安信可科技
Ai-Thinker

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🌐 http://www.ai-thinker.com

🔗 Alibaba: http://ai-thinker.en.alibaba.com (Order Online)

🔍 Open Site: Datasheet, Certification Report, Dev Tool, User Guide
https://docs.ai-thinker.com/en/welcome

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安信可科技
Ai-Thinker

PRODUCT CATALOG

WiFi/BLE/LoRa/Radar/GPS/GPRS/4G/NB-IoT/UWB modules.

Ai-Thinker Co., Ltd

Ai-Thinker Co.,Ltd.was founded in 2012, which is a leading supplier of IoT wireless communication modules in China. We integrate R&D, production and sales, focusing on IoT communication applications, and is committed to providing WiFi, Bluetooth, LoRa, Radar, Open-source hardware, UWB, GPS, GPRS, 2.4G and other stable and reliable IoT software and hardware wireless connection solutions for global IoT terminals. The products have passed RoHs, REACH, CE, FCC, SRRC, KCC, IC, NCC, ANATEL, TELEC and other authoritative certifications. We also cooperate with international mainstream cloud platforms to support smart products to accessMatter, AWS, Google Cloud, Alibaba Cloud, Tencent Cloud, Baidu Cloud and other smart ecosystems, mainly supporting IoT applications, and collaboratively building smart cities, smart home, smart wear, smart security, smart farming and other industry terminals. Also if you want your own Private Cloud, just contact us!

Product andservice advantage

Rapid intelligence

Provide customers with a variety of wireless connection, using our scheme and reference design,can quickly achieve intelligent upgrade

Fast hardware design

Professional FAE team provides technical support all day, enterprises do not need to invest in development resources, enjoy professional technical team se rvices

QuickWireless Certification

RF-Lab laboratory provides avariety of wireless testing,RF index optimization solutions to help customers'products quickly obtain wireless Frequency certification
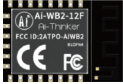
Fast technical response

Help customers connect devices to various IoT management platforms,and can provide customers with IoT private cloud deployment services

Company

WiFi4+ Bluetooth Products Ai-WB2 Series

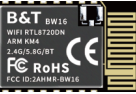| Ai-WB2 series module			
Product Name	Ai-WB2-12F	Ai-WB2-32S	Ai-WB2-13
Product Picture			
Package	SMD-22	SMD-38	SMD-18
Size	24.0*16.0*3.1(±0.2)mm	25.5*18.0*3.1(±0.2)mm	20.0*18.0*3.1(±0.2)mm
Antenna	PCB on-board antenna	PCB onboard /IPEX antenna	PCB on-board antenna
Frequency	2400MHz~2483.5MHz	2400MHz~2483.5MHz	2400MHz~2483.5MHz
Chip	BL602	BL602	BL602
Characteristics	Bluetooth 5.0, BLE Mesh	Bluetooth 5.0, BLE Mesh	Bluetooth 5.0, BLE Mesh
Power Supply	Support voltage 2.7V ~ 3.6V, supply current 500mA	Support voltage 2.7V ~ 3.6V, supply current 500mA	Supply voltage 2.7~3.6V, supply current 500mA
Interface	UART/GPIO/ADC/PWM/I2C/ SPI	UART/GPIO/ADC/PWM/SPI	UART/GPIO/ADC/PWM/I2C/SPI
Operating Temperature	-40℃~+85℃	-40℃~+85℃	-40℃~+85℃
Storage Temperature	-40℃~+125℃,<90%RH	-40℃~+125℃,<90%RH	-40℃~+125℃,<90%RH
IO	9	15	9
UART Rate	Default 115200bps	Default 115200bps	Default 115200bps
Security	WPS/WEP/WPA/WPA2 Personal/ WPA2 Enterprise/WPA3	WPS/WEP/WPA/WPA2 Personal/ WPA2 Enterprise/WPA3	WPS/WEP/WPA/WPA2 Personal/ WPA2 Enterprise/WPA3
Flash	Default is 4MByte and support expansion		
Certification	CE/FCC/KCC/NCC/SRRC/REACH/ RoHS/BQB/TELEC	CE/FCC/NCC/SRRC/REACH/RoHS/BQB	CE/FCC/SRRC/REACH/RoHS/BQB
Application Scene	IoT, mobile devices, wearable electronics, smart home and other fields		

Ai-WB2 series module			
Product Name	Ai-WB2-01F	Ai-WB2-01S	Ai-WB2-01M
Product Picture			
Package	SMD-18	DIP-8	DIP-18
Product Size	10.0*11.0*3.1（±0.2）mm	14.5*24.5*11.2（±0.2）mm	18.0*18.0*2.8（±0.2）mm
Antenna Type	External antenna	PCB on-board antenna	PCB on-board antenna
Working Frequency	2400 ~ 2483.5MHz	2400 ~ 2483.5MHz	2400 ~ 2483.5MHz
Chip	Bl602	Bl602	Bl602
Characteristics	Bluetooth 5.0, BLE mESH	Bluetooth 5.0, BLE mESH	Bluetooth 5.0, BLE mESH
Power Supply	Support voltage 2.7~3.6V, supply current 500mA	Support voltage 2.7~3.6V, supply current 500mA	Support voltage 2.7~3.6V, supply current 500mA
Interface	UART/GPIO/ADC/PWM/I2C/SPI	UART/GPIO/ADC/PWM/I2C/SPI	UART/GPIO/ADC/PWM/I2C/SPI
Working Temperature	–40~ + 85℃	–40~ + 85℃	–40~ + 85℃
Storage Temperatuer	–40~ + 125℃,<90%RH	–40~ + 125℃,<90%RH	–40~ + 125℃,<90%RH
IO	11	3	14
UART Rate	Default 115200bps		
Security	WPS/WEP/WPA/WPA2 Personal/WPA2 Enerprise/WPA3		
Flash	2/4MByte	2/4MByte	2/4MByte
Certification	CE/FCC/SRRC/REACH/RoHS/BQB		
Application Scene	IoT, mobile devices, wearable electronics, smart home and other fields		

Ai-WB2 series module			
Product Name	Ai-WB2-07S	Ai-WB2-M1	Ai-WB2-M1-I
Product Picture			
Package	SMD-16	SMD-61	SMD-61
Product Size	17.0*16.0*3.1（±0.2）mm	16.6*13.2*2.4（±0.2）mm	12.5*13.2*2.4（±0.2）mm
Antenna Type	External antenna	PCB on-board antenna	External antenna
Working Frequency	2400 ~ 2483.5MHz	2400 ~ 2483.5MHz	2400 ~ 2483.5MHz
Chip	Bl602	Bl602	Bl602
Characteristics	Bluetooth 5.0, BLE mESH	Bluetooth 5.0, BLE mESH	Bluetooth 5.0, BLE mESH
Power Supply	Support voltage 2.7~3.6V, supply current 500mA	Support voltage 2.7~3.6V, supply current 500mA	Support voltage 2.7~3.6V, supply current 500mA
Support Interface	UART/GPIO/ADC/PWM/I2C/SPI	UART/GPIO/ADC/PWM/I2C/SPI	UART/GPIO/ADC/PWM/I2C/SPI
Working Temperature	–40~ + 85℃	–40~ + 85℃	–40~ + 85℃
Storage Temperatuer	–40~ + 125℃,<90%RH	–40~ + 125℃,<90%RH	–40~ + 125℃,<90%RH
IO	11	15	15
UART Rate	Default 115200bps		
Security	WPS/WEP/WPA/WPA2 Personal/WPA2 Enerprise/WPA3		
Flash	2/4MByte	2/4MByte	2/4MByte
Certification	CE/FCC/SRRC/REACH/RoHS/BQB		
Application Scene	IoT, mobile devices, wearable electronics, smart home and other fields		

