



Future Communications Integrated circuit Inc.

Product Data Sheet

FCM9000S-series Module

Revision 1.5L

Date of Release: November 14, 2018

Contact information

For more information, please visit: <http://www.fci.co.kr>

For sales office addresses, please send an email to: fci_sales@fci.co.kr

All information provided in this document is subject to legal disclaimer. © FCI 2018. All rights reserved.

Revision History

| Version | Date | Description |
|-----------|--------------|-------------|
| Ver. 1.4L | Sep.05, 2018 | |
| Ver. 1.5L | Nov.14,2018 | |

1. Overview

1.1. Introduction

The FCM9000S-series modules are fully integrated modules that consists the FC9000 SoC, RF components like crystal oscillator, Bandpass Filter, a Flash memory and a chip antenna or a provision for external antenna. The FC9000 is a highly integrated ultra-low power Wi-Fi system on a chip(SoC), which contains an 802.11b/g/n radio(PHY), a baseband processor, a media access controller(MAC), on-chip memory, and a host networking application processor, all on a single silicon die.

The FC9000 SoC is a synthesis of breakthrough ultra low power technologies which enables extremely low power operation. Such low power operation can extend the battery life as long as a year or more depending on the application

The FC9000 SoC is built from the ground up for the “Internet of Things” and is ideal for door locks, home appliances, sprinkler systems, drop in video cameras and other devices that comprise the Connected Home.

The modules certified WiFi alliance for IEEE802.11b/g/n, Wi-Fi Direct, WPS functionalities and also will be received regulatory approval in the United States(FCC) and Canada(IC). Using the Wi-Fi Alliance transfer policy, the Wi-Fi Certifications can be transferred without being tested again.

1.2. Feature

- Highly Integrated Ultra Low Power Wi-Fi® Module
- Full Offload : internal SoC runs full Networking OS & TCP/IP Stack
- Wi-Fi Processor of integrated SoC
 - IEEE 802.11b/g/n, 1x1 MIMO, 20MHz channel bandwidth, 2.4GHz
 - On-chip PA, LNA, and RF Switch
 - Wi-Fi Security (802.11i): WPA-Enterprise, WPA-Personal, WPA2-Enterprise, WPA2-Personal
 - Vendor EAP Types: EAP-TTLS/MSCHAPv2, PEAPv0/EAP-MSCHAPv2, PEAPv1, EAP-FAST, EAP-TLS
 - Operating Modes: Station, SoftAP, and Wi-Fi Direct® Modes
 - WPS2 for Easy Wi-Fi Provisioning
 - Connection Manager for Autonomous and Fast Wi-Fi Connections
- CPU Core Subsystem
 - ARM Cortex-M0+ Core w/ Clock Frequency of 40~200MHz
 - Embedded Memory
 - ROM : 192KBytes
 - SRAM : 1664KBytes
 - OTP : 16KBytes
 - Hardware accelerators

- General HW CRC Engine
- HW Zeroing Function for Fast Booting
- HW TCP Checksum
- Complete Software Stack
 - Comprehensive Networking Software Stack
 - Provides TCP/IP Stack : In the Form of Network Socket APIs(Application Programming Interfaces)
- Built-in Hardware Crypto Engines for Advanced Security
 - TLS/DTLS Security Protocol Functions
 - RSA Engine for Key Deliberate Generic Security Functions
- Built-in 4/2 Channel Auxiliary ADCs for Sensor Interfaces
 - 16-bit Sigma-Delta ADC : Differential 2 Channels
 - 12-bit SAR ADC : Single-Ended 4 Channels
 - Provides Dynamic Auto Switching Function
- Supports Various Interfaces
 - eMMC/SD Expanded Memory
 - SDIO Host/Slave Function
 - Quad-lane SPI for External Flash Control
 - 2 Universal Asynchronous Receivers and Transmitters(UARTs)
 - Serial Peripheral Interface(SPI) Master/Slave Interface
 - Inter-Integrated Circuit(I2C) Master/Slave Interface
 - I2S for Digital Audio Streaming
 - Pulse-Width Modulation(PWM)
 - Individually Programmable, Multiplexed GPIO Pins
 - JTAG
- Power Management Unit
 - On-Chip RTC (Real-time Clock)
 - Integrated DCDCs and LDOs
 - Supports Three Ultra Low Power Sleep Modes
- Supply
 - Single Operating Voltage : 3.0 ~ 3.6V(typical: 3.3V)
- Operating Temperature Range: –40°C to 85°C
- Regulatory certifications:
 - FCC
 - IC
 - CE

- KC
- Wi-Fi Alliance certifications:
 - Wi-Fi CERTIFIED n
 - Wi-Fi Direct®
 - Wi-Fi Protected Setup™

1.3. Applications

Full Offload System-on-Chip for IoT Applications, such as:

- Security Systems
- Door Locks
- Thermostats
- Garage Door Openers
- Blinds
- Lighting Control
- Sprinkler Systems
- Video Camera Security Systems
- Smart Appliances

