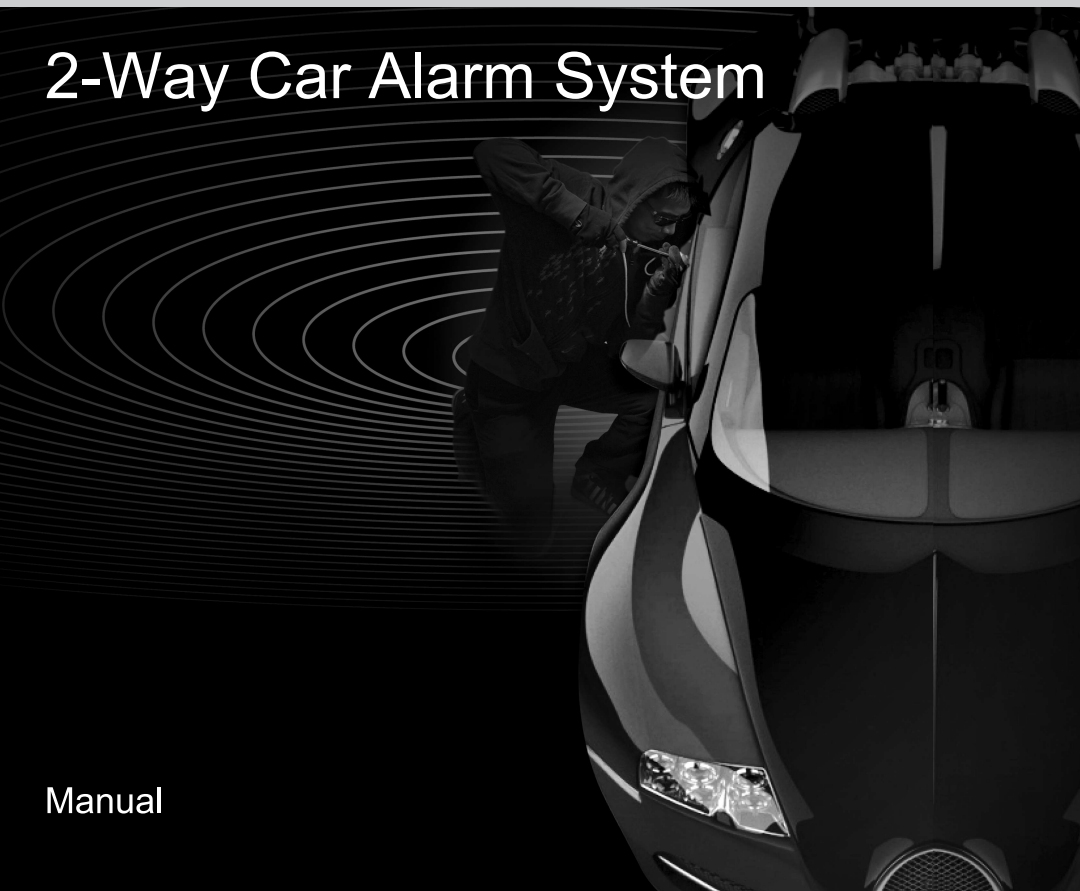


STEEL MATE®
Automotive

Rangers

2-Way Car Alarm System

Manual



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User Manual

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Disclaimer

- 1.This system is for vehicles with 12V DC only.
- 2.System should be installed by a professional auto technician.
- 3.The installation position of ECU should be kept away from water and dust.
- 4.All components should be fixed tightly and the wires must be long enough to avoid disconnection from heavy vibration during driving.
- 5.This system will help to reduce the possibility of losing the vehicle by discouraging theft. Please take out the valuables when leaving the vehicle.
- 6.When the transmitter operating distance is shorter or its indicator light turns dark, please recharge the transmitter battery ASAP.
- 7.It is highly recommended to read this manual before using this system.
- 8.Perform a functional test after installation.
- 9.The operation distance may affected by constructions, topography or weather.
- 10.Please do not open or change the PCB without authorization.

