

# FMA Device Family Parameter list

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## System parameters

Parameter ID	Parameter Type	Recomended value	Value range		Value	Parameter name
			Min	Max		
1002	UInt8	-	0	2	0 - Ignition 1 - Movement sensor 2 - GPS	Stop Detection Source
1003	UInt8	1	0	1	0 - Disable 1 - Enable	Static navigation
1004	UInt8	-	0	2	0 - Power voltage 1 - Digital input 1 1 - Movement	Ignition source

1005	Uint16	-	0	30000	Voltage	Power Voltage High Level
1006	Uint16	-	0	30000	Voltage	Power Voltage Low Level
1920	Uint8	-	0	1	0 - Manual 1 - Auto	Ignition detection (Power voltage)
1921	Uint8	10	0	65536	Seconds	Ignition detection timeout
201	Uint8	1	0	2	0 - after position fix 1 - always 2 - after time sync	Records Saving/Sending
202	Uint8	0	0	2	0 - GNSS (all available) 1 - GPS only 2 - GLONASS only	GNSS System
1007	Uint32	-	1	259200	Seconds	GNSS Fix Timeout

Parameter ID	Parameter Type	Recommended value	Value range		Value	Parameter name
			Min	Max		

1000	Uint8	-	0	2	0 - Disable 1 - Sleep 2 - Deep sleep	Sleep settings
200	Uint8	-	1	3000	Minutes	Timeout

Parameter ID	Parameter Type	Recommended value	Value range		Value	Parameter name
			Min	Max		

1001	Uint8	-	0	1	0 - 0...10V 1 - 1...30V	Analog Input value range
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Parameter ID	Parameter Type	Recommended value	Value range		Value	Parameter name
			Min	Max		

1008	Uint8	1	0	1	0 - disabled 1 - enabled	NTP Time Synchronization
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## Records parameters

Parameter ID	Parameter Type	Recommended value	Value range		Value	Parameter name
			Min	Max		

1010	Uint8	-	0	1	0 - From oldest 1 - From Newest	Sorting
1011	Uint32	-	0	259200	Seconds	Active Data Link Timeout
1012	Uint8	-	0	300	Seconds	Server Response Timeout

ATTENTION! Some GSM operators may disconnect the device from an active data link if the device doesn't send any data for a very long time, even if active data link timeout is set to maximum value. The amount of time that an operator keeps the link open depends solely on the operator. For example, if active data link timeout is set to maximum, 259200 seconds (72 hours), and the device sends data to server every 86400 seconds (24 hours), the operator might disconnect the link earlier and the device will have to connect to the server anew. This may cost extra, depending on the operator GPRS data charge. It is strongly recommended, when using active data link timeout, that data sending to the server should not be very rare (24 hours or more). If data sending is more frequent, then the operator will not disconnect the device from the server.

## GSM parameters

Parameter ID	Parameter Type	Recommended value	Value range		Value	Parameter name
			Min	Max		

1240	Uint8	-	0	1	0 - Disable 1 - Enable	GPRS content activation
1242	Char	-	0	32	String	APN name
1243	Char	-	0	30	String	APN username
1244	Char	-	0	30	String	APN password

Parameter ID	Parameter Type	Recommended value	Value range		Value	Parameter name
			Min	Max		
1245	Char	-	0	31	String	Domain
1246	Uint16	-	0	65535	Number	Target Server Port
1247	Uint8	-	0	1	0 - TCP 1 - UDP	Protocol
1248	Uint8	-	0	1	0 - Not Allowed 1 - Allowed	Always online

Parameter ID	Parameter Type	Recommended value	Value range		Value	Parameter name
			Min	Max		
1252	Char	-	0	5	String	SMS Login
1253	Char	-	0	5	String	SMS password
1250	Char	-	0	1	0 - Not Allowed 1 - Allowed	SMS data sending settings
1273	Uint32	Example value: 7F,FF,FF,FF,FF,FF,FF,FF,FF,FF,FF,FF,FF,FF,FF,FF,FF,FF	-	-	Time is defined as 19 byte array. First byte of array defines week days; the rest 18 bytes define timestamps with 10 minute interval. In first byte, first bit (LSB) defines if module should connect to GPRS (send SMS) on Monday, second bit - on Tuesday and so on up to seventh bit - which means Sunday.	GPRS Week Time

