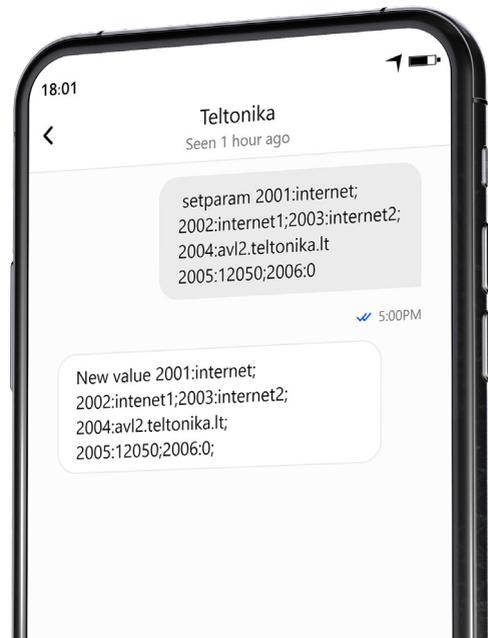
Note: Before SMS text, one space symbols should be inserted.

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)



MOUNTING RECOMMENDATIONS

CONNECTING WIRES

- Wires should be fastened to stable wires or other non-moving parts. Any heat emitting and/or moving objects should be kept away from the wires.
- There should be no exposed wires. If factory isolation was removed while connecting wires, the isolation material should be applied.
- 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 and the wires should not be loose.
- Wires cannot be connected to the board computers or control units.

CONNECTING POWER SOURCE

- Be sure that after the car computer goes to sleep mode, power might be still available on the power wires. 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.
- 3 A, 125 V external fuse shall be used.

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.



CAUTION! Caution statements are a description of situations where a non-immediate or potential hazard presents a lesser threat of injury that could result in minor or moderate injuries to workers and/or the general public.

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	FTC921-QJAB0: Quectel EG915U-EU with AG3335
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Technology	LTE CAT 1 /GSM/GPRS/GNSS
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GNSS

GNSS	GPS, GLONASS, GALILEO, BEIDOU
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Receiver	L1: 75 channel
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Tracking sensitivity	-165 dBm
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Position Accuracy	< 1.8 m CEP
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Velocity Accuracy	< 0.1 m/s (within +/- 15% error)
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Hot start	< 1 s
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Warm start	< 24 s
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CELLUAR

2G bands	GSM: B2/B3/B5/B8
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4G bands	LTE FDD (CAT 1): B1/B3/B5/ B7/B8/ B20/B28
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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
Data support	SMS (TEXT, PDU), Network protocols (TCP, UDP)

POWER

Input voltage range	10 - 90 V DC
Back-up battery	170 mAh Li-Ion battery 3.7 V
Internal fuse	3A
Power Consumption	At 12V < 25 mA (Nominal with no load) At 12V < 0.25A Max (with full Load/ Peak)

INTERFACE

Digital Inputs	1
Digital Outputs	1
Analog Inputs	1
GNSS antenna	Internal High Gain
GSM antenna	Internal High Gain

USB	2.0 USB Type-C
LED indication	2 status LED lights
SIM	Nano-SIM
Memory	128MB internal flash memory

PHYSICAL SPECIFICATION

Dimensions	93x43x12.5 mm (L x W x H)
Weight	62 g

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 for 1 month -20 °C to +35 °C for 6 months
Operating humidity	5% to 95% non-condensing
Ingress Protection Rating	IP41
Battery charge temperature	-20 °C to +45 °C for 1 month
Battery storage temperature	-20 °C to +35 °C for 6 months

FEATURES

Sensors	Accelerometer
Scenarios	Over Speeding detection, Jamming detection, Unplug detection, Trip¹
Sleep modes	GPS Sleep, Online Deep Sleep, Deep Sleep, Ultra Deep Sleep²
Configuration and firmware update	FOTA Web³, Teltonika Configurator⁴ (TCT)
Time Synchronization	GPS, NTP
Ignition detection	Digital Input 1, Accelerometer, External Power Voltage

¹wiki.teltonika-gps.com/view/FTC921_Features_settings

²wiki.teltonika-gps.com/view/FTC921_Sleep_modes#Deep_Sleep_mode

³wiki.teltonika-gps.com/view/FOTA_WEB

⁴wiki.teltonika-gps.com/view/Teltonika_Configurator

SAFETY INFORMATION

This message contains information on how to operate FTC921 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...90 V DC power supply. The nominal voltage is 12 V DC. The allowed range of voltage is 10 V...90 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 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=FTC921



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).



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.



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



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.



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 standard aims to provide users more detailed information than vague marketing terms such as waterproof.



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.

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](#)².

²wiki.teltonika-gps.com/view/FTC921_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