"Easy-to-use" & “All-in-one” 24GHz radar sensor enabling motion and distance detection without any external MCU calculations.

**Features**

- **Easy to use**
  - System BOM can be reduced by “All-in-one” package radar sensor
  - Built-in autonomous motion/distance detection function enables only I2C/SPI connection for settings & result acquisition

- **Wide detection area**
  - Preferable detection area: 8m\(^*1\) in front direction
  - 120deg / 95deg selectable FOV\(^*1*2\) with Digital beam shaper

- **Suited for battery operation**
  - 0.5mW average operating power consumption on human detection application\(^*3\)
  - After sensor setup & run, MCU can sleep until something detected

\(^*1\): Detection area depends on environmental condition
\(^*2\): Half distance angle
\(^*3\): In case of 0.1% duty cycle operation in Motion Detection mode

**Applications**

- Detection of people at the front door (use in a doorbell)
- Detection of people to switch the liquid crystal display of smart home appliances on and off
- Gesture operations
- Detection of people in rooms such as the living room (use in a smart thermostat)
### Example use case

**Entry Motion/ Presence Detection**

Internal processing engine calculates & outputs Motion Detection (Entry Motion / Presence Detection) result through DETOUT.

**Distance Detection**

Internal processing engine calculates & outputs Distance to the moving objects through I2C or SPI.

### Specifications

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Specification</th>
</tr>
</thead>
<tbody>
<tr>
<td>Frequency range</td>
<td>24.06 - 24.24GHz</td>
</tr>
<tr>
<td>Size, Package</td>
<td>Size: 9mm x 9mm x 1.18mm, BGA package, 0.8mm pitch, 64pin</td>
</tr>
<tr>
<td>Supply voltage</td>
<td>1.8V</td>
</tr>
<tr>
<td>Power consumption</td>
<td>average 0.5mW*3</td>
</tr>
<tr>
<td>Operating package top temperature</td>
<td>-40 to 105°C</td>
</tr>
<tr>
<td>Output power</td>
<td>Tx EIRP (typ) 4.0dBm</td>
</tr>
<tr>
<td>Detection area</td>
<td>Preferable detection area: 8m1 in front direction, 120/95° selectable FOV<em>1</em>2</td>
</tr>
<tr>
<td>Sensor output</td>
<td>Motion Detection result, Distance Detection result</td>
</tr>
</tbody>
</table>

*1: Detection area depends on environmental condition  
*2: Half distance angle  
*3: In case of 0.1% duty cycle operation in Motion Detection mode

### Deliverables of the Evaluation kit

- SC1232AR3 evaluation kit hardware with USB cable (A to micro-B)  
- Sensor library / Evaluation software (GUI)  
- Related documents  
  - Evaluation software (GUI) operation manual  
  - API specification of control API  
  - Application note (Sensor setting parameters / Sample C source for API)