

## **User Manual**

**FCC ID: KR5-DHSHMCNFC DN8**

**Model number: DHS HMC NFC DN8**

This sensor is a DHS.

The DHS is a standalone module with double capacitive sensor, NFC and pocket lighting.

This module is integrated into a DH, and used in Keyless Entry System, enabling 'key-free' Vehicle Unlocking and Locking.

## Sensor Functions

The DHS has main functions :

- Unlock Function : Capacitive detection
- Lock Function : Capacitive detection
- Pocket lighting : Illumination of the pocket of the door handle.

## Capacitive Sensing - Physical Principle

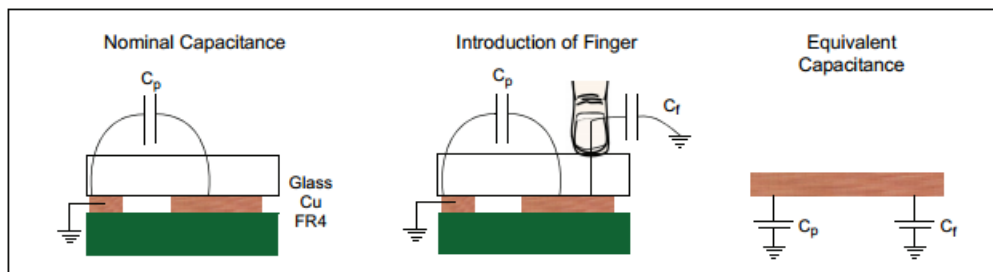
The sensing principle is based on the measurement on an Electrode Capacitance ( $C_p$ )

A human body approaching this Electrode creates an additional Capacitance ( $C_f$ ) by coupling effect.

The equivalent capacitance ( $C_p + C_f$ ) is then larger than  $C_p$ .

The SW periodically measures the Electrode Capacitance with a defined technology.

The SW can then process this information and decide to trigger or not a "DETECTION", based on the capacitance variation.



### **Operating Temperature Range**

The Electronic Design shall guaranty all electrical parameters over operating Temperature range  $-40^{\circ}\text{C}$  to  $+85^{\circ}\text{C}$ , unless otherwise stated.

Components that are sujet to heat dissipation (regulator, LED, resistances...) shall withstand higher temperatures according to power it shall dissipate.

### **Operating Voltage Range**

The Electronic Design shall guaranty all electrical parameters over operating Voltage range UDH = 6V to 18V, unless otherwise stated.



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.

This device complies with Industry Canada's licence-exempt RSSs. 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 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.

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

This device and its antenna must not be co-located or operating in conjunction with any other antenna or transmitter.

End-users and installers must be provided with antenna installation instructions and transmitter operating conditions for satisfying RF exposure compliance.