Before using the system

Thank you for choosing AIRWOLF, a remote engine starter system manufactured by Semi Korea Inc. You are about to experience the convenience and the various carefully designed functions for customer satisfaction. To fully benefit from the capabilities of your AIRWOLF system, we encourage you to read this user manual thoroughly before using the system.

※ Caution

1. Read this manual carefully and ensure safety before you install the equipment.
2. Make sure to install the equipment by an authorized dealer.
3. In order to prevent safety accidents, users shall be attentive of the following precautions:

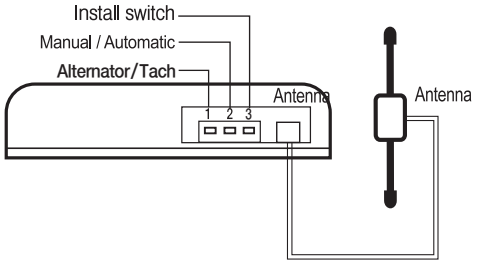
   - In the manual mode, do not attempt remote start as the gear is being applied.
   - Do not attempt remote start as the key is being inserted (that is, while the ignition is on).
   - Do not attempt remote start when the car is shut in or in poor ventilated location.
   - Do not attempt remote start when there is someone or a pet inside the car.
   - Do not attempt remote start when there is someone standing in front of or rear of the car.
   - Always apply the parking brake, and put your car in neutral or P (park) gear.
4. Stop operating the equipment if the gear is applied, or the equipment malfunctions, to prevent loss of lives and property.
5. Please contact the dealer for other problems.

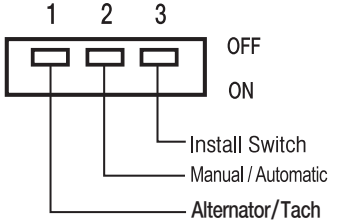
Contents

Precautions for installation

- Air wolf operates in DC 12V in either automatic or manual car.
- Before you install the equipment, check the polarity of power door lock and power trunk release button.
- Use the multimeter rather than the test lamp, if possible. Overcurrent on the test lamp may cause damage to the computer system of the car.
- Switch off the dome light before installing the equipment. If you leave the car with the doors left open, the battery may be discharged.
- Solder the wires and apply the insulation tape.
- Fix the ground wire of Brain to the rarely used bolt.
- In preparation for unexpected discharge of battery, remove the dome light fuse while installing the equipment.
- When installing siren or TACH sensor, be careful not to have the wire uncovered by the chassis of the car.
- Do not place the wires or parts on the hot place or moving part of the car.
- Make sure to place the Auto/Manual selection switch "ON" for the manual car.
  The installer is responsible for any damage caused by mishandling of the switch.

1. How to use the DIP switch





DIP S/W	1	2	3
OFF	TACH	Automatic	Normal
ON	Alternator	Manual	Install

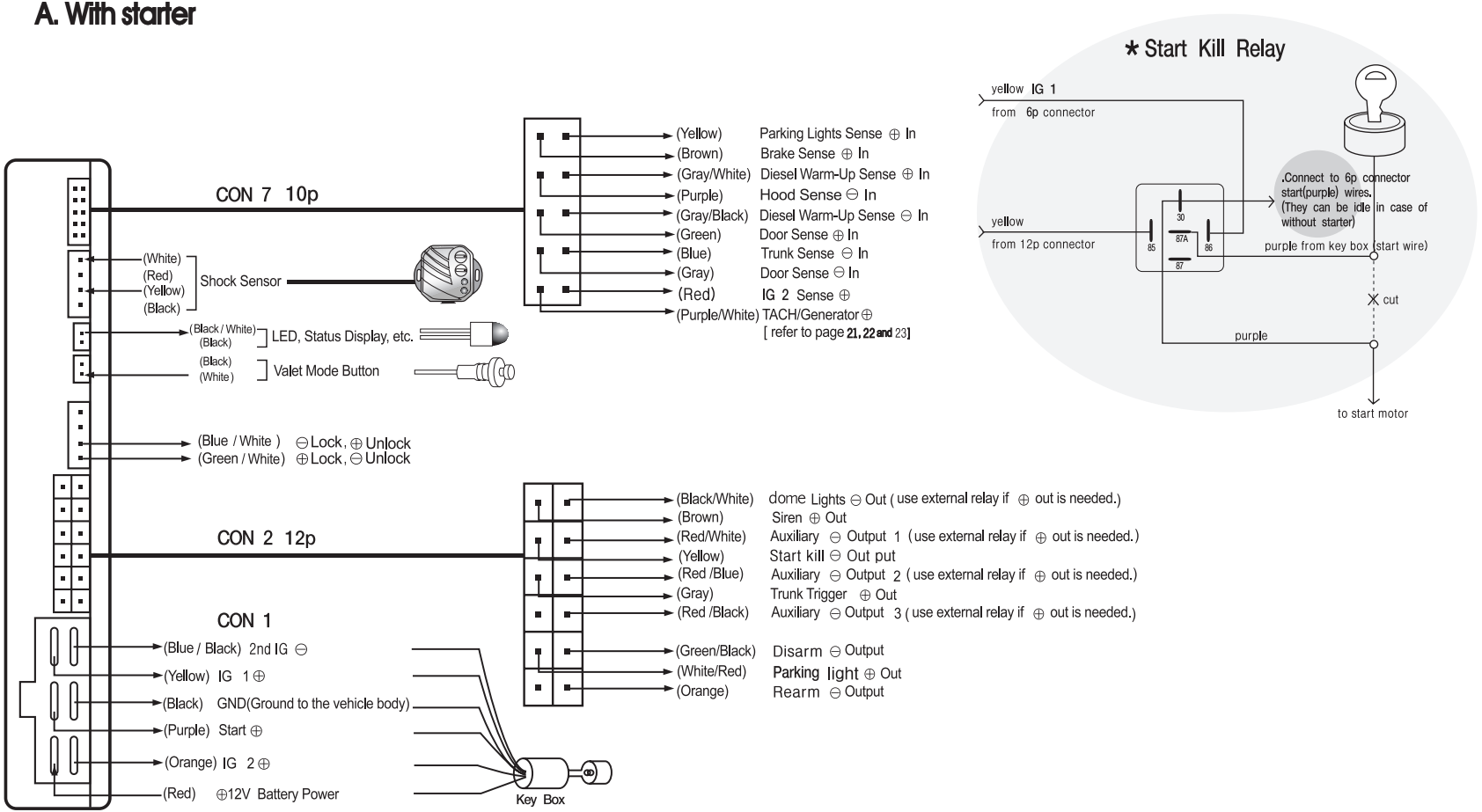
- Switch 1 : Used for selection of TACH / Alternator.
- Switch 2 : Used for selection of Manual/Automatic. Place the switch On for manual, or Off for automatic.

