

# Vehicle door lock-unlock

## 1 Introduction

### 1.1 About the Functionality

The vehicle lock-unlock functionality is used to remotely lock or unlock vehicle doors using an SMS command. This is done using DOUT impulses and CAN door state data.

### 1.2 Legal Information

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### 1.3 Compatibility

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

- Trace5
- FM-Tco4 LCV

### 1.4 Contact Information

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## 1.5 Document Changelog

Version	Date	Modification
<b>1.0</b>	2019-08-23	Initial draft.
<b>1.1</b>	2019-08-30	Structural updates.
<b>1.2</b>	2019-12-17	Added: AIN1 validation to Lock/Unlock Configuration.
<b>1.3</b>	2020-04-07	Added: DIN1 validation to Lock/Unlock Configuration. Updated: List of compatible devices.

## 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.

### **Note**




Used to highlight important information or special conditions.

## 1.7 References

User manuals and SMS commands list: <https://doc.ruptela.it/display/AB/Tracking+devices>

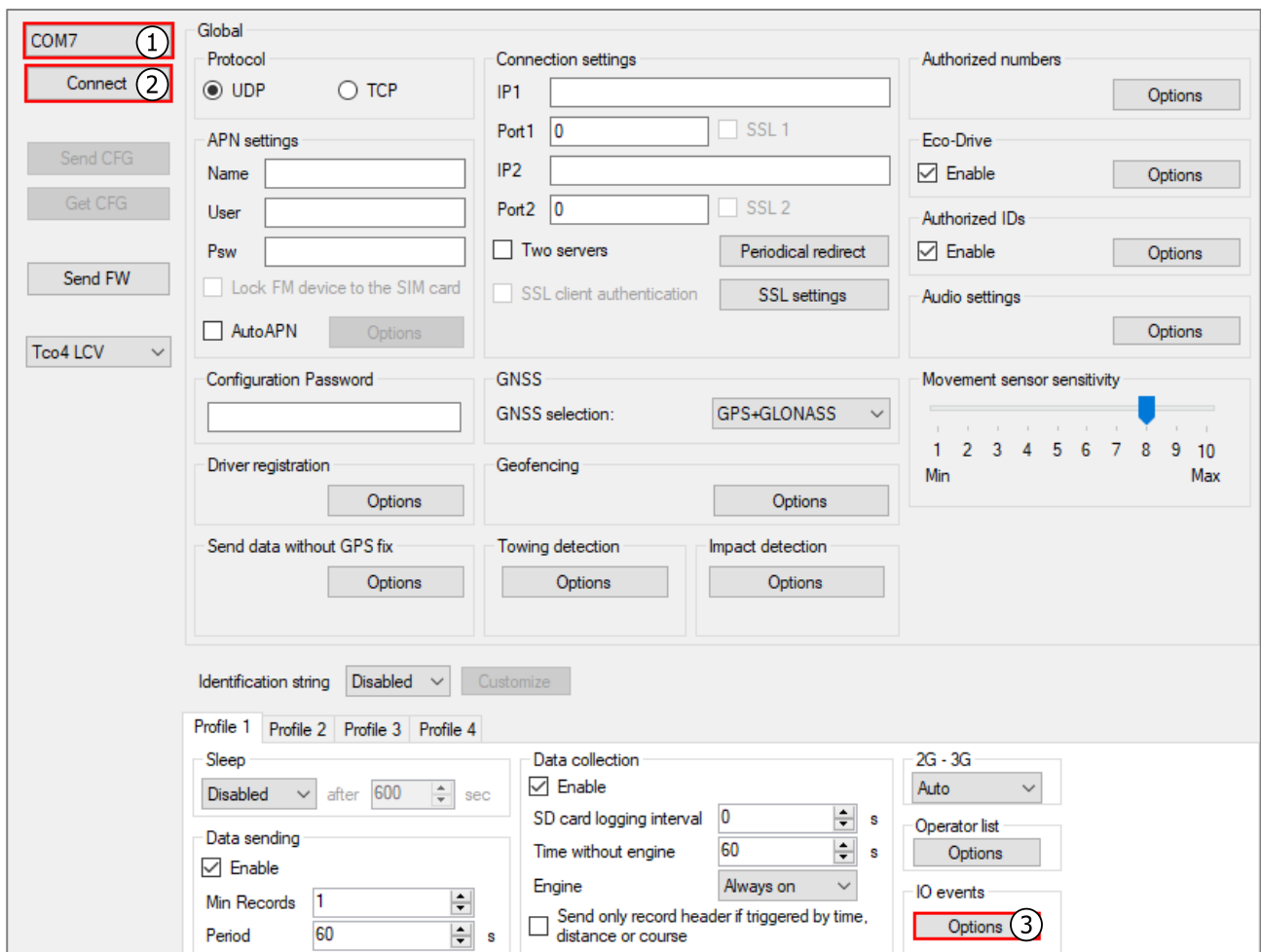
## 2 Configuration

 This functionality requires the use of the advanced configurator.

### 2.1 Starting the Configuration

To start the configuration, follow these steps:

1. Open the advanced configurator. Select the COM port to which your device is connected.
2. Click **Connect**.
3. Click the **Options** button in the **IO events** section to open the **IO Settings** window.



The screenshot displays the advanced configurator interface with several sections and highlighted elements:

- Global** section: Includes Protocol (UDP selected), Connection settings (IP1, Port1, IP2, Port2, SSL 1, SSL 2, Two servers, Periodical redirect, SSL client authentication, SSL settings), Authorized numbers (Options), Eco-Drive (Enable checked, Options), Authorized IDs (Enable checked, Options), Audio settings (Options), and Movement sensor sensitivity (slider from 1 to 10, Min to Max).
- APN settings** section: Includes Name, User, Psw, Lock FM device to the SIM card, and AutoAPN (Options).
- Configuration Password** section: Includes a text input field.
- Driver registration** section: Includes an Options button.
- Send data without GPS fix** section: Includes an Options button.
- GNSS** section: Includes GNSS selection (GPS+GLONASS).
- Geofencing** section: Includes an Options button.
- Towing detection** section: Includes an Options button.
- Impact detection** section: Includes an Options button.
- Identification string** section: Includes a dropdown menu (Disabled) and a Customize button.
- Profile 1** section: Includes Sleep (Disabled, after 600 sec), Data sending (Enable checked, Min Records 1, Period 60 s), Data collection (Enable checked, SD card logging interval 0 s, Time without engine 60 s, Engine Always on, Send only record header if triggered by time, distance or course), 2G - 3G (Auto), Operator list (Options), and IO events (Options highlighted with a red box and circled 3).

## 2.2 DOUT Configuration

Configure the DOUTs according to which DOUT you want to use for locking, unlocking, etc. by selecting specific modes in the **Digital outputs** section. Each mode can be selected on only one DOUT. The DOUTs are disabled by default.