BW series module			
Product Name	BW16	BW20-12F	BW20-07S
Product Picture			
Package	SMD-16	SMD-22	SMD-23
Product Size	24.0*16.0*3.0(±0.2)mm	24.0*16.0*3.0(±0.2) mm	17*16*3.2(±0.2)mm
Antenna Type	PCB onboard /IPEX antenna	PCB onboard/IPEX antenna	IPEX antenna
Working Frequency	2400~2483.5MHz/5180~5825MHz	2400~2483.5MHz/5180~5825MHz	2400~2483.5MHz/5180~5825MHz
Chip	RTL8720DN	RTL8711DAN-VA0	RTL8711DAN-VA0
Module Feature	dual-band WiFi+BLE5.0	dual-band WiFi+BLE5.0	dual-band WiFi+BLE5.0
Bluetooth	BLE5.0	BLE5.0	BLE5.0
Bluetooth Frequency	2400~2483.5MHz	2400~2483.5MHz	2400~2483.5MHz
Power Supply	Power supply voltage is 3.0V ~3.6V, and the power supply current is > 500mA	Power supply voltage is 3.0~3.6V, and the power supply current is >500mA	Power supply voltage is 3.0~3.6V, and the power supply current is >500mA
Support Interface	UART/GPIO/PWM/IIC/SPI/ADC/SWD	UART/GPIO/ADC/PWM/IIC/SPI/SDIO/IR/SWD/USB	UART/GPIO/ADC/PWM/IIC/SPI/SDIO/IR/SWD/USB
Working Temperature	-40℃~+85 ℃	-40℃~+85℃	-40℃~+85℃
Storage Temperatuer	-40℃~+125℃, <90%RH	-40℃~+125℃, <90%RH	-40℃~+125℃, <90%RH
Flash	Default 4M	Default 4M	Default 4M
Certification	CE/FCC/SRRC/REACH/RoHS/TELEC/KCC/IC/NCC	FCC/CE in plan	FCC/CE in plan
Application Scene	Smart home, smart lighting, smart switch,home and kitchen appliance, smart door lock, Low-power Wi-Fi camera, smart docking and monitor, smart interactive toys		

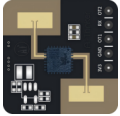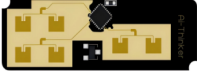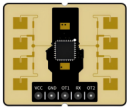| Ai-M61 series modules			
Product Name	Ai-M61-32S	Ai-M61-01	Ai-M61-32SU
Product Picture			
Package	SMD-40	SMD-48	SMD-41
Product Size	25.5*18.0*3.1 (±0.2)mm	30.1*25.0*3.1(±0.2)mm	19.2*18.0*3.1(±0.2)mm
Antenna Type	onboard antenna /IPEX	onboard antenna /IPEX	IPEX
Working Frequency	2400 ~ 2483.5MHz	2400 ~ 2483.5MHz	2400 ~ 2483.5MHz
Chip	BL618	BL618	BL618
Module Feature	Wi- Fi6 、 B LE5.3	Wi-Fi6、 BLE5.3	Wi-Fi6、BLE5.3
Power Supply	Power supply voltage is 2.97V~3.6V, and the power supply current is≥500mA	Power supply voltage is 2.97V~3.6V, and the power supply current is≥500mA	Power supply voltage is 2.97V~3.6V, and the power supply current is≥500mA
Support Interface	DVP, MJPEG, Display etc.	DVP, MJPEG, Display etc.	DVP, MJPEG, Display etc.
Working Temperature	-40℃~+85℃	-40℃~+85℃	-40℃~+85℃
Storage Temperature	-40℃~+125℃,<90%RH	-40℃~+125℃,<90%RH	-40℃~+125℃,<90%RH
IO	Default 26（Max 35)	Default 29（Max 35)	Default 26（Max 35)
UART Rate	Default is 115200 bps	Default is 115200 bps	Default is 115200 bps
Security	WPS/WEP/WPA/WPA2/WPA3	WPS/WEP/WPA/WPA2/WPA3	WPS/WEP/WPA/WPA2/WPA3
Flash	Default value is 8MByte, supports expansion	Default value is 8MByte, supports expansion	Default value is 8MByte, supports expansion
Certification	FCC、CE、RoHS、REACH、SRRC	FCC、CE、RoHS、REACH、SRRC	FCC、CE、RoHS、REACH、SRRC
Application Scene	Intelligent central control gateway, low power camera, cat eye door lock, etc.		

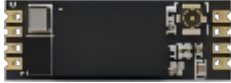| Ai-M62 series module			
Product Name	Ai-M62-12F	Ai-M62-13	Ai-M62-32S
Product Picture			
Package	SMD-22	SMD-18	SMD-38
Product Size	24.0*16.0*3.1 (±0.2)mm	20*18.0*3.2(±0.2)mm	25.5*18.0*3.1(±0.2)mm
Antenna Type	onboard antenna	onboard antenna	onboard antenna /IPEX
Working Frequency	2400 ~ 2483.5MHz	2400 ~ 2483.5MHz	2400 ~ 2483.5MHz
Chip	BL616	BL616	BL616
Module Feature	Wi-Fi6、BLE5.3	Wi-Fi6、BLE5.3	Wi-Fi6、 BLE5.3
Power Supply	Power supply voltage is 2.97V~3.6V, and the power supply current is≥500mA	Power supply voltage is 2.97V~3.6V, and the power supply current is≥500mA	Power supply voltage is 2.97V~3.6V, and the power supply current is≥500mA
Support Interface	Audio Codec,USB2.0,SDU etc.	Audio Codec,USB2.0,SDU etc.	Audio Codec,USB2.0,SDU etc.
Working Temperature	-40℃~+85℃	-40℃~+85℃	-40℃~+85℃
Storage Temperature	-40℃~+125℃,<90%RH	-40℃~+125℃,<90%RH	-40℃~+125℃,<90%RH
IO	Default 15 （Max 16)	Default 11 （Max 12)	Default 18 （Max 19)
UART Rate	Default is 115200 bps	Default is 115200 bps	Default is 115200 bps
Security	WPS/WEP/WPA/WPA2/WPA3	WPS/WEP/WPA/WPA2/WPA3	WPS/WEP/WPA/WPA2/WPA3
Flash	Default value is 4MByte, supports expansion	Default value is 4MByte, supports expansion	Default value is 4MByte, supports expansion
Certification	FCC、CE、RoHS、REACH、SRRC	FCC、CE、RoHS、REACH、SRRC	FCC、CE、RoHS、REACH、SRRC
Application Scene	Audio and video multimedia, Internet of Things (IoT), mobile devices and other fields		

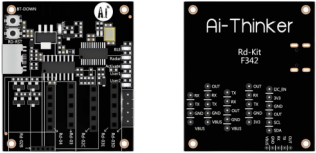| Radar series module			
Product Name	Rd-01	Rd-03	Rd-04
Product Picture			
Package	SMD-12/6Pin socket	DIP-5	DIP-5
Product Size	35.0*18.0*3.6(±0.2)mm	20.0*20.0(±0.2)mm	15.0*15.0(±0.2)mm
Antenna Type	Onboard antenna Wi-Fi&BLE: IPEX	onboard antenna	onboard antenna
Working Frequency	24G~24.25GHzWi-Fi : 2400 ~ 2483.5M Hz	24G ~24.25GHz	10.275G ~10.775GHz
Chip	BL602+S3KM111L	S3KM1110	XBR818
Module Feature	BT: Bluetooth5.0,WIF1 :802.1 1 b/g/n	24G 1T1R millimeter wave radar	10G 1T1R millimeter wave radar
Power Supply	Power supply voltage is 3.0V~3.6V, and the power supply current is≥500mA	Power supply voltage is 3.0V~3.6V, and the power supply current is≥500mA	Power supply voltage is 3.0V~3.6V, and the power supply current is≥500mA
Support Interface	UART/GPIO/ADC/PWM/I2C/SPI	UART	IIC
Working Temperature	-40℃~+85℃	-40℃~+85℃	-40℃~+85℃
Storage Temperature	-40℃~+125℃,<90%RH	-40℃~+125℃,<90%RH	-40℃~+125℃,<90%RH
IO	8	/	2
UART Rate	Default is 256000bps	Default is 115200 bps	/
Security	WPS/WEP/WPA/WPA2Personal/WPA2	—	—
Detect Fange	Max 6.5meters	Max 10.5meters	Max 6 meters
Certification	FCC/CE	FCC/CE	*
Application Scene	Smart home, smart security, etc.	Smart home, smart security, etc.	Smart security, smart switch lighting, etc.
Features	*Wi-Fi+Bluetooth+radar, with built-in data processing and wireless connection capabilities. *High-sensitivity sensing of micromovement/movement/static human body state.	*Accurately identify human movement/micro-movementm add background noise check function, strong anti-interference ability	*Low power consumption, low cost, can detect human objects in micro-movement and motion state

24G Radar series module			
Product Name	Rd-03L	Rd-03D	Rd-03E
Product Picture			
Package	DIP-5	1*4p-1.25mm	DIP-5
Product Size	20.0*20.0(±0.2)mm	15.0*44.0(±0.2)mm	28.0*24.0(±0.2)mm
Antenna Type	On-board antenna	On-board antenna	On-board antenna
Working Frequency	24G-24.25GHz	24G-24.25GHz	24G-24.25GHz
Chip	ICL1112-QFN32	S5KM312CL	S3KM111L
Module Feature	2.4G 1T1R millimeter wave radar	2.4G 1T2R millimeter wave radar	2.4G 1T1R millimeter wave radar
Power Supply	Power supply voltage is 3.0-3.6V, average supply current≧0.1mA（1Hz reporting frequency)	Power supply voltage is 5V, and the power supply current is≧200mA	Power supply voltage is 5V, and the power supply current is≧200mA
Support Interface	UART	UART	UART
Working Temperature	-40℃~+85℃	-40℃~+85℃	-40℃~+85℃
Storage Temperatuer	-40℃~+125℃,<90%RH	-40℃~+125℃,<90%RH	-40℃~+125℃,<90%RH
IO	1	/	2
UART Rate	Default 256000bps	Default 256000bps	Default 256000bps
Security	—	—	—
Detect Range	Max 10.5 meters	Max 6.5meters	Max 6.5 meters
Certification	*	*	*
Application Scene	Smart home, smart security, etc.	Smart home, smart security, etc.	Smart security, smart switch lighting, etc.
Features	*High-sensitivity sensing of micromovement/movement/static human body state. *Lowest power consumption	*Detect multiple targets in adesignated area and report the results in real time with distance.	* Accurate ranging * Gesture recognition.
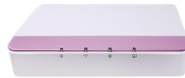
Radar series module		
Product Name	Rd-60	Rd-61
Product Picture		
Package	SMD23&DIP23	SMD12&DIP8
Product Size	19.0*19.0(±0.2)mm	18.5*6.5(±0.2)mm
Antenna Type	On-board PCB antenna(1T3R)	On-board PCB antenna(1T3R)
EIRP	17.5m	17.5m
Working Frequency	58-64GHz	58-64GHz
Module Feature	BLE5.3/802.15.4/Thread/Matter	BLE5.3/802.15.4/Thread/Matter
Power Supply	Power supply voltage is 1.7V~5.5V and the power supply current is≥500mA	Power supply voltage is 1.7V~5.5V and the power supply current is≥500mA
Support Interface	UART/IIC	UART/IIC
Working Temperature	-40℃ ~ 85℃	-40℃ ~ 85℃
Storage Temperatuer	-40℃ ~ 125℃, < 90%RH	-40℃ ~ 125℃, < 90%RH
IO	17	4
UART Rate	The UART is compatible with the 16550 industrial standard and supports baud rates up to 3 Mbps.	The UART is compatible with the 16550 industrial standard and supports baud rates up to 3 Mbps.
Detect Range	0.01-20meters	0.01-20meters
Sensor Angle	FOV 120°	FOV 120°
Application Scene	Smart home appliances, smart security, smart health care, smart cockpit: Human movement detection/Presence detection/Human tracking and counting/Human breathing and heartbeat detection/Gesture recognition/Video doorbell/Camera/Air conditioner/Refrigerator/TV	

Radar Series

Radar debug board	
Product Name	Rd-kit
Product Picture	
Product Size	40*45(±0.2)mm
Antenna Type	PCB On-board antenna
Working Frequency	240~2483.5MHz
Bluetooth	Support BLE5.2, rate support: 125Kbps, 500Kbps, 1Mbps, 2Mbps
Core Processor Chip	PHY6252(SSOP24)
Power Supply	5V, power supply current≥500mA
Support Module	Rd-02B, Rd-02C, Rd-03, Rd-03L, Rd-03D, Rd-03E, Rd-04
Indicator Light	6 status indicators(1 red and 5 blue)
Flash	Has 64 KB SRAM, 256KB flash,96 KB ROM, 256bit efuse
Function	Radar module debug board, support Rd-02B, Rd-02C, Rd-03, Rd-03D, Rd-03E and Rd-04 module, setting detection range,equipped with Ai-Thinker APP for data detection and parameter adjustment
Development	Support Linux, windows environment
APP	 Android version scan above QR code, IOS search Ai-Thinker to find on APP store diretly

