TELTONIKA | Telematics

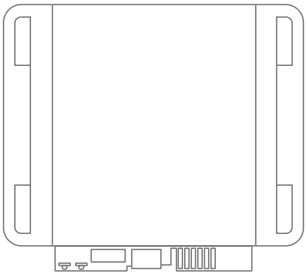
TAT141

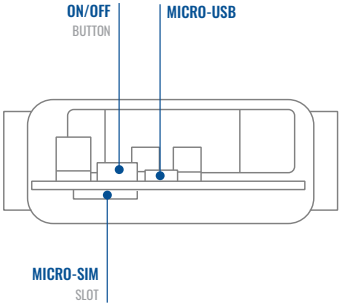
Quick Manual v1.3

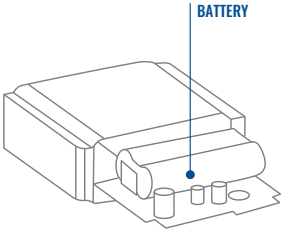
CONTENT

Know your device 3
Set up your device 4
PC Connection (Windows) 5
How to install USB drivers (Windows) 5
Configuration 6
Quick SMS configuration 8
Mounting recommendations 10
LED indications 11
Basic characteristics 11
Safety information 13
Certification and Approvals 14
Warranty 16
Warranty disclaimer 16

KNOW YOUR DEVICE

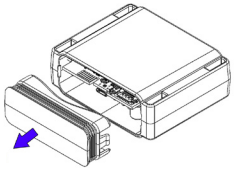






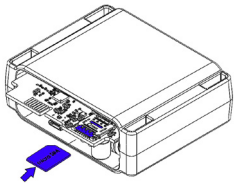
SET UP YOUR DEVICE

HOW TO INSERT MICRO-SIM CARD AND CONNECT THE BATTERY



1 COVER REMOVAL

Remove the cover.

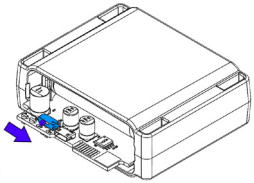


2 MICRO-SIM CARD INSERT

Insert **Micro-SIM** card as shown with **PIN request disabled** or read our Wiki[1] how to enter it later in Teltonika Configurator[2]. Make sure that Micro-SIM card **cut-off corner** is pointing forward to slot.

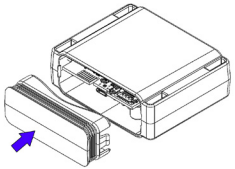
[1] wiki.teltonika-gps.com/view/TAT141_First_Start#Safety_information

[2] wiki.teltonika.lt/view/Teltonika_Configurator



3 TURN ON

Flip the switch to ON.



4 ATTACHING COVER BACK

After configuration, see PC Connection (WINDOWS)[1]. When it is done, reattach the cover and push it in place.

[1] Page 5, "PC Connection (Windows)"

PC CONNECTION (WINDOWS)

1. Power-up TAT141 device. LED should start blinking, see "**LED indications**"[1].
2. Connect your device to computer using **Micro-USB** cable:
   - You will need to install USB drivers, see "**How to install USB Drivers (WINDOWS)**"[2]
3. You are now ready to use the device on your computer.

[1] Page 11 "LED indications"

[2] Page 5, "PC Connection (Windows)"

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 TAT141 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.

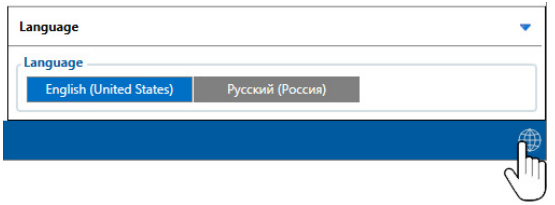
[1] wiki.teltonika-gps.com/view/Teltonika_Configurator

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

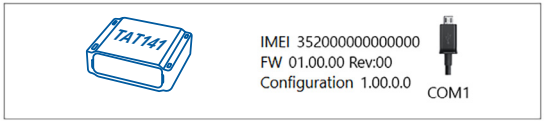
MS .NET REQUIREMENTS

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]