Parameter ID	Parameter Type	Recommended value	Value range		Value	Parameter name
			Min	Max		
1260-1269	Char	-	1 digit	16 digits	String	Authorized phone numbers
150-159	Char	-	1 digit	16 digits	String	SMS Event PreDefined Numbers
1271 X	u32	X defines starting position that is changed: If X is from 0 to 49, X means index of operator code which has to be configured.	0 digit	7 digits	String	Operator list
1272 X	u32	X defines starting position that is changed: If X is from 0 to 49, X means index of operator code which has to be configured.	0 digit	7 digits	String	Operator Black list

## Data Acquisition Modes parameters

### Home Network GSM operator code "Vehicle on STOP" parameters

Parameter ID	Parameter Type	Recommended value	Value range		Value	Parameter name
			Min	Max		
1540	Uint32	-	0	2592000	Seconds	Min Period
1543	Uint8	1	1	225	Records	Min Saved Records
1544	Uint32	-	0	2592000	Seconds	Send period





1890	Uint8	-	0	1	0 - Disable 1 - Enable	Scenario settings
1891	Uint8	-	0	2	0 - disable 1 - DOUT1 2 - DOUT2	Digital Output Control
1909	Uint8	-	0	1	0 - GPS 1 - Accelerometer	Source
1892	Float	0.25	0.25	0.85	mG	Max Acceleration Force
1893	Float	0.35	0.25	0.85	mG	Max Braking Force
1894	Float	0.2	0.1	1.0	mG	Max Cornering Force

## Overspeeding scenario parameters

Parameter ID	Parameter Type	Recommended value	Value range		Value	Parameter name
			Min	Max		
1895	Uint8	0	0	1	0 - Disable 1 - Enable	Scenario settings
1896	Uint8	-	0	2	0 - None 1 - DOUT 1 2 - DOUT 2	Digital Output control
1897	Uint16	-	0	260	km/h	Max speed

## Jamming scenario parameters

Parameter ID	Parameter Type	Recommended Value	Value range		Value	Parameter name
			Min	Max		
1898	Uint8	-	0	1	0 - Disable 1 - Enable	Scenario settings
1899	Uint8	-	0	2	0 - None 1 - DOUT1 2 - DOUT2	Digital Output control
1900	Uint8	-	0	2	0 - Low sensitivity (50 RSSI) 1 - Medium sensitivity (30 RSSI) 2 - High sensitivity (10 RSSI)	Jamming sensitivity
1901	Uint16	60	0	65535	Seconds	Jamming Timeout
1902	Uint16	0	0	65535	Seconds	Jamming Pulse Duration

## Immobilizer scenario parameters

Parameter ID	Parameter Type	Recommended value	Value range		Value	Parameter name
			Min	Max		
1903	Uint8	-	0	1	0 - Disable 1 - Enable	Scenario settings
1904	Uint8	-	0	2	0 - Disable 1 - DOUT1 2 - DOUT2	Digital Output Control
1905	Uint8	-	0	1	0 - Disable 1 - Enable	iButton list checking
1906	Uint16	30	5	65353	Seconds	Ignition Off Timeout

## iButton read notification

Parameter ID	Parameter Type	Recommended value	Value range		Value	Parameter name
			Min	Max		
1907	UInt8	-	0	1	0 - Disabled 1 - Enabled	iButton detect
1908	UInt8_t	0	0	1	0 - Disabled 1 - DOUT1 2 - DOUT2	Digital Output Control

## Trip scenario parameters

Parameter ID	Parameter Type	Recommended value	Value range		Value	Parameter name
			Min	Max		
1280	UInt8	-	0	1	0 - Disable 1 - Enable	Scenario settings
1281	UInt8	-	0	255	km/h	Start speed
1282	UInt16	-	0	65535	Seconds	Ignition off timeout
1283	UInt8	-	0	1	0 - Not 1 - Continuous	Continuous distance counting
1284	UInt8	-	0	1	0 - Disable 1 - Enable	Remember iButton ID
1285	UInt8	-	0	-	Meters	Odometer Value