Bluetooth Product PB Series

PB series modules			
Product Name	PB-03	PB-03F	PB-03M
Product Picture			
Package	SMD-61	SMD-22	DIP-18
Product Size	16.6*13.2*2.8(±0.2)mm	24.0*16.0*3.1(±0.2)mm	18.0*18.0*2.8(±0.2)mm
Antenna Type	PCB onboard antenna	PCB onboard antenna	PCB onboard antenna
Working Frequency	2400MHz~2483.5MHz	2400MHz~2483.5MHz	2400MHz~2483.5MHz
Chip	PHY6252(SSOP24)	PHY6252(SSOP24)	PHY6252(55OP24)
Module Feature	BLE5.2, support mesh	BLE5.2, support mesh	BLE5.2, support mesh
Power Supply	Power supply voltage is 2.7V~3.6V, and the power supply current is > 200mA	Power supply voltage is 2.7V~3.6V, and the power supply current is > 200mA	Power supply voltage is 2.7V~3.6V, and the power supply current is > 200mA
IO	19	19	15
Security	AES-128	AES-128	AES-128
Flash	256KB	256KB	256KB
Support Interface	UART/GPIO/ADC/PWM/I2C/SPI/PDM/DMA	UART/GPIO/ADC/PWM/I2C/SPI/PDM/DMA	UART/GPIO/ADC/PWM/I2C/SPI/PDM/DMA
Working Temperature	–40℃~+85℃	–40℃~+85℃	–40℃~+85℃
Storage Temperature	–40℃~+125℃,<90%RH	–40℃~+125℃,<90%RH	–40℃~+125℃,<90%RH
Max Transmit Power	+10dBm	+10dBm	+10dBm
Receive Sensitivity	Typical value: –96dBm	Typical value: –96dBm	Typical value: –96dBm
Module Power Consumption (Single Module)	Deep Sleep mode: 7.2μA, shutdown mode: 0.57μA, RX mode: 9.4mA,TX mode (0dBm):11.5mA	Deep Sleep mode: 7.2μA, shutdown mode: 0.57μA, RX mode: 9.4mA,TX mode (0dBm):11.5mA	Deep Sleep mode: 7.2μA, shutdown mode: 0.57μA, RX mode: 9.4mA,TX mode (0dBm):11.5mA
Certification	CE/FCC/RCM/IC/KCC/SRRC/RoHs/REACH	CE/FCC/SRRC/REACH/RoHS	CE/FCC/SRRC/REACH/RoHS
Application Scene	Smart lights, switches, sockets, wearable devices, smart locks		

Bluetooth Products TB Series

TB series module			
Product Name	TB-02	TB-03F	TB-05
Product Picture			
Package	DIP-18/SMD-13	SMD-22	SMD-20
Product Size	18.0*18.0*2.8(±0.2)mm	24.0*16.0*3.0(±0.2)mm	12.2*18.6*2.8(±2)mm
Antenna Type	PCB onboard antenna	PCB onboard antenna	PCB on board antenna
Working Frequency	2400MHz~2483.5MHz	2400MHz~2483.5MHz	2400MHz~2483.5MHz
Chip	TLSR8250F512	TLSR8250F512	TLSR8250F12
Module Feature	BLE5.0,Mesh networking, support Tmall Genie direct control	BLE5.0,Mesh networking, support Tmall Genie direct control	BLE5.0, BLE MESH
Power Supply	Power supply voltage is 2.7V~3.6V, and the power supply current is≥50mA	Power supply voltage is 2.7V~3.6V, and the power supply current is≥50mA	Power supply voltage is 2.7V~3.6V, and the power supply current is≥50mA
Support Interface	GPIO/PWM/SPI/ADC/UART	GPIO/PWM/SPI/ADC/UART	GPIO/PWM/SPI/ADC/UART
Working Temperature	-40℃~+85℃	-40℃~+85℃	-40℃~+85℃
Storage Temperature	-40℃~+125℃,<90%RH	-40℃~+125℃,<90%RH	-40~ + 125℃,<90%RH
Receive Sensitivity	Typical value –93dBm	Typical value –93dBm	Typical value –93dBm
Max Transmit Power	+10dBm	+10dBm	+10dBm
Transmission Distance (Outdoor Open Visual Distance)	80-150M	80-150M	80-150meters
Module Power Consumption (Single Module)	Deep Sleep mode: 0.8μA, standby mode: 3.06mA, TX mode (10dBm):22.24mA	Deep Sleep mode: 0.4μA, standby mode: 2.51mA, TX mode (10dBm):20.54mA	Deep Sleep mode: 0.4μA, standby mode: 2.51mA, TX mode (10dBm):20.54mA
Certification	CE/FCC/SRRC/REACH/RoHS	CE/FCC/SRRC/REACH/RoHS	CE/FCC/SRRC/REACH/RoHs
Application Scene	Smart lights, smart sockets, smart switches, smart clothes racks, etc.		

WiFi+ Bluetooth Gateway Series
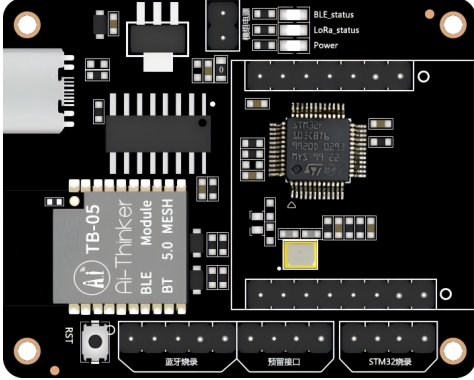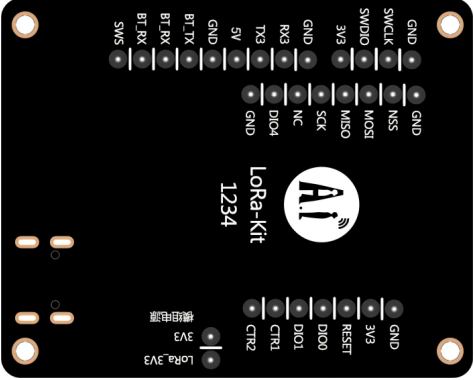
WiFi+ Bluetooth Gateway Series	
Product Name	ESP32-G
Product Picture	
Product Size	118*79*26(±0.2)mm
Working Frequency	Wi-Fi band: 2400~2483.5MHZ
Bluetooth	BLE Mesh
Networking Method	Ethernet/WiFi
Working Temperature	-20℃~+40 ℃
Storage Temperature	-40℃~+85℃
Power Supply	Power supply voltage: DC5 to 12V(12V recommended), power supply current: 1A
Power Consumption	< 1.5W
Protection	IP66(standard configuration only suitable for indoor use)IP66
Housing Material	Plastic Enclosure
Indicator Light	Power indicator, LAN status indicator, WiFi status indicator, and network connection button
Button	Hardware reset and factory reset button
Ethernet	10/100M WAN
WiFi	802.11b/g/n
Certification	SRRC/REACH/RoHS
Application Scene	Automatic meter reading, home building automation, security systems, remote irrigation systems

