XNode

IoT connectivity application training equipment based on wireless personal network (WPAN) and low-power wideband network (LPWAN)

By using the mesh network method, it can be used in large quantities in a wide range of areas such as wireless control and monitoring, and a wide range of communication is possible

Provides sensors such as GPS, IRTHERMO, IMU, and PIR in addition to the Basic Module

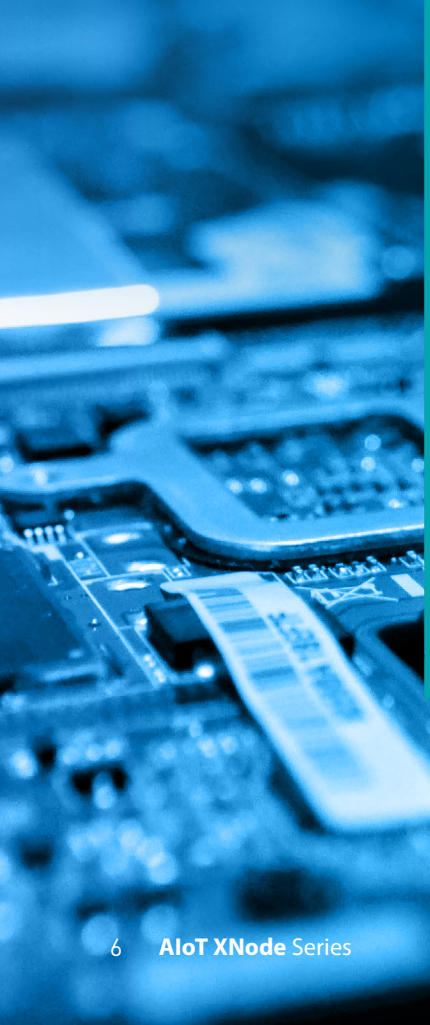
Sensor node can be selected between LoRa/Sigfox/Wi-Fi/Bluetooth (Node A) or Zigbee Pro/Bluetooth (Node B)

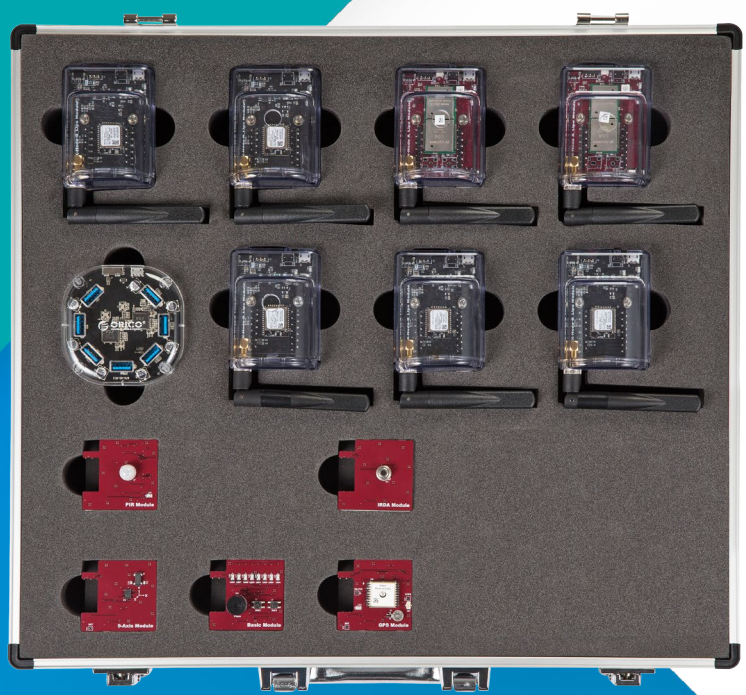
Provides 2100mA battery, LED for indicator, light sensor based on lux unit and temperature/humidity sensor for independent operation of sensor node

Sensor node supports interpreter-style Python 3 so that control programs can be easily and concisely written

Visual Studio Code-based integrated development environment for professional application development