## AutoGeofencing scenario parameters

Parameter ID	Parameter Type	Recommended value	Value range		Value	Parameter name
			Min	Max		
1101	UInt8	1	0	1	0 - Disable 1 - Enable	Scenario Settings
1102	UInt16	60	0	65535	0 - Disable	Activation Timeout
1100	UInt8	-	0	1	0 - Ignition 1 - Enable	Deactivation Source
1103	UInt8	1	0	1	0 - Low 1 - high	AutoGeofence event priority
1104	UInt8	2	0	3	0 - No Event 1 - On entering zone 2 - On exiting zone 3 - On both	AutoGeofence event generating
1105	UInt32	100	0	1000000	Meters	Radius

## iButton list

Parameter ID	Parameter Type	Recommended value	Value range		Value	Parameter name
			Min	Max		
3500-3999	UInt64	-	0	FFFFFFFF FFFFFFFF	0 - iButton ID	iButton list

## Manual Geofence

Parameter ID	Parameter Type	Recommended value	Value range		Value	Parameter name
			Min	Max		
1020	UInt32	1000	0	1000000	Border value meters	Frame border
1030	UInt8	-	0	1	0 - Circle 1 - Rectangle	Shape type

<b>1031</b>	Uint8	-	0	2	0 - Low 1 - High 2 - Panic	Priority
<b>1032</b>	Uint8	-	0	3	0 - No event 1 - On entering zone 2 - On exiting zone 3 - On both	Generate event
<b>1033</b>	float	-	-180	180	Rectangle left down corner X coordinate Or X1 Coordinate circle middle point	Longitude X1
<b>1034</b>	float	-	-90	90	Rectangle left down corner Y1 coordinate Or Y1 Coordinate circle middle point	latitude Y1
<b>1035</b>	float	-	-180	180	Rectangle right upper corner X2 coordinate	longitude X2
<b>1035</b>	float	1000	0	1000000	X2 coordinate radius of circle	longitude X2
<b>1036</b>	float	-	-90	90	Rectangle right upper corner Y2 coordinate If circle ID 1036 is not used	latitude Y2

Similarly to a group defined in the upper table:

Zone number	Parameter								
	Shape	Priority	Generate event	X1	Y1	X2	Radius	Y2	
1	1030	1031	1032	1033	1034	1035	1035	1036	
2	1040	1041	1042	1043	1044	1045	1045	1046	
3	1050	1051	1052	1053	1054	1055	1055	1056	
4	1060	1061	1062	1063	1064	1065	1065	1066	
5	1070	1071	1072	1073	1074	1075	1075	1076	

## Parameters

ID	Parameter name	Value type	Value description	Min Value	max Value
<b>1300</b>	I/O#1 property parameter	S8	0 - disable 1 - enable	0	1
<b>1301</b>	I/O#1 priority parameter	S8	0 - Low 1 - High 2 - Panic	0	2
<b>1302</b>	I/O#1 High level	S32	used to set thresholds for I/O properties to generate events.	-2147483647	2147483647
<b>1303</b>	I/O#1 Low level	S32	used to set thresholds for I/O properties to generate events.	-2147483647	2147483647
<b>1304</b>	I/O#1 logic operand	S8	0 - on range exit 1 - on range entrance 2 - both 3 - monitoring 4 - hysteresis 5 - on changes	0	5



