Template:FTXXX1 I/O settings

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Contents

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 FMB1YX 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 onas [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, FMB1YX **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

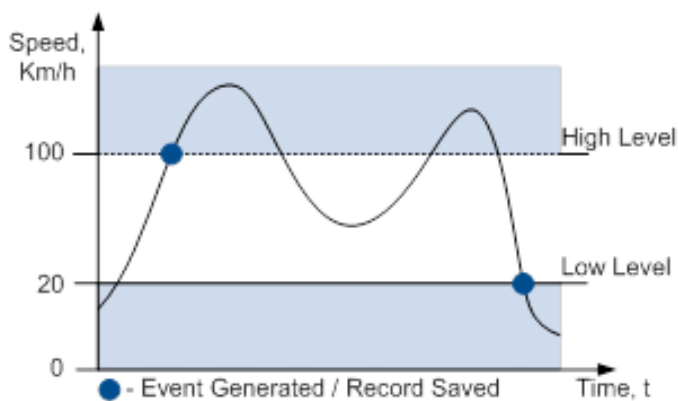Record is generated by both *On Exit* and *On Entrance* operands' logic at same time.

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%.

NOTE: Average Constant is not used as an activation timer or delay timer. But it is used as a filter.

Event is generated at different times due to variations in voltage. Average constant is designed to filter jumps instead of event generation time.

For example: generation is set to happen at 14500mV, and actual voltage is set to 15000mV, that record will be generated earlier than 10s with avg const set to 100. This is because avg const is calculating time it takes for device to get to actual voltage (in this case 15000 mV), while device will be generating records when it hits 14500mV.