Provides training contents for Python-based sensor nodes





Software Specifications

List	Specifications	
Node A	MicroPython 3 (built in node)	
	Soda IDE	
	Configuration Software (compatible with Linux, OS X and Windows)	
	Remote Terminal & Remote Desktop support	
	Pop Library	Output Object: RGB LED, Buzzer Input Object: Switch, PIR, Thermopile, 9Axis IMU, GPS
Node B	MicroPython 3 (built in node)	
	Soda IDE	
	Configuration Software (compatible with Linux, OS X and Windows)	
	Remote Terminal & Remote Desktop support	
	Pop Library	Output Object: LED, Buzzer Input Object: Switch, PIR, Thermopile, 9Axis IMU, GPS

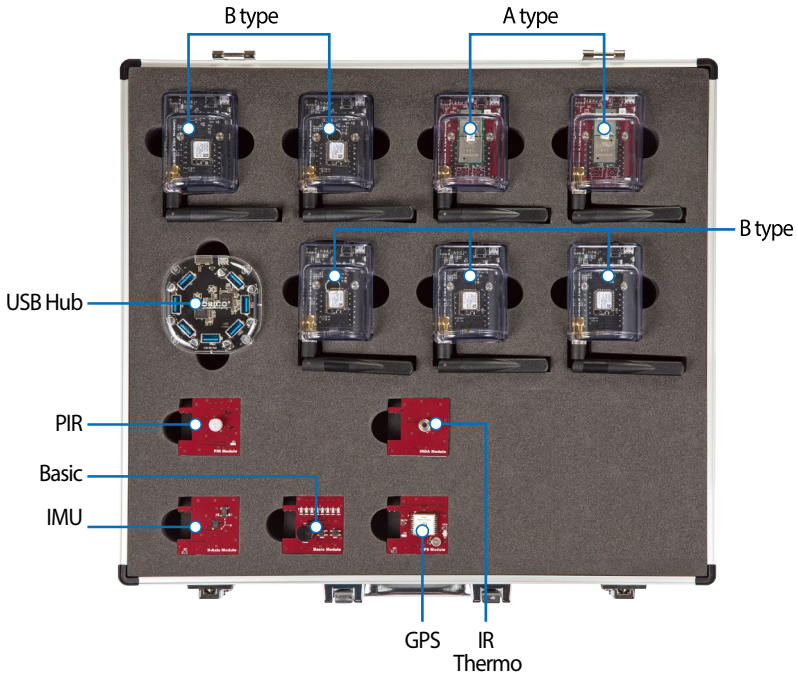
Hardware Specifications

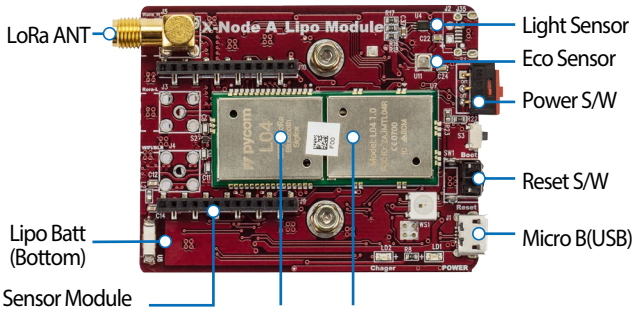
List	Specifications	
Node A (2EA)	RAM: 4MB	
	Flash Memory: 8MB	
	Interface: UART, SPI, I²C, I²S, ADC, PWM, GPIO	
	Indicator: RGB LED	
	Wi-Fi	802.11b/g/n Data Rate: 1Mbps to 72Mbps Transmit power: Up to +16dBm Receiver Sensitivity: -93 to -71 dBm
	Bluetooth	Bluetooth 4.2 BR/EDR BLE Range: 30M Data Rate: 1Mbps Sensitivity: -97dBm Output Power: 12dBm
	LoRa	Frequency: 900MHz Range: 10km Data Rate: 300kbps Sensitivity: -148dBm Output Power: 20dBm
	Sigfox	Frequency: 900MHz Range: 10km Data Rate: 100bps Output Power: 20dBm
	Light Sensor	Illuminance: 1 ~ 65535(lx) Interface: I²C
	HUMIDITY & TEMPERATURE Sensor	Humidity Resolution: 12bit(0.04%RH), 8bit(0.7%RH) Humidity Accuracy: +-3%RH Temperature Resolution: 14bit(0.01C), 12bit(0.04C) Temperature Accuracy: +-4°C Interface: I²C
	Power	Micro USB B type(+5V) Expansion Connector (+5V) Li-Po Type 3.7V/2100mAh (1EA)

