Ruptela
Transport Telematics

Custom Ignition

User Manual

v2.2

2020-08-05

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1 Introduction

1.1 About the Functionality

The custom ignition functionality allows the user to select more than one condition to detect, when the ignition is on.

1.2 Legal Information

1.3 Compatibility

This functionality is compatible with the following devices with the newest firmware version:

- HCV5
- LCV5
- Pro5
- Trace5
- FM-Tco4 HCV
- FM-Tco4 LCV
- FM-Pro4
- FM-Eco4
- FM-Eco4 S
- FM-Eco4 T
- FM-Plug4

1.4 Contact Information

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1.5 Document Changelog

Version	Date	Modification
1.0	2016-01-06	Initial draft.
1.1	2016-02-03	Hysteresis included in parameters description.
1.2	2016-10-26	Added "OR" condition into the Custom Ignition functionality.
1.3	2016-11-10	"Min. Active state duration" field in configurator renamed to "Switch OFF delay". Added operation examples.
1.4	2017-01-30	Added "CAN Ignition" check box in Custom Ignition parameters section
1.5	2017-06-29	Added note regarding not selecting any ignition triggers.
1.6	2018-11-15	Added configuration description for Plug4. Added "Custom sleep mode" description in "Sleep, Deep sleep and Interfaces". Added table showing available parameters for different FM devices in "Custom ignition IO parameter".
2.0	2020-04-15	Added: Configuration in Device Center. Updated: User manual structure and design.
2.1	2020-07-16	Updated: Compatible devices list and custom ignition parameter table.
2.2	2020-08-05	Updated: Function description.

1.6 Notations

The following notations are used in this document to highlight important information:

Bold text

Used to indicate user interface elements or for emphasis.

Italic text

Used to indicate items that belong to a list and can be selected, as well as examples.

Note

Used to highlight important information or special conditions.

Caution

Used to mark actions that require caution when handling the product.

2 Functionality Description

The available custom ignition parameters for each device are provided in tables below.

Custom ignition parameters for the 4th generation devices:

Parameter	Tco4 HCV	Tco4 LCV	Pro4	Eco4	Eco4 S/T	Plug4
DIN1	+	+	+	+	+	
DIN2	+	+	+	+	*+	
DIN3	+	+	+	+	+	
DIN4	+	+	+	+	+	
Mov Sensor	+	+	+	+	+	+
Power supply voltage	+	+	+	+	+	+
GPS speed	+	+	+	+	+	+
RPM	+	+	+			
CAN (Wheel based) speed	+	+	+			
CAN ignition	+	+	+			
OBD PIN1						+

*The FM-Eco4 RS T device does not have the **DIN2** parameter.

Custom ignition parameters for the 5th generation devices:

Parameter	Trace5	HCV5	LCV5	Pro5
DIN1	+	+	+	+
DIN2		+	+	+
DIN3		+	+	+
DIN4		+	+	+
Mov Sensor	+	+	+	+
Power supply voltage	+	+	+	+
GPS speed	+	+	+	+
RPM		+	+	+
CAN (Wheel based) speed		+	+	+
CAN ignition		+	+	+
OBD PIN1				

RPM and **CAN (Wheel based) speed** data is obtained from CAN, and if it is not available, the data will be taken from OBD.

During the custom ignition configuration, number of parameters have to be selected in the Device Center or advanced configurator. These parameters can be linked with the logical operation *AND* or the logical operation *OR*. *AND* is set by default.

Logical operation *AND* – all selected parameters must be true to detect that the engine is on.

Logical operation *OR* – at least one selected parameter must be true to that the engine is on.

There are several conditions to select for engine state detection. The available conditions depend on the device type.

DIN1/DIN2/DIN3/DIN4	If ticked, the condition is true when the configured DIN detects a constant input voltage. Default value: Disabled
Movement sensor	If ticked, the condition is true after detecting movement. Default value: Disabled
CAN ignition	If ticked, the condition is true if the engine on state is provided by CAN data. Active only when at least one CAN interface is turned on. Default value: Disabled, inactive
Power supply voltage >	If ticked, the condition is true if the power supply voltage is greater than the entered value (in mV). Default value: Disabled
RPM >	If ticked, the condition is true if the RPM value provided by CAN or OBD data is greater than the entered value. Active only when at least one CAN interface is turned on. Default value: Disabled, inactive
GPS speed >	If ticked, the condition is true if the speed value obtained from GPS is greater than the entered value. Default value: Disabled
CAN speed >	If ticked, the condition is true if the speed value obtained from CAN data is greater than the entered value. Active only when at least one CAN interface is turned on. Default value: Disabled, inactive
OBD PIN1	If ticked, the condition is true when the configured PIN1 detects a constant input voltage. Only applicable for Plug4. Default value: Disabled

For Plug4 OBD PIN1 will be visible instead of DINX.

