

SC1232AR3-B-001 Evaluation Kit for CMOS 24GHz Radar Sensor

Overview

"The Evaluation Kit (EVK), SC1232AR3-B-001, provides an evaluation environment of the Socionext 24GHz Radar Sensor (SC1232AR3). The EVK consists of EVK main unit (sensor board and interface board), accessory, and the software package which is to be used under the host windows OS PC connected with the EVK via a USB cable.



Evaluation Kit of SC1232AR3

Functions

- Three detection modes :
 - 1. Entry Motion Detection :
 - 2. Presence Detection :
 - 3. Distance Detection :
- Detects a motion in the detection target area. Detects distances to the detected target objects.

Detects a motion of target objects entrance to

 In each detection mode, the detection angle can be selected from two types, "Wide" and "Narrow".

the detectable area.

- Motion detection result (via DETOUT pin) and distance detection result (via SPI interface) are transmitted to the host PC via USB.
- GUI based evaluation software :
 - Detection result can graphically be plotted in the GUI application window.
 - Result data can be saved to a file, and the saved file can be loaded, and plot can be replayed.

EVK System Structure



Plot of distance (Upper white-line) * Vertical-axis: Distance from sensor, Horizontal-axis: Time



Specifications

Frequency	24.06 - 24.24GHz
Sensing mode	 FMCW^{*1} (Up-chirp: 180MHz width) Chirp time (Tc) : 220µsec, 1.1msec, 4.4msec Chirp interval : 16msec to 5000msec (Tc=220µsec, 1.1msec) 20msec to 5000msec (Tc=4.4msec)
Output (API)	 Motion detection result (Entry motion detection/ Presence detection mode) Distance data derived from the peak frequency component after FFT processing of the received wave (Distance detection mode)
Interface	USB (micro-B)
Power supply	USB bus power

Customer's PC

(Windows)

*1: Frequency Modulated Continuous Wave

Contents of EVK Software

- Sensor Library: A library (DLL) to operate the sensor LSI.
- Parameter Setting Library: A library (DLL) to maintain the sensor setting parameters.
- Evaluation GUI Software: A GUI based Windows application to operate the sensor LSI and to display the sensing results.
- Sample C source codes: Example C source codes for users.



Evaluation

Sample C Code

Measurement environment using EVK

Setting : Connects the sensor board to the interface board by a FFC cable. And connects the interface board to the host PC with evaluation software installed by a USB cable.

Notes : In order to detect objects on the ground, the EVK should be faced to the detection target area, for example, placing it on the wall or with a supporter like a tripod stand.



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