※ Precaution : The installer is fully responsible for any accident caused by mishandling of the switch.

- Switch 3 : Used for setting of TACH learning.

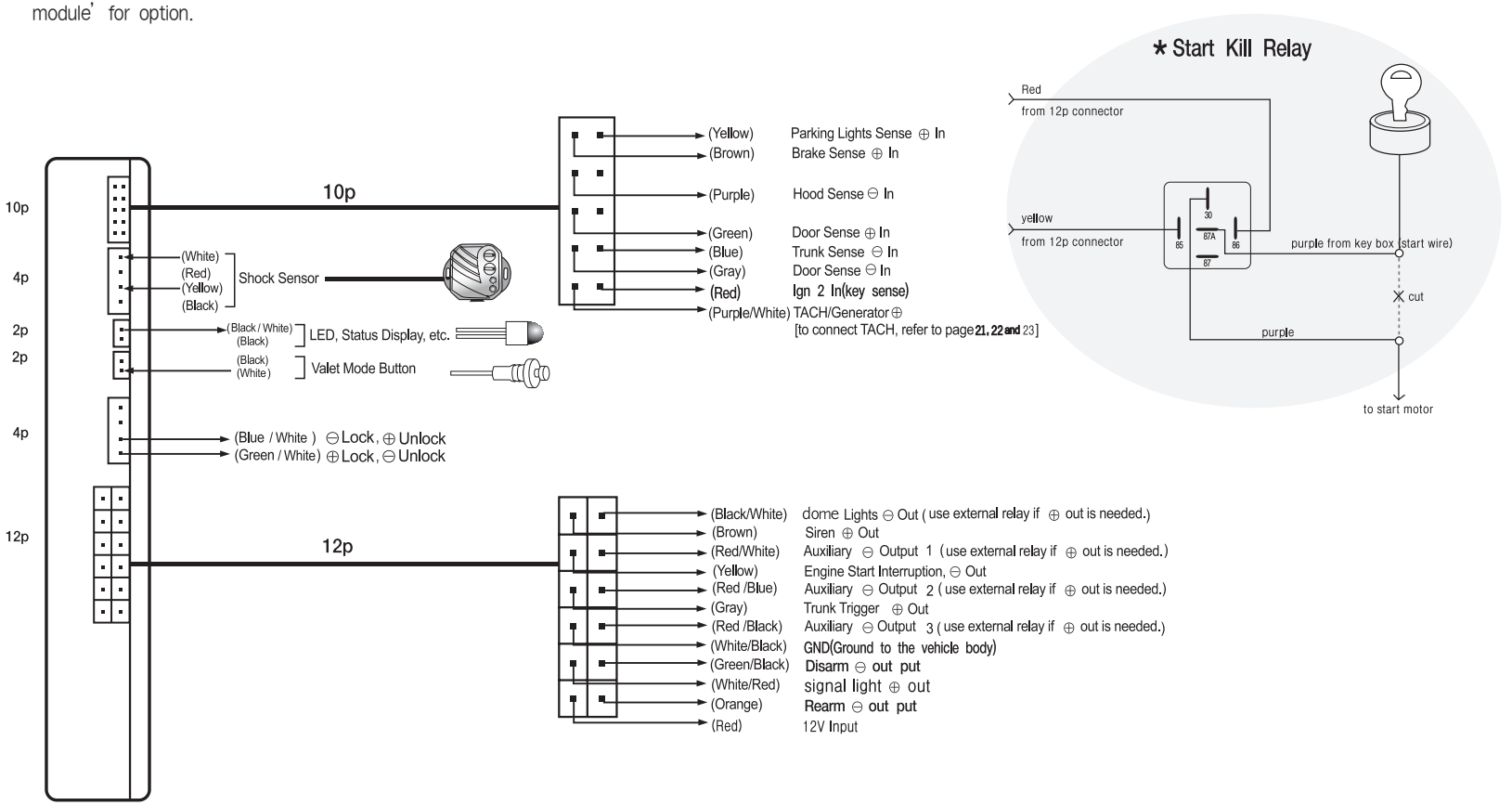
2. Product wiring diagram

A. With starter



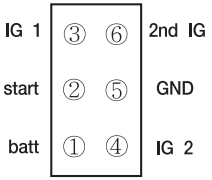
B. Without starter

Please refer to 'wiring diagram of with starter chart' when you add 'starter module' for option.



3. 6–pin main wire (CON1)

Starter only



①	Red	⊕12V main power input
②	purple	⊕ output for start motor
③	Yellow	IGN 1 ⊕ output
④	Orange	IGN 2 ⊕ output
⑤	Black	Ground Input
⑥	Blue/Black	Auxiliary IGN 1⊖output

① Red (⊕12V): **⊕ 12V main power input**

Brain receives ⊕12V from the car battery as the main power supply.

② purple(start): **⊕ output for start motor**

The ⊕12V output is used for start motor.
Turn the key, find the wire that becomes ⊕12V when the start motor starts running, and connect the wire to the violet. The output keeps 1～3V once the engine is started.

③ Yellow(IG 1): **IGN 1 ⊕ output**

The ⊕12V output is used to start the engine.
Find the wire that becomes ⊕12V when the key is in the "ON" position or when the start motor turns, and after the engine is started. And connect the wire to the yellow wire.

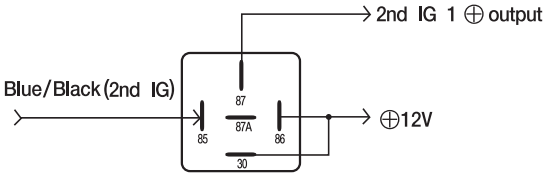
④ Orange(IG 2): **IGN 2 ⊕ output**

The ⊕ output is used to start the supplementary devices such as heater and air conditioner which are not related to the engine.Find the wire that becomes ⊕12V when the key is in the "ON" position or when the engine is started.
The output keeps 1～3V while the start motor turns.

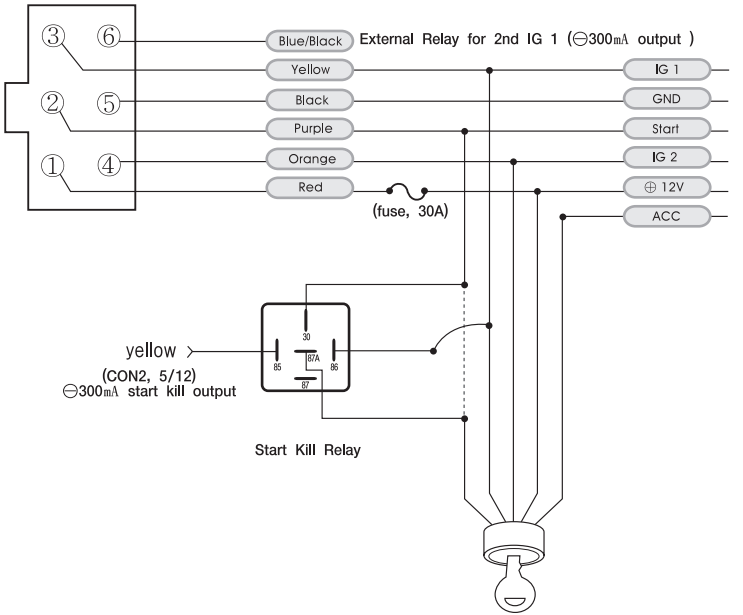
⑤ Black(GND): **Connect the wire to the chassis. (Ground Input)**

⑥ Blue/Black: **Auxiliary IGN 1⊖output**

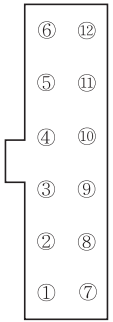
A reserved IG 1 output (-300MA) for cars of two IG 1s. In this case, an external relay is required. It works in the same ways as IG 1.



⊙ 6P Main Wire(wiring diagram)



4. Signal Output Connector(CON 2)



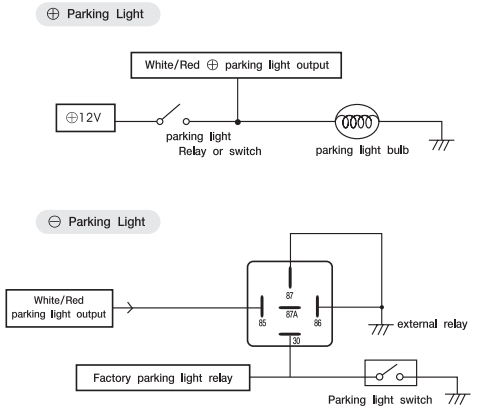
①	Red	⊕ 12V input *Used for without starter only.*
②	White/Red	Paking light output (⊕10A)
③	white/Black	GND(Ground to the Vechicle body) *Used for without starter only*
④	Gray	Trunk Release output(⊕10A)
⑤	Yellow	Start kill Signal output(⊖300㎃)
⑥	Brown	Siren output(⊕3A)
⑦	Orange	Rearm output for factory Alarm(⊖300㎃)
⑧	Green/Black	disarm output for factory Alarm(⊖300㎃)
⑨	Red/Black	Auxiliary 1 output(⊖300㎃)
⑩	Red/Blue	Auxiliary 2 output(⊖300㎃)
⑪	Red/white	Auxiliary 3output(⊖300㎃)
⑫	Black/white	Dome light output(⊖300㎃)

① Red : ⊕ 12V input **Used for without starter only**

It always receives ⊕12V from the car battery.
Connect the red wire to the wire that is always ⊕12V when the key is in either "ON" or "OFF" position.

② white/ Red: Paking light output (⊕10A)

Connect this wire to the parking light wire. In case there are two parking light wires, use the diode bridge.
Especially, most of the European cars have two parking light wires.



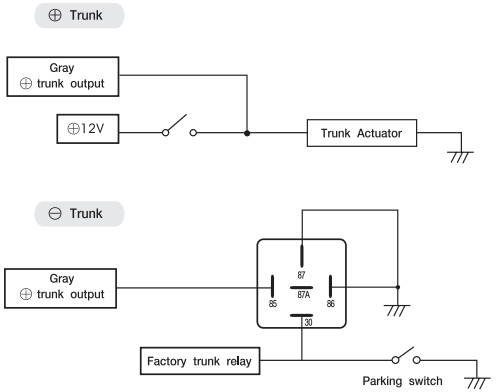
③ white/Black: GND(Ground to the Vechicle body)

Used for without starter only

Connect the wire to the chassis ground.

④ Gray: Trunk Release output(⊕10A)

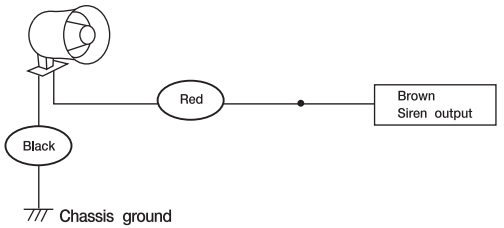
The ⊕ output used to open the trunk.



⑤ Yellow: Start kill Signal output (⊖ 300 ㎃)

The ⊖300㎃ output used to disable key-ignition when users enter the boundary. (An external relay is required.)

⑥ Brown : Siren output wire(⊕ 3A)



⑦ Orange ; The ⊖ 300㎃ output to rearm the factory alarm.
Sends out pulse once or twice when armed/locked or after remote start.
You can change the repetition and length of pulse by remote control.

⑧ Green/Black: The ⊖300㎃ output used to disarm the factory alarm.
Sends out pulse once or twice when disarmed/unlocked or before remote start.
You can change the repetition and length of pulse by remote control.

⑨ Red/ Black : Auxiliary 1 ⊖ 300 ㎃ output.

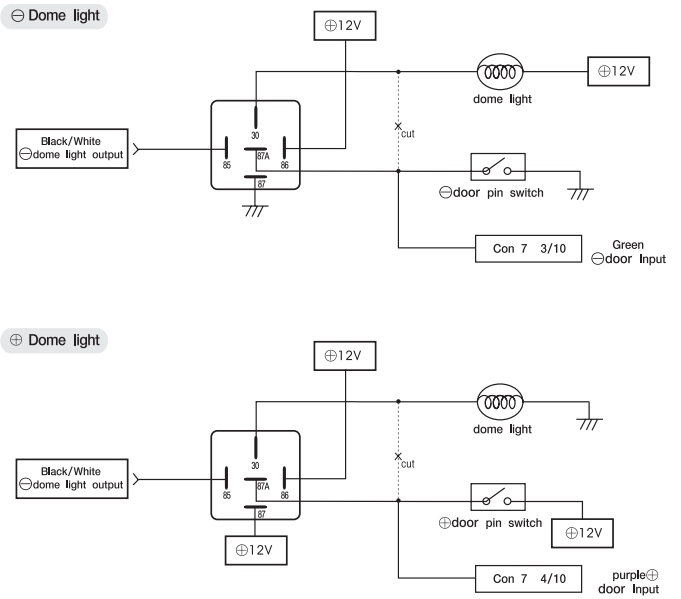
⑩ Red / Blue : Auxiliary 2 ⊖ 300 ㎃ output.

⑪ Red / white : Auxiliary 3 ⊖ 300 ㎃ output. .

Tip

- Auxiliary output is used to control the sunroof or the power windows, and sends off pulse or continuous signal. You can change the output remotely.

⑫ Black/white : Dome light output ⊖ 300 ㎃
Auxiliary output is used to control the sunroof or the power windows, and sends off pulse or continuous signal. You can change the output remotely.



5. Door Control Output Connector(CON 3)

④	④	empty	
③	③	empty	
②	②	Blue/white	⊖Lock, ⊕Unlock output
①	①	Green/white	⊕Lock, ⊖Unlock output

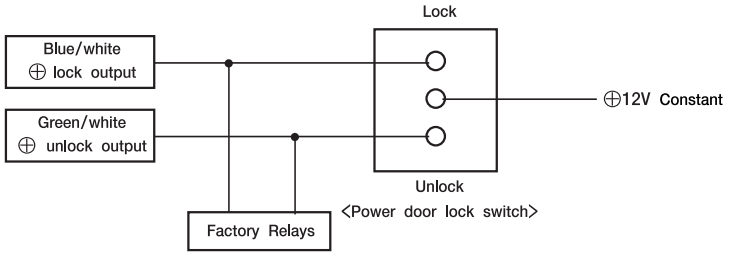
The door lock system varies by the manufacturer, and the equipment shall be effective when it meets the condition of the car.
To set the equipment to a specific car, you may need to add an external relay or an actuator.

