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

What data can you get with our radar sensor?

<table>
<thead>
<tr>
<th>Speed/velocity</th>
<th>Derived from Doppler shift in frequency</th>
</tr>
</thead>
<tbody>
<tr>
<td>Range/distance to target</td>
<td>Derived from the time of travel of the RF waves</td>
</tr>
<tr>
<td>Angle/direction to target</td>
<td>Derived from phase difference at the antennas</td>
</tr>
<tr>
<td>3D position of object</td>
<td>Derived from combining information from multiple receive channels</td>
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</tbody>
</table>

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

For more information visit www.infineon.com/24GHz-Radar
XENSIV™ 24GHz radar sensor ICs

BGT24M/L family of MMIC chips

<table>
<thead>
<tr>
<th>Product</th>
<th>Configuration</th>
<th>Key benefits</th>
</tr>
</thead>
<tbody>
<tr>
<td>BGT24MTR11</td>
<td>1Tx + 1Rx</td>
<td>32 pin leadless RoHs compliant VQFN package</td>
</tr>
<tr>
<td>BGT24MR2</td>
<td>2Rx</td>
<td>Twin receiver</td>
</tr>
<tr>
<td>BGT24MTR12</td>
<td>1Tx + 2Rx</td>
<td>On chip power and temperature sensors</td>
</tr>
<tr>
<td>BGT24LTR11</td>
<td>1Tx + 1Rx</td>
<td>Low power consumption</td>
</tr>
</tbody>
</table>

XENSIV™ 24GHz demoboard

Distance2Go development kit

Kit contents
- 24GHz demo board
- User’s manual
- SW GUI to operate kit
- FMCW FW and SW1
- Doppler FW and SW1
- Schematic and bill-of-materials of module

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

Sense2GoL demoboard

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

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