Custom Ignition

Introduction

Custom Ignition functionality enables user to select more than one condition to detect engine ignition.

This feature description is applicable for these FM devices and their firmware versions:
- FM-Tco4 LCV / LCV 3G / LCV BT – 00.02.26.XX
- FM-Tco4 HCV / HCV 3G / HCV BT - 00.02.26.XX
- FM-Pro4 / Pro4 3G / Pro4 BT - 00.02.26.XX
- FM-Eco4/4+ - 00.01.10.06
- FM-Eco4 light/light+/light 3G/light+ 3G - 00.01.10.06

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

Legal information

Document change log

Date	Version	Change details
2016-01-06	1.0	Initial draft.
2016-02-03	1.1	Hysteresis included in parameters description.
2016-10-26	1.2	Added "OR" condition into the Custom Ignition functionality.
2016-11-10	1.3	"Min. Active state duration" field in configurator renamed to "Switch OFF delay". Added operation examples.
2017-01-30	1.4	Added "CAN Ignition" check box in Custom Ignition parameters section
2017-06-29	1.5	Added note regarding not selecting any ignition triggers.

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1

"Custom ignition" IO parameter

New IO parameter called "Custom Ignition" is now available.

IO ID	Parameter name	Name in configurator	Size, B	Value range	Description
409	Custom ignition	Custom ignition	1	0 - 1	0 – off, 1 – on

Value of this parameter is based on the state of other IO parameters. List of them is available below:

1. DIN1
2. DIN2
3. DIN3
4. DIN4
5. Movement sensor
6. Power supply voltage
7. GPS speed
8. RPM (from CAN, if it is not available, RPM will be taken from OBD)
9. Wheel based speed (from CAN, if it is not available, RPM will be taken from OBD)
10. CAN ignition (from CAN)

During custom ignition configuration, a specific set of parameters is combined together. Combination means that a certain number of them have to be selected. This is done in configurator. More information on configuration procedure available in next chapter.

These parameters can be linked with a logical "AND" operation or a logical "OR" operation. User decides which should be used. By default "AND" is used.

All other functionalities work the same with Custom ignition (i.e. stationary navigation filtering) as they work with the normal ignition (DIN4).

Note
To enable "Custom ignition" parameter in the IO settings window extended protocol version v1.1 has to be used.

AND

This means that conditions for all selected parameters have to be satisfied. Only then the ignition will be considered to be on and the "Custom ignition" IO parameter will have value "1" - on.

OR

Logical "OR" operation means that conditions for at least one of the selected parameters have to be satisfied. Only then the ignition will be considered to be on and the "Custom ignition" IO parameter will have value "1" - on.

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2

Configuration

Custom ignition configuration

First part of configuration deals with custom ignition parameters selection. Follow these steps to configure your FM Device:

1. In the configurator choose your device *(Tco4 LCV, Tco4 HCV, Pro4 or Eco4)*.
2. Under the profile settings, in the **Data collection** section locate the **Engine** dropdown menu and choose *Custom.*
3. A new button "Customize" will be displayed below. Once you click on "Customize" button, it opens up a new popup window called "Custom Ignition". Custom engine ignition pickup configuration is done here.
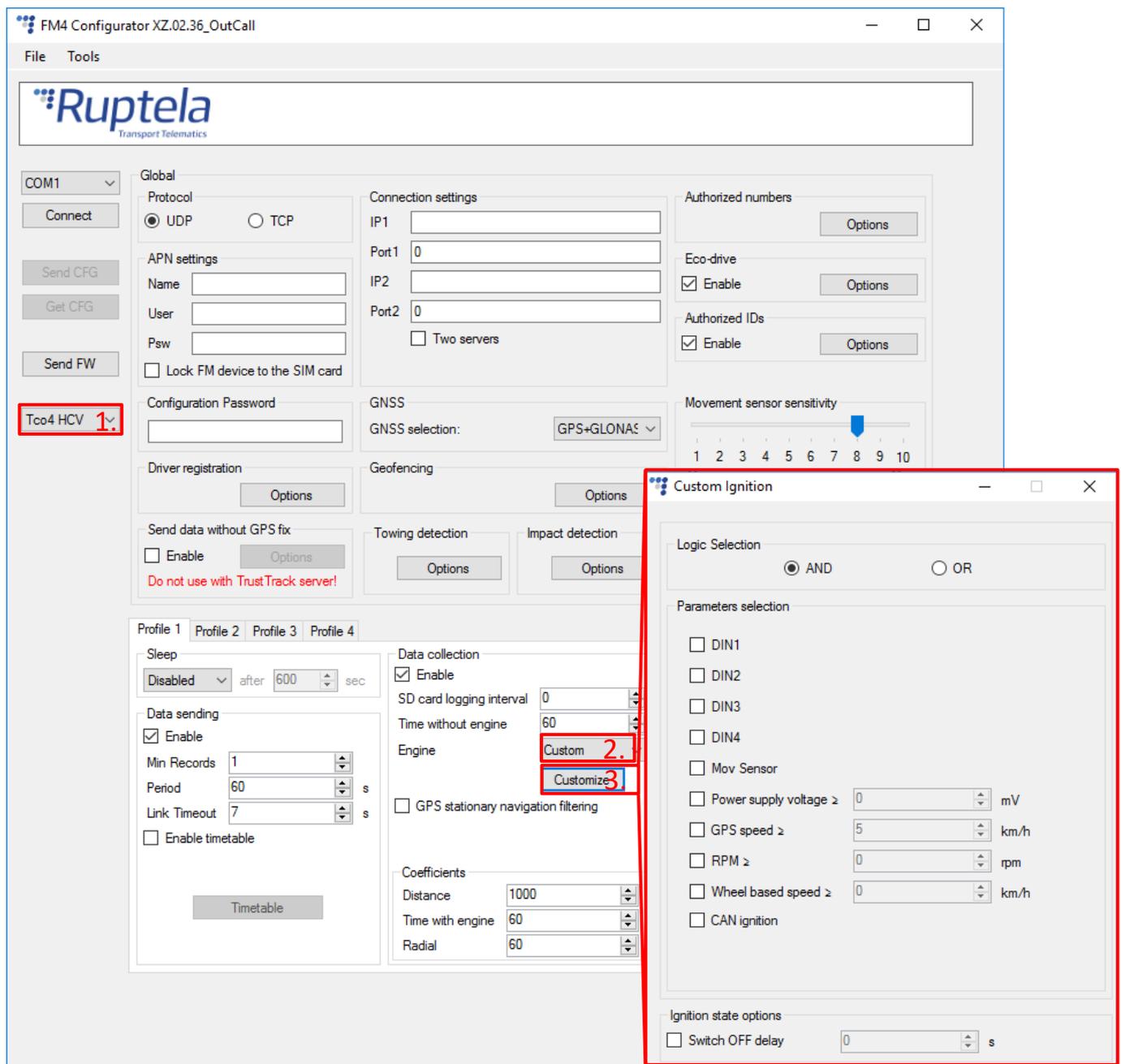
Some data sources for parameters have an option to be enabled/disabled, other sources also have configurable threshold values. Detailed description available below.

