

FMU126 Data acquisition settings

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Data Acquisition modes are an essential part of FMU126 device, they are also highly configurable. Through configuration user defines how records will be saved and sent. There are three different modes: Home, Roaming and Unknown. All these modes with configured data acquisition and report frequencies depend on current GSM Operator defined in the Operator list (see section [GSM Operators settings](#)) and are switched when GSM operator changes (e.g. vehicle passes through a country border).

If current GSM operator is defined as Home Operator, device will work in Home Data Acquisition mode, if current operator is defined as Roaming Operator, device will work in Roaming Data Acquisition mode, and if current operator code is not written in the Roaming Operator list, device will work in Unknown mode.

This functionality allows having different AVL records to acquire and send parameter values when object is moving or standing still. Vehicle moving or stop state is defined by Stop Detection Source parameter. There are 4 ways for FMU126 to switch between Vehicle on Stop and Vehicle Moving modes, please refer to the first table in [System settings](#).

FMU126 has 6 different modes. Operational logic is shown in the figure below.

✘ If home operator is written to roaming operator list, it will still be detected as home operator.



Operator search is performed every 15 minutes. Depending on current GSM operator Home, Roaming or Unknown mode can be changed faster than every 15 minutes. This process is separate from operator search. Movement criteria are checked every second.

The screenshot shows the TELTONIKA configuration interface. On the left is a navigation menu with options: Security, System, GPRS, Data Acquisition, SMS \ Call Settings, GSM Operators, Features, Accelerometer Features, Auto Geofence, Manual Geofence, Trip \ Odometer, Bluetooth, Bluetooth 4.0, Beacon List, I/O, and OBD II. The main area contains three sections:

On stop

	Home	Roaming	Unknown
Min Period	3600	3600	3600
Min Saved Records	1	1	1
Send Period	120	120	120

Moving

	Home	Roaming	Unknown
Min Period	300	300	300
Min Distance	100	100	100
Min Angle	10	10	10
Min Speed Delta	10	10	10
Min Saved Records	1	1	1
Send Period	120	120	120

On Demand Tracking

Period (s): 10

Duration (s): 600

Activation by:

DIN1 AIN1

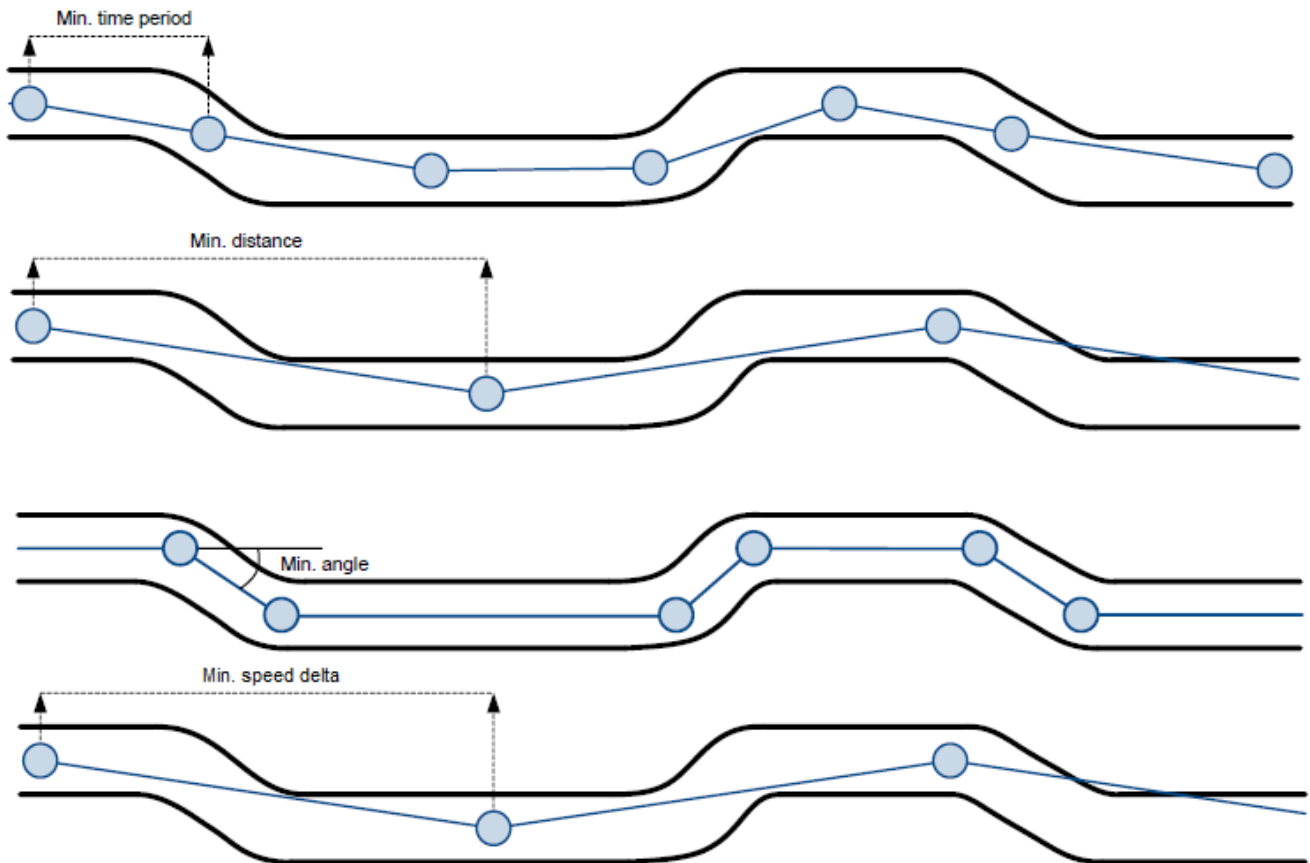
Min Saved Records defines minimum number of coordinates and I/O data that should be transferred within a single connection to the server. If FMU126 does not have enough coordinates to send to the server, it will check again after a time interval defined in *Send Period* field.

