

# TAT140 Bluetooth settings

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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.

## Sensors

### Configuring Blue Puck/Coin sensor



Bluetooth® LE Blue Puck and Blue Coin sensors are disabled by default. Configurations to these sensors are written through NFC.

To do this download [Device Manager Mobile](#) by Ela from *Google Play Store* to your Android-powered device.

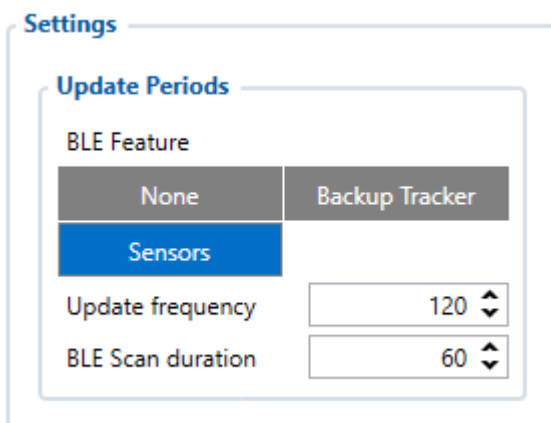
**Note!** Android-powered device that is used for configuring Blue Puck/Coin sensors must support NFC read/write functionality.

Follow these instructions to easily configure Blue Puck/Coin Bluetooth® LE sensor:

- Enable Bluetooth® and NFC on your Android-powered device.
  - Launch **Device Manager Mobile** on your Android-powered device.
  - Select *Configuration*.
  - Place your Android-powered device on top of Blue Puck/Coin sensor to scan it.
  - Click *Enable* to allow Blue Puck/Coin sensor transmit advertising data. If it shows a tick, it is already connected to your phone.
  - We recommend to set *Power* to 4 to get the best possible distance.
  - Set *BLE Emit Period* to 1 seconds to get best possible sensor detection.
  - Click *Write* button.
  - Place your Android-powered device on top of Blue Puck/Coin sensor to write configuration to it.
- Once the configuration is written successfully, the Blue Puck/Coin sensor will be enabled and use the settings configured in the APP.

**NOTE!** Make sure that *Manufacturer data mode* is Disabled, otherwise BLE sensor will not be detected without additional changes in the device configuration.

## Update Periods



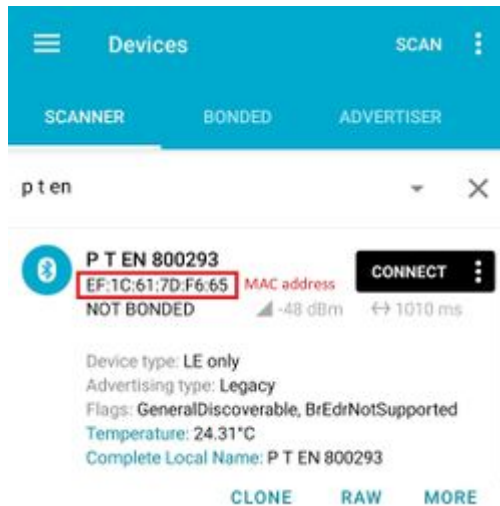
### BLE Feature:

None - Bluetooth® functionality will be disabled.

Sensors - Enables Bluetooth® functionality for sensors.

**Update frequency** - how often BLE scanning will run.

**Scan duration** - how long scanning will be processed.



- Type your **Blue Puck/Coin** MAC address in MAC field. You can check what is your MAC address by using [nRF connect for Mobile](#) app from *Google Play*.
- Configure the sensor fields according to the type of sensor used. More information about these settings can be found on [Blue Puck/Coin presets](#) section.
- After all these steps press **Save** to device to save configuration.

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To check if the device has already received data from **Blue Puck/Coin** Bluetooth® LE sensor, follow these steps:

- Navigate to **Status** section.
- Press **I/O Info** and look if **BLE Temp** has any values (depends on the type of sensor being used).

Input Name	Units	Priority	Low Level	High Level	Event Only	Operand	Avg Const
GNSS PDOP		None Low High	0	0	Yes No	Monitoring	10
GNSS HDOP		None Low High	0	0	Yes No	Monitoring	10
Speed	km/h	None Low High	0	0	Yes No	Monitoring	1
GSM Cell ID		None Low High	0	0	Yes No	Monitoring	
Battery Voltage	mV	None Low High	0	1	Yes No	Monitoring	10
Active GSM Operator		None Low High	0	0	Yes No	Monitoring	
ICCID		None Low High			Yes No	Monitoring	
BLE Temp #1	°C	None Low High	239	245		On Entrance	
BLE Temp #2	°C	None Low High	100	200		On Exit	

To check if the device has already received data from **Blue Puck/Coin** Bluetooth® LE sensor, follow these steps:

- Navigate to I/O section.
- configure BLE Temp section #1 if you only have one sensor configured.
- Set sensor priority High to immediately send a record.
- Select Temperature range (**Low - High**)
- Select Operand:
  - On Entrance - when temperature enters specified range, the device sends a record to the server.
  - On Exit - when temperature exits specified range, the device sends record to the server.
  - On Both - Sends a record when device enters or exits specified range.
  - Monitoring - Performs the BLE scan when the device wakes up for periodic tracking action and sends the data to the server with the periodic record.

