

Template:FMU I/O settings

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When no I/O element is enabled, AVL packet comes with GNSS information only. After enabling I/O element(s) AVL packet contains current value(s) of enabled I/O element(s) along with GNSS information.

Input Name

I/O element name.

Current Value

If device is connected to **Configurator** all current I/O values are displayed in this column. Also I/O current values can be seen in [Status→I/O Info](#) tab.

Units

Units of measurement.

Priority

This field allows to enable I/O elements and setting them a priority so they are added to the data packet, which is sent to the server. By default **12 I/O elements** with **Low priority** are enabled: Ignition, Movement, Data Mode, GSM Signal, Sleep Mode, GNSS Status, GNSS PDOP, GNSS HDOP, External Voltage, Speed, Battery Current, Battery Voltage. All records made by FMU1YX are regular, and regular packets are sent as low priority records.

Priority level (AVL packet priority) can be:

None Priority

Module doesn't make additional record.

Low Priority

Module makes an additional record with an indication that the **event was caused by an I/O element change** (depending on [Operands](#) configuration).

High Priority

Module makes an additional record with High priority flag and **sends event packet immediately** to the server using **GPRS**.

Panic Priority

This priority triggers same actions as **High priority**, but if GPRS fails, it sends an AVL packet using **SMS data** if SMS data sending is enabled and the number is provided in [SMS/Call Settings](#).

High and Low Level

These levels define I/O value range. If I/O value **enters or exits** this range, FMU1YX **generates an event**.

Event Only

When this is selected, I/O element status value will be **appended only to eventual records**, otherwise I/O element status value will appear in each AVL record.

Operands

Defines when to generate event: [On Exit](#), [On Entrance](#), [On Both](#), [Monitoring](#), [On Hysteresis](#), [On Change](#) or [On Delta Change](#).

Operand On Exit

Record is generated when input value leaves a range between low and high level limits.



Operand On Entrance

Record is generated when input value enters a range between low and high level limits.



Operand On Both

Record is generated by both *On Exit* and *On Entrance* operands' logic at same time.



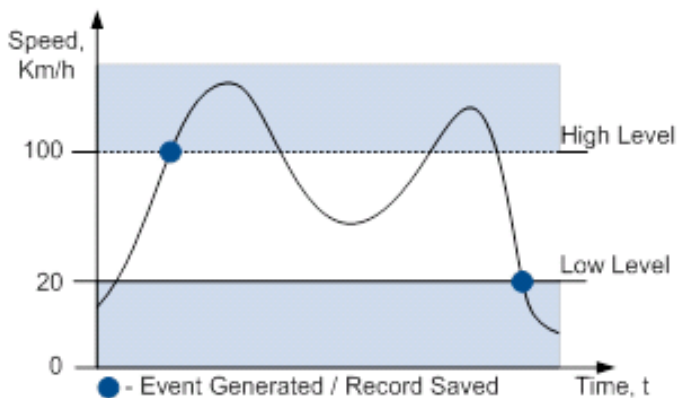
Operand Monitoring

No event at all. Values are recorded only when other triggers worked.



Operand On Hysteresis

Record is generated when input value crosses the high limit value from below the low limit value or vice versa.



Operand On Change

Record is generated when input value changes.



Operand On Delta Change

Record is generated when input value changes and the absolute change becomes equal to or higher than the limit value.



Avg Const

If *Avg Const* value is 10, new value must be present for 1 second to register the change to a new value. Internal sampling is done every 40 ms, so 25 samples are taken per second. To configure 5 seconds of averaging multiply 10 by 5 yielding 50 as *Avg Const* value. The same logic works if the device is in [Deep Sleep mode](#).

Averaging follows RC exponential curve, see image below:



For Boolean values of 5τ , values is used, that means value change is taken when new values is averaged to more than 99.3%.

Send SMS To

Sends SMS notification about event to selected number from [SMS/Call Settings GSM Predefined Numbers](#) list if event priority is set to [Low](#), [High](#) or [Panic](#).

SMS Text

The SMS Text field can be altered and any text can be entered. Maximum message length is **160** symbols (numbers, letters and symbols in ASCII, except for comma “,”).

SMS Event Text may be either in default or composed format.

Default format:

Date, time, longitude, latitude, 'SMS text', value

Example:

```
2018/11/02 12:00:00 Lon:0.000000 Lat:0.000000 Alarm 1
```

Composed format:

Composed format may consist of text and defined commands which start with % symbol.

Supported commands:

Command	Description
imei	IMEI
fw	Firmware version
fullfw	Full firmware version

modem Modem firmware version
gnss GPS firmware version
vin OBD VIN number
lat Latitude (non-float value)
lon Longitude (non-float value)
sat Satellites in use
time Timestamp
din1 Digital Input 1
din2 Digital Input 2
din3 Digital Input 3
ain1 Analog Input 1
out1 Digital Output 1
out2 Digital Output 2
pdp PDOP
hdp HDOP
exv External Voltage
gmap Google Maps link
mov Movement
odo Trip Odometer
op GSM operator
spd Speed
ib iButton
mod Data Mode
sig GSM signal
slp Sleep Mode
cel Cell ID
lac Area Code
tmp Dallas Temperature 1
mac BT MAC address
dtc OBD fault codes
flat Latitude (float value)
flon Longitude (float value)
date Date in yyyy/mm/dd format
datetime Time in hh:mm:ss format
val Eventual IO value
io'par_id' Element value by parameter ID

Command	Description
imei	IMEI
fw	Firmware version
fullfw	Full firmware version
modem	Modem firmware version
gnss	GPS firmware version
lat	Latitude (non-float value)
lon	Longitude (non-float value)

sat	Satellites in use
time	Timestamp
pdp	PDOP
hdp	HDOP
mov	Movement
op	GSM operator
spd	Speed
sig	GSM signal
slp	Sleep Mode
cel	Cell ID
lac	Area Code
datetime	time in hh:mm:ss format
val	Eventual IO value
io'par_id'	Element value by parameter ID
gmap	Google Maps link

Composed text example:

%imei Movement %io50010

Event SMS text:

352094082828606 Movement 1

If FMU1YX is in [Deep Sleep](#) or [Ultra Deep Sleep](#) mode and an SMS event occurs with [Low priority](#) (which does not wake up FMU1YX), then the device does not send the message. It is saved to device memory until it wakes up from [Deep Sleep](#) or [Ultra Deep Sleep](#) mode and GSM modem starts working normally. After it wakes up, all the messages that are saved to memory will be sent, but keep in mind that only 10 messages can be saved to memory - all other messages will not be saved, until there is free memory space.

