



The hands-free card

With the keyless access and starting system, the “keyless go” card, sometimes known as a “badge”, replaces the ignition key. It can be customised by the user, memorising comfort data such as seat adjustment, air conditioning settings or the car radio preferences. Interactive, it will soon become the memory of the life of the car. Using a suitable reader, it can be consulted, enabling technicians in the Renault network to instantly obtain a report on the condition of the car (mileage, need for oil change, etc.), in order to optimise servicing times.



› BASIC FACTS

After three years of development, the hands-free card, also called “badge”, is able to replace both the traditional remote control locking command and the ignition key. When the driver is carrying the card, he only needs to place his hand on the door handle to unlock the car. He doesn't even need to take the card out of his pocket or bag. The card is equipped with a memory for vehicle and user data. Hence, everyone can adapt the ergonomics of the car to their size and personal tastes. For each driver, the position of the seats is memorised, as are other comfort elements such as air conditioning or car radio settings. Once the vehicle detects the presence of the card, and after checking that it is one of the cards attributed to it, the system computer “configures” the car according to the habits of the user. In addition, the car can only be started when the

card is detected in the passenger compartment. Once again, the driver doesn't even need to take the card out of his pocket or bag. When the user leaves the car, it is just as easy and natural to lock it. The user just presses the button on the door handle and the computer commands locking of all the car's closures. Finally, there are buttons on the card for manual access to locking and unlocking of the doors and boot. Here, the card acts like a conventional remote control.



> HOW DOES IT WORK?

As well as a transponder, the hands-free card contains electronic features for low-frequency communication. To ensure this radio link, the car contains several aerials dissimulated in the external door handles or in the roof trim. When the infrared sensor on a door handle is solicited, the computer emits a series of very short encoded bursts. When the card detects this emission, it sends back a code to signal its presence. An encrypted dialogue is then set up between the computer and the card. These two elements identify themselves to each other through a complex exchange of digital messages. Both the computer and card contain encryption algorithms based on mathematical operations. To check that the card is indeed the one attributed to the car, the computer sends a number to the card. At the same time, it calculates the reply to be sent using its own algorithm and encryption key. On receiving the number, the card calculates a result in turn and transmits it to the computer. As the card and the computer have the same algorithm and the same key, the two results

must be identical. If they are, the computer is certain that it has identified the card. This dialogue only takes 80 milliseconds. Door unlocking and engine starting are then authorised. In order to prevent accidental unlocking if the user remains near the car, this operation is only effective if the user takes hold of one of the door handles. The system detects this gesture using infrared sensors located in the handles and authorises unlocking. The command to lock the doors is given either when the user orders it by means of the remote control, or on some vehicles when the distance separating the card from the vehicle is too great for the radio link to operate. In this case, the computer detects an “absence of response from the card”.

To start the engine, the computer dialogues again with the card to confirm its presence in the passenger compartment. If such is the case, the engine is started by pressing the “start” button.

IN SHORT >>>

The hands-free card replaces both the infra-red remote control and the ignition key. It allows the vehicle to be entered and started without needing to take the card out of a pocket or bag. However, when the carrier moves away, it is impossible to start the car and the doors are automatically locked.