4. **Logic selection** – For the custom ignition configuration a specific set of parameters have to be combined together. Available parameters are listed in the **Parameters selection** section. Combination means that a certain number of them have to be selected. These parameters can be linked with a logical "AND" operation or a logical "OR" operation.
5. **DIN1**, **DIN2**, **DIN3** and **DIN4** – Ignition detection based on digital inputs states.
6. **Mov Sensor** – Detect vehicle movement and consider engine to be on. Movement sensor sensitivity is configurable in the **Global** settings section.
7. **Power supply voltage** - Voltage level in mV. Range from 0 mV to 65535 mV. When power supply voltage is greater than the value provided by the user this condition is considered to be "TRUE". Power supply voltage parameter has 250 mV hysteresis.
8. **GPS speed** - Speed value in km/h, obtained from GPS. Range from 5 km/h to 255 km/h. When GPS speed is greater than the value provided by the user this condition is considered to be "TRUE". GPS speed parameter has 3 km/h hysteresis.
9. **RPM** – RPM's value, obtained from CAN data, if it is not available, then OBD data is used. Range from 0 rpm to 8031 rpm. When RPM value is greater than the value provided by the user this condition is considered to be "TRUE".
10. **Wheel based speed** - Speed value in km/h, obtained from CAN data, if it is not available, then OBD data is used. Range from 0 km/h to 250 km/h. When wheel based speed is greater than the value provided by the user this condition is considered to be "TRUE". Wheel based speed parameter has 3 km/h hysteresis.
11. **CAN ignition** – In some cases CANbus data obtained from specific vehicles contain information about vehicle's ignition state. When CAN interface on the FM device is set into the FMS/HCV/LCV mode, this information could be read and used as custom ignition parameter.
12. **Switch OFF delay** – Duration in seconds. Timer value range is from 1 to 65535 seconds. This timer keeps custom ignition active state for a defined time period after at least one of configured conditions become "FALSE".

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4

Notes

If none of the ignition triggers are selected, the ignition will always be registered as "Off".

Enable "Custom ignition" IO parameter

Second part of configuration deals with IO events. In order to see "Custom ignition" parameter in reports you have to enable it in the **IO settings** window.

1. In the **IO events** section click on "Options" button. It opens up a new "IO settings" window.
2. "Custom ignition" parameter can be selected only when v1.1 protocol is used. In **Protocol selection** section put a tick in the **Send I/O data with v1.1 protocol** check box.
3. Select a free slot for a new parameter that you want to enable.
4. In the **IO properties** section tick the **Enable** check box, otherwise the slot will remain empty.
5. **ID** contains the parameters list. Choose *Custom ignition*.

Once the parameter is enabled, close the "IO settings" window and send configuration to the device.