Tip

- If you connect the positive pulse system of type A to type C without additional part, the control module of the car can be damaged.

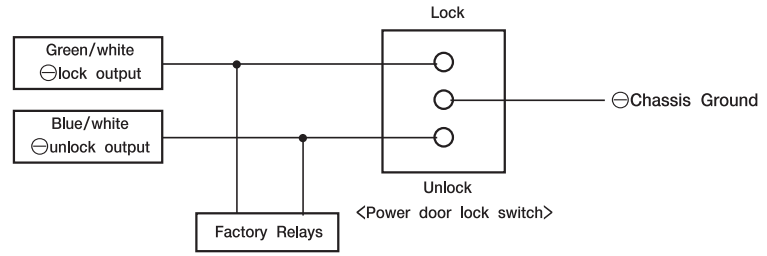
Type A:

This system supplies ⊕12V pulse from the switch to the factory relays, and connects the Brain output to the Lock/Unlock wire of the car without additional part.



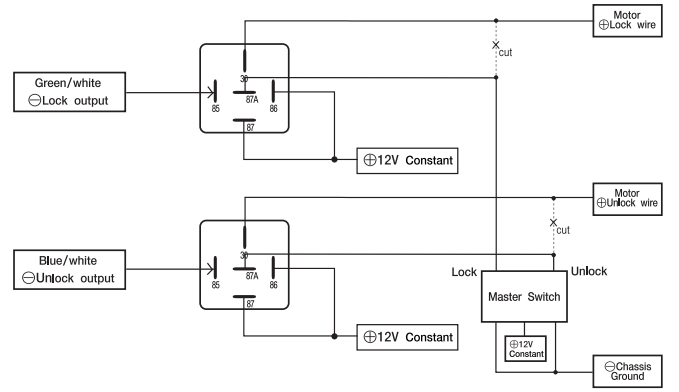
Type B:

This system supplies ⊖pulse from the switch to the factory relays, and connects the Brain output to the Lock/Unlock wire of the car without additional part.



Type C:

This system supplies power by reversing polarity, and requires two external relays.

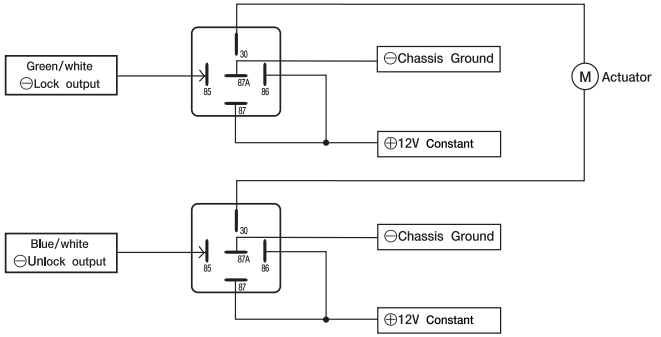


Tip

- If the ⊕12V is supplied to the ⊖ground, the factory switch may be damaged.

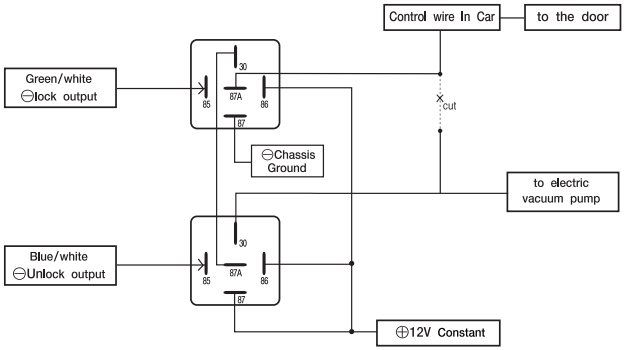
Type D: After Market Actuators

If the car has no power door lock system, you should install an additional actuator.



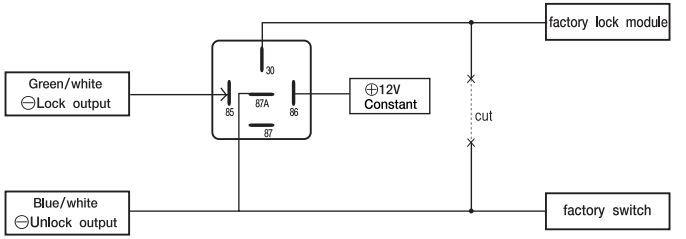
Type E: Vacuum pump type

The door lock is controlled by the electric vacuum pump, and requires two external relays.
The system also requires the door lock pulse of 3.5 seconds.



Type F: One Wire System

This system sends ⊖ for unlock, and becomes open for lock. The system requires one external relay.



6. Valet Switch Module Ass' y(CON4)

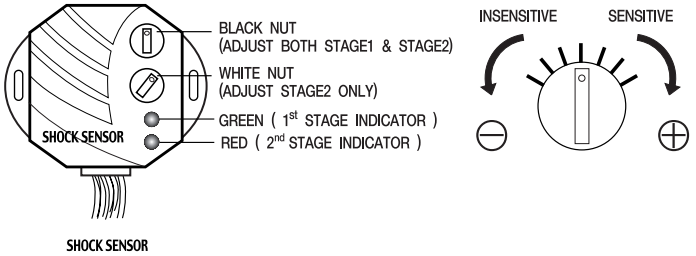
The switch is used to change setting and to perform the valet function. Connect the switch module to the 2P switch harness that is included in the product.

