

KEETEC®

⚠ ATTENTION: Please before the installation itself, make sure you read all instructions and recommendations obtained in this manual carefully. The device must be installed and use accordingly to this manual. You can install this device either to 12 or 24-volt electrical systems. The earth connection of this device must be on a negative pole of the battery. Manufacturer and distributor are not responsible for damage which could be caused by incorrect installation or programming of this device or by using not accordingly to this manual. For these reasons we recommend to rely on professional service in case of installation. The device or vehicle can possibly get damaged by unprofessional modifications and installation.

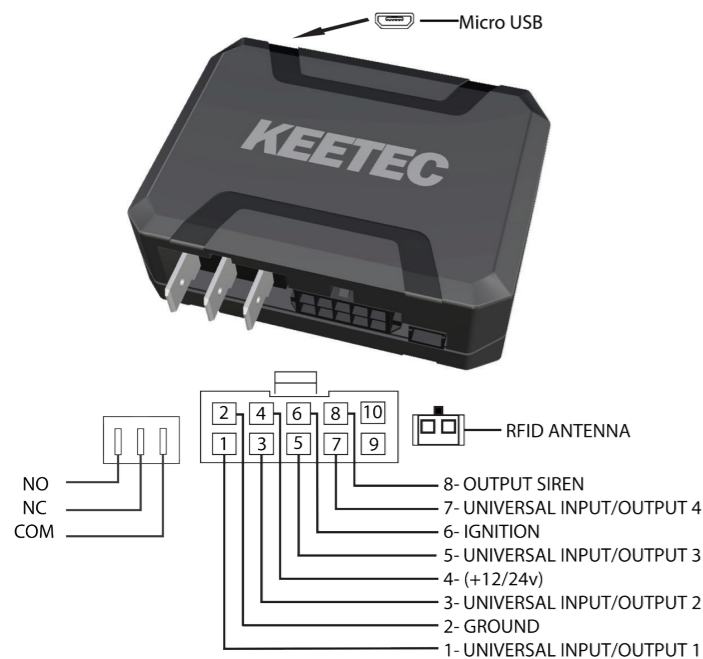
I. SYSTEM DESCRIPTION

TS IMO v2 is an immobilizer that offers hands-free control with the option of an external siren (siren not included). It is designed for vehicles with a 12 / 24V electrical system. It is designed to prevent unauthorized use of the vehicle by an unauthorized person. The authorized user can be recognized by using the RC SMART 2 controller, RFID card or by entering a validation sequence (PIN code is entered by using original vehicle elements such as foot brake, hand brake, etc.).

II. LOCATION OF CONTROL UNIT AND RFID ANTENNA

The control unit should be hidden at the very hard reachable place, for example from the inside of the dashboard. The location of the antenna is hidden to keep the vehicle secure. The antenna can't be placed behind the metal parts of the vehicle. Before the final installation of the antenna, it is necessary to verify the functionality of the antenna by getting a card near this antenna. Don't forget to inform the customer about the position of this antenna.

III. SCHEME OF INSTALLATION



CAUTION: NEVER DISCONNECT THE BUZZER. If input „IGNITION“ is used without buzzer, it will permanently damage the input and also the whole device became useless and at the same time, the warranty can't be claimed.

NOTE: Because of safety reasons, all wires of the main connector are black with a digit identification. Please pay attention to the identification of the wires during installation

LABELING

- wire no. 4 (+)** Positive permanent pole 12 / 24V
- wire no. 2 (-)** Negative pole in the vehicle
- wire no. 6 (+)** Ignition 12 / 24V
- wire no. 8 (+/-)** Output with selectable polarity for siren
- wire no. 1 (+/-)** Universal input or output
- wire no. 3 (+/-)** Universal input or output
- wire no. 5 (+/-)** Universal input or output
- wire no. 7 (+/-)** Universal input or output
- NO/NC/COM** Relay contacts for immobilizer circuit

CAUTION: Type of the siren used with this system depend on an input voltage of the system (12/24V), and maximum current load of the siren output (do not use siren over limits).

INPUT / OUTPUT SETUP OPTIONS 1,2,3,4

The universal input/output can be set accordingly for the need of installation. For setup use the PC application.

INPUTS	VALIDATOR, NO DOORS, NC DOORS, DEACTIVATION OF IMO FUNCTIONS, ACTIVATION OF IMO CIRCUIT
OUTPUTS	STATUS, ALARM, BUZZER, SIREN, START-STOP IMPULS, IMO STATUS (immediate blocking), IMO INVERTED STATUS (immediate blocking), IMO STATUS (blocking by move), IMO INVERTED STATUS (blocking by move), RELAY STATUS, RELAY INVERTED STATUS

BUZZER ACTIVATION / DEACTIVATION

The buzzer can be activated/deactivated in the PC application. Service mode and alarm ANTI-HIJACK mode is acoustically signalized even in a deactivated state

IV. USER AUTHORIZATION

The authorization process is initiated by switching on the ignition or by opening the door (depends on the settings). When the ignition is switched on, the procedure is followed by double beeps in one-second intervals during 0-5 seconds depending on the settings. The default setting is 5 seconds. If the authorization fails during this period, the engine will get blocked.

