



Document :

User Manual for TOKEN/TOKEN PLUS Fob

Model :

SVI-MQ4FGE03

Project Code :

Version:

1.0

Date:

Sep. 20. '19

Engineering change order-No.:

Design Freeze No.:

Number of pages:

9

Filename:

Proprietary data, company confidential. All rights reserved.
Confié à titre de secret d'entreprise. Tous droits réservés.
Comunicado como segredo empresarial. Reservados todos os direitos.
Confidado como secreto industrial. Nos reservamos todos los derechos.

Weitergabe sowie Vervielfältigung dieser Unterlage, Verwertung und Mitteilung ihres Inhalts nicht gestattet, soweit nicht ausdrücklich zugestanden. Zuwiderhandlungen verpflichten zu Schadenersatz. Alle Rechte vorbehalten, insbesondere für den Fall der Patenterteilung oder GM-Eintragung



CASCO

Identification No. :

Contents list

Page

1.	System configuration	3
1.1	Scope of SMART KEY SYSTEM	3
1.2	Short description of the SYSTEM	3
1.2.1	General Definition of SMART KEY	3
1.2.2	Wireless Communication	3
1.2.3	Concept Description	3
1.3	System Overview / Block Diagram	4
1.4	Smart Key Fob button operation	5
1.5	Battery Change Method	6
1.6	Label Information	7
2	FCC/IC Compliance Statement	8
3	SAR Evaluation Statement	9

Editor : KS.Kim	Document name	Project code
Version: 1.0 Sep. 20. 2019 ECO / DF No.	Identification No. : Document No.	Page 2 / 9
File:		

1. System configuration

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.

Editor : KS.Kim	Document name	Project code
Version: 1.0 Sep. 20. 2019 ECO / DF No.	Identification No. : Document No.	
File:		Page 3 / 9

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

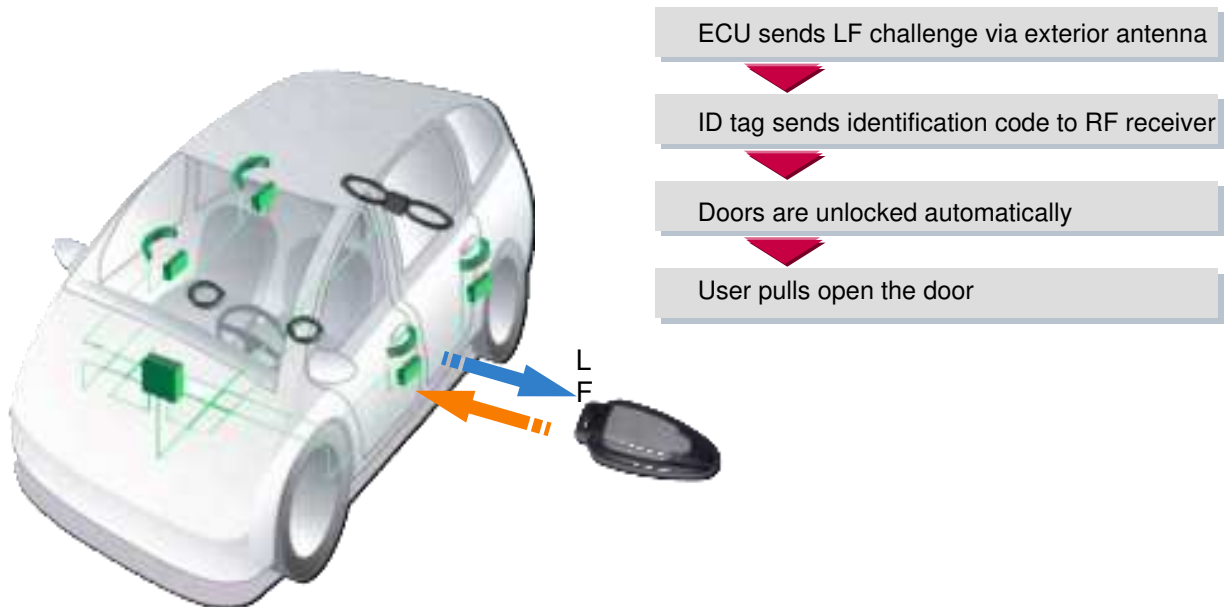


Figure 1: Principle of Communication

Editor : KS.Kim	Document name	Project code
Version: 1.0 Sep. 20. 2019 ECO / DF No.	Identification No. : Document No.	
File:		Page 4 / 9

1.4 Smart Key Fob button operation



You can lock, unlock, trunk and hold 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.

