

# CANbus filter by engine state

## Introduction

This feature allows to filter CANbus data by engine state. It helps to solve errors in EcoDrive data calculations, which arise from invalid CANbus data. Errors occur, while vehicle's ignition is being turned off and during a short time period, after it was turned on.

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

You can get the latest firmware and configurator from our documentation website: [doc.ruptela.it](http://doc.ruptela.it)

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## Document change log

Date	Version	Change details
2017-01-30	1.0	Initial draft.

## CANbus filter

CANbus filtering is directly related to the vehicle's engine state. Functionality helps to filter incorrect data, when the engine is off.

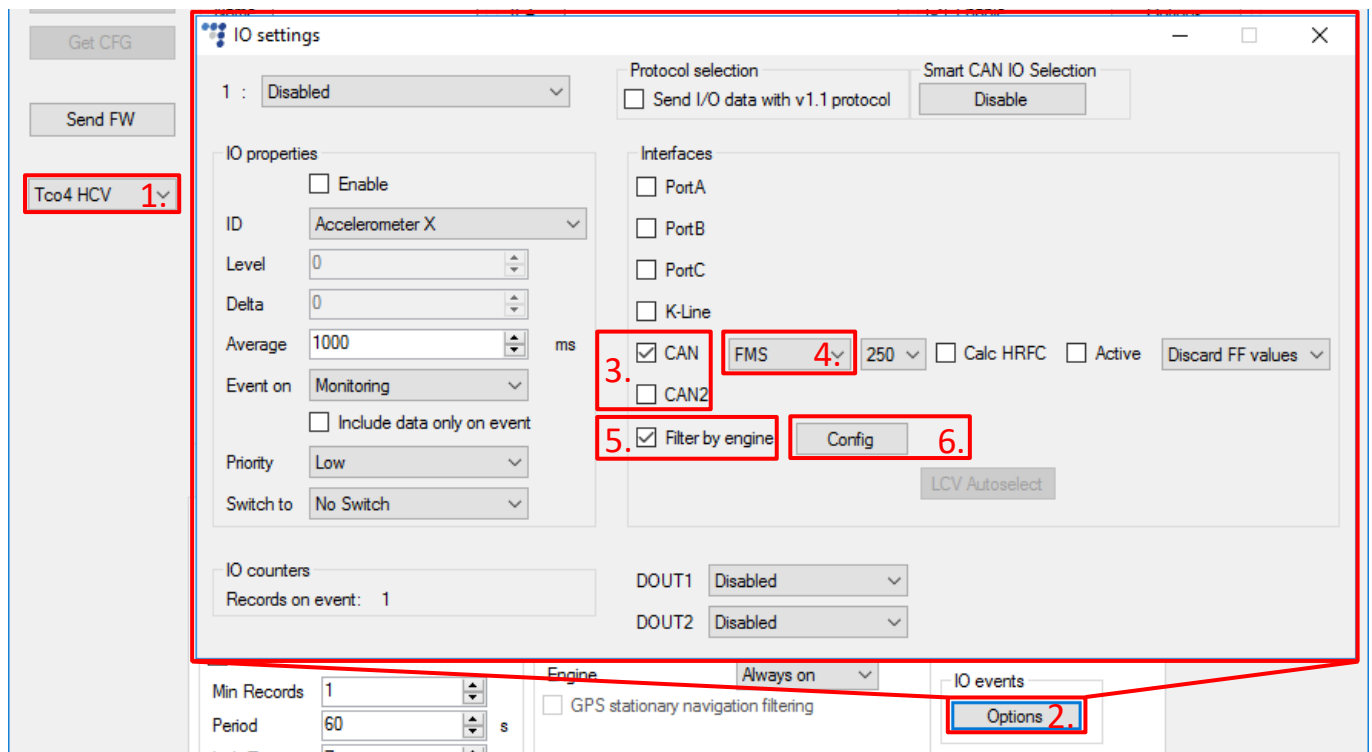
### Filter features

- When filter is enabled, device filters all data coming through its CAN interface. It means that instant CAN parameter values will be reset to 0 when engine state switches to "OFF". Therefore, all other FM device functionalities and internal tasks like EcoDrive will not get invalid data.
- Filter has a configurable delay timer, which could be used, when the engine's state changes to "ON". Device will not update CAN data during that time.
- You have an option to set few exceptions. In the configurator you can allow the following parameters to pass through the filter unaffected:  
*CAN ignition, CAN engine speed, CAN wheel based speed, CAN fuel level milliliters, CAN fuel level1, CAN LCV doors state, CAN time and date.*
- CAN bus filters do not affect tachograph data and tachograph parameters from the CANbus.

