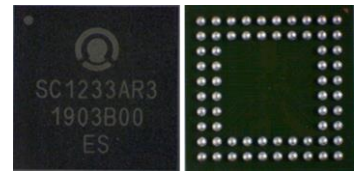


# SC1233AR3

## All-in-one Radar Sensor for Motion & 2D Detection

### Overview

Easy-to-use, all-in-one 24GHz radar sensor enables entry motion and distance detection without the need for external MCU. The sensor also performs angle detection with light MCU calculations.



Top view Bottom view

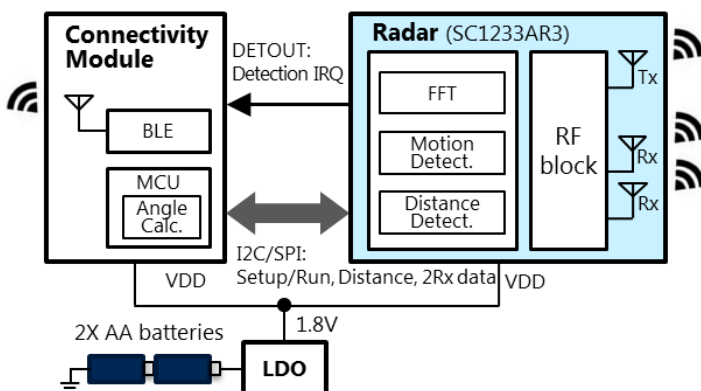
**SC1233AR3**

### Features

- **Easy to use**
  - Reduction of BOM using an "all-in-one" radar sensor package
  - Built-in autonomous entry motion and distance detection with I2C/SPI connection for setting configurations and data acquisition
- **Wide detection area with 2D detection**
  - Preferable detection area: 8m<sup>(\*2)</sup> in frontal direction, FOV: 120deg<sup>(\*1)(\*2)</sup>
  - 2RX antennas capable of 2D angle detection with external MCU calculation
- **Suitable for battery operation**
  - 0.5mW average operating power for human detection applications<sup>(\*3)</sup>
  - After sensor setup & run, MCU can sleep until something detected

### Example System Configuration

### Applications



Smart Home



Security/Surveillance



Smart Devices



Home Appliances

(\*1): Half distance angle

(\*2): Detection area depends on environmental condition

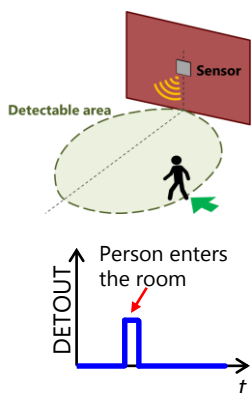
(\*3): in case of 0.1% duty cycle operation in Motion Detection mode

# Reference Descriptions

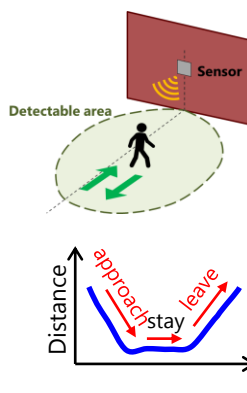
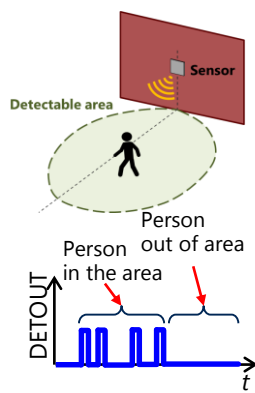
Frequency range	24.06 - 24.24GHz
Size, Package	Size: 9mm x 9mm x 1.18mm, BGA package, 0.8mm pitch, 64 pin
Supply voltage	1.8V
Power consumption	average 0.5mW <sup>(*3)</sup>
Operating package top temperature	-40 to 105°C
Output power	Tx EIRP (typ) 4.0dBm
Detection area	Preferable detection area: 8m <sup>(*2)</sup> in front direction FOV <sup>(*1) (*2)</sup> : 120°
Sensor output	Motion Detection result, Presence Detection result, Distance Detection result, 2ch Complex data for Angle Detection

## Example use case

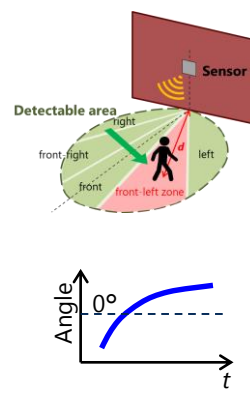
### 1-1. Motion Detection    1-2. Presence Detection    2. Distance Detection    3. Angle Detection



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



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



**Angle** of the detected object can be calculated in the ext. MCU, and be used for sector-level det.

## Deliverables of the Evaluation kit

- SC1233AR3 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)

Already available