

Technical Description of the transmitter type

FCC : MRXNIS315G3

IC : 2546A – NIS315G3

Equipment Characteristics

Type	Transmitter
Trade mark	Schrader
Frequency Range	315 MHz Fixed \pm 100kHz
Method of Carrier Frequency Generation	RF Chip (PLL device)
Class of Emission	4K00L1DAN
Type of Modulation	ASK
Modulation Signal Input Level	N/A
Modulation Bandwidth	4KHz
Number of Channels	1
Utilisation	Mobile
Duplex operation	No
Antenna	Integral
Alternative Antenna	No
Operating Temperature Range	-40°C to +100°C
Rated Output Power	-30.2dBm (1 μ W)
Voltage supply range	2.5 to 3.3 V DC
Composition of Equipment	Single Unit

Brief Description

A block diagram of the RTPMS is shown in figure 1. The transmitter has the following sections:

- RF circuit
- Pressure sensor
- roll switch
- Transponder Coil (125kHz LF Learn Switch)

- ASIC

The system has been developed to monitor a vehicle's tyre pressures whilst driving or stationary. An electronic unit inside each tyre, (referred to as the RTPMS transmitter) mounted to the valve stem, periodically measures actual tyre pressure. By means of RF communication, this pressure information is transmitted to a receiver/decoder which is fitted in the car.

The tire pressure value is detected by the ASIC (Application Specific Integrated Circuit) via a pressure sensor. The data is transmitted using a Manchester coding protocol at a maximum data rate of 4.096 Kbits/sec. The clock generator for the ASIC is crystal controlled. The block transmission format is shown in figure 2. The valve stem is part of the transmitting antenna. while the vehicle is parked (Stationary Mode), there is no transmission. when the vehicle is moving (roll switch closed) the RTPMS transmit each minute 8 words as shown in figure 2. The transmitter will remain in drive mode for a period of time known as the Service Period after the vehicle comes to rest (roll switch open). After the Service Period time has elapsed the transmitter returns to Stationary Mode.

The RTPMS uses a Transponder Coil, which when activated with 125kHz LF, will 'LEARN' the ID code to the receiver/decoder in the production line of the vehicles.

