

Document: **User Manual**

Model: **HFM\_CMFB\_01**

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### VERSIONS LIST

Version	Date	Author	Comment, Description
V1	28/07/2015	Jérôme Lee	Creation

### RELATED DOCUMENTS

Document	Version	Date	Author	Comment, Description

### ABBREVIATION REGISTER

Abbreviation	Description
As	<b>A</b> ssistant
ASK	<b>A</b> mplitude <b>S</b> hift <b>K</b> eying
BCM	<b>B</b> ody <b>C</b> ontrol <b>M</b> odule
HFM	<b>H</b> and <b>F</b> ree <b>M</b> odule
CW	<b>C</b> ontinuous <b>W</b> ave
DR	<b>D</b> river
FCC	<b>F</b> ederal <b>C</b> ommunication <b>C</b> ommission
FSK	<b>F</b> requency <b>S</b> hift <b>K</b> eying
LF	<b>L</b> ow <b>F</b> requency
RF	<b>R</b> adio <b>F</b> requency
RKE	<b>R</b> emote <b>K</b> eyless <b>E</b> ntry

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# 1 SYSTEM OVERVIEW

## 1.1 Scope of Document

The aim of this document is to provide a short overview on the HFM\_CMFB\_01 Hand free system.

## 1.2 Short Description of the complete System including HFM\_CMFB\_01

The HFM\_CMFB\_01 is a radio frequency transmitter-receiver used in vehicle access systems.

The vehicle access system includes:

- Key fob, which is a remote device
  - It includes a 315 MHz or 433.92 MHz transmitter, a 125 kHz LF receiver and a 125 kHz transponder
- LF Antennae
- Kazashi includes a coil antenna for 125 kHz transponder communication
- HFM (Hand Free Module) of model HFM\_CMFB\_01:
  - It includes a 125 kHz LF long range and transponder transmitters and a 315 MHz or 433.92 MHz receiver. The HFM\_CMFB\_01 drives 5 external dedicated antennae for the 125 kHz transmission. Two are located in the doors trims, one in the Bumper and two within the vehicle cockpit. It includes also an integrated RF receiver for 315 MHz or 433.92 MHz, the receiver is designed in direct placement.

The system interacts with other modules such as:

- Push Engine Start
- Body Control Module
- ESCL (Electronic Steering Lock Control)
- USM

The main functions performed by the system are:

- RKE functions (Remote keyless features)
- Hand Free functions for vehicle access and engine start
- Immobilizer
- LF antennae management

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## 2 Car Access

There are two ways to Lock or Unlock the doors of the vehicle:

1. The first way is to use the remote key functionality (RKE) by pressing one of the “Lock” or “Unlock” buttons on the key fob. Data frames are then transmitted at 315 MHz or 433.92 MHz from the key fob of the car. The HFM\_CMFB\_01 processes the frames received and when the security code is correct, the doors are locked or unlocked automatically.
2. The second way is to use the hand free mode

➤ Unlocking the vehicle :

If the car is locked, when the door request switch located in the door is pressed by the car user which has a car key fob, the HFM\_CMFB\_01 transmits data frames at 125 kHz. When the key fob receives the data and recognizes the content of the inquiry, it transmits the code to the car at 433.92 MHz or 315 MHz (depending of key fob frequency type). The HFM\_CMFB\_01 processes the frames received and when the code is correct, the doors are automatically unlocked.

➤ Locking the vehicle :

If the car is unlocked, when the door request switch located in the door is pressed by the car user who has a car key fob, the HFM\_CMFB\_01 transmits data frames at 125 kHz. When the key fob receives the data and recognizes the content of the inquiry, it transmits the code to the car at 433.92 MHz or 315 MHz (depending of key fob frequency type). The HFM\_CMFB\_01 processes the frames received and when the code is correct, the doors are automatically locked.

## 3 Engine Start

There are two ways to start the Engine:

1. When Hand free functions are disabled

First the user has to hold the key fob in front of Kazashi for at least than 30s after one of the following action: press of the “START” button on the dashboard, open or close a door or press vehicle brake pedal. Each key fob has a transponder. When the key fob is hold in front of Kazashi antenna, the HFM\_CMFB\_01 sends a ‘transponder’ recognition order to the key fob through the Kazashi antenna. The BCM performs a ‘transponder’ authentication using 125 kHz transceiver. The key fob sends the authentication result to the HFM\_CMFB\_01. The central unit sends the start order to the engine control unit.

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2. When Hand free functions are enabled

The user does not need to hold the key fob in front of the Kazashi antenna. The key fob should only be inside the vehicle. When the “START” button is pressed, the HFM\_CMFB\_01 sends a recognize order at 125 kHz link via internal ferrite coil antennas. Receiving this order, the key fob sends authentication at 433.92 MHz or 315 MHz (depending of key fob frequency type).

4 Picture



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## 5 Label Information

### 5.1 EC



Continental  
HFM\_CMFB\_01

### 5.2 USA/Canada

Continental  
Model: HFM\_CMFB\_01  
FCC ID: KR5HFMCMFB01  
IC:7812D-HFMCMFB01  
CAN RSS-Gen/CNR-Gen  
IC:7812D-RXIDP434

## 6 Owner Manual Statements

### 6.1 Owner manual Canada

IC:7812D-HFMCMFB01  
CAN RSS-Gen/CNR-Gen  
IC:7812D-RXIDP434

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 harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

Le présent 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.

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## 6.2 Owner manual USA

FCC ID: KR5HFMCMFB01

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.

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

No changes shall be made to the equipment without the manufacturer's permission as this may void the user's authority to operate the equipment.

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END OF DOCUMENT

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