

Features

- Easy integration: No RF knowledge required
- 2.4GHz ISM band, DSSS communication. No licensing required
- Up to 1300ft (400m) communication range. Extended even further with networking
- Automatically reconfigurable networking between modules
- Ultra-low power consumption design
- Small dimension

Applications

- SCADA
- Remote meter reading
- Home automation
- Security
- Instrument monitoring
- Point of Sale Systems (POS)
- Surveillance, physical security, networking of personnel and physical assets and machinery health and status monitoring.
- Industrial automation, process control
- Telemetry

Overview

SRF 2400M is 20dBm Direct Sequence Spread Spectrum (DSSS) wireless module that allows wireless communication between systems using a standard UART protocol. SRF 2400M has novel features as automatically reconfigurable network and the communication architecture supports both direct or multi-hop message packet delivery such that the protocol and messaging strategy supports random network topologies.

Boasting excellent sensitivity, networking extended range and highly robust communication protocol against interference, SRF 2400M is perfect for applications such as Supervisory Control and Data Acquisition (SCADA), remote meter reading, home automation, security, instrument monitoring, point of sale systems(POS), and countless other applications.

Multi Channel / Multi-Hop

SRF 2400M module is based on Carrier Sense Multiple Access (CSMA) for multi channel communication and the communication architecture supports both direct and multi-hop message packet delivery. Multi-hop communication enables the communication range to be extended even further. For instance, the range can be increased three-fold using three nodes configured as a three-hop network. SRF 2400M is especially useful in fields where cable installation is costly or tedious.

Automatic Network Configuration

SRF 2400M modules are dynamically network configurable which greatly eases the installation procedure. There is no need to go through strenuous network configuration procedures as one would encounter setting up the I.P. address for connection to the internet. The protocol and messaging strategy supports random topologies. Setting the local address of one module to "1" makes the module the "master" or the "base station" and all other additional modules with differently-assigned addresses makes them "nodes". When the network is configured, sending a UART command to the base station, then all the other nodes are automatically linked to the base station by

both direct and multi-hop connections. Then, the base station can communicate with any node configured in the network.

Reliable Data Transmission

20dBm output power, -90dB sensitivity and robust handshaking protocol makes SRF 2400M module a very reliable communication module.. IEEE802.11- like Request-To-Send(RTS), Clear-To-Send(CTS) protocol alleviates "Hidden node" problem, common in multi-hop networked communication. Advanced Carrier-Sense protocol senses both inter-SRF 2400M carrier and also other in-band high power RF signals such as signals from WLAN, Bluetooth and microwave oven making it operate robustly in the often highly congested 2.4GHz ISM band.

Support for OEM Products

softDSP's expertise in RF module solutions makes an easy migration from the standard module to application-specific customized module for quantity products.

For more information please contact us at info@softdsp.com and visit www.softdsp.com



Figure1. SRF 2400M module

Hardware specification

CPU	16-bit RISC architecture, 8MIPS processing speed
Data storage memory.....	128Kbytes
Size	1.99" x 1.58" (L x W) 5.05cm x 4.00cm
Operation voltage.....	3.3VDC
Operation current.....	Transmitting / Receiving : 100mA / 50mA Standby : 50mA Power-down : 100uA

UART specification

Max. Baudrate	56,000bps
Interface	Standard 3-line interface

Functions

Network configuration	Automatically detects nodes and the configure network
Sleep/Wakeup.....	Lowest power consumption is achieved using sleep function when not used

Configurable communication protocol

Packet Length	20bytes ~ 100bytes
Local Address	1 ~ 250 (1: Base station)
Group Address	1 ~ 255
Max. retransmission number	5 ~ 50
Max. Multi-Hop number.....	1 ~ 10
Inter-module link strength...	-70dB ~ -10dB (Reliable-link search criteria for automatic network configuration)

RF communication features

Communication Link	2.4GHz DSSS(Direct Sequence Spread Spectrum)
Max bit rate	1Mbps
Output power	+20dBm
RX sensitivity	-90dBm
Antenna.....	2dBi external omni-directional
Range	1300 feet (400 meters) line of sight outdoor