

# Anti-Theft Solution and Stolen Vehicle Recovery

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## Disclaimer



If you are not using Bluetooth®, **please consider turning it off** or **change Bluetooth® PIN** to remove potential risks.

If you are using Bluetooth® we strongly recommend **using AES encryption** for enhanced security.

## Solution description

Vehicle theft is one of the world's fastest-growing crimes as thieves turn to use highly advanced equipment, e.g. jammers. By jamming GSM signals, the criminals aim to interfere and inhibit the performance of a tracking device - its ability to monitor and gather important information. Luckily, Teltonika trackers have a functionality that can detect jamming and help to prevent theft or to recover a stolen vehicle.

We are glad that you decide to test our "Anti-Theft and stolen vehicle recovery" solution.

Here you will find how to prepare and test this solution.

# What you need for a solution?

- The anti-theft solution is supported by **FMBxyz** series (including FMB640), **FMUxyz**, **FMCxyz** and **FMMxyz Teltonika devices, which have DOUT** which in this scenario is used to connect a buzzer or use starter cut-off relay.
- The SIM card in order to get data to your server
- Relay, which will be controlled by DOUT may turn on the alarm, disable engine start, or lock doors. Please contact your sales representative to order the relay from Teltonika. If you want to use your own relay please double-check the type of relay and its supported voltage range. FMB platform configurator, to configure the device in order to work with this solution.
- FOTA WEB to remotely send the configuration to the device.

## Installation

It's important to well hide the tracker, so it would not be a simple task for the thieves to find and unplug it. But also, please do not forget to follow [mounting recommendations](#) as well.



Although devices have high gain antennas it's important to mount devices with stickers on top and in metal-free space. The device should be firmly fixed to the surface or cables. Please make sure, that device is not fixed to heat emitting or moving parts.

To have a working solution it's important to properly make wiring.

As the main solution accessory is a relay, please make sure that the right contacts are connected

During installation please follow recommendations in order to avoid damaging device and vehicle:

- Wires should be connected while the module is not plugged in.
- Be sure that after the car computer falls asleep, power is still available on the chosen wire. Depending on the car, this may happen in a 5 to 30 minutes period.
- When the module is connected, be sure to measure the voltage again if it did not decrease.
- The ground wire is connected to the vehicle frame or metal parts that are fixed to the frame.

## Configuration

### 1. Prerequisites:

1.1. Read through [First start guide](#)

1.2. Understanding of possible [Sleep modes](#).

### 2. Configuring Jamming scenario



Parameter ID - Parameter name GPRS settings:

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



Server settings:

- 2004 - Domain
- 2005 - Port
- 2006 - Data sending protocol (0 - TCP, 1 - UDP)

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



Sleep settings:

- 102 - Sleep settings(0 - Disable, 1 - Gps sleep, 2 - Deep sleep, 3 - Online Deep sleep, 4 - Ultra sleep)
- **Note:** This scenario will not work with [Deep Sleep](#) and [Ultra Deep Sleep](#) modes, since they disable the device's GSM module to save power.



Jamming scenario settings:

- 11300 - Scenario priority
- 11303 - Eventual settings (0 - Disable, 1 - Enable)
- 11304 - Output Control (0 - None, 1 - DOUT1, 2 - DOUT2, 3 - DOUT3)
- 11301 - DOUT ON Duration (ms)
- 11302- DOUT OFF Duration (ms)
- 11305 - Time Until Jamming Event Detection (s)

**Note:** It's not recommended to set 11305 parameter to a very value(few seconds) because jamming scenario might be triggered while driving in the city.

**Quickstart:** From default configuration to Jamming detection in one SMS:

```
" setparam  
2001:APN;2002:APN_username;2003:APN_password;2004:Domain;2005:Port;2006:0;102  
:1;11300:2;11304:1"
```

This SMS will set up your device to report the Jamming Detection scenario to the server and toggle ON DOUT1 during jamming.

**Note:** Before SMS text, two space symbols should be inserted if no SMS username or password was set in SMS \ Call settings.

