

TPMS Selector Guide

Tire pressure monitoring sensors



Target applications

- Tire pressure monitoring systems
- Ultra-low-power wireless sensing

Implementations

- Measures dual-axis acceleration to support location of wheel on the vehicle
- Measures temperature
- Measures battery voltage
- Bi-directional wireless communication
- Measures tire pressure for passenger, light-duty or heavy-duty vehicles

NXP TPMS sensors

NXP's tire pressure monitoring sensors (TPMS) has a fully integrated 4x4 mm package footprint. These are significantly smaller than the previous generation of QFN packages on the market.

These devices provide:

- Low transmitting power consumption (less than 7 mA I_{dd})
- Large customer memory size (16 KB)
- Dual-axis accelerometer architecture

NXP's TPMS solution integrates

- 8-bit MCU
- Pressure sensor
- XZ-axis
- 125 kHz LF receiver
- 315–434 MHz RF transmitter

NXP's portfolio can support cars, light and heavy trucks, as well as buses. These TPMS markets are mainly regulation driven with new mandates, resulting in significant growth. NXP continues to produce TPMS products that meet the latest mandates to accommodate customer requirements.

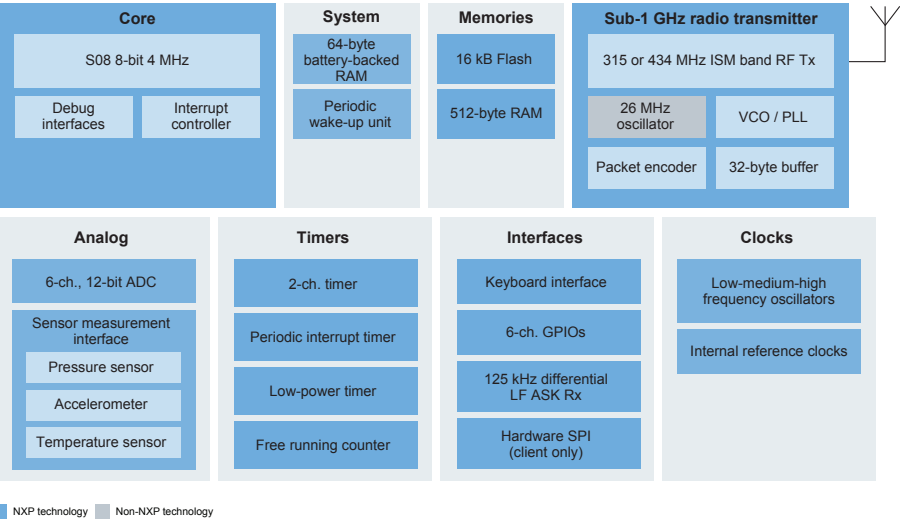
Product differentiation

Features	Benefits
Small, fully integrated package size	Enables small module design for lighter weight and space-constrained applications
Dual-axis XZ inertial sensor	Enables easier localization capability
Same package height and similar firmware as QFN 7 x 7 solutions	Easy transition from previous generation
16 KB customer memory/ capability of interfacing with external memory	Flexibility of software development and time to market
Low RF power consumption	Long battery life
High production capacity	Secured supply and short lead time

NTM88 specifications

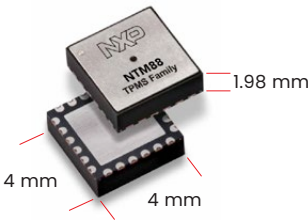
Discontinued Part Number	Replacement Orderable Part Number	Pressure Range	Pressure Tolerance -40 °C to 105 °C	Operating Temperature Range	Temperature Tolerance -20 °C to 85 °C	Z-axis Accelerometer Range	Z-axis Accelerometer Tolerance 40 °C to 125 °C	X-axis Accelerometer Range	X-axis Accelerometer Tolerance -40 °C to 125 °C
Passenger Car and Light Duty Pressure Range with Dual XZ-axis Accelerometer									
NTM88H125T1	NTM88H125ST1	90 to 930 kPa	±5 kPa	-40 to +125 °C	±3 °C	-175 to +550g	±3 @ 0g	-400 to +400g	±3 @ 0g
NTM88H135T1	NTM88H135ST1					-360 to +400g		-80 to +90g	
NTM88H145T1	NTM88H145ST1					-80 to +90g		-360 to +400g	
NTM88H155T1	NTM88H155ST1					-360 to +400g		-360 to +400g	
Medium Duty Pressure Range with Dual XZ-axis Accelerometer									
NTM88J125T1	NTM88J125ST1	90 to 1110 kPa	±5 kPa	-40 to +125 °C	±3 °C	-175 to +550g	±3 @ 0g	-400 to +400g	±3 @ 0g
NTM88J135T1	NTM88J135ST1					-360 to +400g		-80 to +90g	
NTM88J145T1	NTM88J145ST1					-80 to +90g		-360 to +400g	
NTM88J155T1	NTM88J155ST1					-360 to +400g		-360 to +400g	
Heavy Duty Pressure Range with Dual XZ-axis Accelerometer									
NA	NTM88K135ST1*	90 to 1518 kPa	±17 kPa	-40 to +125 °C	±3 °C	-360 to +400g	±3 @ 0g	-80 to +90g	±3 @ 0g
	NTM88K145ST1*					-80 to +90g		-360 to +400g	
	NTM88K155ST1*					-360 to +400g		-360 to +400g	

NTM88 TPMS family block diagram



NTM88 attributes

Voltage Measurement Range	1.8 V to 3.6 V
Voltage Resolution (8-bit)	10 mV/LSB
Voltage Accuracy (>2.1 V supply)	± 100 mV
Temperature Measurement Range Run Mode	-40 °C to +125 °C
Temperature Resolution (8-bit unsigned)	1 °C/LSB
Temperature Offset Accuracy (-20 °C ≤ TA ≤ 85 °C)	± 3 °C



TPMS is fully integrated in a 4 x 4 mm package