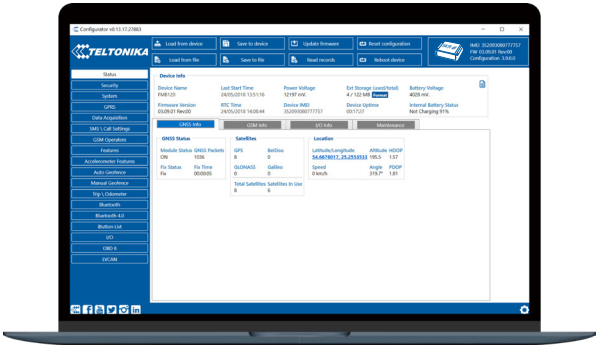
[1] dotnet.microsoft.com/en-us/download/dotnet-framework



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. TAT141 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 TAT141 configuration using Configurator can be found in our Wiki[8].

[1] wiki.teltonika-gps.com/view/TAT141_Status_info

[2] wiki.teltonika-gps.com/view/TAT141_Status_info#GNSS_Info

[3] wiki.teltonika-gps.com/view/TAT141_Status_info#GSM_Info

[4] wiki.teltonika-gps.com/view/TAT141_Status_info#I.2FO_Info

[5] wiki.teltonika-gps.com/view/TAT141_Status_info#Maintenance

[6] wiki.teltonika-gps.com/index.php?title=TAT141_GPRS_settings

[7] wiki.teltonika-gps.com/index.php?title=TAT141_Data_acquisition_settings

[8] wiki.teltonika-gps.com/index.php?title=TAT141_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

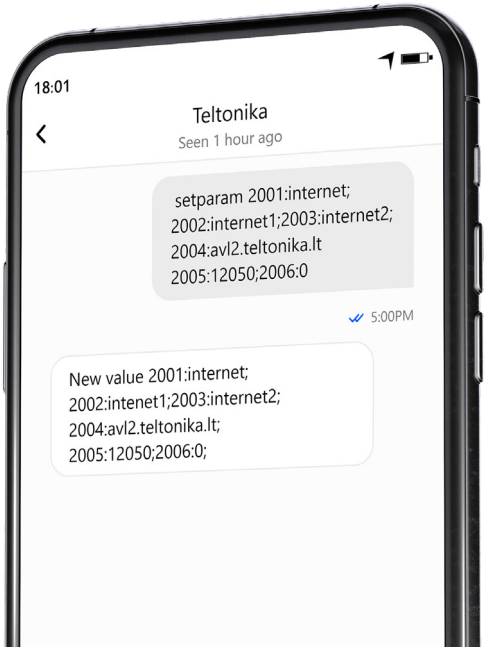
Note: Before SMS text, two space symbols should be inserted.

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

DEVICE MAKES A RECORD ON STOP IF:

28800
Seconds passes

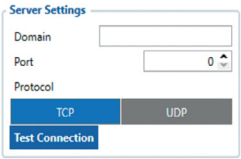
DEVICE MAKES A RECORD ON MOVING IF ONE OF THESE EVENTS HAPPEN:

28800
Seconds passes

Time intervals and default I/O elements can be changed by using Teltonika **Configurator**[1].

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

IMPORTANT CONFIGURATION NOTES



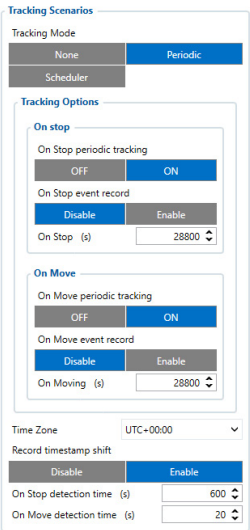
We strongly recommend testing the network connection from device to the server before adjusting TAT141 configuration to your needs. Use the following steps to perform this test:

- Configure these parameters: APN, server Domain and server Port;
- Save configuration to the device by clicking on a Save to device button;
- Initiate connection by pressing the Test Connection button.

At this point, TAT141 will create one high-priority record and initiate connection to the server immediately.
If connection was not initiated, it can mean any of the following:

- Improperly inserted SIM Card
- Incorrect values are set to these fields: APN, Domain or Port;
- GPRS functionality disabled by GSM provider;
- No GSM coverage;
- Server cannot be reached.

Try solving this problem before proceeding with further device configuration.



On Stop periodic tracking - enable or disable periodic data sending when device is On Stop. Device will generate and send normal record with event ID 0 and movement AVL ID 240 with a value of 0.