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5
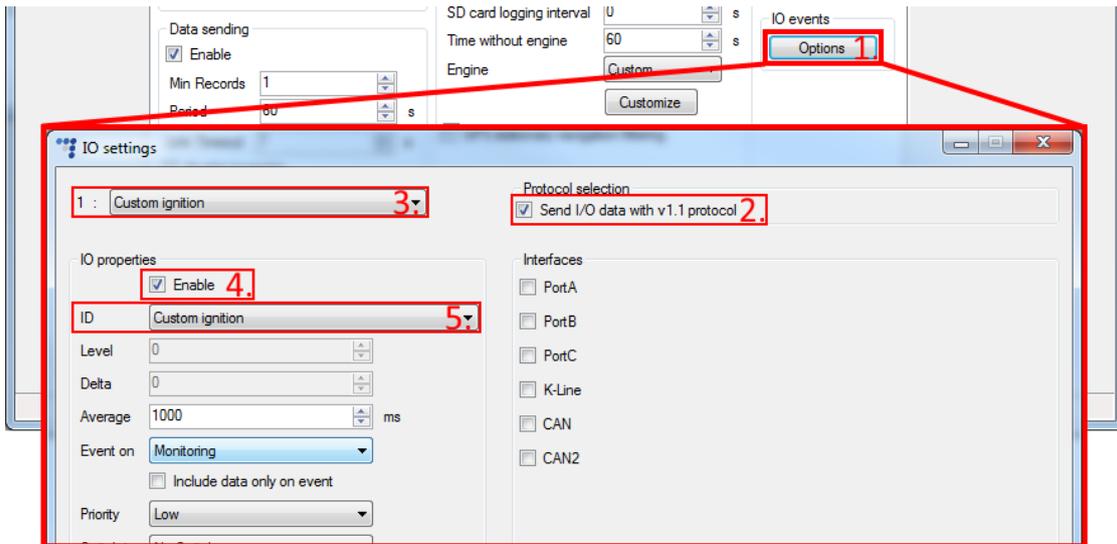
Operation examples

Case 1

"AND" logic is used to combine custom ignition parameters. Ignition detection is based on **DIN4** state and engine **RPM** value. **Switch OFF delay** is set to 20s. Other parameters are not enabled.
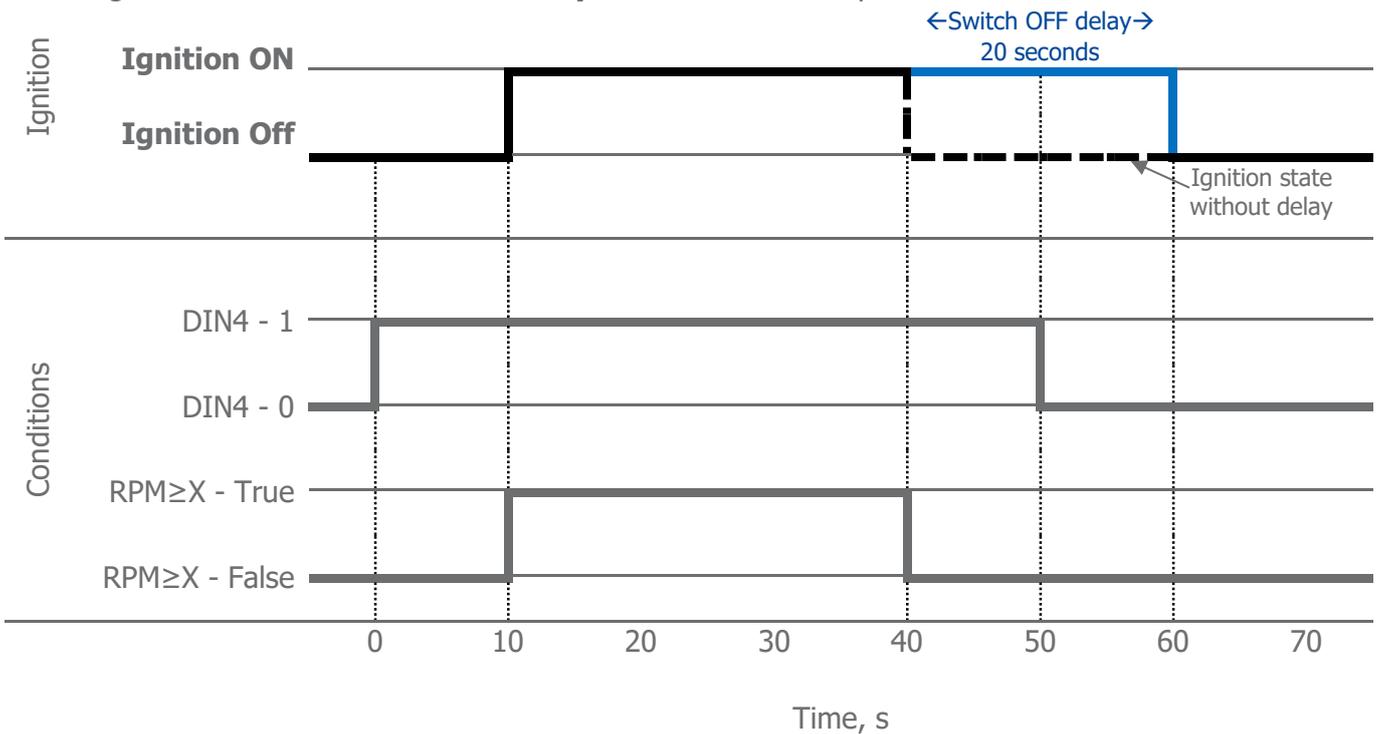
Case 2

"AND" logic is used to combine custom ignition parameters. Ignition detection is based on **DIN4** state and engine **RPM** value. **Switch OFF delay** is set to 30s. Other parameters are not enabled.

