



Sensors

# Tire Pressure Monitoring System

## Fact sheet

### A New Standard for Improved Vehicle Safety

Freescall Semiconductor's proven sense for technological innovation addresses a steadily growing need for reliable semiconductor solutions that live up to the high standards of today's automotive engineering. Our products for wheel modules in tire pressure monitoring systems (TPMS) are designed for the Federal Motor Vehicle Safety Standard (FMVSS) 138 and existing car manufacturer requirements throughout the world. They enable a timely driver warning in case of improperly inflated tires in cars, trucks and buses. If you're looking for flexibility, have a look at our TPMS solutions. With an integrated 8-bit MCU and radio frequency (RF) transmitter, our system-in-a-package device integrates seamlessly with existing remote keyless entry (RKE) systems.

### Integration

Freescall's high level of system integration requires a minimal number of external components, reducing the system size and product design cycle. This TPMS solution delivers Freescall's proven sensor technology with its industry-benchmark low-voltage and low-power S08 8-bit microcontroller, integrated RF transmitter, one-channel LF receiver and decoder and accelerometer.

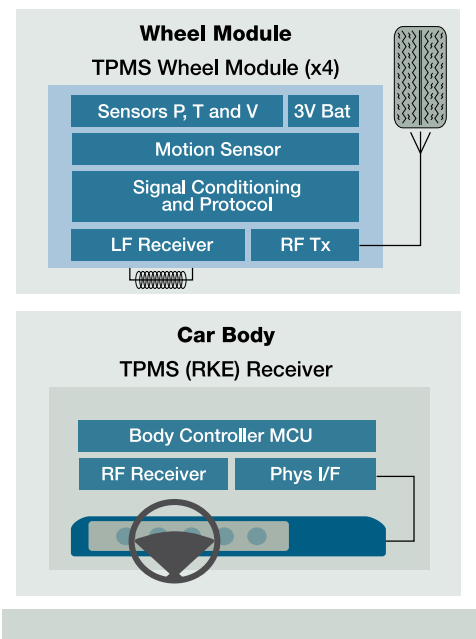
This TPMS solution is completely programmable, making it suitable for a wide range of application requirements. CodeWarrior™ software tools offer a comprehensive integrated development environment for hardware.

If space is tight, our TPMS offers a high level of functional integration by combining the following into a single small outline wide body, 20-pin package (SOIC 20 WB):

- Low-power surface micromachined capacitive pressure sensor
- 8-bit MCU
- Accelerometer for motion detection
- RF transmitter

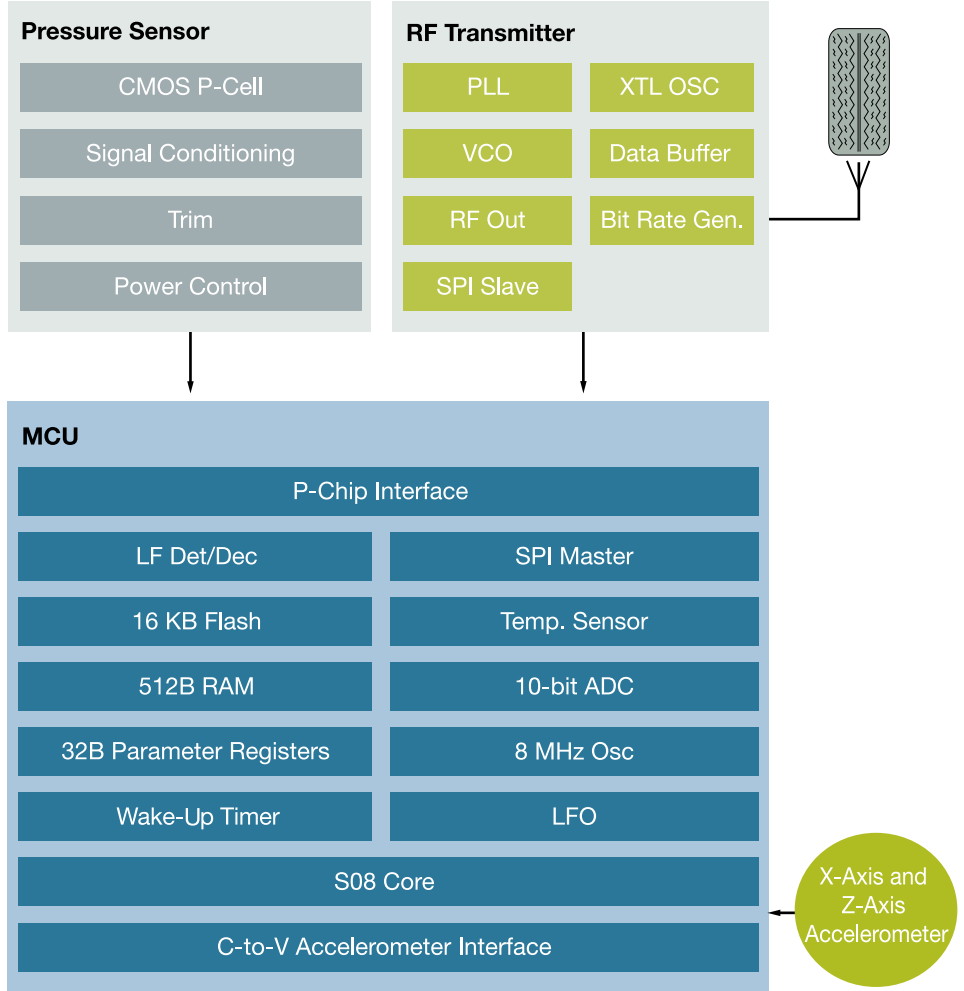
Flexibility and integration—Freescall's solutions help you build a full-featured, stress-relieving TPMS.

### Typical Tire Pressure Monitoring System (TPMS) Architecture





## Tire Pressure Monitoring System (TPMS) All-in-One Package



### TPMS Features

- Pressure and temperature sensors
- Integrated 315/434 MHz PLL-based RF transmitter
- Multiple baud rate and modulation scheme
- 8-bit MCU with 512B RAM and 16 KB flash
- Single-channel LF input with detector/decoder
- Over-temperature shutdown
- Supply voltage measurement
- Accelerometers for motion detection
- Low-power wake-up timer and periodic reset driver by low frequency oscillations (LFO)
- Power management specific to TPMS for long battery life
- Unique selective encapsulation for media protection
- Designed for FMVSS 138

Generation	Pressure Sensor	Pressure Range	Temperature Sensor	Voltage Sensor	MCU	UHF Transmitter	LF Receiver and Decoder	Package	Package Count
8300 Series	CMOS Surface MEMS	100 kPa–800 kPa 100 kPa–1500 kPa 100 kPa–450 kPa	Embedded	Embedded	Embedded	Embedded	Embedded	SOIC 20 WB	1

For further details please contact your Freescale sales representative.

**Learn More:** For current information about Freescale products and documentation, please visit [www.freescale.com/tpms](http://www.freescale.com/tpms).