Key features

- LoRa™ technology
- Ultra long operation distance with 2-way LCD transmitter
 - Receive distance of transmitter: up to 8 km
 - Control distance of transmitter: up to 5 km
- Rechargeable lithium battery for transmitter
- Comfort closure
- Vehicle battery voltage display on transmitter
- Match with central locking system
- Valet mode
- Emergency override
- Anti-hijack

Specifications

System:

Operating voltage: 12 \pm 3V
Operating current: (FSK modem) < 20 mA
(LoRa™ modem) < 10 mA
Operating frequency: 433.92 \pm 0.015MHz
Horn sound level: 105 ~ 125 dB

2-Way transmitter:

Modulation mode: LoRa™
Operating frequency: 433.92 \pm 0.015MHz
Operating voltage: 3.2~4.4V
Static current: \leq 35 μ A

1-Way transmitter:

Modulation mode: FSK
Operating frequency: 433.92 \pm 0.015MHz
Operating voltage: 2.0~3.3V
Static current: < 0.5 μ A

Charging:

Operating voltage: 12V \pm 3V
Output voltage: 5V \pm 0.5V
Static current: \leq 5mA

Brief look of 2-Way transmitters

Buttons

🔒: Arm button

🔓: Disarm button

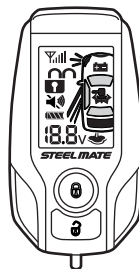
🔇: Mute

🚗: Trunk release

■/SET: SET



5160



5163



5164

Interface

Signal bar

Arm

Mute

Battery indicator

Vehicle battery
voltage



Turn signals flashing

Low vehicle battery

Impact on vehicle

Door opened

Trunk-released

ACC triggered



Arming with
door locked



Disarming with
door unlocked



Arming in
alarm mode



Arming in
mute mode



Battery
indicator



Turn signal
flashing



Impact on
vehicle



Door opened



Trunk-
released



ACC
triggered



Signal bar

18.8v

Vehicle battery
voltage



Vehicle battery
lower than 10.5v

Turn transmitter ON/OFF (For 2-way transmitter)

The transmitter needs to be turned on before the first use, the default setting is OFF.

Turn transmitter ON: Press and hold  button for 2 seconds.

Turn transmitter OFF: Press and hold  button for 5 seconds.

Note: Transmitter will be shut down when the battery is used up. If the transmitter cannot be turned on, please charge it according to "Transmitter charging".

Battery level indication

When transmitter's battery level is low, the transmitter will have warning sound after any button is pressed.
When the battery indicator is empty, the transmitter needs to be charged immediately.



Battery is full
Voltage: $\geq 3.75\text{V}$



Battery is enough
Voltage: $3.75\text{V} \sim 3.60\text{V}$



Battery is in a half
Voltage: $3.60\text{V} \sim 3.40\text{V}$



Battery is low
Voltage: $3.40\text{V} \sim 3.20\text{V}$

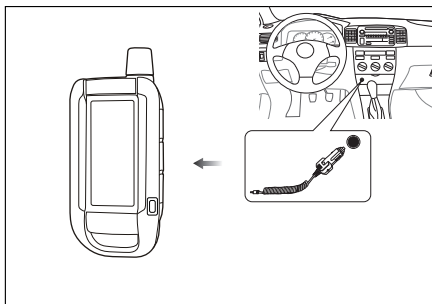


Battery is empty
Voltage: $< 3.20\text{V}$

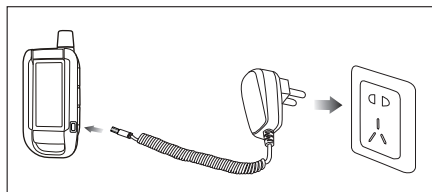
Note: The transmitting range will be affected when the battery is low.

Transmitter charging

Method 1: Thru cigarette lighter




Method 2: Thru other terminals






Note: The charger only for 2-way transmitters


Functions




1. Alarm arming & locking the doors (Active arming)

Press  button once on transmitter, the doors will be locked with chirp and turn signals flash once. The LED light flashes to indicate that system is armed in alarm arming mode.





The transmitter will "Bi" once with  icon flashes once, and  &  icon will show on the screen.





2. Mute arming & locking the doors (Active arming)

Press  button once on transmitter, the doors will be locked with turn signals flash once and the siren will not chirp. The LED light flashes to indicate that system is armed in mute arming mode.






The transmitter will "Bi" once with  icon flashes once, and  &  icon will show on the screen.

3. Disarming & unlock the doors


In alarm arming mode, press  button once, the doors will be unlocked, the siren will "Bi" twice with turn signals flashing, then the system will be disarmed. The transmitter will "Bi" twice with the  &  icon flash twice, and the  icon will show on the screen.

In mute arming mode, press  button once, the doors will be unlocked, the siren will not chirp, turn signals will flash twice. Then the system will be disarmed. The transmitter will "Bi" twice with the  &  icon flash twice, and the  icon will show on the screen.

4. Shock sensor triggering

In alarm arming mode, the first impact to vehicle will trigger the system, the siren will chirp for 3 times with turn signals flash for 5 times. The transmitter will "Bi" with vibrations, the  and  icon will be flashing on the screen. If the system is triggered again within 15 seconds, the siren will chirp sharply and turn signals will flash for 30 seconds, the engine will be immobilized. The transmitter will "Bi" with vibrations, the  and  icon will show alternately,  icon will be flashing on the screen. In mute arming mode, the shock impact will trigger the system. The siren will not chirp, other actions are the same as that in alarm arming mode.

5. Shock sensor bypass





Press  button for 3 times in 5 seconds, shock sensor will be bypassed and system will "Do Re Mi" without any vibrations.



This function is suitable for thunderstorm and severe weather or other situation which is easy to trigger vibration alarm

6. Ignition on, opening door/ trunk, footbrake trigger



In alarm arming mode or in mute arming mode, if the system is triggered by ignition on, doors opened, trunk released or footbrake pressed, the siren will chirp for 30 seconds with the turn

signals flashing continuously, the engine will be immobilized.





If the system is triggered by ignition on, the transmitter will "Bi" with vibrations, the  and  icon will be flashing on the screen. If the system is triggered by footbrake pressed or doors opened, the transmitter will "Bi" with vibrations, the  and  icon will be flashing on the screen.


If the system is triggered by trunk released, the transmitter will "Bi" with vibrations, the  and  will be flashing on the screen.

7. Alarm pause



In armed status, opening door/ trunk/ hood, ignition on will trigger the system and alarm chirping continuously, press  button or  button to stop the alarm and system will return to its former arming status.

8. Remote trunk release



Press and hold the  button or hold  +  buttons together for 2 seconds to release trunk. In arming mode, after trunk release, the shock sensor will be bypassed, if detected ignition on, opening door or footbrake is pressed, the system will alarm with turn signals flashing. If the trunk is not closed completely after 2 minutes, the transmitter will "Bi" with vibrations for 3 times, and  icon will be flashing on screen.

If the trunk is not close completely, the transmitter will "Bi" after 3 minutes, with 3 times vibrations and  icon will show on the screen.



9. Car locating

Press  button for 2 seconds or press /SET button, the siren will chirp for 10 seconds with turn signals flashing for 10 seconds to locate the car. Yet, the siren will not chirp in the mute warning mode.

10. Anti-hijack


When ignition is on, press and hold  button for 2 seconds, the siren will chirp with turn signals flashing until the  button be pressed.

11. Door closing reminder

When the system is armed in alarm mode and the door or trunk did not close properly in 8 seconds, the siren will "Bi" 3 times with turning signals flashing. The transmitter will "Bi" with vibrations, the  icon or the  will flash on the screen.

The doors should be closed properly, or 50 seconds later, the siren will chirp sharply for 4 minutes.

12. Re-arming automatically





Press  button once, the system will be disarmed with the doors unlocked. If the door is not opened in 25 seconds, the system will re-arm automatically.

For the car with dome light function, the system will re-arm automatically after the dome light turned OFF.


13. Dome light delay

The function is specially designed for the vehicle with dome light function. The system will enter the arming mode automatically once the dome light turned OFF.

14. Passive arming

When the engine is OFF and system did not arm in 1 minute, system will enter the mute arming mode automatically but the doors will not be locked, the  and  icon will be flash on the screen. Hold /SET, the transmitter will "Bi" twice to indicate that the system exit the passive arming mode. Hold /SET again, the transmitter will "Bi" once to indicate that the system enter the passive arming mode.

15. Central door lock/ unlock

The doors will be locked by pressing the footbrake after the engine is running 15 seconds. Press  button, the doors will be locked/unlocked during driving.

If door or trunk did not close properly, the siren will "Bi" for 3 times while turn signals will flash 3 times as a reminder.

The doors will be unlocked automatically after engine OFF.

16.Warning for roadside stop

When stopping by the roadside with the door opened, the turn signals will flash for 15 seconds to warn the approaching vehicles.

17.Warning for triggered system



If the system has been triggered in armed status, the siren will alarm when the system is disarmed and the door is opened:



- 1) The siren will chirp twice when shock sensor is triggered.
- 2) The siren will chirp 4 times when door/ trunk/ hood is opened, or ACC is ON, or footbrake is pressed.
- 3) In mute arming mode, the LED indicator will flash continuously to indicate that the vehicle has been triggered.

18.Staust preserving

The system will return to the former status when the power is on again, even the power is cut off.

19.Valet mode

In valet mode, the system will not arm even with the transmitter, but convenience functions (door lock/ unlock and trunk release) will work normally. Press footbrake and turn ACC ON, then hold  button or press the /SET button once, system will chirp 3 times with turn signal flash 3 times and enter valet mode.

In valet mode, hold  button or press the /SET button once to exit the valet mode.

20.Transmitter programming

Press the learning button in the ECU, the LED indicator will turn on and the system will enter the code learning mode:

- 1) Press any button on the first transmitter once, the LED indicator will flash twice, turn ON to indicate the first transmitter is programmed successfully.
- 2) Press any button on the second transmitter once, the LED indicator will flash for 3 times to indicate the second transmitter is programmed successfully.

Note: Only 2 transmitters can function with the same system.

21.Comfort window closure (optional)

The window closure function is only for the vehicle with convenient system (turn key to lock position and hold until the roof/ windows are closed), please jump the J1 to "ON" position to active this function. The windows and roofs will be closed when arming the system. (Default setting is in "OFF" position)

22.Emergency override


If the transmitter lost or failed to operate, the system can be disarmed by the emergency override.

Step footbrake and turn ACC ON to OFF for 10 times, and stay in "ON" position, the LED indicator will turn on to indicate the system will be disarmed.

Press  button will deactivate the emergency override function.

23. Signal intensity indication

The system can transmit the signal to the transmitter every 2 minutes. The signal can be monitored through the transmitter:

: No signal, out of reception range

: Weak signal

~: Good signal

~: Strong signal

24. LED indication

LED	Indication
Flash twice then pause for 2 seconds	The system is armed in alarm/ mute arming mode
Flash once then pause for 2 seconds	The system is arming mode with shock sensor bypass
Turn on for 2 seconds then pause for 2 seconds	Door/ trunk, footbrake, ACC triggered
Turn ON	After emergency override

Includes



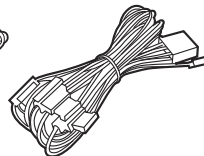
Transmitters X2



ECU



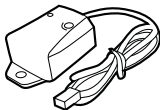
LED indicator



Cables



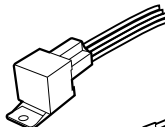
Siren



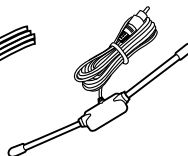
Shock sensor



Ribbon



Relay



Antenna



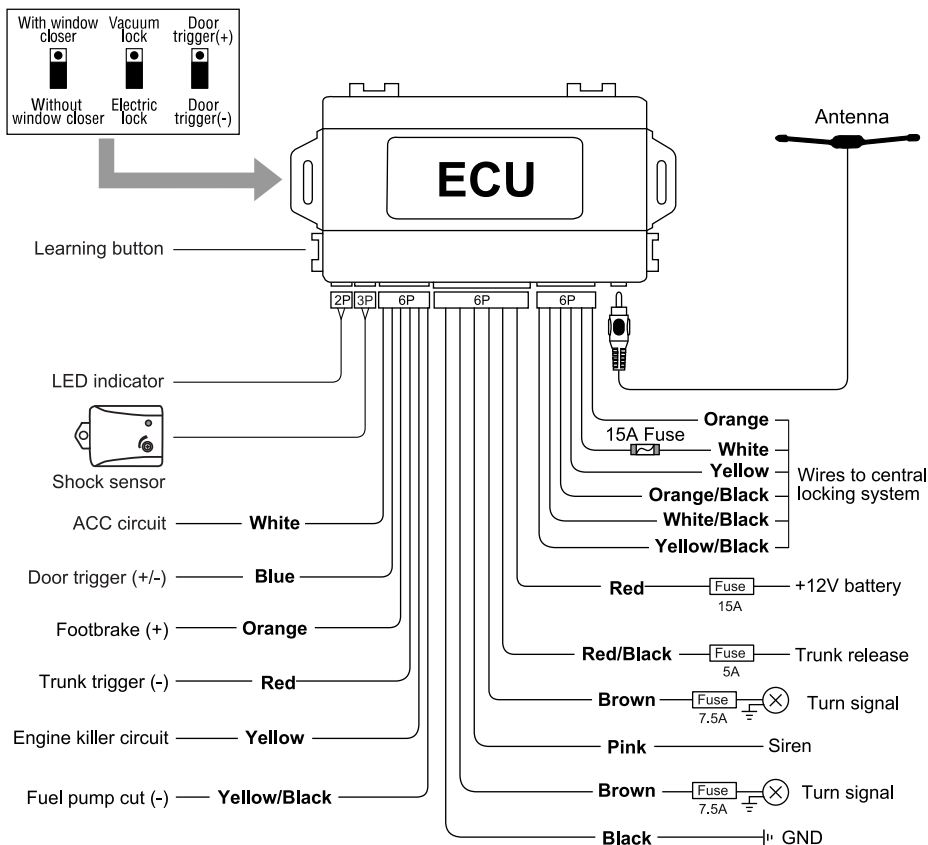
Manual

※ The above graphics are for reference only

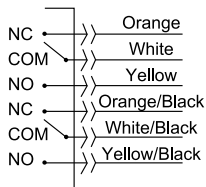
Tips for ECU installation

1. The ECU should be fixed at a concealed place under dashboard.
2. The ECU should be installed away from water.
3. Connect wires according to the wiring diagram properly.
4. Binding all wires after installation.

