SPARK MICROSYSTEMS

PINPOINT PRESENCE: LOCATE ANYTHING, ANYWHERE

Presence Detection Solutions

Locate and Track with Ultra-Low Power, Low Latency, High Data Rate without Interferences all in one, with SPARK Microsystems.

The SPARK's SR1000 family ultra-wideband (UWB) wireless transceivers is engineered for tracking application. It can detect and track the presence of individuals, medical equipment, industrial instruments, and other objects within defined areas, such as rooms, corridors, or specific zones. Featuring Ultra-Low Power Mode, unidirectional and bidirectional communication, and LoS ranging, all in one flexible package. It stands out as a unique choice across diverse sectors, including healthcare, industrial, home and building automation, and more, meeting varied demands with efficient, reliable performance.

SR1000's

6.0 GHz to 9.3 GHz

SPARK ULTRA-WIDEBAND TRANSCEIVER

Configurable 20.48 MHz to 40.96 MHz symbol rate

Single 32.768 kHz external XTAL

Programmable channel bandwidth

Ultra-low power (SR1020)

- 1.8 V – 3.3 V supply voltage
- 0.34 mA per Mbit / sec active Rx
- 0.10 mA per Mbit / sec active Tx
- 920 nA deep sleep
- 55 nA shutdown mode
- 28 pin QFN (4 x 4 mm)

Adjustable Detection Region

- 25 cm to 20 m LOS

Ultra-Low Power Mode

- ≤ 5 uW active power

High Data Rate

- Up to 12 Mbps payload

Additional features

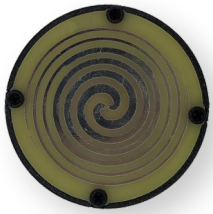
- Uni/Bidirectional communication
- Proprietary product improving security
- RSSI presence detection
- LoS Ranging ToF

PRESENCE DETECTION PRODUCT BRIEF

UTILIZING SPARK SR1000's ULTRA-LOW POWER UWB TRANSCEIVER

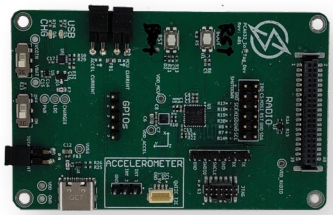
The SR1000's UWB transceiver series from SPARK Microsystems provides real-time presence detection of individuals, assets, or equipment within designated areas. It's Ultra-Low Power Mode supports configurable beaconing at power levels as low as <5 µW, ideal for continuous tracking. For more advanced use cases, enables Uni/Bidirectional data communication with high data rates, low latency, and ultra-low power, ensuring seamless integration in dynamic environments. When precise localization is needed, LoS ranging delivers accurate distance measurements with precision up to ±50 cm.

The system's adaptive power management allows it to remain in low-power mode and activate LoS ranging only when an object or individual enters the detection region, extending battery life and maximizing efficiency. These features make the SR1000 series a highly adaptable solution for diverse applications, from basic tracking to complex real-time data exchange, positioning it as one of the most energy-efficient systems available.



CIRCULAR POLARIZATION ANTENNA

- Using Quasar EVK
- MCU STM32U5
- Circular Polarization antenna optimized for 7.96 GHz



IoT EVK BOARD

- MCU STM32G0
- Accelerometer sensor
- USB Communication
- Antenna Module Connector
- Multiple peripherals connectors
- Multiple power measurement points

DEMO TAG

- MCU STM32G0
- Accelerometer sensor
- Mini monopole antenna
- 30mm diameter board
- Coin cell Powered

ABOUT SPARK UWB

SPARK Microsystems is building next generation short-range wireless communication devices. SPARK UWB provides high data rate and very low latency wireless communication links at an ultra-low power profile, making it ideal for personal area networks (PANs) used in mobile, consumer and IoT-connected products. Leveraging patented technologies, SPARK Microsystems strives to minimize and ultimately eliminate wires and batteries from a wide range of applications. For more information, please visit sparkmicro.com.