# FM3001 Data acquisition settings

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## **Data Acquisition**

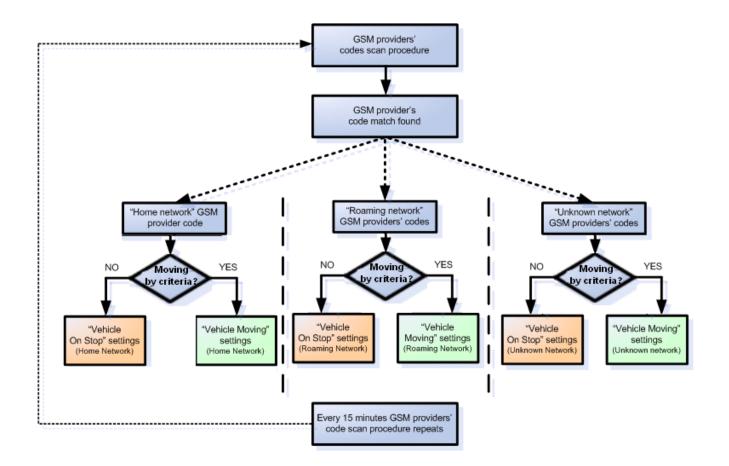
Data Acquisition modes are an essential part of FM3001 device, they are also highly configurable. Through configuration user defines how records will be saved and sent. There are three different modes: Home, Roaming, and Unknown. All these modes with configured data acquisition and report frequencies depend on the current GSM Operator defined in the Operator list (see section <u>GSM</u> <u>Operators settings</u>) and are switched when GSM operator changes (e.g. vehicle passes through a country border).

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

This functionality allows having different AVL records to acquire and send parameter values when the object is moving or standing still. Vehicle moving or stop state is defined by the Stop Detection Source parameter. There are 4 ways for FM3001 to switch between Vehicle on Stop and Vehicle Moving modes, please refer to the first table in <u>System settings</u>.

FM3001 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.



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

Security	n stop								
System	лэхор	Home		Roaming	Unknown				
GPRS	Min Period	3600	<u>^</u>	3600 🗘	3600 🗘				
Data Acquisition	Min Saved Records	1		1 🗘	1 🗘				
SMS \ Call Settings	Send Period	120 \$		120 🗘	120 🗘				
GSM Operators		120	• 11	120 🔹	120 🗸				
Features	Noving								
Accelerometer Features		Home		Roaming	Unknown				
Auto Geofence	Min Period	300	\$	300 🗘	300 🗘				
Manual Geofence	Min Distance	100	\$	100 🗘	100 🗘				
Trip \ Odometer	Min Angle	10 🗧	\$	10 🗘	10 🗘				
	Min Speed Delta	10 \$	\$	10 🗘	10 🗘				
	Min Saved Records	1	* *	1 🔷	1 🗢				
	Send Period	120 ;	\$	120 🗘	120 🗘				
I/O									
	On Demand Tracking								
	Period (s)	10 🗘							
	Duration (s)		600 🗘						
	Activation by:								
	DIN	J1							

## **Record Saving settings**

*Min Saved Records* defines the minimum number of coordinates and I/O data that should be transferred within a single connection to the server. If FM3001 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 the server over GPRS. The 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.

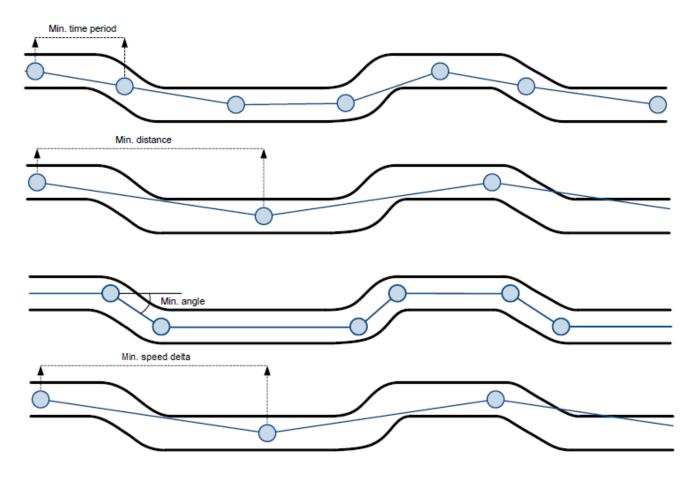
Keep in mind that FM3001 operates in GMT:0 time zone, without daylight saving.

FM3001 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 the 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 the last recorded coordinate and current position is greater than a defined value.

Entering zero disables data acquisition based on the angle.

• Speed based data acquisition (*Min Speed Delta*) – records are acquired when the speed difference between the 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 <u>SMS/GPRS</u> command " <u>on\_demand\_trackingX</u>" 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 <u>SMS/GPRS</u> 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 <u>Tracking on Demand parameters</u> are introduced in devices.