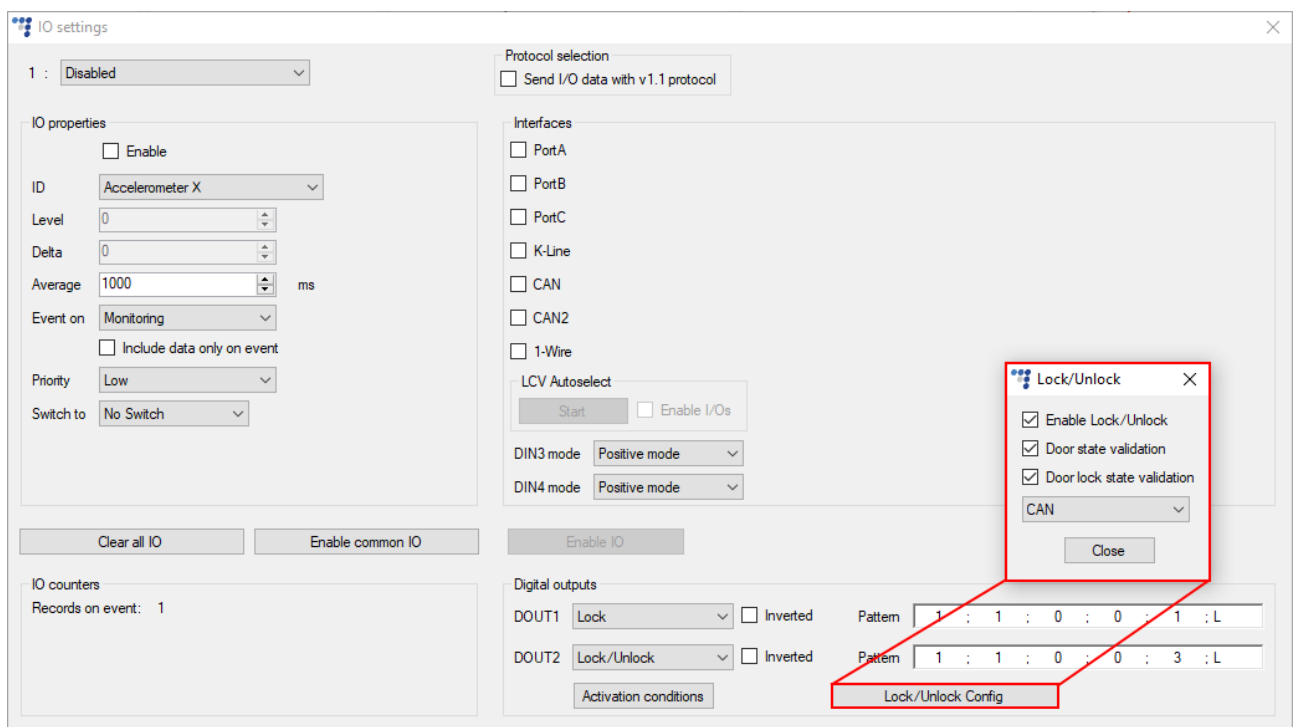
<b>Lock</b>	If selected, the DOUT will be used to lock the doors. This mode allows you to use a <a href="#">configurable DOUT pattern</a> . Recommended pattern: 1000:1:0:0:1:L
<b>Unlock</b>	If selected, the DOUT will be used to unlock the doors. This mode allows you to use a <a href="#">configurable DOUT pattern</a> . Recommended pattern: 1000:1:0:0:1:L
<b>Lock/Unlock</b>	If selected, the DOUT will be used both to lock and unlock the doors. This mode allows you to use a <a href="#">configurable DOUT pattern</a> . Recommended pattern: 1000:1:0:0:1:L
<b>ATH</b>	If selected, the DOUT will block the engine if the <i>setlock</i> SMS command includes the <i>ath-on</i> parameter.

The screenshot shows the 'IO settings' window. At the top left, a dropdown menu is set to '1 : Disabled'. Below this, the 'IO properties' section includes an 'Enable' checkbox, an 'ID' dropdown set to 'Accelerometer X', 'Level' (0), 'Delta' (0), 'Average' (1000 ms), 'Event on' (Monitoring), 'Include data only on event' checkbox, 'Priority' (Low), and 'Switch to' (No Switch). The 'Protocol selection' section has a checkbox for 'Send I/O data with v1.1 protocol'. The 'Interfaces' section lists Port A, Port B, Port C, K-Line, CAN, CAN2, and 1-Wire, all with checkboxes. Below this is the 'LCV Autoselect' section with a 'Start' button and an 'Enable I/Os' checkbox. The 'DIN3 mode' and 'DIN4 mode' are both set to 'Positive mode'. At the bottom left, there are buttons for 'Clear all IO', 'Enable common IO', and 'Enable IO'. The 'IO counters' section shows 'Records on event: 1'. The 'Digital outputs' section has two rows: 'DOUT1' and 'DOUT2'. The 'DOUT1' dropdown menu is open, showing options: Disabled, LED, Buzzer, Blocking, GSM jamming block, Custom, Immobilizer, Lock, Unlock, Lock/Unlock, and ATH. The 'Inverted' checkbox is present for both DOUT1 and DOUT2. A 'Lock/Unlock Config' button is located at the bottom right of the 'Digital outputs' section.

## 2.3 Lock/Unlock Configuration

Click **Lock/Unlock Config** next to the **Digital outputs** section to open an additional settings window. Here you can enable the functionality, as well as enable door state validation.