NOTE: If TS IMO is installed to block the starter circuit, the response time must be set to 0.

AUTHORIZATION BY RC SMART 2

RC SMART 2 can operate in two modes.

1. Manual mode:

In manual mode, pressing the button on the remote control is required for authorization whenever the ignition is switched on.

2. Hands-free mode:

In hands-free mode, the driver is authorized automatically (without having to press the button on the remote control) based on the presence of the RC SMART 2 remote control in the vehicle.

CAUTION: "Hands-free mode is automatically deactivated when the battery voltage in the RC SMART 2 remote control drops to maintain system functionality. In this case, the system can still be used in manual mode, but we recommend replacing battery as soon as possible (CR2450 battery).

HANDS-FREE MODE ACTIVATION / DEACTIVATION

Activation and deactivation is possible at any time. To change the set value, it is necessary to press the button on the remote control 4 times - the last pressing must last 2 seconds. The LED on the remote control flashes once to confirm activation or twice to confirm deactivation.

ADJUSTING THE DISTANCE OF HANDS-FREE MODE

The system allows you to set 4 range levels.

I. Level - 5m

II. Level - 10m

III. Level - 15m

IV. Level - 20m

To change the set value, it is necessary to press the button on the remote control 3 times - the third press must last 2 seconds. The LED flashes 1, 2, 3 or 4 times depending on which level is set. The levels follow each other in a cycle.

DESCRIPTION OF REMOTE CONTROLLER RC SMART 2



Button	Functions	Conditions	Signalization
Pressing button 1x	Deactivation of system	System must be activated	LED is flashing quickly
3x quick pressing and hold for 2 sec	Activation/deactivation of automatic mode	none	LED flash once (turn on) twice (turn off)
2x quick pressing and hold for 2 sec	Setting of range for RC SMART v2	none	LED flash once, twice, three or four time

AUTHORIZATION BY RFID PLASTIC CARD:

User authorization by RFID card is made by placing the RFID card near the RFID antenna for 0-5 seconds (depending on the settings) after the ignition is switched on. The RFID antenna should be placed in a hidden place to keep the vehicle secure. The antenna must not be placed behind metal parts of the vehicle. Before final installation it is necessary to verify functionality by placing the card near the antenna

AUTHORIZATION BY VALIDATION SEQUENCE:

The validation sequence can be entered before the ignition is switched on before the authorization process itself starts. Its validity can be set by the PC application in the range of 15-120 seconds. The ignition must be switched on during this time, otherwise the validation sequence entered will expire. In case of entering validation sequence after the ignition is switched on, the input time is increased by 5 seconds but no more than 25 seconds each time the "validator" is pressed.

VALIDITY OF AUTHORIZATION AFTER SWITCHING IGNITION OFF

This is the time during which it is not necessary to re-authorize the user after the ignition has been switched off. Validity of the authorization after the ignition is switched off can be set in the range of 0-120 seconds. By default, it is preset to 120 seconds.

PROGRAMMING REMOTE CONTROLS

The system allows you to program up to 10 remote controls. Remote control programming is only possible through the PC application during the first minute of putting the device into service mode

RFID CARD PROGRAMMING

The system allows you to program up to 10 RFID cards. Card programming is only possible through the PC application during the first minute of putting the device into service mode. **CAUTION: The device must always have at least one card programmed! Only programmed RFID card can exit service mode. If the RFID card is lost, the user can, if necessary, disable the system by entering service mode using RC Smart 2 or a validation sequence. Immediately after entering the service mode it is necessary to program at least 1 card, otherwise it will not be possible to leave the service mode.**

PROGRAMMING THE VALIDATION SEQUENCE

Maximum of 4 validators can be used to enter a validation sequence, i.e. 4 vehicle controls (for example: foot brake, hand brake, window heater button, ESP button). The maximum number of validator presses is 10. Configuration of the validation sequence can be made only through the PC application during the first minute of putting the device into service mode.

CAUTION: When selecting validation inputs it is necessary to verify their functionality with the ignition off.

EXAMPLE: The validation sequence is as follows: press ESP button 4 times, press window heater button 2 times. To enter the validation sequence, 2 validators (ESP button and window heater button) are connected by installer.

LOW BATTERY INDICATION IN REMOTE CONTROL

If the battery voltage of the remote control drops to a critical level, hands-free mode is automatically deactivated. When the battery needs to be replaced, the LED flashes twice in one second intervals. Battery discharge is also signaled acoustically by 8 beeps after the ignition is switched on.

NOTE: after replacing the battery in the remote control with a new one, it is necessary to press the button on the remote control to stop the low battery indication

V. CONFIGURABLE IMO MODES

TS IMO v2 offers 3 operating modes for the immobilizer function and 1 special operating mode for other applications that can be selected when configuring the device via the PC application.