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

Ignition detection will not occure exactly at *Power supply voltage, GPS speed, RPM, CAN (Wheel based) speed* threshold values.

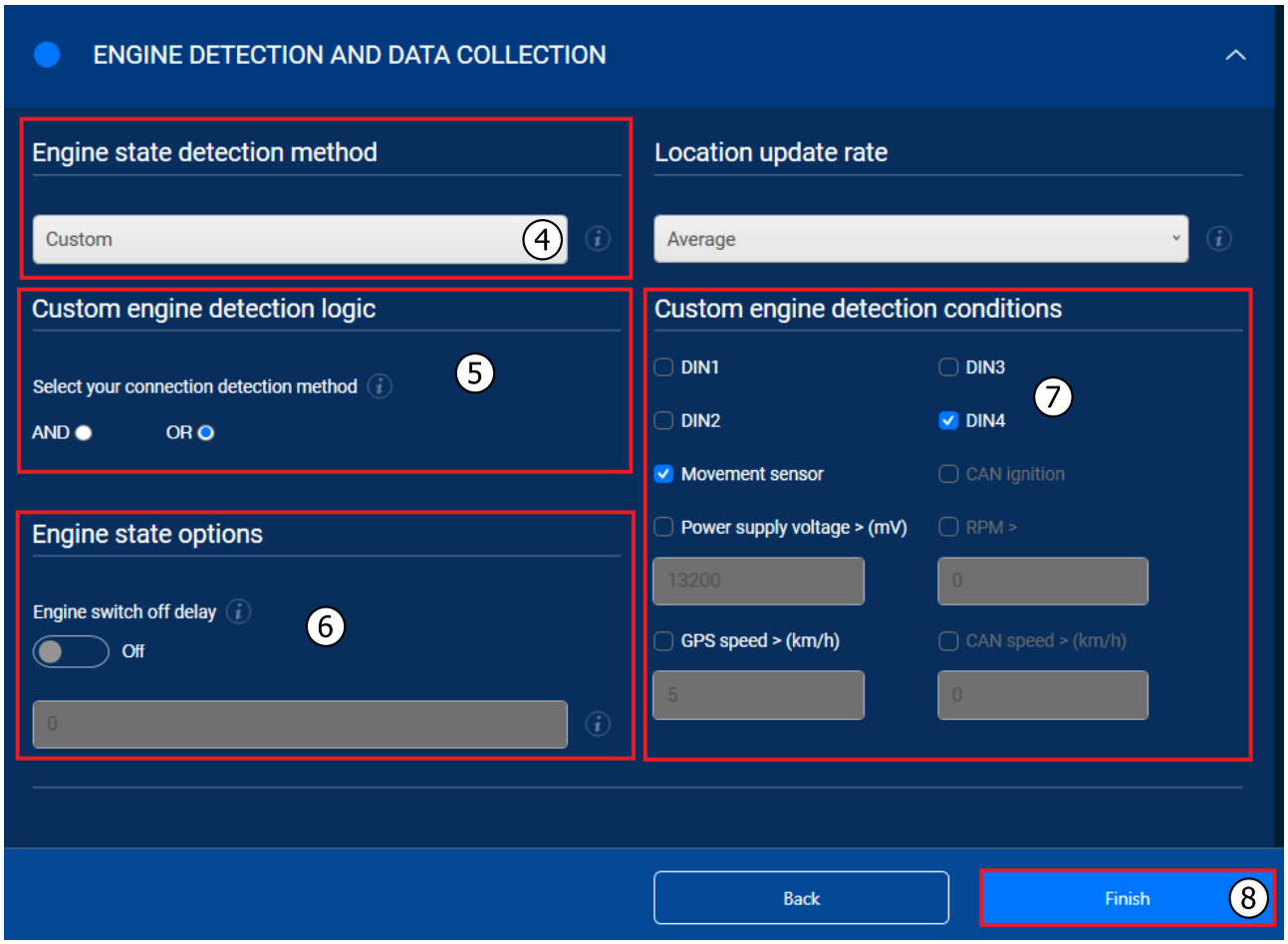
Example: Power supply voltage is set to 13000 mV. In this case, the engine will be considered to be on only when the power supply voltage is above 13250 mV. The engine will be considered to be off only when the power supply voltage drops below 12750 mV.