7. LED Module Assiy(CON5)

The module displays that the system is in the ARM mode. Connect the module to the 2-pin LED harness that is included in the product.

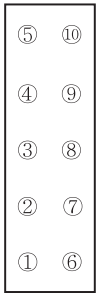
8. Shock sensor(CON6)

Connect the shock sensor to the shock sensor module that is included in the product. The sensor detects external shock either as high level or as low level. Fix the sensor tight under the driver seat panel. You can adjust the sensitivity through testing.



** Do not install the sensor in the engine room because the sensor may be lost, melt or leaked.*

9. Trigger Input Connector(CON 7)



①	Purple/ White	Generator ⊕, Tachometer(AC) Input
②	Gray	Doorpin Switch ⊖ Input
③	Green	Doorpin Switch ⊕ Input
④	Purple	Hoodpin Switch ⊖ Input
⑤	Brown	foot Brake ⊕ Input
⑥	Red	IG 2 ⊕ Input
⑦	Blue	Trunk ⊖ Input
⑧	Gray	Glow ⊖ Input
⑨	Gray/ White	Glow ⊕ Input
⑩	Yellow	Parking light ⊕ Input

1. purple/ white : Generator ⊕, Tachometer(AC) Input

This indicates if the start detecting wire is connected to the generator or TACH (that measures RPM). If the wire is connected to the generator, you should change the setting as below. If the wire is connected to TACH, you should perform "Execution of TACH" as specified in Page 20.

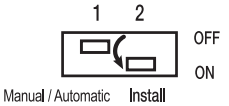
- ◆ Connection for generator : Detects starting of engine with the generator voltage.
- ◆ Connection for TACH : Detects starting of engine with the RPM frequency. (Default)

◎ Executing generator

Step 1

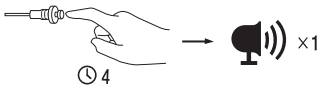
- Open the door.

Step 2



- Place the installation switch at ON position.

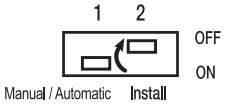
Step 3



Valet mode button for more than 4 seconds — Simple tone sounds once

- If you press and hold the Valet button for more than 4 seconds, the car makes a tone and the function ends.

Step 4



- Place the installation switch at OFF position.

※ *Because the measured value is saved in the permanent memory of Brain, you don't need to perform the steps even if the power is off.*
※ *Note: Return the dip switch to OFF after the setting.*

◎ Executing TACH

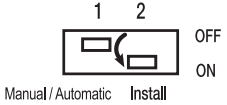
If the start detecting terminal is connected to the TACH terminal, you must perform the procedure. You'd better perform the procedure from the lowest RPM of the warmed up engine.
Brain detects starting of engine by measuring frequency of TACH. If you start the engine in cold winter, the RPM frequency goes high. If you measure the frequency at this point, the high frequency value is saved. In this case, if the RPM frequency is low as the engine is warm enough, Brain may misjudge that the engine is not started.

Step 1

Open the door. To start engine.

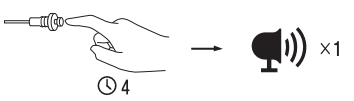
- Start the warmed engine at low RPM, and open the door.

Step 2



- Place the Installation Switch 2 to ON.

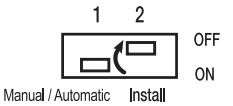
Step 3



Valet mode button for more than 4 seconds — Simple tone sounds once

- Press and hold the Valet button for more than 4 seconds to start measuring the frequency. If the process is completed, the car makes a tone, and the function ends.
- 4 tones or more: Signal error.

Step 4

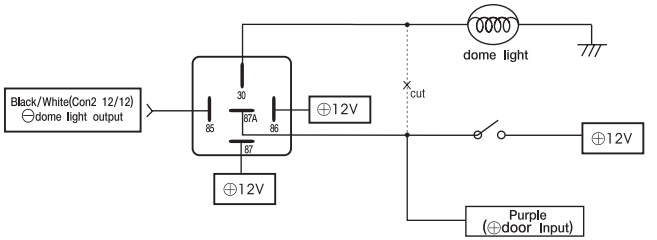


- Place the installation switch at OFF position.

※ *Because the measured value is saved in the permanent memory of Brain, you don't need to perform the steps even if the power is off.*
※ *Note: Return the DIP switch to OFF after the setting.*

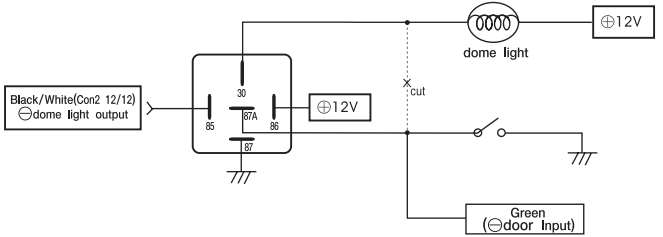
2. Gray: Doorpin switch ⊖ Input

Shows 0 V when the door is open, or ⊕12V when the door is closed.



