User Manual

Model: TM51010
FCC ID: SW8TM51010

Overview

TM51010 Wireless Module is a powerful, generic Wi-Fi/BLE Board based on highly integrated Realtek RTL8720DN and Nordic nRF52832 module with built-in security features and ultra-low power consumption. The embedded system product developers and device makers can now drastically shorten their development cycle and reduce time to market by using this Wi-Fi & BLE M.2 Wireless Module.

Features

- IPEX antenna design for Wi-Fi and BLE to ensure better RF performance
- Wi-Fi MCU with Amazon FreeRTOS to support Cloud service securely
- Android SDK of BLE Mesh ready for fast installation and via Smartphone to ensure better user experience
- Multi-Threading optimization to speed up network distribution process by saving time 1.5x than SIG Mesh

Specifications

Wi-Fi	
Network Standards	IEEE 802.11 a/b/g/n 1x1
Operating Frequency	2.4GHz & 5GHz
Data Rate	Up to 150Mbps
Antenna	IPEX connector for external antenna
Bluetooth LE	
RF Protocol	BLE SIG Mesh
Operating Frequency	2.4GHz
Operation Range	30m (indoor open space)
Antenna	IPEX connector for external antenna
M.2 Interface	
VCC	support 3.3V
USB	x1
I2C	x1

GPIO	x15
Others	
Dimensions (L x W x H)	45 x 32 x 5.8mm
Operating Temp.	-20°C to +85°C

Module installation

1. Insert the module into the M.2 slot of the end product motherboard. (Figure 1)
2. Secure the module to the motherboard with screw. (Figure 2)

Figure 1

Figure 2

This Limited module is installed in the End-product for USB-C Smart Dock (M/N: DUD8070)

FCC Statement

This device complies with Part 15 of FCC rules. Operation is subject to the following two conditions: (1) this device may not cause harmful interference and (2) this device must accept any interference received, including interference that may cause undesired operation.

FCC Caution

The user that changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

FCC Radiation Exposure Statement

1. This transmitter must not be co-located or operated in conjunction with any other antenna or transmitter.
2. For end product that integrate this module, a minimum distance of 20 cm must be maintained between the antenna and the user. Under such configuration, the FCC radiation exposure limits set forth for a population/uncontrolled environment can be satisfied.

This device is intended only for OEM integrators under the following conditions:

1) The transmitter module may not be co-located with any other transmitter or antenna, as long as 1 condition above is met, further transmitter test will not be required. However, the OEM integrator is still responsible for testing their end-product for any additional compliance requirements required with this module installed.

IMPORTANT NOTE: In the event that these conditions cannot be met (for example certain laptop configurations or co - location with another transmitter), then the FCC authorization is no longer considered valid and the FCC ID cannot be used on the final product. In these circumstances, the OEM integrator will be responsible for re-evaluating the end-product (including the transmitter) and obtaining a separate FCC authorization.

End Product Labeling

The final end product must be labeled in a visible area with the following: “**Contains FCC ID: SW8TM51010**”

Manual Information to the End User

The OEM integrator has to be aware not to provide information to the end user regarding how to install or remove this RF module in the user's manual of the end product which integrates this module.

The end user manual shall include all require regulatory information/warning as show in this manual.