You can also choose to turn on the **Engine switch off delay**. If turned on, the device registers engine state changes only after the set time period passes. No delay is used by default.

3 Configuration in Device Center

To start the configuration, follow these steps:

1. Start the Device Center.
2. Select your tracking device.
3. Open the **Engine detection and data collection** section.
4. Select *Custom* in the **Engine state detection method** section.
5. Select which logical operator will be used for the engine detection conditions in the **Custom engine detection logic** section.
6. If required, turn **on** the **Engine switch off delay** and set the delay length.
7. Select which custom engine detection conditions will be used. If *Power supply voltage* or/and *GPS speed, RPM, CAN speed* are ticked, enter the threshold value(s).
8. Click **Finish** to save the configuration or send it to your device.

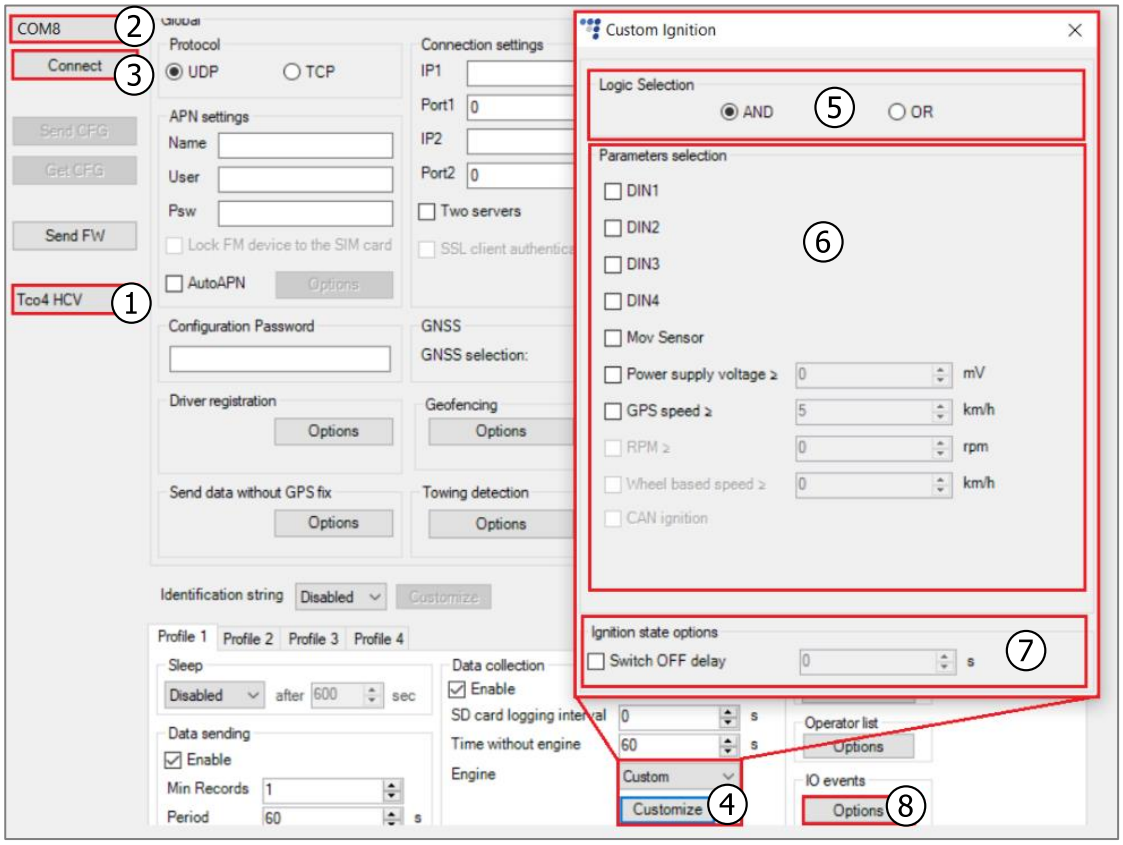


4 Configuration in Advanced Configurator