## Parsing information

### 1. Prerequisites:

1.1. Open [TCP/UDP port](#)

1.2. Go to [Java parser first start guide](#)

### 2. Parsing example:

#### Unparsed received data in hexadecimal stream

```
00000000000000004608010000017501DAF828010F0E4792209AC4FB00C200D70C0000F90D06EF01F00
01503C8004501F900B50005B6000342334D43000044000002F10000601A100000000000010000732E
```

#### AVL Data Packet

AVL Data Packet Part	HEX Code Part
Zero Bytes	00 00 00 00
Data Field Length	00 00 00 D6
Codec ID	08 (Codec 8)
Number of Data 1 (Number of Total Records)	01
Timestamp	00 00 01 75 01 DA F8 28 (Wed Oct 07 06:58:49 UTC 2020)
Priority	01
Longitude	0F 0E 47 92
Latitude	20 9A C4 FB
Altitude	00 C2
Angle	00 D7
Satellites	0C
Speed	00 00
Event IO ID	F9 (AVL ID: 249, Name: Jamming)
N of Total ID	0D
N1 of One Byte IO	06
1'st IO ID	EF (AVL ID: 239, Name: Ignition)
1'st IO Value	01
2'nd IO ID	F0 (AVL ID: 240, Name: Movement)
2'nd IO Value	00
3'rd IO ID	15 (AVL ID: 21, Name: GSM Signal)
3'rd IO Value	03
4'th IO ID	C8 (AVL ID: 200, Name: Sleep Mode)
4'th IO Value	00

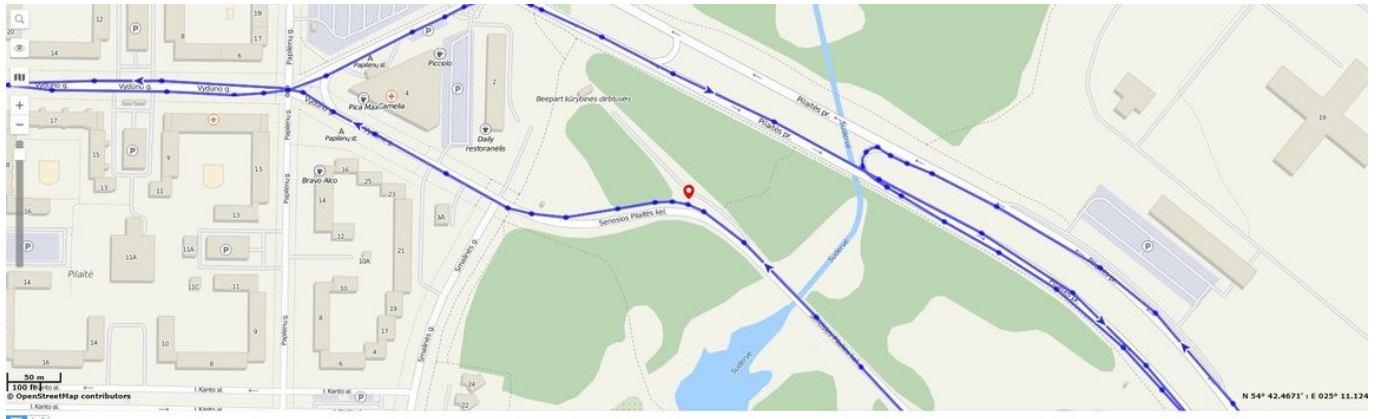
5'th IO ID	45 (AVL ID: 69, Name: GNSS Status)
5'th IO Value	01
6'th IO ID	F9 (AVL ID: 249, Name: Jamming)
6'th IO Value	00 (0 - jamming stop, 1 - jamming start)
N1 of Two Byte IO	05
1'st IO ID	B5 (AVL ID: 181, Name: GNSS PDOP)
1'st IO Value	00 05
2'nd IO ID	B6 (AVL ID: 182, Name: GNSS HDOP)
2'nd IO Value	00 03
3'rd IO ID	42 (AVL ID: 66, Name: External Voltage)
3'rd IO Value	33 4D
4'th IO ID	43 (AVL ID: 67, Name: Battery Voltage)
4'th IO Value	00 00
5'th IO ID	44 (AVL ID: 68, Name: Battery Current)
5'th IO Value	00 00
N4 of Four Bytes IO	02
1'st IO ID	F1 (AVL ID: 241, Name: Active GSM Operator)
1'st IO Value	00 00 60 1A
2'nd IO ID	10 (AVL ID: 16, Name: Total Odometer)
2'nd IO Value	00 00 00 00
N8 of Eight Bytes IO	00
Number of Data 2 (Number of Total Records)	01
CRC-16	00 00 73 2E

## Demonstration in platform

TAVL: Open TAVL → select client → select Street Map → select device → choose the date from which to show the records → push advanced → push show button and then you will see in left down corner all information.