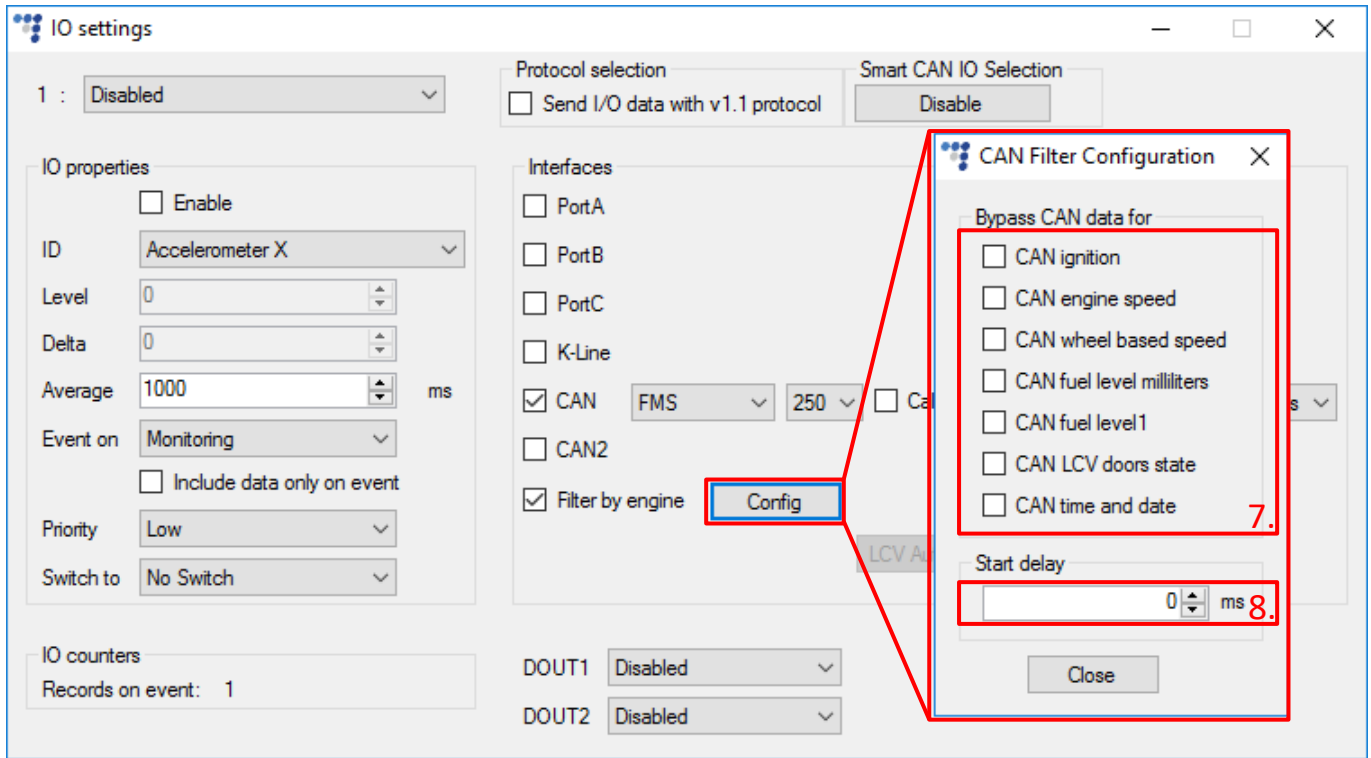
## Configuration

### CANbus filter configuration

1. In the configurator choose your device (*Tco4 LCV, Tco4 HCV, Pro4*).
2. In the **IO events** section click on "Options" button. It opens up a new "IO settings" window.
3. In the Interfaces section choose and enable one of the CAN interfaces.
4. In the drop down list on the right choose CAN mode. CANbus filter is compatible with the *FMS/HCV/LCV* modes.
5. Tick the **Filter by engine** checkbox.
6. Click on the "Config" button to access CAN filter configuration window.



