

Proximity functionality Quick Start Guide

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Proximity with GH5200 Quick start guide

Proximity functionality is used to detect personal space violations by measuring RSSI values between GH5200 devices.

More information about how proximity works could be found [here](#).

NOTE! We recommend to use the latest version of the firmware. Contact your sales manager to get Teltonika Drive link for those files. Firmware version which is shown in the pictures below it's an example only.

1. In order to start GH5200 proximity testing you should download testing firmware, configurator and configuration.
2. Open configurator and connect GH5200:



3. Update device with the latest Proximity firmware version:



NOTE! After firmware update - format device memory by pressing Format as shown below. Format button is on "Status" section.



4. Upload downloaded starting configuration to device:



5. If you plan to use server - configure APN, server address and port. These settings can be found in GPRS section.



6. Important Proximity parameters in Bluetooth® features section:



- Proximity detection must be **Enabled**
- RUTX support selection. This feature allows to transfer the data of Proximity events via Bluetooth® using RUTX router.
- Proximity violator type. Beacons could be used to trigger the Proximity events as well. In this case Beacon detection must be configured in **Beacon List** section. **All** or **Configured** should be selected as in the picture below. If **Configured** is selected, Beacons's UUID, Major and Minor must be entered in the Beacon List. More information about Beacons configuration could be found [here](#).



If **Teltonika devices** is selected as a violator type, in Beacon List section must be selected **Teltonika** as well:



- Group ID **0** detects all GH5200 devices
- Group ID **1 - 255** will not detect those GH5200 devices, which has the same Group ID
- **Proximity RSSI (dBm)** - threshold, which describes maximum allowed RSSI value of surrounding GH5200 devices.
- **Proximity RSSI exit threshold** - RSSI threshold of exiting the Proximity event.
Example: if **Proximity RSSI (dBm)** set to -60 and **Proximity RSSI exit threshold** to 5 - device starts Alarm when signal reached -60, but ends Alarm when RSSI value becomes lower than -65. This function is used to avoid fake exits from the Alarm event, because of RSSI jumps.
- **Proximity RSSI moving average** - is used to reduce unexpected RSSI jumps, Proximity feature could use RSSI moving average of values, which were measured in the past time.
- **Proximity RSSI moving average samples** describes on how many values are used to calculate an average of the RSSI.

NOTE! Proximity feature could be disabled or enabled while device is charging. Just click Disable/Enable on **Proximity while charging** option. Also the device can **Advertise only**, in this case events won't be generated and indications won't work, but other devices will be able to detect the device.

- **Lockdown Indication settings** - Proximity and Home Zone Pre-Alarm duration could be configured here.

Lockdown Indication settings

Pre-Alarm(s)

Important Proximity parameters in Bluetooth® 4.0 section:

- Recommended Update Frequency: **1**
- Recommended BLE Scan duration: **1**
- Recommended BT Power Level: **4**

NOTE! Higher Update frequency/BLE Scan Duration value will cause longer delay of Proximity detection.



7. Indication of the Proximity Pre-Alarm and Alarm could be set in **User Interface** section. It is the same option as Home Zone:



Configuration example for medium range with 55.00.08.Rev.349 firmware

- Proximity RSSI (dBm): **-63**
- Proximity RSSI exit threshold: **2**
- Proximity RSSI moving average samples: **2**
- Update Frequency: **1**
- BLE Scan duration: **1**
- BT Power Level: **4**

AVL ID's and Data Structure

AVL ID **889** record describe the causes of violation:

0 - No violation;

16 - RSSI threshold Proximity violation.

AVL ID **875** record represents device **IMEI** address which violates personal space.

Example of the IMEI conversion from raw data (HEX) to decimal:

1. HEX -> ASCII (String)

3031343731353942383241454643 -> 0147159B82AEFC

2. HEX -> DEC

0147159B82AEFC -> **359633105628924**

AVL ID **890** - Violation time. It's time which counts from getting AVL 889 with value 16 (RSSI threshold Proximity violation) to AVL 889 with value 0 (No violation) of each separate device.

Proximity states:



Example of the data packet:

When Proximity is violated:

```
00000000000000548E0100000174D44B614000000000000000000000000000000000000000000000000036B0004000103791000000001037A00000000000000002036B000E3031343  
731353546443338414342037B000C434330324332364131454244010000A1F3
```



When violator leaves personal space (end of Proximity violation):

```
00000000000000548E0100000174D44B74C800000000000000000000000000000000000000000000000036B0004000103790000000001037A0000000400000002036B000E303134373  
1353546443338414342037B000C4343303243323641314542440100006512
```



Example of the server view:

