

Functional Description / User Manual

for

SIEMENS VDO

Comfort Access System

**Type PGS2
5WK4 9135**

1. Functional Description - Comfort Access System (CA)

1.1 General functional description

The CA-system enables convenient utilization of the vehicle. To use the vehicle, the driver only needs to take the key along with him/her. The vehicle communicates with the system inductively via antennas. These antennas are located in the rear bumper, in the trunk, of the backlite shelf and in the interior. These antennas are driven inductively with a frequency of 125 kHz. The system's range is limited in a defined fashion by damping the body sheet metal. In the vehicle interior, the ranges of the various antennas overlap, which enables location of the key.

1.2 Passive access control

Controlled by TAGE (outside door handles electronic)

1.3 Passive Go (start/stop)

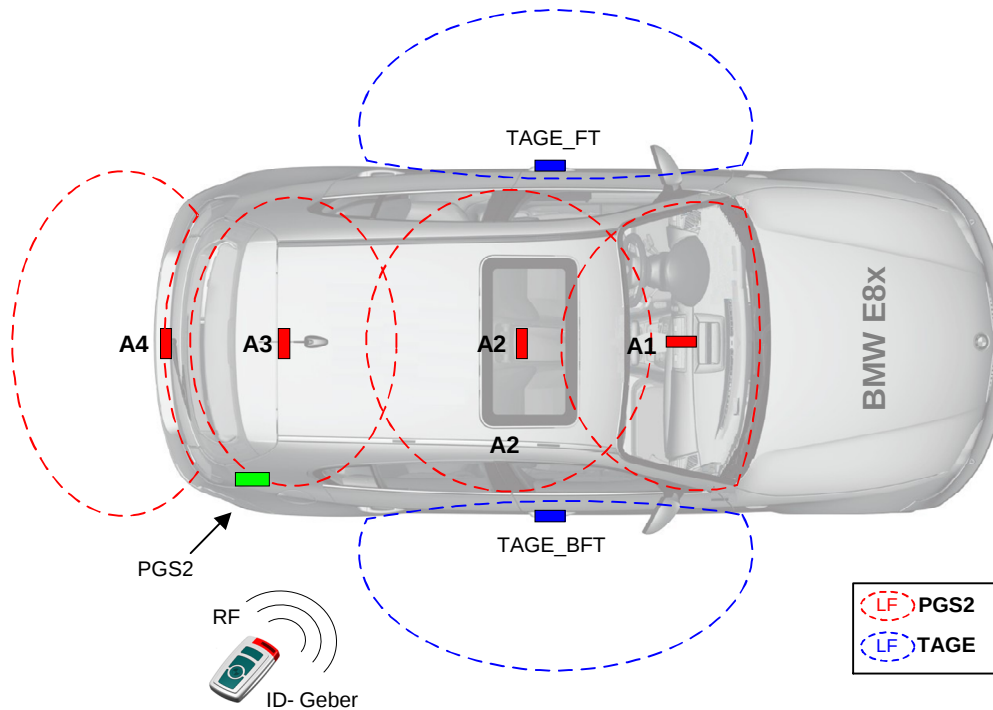
The system provides the function which enables starting/stopping the engine without key actuation.

The prerequisite for starting the vehicle is a key allocated to the vehicle, which is taken along by the user and is clearly inside the vehicle. By actuating the starting device, the driver starts the identification process, i.e. the PGS control unit issues a request for a valid key inside the vehicle. The key returns an appropriate response to the PGS control unit. In case of successful identification of the key, the vehicle is started and the immobilizer is deactivated.

2. List of variants

5WK4 9135	PGS2 - control unit
5WK4 9132	interior antennas / trunk antenna
5WK4 9133	bumper antenna

3. Operating range of the inductive field (LF)



A1 - A2 interior antennas
 A3 trunk antenna
 A4 bumper antenna

4. Technical parameters

Carrier frequency	125kHz
Band width	123,75 kHz - 126,25 kHz
Field strength	< 42 dBμA/m at 10m
Type of modulation	100% ASK
Method of frequency generation	digital sinus generator
Number of channels	1
Baud rate	4 kBd
Power supply	14 Volt
Type of battery	Car battery
inductive Transmission range	< 2m

