

Technical Description

S122780002

User Manual / Functional Description

of the

Siemens VDO

Tire Pressure Generation 1B EUCD wheel unit

Type

S122780002

1. SYSTEM OVERVIEW

The tire pressure monitoring system (referred as TG for Tire Guard) consists of the following units:

- Tire guard transmitter S122780002 which includes an integrated pressure, temperature and acceleration sensor and a RF transmitter.
- RF receiver unit which includes a receiver (not described in this document)

The Tire Guard system monitors a vehicle's tire pressure whilst driving or stationary. An electronic unit (wheel unit) inside each tire, mounted to the valve stem, periodically measures the actual tire pressure. By means of RF communication, this pressure information is transmitted to the RF receiver/decoder.

In stationary mode, the pressure, temperature and acceleration are measured about every minute and emission of RF frames occurs only if pressure variation, higher than a threshold, is detected (leakage detection).

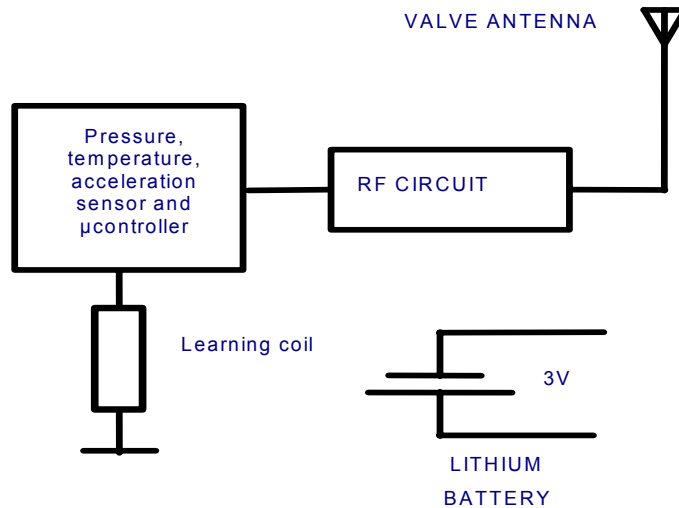
When the vehicle starts moving, the Tire Guard transmitter enters the driving mode. It measures and transmits RF burst 12 times per minute (every 5s) up to 30 bursts. After this period the wheel unit measures and transmits data every minute. The wheel unit will remain in driving mode for a period of 15 minutes after the vehicle is stopped. After this period has elapsed, the wheel unit returns to stationary mode.

If, during any measurement period in driving mode, the pressure leakage is detected (difference compared to the last transmitted pressure value), a re-measure will occur after 5s taking in account the latest pressure value emitted as reference value. If the pressure continues changing, an additional transmission will be sent.

The circuit within the wheel unit monitors the battery every time a pressure measurement is taken. A "Low Battery" function code will be sent when the battery voltage within the wheel unit is below a pre-selected level.

2. BLOCK DIAGRAM

The block diagram below shows the main electronic units of the wheel unit:



3. TYPICAL USAGE PATTERN

240 burst in 24 hours
 0.01 seconds per frame and 3 frame per burst
 → total transmission duration of 7.2 seconds within 24 hours

Transmitter ON	0.3	seconds / hour
Transmitter OFF	3599.7	seconds / hour

Duty Cycle: $\text{TON} / \text{T (ON+OFF)} \times 100\% = 0.3 / 3,600 \times 100\% = 0.008\%$

4. TECHNICAL DESCRIPTION

Carrier frequency:	433.92 MHz
Rated output power:	< 10 mW
Frequency shift:	± 45 kHz max
Number of channels:	1
Type of modulation:	FSK
Method of frequency generation:	PLL
Antenna:	integral
Voltage supply:	1 Lithium battery 3V (CR2450)
Voltage supply range:	2.1 up to 3.2V

5. LABEL DESIGN Canada, Europe, USA

Siemens VDO
S122780002

IC: 267T-227002
FCC ID:KR5S122780002



Entry Owners Manual, Canada, USA:

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 void the user's authority to operate the equipment.