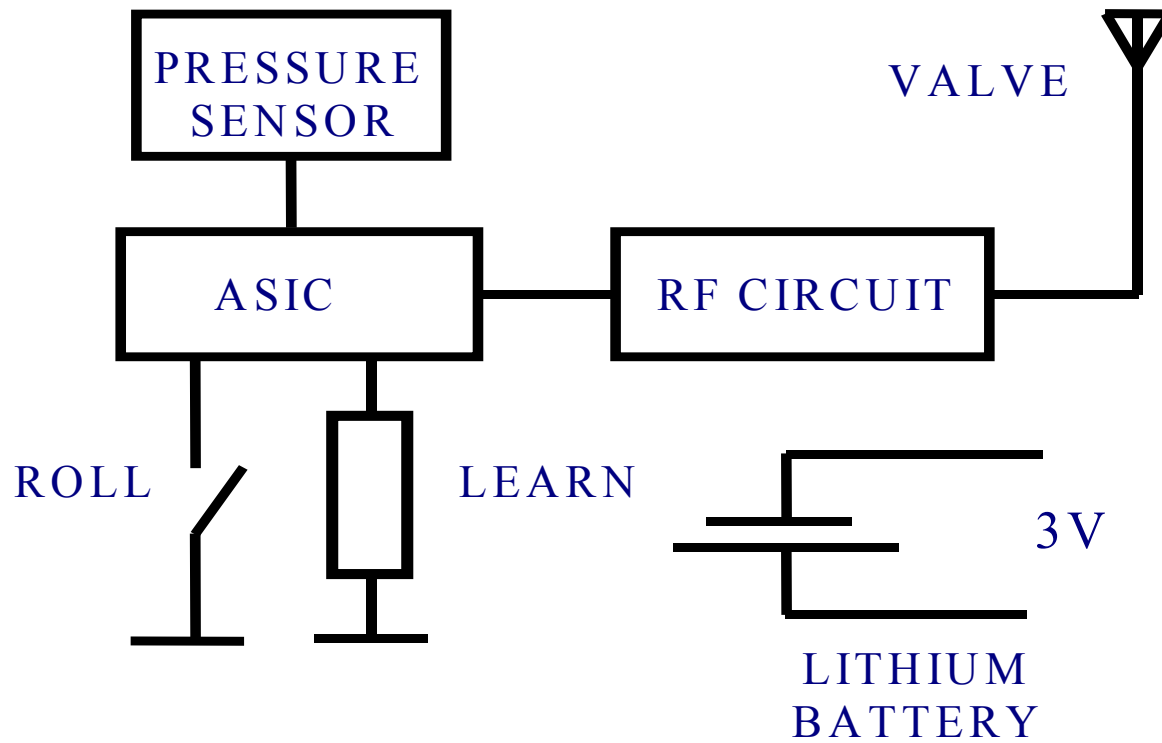


Fig.1

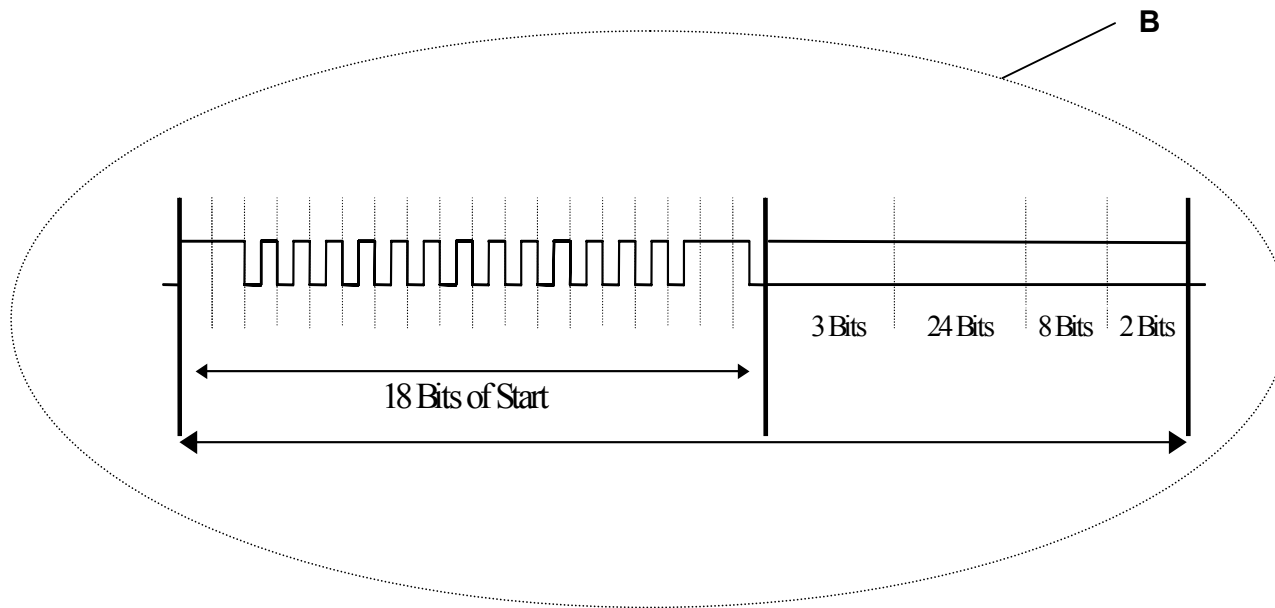
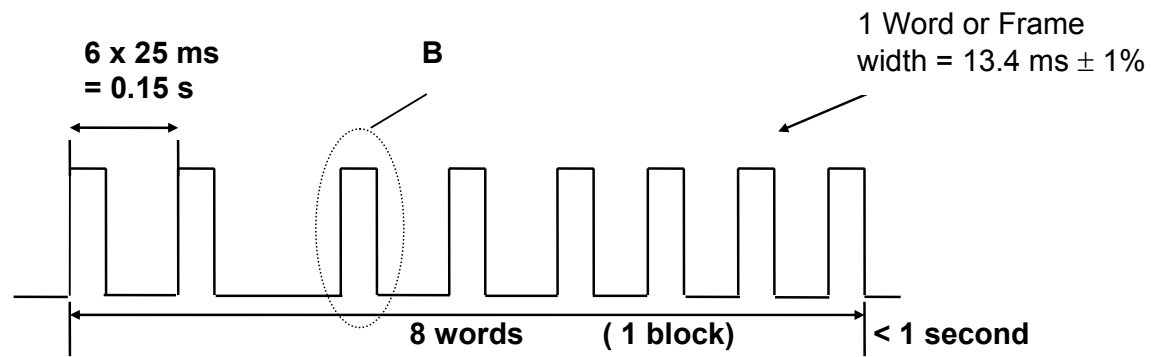


Fig.2