Document : **User Manual for TOKEN PLUS Cardkey**

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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 Cardkey (without interior trunk and hat shelf detection)
- LF-RF communication
- passive access trunk/tailgate via the trunk lid switch at the trunk
- max. 6 SMART KEY FOB/Cardkey 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 Cardkey 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 Cardkey 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 Cardkey. Both, vehicle and SMART KEY Cardkey 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 Cardkey, 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 Cardkey),
- less sensitive for detuning compared to higher frequency.

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

1.3 System Overview

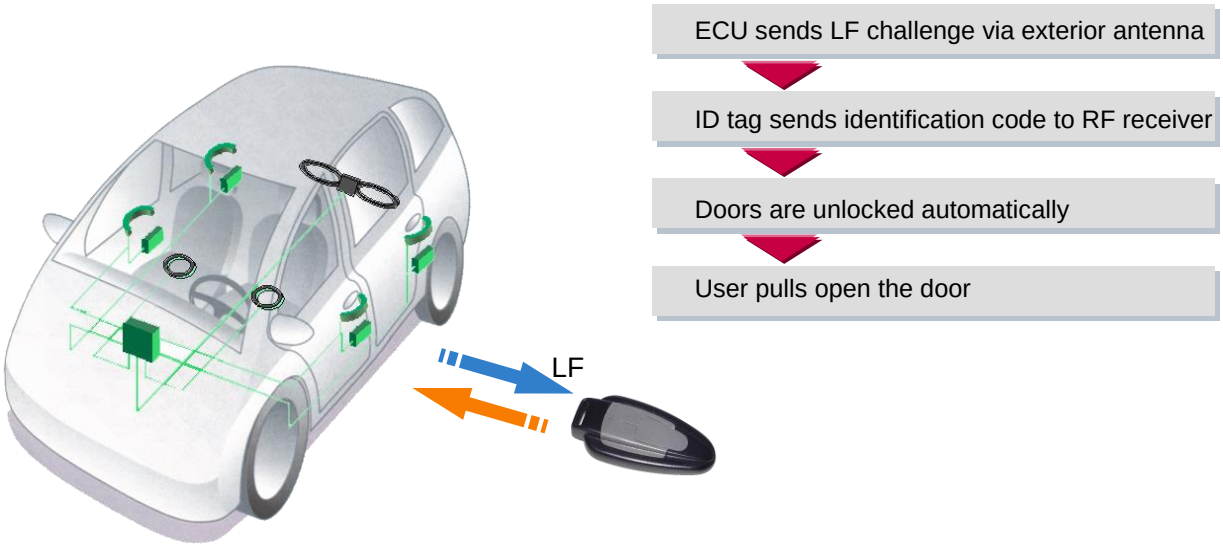

Figure 1: Principle of Communication

1.4 Smart Card Key Operation

As below photo, this card key doesn't have keytop on the product. Just put this card key in pocket, and when you go to your car closely, the Smart card key system acknowledge automatically.

When you want to change battery, just put it as below. Please be aware battery polarity, else the battery is discharged rapidly.

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.

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: SY5HOCFGE00

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