Configurable DOUT patterns

Introduction

Configurable DOUT patterns can be used with Geofencing feature. It makes DOUT configuration much more flexible and gives users an ability to configure it according to their needs.

Feature was first introduced to FM devices with these firmware versions:

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Description

Configurable DOUT patterns can be used only together with the Geofencing feature. It works on one DOUT at a time.

Pattern itself is defined by the "Pattern parameters". There are six of them.

Pattern parameters

- t_h duration of the high pulse in milliseconds. Min value 1ms, max value 10000ms.
- $\mathbf{t}_{\mathbf{l}}$ duration of the low pulse in milliseconds. Min value 1ms, max value 10000ms.
- c_h constant, which increments every high pulse duration. Value in milliseconds. Can be negative number, in which case the pulse duration is decreased. Min value -10000, max value 10000.
- **c**_I constant, which increments every low pulse duration. Value in milliseconds. Can be negative number, in which case the pulse duration is decreased. Min value -10000, max value 10000.
- **n** number of cycles. Min value 1, max value 10000.
- State final state for the DOUT. DOUT will remain in this state after the pattern is completed. This can be high – H or low - L.

_	High	Low	High	High	Low	High
Duration ms	t _h +0 ⋅ c _h	t _i + 0 · c _i	t _h +1·c _h	 t_h +(n-1) · c_h	t _i + (n-1) · c _i	
Cycle no.	n=	:1	n=2	n	1	State after pattern is completed

Pattern parameters in the configurator

Pattern parameters field is divided into six sections – one for each pattern parameter. Sections are separated by the semicolon punctuation marks. Starting from the right, parameters match each field in the following order: t_h ; t_l ; c_h ; c_l ; n; **State**.



Pattern examples

Pattern parameters: $t_h = 1000$, $t_l = 1000$, $c_h = 500$, $c_l = -500$, n=3 and state = H.



Pa	ttern parame	ters: t _h =	$1000, t_{l} = 10$	$000, c_h = -50$	$c_{l} = 0, n =$	3 and state	e = H.	
-	High	Low	High			1		_
	1000 ms	1000 ms	950 ms	1000 ms	900 ms	1000 ms		
I	n=1		n=2		n	=3	State after pattern i	s completed
	11-1			-		<u> </u>		o compreteo
Th	nis pattern in t	the config	urator:	_				scompleted

Configuration

Set DOUT pattern parameters

- 1. In the main configurator window choose your device (Eco4, Tco4 LCV, Tco4 HCV, Pro4).
- 2. In the **I/O events** section click on the "Options" button. It opens up a new "I/O settings" window, here you can enable or disable I/O parameters.
- 3. In the bottom right corner choose one of the DOUTs. In its dropdown menu select *Custom*. **Pattern** field will be displayed below.

	iration Password	GNSS				Movement sensor sensitivity
	egistration	GNSS s	election: cing	GPS	~	1 2 3 4 5 6 7 8 9 10 Min Max
🧤 IO settin	igs				×]
1 : Disa	bled	\sim	Protocol selection	n a with v1.1 protocol		
IO properti ID Level Delta Average Event on Priority	Enable Accelerometer X Accelerometer X	ms				Operator list Options IO events Options 2.
Switch to	No Switch \lor					
IO counter Records o	rs n event: 1		DOUT1 DOUT2	Disabled Disabled Disabled	~	
				LED Buzzer Blocking GSM jamming block Custom	[`] 3.	
	BL · XX XX		FW· XX XX XX	XX IM	IEI XX	xxxxxxxxxxxxxx

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4. Enter the pattern parameters in the **Pattern** field.

DOUT1	Custom	\sim	Pattern	1	1	1	1	0	1	0	1	1	; L	
														4.

Enable DOUT in Geofencing options

- 5. Under **Global** settings, in the **Geofencing** section click on the "Options" button. It opens up a new geozones settings popup window.
- Geozones configuration options are described in "EN Internal geozones.pdf" document available here: <u>link</u>. After geozones configuration at least one **Output channel** drop down list on the right should be active. Select *Custom* to activate your DOUT pattern.

Giobal	
Protocol Connection settings *** Settings of Geozones	×
APN extringe Port1 0 Outside V	
Send CFG Name IP2 Gezone border crossing	
Get CFG	
Send EW Output channel: Buzzer	~
Lock FM device to the SIM card Disauled Discover Disc	
Configuration Password GNSS Ultimeter DIN1 Big O Low	0.
GNSS selection: GPS UNIT DIN2 High Low	
Driver realistration Geofencing DIN3 High Low	
Options Options 5	~
Send data without GPS fix Towing detection	
Enable Options Options Options	
Do not use with Trust Track server!	
AIN2 < √ 0 (⇒ mV	
Profile 1 Profile 2 Profile 3 Profile 4	~
Sleep Data collection Data collection	
Disabled v after 600 0 sec Diable 60 A s Additional parameters + Geozones	
Data sending Engine Always on V Enable	
Enable GPS stationary navigation filtering Seead C A C A Km/h	
Period 60 🚖 s	
Link Timeout / 🖓 s Output channel: Buzzer	~
Coefficients List of Geozones	
Timetable Distance 1000 🐨 m	
Ime with engine bU 🐨 s	
Hadiai bu 🔽 deg	
Simisidus.	

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