

적용차종 PD		페이지(SHT/SHTS) 1/11
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작성처 전자설계2팀	INFORMATION DOCUMENT NO.	
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Title : RELATING TO APPROVAL  
AS SEPARATE TECHNICAL UNIT  
OF VEHICLE RF REMOTE KEYLESS ENTRY IN SMART KEY SYSTEM

목차

Information Document	(5 sheets: Include cover)
Attachment 1 – System diagram	(1 sheet)
Attachment 2 – Fob block diagram	(1 sheet)
Attachment 3 – Schematic of fob	(Each 1 sheet)
Attachment 4 – Layout of fob	(1 sheet)
Attachment 5 – Part List	(1 sheet)

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**NO.**

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SHT/SHTS : 2/11

0. GENERAL

0.1. Make

**SEOYON ELECTRONICS Co.,Ltd.**

0.2. Model No.

**- Transmitter : FOB**

**- Receiver : SMART KEY SYSTEM**

0.3. Name and address of manufacturer

**SEOYON ELECTRONICS Co.,Ltd.**

**734-2, Wonshi-Dong, Ansan-Si, Kyonggi-Do, Korea.**

0.4. Address of assembly plant

**SEOYON ELECTRONICS Co.,Ltd.**

**734-2, Wonshi-Dong, Ansan-Si, Kyonggi-Do, Korea.**

**Title :**

**Information Document**

**NO.**

**Date**

SHT/SHTS : 3/11

## 2. PRODUCT SPECIFICATION

2.1 Scope of RKE, passive entry control, passive start control in SMART Key system.

2.1.1 FOB KEY : It has the functions for passive entry and passive start including RKE functions. It also has the TP for emergency authentication for passive start

2.1.2 SMART Key system : It is an ECU to control the whole smart key system. It has the functions such as passive entry control, passive start control, RKE functions.

## 2.2 SPECIFICATIONS

### 2.2.1 FOB KEY

ITEM	SPECIFICATION
Rated supply voltage	DC 3V
Operating voltage range	DC 2.5 ~ 3.2V
Operating temperature range	- 10 ~ + 60℃ with Battery
Storage temperature range	- 40 ~ + 85℃ without Battery
Modulation	FSK
Frequency	433.92MHz
Code	Rolling Code(Hopping Algorithm)
Electric field strength	10mW (433.92MHz)
Battery life	2 Year(10Times/Day)(Lithium 3V 1EA)

### 2.2.2 RECEIVER

Item	Specification
Rated Supply Voltage	DC 12V
Operating Voltage	DC 9 ~ 16V
Operating Temperature	- 30 ~ + 80℃
Max Humidity	95%
Standby Current	Below than 5.5mA (in alarm setting condition)

**Title :**

**Information Document**

**NO.**

**Date**

SHT/SHTS : 4/11

## 2.3 Operating summary

### -RKE

- ① TRANSMITTER's button is pushed.
- ② TRANSMITTER sends the code by radio frequency.
- ③ RECEIVER gets the code and decodes it.
- ④ RECEIVER judges the code whether it is right code or not.
- ⑤ RECEIVER checks door lock or unlock, trunk state.
- ⑥ RECEIVER drives the actuator.

### - Passive Start

- ① the SSB button of SMK is pressed to start the engine.
- ② The indoor ANT of the car transmits the code via the Low Frequency.
- ③ Fob(receiver) decrypts the received code from SMK.
- ④ Fob transmits the code via radio frequency.
- ⑤ SMK should check the boot state.
- ⑥ SMK controls a start-up operation and the transition of supply power.

### 2.3.1 LOCK & UNLOCK

- ① If LOCK or UNLOCK button is pushed for less than 1 sec, then TRANSMITTER sends the LOCK or UNLOCK DATA.
- ② If TRUNK button is pushed for more than 1 sec, then TRANSMITTER sends the TRUNK DATA.

## 2.4 Caution

- ① Danger of explosion if battery is incorrectly replaced.
- ② Replace only with the same or equivalent type recommended by the manufacturer.
- ③ Dispose of used batteries according to the manufacturer's instructions.

Title :

Information Document  
In. Information Document

NO.

Date

SHT/SHTS : 5/11

### 3. USER MANUAL

#### 3.1 ITEM : SMK system

- This system is SMK and includes RKE.
- RKE in SMK system is intended for auto door lock or unlock or TRUNK in vehicle.
- This SMK system is to be installed on motor vehicles as \*OE item.