LoRa series module			
Product Name	Ra-01S	Ra-01SH	Ra-01SH-P(PA version)
Product Picture			
Package	SMD-16	SMD-16	SMD-16
Product Size	17.0*16.0*3.2（±0.2）mm	17.0*16.0*3.2(±0.2)mm	170*16.0*3.2(±0.2)mm
Antenna Type	Through hole pad/Compatible half hole pad (antenna to be welded)/IPEX	Through hole pad/Compatible half hole pad (antenna to be welded)/IPEX	Through hole pad/Compatible half hole pad (antenna to be welded)/IPEX
Working Frequency	410MHz~525MHz	803MHz~930MHz	803MHz~930MHz
Chip	SX1268	SX1262	SX1262
Module Feature	RF module, support for sending and receiving signals	RF module, support for sending and receiving signals	RF module, support for sending and receiving signals
Power Supply	Power supply voltage is 3.0-3.6V, Typical value 3.3V, current>200mA	Power supply voltage is 3.0-3.6V, Typical value 3.3V, current>200mA	Power supply voltage is 3.0-3.6V, Typical value 3.3V, current>200mA
Max Operating Current	140mA	140mA	Internal PA powered by 3.3V: 760mA Internal PA powered by 5V: 990mA
Receiving/Standby Current	4.5mA/1.6mA	4.2mA/0.6mA	Internal PA powered by 3.3V: 13.2mA Internal PA powered by 5V: 16mA/ 0.91mA
Driver Interface	SPI	SPI	SPI
Working Temperature	-40℃~+85℃	-40℃~+85℃	-40℃~+85℃
Storage Temperature	-40℃~+125℃,<90%RH	-40℃~+125℃,<90%RH	-40℃~+125℃,<90%RH
Programmable Bit Rate	300kbps: Up to 300kbps	300kbps: Up to 300kbps	300kbps: Up to 300kbps
Receive Sensitivity	As low as -140dBm	As low as -148dBm	As low as -148dBm
Max Output	+21dBm	+21dBm	3.3V +29dBm/5V +31dBm
Transmission Distance	Open space with spring antenna 2.8km	Open space with sucker antenna 48km	Open space with spring antenna 2.8km
Modulation System	FSK/ GFSK/ LoRa™	FSK/ GFSK/ LoRa™	FSK/ GFSK/ LoRa™
Certification	CE/FCC/REACH/RoHs	CE/FCC/REACH/RoHs	REACH/RoHs
Application Scene	Automatic meter reading, home building automation, security systems, remote irrigation systems, animal husbandry.		

LoRa series module			
Product Name	Ra-01SC	Ra-01SCH	Ra-01SCH-P(PA version)
Product Picture			
Package	SMD-16	SMD-16	SMD-16
Product Size	17.0*16.0*3.2（±0.2）mm	17.0*16.0*3.2(±0.2)mm	170*16.0*3.2(±0.2)mm
Antenna Type	Through hole pad/Compatible half hole pad (antenna to be welded)/IPEX	Through hole pad/Compatible half hole pad (antenna to be welded)/IPEX	Through hole pad/Compatible half hole pad (antenna to be welded)/IPEX
Working Frequency	410MHz~525MHz	803MHz~930MHz	803MHz~930MHz
Chip	LLCC68	LLCC68	LLCC68
Module Feature	RF module, support for sending and receiving signals	RF module, support for sending and receiving signals	RF module, support for sending and receiving signals
Power Supply	Power supply voltage is 3.0-3.6V, Typical value 3.3V, current>200mA	Power supply voltage is 3.0-3.6V, Typical value 3.3V, current>200mA	Power supply voltage is 3.0-3.6V, Typical value 3.3V, current>200mA
Max Operating Current	140mA	120mA	Internal PA powered by 3.3V: 760mA Internal PA powered by 5V: 990mA
Receiving/Standby Current	12.15mA/1.6mA	12.15mA/1.6mA	Internal PA powered by 3.3V: 13.2mA Internal PA powered by 5V: 16mA/ 0.91mA
Driver Interface	SPI	SPI	SPI
Working Temperature	-40℃~+85℃	-40℃~+85℃	-40℃~+85℃
Storage Temperature	-40℃~+125℃,<90%RH	-40℃~+125℃,<90%RH	-40℃~+125℃,<90%RH
Programmable Bit Rate	300kbps: Up to 300kbps	300kbps: Up to 300kbps	300kbps: Up to 300kbps
Receive Sensitivity	As low as -148dBm	As low as -148dBm	As low as -129dBm
Max Output	+21dBm	+21dBm	3.3V +29dBm/5V +31dBm
Transmission Distance	Open space with spring antenna 2.8km	Open space with sucker antenna 48km	Open space with spring antenna 2.8km
Modulation System	FSK/ GFSK/ LoRa™	FSK/ GFSK/ LoRa™	FSK/ GFSK/ LoRa™
Certification	CE/FCC/REACH/RoHs	REACH/RoHs	CE/FCC/REACH/RoHs
Application Scene	Automatic meter reading, home building automation, security systems, remote irrigation systems, animal husbandry.		

	LoRa series module		
Product Name	Ra-01	Ra-02	Ra-01H
Product Picture			
Package	SMD-16	SMD-16	SMD-16
Product Size	17.0*16.0*3.2 (±0.2) mm	17.0*16.0*3.2(±0.2)mm	170*16.0*3.2(±0.2)mm
Antenna Type	Through hole pad/Compatible half hole pad (antenna to be welded)	IPEX to connect external antenna	Through hole pad/Compatible half hole pad (antenna to be welded)
Working Frequency	410MHz~525MHz	410MHz~525MHz	803MHz~930MHz
Chip	SX1278	SX1278	SX1276
Module Feature	RF module, support for sending and receiving signals	RF module, support for sending and receiving signals	RF module, support for sending and receiving signals
Power Supply	Power supply voltage is 3.0-3.6V, Typical value 3.3V, current>200mA	Power supply voltage is 3.0-3.6V, Typical value 3.3V, current>200mA	Power supply voltage is 3.0-3.6V, Typical value 3.3V, current>200mA
Max Operating Current	105mA	105mA	105mA
Receiving/Standby Current	12.15mA/1.6mA	12.15mA/1.6mA	12.15mA/1.6mA
Driver Interface	SPI	SPI	SPI
Working Temperature	-40℃~+85℃	-40℃~+85℃	-40℃~+85℃
Storage Temperature	-40℃~+125℃,<90%RH	-40℃~+125℃,<90%RH	-40℃~+125℃,<90%RH
Programmable Bit Rate	300kbps: Up to 300kbps	300kbps: Up to 300kbps	300kbps: Up to 300kbps
Receive Sensitivity	As low as –140dBm	As low as –140dBm	As low as –140dBm
Max Output	+19dBm	+19dBm	+19dBm
Transmission Distance	Open space with spring antenna 2.8km	Open space with sucker antenna 48km	Open space with spring antenna 2.8km
Modulation System	FSK/ GFSK/ LoRa™	FSK/ GFSK/ LoRa™	FSK/ GFSK/ LoRa™
Certification	CE/FCC/REACH/RoHs	REACH/RoHs	CE/FCC/REACH/RoHs
Application Scene	Automatic meter reading, home building automation, security systems, remote irrigation systems, animal husbandry.		