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6
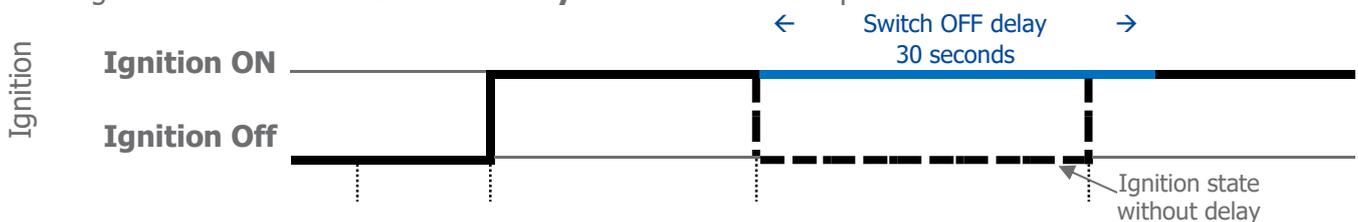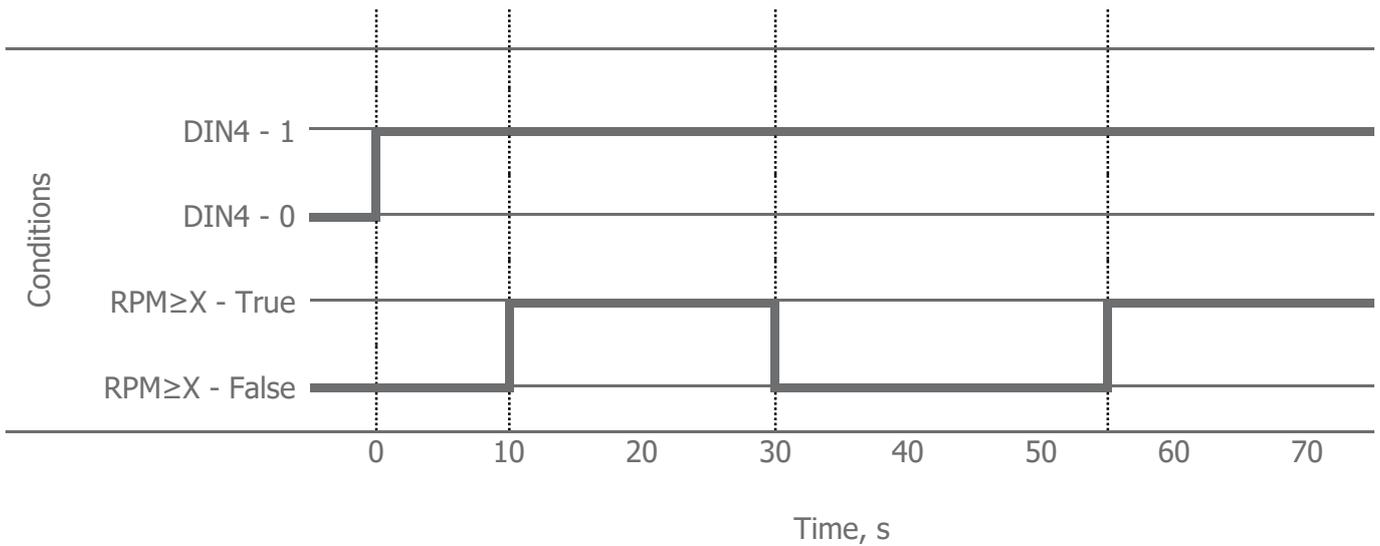
Case 3

"OR" logic is used to combine custom ignition parameters. Ignition detection is based on **DIN4** state and engine **RPM** value. **Switch OFF delay** is set to 20s. Other parameters are not enabled.

Case 4

"OR" logic is used to combine custom ignition parameters. Ignition detection is based on **DIN4** state and engine **RPM** value. **Switch OFF delay** is set to 20s. Other parameters are not enabled.

