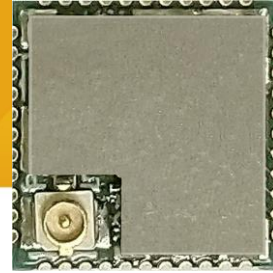# Module Series

Multi-protocol Thread/Matter RF Module

ITM-8510R

- Meets Bluetooth® 5.1 Low Energy and 802.15.4g Specifications, BQB Certified as a PHY component
- ARM Cortex-M3 (CM3) CPU64MHz
- Compliant with Bluetooth® 5.3 LE , ZigBee3.0
- TX Power up to10dBm
- Frequency Range: 2.402 ~2.480GHz

- Modulation: Multi-rate FSK, and OQPSK supported
- Integrated Security: SHA. AES,ECC
- HW crypto engine and security boot ; CRC,AES-CCM
- Thread/Matter supported
- For different IoT application, Command supporting for UART

The ITM-8510R is an ultra-low-power, high-performance ARM® Cortex®-M3-based Thread/Matter RF Module with multi-protocol Bluetooth Low Energy 5.3, Zigbee 3.0, Thread(IEEE®802.15.4)and proprietary 2.4G networking stacks to facilitate home & building automation, smart lighting, smart locks, sensor network applications, etc.A comprehensive mix of analog and digital peripherals are integrated with the 2.4GHz RF transceiver, which is compliant with Bluetooth Low Energy 5.3 and IEEE® 802.15.4 requirements. Ultra-low current consumption is achieved in the RF receive & transmit modes and power-down modes to support the latest IPv6-based IoT applications.

Main Specification	
Main Chip	**Rafael RT583**
CPU	ARM Cortex-M3
RAM	208KB RAM (144KB + 64KB)
Program Flash	2MB Flash
Wireless	• Bluetooth 5.1/5.2 low energy technology compatible • Bluetooth data: 2Mbps, 1Mbps, 500Kbps, 125K bps • Thread 1.3 (802.15.4) specifications • Matter 1.1
Peripheral	UART / SPI
Standard Conformance	Bluetooth Low Energy v5.x, Zigbee 3.0, Matter 1.0 and Thread 1.3
Frequency Range	2.402 ~ 2.480GHz
FW command mode	AT command mode Transparent mode
Operation Temp	-40~105°C
Interface	2.4G Wireless 1^2C: Hardware IIC USARTs GPIO
Dimension	12mm(L)*12mm(W)*2.5(H) mm