

# WISE-1540

## M2.COM Mesh Network IoT Node

NEW



### Features

- ARM Cortex-M4 Core Processor
- IEEE 802.15.4e standard with self-healing mesh network
- 99.999% Data Reliability and power optimization
- Rich interface for sensor and I/O control
- Support wide temperature -40 ~ 85 °C

arm MBED

SRRC  CE FCC 

### Introduction

WISE-1540 is M2.COM standardized IoT Sensor Node integrated with ARM Cortex-M4 Processor and Dust's time-synchronized SmartMesh networks. With time slotted channel hopping (TSCH) link layer, all nodes are synchronized to within less than a millisecond. Time in the network is organized into time slots, which enables collision-free packet exchange and per-transmission channel-hopping.

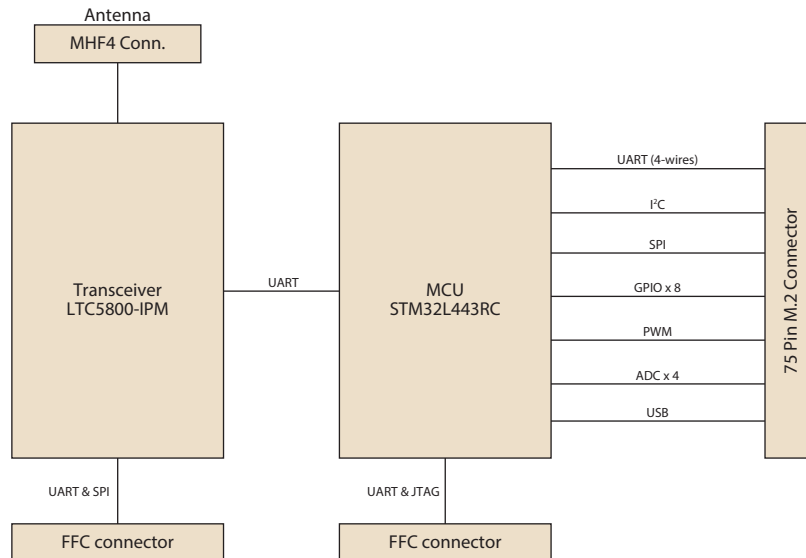
All nodes within SmartMesh networks could route, source or terminate data while providing years of battery powered operation. SmartMesh Networks are the great fit for Industry 4.0 Applications to deliver a highly reliable network in the most challenging RF environments such as Machine diagnostics, Factory Automation, Environment Monitoring and Production Efficiency. In the SmartMesh network, every device has one or more parents which provide redundant paths to overcome communications interruption due to interference, physical obstruction or multi-path fading. If a packet transmission fails on one path, the next retransmission may try on a different path and different RF channel. Developer can be easily to extend the network coverage via SmartMesh.

Advantech WISE-1540 also provide multi-interfaces for sensor and I/O control. With Arm mbed embedded microprocessor operating system and add-on software stacks, it's convenient to support IoT communication protocols including LWM2M, CoAP and MQTT via WISE-3310 Mesh IoT Gateway. Data can be quickly and easily acquired and transformed into a different format to communicate with WISE-PaaS, Mbed Cloud or other cloud services. Developer can build their application backbone faster and focus on their applications, value-added services.

### Specifications

Processor System	CPU/MCU	STM ARM Cortex-M4 Processor
	RAM	64 KB
	Flash	256 KB
Form Factor		M.2 TYPE 2230-D3-E
Wireless Network	Standard	IEEE 802.15.4e
	Frequency Band	2.4000~2.4835 GHz
	Channels	15
	Topology	Self-Healing Mesh Network
	Transmit Power	Up to +8 dBm
	Receiver Sensitivity	Up to -93 dBm
	RF Data Rate	250 kbps
	Function	End node
	Antenna connector	MHF4 connector
Ethernet		-
Cellular		-
GPS		-
I/O Interface	UART	UART 1 (4-wire, support RTC/CTS)
	CANbus	-
	I <sup>2</sup> C	1
	I <sup>2</sup> S	-
	GPIO	8
	PWM	1
	SPI	1
	ADC	4
	USB	1, device only

## Block Diagram



## Specifications Cont.

Programing Port		-
Debug Port		1 develop and debug with WISE-ED22
Watchdog Timer		-
Indicator and Button	LED	-
	Button	-
	Serial Port	-
	Switch	-
	SD Socket	-
	USB Port	-
Expansion	SIM Socket	-
	Mini PCIe Socket	-
Power	Power Supply Voltage	3.3V
	Power Consumption	TBC
Environment	Operational Temperature	-40 ~ 85 °C
	Operating Humidity	5% ~ 95% Relative Humidity, non-condensing
Mechanical	Dimensions (W x D)	22 x 30 mm
	Mounting	-
	Weight	3g
Operating System		Mbed OS 5.4
Certification		CE/FCC/IC/TELEC/SRRC/RCM/NCC

## Ordering Information

Part No.	Description
WISE-1540WMB-SDA10	WISE-1540 M2.COM Mesh network IoT Node

## Optional Accessories

Part No.	Description
WISE-DB1500-0IA1E	M2.COM evaluation carrier board
1750008001-01	Antenna 2.4G/5GHz 5dBi
1750007622-01	Antenna 2.4Ghz 3.5dBi
1750007965-01	Antenna Cable R/P SMA (M) to MHF4, 300mm
1700015038	FPC Cable 10P-0.5mm 7.9cm
9696ED2200E	ASS'Y WISE-ED22 A101-1 M2.COM Daughter
1931000590	Screw M2.5x5L F/S D=5.3 H=0.8 (1+) ST Ni
1700023619-01	A cable USB-A 4P(M)/micro USB 5P(M) 1m
1700025876-01	M cable USB-A 4P(M)/Plug-in 2P-5.0 90CM