

# **Functional Description**

Key: **5WK4 8903**

# **User Manual / Functional Description**

**of the**

**Siemens VDO**

**Radio Frequency Transmitter**

**Type**

**5WK48902**

**5WK48903**

**5WK48906**

## Functional description of Nissan D – Plateform i – key

This document gives an overview of the operation modes and resulting RF transmissions of the key. In this document the device is referenced as "key", even if the mechanical backup key might be separated from it.

For an overview of the electrical function blocks, please see the document "Block diagram of Nissan D – Plateform i – key".

### Operating modes

The key has three main operating modes which differ in the regard of signals transmitted on the RF. As there is

- Immobilizer transponder mode
- Remote key functionality
- Passive key functionality

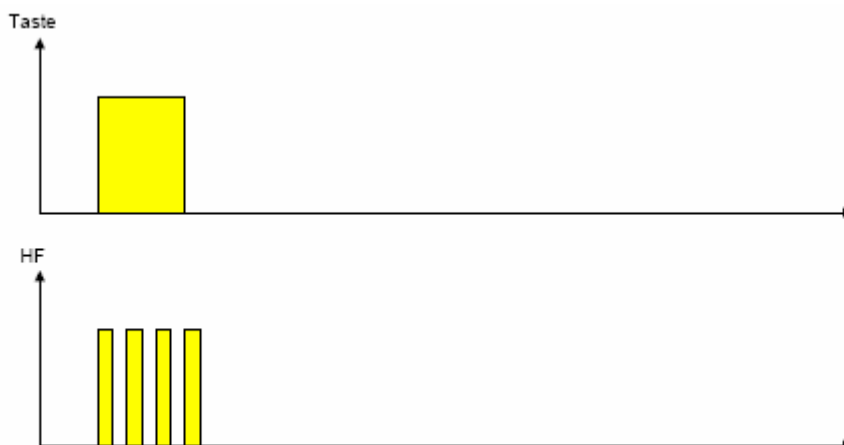
### Immobilizer Transponder mode

When the key is operating as an immobilizer transponder, communication is done over a "contact less interface" depending on strong magnetic coupling. The transponder is the passive side of the link and there is **no RF transmission from it involved** in any aspect.

### Remote key functionality

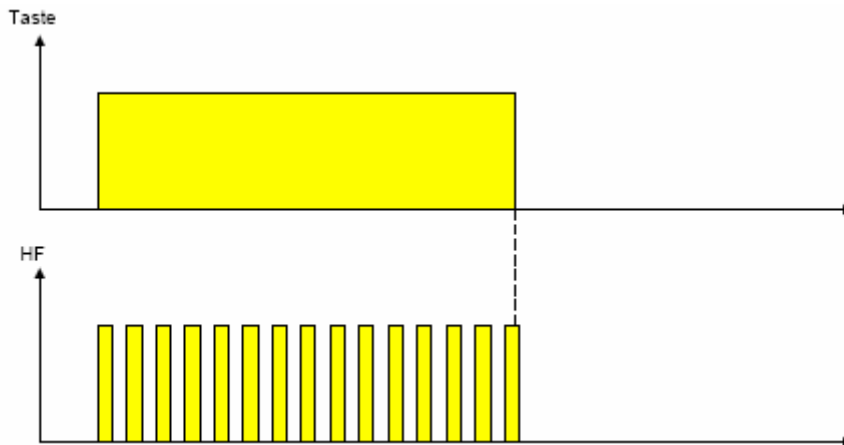
This mode refers to the use of the key as a remote control to initiate actions on vehicle side such as open or close door latches and such alike. RF transmission always depends on a user activating a button on the key. Duration of the button press influences the amount of telegrams sent on the RF channel.

Short Button press:



A valid but short button press, as indicated in the upper half of the above diagram, results in a minimum number of RF telegrams to be sent. This is visualized in the lower half of the diagram.

Long button press:



If the button press duration extends the time required for sending the minimum amount of RF telegrams, additional ones are transmitted until the button is released or a timeout of 25s is reached. This timeout prevents unintended transmissions over extended time periods in case of a stuck button.

### Passive key functionality

For passive key operation no user action on key side is required. The trigger is delivered from the vehicle via an LF data telegram. Upon reception of a valid LF message, the key responds with two telegrams on RF side while the inter telegram timing in this mode depends on key configuration data (sort of time slot concept).

### RF parameters

For all RF transmission the following parameters apply:

	US variant	JP variant
Center frequency	315 MHz	314.85 MHz
Frequency accuracy	± 30 kHz	± 20 kHz
Frequency deviation	± 25 kHz nominal	± 25 kHz nominal
RF modulation	FSK	FSK
RF frame baudrate	2 kBd	2 kBd
Data coding	Manchester	Manchester

### Variants

5WK48902                      Japan Version 315 MHz LP  
 5WK48903                      US Version 315 MHz  
 5WK48906                      US Version 315 MHz, same as 5WK48903

only different Logo at device

### **Label Design**

Siemens VDO  
5WK48903  
FCC ID:KR55WK48903  
IC:267T-5WK48903

### **Warning Statement:**

#### **NOTE**

This device complies with part 15 of the FCC Rules and RSS-210. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept interference received, including interference that may cause undesired operation.

#### **CAUTION**

Changes or modifications not expressly approved by the manufacturer could avoid the user's authority to operate the equipment.