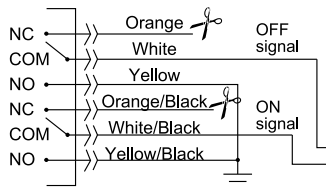
Wiring diagram



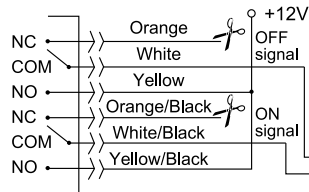
Central locking system installation



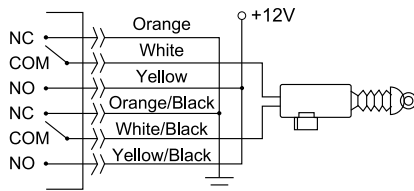
1. Principle



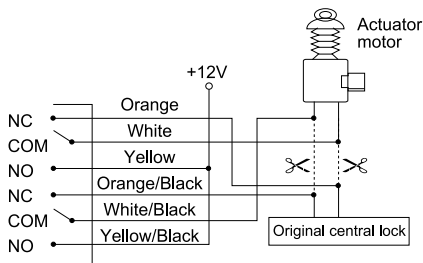
2. Negative trigger



3. Positive trigger



4. Positive/Negative trigger






5. Vacuum-lock circuit

1. For the vehicle with original electric central door lock, check its triggering type (negative or positive), then connect wires as per wiring diagrams (Fig.2 or Fig.3).
2. For the vehicle with central locking system, the driver's door does not have a motor, the other doors have motors. A new motor for driver's door is needed. (Fig.4).
3. For the vehicle with vacuum-lock, please change the jumper J2 to "vacuum-lock" position of the ECU. (Fig.5).
4. For the vehicle without central locking system, please install one set of central locking system to match with the car alarm system.

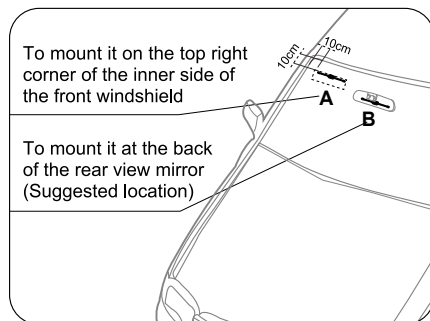
Jump switch setting

Jump switch no.	Function	Default setting
J1	Window closer	
	No window closer	No window closer
J2	Vacuum lock	
	Electric lock	Electric lock
J3	Door trigger(+)	
	Door trigger(-)	Door trigger(-)

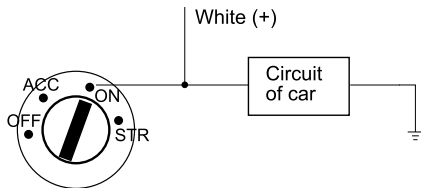
With window closer	Vacuum lock	Door trigger(+)
		
1	2	3
Without window closer	Electric lock	Door trigger(-)

Installation of antenna

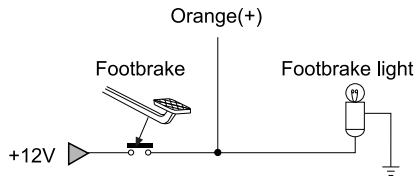
1. The antenna can be mounted at position "A" or "B" if there is no solar film on the front windshield.
2. If the front windshield is covered with solar film, please remove the solar film within the dotted line before installing it at position "A".
3. If all the windshield are covered with film, please mount it at position "B".
4. The antenna must be kept away from any metal parts.



ACC circuit

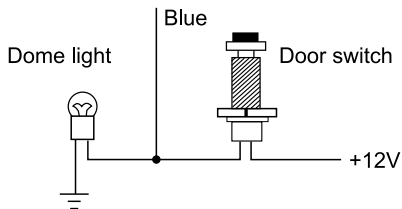


Footbrake (+)

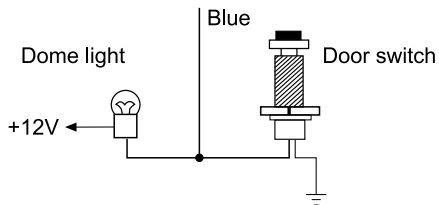


Door trigger (+) / (-)

Positive door trigger circuit (+)

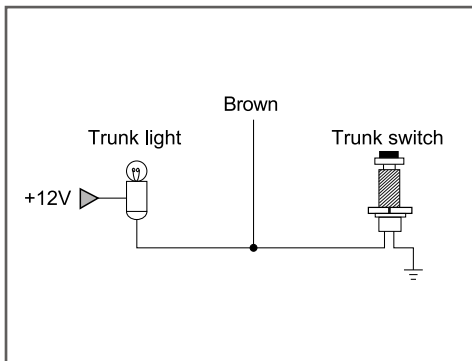


Negative door trigger circuit (-)