7. Select CAN parameters that will be able to bypass the CANbus filter. Values of these parameters will not be reset to 0 after engine's state changes to "OFF".
8. Set a start delay for the CANbus filter. It defines how long the device will not update CAN data after the engine's state changes to "ON". Range is from 0 ms to 10000 ms.



## Enabling I/O events

To receive data from your vehicle you must enable specific CANbus I/O parameters. Data from all these parameters will be filtered.

9. Some parameters 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.
10. Select a free slot for a new parameter that you want to enable.
11. In the **IO properties** section tick the **Enable** check box, otherwise the slot will remain empty.
12. **ID** contains the parameters list. List of the most commonly used CANbus parameters:  
*CAN high resolution total vehicle distance, CAN engine total fuel used, CAN engine speed, CAN fuel level 1, CAN wheel based speed.*

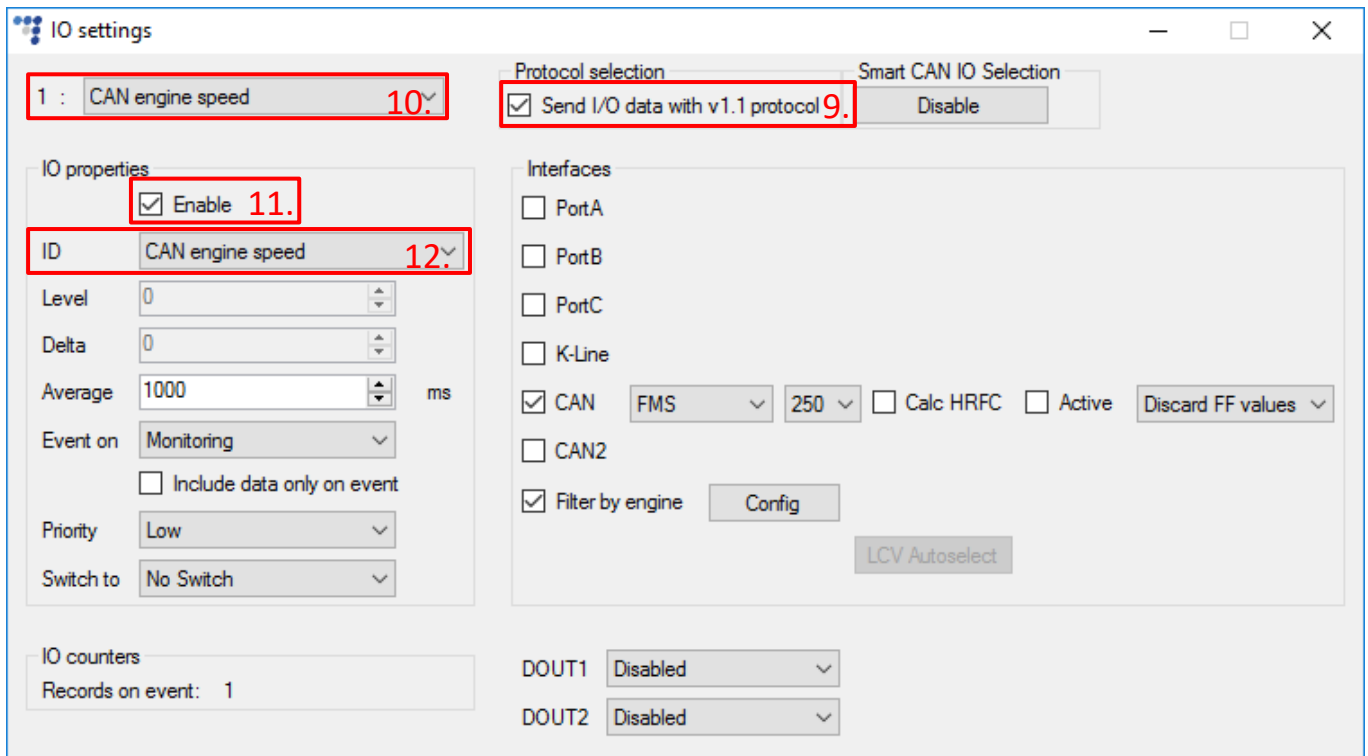
CANbus data filter can be bypassed by these I/O parameters:

*CAN ignition, CAN engine speed, CAN wheel based speed, CAN fuel level milliliters, CAN fuel level1, CAN LCV doors state, CAN time and date.*

If you need their data, then add them to the I/O list.