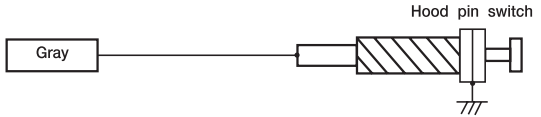
3. Green : Doorpin Switch ⊕ Input

Shows ⊕12V when the door is open, or 0V when the door is closed.



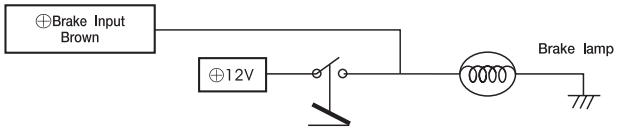
4. Purple : hood pin Switch ⊖ Input

This wire is used to detect opening of the hood pin switch that is included in the product and that for the factory.



5. Brown : foot Brake ⊕ Input

Connect the wire to the brake positive input wire to set the function and for the turbo function. If you press the brake pedal after the remote start without inserting the key, the engine stops for safety.



Tip

How to Detect Brake wire

In general, ⊕ is detected when the foot brake is applied. But in some cases (European foot type), 4V~5V DC is detected in normal condition, and ⊖ is detected when the foot brake is applied. In this case, from the wires beside the driver's seat, find the wire in which ⊕ is detected when the foot brake is applied.

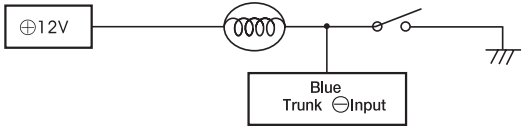
6. Red : IG2 ⊕ Input

* This wire is used to detect if the key is in the key box.
* If the key is in the key box, you cannot use remote start.

If the car has no IG2, connect the wire to ACC. If Con 1 wire is already connected, you don't need to connect this wire.

7. Blue : Trunk ⊖ Input

This wire is used to detect trunk opening.



8. Gray : Glow ⊖ Input

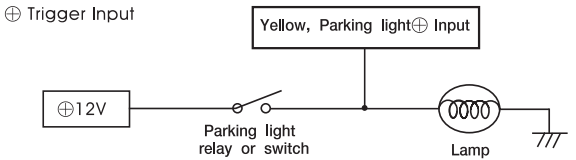
The glow wire is connected to the glow plug in the dashboard.
This wire is used to detect warm up of the diesel car, and is connected to ⊖ operation car.

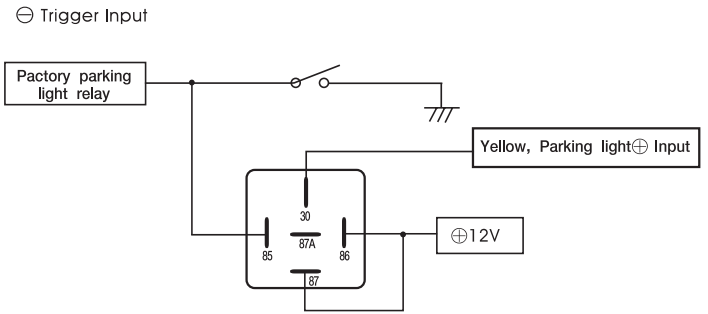
9. Gray/ White: Glow ⊕ Input

The glow wire is connected to the glow plug in the dashboard.
This wire is used to detect warm up of the diesel car, and is connected to ⊕ operation car.

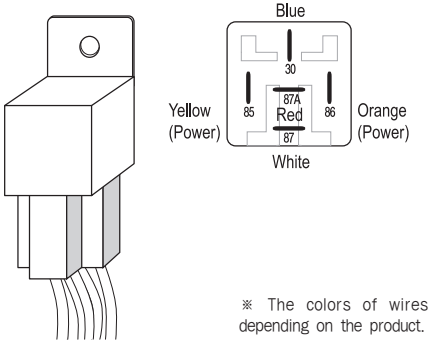
10. Yellow : Parking light ⊕ Input

This wire is used to give alarm when the driver leaves the car with the parking light being turned on.





10. Using relay



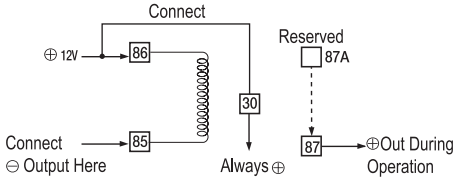
※ The colors of wires may be different depending on the product.

External relay is a part that is used frequently for changing the polarity of output from the security system or trouble-shooting purpose. It is called 5P relay because it is consists of 5 wires.

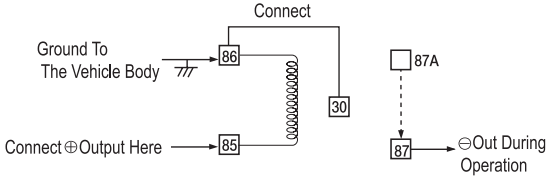
The unit driving mechanism

Supply ⊕and ⊖output to 85 and 86 (polarity is not important), and port 30 is transferred from 87A to 87. Using this port, various application circuits can be created.

Example 1 To change the ⊖ output to ⊕ output.

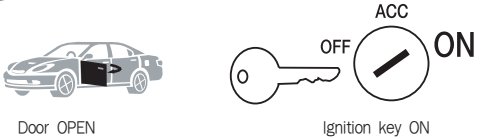


Example 2 To change the ⊕ output to ⊖ output.