5. Typical usage pattern

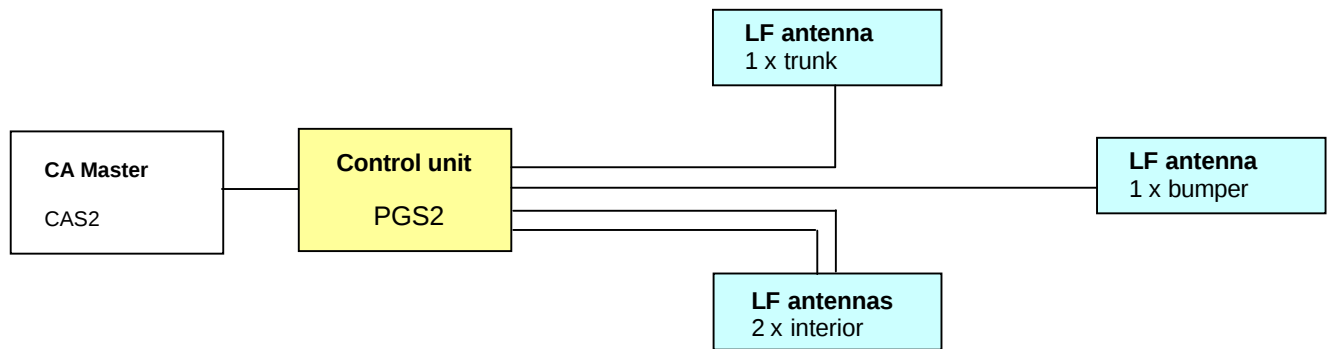
27 start / stop operations in 24 hours (10.000 operations / year) with a typical transmission duration of 39 milliseconds.

Transmitter ON 1,053 seconds / 24 hours

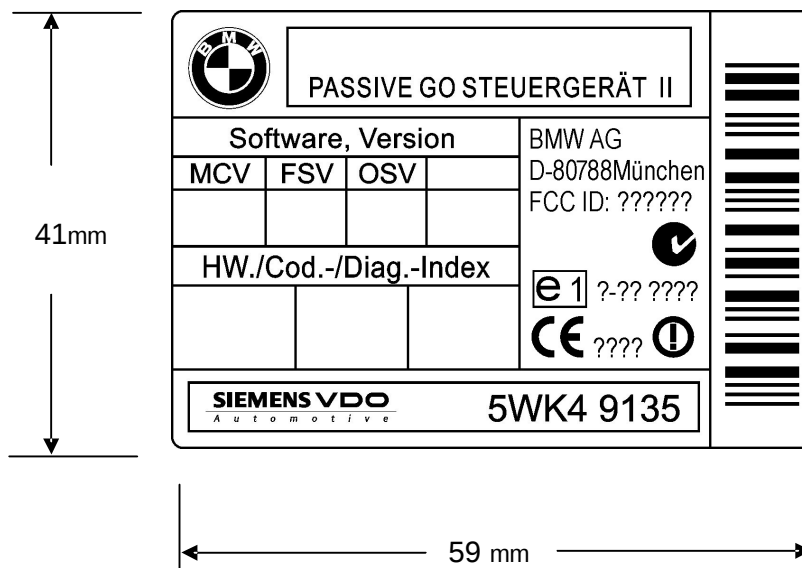
Transmitter OFF 86.398,95 seconds / 24 hours

Duty Cycle: $T_{ON} / T_{(ON+OFF)} \times 100\% = 1,053 / 86.399 \times 100\% = 0,0012\%$

6. Block diagram of CA System



7. Label Design



7.1 FCC Declaration

FCC ID LX8CAS89X

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 interference received, including interference that may cause undesired operation.

8. Power up of test samples

The test setup consists of the following components:

- Control unit: PGS2; 5WK4 9135
- Wiring harness: Control unit ↔ bumper antenna and power supply
- Antennas: 1 bumper antenna 5WK4 9133
- Power Supply: 14VDC or car battery (not supplied)

The bumper antenna will represent the max. allowed inductive load, which the control unit can supply.

8.1 Test configuration and operation

Connect the wiring harness to the control and the bumper antenna. More precise allocation of connector - socket is not necessary, as all connections are mechanical or color-coded. The entire test setup is connected to power via the two banana jacks on the wiring harness.

Banana jack, red = 14VDC or car battery
Banana jack, blue = GND (ground)

The power consumption in case of operation amounts to max. 10A.

If the power supply is connected the control unit begins to operate. The connected antenna will transmit the carrier frequency with a duration of approximately **40ms** at intervals of **500ms**. The transmitter power of the control unit is adjust by 100%.

This procedure does not correspond to the standard mode of operation! This procedure is only used to simplify emission measurements.