

CYPRESS

# SOLAR-POWERED BLE SENSOR BEACON REFERENCE DESIGN KIT

CREATE A TINY SOLAR-POWERED WIRELESS SENSOR WITH  
THE LOWEST-POWER ENERGY HARVESTING BLE SOLUTION



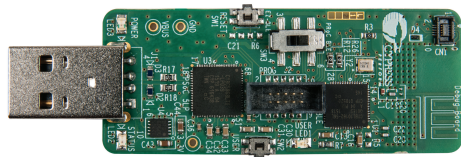
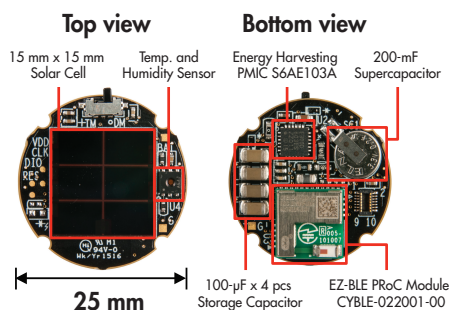
## PRODUCT OVERVIEW

### INTRODUCTION

The [CYALKIT-E02](#) Solar-Powered BLE Sensor Beacon Reference Design Kit (RDK) is designed to help you create tiny, solar-powered IoT devices with BLE wireless connectivity. The RDK comes with a Solar BLE Sensor, as well as a BLE-USB Bridge and Debug Board. The Solar BLE Sensor is based on Cypress' Energy Harvesting Power Management IC (PMIC) S6AE103A and EZ-BLE™ PRoC™ Module (CYBLE-022001-00). The sensor is designed to harvest energy from the sun or indoor lights and operate without a battery. The BLE-USB Bridge and Debug Board can be connected to a host (PC) that receives sensor data transmitted by the Solar BLE Sensor. The BLE-USB Bridge and Debug Board also help with on-chip debugging for the Solar BLE Sensor via an easy-to-use USB interface. This tiny RDK is a fully-loaded connectivity solution that is compact, battery-free, and BLE-ready. We also offer an expansion pack CYALKIT-E03 that includes five Solar BLE Sensors.

### TINY, BUT POWERFUL SOLAR BLE SENSOR

The Solar BLE Sensor transmits temperature and humidity data using the BLE broadcasting mode. The Solar BLE Sensor is ultra low power and works with just solar energy. The solar energy is managed by our versatile Energy Harvesting PMIC S6AE103A.



### BLE-USB BRIDGE AND DEBUG BOARD

The BLE-USB Bridge and Debug Board are easy-to-use BLE data receivers for PCs and on-chip debugging for the Solar BLE Sensor.

### CYPRESS® BLE-BEACON™ APP

The Cypress BLE-Beacon app works across iOS, Android, and PCs. The app is designed to receive and visualize beacon signals or sensor data that is transmitted by the Solar BLE Sensor. The app shows you real-time data as 2D/3D graphs. The logging data can be exported to CSV file for offline access and analysis.



### FEATURES

#### CYALKIT-E02

##### SOLAR BLE SENSOR

- Tiny, thin design: 25 mm diameter x 5.5 mm (enclosure size)
- Operates at minimum 100 lux
- Transmits temperature and humidity sensor data
- Up to 30-hours operation without ambient light via the fully charged super capacitor (0.2 F)
- Mounted Energy Harvesting PMIC S6AE103A and EZ-BLE™ PRoC Module, temperature, and humidity sensor, 15 mm x 15 mm solar cell

##### BLE-USB BRIDGE AND DEBUG BOARD

- Easy-to-use BLE data receiver and on-chip debugging for the Solar BLE sensor
- LEDs for users, status, and USB power

##### CYPRESS® BLE-BEACON™ APP

- Free software app
- Works across iOS and Android devices, and PCs
- 2D/3D graph visualization for sensor data