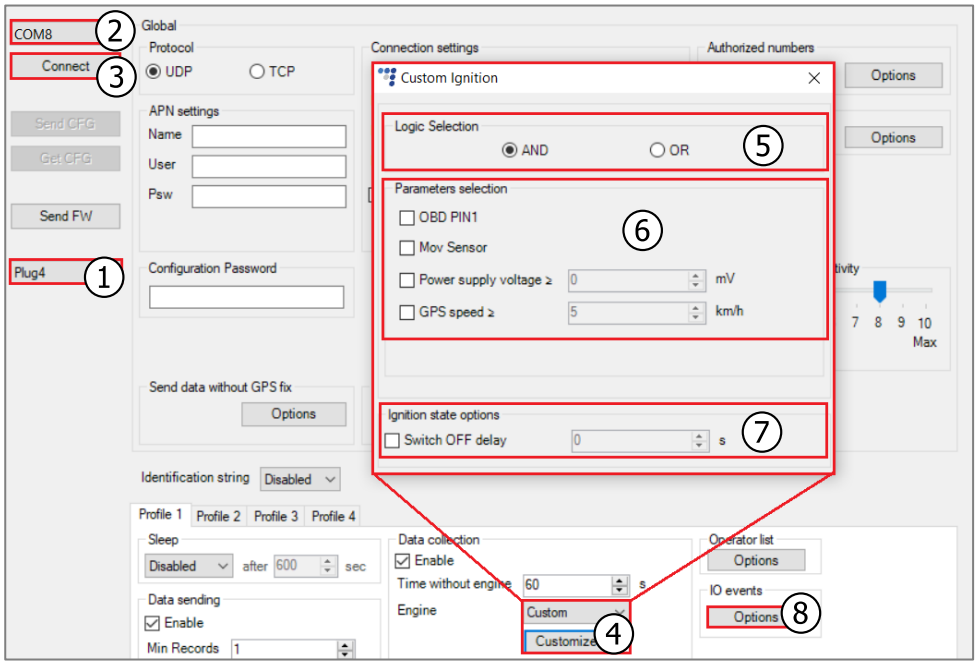
To start the configuration, follow these steps:

1. Open the advanced configurator. Select your tracking device.
2. Select the COM port to which your device is connected.
3. Click **Connect**.
4. Select *Custom* **Engine** and click the **Customize** button in the **Data Collection** section to open the **Custom Ignition** window.
5. Select which logical operator will be used for the engine detection conditions in the **Logic selection** section.
6. Select which parameters will be used. If *Power supply voltage* or/and *GPS speed, RPM, Wheel based speed* are ticked, enter the threshold value(s).
7. If required, enable the **Switch OFF delay** in **Ignition state options** section and the delay length.

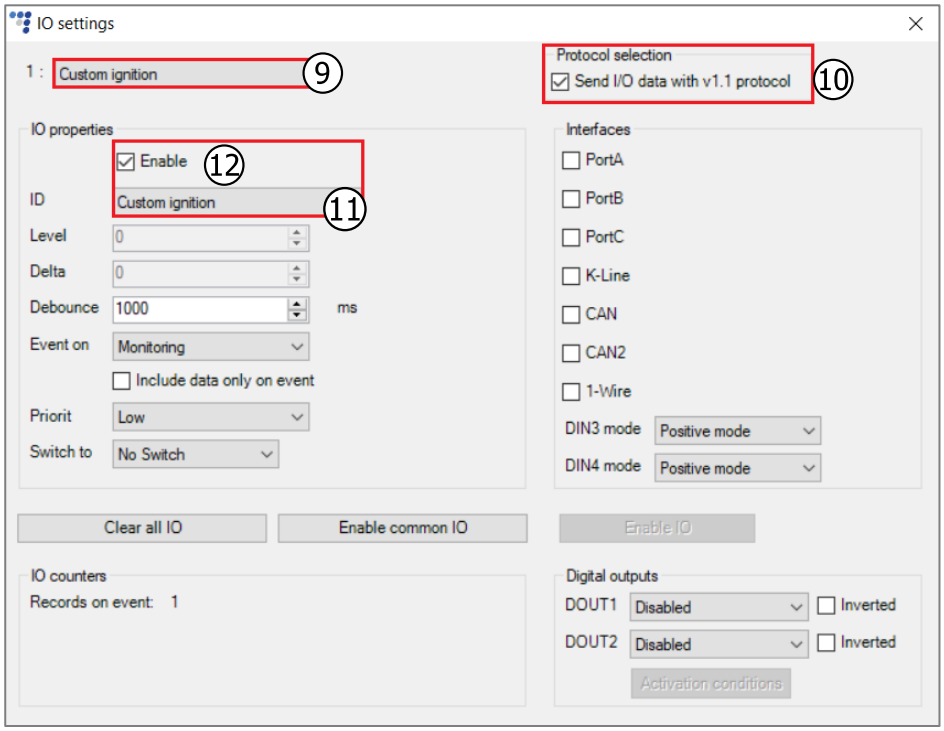
> ⚠ If *GPS speed* is enabled, the device will not be able to enter *Sleep* and *Deep Sleep* modes. If *RPM, Wheel based speed, CAN ignition* are enabled, the device will not be able to enter *Deep Sleep* mode.