Hardware Specifications

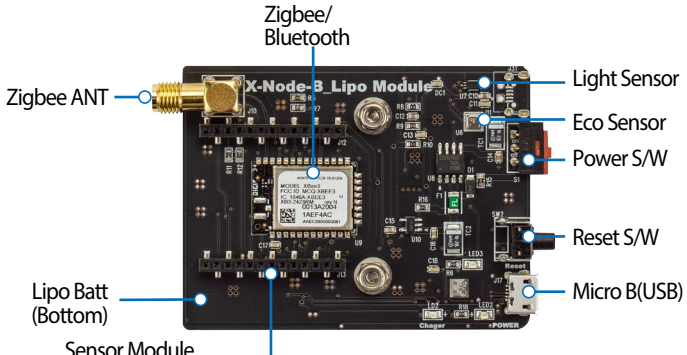
List		Specifications
Node B (5EA)	RAM: 128KB	
	Flash Memory: 1MB	
	Interface: UART, SPI, I²C, ADC, PWM, GPIO	
	Indicator: LED	
	ZigBee 3.0	Frequency: 2.4GHz Range: Max 3200m (outdoor), Max 90m(indoor) Data rate: 250kbps Sensitivity: −103dBm Output Power: 19dBm Receiver Sensitivity: −100 dBm Bluetooth support
	Light Sensor	Illuminance: 1 ~ 65535(lx) Interface: I²C
	HUMIDITY & TEMPERATURE Sensor	Humidity Resolution: 12bit(0.04%RH), 8bit(0.7%RH) Humidity Accuracy: +−3%RH Temperature Resolution: 14bit(0.01C), 12bit(0.04C) Temperature Accuracy: +−4°C Interface: I²C
	Power	Micro USB B type(+5V) Expansion Connector (+5V) Li-Po Type 3.7V/2100mAh (1EA)
Expansion Module	Basic	Input Device: Tact Switch x 2EA(GPIO) output device: LED 8EA(I²C) Actuator: Passive Buzzer(GPIO) Size: 46x44(mm)
	IMU	Acceleration ranges: 2g/±4g/±8g/±16g Gyroscope ranges: ±125°/s to ±2000°/s Magnetic field range: ±1300uT(x−,y−axis), ±2500uT(z−axis) Interface: I²C Size: 46x44(mm)
	PIR	Sensing Range: 110° Spectral Response: 5 ~ 14 um I/O Interface: Digital Out Size: 46x44(mm)
	IR Themo	Measurement resolution: 0.02℃ Measure range: −40°C ~ +125°C Interface: I²C Size: 46x44(mm)
	GPS	Sensitivity: −165dBm Update Rate: up to 10Hz AGPS Support for Fast TTFF Consumption current(@3.3V) Acquisition: 25mA Typ Tracking: 20mA Typ Size : 46x44(mm)

Layout



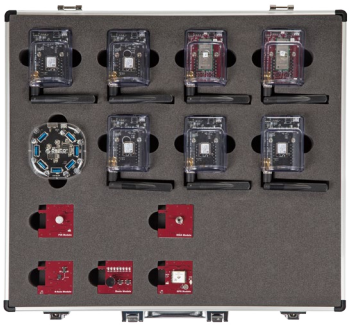


A type



B type

Composition



Platform USB
1EA

Micro USB Cable
7EA

User Guide book
1EA