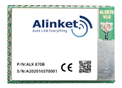
Alinket Technology Software and Hardware Integrated Product Selection Manual (Embedded)

Wi-Fi Module Product Selection Chart

Product Model	ALX831A/B	ALX850A/B	ALX855B	ALX856B	ALX870B
					
Hardware Resources					
Wi-Fi Standards	802.11 b/g/n	802.11 a/b/g/n	802.11 ac/a/b/g/n	802.11 ax/ac/a/b/g/n	802.11 a/b/g/n
Module Size（mm）	28 * 14.3 * 2.2	28 * 14.3 * 2.2	37*21*2.2	37*21*2.2	35 * 25 * 2.2
Operating Frequency	2.4GHz	2.4GHz / 5GHz	2.4GHz / 5GHz	2.4GHz / 5GHz	2.4GHz / 5GHz
MCU	ARM Cortex-M4	ARM Cortex-M4	ARM Cortex-M4	ARM Cortex-M4	ARM Cortex-M4
Design Friendliness	P2P compatible	P2P compatible	P2P compatible	P2P compatible	P2P compatible
Antenna	A:On-board ceramic antenna B:External antenna U.FL	A:On-board ceramic antenna B:External antenna U.FL	External antenna U.FLMIMO2*2	External antenna U.FLMIMO2*2	External antenna U.FL
External Interface	UART/SPI/I2C/ADC/GPIO	UART/SPI/I2C/GPIO	high speed UART/SPI/RMII/I2C/GPIO	high speed UART/SPI/RMII/I2C/GPIO	UART/SPI/USB/CAN/RMII/ I2C/I2S/GPIO
Operating Voltage	3.3V	3.3V	3.3V	3.3V	1.8V/3.3V
Operating Temperature	-30℃ ~ +85℃	-30℃ ~ +85℃	-30℃ ~ +85℃	-30℃ ~ +85℃	-30℃ ~ +85℃
Software Resources					
Operating Mode	ACM Instruction	transparent transmission/ACM Instruction	——	——	Layer 2 transparent transmission
Communication Interface	UART <-> STA/AP SPI <-> STA+AP	UART <-> STA/AP	UART <-> STA/AP SPI <-> STA/AP RMII <-> STA/AP	UART <-> STA/AP SPI <-> STA/AP RMII <-> STA/AP	RMII <-> STA/AP
One-click configuration function	√	√	——	——	√
Ad-hoc network function	√	√	——	——	——
Encrypted Authentication	WPA/WPA2/EAP	WPA/WPA2/EAP	WAP/WAP2/WPA3/EAP	WPA/WPA2/WPA3/EAP	WAP/WPA2/EAP
Roaming	√	√	√	√	√
Low Power Mode	√	√	√	√	NA
DFS（Dynamic Frequency Selection）	√	√	√	√	√
UDP/TCP Server	√	√	√	√	NA
UDP/TCP Client	√（Both can exist 4 channels at the same time）	√（Both can exist 4 channels at the same time）	√（Both can exist 4 channels at the same time）	√（Both can exist 4 channels at the same time）	NA
DNS(domain name resolution)	√	√	√	√	NA
Country code settings	√	√	√	√	√
Firmware upgrade	√	√	√	√	√
HTTP visit	√	√	√	√	NA
Cloud storage OSS	√	√	√	√	NA
Cloud connection IOT_HUB	√	√	√	√	NA
Other Resources					
Relevant certificates	CE/FCC/RoHS				

