Functional Description

User Manual

FCC ID:KR55WK48952 IC:267T-5WK48952

Functional Description / User Manual

of the

Siemens VDO

Keyless Vehicle Module

type 5WK4 8952

Functional Description

1. General functional description

This short system description gives an overview about the functionality of the Keyless Vehicle (KV) system and from the Keyless Vehicle Module (KVM).

The vehicle and the Passive Key (PK) will communicate via challenge / response.

By any request the KVM sends a challenge via the respective Low Frequency (LF) antennas with 125 kHz to the Passive Key. The PK's within the detection range answer with the identification code via Radio Frequency (RF) transmission. The external RF Receiver sends the data from the received signal via serial link to the KVM.

2. Passive entry, passive exit

2.1 Unlocking

With a valid PK within the outside detection range of the vehicle, the customer will be able to open each door of the passenger compartment and the tailgate.

Woken up by pulling a door handle the KVM sends a challenge125 kHz via the corresponding inductive door handle antenna to the Passive Key. After receiving the challenge data the Passive Key sends the response data via RF to the external receiver. If the identification code received is valid the KVM sends the unlock request command via CAN-Bus to the Passenger Junction Box (PJB).

2.2 Locking

To lock the vehicle, the customer has to push the Lock Button mounted in any door handle once and a valid PK has to be detected within the respective door handle detection range.

3. Passive start/stop

The KV system will provide an inside detection range, which will cover the passenger compartment.

3.1 Engine Start / Unlock of Steering Column

The starting action will be handled via a rotating Ignition Switch, which provides ignition off, accessory, ignition on and crank position.

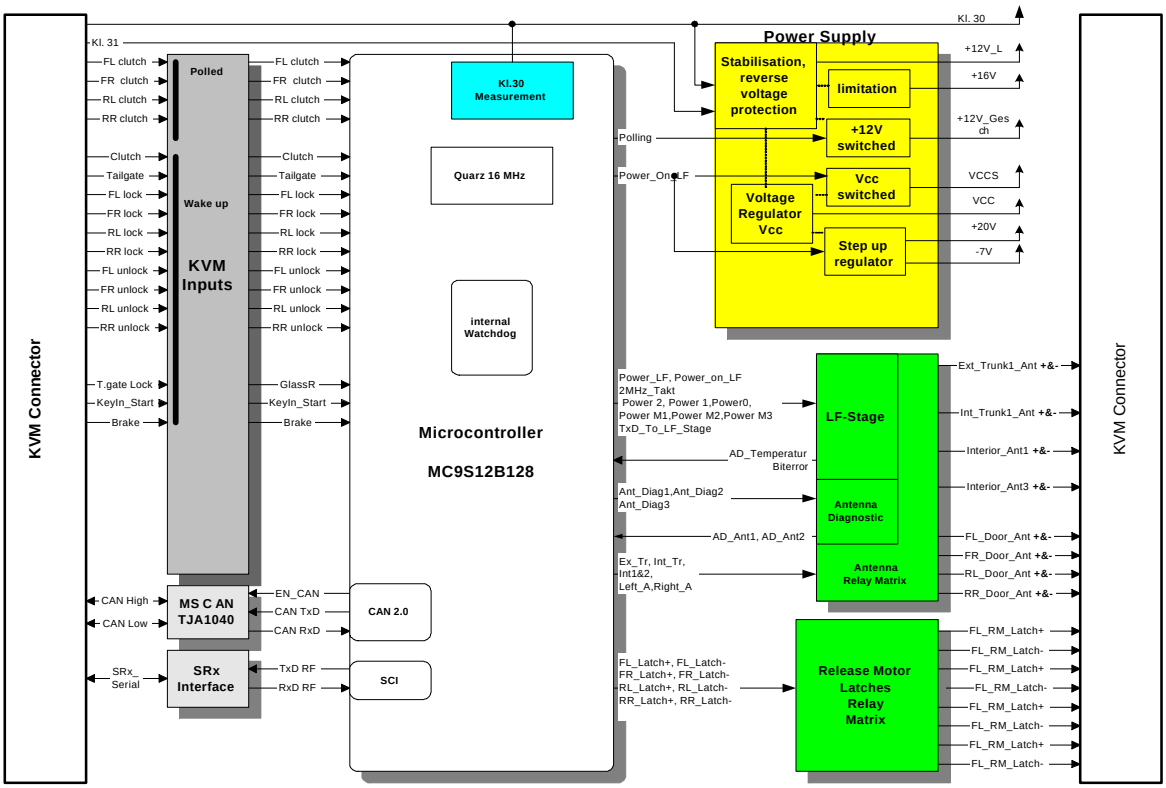
With a valid Passive Key within the interior detection range, the customer will be able to start the engine after pushing the brake (automatic transmission) or pushing the clutch pedal (manual transmission). After detection of a valid Passive Key the KVM sends the release command to the Smart Steering Column Device (SSCD) via which fulfills a mechanical release and permits the customer to rotate the Ignition Switch to any position (ACC, Run, Start). Without detection of a valid PK, the Ignition Switch and the steering column remains locked.

The Engine Control Unit receives authorization to start engine from the KVM via CAN-Bus from the Cluster module.

3.2 Engine Stop / Lock of Steering Column

For Engine Stop the Ignition Switch must be rotated to ACC position.

4. Block diagram Keyless Vehicle Module



5. List of variants

5WK48952	Keyless Vehicle Module (ECU)
5WK47894	LF antenna V3
5WK47893	LF antenna V2(housing variant)
5WK47891	LF antenna F2 (housing variant)
5WK47895	LF antenna V1 (housing variant)

6. Technical Data

Carrier frequency:	125 kHz +/- 1 kHz
Field strength:	< 42 dBµA/m @ 10 m
Modulation:	ASK
Supply voltage:	13 V
Battery type	Car battery
Range:	< 2 m

7. Typical Usage Pattern (for Europe only)

20 actuations of access control system within 24 hours with a typical transmission time of 0.07 seconds / hour.

Transmission time T_{ON} 0.07 seconds / hours

Off time T_{OFF} 3599.93 seconds / hours

Duty Cycle: $T_{ON} / T_{(ON+OFF)}$ x 100% = 0.07 / 3.600 x 100 % = 0.02 %

8. Label Design

Europe:

Siemens VDO

5WK4 8952

CE

USA/CAN:

Siemens VDO

5WK48952

FCC ID:KR55WK48952

IC:267T-5WK48952

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.

NOTE:

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