WIALON: Open WIALON → open messages → push unit ( select your device) → choose the date from which to show the records → select message (data messages) → push execute button and you will see all information.



#	Time	Speed	Coordinate	Altitude, m	Locati	Parameters	Media
1442	2020-11-01 1:51	54.7042233	133	132	Sensos	io_240=1,gsim=3,io_21=3,io_200=0,io_69=1,io_30=0,io_31=0,io_32=75,io_35=114,io_37=55,io_249=0,pdop=0.6,io_181=6,hdop=0.3,io_182=3,psr_ext=14.543,io_66=14543,io_13=817,io_17=64389,io_18=65281,io_19=64821,io_36=1635,io_16=214210	
1443	2020-11-01 1:55	54.704285	133	133	Sensos	io_240=1,gsim=3,io_21=3,io_200=0,io_69=1,io_30=0,io_31=0,io_32=76,io_35=168,io_37=55,io_249=0,pdop=0.6,io_181=6,hdop=0.3,io_182=3,psr_ext=14.528,io_66=14528,io_13=817,io_17=64435,io_18=65319,io_19=64802,io_36=1576,io_16=214241	
1444	2020-11-01 1:54	54.7043963	133	133	Sensos	io_240=1,gsim=3,io_21=3,io_200=0,io_69=1,io_30=0,io_31=14,io_32=76,io_35=108,io_37=54,io_249=0,pdop=0.6,io_181=6,hdop=0.3,io_182=3,psr_ext=14.538,io_66=14538,io_13=817,io_17=64523,io_18=65373,io_19=64661,io_36=1537,io_16=214272	
1445	2020-11-01 1:57	54.70483	2	136	Sensos	io_240=1,gsim=2,io_21=2,io_200=0,io_69=1,io_30=0,io_31=90,io_32=76,io_35=193,io_37=71,io_249=0,pdop=0.4,io_181=4,hdop=0.3,io_182=3,psr_ext=14.545,io_66=14545,io_13=817,io_17=64494,io_18=400,io_19=64779,io_36=1956,io_16=214338	
1446	2020-11-01 1:57	54.7052566	130	130	Sensos	io_240=1,gsim=2,io_21=2,io_200=0,io_69=1,io_30=0,io_31=23,io_32=77,io_35=149,io_37=80,io_249=0,pdop=0.5,io_181=5,hdop=0.3,io_182=3,psr_ext=14.542,io_66=14542,io_13=817,io_17=64422,io_18=103,io_19=64849,io_36=2283,io_16=214402	
1447	2020-11-01 1:57	54.7059066	131	131	Sensos	io_240=1,gsim=2,io_21=2,io_200=0,io_69=1,io_30=0,io_31=36,io_32=77,io_35=122,io_37=68,io_249=0,pdop=0.6,io_181=6,hdop=0.3,io_182=3,psr_ext=14.557,io_66=14557,io_13=817,io_17=64397,io_18=127,io_19=64562,io_36=1938,io_16=214502	
1448	2020-11-01 1:57	54.7061716	132	132	Sensos	io_240=1,gsim=2,io_21=2,io_200=0,io_69=1,io_30=0,io_31=9,io_32=78,io_35=110,io_37=58,io_249=0,pdop=0.6,io_181=6,hdop=0.3,io_182=3,psr_ext=14.508,io_66=14508,io_13=817,io_17=64395,io_18=232,io_19=64804,io_36=1626,io_16=214551	
1449	2020-11-01 1:58	54.70623	2	133	Sensos	io_240=1,gsim=2,io_21=2,io_200=0,io_69=1,io_30=0,io_31=72,io_32=78,io_35=162,io_37=58,io_249=0,pdop=0.6,io_181=6,hdop=0.3,io_182=3,psr_ext=14.507,io_66=14507,io_13=817,io_17=64379,io_18=251,io_19=64914,io_36=1538,io_16=214561	
1450	2020-11-01 1:57	54.706255	133	133	Sensos	io_240=1,gsim=2,io_21=2,io_200=0,io_69=1,io_30=0,io_31=72,io_32=78,io_35=162,io_37=58,io_249=0,pdop=0.6,io_181=6,hdop=0.3,io_182=3,psr_ext=14.534,io_66=14534,io_13=817,io_17=64455,io_18=218,io_19=64871,io_36=1638,io_16=214583	