On Stop event record - enable or disable record sending when device switches tracking scenario from On Move to On Stop. To trigger this event **On Stop detection time timer** needs to reach set value. Once event is triggered GNSS module will wake up and obtain GNSS fix. Record will have AVL event 240 with a value of 4 that means "Movement event - On Stop".

On Move periodic tracking - enable or disable periodic data sending when device is On Move. Device will generate and send normal record with event ID 0 and movement AVL ID 240 with a value of 1.

On Move event record - enable or **disable** record sending when device switches tracking scenario from On Stop to On Move. To trigger this event **On Move detection time** timer needs to reach set value. Once event is triggered device will wake up and will trigger one of two records:

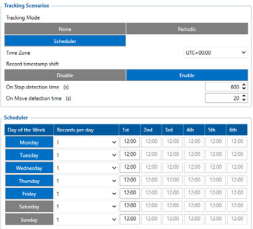
1 - if last record did not have a GNSS fix, GNSS module will be turned on and fix obtained.

2 - if last record had a valid GNSS fix, GNSS module will not be turned on and record will contain last good coordinates.

On Stop detection time (s) configurable amount of time until device switches to On Stop periodic tracking. Device needs to be stationary for configured amount of time to change state. Movement interrupts will reset this timer.

On Move detection time (s) configurable amount of time until device switches to On Move periodic tracking. Instant movement will not change tracking scenario to On Move. Device needs to be interrupted **at least once every 5 seconds** during the configured time to change tracking scenario to On Move.

MAIN RULES OF SETTING SCHEDULE



- Intervals between different times must be at least 6 minutes;
- **Days of the week must be selected** and highlighted for the device to send records according to the set schedule.

More details about device configuration using Teltonika Configurator can be found in the Teltonika wiki knowledge base **wiki.teltonika-gps.com**

MOUNTING RECOMMENDATIONS

We recommend mounting the TAT141 in such a way that the GNSS antenna is pointed at the sky and the device itself is not covered by various obstructions that would interfere with the reception of the GNSS fix.

LED INDICATIONS

STATUS LED INDICATIONS

BEHAVIOUR	MEANING
On	Start-up and self-tests
Off	Device is in sleep mode or turned off
Blink every 5 seconds	Device is working, modem turned on.

BASIC CHARACTERISTICS

PRODUCT	
Model name	TAT141-Q3IB0

MODULE	
Name	Quectel BG95-M3 with Teltonika TM2500
Technology	LTE CAT M1/NB-IoT/GSM/Bluetooth

GNSS	
GNSS	GPS, GLONASS, GALILEO, BEIDOU
Receiver	33 channel
Tracking sensitivity	-165 dBM
Position accuracy	< 2.5 CEP

CELLUAR	
Technology	LTE CAT M1/NB-IoT/GSM
2G bands	GSM: B2/B3/B5/B8
4G bands	LTE-FDD (CAT M1):B1/B2/B3/B4/B5/B8/B12/B13/B18/B19/B20/B27/B28/ LTE-FDD (CAT NB2): B1/B2/B3/B4/B5/B8/B12/B13/B18/B19/B20/B28
Data transfer	LTE: Max. 588Kbps (DL)/ Max.1119Kbps (UL) GPRS: Max. 107Kbps (DL)/Max. 85.6Kbps (UL)
Transmit Power	Class 4 for GSM850/900: 23±2dBm Class 1 for GSM1800/1900: 20±2dBm Class 3 for LTE-TDD: 23±2.7dBm Class 3 for LTE-FDD: 23±2.7dBm Bluetooth LE: 6.6 dBm
Data support	SMS (TEXT), Network protocols (TCP,UDP)

POWER

Input voltage range	Extremely low self-discharge Li-SOCl2 swappable battery, 7,2V 2200mAh **Non-Rechargeable**

BLUETOOTH

Specification	Bluetooth V5.2 + LE
Supported peripherals	EYE sensor, Universal BLE sensor Support

PHYSICAL SPECIFICATION

Dimensions	78 x 63 x 28 mm (L x W x H)
Weight	119g

INTERFACE

GNSS antenna	Internal High Gain
Cellular antenna	Internal High Gain
USB	2.0 Micro-USB
LED indication	1 status LED lights
SIM	Micro-SIM
Memory	128 MB internal flash memory