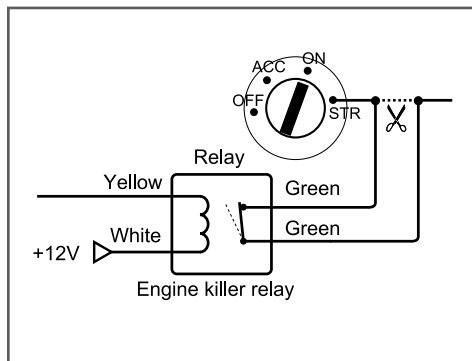


Notes: Default setting is Door trigger(-)

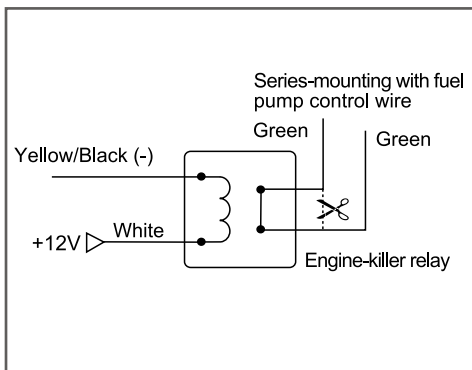
Trunk trigger (-)



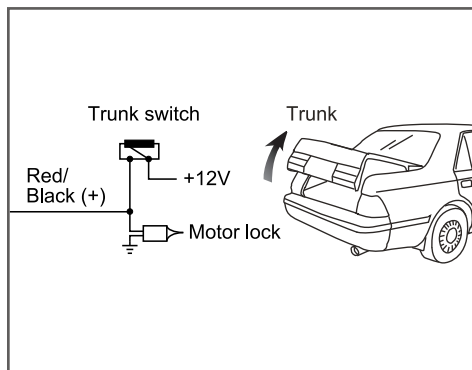
Engine killer circuit



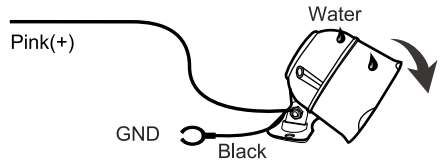
Fuel pump cut (-)



Trunk release circuit

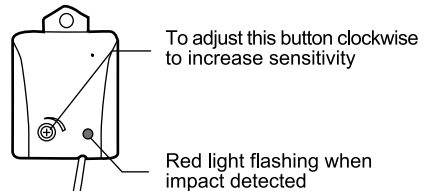


Siren installation



Please mount the siren downward to prevent water

Shock sensor installation



(Default setting sensitivity is suggested)

Troubleshooting

Problems	Reasons
1. The continuous chirping of the siren cannot be stopped by transmitter after installation of ECU.	<ul style="list-style-type: none"> ● The plug is improperly inserted. ● The wire is improperly connected. ● The transmitter does not match the ECU. ● The siren is damaged. ● The fuse of the ECU is broken.
2. Turn signals do not flash after disarming the system and opening the door, or the siren does not chirp when the door is opened without disarming.	<ul style="list-style-type: none"> ● Door trigger wire is not connected properly. ● Door switch has problem. ● The siren is damaged.
3. When the car parks on roadside and armed, there is false alarm when the heavy vehicle is passing.	<ul style="list-style-type: none"> ● The sensitivity of the sensor is too high.
4. The central door lock does not work normally or does not work at all.	<ul style="list-style-type: none"> ● The motor of central lock is damaged. ● The wiring of central lock system is wrong. ● Fuse is broken.
5. The siren does not chirp when the alarm system is triggered.	<ul style="list-style-type: none"> ● The siren is damaged. ● The wire connection between the siren and ECU has problem.
6. The siren chirps sharply in 10 seconds after arming and the same situation happened after disarming and re-arming	<ul style="list-style-type: none"> ● The sensor is damaged. ● The doors or trunk is not closed.
7. Transmitter is ineffective or the control distance decreased significantly.	<ul style="list-style-type: none"> ● The installation location of the antenna is wrong. ● The wiring of the antenna to ECU has problem. ● Tall building, radio tower or high frequency electromagnetic wave may affect the control range. ● Low power of the battery. ● The frequency of the transmitter has been changed. ● The transmitter is broken or damaged.



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