## Note

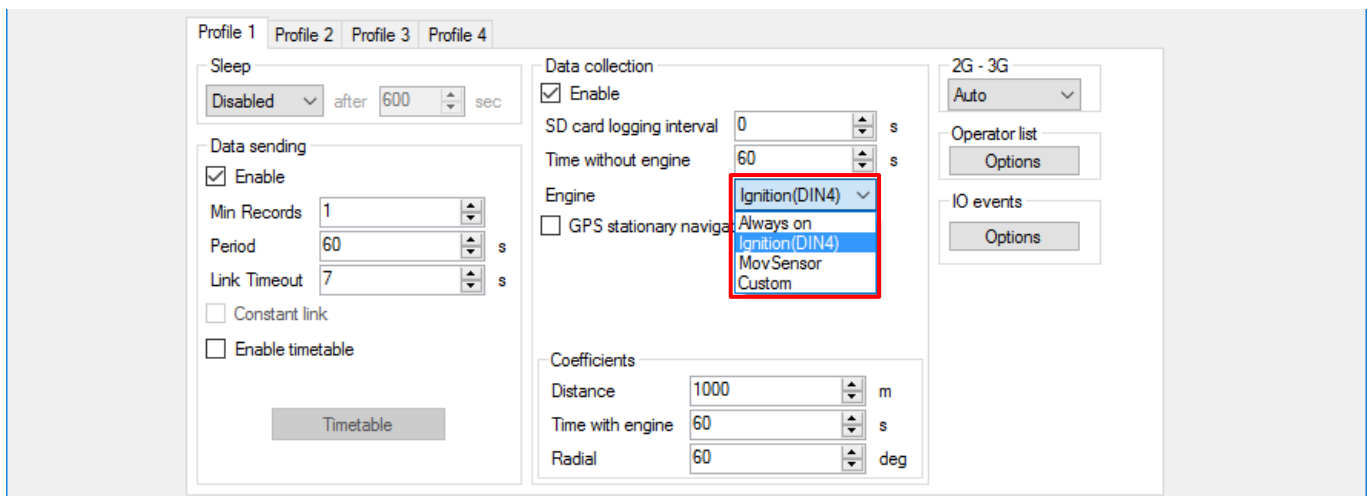
IO list contains only those parameters that are compatible with currently selected CAN interface mode. If you want to see all parameters, use Smart CAN IO Selection "Disable" button.



## Engine state detection

CANbus filtering is directly related to the vehicle's engine state. Engine state detection can be configured in the device's profile settings. In the **Engine** dropdown list choose one of the available options:

- *Always on* – No ignition pick up, engine considered always to be on.
- *Ignition (DIN4)* – Digital input 4 is default DIN used for ignition pick up.
- *MovSensor* – Detect movement of the vehicle and consider engine to be on.
- *Custom* – Custom Ignition functionality enables user to select more than one condition to detect engine ignition. Full functionality description can be found on our documentation website. Refer to the [Custom ignition](#) document.



## Custom ignition configuration effect on CANbus filter options

If "RPM", "wheel based speed" or "CAN ignition" states are used as conditions for the custom ignition, the same parameters will automatically bypass the CANbus data filter. In the filter options they will be enabled and greyed out.

Custom Ignition

Logic Selection

AND  OR

Parameters selection

DIN1

DIN2

DIN3

DIN4

Mov Sensor

Power supply voltage  $\geq$  0 mV

GPS speed  $\geq$  5 km/h

RPM  $\geq$  0 rpm

Wheel based speed  $\geq$  0 km/h

CAN ignition

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

Ignition state options

Switch OFF delay 0 s

CAN Filter Configuration

Bypass CAN data for

CAN ignition

CAN engine speed

CAN wheel based speed

CAN fuel level milliliters

CAN fuel level1

CAN LCV doors state

CAN time and date

Start delay

0 ms

Close