<b>Enable Lock/Unlock</b>	If enabled, the lock/unlock functionality will be active. Default value: Disabled
<b>Door state validation</b>	If enabled, the door state will be validated by checking if all the doors are opened/closed. The <i>CAN LCV doors state</i> IO parameter (ID 518) is used for the validation. <b>Note:</b> Unavailable for Trace5. Default value: Disabled
<b>Door lock state validation</b>	If enabled, the door lock state will be validated using the selected validation method. Default value: Disabled
<b>Door lock state validation method</b>	Which interface will be used for door lock state validation. Active only when <b>Door lock state validation</b> is enabled. Possible values: <ul style="list-style-type: none"> <li><i>CAN</i> – the <i>CAN door lock state</i> IO parameter (ID 538) is used for the validation. (FM-Tco4 LCV only)</li> <li><i>DIN1</i> – the DIN1 state is used for the validation. When DIN1 is in a high state, the doors are considered to be locked. (Trace5 only)</li> <li><i>DIN3</i> – the DIN3 state is used for the validation. When DIN3 is in a high state, the doors are considered to be locked. (FM-Tco4 LCV only)</li> <li><i>AIN1</i> – the AIN1 voltage is used for the validation. When the input voltage is higher than the configured threshold (4000 mV by default), the doors are considered to be locked. (FM-Tco4 LCV only)</li> </ul> Default value: <i>CAN</i> (FM-Tco4 LCV) or <i>DIN1</i> (Trace5)



## 2.4 Finishing the Configuration

To finish the configuration, close the **Lock/Unlock** and **IO Settings** windows. Click **Send CFG** to send the configuration to the device.

The screenshot displays the Ruptela Configurator software interface. At the top, there is a menu bar with 'File' and 'Tools'. Below it, a 'Configuration file information' section shows 'Configuration source: Configurator', 'Target device: n/a', 'FM device FW version: n/a', 'CFG Tag: [input field]', 'FM4 Configurator version: n/a', and 'Last edited: n/a'. The Ruptela logo is in the top right corner.

The main interface is divided into several sections:

- Global:** Includes a 'COM8' dropdown, a 'Disconnect' button, a 'Send CFG' button (highlighted with a red box), a 'Get CFG' button, a 'Send FW' button, and a 'Tco4 LCV' dropdown.
- Protocol:** Radio buttons for 'UDP' (selected) and 'TCP'.
- APN settings:** Fields for 'Name', 'User', and 'Psw'. Checkboxes for 'Lock FM device to the SIM card' and 'AutoAPN' with an 'Options' button.
- Connection settings:** Fields for 'IP1', 'Port1' (0), 'IP2', and 'Port2' (0). Checkboxes for 'SSL 1' and 'SSL 2'. Checkboxes for 'Two servers' and 'SSL client authentication'. Buttons for 'Periodical redirect' and 'SSL settings'.
- Authorized numbers:** An 'Options' button.
- Eco-Drive:** A checked 'Enable' checkbox with an 'Options' button.
- Authorized IDs:** A checked 'Enable' checkbox with an 'Options' button.
- Audio settings:** An 'Options' button.
- GNSS:** A 'GNSS selection' dropdown menu set to 'GPS+GLONASS'.
- Geofencing:** An 'Options' button.
- Movement sensor sensitivity:** A slider ranging from 1 (Min) to 10 (Max), with a blue arrow pointing to 8.
- Driver registration:** An 'Options' button.

### 3 Locking/unlocking the vehicle via SMS

Use the *setlock* SMS command to lock/unlock the vehicle.

Command syntax: *password setlock <lock> <ATH>*

*<lock>* can have the following values:

- *lock* – locks the vehicle if the doors are closed
- *unlock* – unlocks the vehicle
- *mlock* – locks the vehicle regardless of the door state
- *skip* – does not modify the current lock status

*<ATH>* can have the following values:

- *ath-on* – blocks the engine
- *ath-off* – unblocks the engine
- *ath-skip* – does not modify the current engine blocking status

Response structure:

*setlock* was successful: *setlock <lock>-OK <ATH>-OK*

*setlock* was unsuccessful: *setlock <lock>-FAIL:<parameters> <ATH>-FAIL*

*<parameters>* can have the following values:

*IGN* – ignition

*ODW* – open door/window error

*DFD* – door front driver

*DFP* – door front passenger

*DRD* – door rear driver

*DRP* – door rear passenger

*DHT* – door hatch

<ATH>-FAIL may occur when:

- the ignition is on
- the ignition state is unknown

Response examples:

*setlock* was successful: *setlock LOCK-OK ATH-ON-OK*

*setlock* was unsuccessful: *setlock LOCK-FAIL:IGN,DFD,DFP,DRD,DRP,DHT ATH-ON-FAIL*