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7
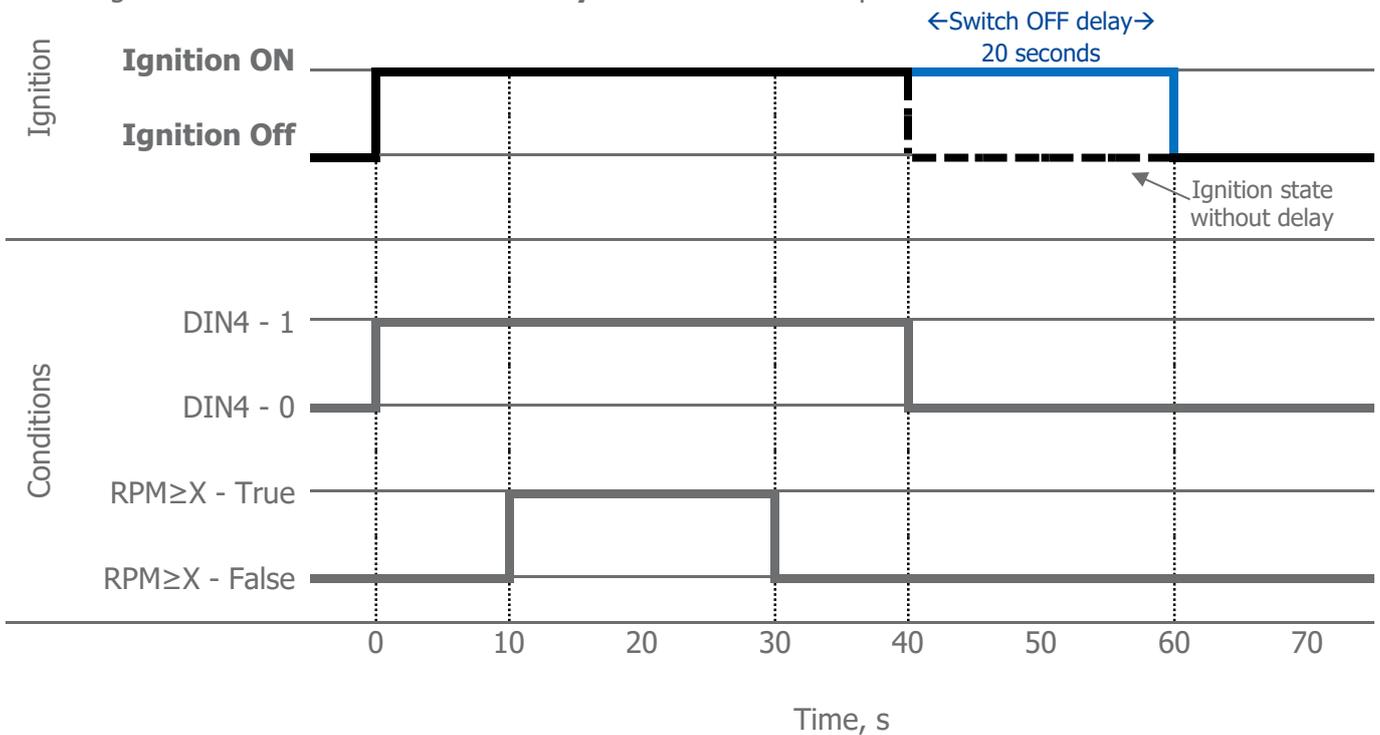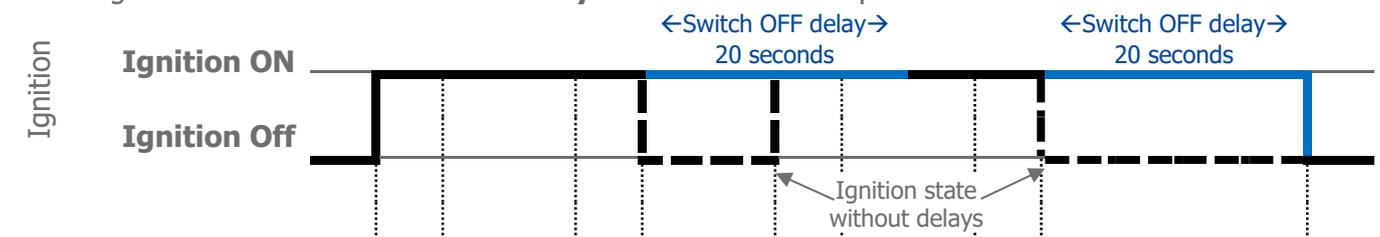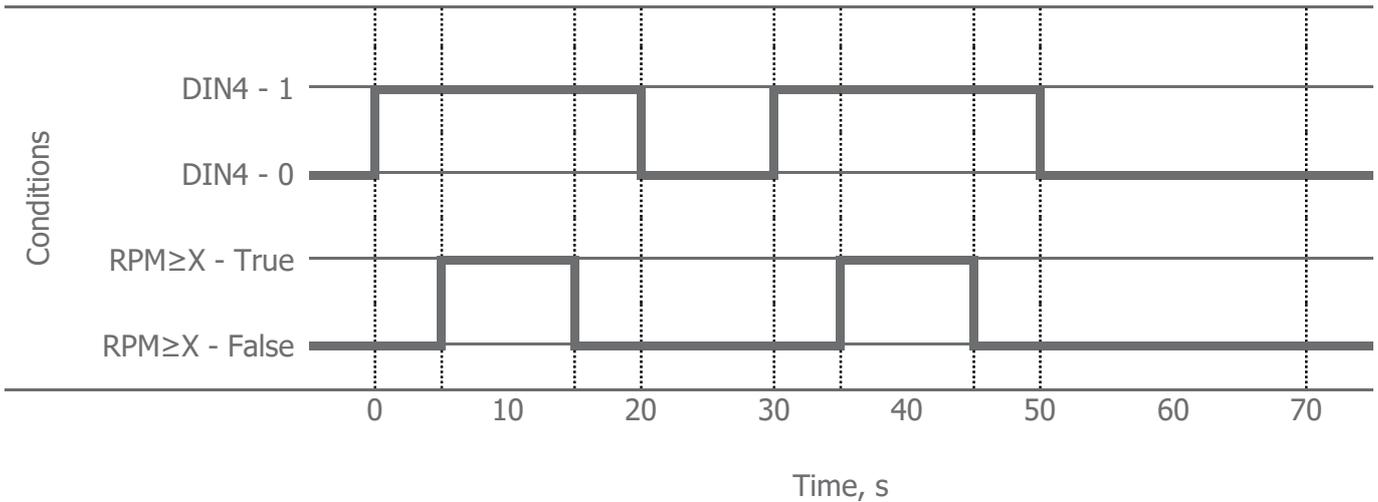
Case 5

"AND" logic is used to combine custom ignition parameters. Ignition detection is based on **DIN4** state, engine **RPM** value and **Mov Sensor** data. **Switch OFF delay** is set to 40s. Other parameters are not enabled.

