Document : **User Manual for TOKEN/TOKEN PLUS Fob**

Model : **SVI-KA4FGE09**

Project Code :

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1. System configulation

1.1 Scope of SMART KEY SYSTEM

The System offers the following features:

- passive access for two doors, driver side and passenger side as well as trunk/tailgate
- passive start after interior detection of the SMART KEY FOB (without interior trunk and hat shelf detection)
- LF-RF communication
- passive access trunk/tailgate via the trunk lid switch at the trunk
- max. 4 SMART KEY FOBs can be handled by the system
- communication to the engine management system via a single line interface
- communication to the ESCL via a single line interface

1.2 Short description of the SYSTEM

1.2.1 General Definition of SMART KEY

The SMART KEY system is a system that allows the user to access and operate a vehicle in a very convenient way. To access the vehicle no traditional key or remote control unit is needed.

The user carries a SMART KEY FOB which itself does not require any conscious actions by the user (e.g. operate a button).

After being triggered the vehicle sends out a request in a limited range. If the SMART KEY FOB receives this request, it automatically sends a response to the vehicle. Then the system decides whether to perform a particular action (unlocking, locking…) or remain inactive.

1.2.2 Wireless Communication

Electromagnetic waves are used to exchange information between the vehicle and the SMART KEY FOB. Both, vehicle and SMART KEY FOB are equipped with a transmitter, a receiver and several antennas.

1.2.3 Concept Description

With this concept it is possible to have a set of interior antennas that covers the vehicle's interior and a set of exterior antennas that covers the vehicle's exterior.
For an unambiguous separation between the vehicle's interior and exterior it is sufficient that at least one area is covered exactly by the corresponding operating ranges of the antennas.

The functions of the SMART KEY system have to be provided in a clearly defined and limited range. For the up-link from the vehicle to the SMART KEY FOB, a magnetic field with a frequency of 125 kHz and ASK modulation is used. Inductive antennas in and at the vehicle radiate the electromagnetic energy.

Technical aspects of 125 kHz – magnetic field:

- virtually no reflections,
- cubical decrease of field strength → allows good range control,
- released frequency band (ISM),
- high penetration,
- low quiescent current demand due to 125 kHz input stage (SMART KEY FOB),
- less sensitive for detuning compared to higher frequency.

For the down-link from the SMART KEY FOB to the vehicle, the standard radio frequency (RF) is used (similar to the classic remote control functions) with FSK modulation.

1.3 System Overview / Block Diagram

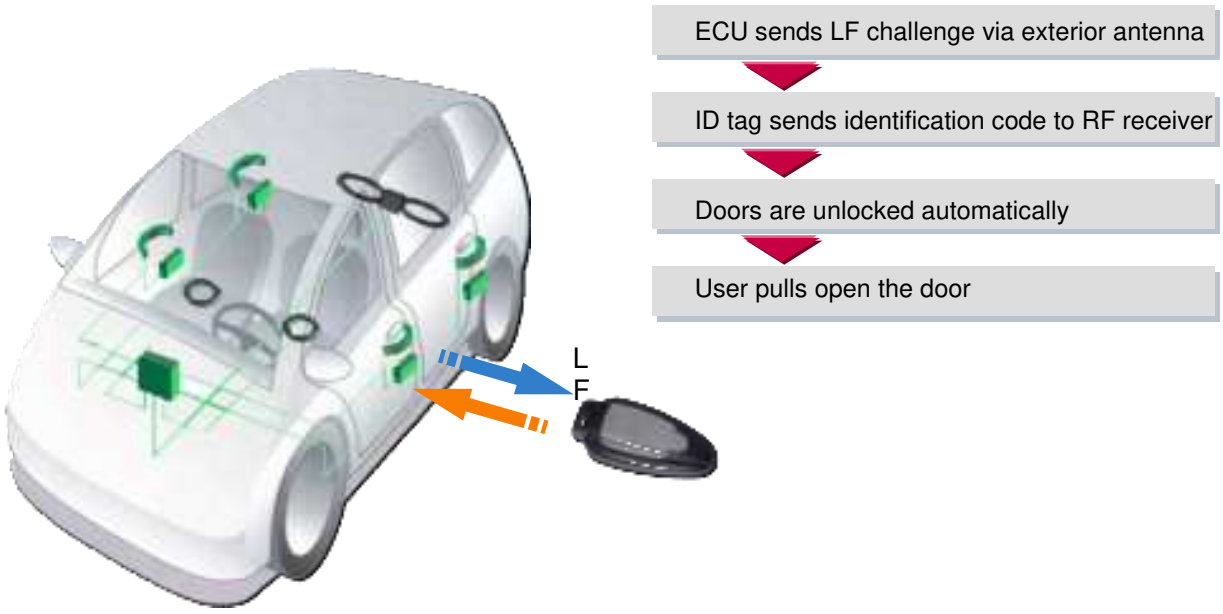
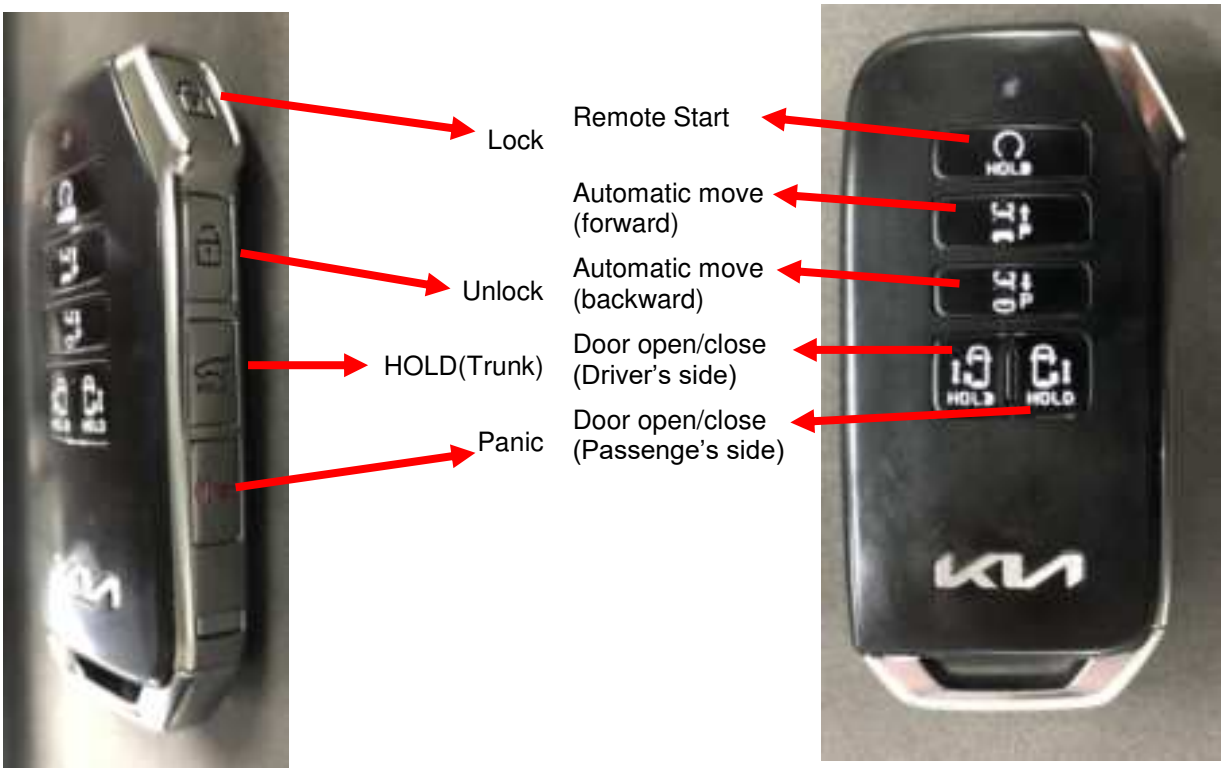