11. Registering the remote control ID

Step 1



Door OPEN

Ignition key ON

- Open the door and turn the ignition key to ON position.

Step 2

- Press and hold the buttons A and D at the same time for more than 2 seconds.

Step 3

sounds in the remote control.

- If the remote control has been received ID successfully, 'congratulation song' sounds.

12. Configuring time data

Configuring time data allows the time adjustments such as the operation time adjustment for door lock, and starter motor. Initially, the time data is initialized with default values.

Since the default values are determined for general vehicles, configuring time data is not necessary in normal cases. However, if it is not working properly, the time data should be configured to appropriate values. The changed data is saved in the permanent memory of both the remote control and the brain.

Button A: to transmit data after completing the configuration.
Button B and C: to move menu or change the data.
Button D: to select menu or finish the data configuration.

For data transmission after completing the configuration brain, the ignition key should be in the on position, and the hood and door should be open.

Configurable time data

Without Stater	With Stater	Function	LCD Display		Default Value	Configurable Range
1	1	Door Lock	LOCK	Once ONE / Twice tWO	0.8 Seconds Once	0.1~9.9 Seconds
2	2	Door Unlock	UNLK			
3	3	Auxiliary Output 1	AU 1	Pulse Output PULS / Continuous Output CONt	0.8 Seconds Pulse	0.1~9.9 Seconds
4	4	Auxiliary Output 2	AU 2			
5	5	Auxiliary Output 3	AU 3			
6	6	Trunk	tRUN		0.8 Seconds	0.1~9.9 Seconds
	7	Precaution Mode Waiting Time After Closing Door	dOAr		10 Seconds	1~99 Seconds
	8	IGN ON Waiting Time	IGON		2 Seconds	1~10 Seconds
	9	Starter Motor Operation Time	StAr		2 Seconds	1~10 Seconds
10	10	Exit	End	Exit without transmitting changed data (data is saved in the remote control)		

It will not be used in 'without starter model'

※ If the desired value is the same as the default, configuration is not required.
※ When the configuration is completed, press button A to transmit the changed data to the brain and finish the configuration.
※ The menu will jump from 6 to 10 directly, not pass 7,8,9 step, when it is 'without starter' model.

(Example) Configuring trunk time

Step 1

Press the button B, D for transmission.

Step 2

In 'LOCK' status

Press button C five times to move to the menu

'TRUNK' is displayed on the bottom of the LCD

Press button D to select

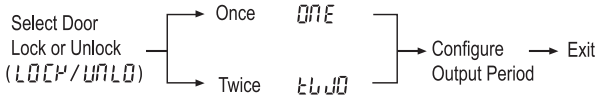
Change the value using button B and C

* Button A: to transmit changed data and finish the configuration
* Button D: to save and move to the next menu

Press the button A for transmission.

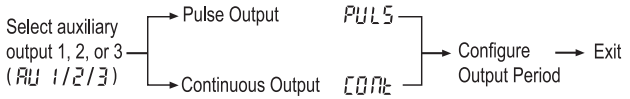
1,2. Door lock and unlock

Output operating once is enough for normal vehicles, however some vehicles require two times of the operation. In this case, change the configuration to twice. The configured output period is applied to both of the options.



3,4,5. Auxiliary output 1,2,3

Select to use auxiliary output to control heater, air conditioner, or sunroof. Pulse output outputs for the configured time, while continuous output outputs alternatively until the remote control button is pressed again.



6. Trunk

You can determine the trunk triggers operation time.

7. Precaution mode waiting time after closing the door Starter only

As default, precaution mode is started and shield appears on the LCD in 20 seconds after closing the door. 20 seconds waiting time is to prevent alarms that can be caused by user's behavior especially opening the trunk or touching the vehicle.

8. IGN 1 ON waiting time Starter only

You can configure IGN 1 ON waiting time that determines the time between turning IGN ON and operating the starter motor when the brain attempts engine start.

- If the vehicle is diesel and warm-up sense is connected, the starter motor is operated when the warm-up sensor operates even if the waiting time remains.

9. Starter motor operation time Starter only

The brain engages starter motor to start engine until engine start is detected through TACH or generator. Starter motor operation time determines the maximum time to continue engaging the starter motor.

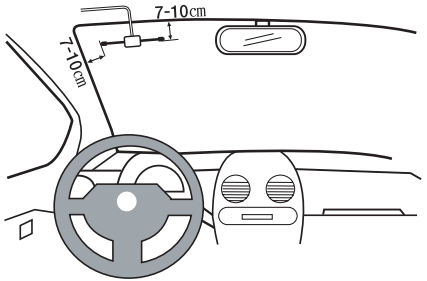
10. Exit

This menu is used to finish the configuration without transmitting the changed configuration to the brain. The changed values are saved in the permanent memory of the remote control, and you can transmit the values later.

13. Configuration summary table

	Install switch	Door	Key	Engin stsrt	Valet Mode button	
Valet Mode		O	O		4 sec	A single tone - Valet ON Two single tones - Valet OFF
Registering The Remote Control ID		O	O		×	Refer to the page 27
Generator setting	O	O			4 sec	Simple Tone Once → switch OFF
TACH setting	O	O	O	O	4 sec	Simple Tone Once → Transmission And Exit Simple Tone 4 times → Error tone

14. Antenna location



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