	LoRa board
Product Name	Rd-kit
Product Picture	
Function	LoRa module debug board, facilitating the development and testing of LoRa communication and low-power performance for the full series LoRa modules such as Ra-01,Ra-01S,Ra-01SC,Ra-01H,Ra-01SH,Ra-01SCH module.And on-board Bluetooth module TB-05 can work to use wechat mini-program developed by our company to configure the radio frequency parameters of LoRa module and realize the point-to-point pull distance test.In addition, the jumper pinreserved on the board can be used as a secondary development burning and low powerevaluation test interface.
Frequency Range	LoRa low frequency module: 410~525MHz; LoRa high frequency module:803~930MHz
Bluetooth	Support BLE5.0
Core Processor Chip	STM32F103C8T6
Power Supply	Power supply voltage 5V (Type-C port), power supply current ≥500mA
Serial Port Rate	Default 115200 bps

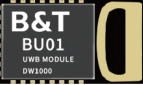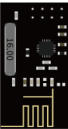| LoRaWAN Series Module		
Product Name	Ra-08	Ra-08H
Product Picture		
Package	SMD-18	SMD-18
Product Size	16.0*16.0*3.2(±0.2)mm	16.0*16.0*3.2(±0.2)mm
Antenna Type	Compatible half hole pad/Through hole pad/IPEX	Compatible half hole pad/Through hole pad/IPEX
Working Frequency	410MHZ~525MHZ	803MHz~930MHZ
Chip	ASR6601	ASR6601
Module Feature	Support LoRaWAN and LinkWAN protocol, Support private protocol development	Support LoRaWAN and LinkWAN protocol, Support private protocol development
Power Supply	Supply voltage: 2.7V~3.6V, supply current >500mA	Supply voltage: 2.7V~3.6V, supply current >500mA
Full load Mode (TX:21dBm)	115mA	115mA
Receiving Mode (RX:SF10)	9.5mA	9.5mA
Deep Sleep Current	0.9μA	0.9μA
Support Interface	UART/GPIO/ADC/DAC/I2C/I2S/SPI/PWM	UART/GPIO/ADC/DAC/I2C/I2S/SPI/PWM
Working Temperature	−40℃~+85℃	−40℃~+85℃
Storage Temperature	−40℃~+125℃,<90%RH	−40℃~+125℃,<90%RH
Series Rate	Support 110~460800bps, default 9600bps	Support 110~460800bps, default 9600bps
Max Transmit Power	+22dBm	+22dBm
Modulation Mode	LoRa/(G)FSK/BPSK/(G)MSK	LoRa/(G)FSK/BPSK/(G)MSK
Flash	128KB	128KB
Certification	CE/FCC/REACH/RoHS	CE/FCC/REACH/RoHS
Application Scene	Smart instrumentation, supply chain and logistics, home building automation, security systems, remote irrigation systems	
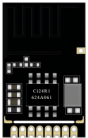
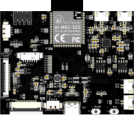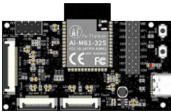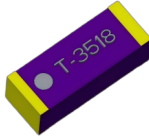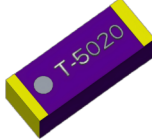| LoRaWAN series module		
Product Name	Ra-09	Ra-09H
Product Picture		
Package	SMD-48	SMD-48
Product Size	18.0*18.0*2.6(±2)mm	18.0*18.0*2.6(±2)mm
Antenna Type	Through hole pad/Compatible half hole pad（antenna to be welded)	IPEX to connect external antenna
Working Frequency	410MHz~525MHz	803MHz~930MHz
Chip	STM32WLE5CCU6	STM32WLE5CCU6
Module Feature	Support LoRaWAN and LinkWAN protocol, Support private protocol development	Support LoRaWAN and LinkWAN protocol, Support private protocol development
Power Supply	Power supply voltage is 3.0-3.6V, Typical value 3.3V, current>200mA	Power supply voltage is 3.0-3.6V, Typical value 3.3V, current>200mA
Full load Mode(TX:21dBm)	119mA	119mA
Receiving Mode(RX:SF10)	5.15mAmA	5.15mA
Deep Sleep Current	0.2uA	0.2uA
Support Interface	UART/GPIO/ADC/DAC/I2C/I2S/SPI/PWM	UART/GPIO/ADC/DAC/I2C/I2S/SPI/PWM
Working Temperature	−40~ + 85℃	−40~ + 85℃
Storage Temperatuer	−40~ + 125℃,<90%RH	−40~ + 125℃,<90%RH
Max Transmit Power	+21dBm	+21dBm
Serial Port Rate	Support 110~460800bps, default 9600bps	Support 110~460800bps, default 9600bps
Modulation Mode	Support LoRa™,（G)MSK, BPSK and (G)FSK modulation mode	Support LoRa™,（G)MSK, BPSK and (G)FSK modulation mode
Flash	256KB FLASH, 64KB RAM,inside core 32-bit 48 MHz ARM Cortex-M4（Dual Core)	256KB FLASH, 64KB RAM,inside core 32-bit 48 MHz ARM Cortex-M4（Dual Core)
Certification	RoHS/REACH	RoHS/REACH
Application Scene	Automatic meter reading, home building automation, security systems, remote irrigation systems, animal husbandry.	
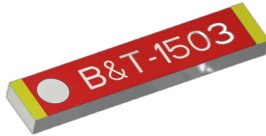
LoRaWAN Gateway Series

	LoRaWAN Gateway Series	
Product Name	RG-02 (CN470 Low Frequency version)	RG-02 (EU868 High Frequency version)
Product Picture		
Product Size	12.0*8.5*3.0(±0.2)cm	12.0*12.0*3.0(±0.2)cm
Working Frequency	CN470	EU868.IN865.RU864.KZ869
Frequency Setting Range	470~510MHz	863~870MHz
LoRa Gateway	SX1301+2*SX1257	SX1302+2*SX1250
Sensitivity	–142.5dBm	–140.0dBm
Power supply	12V@2A	5V@2A
Cellular 4G LTE	Suggested region: China/India	Suggested region: Europe/Middle East/Africa/Korea/Thailand
Antenna Type	Glue stick antenna (LORa) + Paddle antenna (4G) + built-in PCB antenna (WiFi)	Glue stick antenna (LORa) + Paddle antenna (4G) + built-in PCB antenna (WiFi)
Networking Method	Ethernet /Wi-Fi/3G/4G cellular	Ethernet /Wi-Fi/3G/4G cellular
Transmitted Power	MAX:27dBm	MAX:27dBm
processor	AR9331 400MHz	Ar9331 400MHz
MicroSD	64MB DDR+16MB FLASH	64MB DDR+16MB FLASH
WiFi	IEEE 802.11b/g/n	IEEE 802.11b/g/n
Ethernet	10M/100M	10M/100M
Certification	FCC、CE、RoHS、REACH、SRRC	FCC、CE、RoHS、REACH、SRRC
Application Scene	Animal husbandry, remote meter reading, manhole cover monitoring, smart home, street lamp monitoring, fire protection.	