OPERATING ENVIRONMENT

Operating temperature	-20 °C to +60 °C
Ingress Protection Rating	IP68
Battery discharge temperature	-55 °C to +60 °C
Battery storage temperature	Recommended max. 30°C

FEATURES

Sensors	Accelerometer
Sleep modes	Single custom sleep mode
Configuration and firmware update	FOTA Web, Teltonika Configurator (USB)
SMS	Configuration, Events, Debug
GPRS commands	Configuration, Debug
Time Synchronization	GNSS, NITZ, NTP

CERTIFICATION & APPROVALS1

Regulatory	PTCRB, FCC, IC, AT&T

1 Pending

SAFETY INFORMATION

This message contains information on how to operate TAT141 safely. By following these requirements and recommendations, you will avoid dangerous situations. Please read these instructions carefully and follow them strictly before operating the device!

INTERFERENCE

All wireless devices are sensitive to electromagnetic interference, as a result wireless devices might affect the performance of each other.

Be cautious near flammable materials and liquids

USE ONLY ORIGINAL BATTERIES

Using uncertified manufacturer or different type batteries may cause the device to malfunction or even explode

Do not attempt to charge the batteries. Doing so will void the warranty and may cause an explosion.

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.

OPERATE THE DEVICE IN SUITABLE CONDITIONS

Comply with local traffic laws, do not operate the device with your hands while driving. Your safety is of utmost importance when you drive.

The programming must be performed using a PC with autonomic power supply.

USE BATTERIES SAFELY

Protect batteries from moisture. Avoid extensive operation at high temperatures.

OTHER

In order to prevent device from mechanical damage it is advisable to transport it in a shock–resistant packaging. If device stopped working properly regardless of the settings only a qualified specialist can help. It is recommended to contact your local seller or your UAB Teltonika Telematics manager in such a case.

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=TAT141

Para maiores informações, consulte o site da ANATEL www.anatel.gov.br
Este equipamento não tem direito à proteção contra interferência prejudicial e não pode causar interferência em sistemas devidamente autorizados. 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.

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

FCC ID: 2A3HUTAT141.

- This device complies with part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.
- This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:
  - Reorient or relocate the receiving antenna.
  - Increase the separation between the equipment and receiver.
  - Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
  - Consult the dealer or an experienced radio/ TV technician for help.
- Changes or modifications not expressly approved by the manufacturer could void the user's authority to operate the equipment.
- This equipment complies with FCC radiation exposure limits set forth for an uncontrolled environment. To comply with FCC RF Exposure compliance requirements, this grant is applicable to only Mobile Configurations. The antennas used for the transmitter must be installed to provide a separation distance of at least 20cm from all persons and must not be co-located or operating in conjunction with any other antenna or transmitter.

IC

IC NOTICE

This device complies with Industry Canada license-exempt RSS standard(s). Operation is subject to the following two conditions:

1. this device may not cause interference, and
2. this device must accept any interference, including interference that may cause undesired operation of the device.

This Class B digital apparatus complies with Canadian ICES-003.

IC: 28804-TAT141.

This equipment complies with ISED radiation exposure limits set forth for an uncontrolled environment. To comply with RSS-102 RF Exposure compliance requirements, this grant is applicable to only Mobile Configurations. The antennas used for the transmitter must be installed to provide a separation distance of at least 20cm from all persons and must not be co-located or operating in conjunction with any other antenna or transmitter.

REMARQUE IC

Cet appareil est conforme aux Normes RSS d'Industy Canada. Son utilisation est soumise à deux conditions:

3. Ce dispositif ne peut pas provoquer d'interférences, et
4. Ce dispositif doit accepter toutes les interférences reçues, y compris les interférences susceptibles de provoquer un fonctionnement non souhaité.

Cet appareil de classe B est conforme à la norme canadienne ICES-003.

IC: 28804-TAT141.

Cet équipement est conforme aux limites d'exposition aux rayonnements ISED établies pour un environnement non contrôlé. Pour se conformer aux exigences de conformité d'exposition aux radiofréquences RSS-102, cette subvention s'applique uniquement aux configurations mobiles. Les antennes utilisées pour l'émetteur doivent être installées pour fournir une distance de séparation d'au moins 20cm de toutes les personnes et ne doivent pas être co-localisées ou fonctionner en conjonction avec une autre antenne ou émetteur.

CHECK ALL CERTIFICATES

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

[2] wiki.teltonika-gps.com/view/TAT141_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