

User Manual / Functional Description

of the

Siemens VDO

Radio Frequency Transmitter

Type

5WK49609

5WK49618

5WK49622

Functional description of Nissan DPF I – key 2nd Bundle

This document gives an overview of the different device operation modes and the RF transmissions performance 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 DPF I – key 2nd Bundle".

1. Operating modes

The key has three main operating modes which differ regarding of the signal transmitting with the RF:

- **Immo** Immobilizer transponder mode
- **RKE** Remote key functionality
- **PASE** Passive key functionality

Immobilizer Transponder mode

When the key is operating as an immobilizer transponder, the communication is done via a "contact less interface" depending on a 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

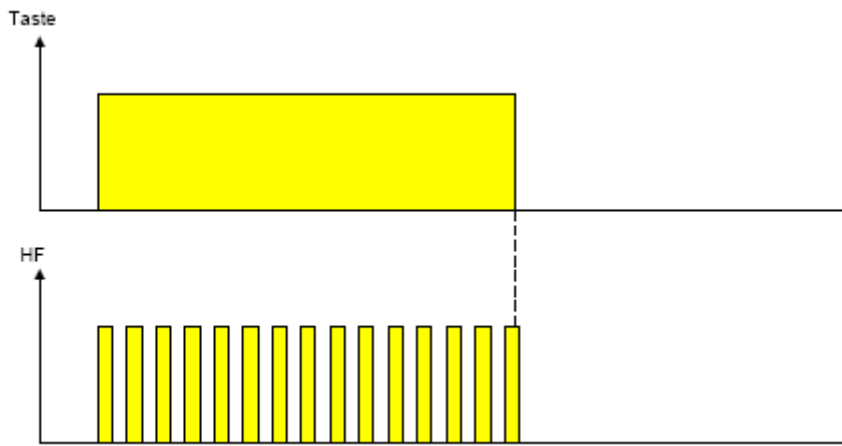
This mode refers to use the key as a remote control unit to initiate actions on the vehicle such as open or close door latches. RF transmission depends on a user activating (a button pressing) on the key. During the button pressing the amount of telegrams are sent on the RF channel.

Short button press:



A short valid button pressing results a sending of the minimum number of the RF telegrams, as showed on the diagram.

Long button press:



If the duration of the button pressing extends the time required for transmitting the minimum amount of RF telegrams, additional telegrams will be sent until the button is released or a timeout of 25s is reached. This timeout function prevents the unintended transmission over the extended time periods in case of a button was fixed.

Passive key functionality

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

2. RF parameters

For all RF transmission the following parameters apply:

	US variant	JP, Korea variant	EU variant
Center frequency	315 MHz	314.85 MHz	433.92 MHz
Frequency accuracy	± 30 kHz	± 20 kHz	± 50 kHz
Frequency deviation	± 25 kHz nominal	± 25 kHz nominal	± 30 kHz nominal
RF modulation	FSK	FSK	FSK
RF frame baudrate	2 kBd	2 kBd	2 kBd
Data coding	Manchester	Manchester	Manchester

Button functions

The validation of the accurate frequency deviation and the measurement of the transmission function of the key are implemented basing on RF test software. The graphic below shows the functionality of the buttons.

	<i>First Button press</i>	<i>Second Button press</i>	<i>Third Button press</i>	<i>Fourth Button press</i>	
Button Lock	CW; frequency defined by register F1Cx	F_{up}	F_{low}	With every additional button press switch between F_{up} and F_{low}	
Button Unlock	CW; frequency defined by register F2Cx	F_{mod}	Sweep		
Button Trunk	CW; frequency defined by register F3Cx				
Button Panic	CW; frequency defined by register F4Cx				
	RESET: if "Lock"- and "Unlock"- button is pressed at the same time				

Variants

5WK49609	EU Version 433.92 MHz
5WK49618	JP Version 314.85 MHz
5WK49622	US Version 315 MHz

Label Design US Variant

Siemens VDO
5WK49622
FCC ID: KR55WK49622
IC: 267T-5WK49622

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.