GPS Series

	GPS series modules	
Product Name	GP-01	GP-02
Product Picture		
Package	SMD-24	SMD-18
Product Size	16.2*12.2*2.4(±0.2)mm	10.3*9.9*2.4(±0.2)mm
Antenna Type	External antenna	External antenna
Chip	AT6558R	AT6558R
Module Feature	High-performance BD5/GNSS multi-mode satellite navigation receiver SOC module, support China's Beidou satellite navigation system BDS, the United States GPS, Russia GLONASS, can achieve multi-system joint positioning	Ultra-small size, high-performance BD5/GNSS multi-mode satellite navigation receiver SOC module, supporting China's Beidou satellite navigation system BDS, the United States GPS, Russia's GLONASS, can achieve multi-system joint positioning
Power Supply	Power supply voltage is 2.7V~3.6V, Typical value 3V3	Power supply voltage is 2.7V~3.6V, Typical value 3V3
Supply Current	Power supply ≥30mA	Power supply ≥30mA
Support Interface	UART	UART
Working Temperature	–40℃~+85℃	–40℃~+85℃
Storage Temperature	–40℃~+125℃,<90%RH	–40℃~+125℃,<90%RH
TTFF	Cold start: ≤325; Hot start: ≤15	Cold start: ≤325; Hot start: ≤15
Accuracy	Positioning accuracy <2m(1o); Velocity measurement accuracy <0.1m/s(1o)	Positioning accuracy <2m(1o); Velocity measurement accuracy <0.1m/s(1o)
Sensitivity	–156dBm: Cold start: –148dBm; Hot start: –156 DBM	–156dBm: Cold start: –148dBm; Hot start: –156 DBM
Series Rate	Supports a Max of 256000bps	Supports a Max of 256000bps
Module Power Consumption (Single Module)	8μA: BDS/GPS dual-mode Running mode: 23mA, sleep mode: 20μA Standby mode: 8μA	8μA: BDS/GPS dual-mode Running mode: 23mA, sleep mode: 20μA Standby mode: 8μA
Certification	REACH/ROHS	REACH/ROHS
Application Scene	Vehicle navigation, smart wear, drones, intelligent transportation.	

UWB Product

UWB series module			
Product Name	BU01	BU03	BU04
Product Picture			
Package	SMD-24	SMD-24	SMD-34 compatible with DIP-16
Product Size	23.0*13.0*2.9(±0.2)mm	23.0*13.0*2.5(±0.2)mm	35.5 * 33.5 *3.4(±0.2)mm
Antenna Type	PCB onboard antenna	On-board ceramic	On0board PCB antenna compatible with IPEX socket
Working Frequency	3.5GHz to 6.5GHZ	Ch5 (6489.5MHz), CH9 (7987.2MHz)	Ch5 (6489.5MHz), CH9 (7987.2MHz)
Chip	DW1000	DW3210	DW3220+STM32F103CBT6
Module Feature	No RF design required, two-way ranging can be used	Supports two-way ranging and TDOA and PDOA positioning solutions	Supports two-way ranging and TDOA and PDOA positioning solutions
Power Supply	Power supply voltage ranges is 2.7V~3.6V (typical value: 3V3), power supply current > 200mA	Supply voltage 2.5V ~ 3.6V, typical value 3.0V. Power supply current ≥200mA	Supply voltage 2.5 V ~ 3.6 V, typical value 3.3 V. Supply current ≥ 500 mA
Support Interface	SPI	SPI	SPI /UART/I2C
Protocol Standard	IEEE 802.15.4-4011UWB Standard	Complies with IEEE 802.15.4-2015 UWB standard	Complies with IEEE 802.15.4-2015 UWB standard
Power Consumption	Sleep power consumption <1mA	Sleep power consumption<1uA	Sleep power consumption<1uA
Working Temperature	-40~ + 85℃	-40~ + 85℃	-40~ + 85℃
Storage Temperatuer	-40℃~+125℃,<90%RH	-40~ + 125℃,<90%RH	-40~ + 125℃,<90%RH
Data Rate	110Kbps/850Kbps/6.8Mbps	850Kbps/6.8Mbps	850Kbps/6.8Mbps
Position Accuracy	Up to 10cm	Up to 10cm	Up to 10cm
Application Scene	Smart factory, tunnel traffic, warehousing and logistics, exhibition hall positioning, parking lot		

2.4G Series

2.4G series modules			
Product Name	NF-01-S	NF-03	NF-05
Product Picture			
Package	DIP-8	SMD-8	SMD-8
Product Size	28.6*15.3(±0.2)mm	18.0*12.0(±2)mm	18.0*12.0(±2)mm
Antenna Type	PCB onboard antenna	PCB onboard antenna	PCB onboard antenna
Working Frequency	2400MHz–2525MHz	2400MHz–2525MHz	2400MHz–2525MHz
Chip	Si24R1	Si24R1	Si24R1
Power Supply Range	1.9V to 3.6V, typical value: 3V3, power supply current >250mA	1.9V to 3.6V, typical value: 3V3, power supply current >250mA	1.9V to 3.6V, typical value: 3V3, power supply current >250mA
Standby Current	15μA	15μA	52.9μA
Turn Off Current	0.7μA	0.7μA	2μA
Communication Interface	SPI	SPI	SPI
Working Temperature	-40℃~+85℃	-40℃~+85℃	-40℃~+85℃
Storage Temperature	-40℃~+125℃,<90%RH	-40℃~+125℃,<90%RH	-40℃~+125℃,<90%RH
Transmit Power (Max.)	+7dBm	+7dBm	+8dBm
Data Rate	250kbps/1Mbps/2Mbps	250kbps/1Mbps/2Mbps	250kbps/1Mbps/2Mbps
Test Distance (Open Space)	240m	240m	240m
Modulation Mode	GFSK/FSK	GFSK/FSK	GFSK/FSK
Certification	REACH/RoHS	REACH/RoHs	REACH/RoHs
Application Scene	Wireless mouse, wireless remote control, motion sensing equipment, remote control toys		

AiPi Open-source Hardware Series

Open-source hardware series		
Product Name	AiPi-Eyes-S1	AiPi-Eyes-DSL
Product Picture		
Description	AiPi-Eyes-S1 series is a development board specially designed for Ai-M61-32S by Ai-Thinkeropen source team, supporting WiFi6 and BLE5.3. The Ai-M61-32S module equipped has rich peripheral interfaces, including DVP, MJPEG, Display, AudioCodec, USB2.0, SDU, Ethernet (EMAC), SD/MMC (SDH), SPI, UART, I2C, I2S, PWM, GPDAC, GPADC, ACOMP, GPIO, etc. It integrates SPI screen interface, DVP camera interface, reserved TF deck, and leads out USB interface, which can be connected to USB camera.	AiPi-DSL is a screen driver development board specially designed by Ai-Thinker open source team for Ai-M61-32S. It supports 2.8/3.5-inch and other 30Pin SPI displays, 2.4-inch and 1.28-inch and other 18Pin SPI displays. AiPi-DSL has passed the test of 3.5-inch capacitive touch screen (GC9307), 2.4-inch capacitive touch screen (GC9307), and 1.28-inch circular capacitive touch screen (GC9A01).
Product Name	AiPi-Eyes- DU	AiPi-Cam-D200
Product Picture		
Description	AiPi-DU uses Ai-Thinker M61 module as the control core, and uses Type-C interface for power supply. The Ai-M61-32S module equipped has rich peripheral interfaces, including DVP, MJPEG, Dispaly, AudioCodec, USB2.0, SDU, Ethernet (EMAC), SD/MMC (SDH), SPI, UART, I2C, I2S, PWM, GPDAC, GPADC, ACOMP, GPIO, etc.	AiPi-Cam-D200 is a camera core board designed by Ai-Thinker for high-performance module design Ai-M61-32S, the pins are fully compatible with Ai-WB1-32S-CAM, and the TF cardholder is added to make up for the lack of Ai-WB1-32S-CAM. AiPi-Cam-D200 accesses 200w pixel camera by default and leads out all unused pins for easy development.