IMMEDIATE BLOCKING MODE

If the ignition is switched on/door opens (depending on the settings), authorization process is activated. If user does not authorize within specified time, the engine is immediately blocked regardless of movement. Validity of the authorization after the ignition is switched off is adjustable in the range of 0-120 seconds. It is defaultly set to 120 seconds.

BLOCKING IN MOTION MODE

If the ignition is switched on/door opens (depending on the settings), the authorization process is activated. If user does not authorize within specified time, the engine is blocked when the vehicle is moving. Validity of the authorization after the ignition is switched off is adjustable in the range of 0-120 seconds. It is defaultly set to 120 seconds.

START/STOP MODE BUTTON

In the START/STOP mode, authorization process is started by pressing the START/STOP button. If user does not authorize within specified time, TS IMO v2 will simulate pressing the START/STOP button to switch off the ignition. The simulated pulse length is adjustable by the PC application in the range of 1-9 seconds. Validity of the authorization after the ignition is switched off is adjustable in the range of 0-120 seconds. It is defaultly set to 120 seconds.

GATE CONTROL MODE

In this mode, TS IMO v2 provides ability to control other devices. If the ignition is off and the user is authorized, TS IMO v2 will generate an output pulse. The pulse length is adjustable between 0-9 seconds. If 0 is selected, the output is active until the next positive authorization. The gate control mode is not active when the ignition is on. The service mode can only be entered when the ignition is switched on

ANTI-HIJACK MODE

ANTI-HIJACK mode is a function designed to prevent the vehicle from being stolen while in use. If this function is used, the engine that has already been started is blocked until the RF SMART 2 authorization transponder is in the vehicle. If door is opened while driving or running, the system will start authorization procedure. If no authorization is subsequently made (using RF SMART 2, RFID, or validator), the engine blocking sequence is initiated. For

safety reasons, the engine blocking sequence shows as follows: 20 seconds of intermittent buzzer beeping followed by 20 seconds of intermittent buzzer and siren (if used) beeping. After this time has elapsed, the engine is blocked until the vehicle has stopped for longer than 5 seconds. The function can be activated only by using the PC application.

CAUTION: For reliable vehicle motion detection, TS IMO v2 control unit must be firmly attached to firm parts of the vehicle. To maintain comfort, ANTI-HIJACK mode is available 1 minute after the ignition is switched on. Using ANTI-HIJACK mode may be prohibited in some countries. Check the legislation in your country before use.

VI. ALARM FUNCTION

TS IMO v2 has an alarm function that triggers alarm by opening door or detecting a change in the vehicle's tilt, or both - simultaneously. Alarm is activated 2 minutes after the ignition is switched off. After opening door or moving the vehicle (depending on the settings), it is necessary to make authorization within 15 seconds. Otherwise alarm is triggered. Immediate alarm cancelling is possible by user authorization.

VII. SERVICE MODE

We recommend to leave immobilizer in service mode before leaving the vehicle in a workshop or parking service. In this mode, the system stops performing all blocking activities. It is not necessary to hand over the immobilizer remote control to other people or announce them your way of authorization. After the ignition is switched on, the Service mode is indicated by 5 beeps every 10 seconds within a minute.

SERVICE MODE ACTIVATION BY RFID CARD

Within one minute after switching on the ignition, place the RFID card 5 times in a row to the RFID antenna while pause between each card detection must not last more than 5 seconds. Acceptance of a valid RFID card is signaled by a short beep. An invalid RFID card is signaled by a long beep. Activation/deactivation of the service mode is signaled by a 5-time beep.

SERVICE MODE ACTIVATION BY REMOTE CONTROL

Service mode is activated by 5 two-second button presses on the remote control.

SERVICE MODE ACTIVATION BY ENTERING A VALIDATION SEQUENCE

To enter the service mode it is necessary to enter the validation sequence three times in a row. The pauses between sequences can last for a maximum of 10 seconds.

SERVICE MODE DEACTIVATION

CAUTION: Service mode can be deactivated ONLY by the RFID card! For deactivation, it is necessary to place the RFID card near the RFID antenna 5 times in a row with the ignition switched on and within 1 minute after turning it on. The pauses between placing the RFID card to the antenna must be less than 5 seconds.

IMMOBILIZER MEMORY

TS IMO v2 will keep its status and settings even also after disconnection from power supply. Handling with the vehicle battery thus does not affect its functionality.

VIII. TECHNICAL PARAMETERS

Voltage	12/24V
Operating temperature of device	-40°C up to 80°C
Average consumption	25mA
Sleeping consumption	< 3mA
Communication frequency	2,4 GHz
Max current for universal output	12V-100mA/24V-50mA
Max current for immobilizer circle	12V-20A/24V-10A
Max current of output "siren"	(+) 12V-1A/24V-0,5A (-) 12V-200mA/24V-100mA
Battery for RC SMART 2	CR 2450