> **Note**
>
> This is a special case, since Movement sensor is used in the ignition detection process. This adds an additional 60 seconds delay timer. After sensor no longer registers movement, this timer keeps custom ignition active ("ON") state for additional 60 seconds. Then, switch OFF delay timer (if it is configured) has to expire.

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8
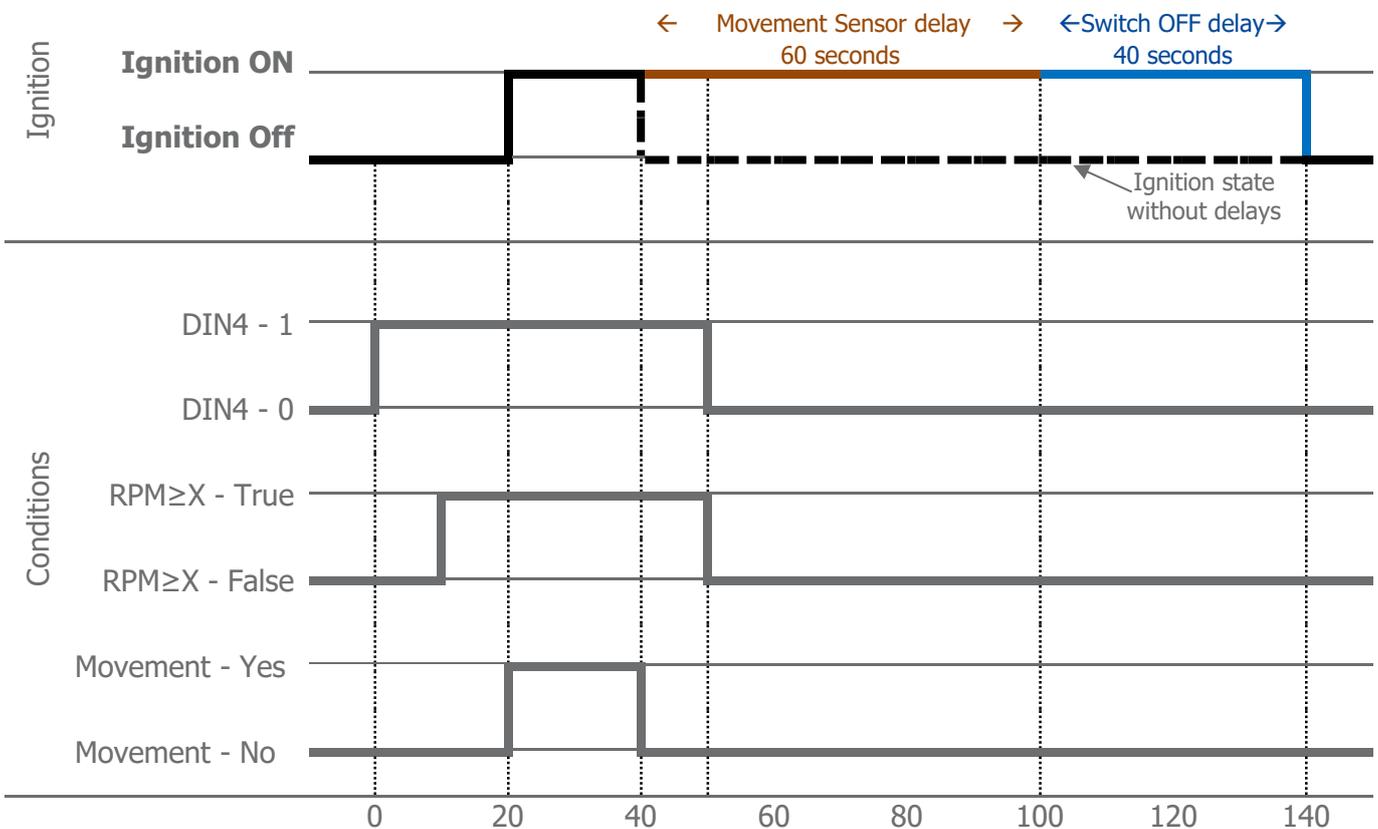
"Sleep", "Deep sleep" and "Interfaces"

Custom ignition functionality depends on sleep mode configuration, which is done under Profile settings in **Sleep** section. There are two cases to consider:

- *Sleep* mode is selected. GPS/GSM modems will be disabled, when device transitions into sleep mode. Therefore, data from GPS will not be available and **GPS speed** section in "Custom Ignition" window will be greyed out.
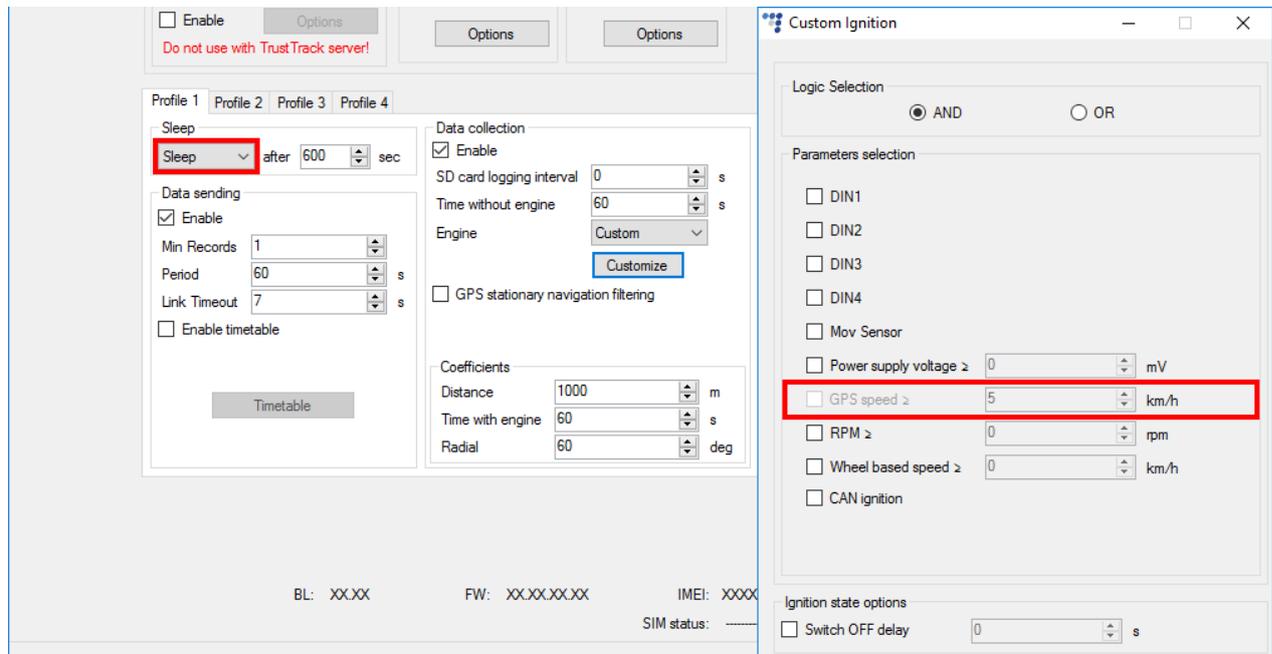
- *Deep sleep* mode is selected. **GPS speed** section in "Custom Ignition" window will be greyed out. If you choose to enable **RPM** and/or **Wheel based speed** and/or **CAN ignition** check boxes, then the Deep sleep mode will be automatically disabled, because such settings combination is not allowed. You will be notified about this with the warning message at the bottom of the window.

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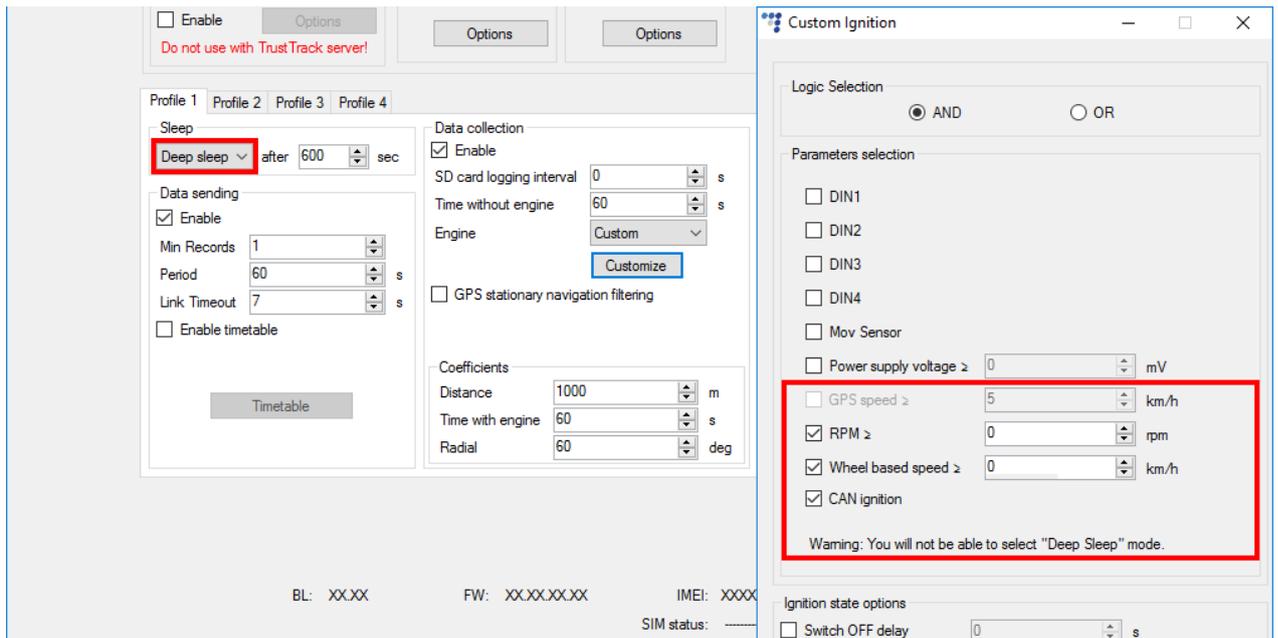
On the other hand, if "Custom Ignition" configuration is done beforehand, it affects sleep mode configuration options:

- **GPS speed** field is enabled in "Custom Ignition" settings. In this case it is not possible to select *Sleep* and *Deep sleep* modes in **Sleep** section. Also a warning message will be displayed at the bottom of the "Custom Ignition" window.
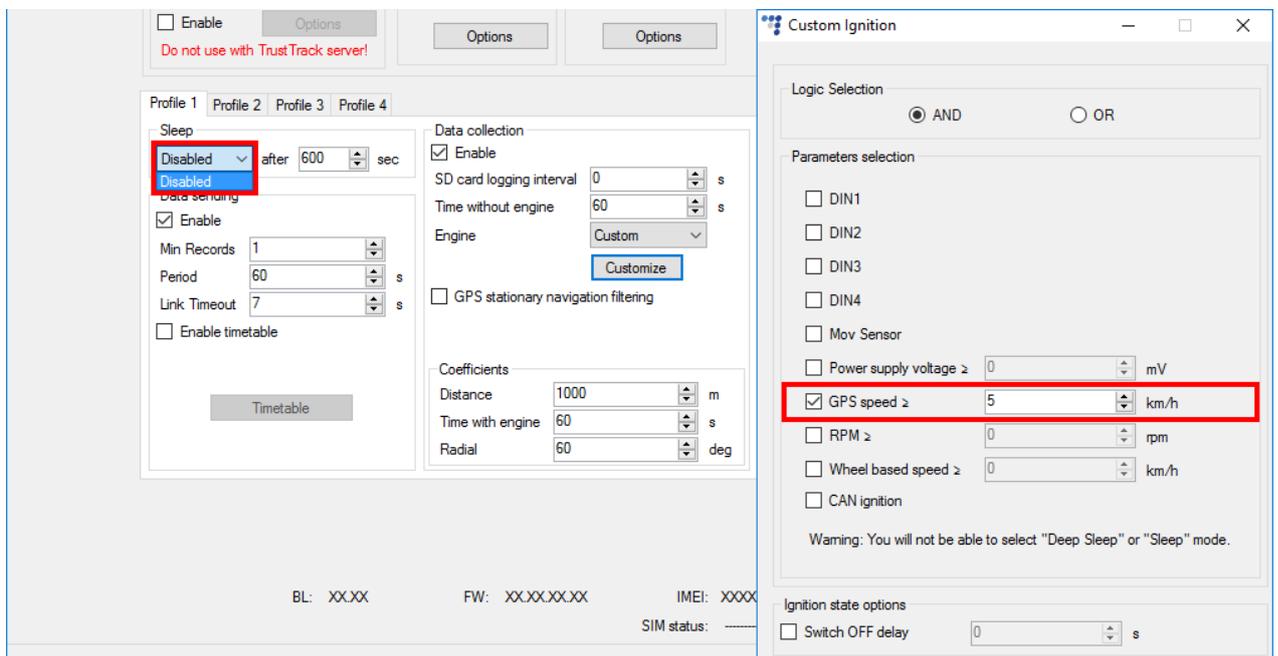
- If at least one of **RPM**, **Wheel based speed** or **CAN ignition** fields is enabled in the "Custom Ignition" settings. In this case it is not possible to select *Deep sleep* mode in **Sleep** section. Also a warning message will be displayed at the bottom of the "Custom Ignition" window: "You will not be able to select "Deep Sleep" mode".

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Enable Options
Do not use with TrustTrack server!

Options   Options

Profile 1 | Profile 2 | Profile 3 | Profile 4

Sleep
Disabled ▾ after 600 sec
Disabled
Sleep
☑ Enable
Min Records 1
Period 60 s
Link Timeout 7 s
☐ Enable timetable

Timetable

Data collection
☑ Enable
SD card logging interval 0 s
Time without engine 60 s
Engine Custom ▾

Customize

☐ GPS stationary navigation filtering

Coefficients
Distance 1000 m
Time with engine 60 s
Radial 60 deg

BL: XX.XX   FW: XX.XX.XX.XX   IMEI: XXXX
SIM status: --------

Custom Ignition — □ ✕

Logic Selection
◉ AND   ○ OR

Parameters selection
☐ DIN1
☐ DIN2
☐ DIN3
☐ DIN4
☐ Mov Sensor
☐ Power supply voltage ≥ 0 mV
☐ GPS speed ≥ 5 km/h
☐ RPM ≥ 0 rpm
☑ Wheel based speed ≥ 0 km/h
☐ CAN ignition

Warning: You will not be able to select "Deep Sleep" mode.

Ignition state options
☐ Switch OFF delay 0 s

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11