For FM-Plug4 the **Custom Ignition** window looks a bit different, in **Parameters selection** DINX is replaced with OBD PIN1.

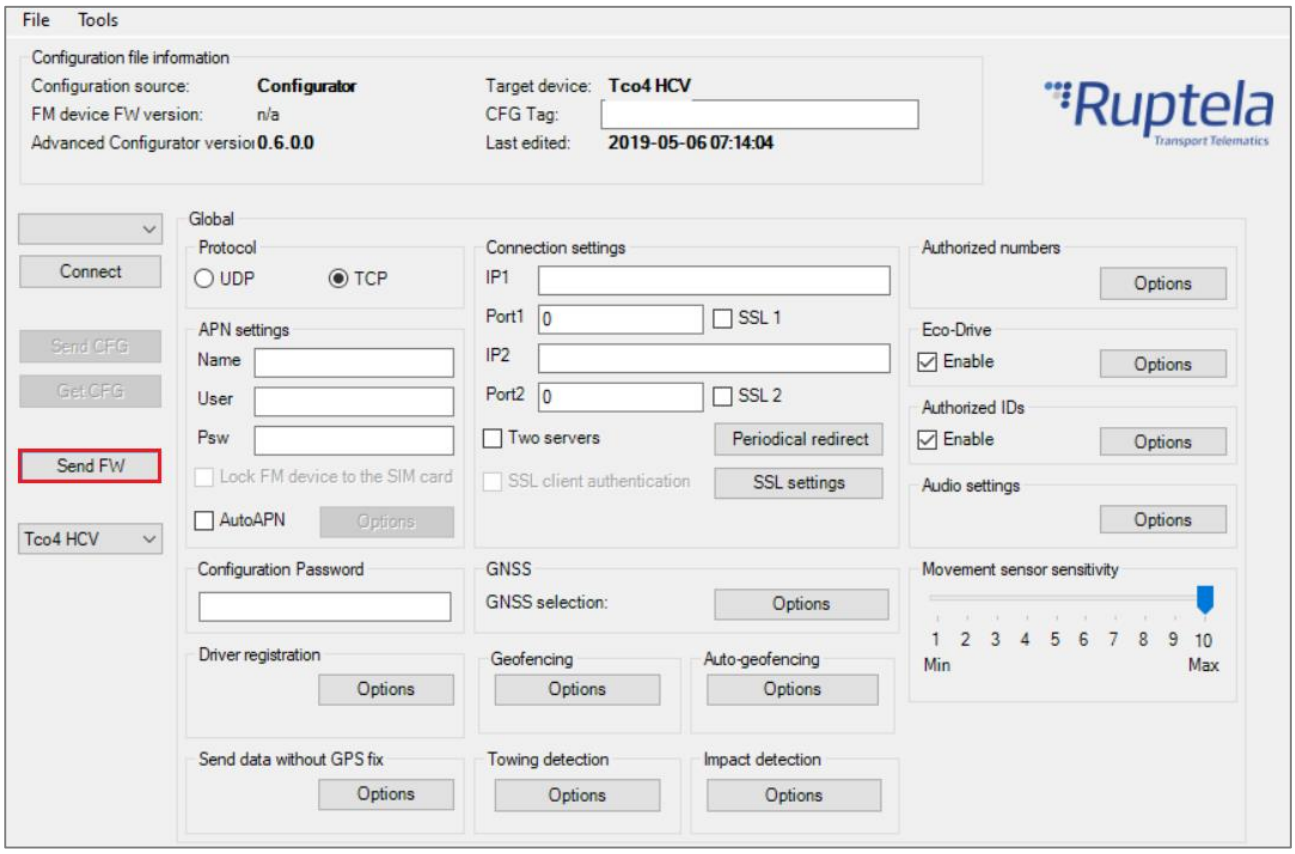


8. Go back to the main advanced configurator window and click **Options** in the **IO events** section to open the **IO settings** window.
9. Select a parameter slot.
10. Tick the **Send I/O data with v1.1 protocol** checkbox.