Min Saved Records 1   Moving     Min Period     300     Min Period     300     Min Period     300     Min Period     300     Min Speed Delta     Min Saved Records     1 <th></th> <th colspan="10">On stop</th>		On stop									
Data Acquisition         Data Acquisition         SMS \ Call Settings         GSM Operators         Features         Auto Geofence         Manual Geofence         Trip \ Odometer         Bluetooth         Bluetooth 4.0         Bluetooth 4.0         Bluetooth 4.0         OBD II         OBD II         On Demand Tracking         Period (s)         Duration (s)         Activation by:		Home	Roaming	Unknown							
SMS \ Call Settings111GSM OperatorsFeaturesAuto GeofenceManual GeofenceMin DistanceBluetoothBluetoothBluetooth 4.0Blaecon ListVOOBD IIOBD IIOn Demand TrackingPeriod (s)Duration (s)Activation by:	Min Period	3600	\$ 3600 \$	3600 🗘							
Send Period       120 ↓       120 ↓       120 ↓         GSM Operators       Features       Moving         Features       Moving       Min Period       300 \$ 300 \$ 300 \$         Manual Geofence       Min Period       300 \$ 300 \$ 100 \$       100 \$         Min Distance       100 \$ 100 \$ 100 \$       100 \$       100 \$         Bluetooth       Min Speed Delta       10 \$ 10 \$ 10 \$       10 \$         Min Saved Records       1 \$ 1 \$ 1 \$       1 \$       1 \$         I/O       On Demand Tracking       Period (s)       10 \$ 10 \$       10 \$         Duration (s)       Activation by:       600 \$       10 \$       10 \$	Min Saved R	ecords 1	¢ 1 ¢	1 🗘							
Features       Moving         Leterometer Features       Min Period       300 \$ 300 \$ 300 \$         Manual Geofence       Min Distance       100 \$ 100 \$ 100 \$         Trip \ Odometer       Min Angle       10 \$ 10 \$ 10 \$         Bluetooth       Min Speed Delta       10 \$ 10 \$ 10 \$         Bluetooth 4.0       Min Saved Records       1 \$ 1 \$ 1 \$         VO       OBD I       On Demand Tracking         Period (s)       10 \$ 600 \$         Duration (s)       Activation by:	Send Period	120	\$ 120 \$	120 🗘							
Internet       Home       Roaming       Unknown         Auto Geofence       Min Period       300 \$ 300 \$ 300 \$       300 \$         Manual Geofence       Min Distance       100 \$ 100 \$ 100 \$       100 \$         Bluetooth       Min Speed Delta       10 \$ 10 \$ 10 \$       10 \$         Bluetooth 4.0       Min Speed Delta       10 \$ 10 \$ 10 \$       10 \$         Beacon List       Send Period       120 \$ 120 \$ 120 \$       120 \$         I/O       On Demand Tracking       10 \$ 00 \$       10 \$         Duration (s)       600 \$       600 \$       4ctivation by:											
Auto Geofence       Min Period       300 \$\$ 300 \$\$ 300 \$\$         Manual Geofence       Min Distance       100 \$\$ 100 \$\$ 100 \$\$         Trip \ Odometer       Min Angle       10 \$\$ 100 \$\$ 100 \$\$         Bluetooth       Min Speed Delta       10 \$\$ 10 \$\$ 10 \$\$         Bluetooth 4.0       Min Saved Records       1 \$\$ 1 \$\$ 10 \$\$         VO       OBD II       On Demand Tracking         Period (s)       10 \$\$ 100 \$\$         Duration (s)       600 \$\$         Activation by:       10 \$\$											
Manual Geofence         Min Period         300 V         300 V         300 V           Manual Geofence         Min Distance         100 V         100 V         100 V           Bluetooth         Min Angle         10 V         10 V         10 V           Bluetooth 4.0         Min Speed Delta         10 V         10 V         10 V           Beacon List         Send Period         120 V         120 V         120 V           VO         On Demand Tracking         Period (s)         10 V         10 V           Duration (s)         Activation by:         600 V         10 V         1		Home	Roaming	Unknown							
Trip \ Odometer       I/0 \locolever       I/0 \locolever         Bluetooth       I/0       I/0 \locolever       I/0 \locolever         Bluetooth 4.0       Min Speed Delta       I/0 \locolever       I/0 \locolever         Beacon List       I \locolever       I \locolever       I/0 \locolever         OBD II       On Demand Tracking       I/0 \locolever       I/0 \locolever         Ouration (s)       I/0 \locolever       I/0 \locolever         Activation by:       I/0 \locolever       I/0 \locolever	Min Period	300	\$ 300 \$	300 🗘							
Bluetooth       I0 V       I0 V       I0 V         Bluetooth 4.0       Min Speed Delta       10 V       10 V         Beacon List       I V       I V       I V         OBD II       On Demand Tracking       I0 V       I0 V         Period (s)       I0 V       I0 V       I0 V         Duration (s)       600 V       Activation by:       I0 V	Min Distance	e 100 3	\$ 100 \$	100 🗘							
Bluetooth 4.0       Min Speed Delta       10 V       10 V         Beacon List       1 C       1 C       1 C         VO       VO       120 C       120 C       120 C         OBD II       On Demand Tracking       10 C       10 C       10 C         Period       (s)       10 C       10 C       10 C         Activation by:       10 C       10 C       10 C       10 C	Win Angle	10	\$ 10 \$	10 🗘							
Beacon List       1 <th< td=""><td>Min Speed L</td><td>Delta 10</td><td>\$ 10 \$</td><td>10 🗘</td><td></td></th<>	Min Speed L	Delta 10	\$ 10 \$	10 🗘							
I/O     Send Period     120 \$ 120 \$ 120 \$       OBD II     On Demand Tracking       Period (s)     10 \$ 000 \$       Duration (s)     600 \$ 000 \$	Min Saved R	ecords 1	¢ 1 ¢	1 🗘							
OBD II       On Demand Tracking         Period (s)       10 ♀         Duration (s)       600 ♀         Activation by:       10	Send Period	120	\$ 120 \$	120 🗘							
Period (s)     10 ♀       Duration (s)     600 ♀       Activation by:     10											
Duration (s) 600 🗘 Activation by:	OBD II On Demand	Tracking									
Activation by:	Period (s)			10 🗘	]						
	Duration (s)			600 🗘	]						
DIN1 AIN1	Activation by	e									
		DIN1	N1								

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.