Figure 1: Principle of Communication

1.4 Smart Key Fob button operation



You can lock, unlock, open trunk and so on your vehicle with this remote transmitter.

Lock
- When you push this button, all the doors will be locked.
- You can not lock any of the doors with this remote transmitter if any door is open or the key is in the fob holder.

Unlock
- When you push this button, all the doors will be unlocked.
- You can not unlock any of the doors with this remote transmitter if any door is open or the key is in the fob holder.

HOLD(Trunk)
- When you push this button and hold more than 1 second, the trunk will be opened.

Panic
- When you push this button for about 1 second, Horn will alarm.

Remote Start
- When you push and hold this button for about 3 second, vechicle will be started.

Automatic move (forward)
- When you push this button for about more 5 second, the vechivle will be move forward.

Automatic move (backward)
- When you push this button for about more 5 second, the vechivle will be move backward.

Door open/close (Left button)
- When you push and hold this button for about 1 second,
- Driver's rear side door will be opened/closed.

Door open/close (Right button)
- When you push and hold this button for about 1 second,
- Passenger's rear side door will be opened/closed.

1.5 Battery Change Method

At the bottom of the EUT, you can use the key to open the product and change the battery.

1.6 Label Information

SVI-KA4FGE09
FCC ID: SY5KA4FGE09
IC: 8325A-KA4FGE09
Made in Korea

2 FCC/IC Compliance Statement

FCC Compliance Statement.

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 interferencethat may cause undesired operation.

Do Not

Any changes or modifications to the equipment not expressly approved by the party responsible for compliance could void user's authority to operate the equipment.

IC Compliance Statement.

This device complies with Industry Canada licence-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.

Le present appareil est conforme aux CNR d'Industrie Canada applicables aux appareils radio exempts de licence. L'exploitation est autorisee aux deux conditions suivantes :
(1) l'appareil ne doit pas produire de brouillage, et
(2) l'utilisateur de l'appareil doit accepter tout brouillage radioelectrique subi, meme si le brouillage est susceptible d'en compromettre le fonctionnement.

3 SAR Evaluation Statement

This equipment complies with RSS 102 SAR evaluation limits.
This equipment is used within 5mm of your body.
The output power of this equipment is 1.60mW, which is lower than 54.04mW.
Therefore, this equipment is excluded from SAR testing.

Déclaration d'évaluation SAR: Cet équipement est conforme aux limites d'évaluation RSS 102 de RSS.
Cet équipement est utilisé à moins de 5 mm de votre corps.
La puissance de sortie de cet équipement est de 1,60 mW, ce qui est inférieur à 54,04 mW.
Par conséquent, cet équipement est exclu des tests SAR.