11. Select the *Custom Ignition* parameter.
12. Tick the **Enable** checkbox.



RPM, Wheel based speed, CAN ignition parameters will be hidden unless *CAN FMS/HCV/LCV* or *K-Line OBD* are enabled in the **Interfaces** section.

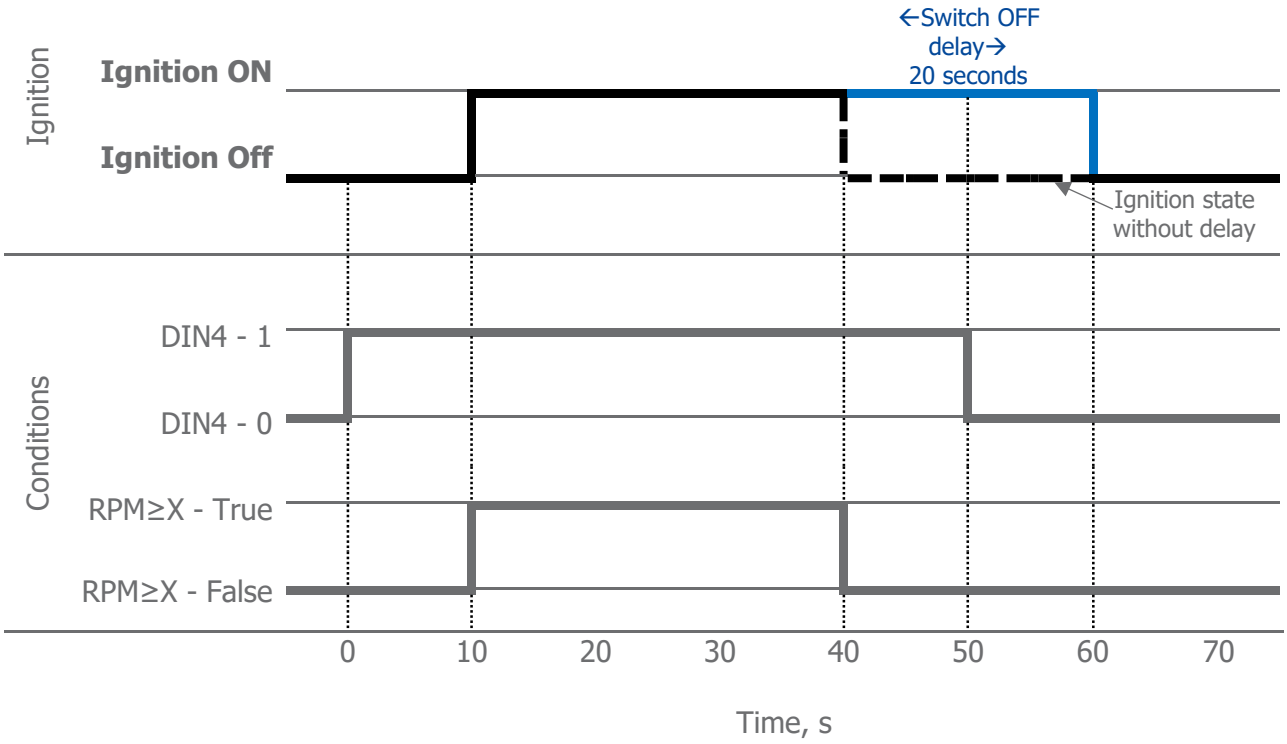
13. To finish the configuration, close the **IO settings** window. Click **Send CFG** to send the configuration to the device.