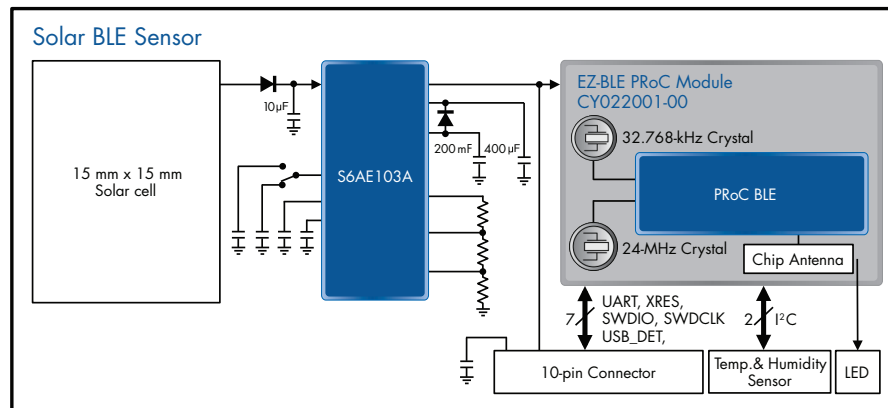
#### CYALKIT-E03

##### EXPANSION PACK FOR CYALKIT-E02

- 5 Solar BLE sensors included

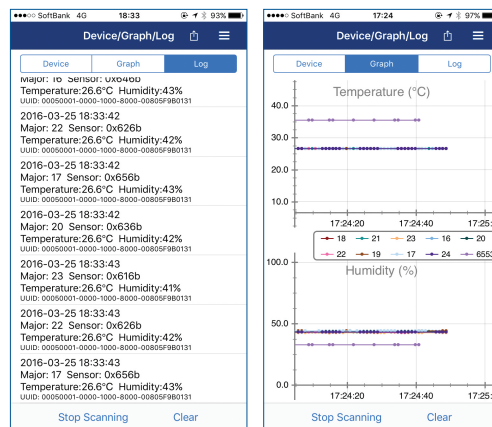
## APPLICATION

BLE Beacon | Wireless sensor node | Smart home | Building automation | Smart Agriculture | Industrial Automation

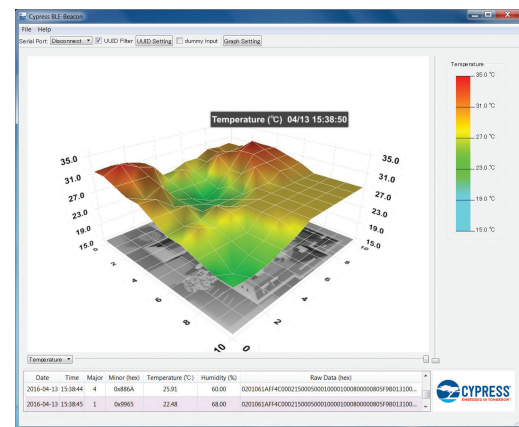


CYALKIT-E02/E03 Solar BLE Sensor Block Diagram

## CYPRESS® BLE-BEACON™ APP SCREENSHOT



iOS/Android



PC

## GET STARTED NOW



1

Buy the \$49 CYALKIT-E02 kit to develop the tiny solar-powered BLE sensor Beacon. Cypress offers also \$99 CYALKIT-E03 for solar BLE sensor (5 pack).  
[www.cypress.com/CYALKIT-E02](http://www.cypress.com/CYALKIT-E02)  
[www.cypress.com/CYALKIT-E03](http://www.cypress.com/CYALKIT-E03)



2

Download the Cypress® BLE-Beacon™ app to your iOS/Android devices or PCs. Get access to sensor data as 2D/3D graphs.  
[www.cypress.com/CypressBLE-Beacon-app](http://www.cypress.com/CypressBLE-Beacon-app)  
[www.cypress.com/CypressBLE-Beacon-PC](http://www.cypress.com/CypressBLE-Beacon-PC)



3

Download PSoC® Creator and PSoC Programmer for on-chip debugging. The software is included CYALKIT-E02 complete setup  
[www.cypress.com/CYALKIT-E02](http://www.cypress.com/CYALKIT-E02)



4

Register for an Energy Harvesting workshop in your area  
[www.cypress.com/workshops](http://www.cypress.com/workshops)

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