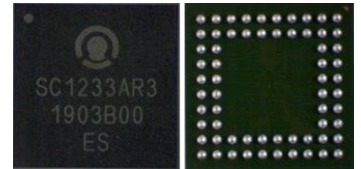


SC1233AR3

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

Overview

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



Top view Bottom view

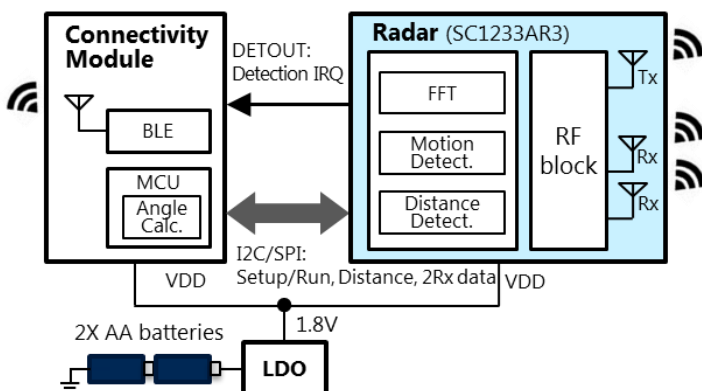
SC1233AR3

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 with 2D detection**
 - Preferable detection area: 8m^(*2) in front direction, FOV: 120deg^{(*1)(*2)}
 - 2RX antennas capable of 2D angle detection with external MCU calculation
- **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

Example System Configuration

Applications



Smart Home



Security/Surveillance



Smart Devices



Home Appliances

(*1): Half distance angle

(*2): Detection area depends on environmental condition

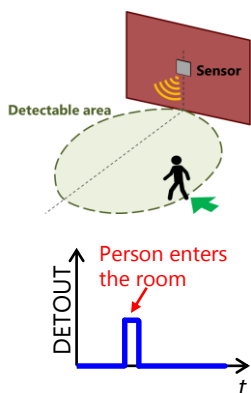
(*3): in case of 0.1% duty cycle operation in Motion Detection mode

Reference Descriptions

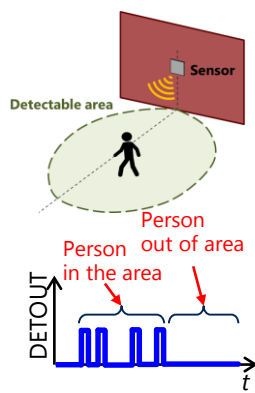
Frequency range	24.06 - 24.24GHz
Size, Package	Size: 9mm x 9mm x 1.18mm, BGA package, 0.8mm pitch, 64 pin
Supply voltage	1.8V
Power consumption	average 0.5mW ^(*3)
Operating package top temperature	-40 to 105°C
Output power	Tx EIRP (typ) 4.0dBm
Detection area	Preferable detection area: 8m ^(*2) in front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

Example use case

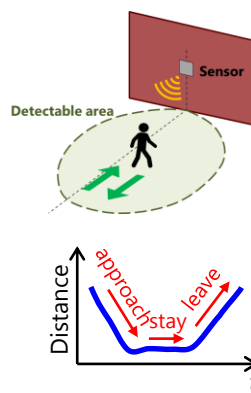
1-1. Entry Motion Det.



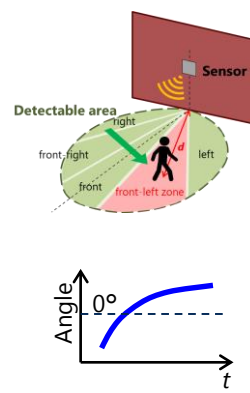
1-2. Presence Detection



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