5 Appendix

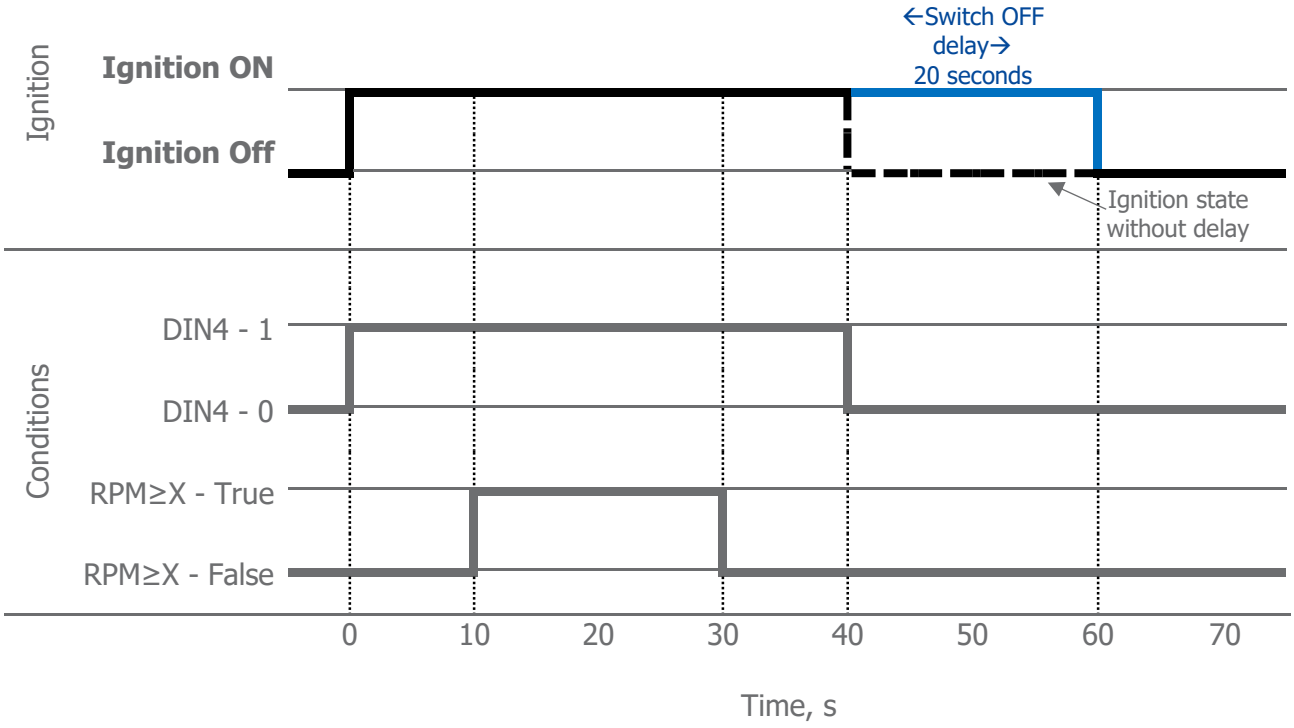
5.1 Operation example using logical operation *AND*

In this example, the engine state is detected using the **DIN4** state and engine **RPM** value. **Switch OFF delay** is set to 20 s. As we can see from the figure, ignition is on only when both **DIN4** state and **RPM** values are true. When one of the parameters is false, the ignition is off, but the signal itself is received only after 20 s.



5.2 Operation example using logical operation *OR*

In this example, the engine state is detected using the **DIN4** state and engine **RPM** value. **Switch OFF delay** is set to 20 s. As we can see from the figure, the ignition detection signal will be received as long as at least one of the parameters is true. Ignition off signal will be received with a 20 s delay after both parameters are false.



5.3 Operation example using logical operation *AND* and movement sensor

In this example, the engine state is detected using the **DIN4** state, engine **RPM** value, and **Mov sensor** data. **Switch OFF delay** is set to 40 s. The movement sensor adds an additional 60 s delay to the signal change. As we can see from the figure, after the sensor does not register any more movements, the ignition detection signal will be received for 60 s more before the 40 s of the Switch OFF delay.