

# **Technical Description**

**Tire Pressure Monitoring System (TPMS) 5WK4 7594**

**User Manual / Functional Description**

**of the**

**Siemens VDO**

**Tire Pressure Monitoring System - ECU**

**Type**

**5WK4 7593 (Europe)**  
**5WK4 7594 (USA)**

## General description

The tire pressure monitoring system (TPMS) consists of an control unit (ECU) with 4 LF antennas. The TPMS transmitter is mounted on the valve stem of the tire. The RF receiver is integrated on the ECU.

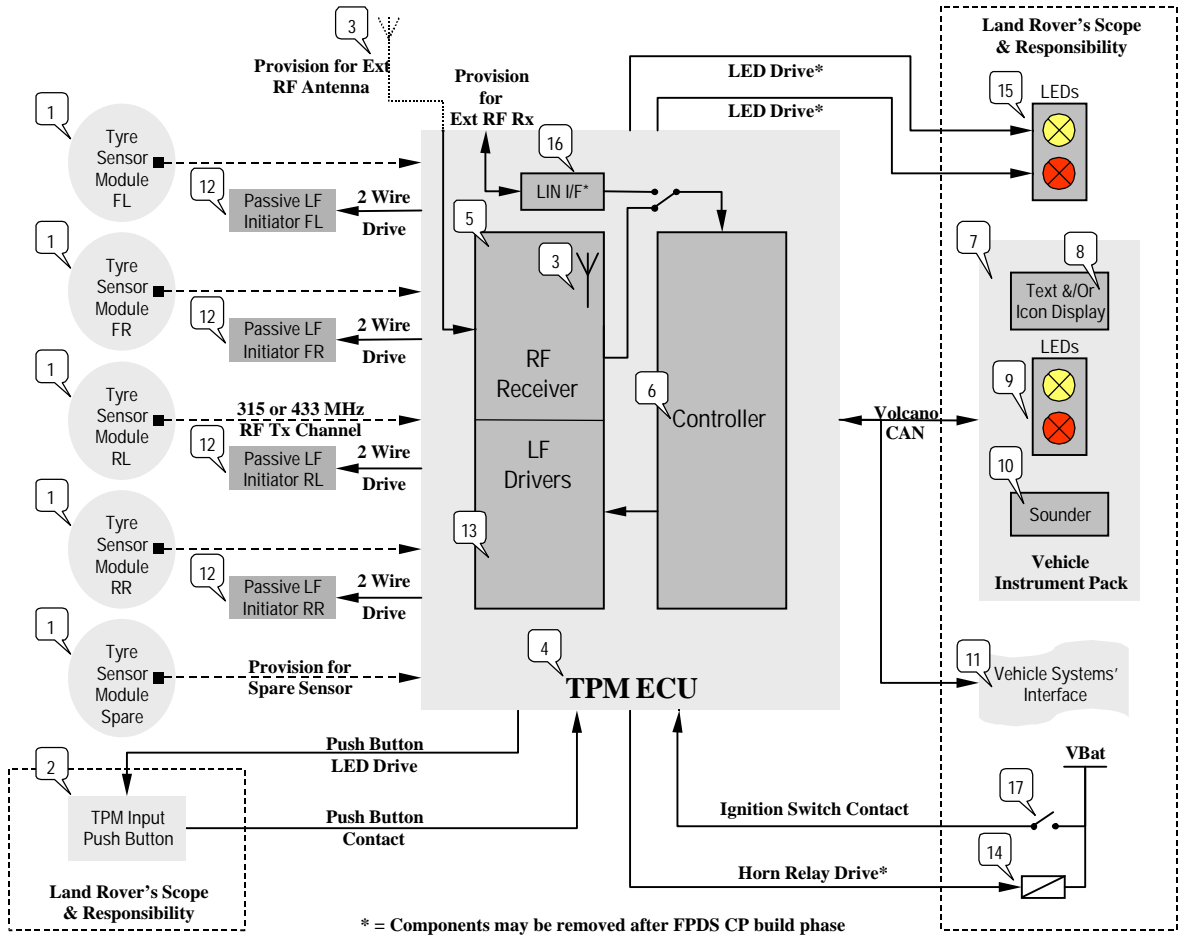
The ECU contains the driver circuitry for the LF antennas (4 per system) and the integrated RF receiver (which has been already homologated).

The LF antennas are only necessary to locate the tire position after a tire change. The antennas are fixed on the steering stub. When the antennas send a 125 kHz signal to the TPMS transmitter the transponder will be activated and the location of the tire and the corresponding TPMS transmitter can be read.

The localisation function enables the vehicle driver to get information about which tire a pressure loss has been detected.

# Block diagram

The block diagram below shows the main electronic units of the TPMS ECU:



12 = 125kHz

## Variants

Siemens type designation	Explanation
5WK4 7594	ECU with integrated receiver 315 MHz
5WK4 7593	ECU with integrated receiver 433.92 MHz
5WK4 7595	LF antenna

The two ECU variants use the same schematic, layout and assembly! The only difference is the integrated RF receiver (which is not subject to this homologation).

## Typical usage pattern (for Europe only)

Worst case calculation:

4 drive cycles in 24 hours

30 minutes to localise the vehicle

- total transmission duration of 120 minutes in 24 hours

Transmitter ON                      5 minutes / hour

Transmitter OFF                      55 minutes / hour

Duty Cycle:  $\text{TON} / \text{T (ON+OFF)} \times 100\% = 5 / 60 \times 100\% = 8.3\%$

## Technical description

Carrier frequency:	125 KHz
Frequency shift:	+/- 2%
Modulation:	none
Number of channels:	1
Rated Output Power:	<40 dB $\mu$ A/m @ 3 m
Antenna:	dedicated
Voltage supply:	Vehicle battery
Voltage supply range:	9 to 16 Volts

## Label design USA / Canada

### Label information

Siemens VDO  
5WK47594

IC: 267T-5WK47594  
FCC ID:KR55WK47594

### User manual information

IC: 267T-5WK47594  
FCC ID:KR55WK47594

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

## Label design Europe

Siemens VDO  
5WK47593