Editor : KS.Kim	Document name	Project code
Version: 1.0 Sep. 20. 2019 ECO / DF No.	Identification No. : Document No.	
File:		Page 5 / 9

1.5 Battery Change Method

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



Proprietary data, company confidential. All rights reserved.
Confié à titre de secret d'entreprise. Tous droits réservés.
Comunicado como segredo empresarial. Reservados todos os direitos.
Confidado como secreto industrial. Nos reservamos todos los derechos.

Weitergabe sowie Vervielfältigung dieser Unterlage, Verwertung und Mitteilung ihres Inhalts nicht gestattet, soweit nicht ausdrücklich zugestanden. Zuwiderhandlungen verpflichten zu Schadenersatz. Alle Rechte vorbehalten, insbesondere für den Fall der Patenterteilung oder GM-Eintragung

Editor : KS.Kim	Document name	Project code
Version: 1.0 Sep. 20. 2019 ECO / DF No.	Identification No. : Document No.	Page 6 / 9
File:		

1.6 Label Information

IC: 8325 A-MQ4FGE03
HVIN: SVI-MQ4FGE03
Made in Korea

Proprietary data, company confidential. All rights reserved.
Confié à titre de secret d'entreprise. Tous droits réservés.
Comunicado como segredo empresarial. Reservados todos os direitos.
Confidado como secreto industrial. Nos reservamos todos los derechos.

Weitergabe sowie Vervielfältigung dieser Unterlage, Verwertung und Mitteilung ihres Inhalts nicht gestattet, soweit nicht ausdrücklich zugestanden. Zuwiderhandlungen verpflichten zu Schadenersatz. Alle Rechte vorbehalten, insbesondere für den Fall der Patenterteilung oder GM-Eintragung

Editor : KS.Kim	Document name	Project code
Version: 1.0 Sep. 20. 2019 ECO / DF No. File:	Identification No. : Document No.	Page 7 / 9

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 interference that 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 autorisée aux deux conditions suivantes :

- (1) l'appareil ne doit pas produire de brouillage, et
- (2) l'utilisateur de l'appareil doit accepter tout brouillage radioélectrique subi, même si le brouillage est susceptible d'en compromettre le fonctionnement.

Editor : KS.Kim	Document name	Project code
Version: 1.0 Sep. 20. 2019 File:	ECO / DF No. Identification No. : Document No.	Page 8 / 9

3 SAR Evaluation Statement

This equipment complies with RSS 102 SAR evaluation limits.
 This equipment is used within 20 cm of your body.
 But the output power of this equipment is lower than 54.04 mW.
 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 20 cm de votre corps.
 Mais la puissance de sortie de cet équipement est inférieure à 54.04 mW.
 Par conséquent, cet équipement est exclu des tests SAR.

Proprietary data, company confidential. All rights reserved.
 Confie a titre de secret d'entreprise. Tous droits réservés.
 Comunicado como secreto empresarial. Reservados todos os direitos.
 Confidado como secreto industrial. Nos reservamos todos los derechos.

Weitergabe sowie Vervielfältigung dieser Unterlage, Verwertung und Mitteilung ihres Inhalts nicht gestattet, soweit nicht ausdrücklich zugestanden. Zuwiderhandlungen verpflichten zu Schadenersatz. Alle Rechte vorbehalten, insbesondere für den Fall der Patenterteilung oder GM-Entragung

Editor : KS.Kim	Document name	Project code
Version: 1.0 Sep. 20. 2019 ECO / DF No.	Identification No. : Document No.	
File:		Page 9 / 9

FCC Information to User

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. 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 to correct the interference by one of the following measures:

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

Caution

Modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

FCC ID: SY5MQ4FGE03

This equipment complies with FCC radiation exposure limits set forth for an uncontrolled environment.