Similarly to a group defined in the upper table

## I/O parameters

<b>I/O Element Number</b>	<b>I/O element parameters</b>
<b>Digital Input 1</b>	1300-1305
<b>Digital Input 2</b>	1310-1315
<b>Digital Input 3</b>	1320-1325
<b>Analog Input 1</b>	1330-1335
<b>Digital Output 1</b>	1340-1345
<b>Digital Output 2</b>	1350-1355
<b>GNSS PDOP</b>	1360-1365
<b>GNSS HDOP</b>	1370-1375
<b>External Voltage</b>	1380-1385
<b>GNSS Power</b>	1390-1395
<b>Movement Sensor</b>	1400-1405
<b>Trip distance</b>	1410-1415
<b>GSM Operator</b>	1420-1425
<b>Speed (Km/h)</b>	1430-1435
<b>iButton ID</b>	1440-1445
<b>Mode</b>	1450-1455
<b>GSM Signal</b>	1460-1465
<b>Deep Sleep</b>	1470-1475
<b>Cell ID</b>	1480-1485
<b>Area Code</b>	1490-1495
<b>Dallas Temperature 1</b>	1500-1505
<b>Reserved</b>	1510-1515
<b>Reserved</b>	1520-1525
<b>Reserved</b>	1530-1535
<b>Reserved</b>	1110-1115
<b>Ignition</b>	1120-1125
<b>Total Distance</b>	1130-1135
<b>Reserved IO1</b>	1140-1145
<b>Reserved IO2</b>	1150-1155
<b>RFID</b>	1160-1165
<b>LLS Fuel1</b>	1720- 1725
<b>LLS Temp1</b>	1730- 1735
<b>LLS Fuel2</b>	1740- 1745
<b>LLS Temp2</b>	1750- 1755
<b>LLS Fuel3</b>	1760- 1765
<b>LLS Temp3</b>	1770- 1775

<b>LLS Fuel4</b>	1780- 1785
<b>LLS Temp4</b>	1790- 1795
<b>LLS Fuel5</b>	1800- 1805
<b>LLS Temp5</b>	1810- 1815
<b>Dallas Temperature 2</b>	1820- 1825
<b>Dallas Temperature 3</b>	1830- 1835
<b>Dallas Temperature 4</b>	1840- 1845
<b>Dallas Temperature ID 1</b>	1850- 1855
<b>Dallas Temperature ID 2</b>	1860- 1865
<b>Dallas Temperature ID 3</b>	1870- 1875
<b>Dallas Temperature ID 4</b>	1880- 1885

## LVCAN

Parameter ID	Parameter Type	Recommended value	Value range		Value	Parameter name
			Min	Max		
1600	Uint8	0	0	2	0 - Auto detect 1 - LV-CAN200 2 - ALL-CAN300	LVCAN Mode
1601	Uint8	1	0	1	0 - Disable 1 - Enable	Send data with 0, if ignition is off

## Configuration example

Parameter ID	Parameter Type	Default value	Value range		Value	Parameter name
			Min	Max		
2000	Uint8	-	0	3	0 - Disabled 1 - Low 2 - High 3 - Panic	Priority
2001	Uint8	3	0	4	0 - On range exit 1 - On range entrance 2 - On both 3 - Monitoring 4 - Hysteresis 5 - On change	Generation type
2002	Uint8	-	0	255	High value	High level
2003	Uint8	0	0	255	Low value	Low level
2004	Uint8	-	0	265535	value	Average constant value

## Allowed values

CAN IO Element	Minimum value	Maximum value
<b>Speed</b>	0	250
<b>Accelerator pedal position</b>	0	100
<b>Total fuel used</b>	0	99999999
<b>Fuel level (liters)</b>	0	100
<b>Engine RPM</b>	0	8200
<b>Vehicle distance</b>	0	214500000

<b>Fuel level (proc.)</b>	0	100
<b>Program number</b>	0	999

## Other CAN settings

Similarly to a group defined in the upper table:

