

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.

This functionality is compatible with the following FM devices with the latest firmware version:

- FM-Tco4 HCV
- FM-Tco4 LCV
- FM-Pro4
- FM-Eco4
- FM-Eco4 S

You can get the latest firmware and configurator from our documentation website: doc.ruptela.it

Legal notice

Copyright © 2016 Ruptela. All rights reserved. Reproduction, transfer, distribution or storage of parts or all of the contents in this document in any form without the prior written permission of Ruptela is prohibited. Other products and company names mentioned in this document are trademarks or trade names of their respective owners.

Document change log

Date	Version	Change details
2016-10-26	1.0	Initial draft.
2016-11-18	1.1	Feature available for the FM-Eco4/4+ and FM-Eco4 light/light+.
2017-09-07	1.2	Minor notes about DOUT states.
2018-11-19	1.3	Added note about DOUT inversion in "Configuration".

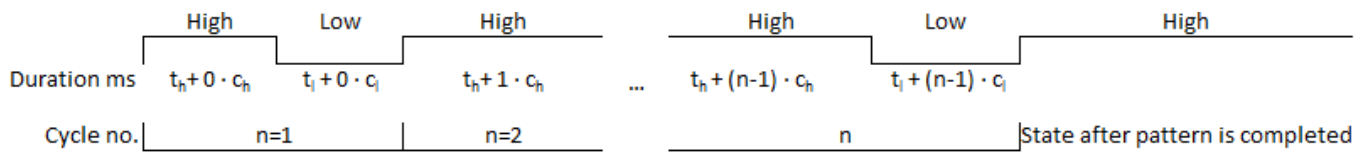
Description

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 (DOUT is active) pulse in milliseconds. Min value 1ms, max value 10000ms.
- t_l – duration of the low (DOUT is inactive) 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_l – 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 (DOUT is Active) or low – L (DOUT is inactive).



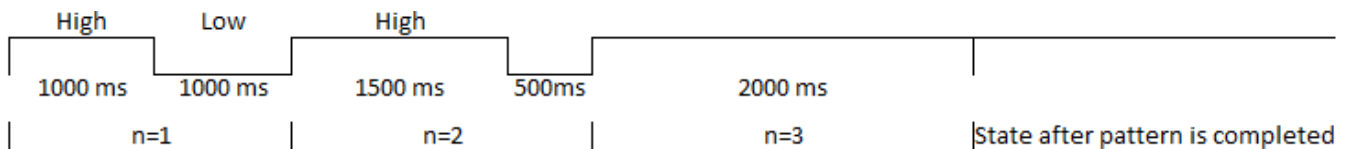
Pattern parameters in the configurator

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

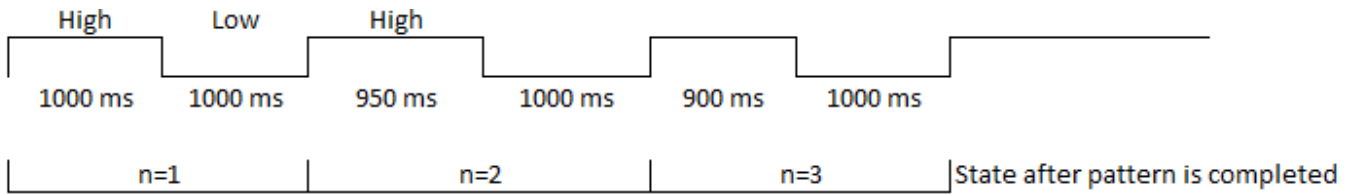
Pattern parameters: $t_h = 1000$, $t_l = 1000$, $c_h = 500$, $c_l = -500$, $n=3$ and state = H.



This pattern in the configurator:



Pattern parameters: $t_h = 1000$, $t_l = 1000$, $c_h = -50$, $c_l = 0$, $n=3$ and state = H.



This pattern in the configurator:

DOUT1 Custom Pattern 1000 ; 1000 ; -50 ; 0 ; 3 ; H

Configuration

Note

The **Inverted** checkbox inverts the logic of the selected DOUT. Keep this in mind before configuring DOUTs.

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.

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



Enable DOUT in Geofencing options

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

