WISE-1510

M2.COM LoRa IoT Node



Features

- ARM Cortex-M4 Core Processor
- Compatible to support public LoRaWAN or LoRa private networks
- Great for Low Power Wide Range applications
- Rich interfaces for sensor and I/O control
- Support wide temperature -40 ~ 85 °C

Introduction

WISE-1510 is M2.COM standardized IoT Sensor Node integrated with ARM Cortex-M4 Processor and LoRa transceiver. LoRa technology is the great for Low-Power Wide-Area Network (LPWAN) Applications such as Smart Cities, Agriculture, Metering, Street Lighting and Environment Monitoring. With optimization on the power consumption and wide range, your sensors or applications with low data rate requirement can be achieved years battery lifetime and kilometers long distance connection. Based on the deployment, WISE-1510 is flexible to support either public LoRaWAN network or private LoRa Eco-system.

Advantech WISE-1510 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 with WISE-3610 LoRa 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.

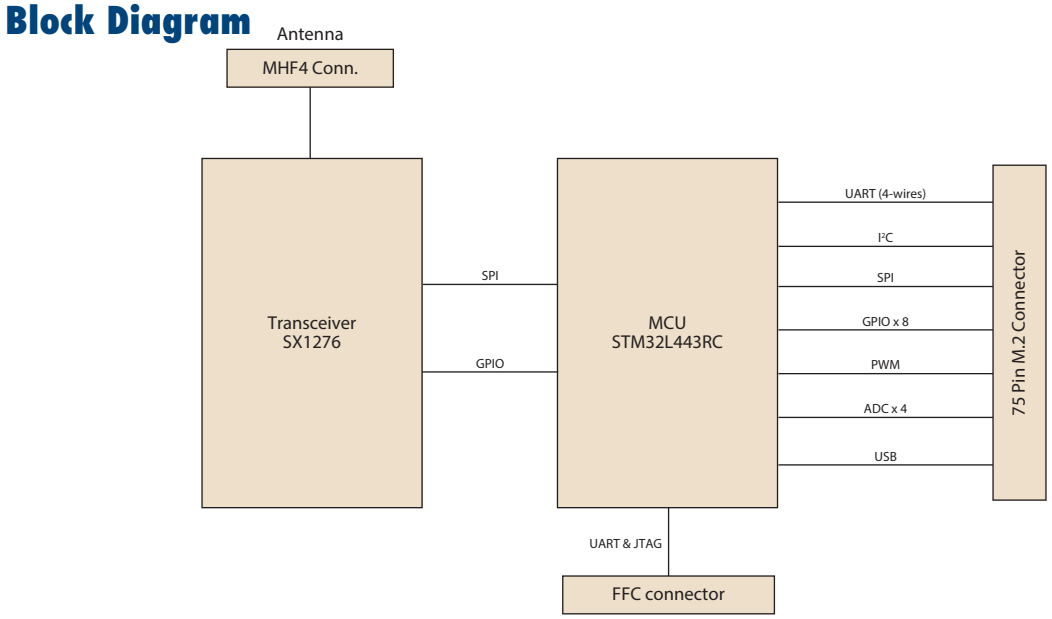
Specifications

Processor System	CPU/MCU	STM ARM Cortex-M4 Processor
	RAM	64KB
	Flash	256KB
Form Factor		M.2 TYPE 2230-D3-E
Wireless Network	Standard	LoRaWAN / LoRa Private Network (WISE-Link)
	Frequency Band	863-870MHz for Europe (LoRaWAN / LoRa Private Network w/ WISE-3610) 902-928MHz for North America (LoRaWAN / LoRa Private Network w/ WISE-3610) 920-928MHz for Japan (LoRa Private Network w/ WISE-3610) 470-510 MHz for China (LoRa Private Network w/ WISE-3610) 915-928MHz for Australia (LoRa Private Network w/ WISE-3610) 920-925MHz for Taiwan (LoRa Private Network w/ WISE-3610)
	Channels	Spreading Factor: 7 ~ 12
	Topology	Star network
	Transmit Power	Up to +18dBm
	Receiver Sensitivity	Up to -136dBm at SF = 12 / 125KHz
	RF Data Rate	50 kbps at FSK mode for Europe 21.9 kbps at SF7 mode for North America/Taiwan/Australia 5.47 kbps at SF7 mode for Japan/China
	Function	End node
	Antenna connector	MHF4 connector
Ethernet		-
Cellular		-
GPS		-
I/O Interface	UART	UART 1 (4-wire, support RTC/CTS)
	CANbus	-
	I^2C	1
	I^2S	-
	GPIO	8
	PWM	1
	SPI	1
	ADC	4
	USB	1, device only
Programing Port		-
Debug Port		1 develop and debug with WISE-ED20

* Note: The frequency support of other regions can be checked for further plan.

All product specifications are subject to change without notice
Last updated: 22-Dec-2017

Block Diagram



Specifications Cont.

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	Tx mode: 45mA @ TX power: 20dBm; DR5 (SF7); 40bytes data size Rx mode: 27mA Deep sleep: 70uA Application: 250uA (10 mins transmission period)
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 5.2
Certification		CE/FCC/IC/TELEC/VCCI/NCC/RCM

Ordering Information

Part No.	Description
WISE-1510WMB-SDA1N	WISE-1510 M2.COM LoRa module-NA915
WISE-1510WMB-SDA1E	WISE-1510 M2.COM LoRa module-EU868
WISE-1510WMB-SDA1J	WISE-1510 M2.COM LoRa module-JP923
WISE-1510WMB-SDA1C	WISE-1510 M2.COM LoRa module-CN470

Optional Accessories

Part No.	Description
WISE-DB1500-0IA1E	M2.COM evaluation carrier board
1750008598-01	Sub G antenna Dipole L=195mm, 1dBi 902~928 MHz
1750008599-01	Sub G antenna Dipole L=195mm, 1dBi 863~870 MHz
1750008771-01	Sub G antenna Dipole L=109mm, 1.5dBi 470-510 MHz
1750008569-01	Antenna Cable SMA to MHF4 L=300mm
1700015038	FPC Cable 10P-0.5mm 7.9cm for DCU2.0
9696WED200E	ASS'Y WISE-ED20 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 ADAM-T212
1700025876-01	M cable USB-A 4P(M)/Plug-in 2P-5.0 90CM
XRISC-ADP-10HW-AG	ADP A/D 100-240V 10W 5V WM
193A231540	POST F=M3*6L M=M3*6L D=5 d=2.88 B=5 H=15 Cu