



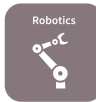

Radar – precise motion sensing

24GHz industrial radar

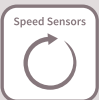


What is new in the world of sensing?

- > Infineon recently launched the market's **smallest** 24GHz industrial radar chip solution, BGT24LTR11N16
- > Small form factor and reduced power enables **new markets and applications**
- > Wide range of applications ranging from **smart lighting** motion detection to multicopter **collision avoidance**
- > Released alongside Sense2GoL demoboard to enable customer designs

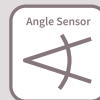
Markets			
			
Street and office lighting	Home automation	Robotics	UAV/multicopter
<ul style="list-style-type: none"> > Presence and motion detection 	<ul style="list-style-type: none"> > Presence and motion detection > Surveillance/security > HVAC control > Automatic doors > Sanitary 	<ul style="list-style-type: none"> > Collision detection > Presence and motion detection > Lawnmower > Vacuum cleaner 	<ul style="list-style-type: none"> > Collision detection and avoidance > Landing sensor (altimeter) > Height control
Industry 4.0, IoT, and UAV applications			

What data can you get with our radar sensor?



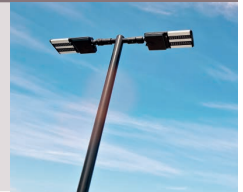
Speed/velocity

- > Derived from Doppler shift in frequency



Angle/direction to target

- > Derived from phase difference at the antennas



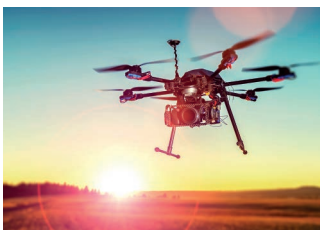
Range/distance to target

- > Derived from the time of travel of the RF waves

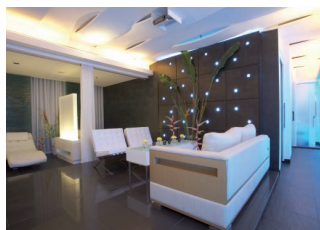


3D position of object

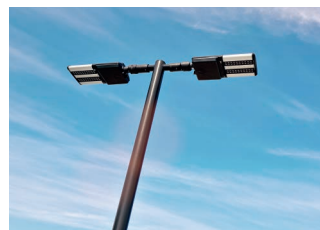
- > Derived from combining information from multiple receive channels



Enabling **soft landings**, **collision avoidance** and **height control**



Providing light seamlessly through **smart motion detection**



Conserving energy through **smart street lighting** applications



Utilising **direction of travel** to only open doors when necessary

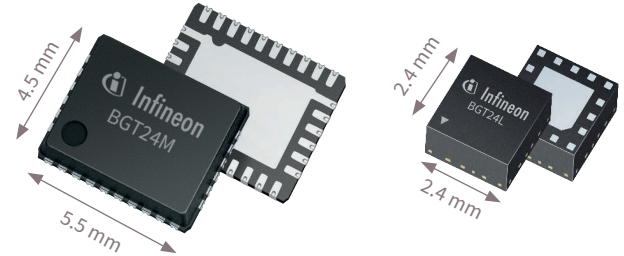
Benefits of radar

- > Increased range/coverage
- > Adjustable sensitivity
- > Resistance to harsh weather conditions
- > Protects privacy
- > Small Form factor enabling smart designs
- > More than just "Motion" detection
- > Measure speed, angle, and distance too
- > Adaptable according to application needs

XENSIV™ 24GHz radar sensor ICs

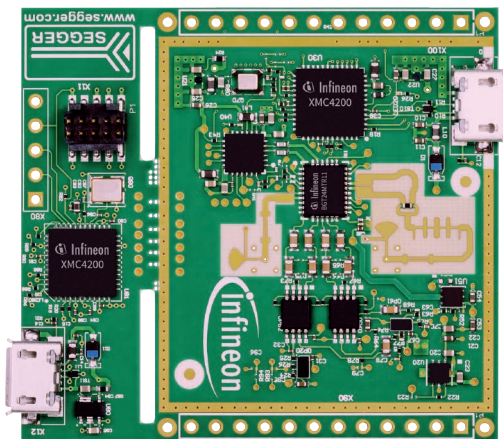
BGT24M/L family of MMIC chips

Product	Configuration	Key benefits
BGT24MTR11	1Tx + 1Rx	32 pin leadless RoHS compliant VQFN package
BGT24MR2	2Rx	Twin receiver
BGT24MTR12	1Tx + 2Rx	On chip power and temperature sensors
BGT24LTR11	1Tx + 1Rx	Low power consumption



XENSIV™ 24GHz demoboards

Distance2Go development kit



Kit contents

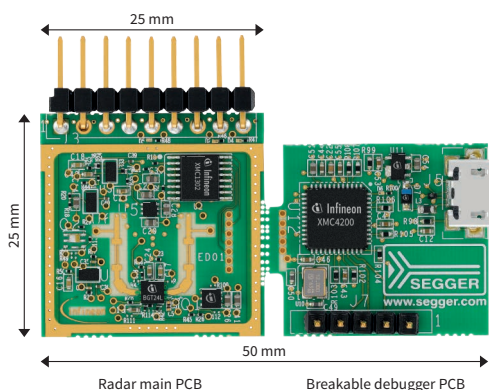
- > 24GHz demo board
- > User's manual
- > SW GUI to operate kit
- > FMCW FW and SW1) (also available as source code)
- > Doppler FW and SW1) (also available as source code)
- > Schematic and bill-of-materials of module

Distance2Go key features

- > Capability to detect distance of multiple targets
- > Capability to detect motion, speed and direction of movement (approaching or retreating)
- > Very small form-factor (4.5 × 3.6 cm) 24 GHz ISM band module that can be used as a development kit or mounted as a daughter board in a system
- > BGT24MTR11 – 24 GHz highly integrated RF MMIC
- > XMC4200 ARM® Cortex®-M4 – 32-bit industrial microcontroller
- > Debug over cortex 10 pin debug connector
- > Integrated multiple element patch antennas

www.infineon.com/D2G

Sense2GoL demoboard



Kit contents

- > User manual
- > Firmware for motion detection
- > SW GUI for radar signal observation
- > PCB schematic and gerber files

Sense2GoL key features

- > BGT24LTR11 – 24GHz highly integrated low-power MMIC
- > XMC1302 ARM® Cortex®-M0 – 32-bit industrial microcontroller
- > Multiple integrated patch antennas available (default 1 x 4 with FOV = 28° x 80°)
- > Segger debugger breakoff board for reprogramming

www.infineon.com/S2GL