Name	Parameter				
	Priority	Generation type	Low level	High level	Avg const'
Vehicle speed	2000	2001	2002	2003	2004
Acceleration Pedal Position	2010	2011	2012	2013	2014
Total fuel used	2020	2021	2022	2023	-
Fuel level (liters)	2030	2031	2032	2033	2034
Engine RPM	2040	2041	2042	2043	2044
Total Mileage	2050	2051	2052	2053	-
Fuel Level (percent)	2060	2061	2062	2063	2064
Program Number	2070	2071	2072	2073	-
Module ID	2080	2081	2082	2083	-
Engine Worktime	2090	2091	2092	2093	-
Engine Worktime (counted)	2100	2101	2102	2103	-
Total Mileage (counted)	2110	2111	2112	2113	-
Fuel Consumed (counted)	2120	2121	2122	2123	-
Fuel Rate	2130	2131	2132	2133	2134
AdBlue Level (percent)	2140	2141	2142	2143	2144
AdBlue Level (liters)	2150	2151	2152	2153	2154
Engine Load	2160	2161	2162	2163	2164
Engine Temperature	2170	2171	2172	2173	2174
Axle 1 Load	2180	2181	2182	2183	2184
Axle 2 Load	2190	2191	2192	2193	2194
Axle 3 Load	2200	2201	2202	2203	2204
Axle 4 Load	2210	2211	2212	2213	2214
Axle 5 Load	2220	2221	2222	2223	2224
Control State Flags	2230	2231	2232	2233	-
Agricultural Machinery Flags	2240	2241	2242	2243	-
Harvesting Time	2250	2251	2252	2253	-
Area of Harvest	2260	2261	2262	2263	-
Mowing Efficiency	2270	2271	2272	2273	2274
Grain Mown Volume	2280	2281	2282	2283	-
Grain Moisture	2290	2291	2292	2293	2294
Harvesting Drum RPM	2300	2301	2302	2303	2304
Gap Under Harvesting Drum	2310	2311	2312	2313	2314
Security State Flags	2320	2321	2322	2323	-
Tachograph Total Vehicle Distance	2330	2331	2332	2333	-
Trip Distance	2340	2341	2342	2343	-
Tachograph Vehicle Speed	2350	2351	2352	2353	2354
Tachograph Driver Card Presence	2360	2361	2362	2363	-
Driver 1 States	2370	2371	2372	2373	-
Driver 2 States	2380	2381	2382	2383	-
Driver 1 Continuous Driving Time	2390	2391	2392	2393	-
Driver 2 Continuous Driving Time	2400	2401	2402	2403	-
Driver 1 Cumulative Break Time	2410	2411	2412	2413	-
Driver 2 Cumulative Break Time	2420	2421	2422	2423	-
Driver 1 Selected Activity Duration	2430	2431	2432	2433	-
Driver 2 Selected Activity Duration	2440	2441	2442	2443	-