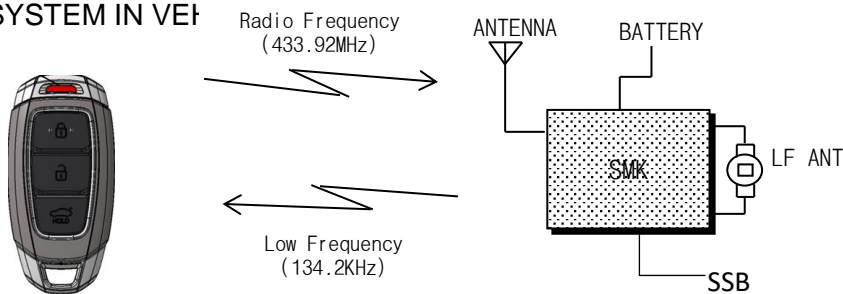
\*OE : Original Equipment.

\*SMK : Smart Key System

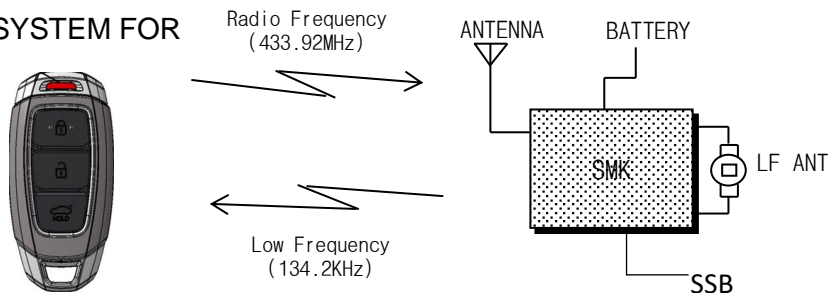
\*RKE : Remote Keyless Entry.

#### 3.2 SYSTEM CONSTRUCTION

##### 3.2.1 SYSTEM IN VEHICLE



##### 3.2.2 SYSTEM FOR



- ① When the lamp of "B+" is 'On', it means that power is supplied.
- ② When the SSB is pressed in position of INT1 ANT Switch on, it means a start-up function that ACC\_RLY and IGN1\_RLY lamp is 'On'(SSB\_SW1, SW\_2 'On').
- ③ When the SSB is pressed repeatedly, ACC\_RLY and IGN1\_RLY is 'On' and 'Off', repeatedly.  
\* It shows the status of operation through the lamp used.

## FCC Information

This device complies with part 15 of the FCC Rules. Operation is subject to the following two conditions :

- (1) This Device may not cause harmful interference, and
- (2) This device must accept any interference received, including interference that may cause undesired operation.

Note: This equipment has been tested and found to comply with the limits for CLASS B digital device, pursuant to Part 15 of FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try correct the interference by one or more of the following measures:

- 1.1. Reorient or relocate the receiving antenna.
- 1.2. Increase the separation between the equipment and receiver.
- 1.3. Connect the equipment into an outlet on a circuit different from that to which receiver is connected.
- 1.4. Consult the dealer or experienced radio/TV technician for help.

## WARNING

Changes or modifications not expressly approved by the manufacturer could void the user's authority to operate the equipment.

"CAUTION : Exposure to Radio Frequency Radiation.

Antenna shall be mounted in such a manner to minimize the potential for human contact during normal operation. The antenna should not be contacted during operation to avoid the possibility of exceeding the FCC radio frequency exposure limit.

"ATTENTION: L'exposition aux rayonnements à fréquence radioélectrique.

Antenne doit être montée de telle manière à minimiser le risque de contact humain pendant l'utilisation normale. L'antenne ne doit pas être contacté pendant le fonctionnement pour éviter la possibilité de dépasser la limite de l'exposition aux fréquences radio de la FCC.

## **IC Information**

This device complies with Industry Canada license-exempt RSS standard(s). Operation is subject to The following two conditions: (1) this device may not cause interference, and (2) this device must accept any interference, including interference that may cause undesired operation of the device.

Cet appareil est conforme avec Industrie Canada RSS standard exempts de licence(s), Son utilisation est soumise à Les deux conditions suivantes: (1) cet appareil ne peut pas provoquer d'interférences et (2) cet appareil doit accepter Toute interférence, y compris les interférences qui peuvent causer un mauvais fonctionnement du dispositif.