## Record received to the Server

- Device sent a record when it entered the range between 24 - 24.5 C



## Blue Puck/Coin and EYE presets

To read data from **Blue Puck/Coin and EYE** sensors, **Sensor** table must be configured with specified parameters to a particular sensor.

### Using premade sensor presets

The configurator includes premade presets for sensors such as Blue PUCK/COIN MOV, MAG, T, RHT and etc.

BLE connectionless functionalities

1st Sensor

Connection #1

Settings

MAC

Type	Data Offset	Data Size	Action	IO	Match	Endianness	Multiplier	Offset
	0	0	Match	None		Little Endian	1	0
	0	0	Match	None		Little Endian	1	0
	0	0	Match	None		Little Endian	1	0
	0	0	Match	None		Little Endian	1	0
	0	0	Match	None		Little Endian	1	0

### Blue Puck/Coin T

Bluetooth® LE Temperature sensor configuration

Type	Data Offset	Data Size	Action	IO	Match	Endianness	Multiplier	Offset
FE	5	2	Match	None	6E2A	Little Endian	1	0
FE	7	2	Save	Temperature		Big Endian	0.1	0

### Blue Puck/Coin RHT

Bluetooth® LE Temperature and Humidity sensor configuration

Type	Data Offset	Data Size	Action	IO	Match	Endianness	Multiplier	Offset
FE	5	2	Match	None	6E2A	Little Endian	1	0
FE	7	2	Save	Temperature		Big Endian	1	0
FE	11	2	Match	None	6F2A	Little Endian	1	0
FE	13	1	Save	Humidity		Little Endian	1	0

### Blue Puck/Coin MAG

Bluetooth® LE Magnet sensor configuration

Type	Data Offset	Data Size	Action	IO	Match	Endianness	Multiplier	Offset
FE	5	2	Match	None	062A	Little Endian	1	0
FE	7	2	Save	Custom		Little Endian	1	0

### Blue Puck/Coin MOV

Bluetooth® LE Movement sensor configuration

Type	Data Offset	Data Size	Action	IO	Match	Endianness	Multiplier	Offset
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FE	5	2	Match	None	062A	Little Endian	1	0
FE	7	2	Save	Custom		Little Endian	1	0

## EYE SENSOR (Sensors)

EYE sensor (Sensors mode) configuration

Type	Data Offset	Data Size	Action	IO	Match	Endianness	Multiplier	Offset
FE	21	2	Save	Temperature		Little Endian	0.1	0
FE	23	1	Save	Humidity		Little Endian	10	0
FE	24	2	Save	Custom1		Big Endian	1	0
FE	29	1	Save	Battery		Little Endian	1	0

## EYE SENSOR (iBeacon & Sensors)

EYE sensor (iBeacon & Sensors mode) configuration

Type	Data Offset	Data Size	Action	IO	Match	Endianness	Multiplier	Offset
09	19	2	Save	Custom1		Big Endian	1	0
09	16	2	Save	Temperature		Little Endian	0.1	0
09	18	1	Save	Humidity		Little Endian	10	0
09	24	1	Save	Battery		Little Endian	1	0

## EYE SENSOR (Eddystone & EYE Sensors)

EYE sensor (Eddystone & EYE sensors mode) configuration

Type	Data Offset	Data Size	Action	IO	Match	Endianness	Multiplier	Offset
FF	7	2	Save	Custom1		Big Endian	1	0
FF	4	2	Save	Temperature		Little Endian	0.1	0
FF	6	1	Save	Humidity		Little Endian	10	0
FF	12	1	Save	Battery		Little Endian	1	0

# Backup Tracker

## Introduction to Backup Tracker functionality

TAT140 supports a feature which allows to work as backup tracker.

1. Even if Backup tracker is in alarm mode, device will continue to track its position as configured.
2. If FMBXXX device ([Compatibility table](#)) is turned off, Alarm event from the TAT140 will be

received and AVL 236 in the data packet will be sent.

## Topology scheme



## Backup feature logic



### NOTE:

If TAT140 does not pick up advertised data packets from main tracker, TAT140 enters alarm state, generates and starts sending records with AVL ID 236 (Value 0).

Parameter Name	Description	ID	Value
BLE Feature	Select which BLE feature is enabled. For Backup Tracker "Backup Tracker" feature has to be selected	189	0 - None 1 - Backup Tracker 2 -Sensors
Central Device IMEI	IMEI of central device that TAT140 is connected	190	Valid IMEI number
Update Frequency	Time in seconds for scanning intervals	1100	Min 5 sec. Max 66535 sec. Default 120 sec.
Scan Duration	Time in seconds for how long BLE scan will be running	1113	Up to 60 seconds (Not configurable)

## FIRMWARE (MODEM AND BLUENRG) INSTALLATION

Download Firmware and Configurator from [STABLE FIRMWARE](#) or [SHORT-TERM FIRMWARE](#) pages.

