

# FMC650 Bluetooth® 4.0 settings

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## Bluetooth 4.0 settings

FMC650 offers Bluetooth 4.0 (Bluetooth Low Energy, also referred as BLE) functionality.



Configurable parameters:

- **Update frequency** - changes sensor's temperature/humidity/battery voltage data update frequency.  
Minimum value: 30 s, maximum value: 65535 s, default value: 120.
- **BLE Scan Duration** - Sensors data reading time.  
Minimum value: 5 s, maximum value: 120 s, default value: 60.
- **Scan retries until error** - Configured scan retries, to show the Error Value '3000' - sensor disconnected.
- **Non Stop Scan** - Enabled Non Stop Scan feature, the device will try to scan for the sensors all the time if any of them are configured.
- **Working mode** - Bluetooth connection mode. **Disabled**: Bluetooth 4.0 connection will not be used. **TZ-BT04/05/05B sensor**: this Bluetooth connection will be used to communicate with TZ-BT04/05/05B sensor. **Advanced** - It allows to gather data from BLE device's broadcast packets regardless of what data packing protocol is used.

## Configuration modes

Non Stop Scan Enabled.



In Configurator when Non Stop sensor scans is active update frequency & scan retries until error will be hidden. Although BLE scan duration will still be active because it is important for btgetlist SMS command.

Non Stop Scan Disabled, Scan period is selected manually.



From the picture above, the Scan time period will be selected from two sources, **BLE Scan Duration** - the time when sensors are scanned and the **Update frequency** - The time when the sensor information is packed as the AVL Data record.

For example:

**Update frequency** - 120 seconds.

**BLE Scan Duration** - 60 Seconds

Device will start the first scan after 120 seconds and will scan nearby BLE devices for 60 seconds to update configured sensor data. The sensor data will be updated every 120 seconds. Update Frequency is counted even while a scan is performed.

Update frequency period passes. 120 seconds -> 0 seconds, a 60 second scan is initiated. Update Frequency countdown is restarted (countdown from configured value to 0) while the scan (according to the BLE Scan duration parameter) is performed.

## Advanced Mode

When Advanced mode is selected a table with configurable parameters will appear:



- The table has 9 types of parameters:
  1. Type - EIR data type. This parameter will indicate which type to look for and work with.  
Note: We have also added type with value 0xFE which will indicate to work with a whole data packet and not just a single data type.
  2. Data Offset - start index of data we are interested in.
  3. Data Size - size of the data we are interested in.
  4. Action - two actions are possible: Match and Save. Match means that we want to perform a validation of certain data. Save means that we want to get certain data and later save it to an AVL record.
  5. IO - tells which IO element's data will be saved to. Possible choices for IO elements will be described later in the chapter. **Used only with Save action.**
  6. Match - hex string to be matched with BLE sensor data. **Used only with Match action.**
  7. Endianness - endianness of data: little endian (ex. 0x1122) or big endian (ex. 0x2211).  
**Used only with Save action.**
  8. Multiplier - value to be used to multiply output data. **Used only with Save action.**
  9. Offset - value to be added to output data. **Used only with Save action.**

## IO elements choices

Name	Connection #1 AVL ID	Connection #2 AVL ID	Connection #3 AVL ID	Connection #4 AVL ID
None	-	-	-	-

<b>Temperature</b>	701	702	703	704
<b>Battery</b>	705	706	707	708
<b>Humidity</b>	709	710	711	712
<b>Fuel</b>	270	273	276	279
<b>Luminosity</b>	717	718	719	720
<b>Fuel LLS Fuel</b>	721	722	723	724
<b>Fuel Frequency</b>	725	726	727	728
<b>Custom1</b>	713	714	715	716
<b>Custom2</b>	729	730	731	732
<b>Custom3</b>	733	734	735	736
<b>Custom4</b>	737	738	739	740
<b>Custom5</b>	741	742	743	744

## Supported Sensors List

This list shows the supported BLE sensors and where their Presets can be found in the configurator to use those sensors with FMB devices. The presets and sensors have been fully tested by Teltonika and are confirmed to work properly.

While following the steps showed in the images below, you can find the supported sensors in our Configurator.

In the Configurator, find the Bluetooth 4.0 Settings menu, select the advanced sensors mode which was mentioned before. The following window should appear.



At the top right corner, you should see the following **Buttons**, press on the first one from the left.



After the named **Button** was pressed the list with all supported sensors and the configuration presets should appear.



Select your sensor and click load. The correct configuration and recommended settings will appear in the configuration.



The supported sensors are listed below:

- BLE TPMS -Tire Pressure Monitoring System.
- Efento Humidity BLE sensors (version 2.2 and 4 presets)
- ELA ANG (Angle)
- ELA MOV AG (Movement and Angle)
- ELA PUCK ID (ID)
- ELA RHT (Temperature and Humidity)
- ELA T (Temperature)
- ELA MOV MAG (Movement Magnetic)

- Escort Fuel BLE sensors
- Escort luminosity BLE sensors
- Escort Temperature BLE sensors
- TELTONIKA [EYE BEACON](#)
- TELTONIKA [EYE SENSOR](#)
- S1 BLE Motion, Humidity and Temperature Sensors
- Technoton [DUT-E S7 Fuel Level Sensor](#)
- Technoton [DFM D S7 Differential Fuel Flow Meter](#)
- Technoton [GNOM DDE/DP S7 Axle Load Sensors](#)
- TZ-BT04 Temperature and Humidity Sensors
- TZ-BT05 Temperature and Humidity Sensors

## Visual demonstration

Here is a visual demonstration of Bluetooth 4.0 sensors in a cold storage truck.

## FMB Family Bluetooth 4.0 support

Devices that are listed in table below shows which device model has Bluetooth 4.0 hardware installed. If your device is manufactured before the day shown in the list it means that this model does not have Bluetooth functionality or it has an older version installed. The date shown in the table depends on when hardware production has started, but not when first lot was sold.

<b>Device Model</b>	<b>BT 4.0 manufacture starting date</b>
FM3001	2018.01
FMB010	2018.04
FMB001	2018.04
FMB900	2018.08
FMB920	2018.07
FMB964	2019.07
FMB120	2018.01
FMB122	2017.11
FMB125	2017.11
FMB130	All versions
FMB140	All versions
FMU125	FW is on release, All versions
FMU126	FW is on release, All versions
FMU130	FW is on release, All versions
FMM125	FW is on release, All versions

FMM130 FW is on release, All versions  
FMM0YX FW is on release, All versions  
FMB202 All versions  
FMB204 All versions  
FMB208 All versions  
FMC640 All versions

## 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.