Chip Antenna(NEW)

Chip SMT antenna		
Product Name	BAT-ANT2-T3518	BAT-ANT2-T5020	BAT-ANT2-1503
Product Picture			
Frequency Range	2400-2500MHz	2400-2500MHz	400-1000MHz
Antenna Size	3.5 (L) *1.8 (W) *1.6 (H) mm	5 (L) *2 (W) *1.6 (H) mm	15 (L) *3 (W) *1.2 (H) mm
VSWR	≤2.0	≤2.0	≤2.0
Echo Loss	≤-10dB	≤-10dB	≤-10dB
Antenna Gain	1.5dBi	1.5dBi	1.5dBi
Polarization Mode	linear polarization	linear polarization	linear polarization
Radiation Direction	All-around	All-around	All-around
Radiation Efficiency	≥50%	≥60%	10-50%
Power Capacity	4W	4W	4W
Working Temperature	-40~80℃	-40~80℃	-40~80℃
Storage Temperature	-40~80℃	-40~80℃	-40~80℃
Adaptive Module	WiFi/Bluetooth module	WiFi/Bluetooth module	RF/LoRa/LoRaWAN module

2.4G Antenna

2.4G series antenna			
	External antenna		
Product Name	Collapsible black rod antenna	Small suction antenna –1.5 m RG174 wire	Spring antenna
Product Picture			
Package	2400~2500MHz	2400~2500MHz	2400~2500MHz
Input Impedance	50Ω	50Ω	50Ω
Standing-Wave Ratio	≤2.0	≤2.0	≤1.5
Gain	2.0dBi	2.0dBi	*
Connector Model	SMA	SMA/ tighten non-rotatable	*
Antenna Size	109±4mm	199.5±3mm	12.1±0.5mm
Maintenance Energy	≥3kg	≥3kg	*
Coaxial Cable	RG178 line	RG174 line	*
Cable Length	*	1.5m	*
Polarization Mode	linear polarization	linear polarization	linear polarization
Radiation Direction	omnidirectional	omnidirectional	omnidirectional
Working Temperature	–30℃~65℃	–30℃~65℃	–30℃~65℃
Storage Temperature	–30℃~65℃	–30℃~65℃	–30℃~65℃
Adaptive Module	WiFi module, Bluetooth module	WiFi module, Bluetooth module	WiFi module, Bluetooth module

470~510MHz Antenna /868MHz Antenna

470~510MHz/868MHz series antenna			
	External antenna	External antenna	Built-in antenna
Product Name	Small suction antenna –1.5 m RG174 wire	Black rod foldable antenna	Spring antenna
Product Picture			
Frequency Range	470~510MHz	868MHz	868MHz
Input Impedance	50Ω	50Ω	50Ω
Standing-Wave Ratio	≤1.5	≤2.0	≤1.5
Gain (dBi)	*	–1.4dBi	*
Connector Model	SMA/Screw unrotatable	SMA	*
Total Length	147.5±3mm	195±	21.3±0.5mm
Maintenance Energy	≥3kg	≥3kg	*
Coaxial Cable	RG174 line	*	*
Cable Length	1.5m	*	*
Polarization Mode	linear polarization	linear polarization	linear polarization
Radiation Direction	omnidirectional	omnidirectional	omnidirectional
Working Temperature	–30℃~65℃	–30℃~65℃	–30℃~65℃
Storage Temperature	–30℃~65℃	–30℃~65℃	–30℃~65℃
Adaptive Module	LoRa/LoRaWAN series module	LoRa/LoRaWAN series module	LoRa/LoRaWAN series module

GPS Antenna

	GPS series antenna		
	External antenna	External antenna	Built-in antenna
Product Name	GPS+BD antenna	GPS ceramic antenna	GPS built-in ceramic antenna
Product Picture			
Frequency Range	1575+3MHZ/1561±3MHZ	1575+3MHZ/1561±3MHZ	1575.42MHZ
Input Impedance	50Ω	50Ω	50Ω
Standing-Wave Ratio	≤2.0	≤2.0	≤2.0
Gain	28±2dBi@3~5V	26~28dBi	18±2dBi
Connector Model	SMA-J Integrated Connector (Gold plated)	Terminal	Terminal
Voltage	DC(3~5V)	3~5V	3~5V
Fixed Form	Magnet	*	*
Antenna Size	55.50*50.40*17.61mm	25.0*25.0*5.6mm	15.0*15.0*6.7mm
Coaxial Cable	RG174 line	1.13 line	1.13 line
Cable Length	3m	95±3mm	105mm
Polarization Mode	Circular Polarization	Circular Polarization	Circular Polarization
Radiation Direction	omnidirectional	omnidirectional	omnidirectional
Working Temperature	–30℃~65℃	–30℃~65℃	–30℃~65℃
Storage Temperature	–30℃~65℃	–30℃~65℃	–30℃~65℃
Adaptive Module	GPS module	GPS module	GPS module

5.8G Antenna

	5.8G series antenna		
	External antenna	Built-in antenna	
Product Name	Round rod integrated foldable antenna	Dual Band WiFi	Sheet steel antenna
Product Picture			
Frequency Range	5150~5850MHz	2400~2500MHz/5150~5850MHz	2400~2500MHz/5150~5850MHz
Input Impedance	50Ω	50Ω	50Ω
Standing-Wave Ratio	≤2.0	≤2.0	≤2.0
Gain (dBi)	3dBi	2.85dBi(2.4G)/5.76dBi(5.8G)	2.18dBi(2.4G)/4.33dBi(5.8G)
Connector Model	Terminal	Terminal	Terminal
Antenna Size	272±3mm	231.5±3mm	200±3mm
Maintenance Energy	1.5kg	1kg	1kg
Coaxial Cable	1.37 Line (black)	1.13 Lines (gray)	1.13 Wire
Cable Length	110±3mm	190±3m	185±3mm
Polarization Mode	linear polarization	linear polarization	linear polarization
Radiation Direction	omnidirectional	omnidirectional	omnidirectional
Working Temperature	–30℃~65℃	–30℃~65℃	–30℃~65℃
Storage Temperature	–30℃~65℃	–30℃~65℃	–30℃~65℃
Adaptive Module	WiFi module	WiFi module, Bluetooth module	WiFi module, Bluetooth module