### After device connection to Configurator:

- 1) Select Update firmware;
- 2) Select to flash Firmware(\*.e.XIM) file;
- 3) Click on file;
- 4) And select Open.

Wait until the device will upload the firmware.



**When parameters successfully loaded:**

- 1) Select Update firmware;
- 2) Select to flash BlueNRG firmware(\*.bin);
- 3) Click on file;
- 4) And select Open.



## Instructions

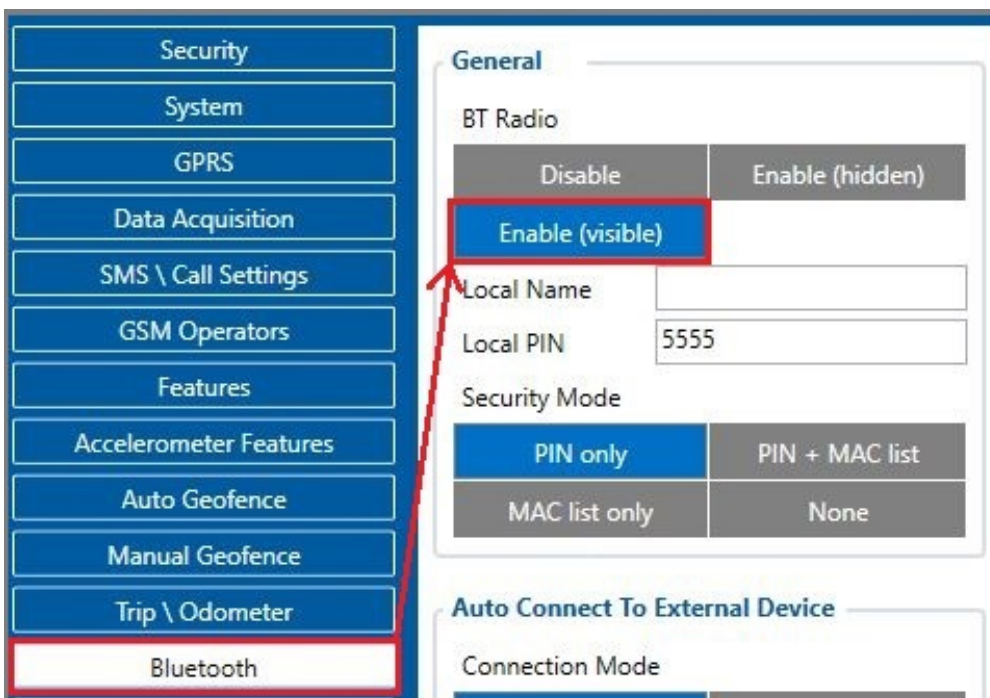
**To ENABLE backup feature on TAT140 device:**

1. Bluetooth® → select Backup Tracker
2. Enter main device (FMBxxx/TFT100/TST100/GH5200/TMT250) IMEI
3. Set **Update frequency** to **3600** (s) - *We do not recommend to set values below **1800** sec. in this field, as it will shorten the battery life.*
4. Configure your **APN** and Server settings in **GPRS** section.

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**To ENABLE backup feature on FMBXXX/TFT100/TST100/GH5200/TMT250 devices:**

1. Bluetooth® → BT Radio set to Enable(visible)



2. Bluetooth® 4.0 → Backup Tracker set to Enabled





## DEVICE RECOGNITION CHECK USING TERMINAL

- **Debug mode:**

Device is able to transmit its current state when connected to PC using USB cable. It is used to detect errors and provide information to possible solutions when operating as unexpected.

1. After launching terminal choose baud rate 115200 and hardware control - none.
2. Select COM port which is assigned to "Virtual COM Port".
3. Click on 'Start Log' button and save a new file.
4. Then click 'Connect' to start receiving messages from device.



Required Terminal application for log capturing can be downloaded here: [Terminal](#)

### **TAT140 terminal instructions:**

1. Connect TAT140 to the computer and open it with Terminal as shown in example above.
2. When TAT140 recognizes the main tracker, a terminal will print a line as shown in example below:  
`[2021.10.26 06:28:40] – [ASSET.UART] << Device MAC: 785ae3d1f9de IMEI  
141fa7497ac1 Command 0 Sequence 24 Packet Cnt 5`
3. When TAT140 cannot see the main tracker Terminal will print a line as shown in example below:  
`[2021.10.26 10:50:03] – [ASSET.UART] << [2021.10.26 10:50:03] – [APP.TBT]  
ERROR! Amount of valid packets does not detect during this period! Triggering  
alarm`