Send period controls the frequency of data being sent to server over GPRS. Module makes attempts to send collected data to the server every defined period of time. If it does not have enough records (depends on the parameter *Min. Saved Records* described above), it tries again after the defined time interval.

Keep in mind that FMU126 operates in GMT:0 time zone, without daylight saving.

FMU126 is able to collect records using four methods at the same time: time, distance, angle and speed based data acquisition:

- Time based data acquisition (*Min Period*) - records are acquired every time when a defined interval of time passes. Entering zero disables data acquisition based on time.
- Distance based data acquisition (*Min Distance*) - records are acquired when the distance between previous coordinate and current position is greater than a defined parameter value. Entering zero disables data acquisition based on distance.
- Angle based data acquisition (*Min Angle*) - records are acquired when the angle difference between last recorded coordinate and current position is greater than a defined value. Entering zero disables data acquisition based on angle.
- Speed based data acquisition (*Min Speed Delta*) - records are acquired when the speed difference between last recorded coordinate and current position is greater than a defined value. Entering zero disables data acquisition based on speed.



On Demand Tracking

This functionality was made global (for all FMB devices) from 03.25.06.Rev.00. Tracking on Demand can be activated using commands. After device receives [SMS/GPRS](#) command "[on_demand_trackingX](#)" where X is a number from 0 to 2.

Possible X values are:

- $X = 0$ - Stops Tracking on Demand functionality.
- $X = 1$ - Starts Tracking on Demand functionality.
- $X = 2$ - Generates one high priority record and initiates data sending to the server.

After that, the device starts to generate high priority records and initiate data sending to the server. This feature is configurable via [SMS/GPRS](#) commands only.

From version 03.25.11.Rev.00 tracking on demand can be triggered by multiple IO Events. To enable functionality at least one activation source must be selected and an appropriate IO Event (in I/O tab) should be enabled (Low/High/Panic priority, the operand must NOT be "Monitoring"). When IO Event is generated and if the event is enabled in activation sources, tracking on demand will be started. THE new IO event will not interrupt or restart tracking on-demand until the Duration period has expired. If tracking on demand is already running, [SMS/GPRS](#) command will restart tracking on demand. If tracking the on-demand period is lower than the normal record acquisition period, only high priority records will be created. If tracking the on-demand period is larger than the normal record acquisition period, low priority records will be created according to data acquisition configuration and high priority records will be created after configured tracking on-demand period. Some new [Tracking on Demand parameters](#) are introduced in devices.

The screenshot shows the TELTONIKA configuration interface. On the left is a navigation menu with options: Security, System, GPRS, Data Acquisition (highlighted), SMS \ Call Settings, GSM Operators, Features, Accelerometer Features, Auto Geofence, Manual Geofence, Trip \ Odometer, Bluetooth, Bluetooth 4.0, Beacon List, I/O, and OBD II. At the top right are 'Load from file' and 'Save to file' buttons. The main content area is divided into three sections:

- On stop:** A table with columns Home, Roaming, and Unknown.

	Home	Roaming	Unknown
Min Period	3600	3600	3600
Min Saved Records	1	1	1
Send Period	120	120	120
- Moving:** A table with columns Home, Roaming, and Unknown.

	Home	Roaming	Unknown
Min Period	300	300	300
Min Distance	100	100	100
Min Angle	10	10	10
Min Speed Delta	10	10	10
Min Saved Records	1	1	1
Send Period	120	120	120
- On Demand Tracking:**
 - Period (s): 10
 - Duration (s): 600
 - Activation by: Two buttons labeled DIN1 and AIN1.

At the bottom of the interface are social media icons for Facebook, YouTube, Twitter, Instagram, LinkedIn, and a general information icon.

There are three available options for the activation source of tracking on demand - DIN/AIN or both (devices that support multiple DINs/AINs allow choosing which DINs/AINs to use). Note that, these inputs will work as buttons, rather than switches, and are used to trigger the functionality, the duration of tracking on demand will not be extended if the activation source status is high for a period of time.

Panic Mode

Panic mode was introduced from FW version FMB.Ver.03.27.01.Rev.160+.

This mode has 3 main parameters:

- „min period“
- „send period“
- „activation source“



Parameters are located in the „Data acquisition“ tab. It works by checking the configured activation sources for events. If any one of them occurs, it changes the minimum acquisition period for records as well as starts to try to send records to the server at a different rate. When in panic mode, exiting is possible once all of the configured activation source exit conditions are met.

Sending to the server is tried every „send period“ parameter amount of seconds both to main and backup server. The selected activation source scenarios should be configured as not “none priority”

in order for them to work.

Table 1. Activation source enter/exit conditions

Activation source	Enter conditions	Exit conditions
Unplug	Device unplugged based on Unplug scenario	External power connected
Towing	Towing occurred based on configuration	Towing is not active anymore (no movement for timeout amount of time reached or ignition activated)
Autogeofence	Device exited autogeofence zone or no fix with the movement for activation timeout amount of time	When deactivation source is triggered

Table 2. Panic mode related parameters

Parameter name	Min value	Max value	Default value	Parameter ID	Description, possible values
Min period	0	65535	5	65801	seconds
Send period	0	65535	10	65802	seconds
Activation source	0	7	0	65803	0 None 1 Unplug 2 Towing 3 Unplug + Towing 4 Autogeofence 5 Autogeofence + Unplug 6 Autogeofence + Towing 7 Autogeofence + Unplug + Towing