<b>Driver 1 Cumulative Driving Time</b>	<b>2450</b>	<b>2451</b>	<b>2452</b>	<b>2453</b>	<b>-</b>
<b>Driver 2 Cumulative Driving Time</b>	<b>2460</b>	<b>2461</b>	<b>2462</b>	<b>2463</b>	<b>-</b>
<b>Driver 1 ID High</b>	<b>2470</b>	<b>2471</b>	<b>2472</b>	<b>2473</b>	<b>-</b>
<b>Driver 1 ID Low</b>	<b>2480</b>	<b>2481</b>	<b>2482</b>	<b>2483</b>	<b>-</b>
<b>Driver 2 ID High</b>	<b>2490</b>	<b>2491</b>	<b>2492</b>	<b>2493</b>	<b>-</b>
<b>Driver 2 ID Low</b>	<b>2500</b>	<b>2501</b>	<b>2502</b>	<b>2503</b>	<b>-</b>
<b>Battery temperature</b>	<b>2510</b>	<b>2511</b>	<b>2512</b>	<b>2513</b>	<b>2514</b>
<b>Battery level</b>	<b>2520</b>	<b>2521</b>	<b>2522</b>	<b>2523</b>	<b>2524</b>
<b>Door Status</b>	<b>2530</b>	<b>2531</b>	<b>2532</b>	<b>2533</b>	<b>-</b>
<b>DTC Faults</b>	<b>2540</b>	<b>2541</b>	<b>2542</b>	<b>2543</b>	<b>-</b>
<b>Slope Of Arm</b>	<b>2550</b>	<b>2551</b>	<b>2552</b>	<b>2553</b>	<b>-</b>
<b>Rotation of Arm</b>	<b>2560</b>	<b>2561</b>	<b>2562</b>	<b>2563</b>	<b>-</b>
<b>Eject of Arm</b>	<b>2570</b>	<b>2571</b>	<b>2572</b>	<b>2573</b>	<b>-</b>
<b>Horizontal Distance Arm Vehicle</b>	<b>2580</b>	<b>2581</b>	<b>2582</b>	<b>2583</b>	<b>-</b>
<b>Height Arm Above Ground</b>	<b>2590</b>	<b>2591</b>	<b>2592</b>	<b>2593</b>	<b>-</b>
<b>Drill RPM</b>	<b>2600</b>	<b>2601</b>	<b>2602</b>	<b>2603</b>	<b>-</b>
<b>Amount of Spread Salt Square Meter</b>	<b>2610</b>	<b>2611</b>	<b>2612</b>	<b>2613</b>	<b>-</b>
<b>Battery Voltage</b>	<b>2620</b>	<b>2621</b>	<b>2622</b>	<b>2623</b>	<b>-</b>
<b>Amount of Spread Fine Grained Salt</b>	<b>2630</b>	<b>2631</b>	<b>2632</b>	<b>2633</b>	<b>-</b>
<b>Amount of Spread Coarse Grained Salt</b>	<b>2640</b>	<b>2641</b>	<b>2642</b>	<b>2643</b>	<b>-</b>
<b>Amount of Spread DiMix</b>	<b>2650</b>	<b>2651</b>	<b>2652</b>	<b>2653</b>	<b>-</b>
<b>Amount of Spread Coarse Grained Calcium</b>	<b>2660</b>	<b>2661</b>	<b>2662</b>	<b>2663</b>	<b>-</b>
<b>Amount of Spread Calcium Chloride</b>	<b>2670</b>	<b>2671</b>	<b>2672</b>	<b>2673</b>	<b>-</b>
<b>Amount of Spread Sodium Chloride</b>	<b>2680</b>	<b>2681</b>	<b>2682</b>	<b>2683</b>	<b>-</b>
<b>Amount of Spread Magnesium Chloride</b>	<b>2690</b>	<b>2691</b>	<b>2692</b>	<b>2693</b>	<b>-</b>
<b>Amount of Spread Gravel</b>	<b>2700</b>	<b>2701</b>	<b>2702</b>	<b>2703</b>	<b>-</b>
<b>Amount of Spread Sand</b>	<b>2710</b>	<b>2711</b>	<b>2712</b>	<b>2713</b>	<b>-</b>
<b>Width Pouring Left</b>	<b>2720</b>	<b>2721</b>	<b>2722</b>	<b>2723</b>	<b>-</b>
<b>Width Pouring Right</b>	<b>2730</b>	<b>2731</b>	<b>2732</b>	<b>2733</b>	<b>-</b>
<b>Salt Spreader Working Hours</b>	<b>2740</b>	<b>2741</b>	<b>2742</b>	<b>2743</b>	<b>-</b>
<b>Distance During Salting</b>	<b>2750</b>	<b>2751</b>	<b>2752</b>	<b>2753</b>	<b>-</b>
<b>Load Weight</b>	<b>2760</b>	<b>2761</b>	<b>2762</b>	<b>2763</b>	<b>-</b>
<b>Retarder Load</b>	<b>2770</b>	<b>2771</b>	<b>2772</b>	<b>2773</b>	<b>-</b>
<b>Cruise Time</b>	<b>2780</b>	<b>2781</b>	<b>2782</b>	<b>2783</b>	<b>-</b>
<b>CNG Status</b>	<b>2790</b>	<b>2791</b>	<b>2792</b>	<b>2793</b>	<b>-</b>
<b>CNG Used</b>	<b>2800</b>	<b>2801</b>	<b>2802</b>	<b>2803</b>	<b>-</b>
<b>CNG Level</b>	<b>2810</b>	<b>2811</b>	<b>2812</b>	<b>2813</b>	<b>-</b>
<b>Oil Level</b>	<b>2820</b>	<b>2821</b>	<b>2822</b>	<b>2823</b>	<b>-</b>