Bluetooth Module Product Selection Chart

Product Model	ALX411	ALX412	ALX420A	ALX421A
				
Hardware Resources				
Bluetooth version	BLE 4.0	BLE 5.0	BT+BLE 5.0 compatible	BT+BLE 4.1
Module Size（mm）	19 * 13.5 *1.8	19*13.5*1.8	16 * 10 * 2.4	19 * 12 * 2.4
MCU	ARM Cortex-M3	ARM Cortex-M3	ARM Cortex-M3	ARM Cortex-M4
Antenna	On-board PCB antenna	On-board PCB antenna	On-board ceramic antenna	On-board ceramic antenna
External Interface	UART	UART	UART/I2C/I2S	UART/SPI/I2C/I2S/ADC/GPIO
Operating Voltage	3.3V	3.3V	3.3V	3.3V
Operating Temperature	-30℃ ~ +85℃	-30℃ ~ +85℃	-30℃ ~ +85℃	-30℃ ~ +85℃
	Software Resources			
Operating Mode	transparent transmission/ACM Instruction	transparent transmission/ACM Instruction	transparent transmission/ACM Instruction	Applicable software customization development
Communication Interface	UART <-> BLE	UART <-> BLE	UART <-> BLE/BT/BLE+BT I2S <-> BT	
Slave mode	√	√	√	
Master mode（1：N）	√	√	√	
Gateway mode（Master and Slave)	√	√	√	
Service support	UUID、MIDI	UUID、MIDI	BLE：UUID、MIDI BT：SPP、A2DP、HID	
Low Power Mode	√	√	√	
APPLE certified Mfi support	——	——	√	
Broadcast name is configurable	√	√	√	
broadcast power is configurable	√	√	√	
Communication power is configurable	√	√	√	
Other Resources				
Relevant certificates	CE/FCC/RoHS			

Combo Module Product Selection Chart

Type	Module (without protocol stack)			Controller (with protocol stack)	
Product Model	ALXC28	ALXC29	ALXC2A	ALXC11A/B	ALXC20A/B
					
Hardware Resources					
Wi-Fi Standards	802.11 a/b/g/n	802.11 ac/a/b/g/n	802.11 ax/ac/a/b/g/n	802.11 b/g/n	802.11 a/b/g/n
Bluetooth version	BT+BLE5.0 compatible	BT+BLE 5.0	BT+BLE 5.0	BT+BLE5.0 compatible	BT+BLE5.0 compatible
Module Size（mm）	12 * 12 * 1.5	15 * 13 * 1.6	15 * 13 * 1.55	32 * 16 * 3.1	28 * 14.3 * 2.2
Operating Frequency	2.4GHz / 5GHz	2.4GHz / 5GHz	2.4GHz / 5GHz	2.4GHz	2.4GHz / 5GHz
MCU	——	——	——	ARM Cortex-M4	ARM Cortex-M4
Antenna	SISO	MIMO 2 * 2	MIMO 2 * 2	A:On-board PCB antenna B:External antenna U.FL	A:On-board ceramic antenna B:External antenna U.FL
External Interface	SDIO2.0 / UART	SDIO2.0/SDIO3.0 UART/PCM	SDIO2.0/SDIO3.0 UART/PCM	UART/SPI/ I2C/GPIO/I2S	UART/SPI/I2C/ ADC/GPIO/I2S
Standard operating voltage	3.3V				
Operating Temperature	-30℃ ~ +85℃				
Wi-Fi Software Resources					
Operating Mode	——			ACM Instruction	
Communication Interface	SDIO <->Wi-Fi			UART<->Wi-Fi STA/AP	
Roaming	√			√	
Encrypted Authentication	WPA/WPA2			WPA/WPA2	
Low Power Mode	Applicable software customization development			√	
DFS(Dynamic Frequency Selection)				√	
TCP/UDP Server				√	
TCP/UDP Client				√	
DNS(domain name resolution)				√(Both can exist 4 channels at the same time)	
Country code settings				√	
HTTP visit				√	
Cloud storage OSS				√	
Cloud connection IOT_HUB				√	
BT/BLE Software Resources					
Operating Mode	——			ACM Instruction	
Communication Interface	UART <-> BT/BLE	UART <-> BT/BLE	UART <-> BT/BLE	UART <-> BT/BLE	
Slave mode	Applicable software customization development			√	
Master mode（1：N）				√	
Gateway mode（Master and Slave)				√	
Service support				BLE：UUID、MIDI BT：SPP、HID	
Low Power Mode				√	
APPLE certified Mif support				√	
Broadcast name is configurable				√	
broadcast power is configurable				√	
Communication power is configurable				√	
Other Resources					
Relevant certificates	RoHS			CE/FCC/RoHS	

Alinket Technology Software and Hardware Integrated Product Selection Manual (Finished Grade)

Finished Grade Product Selection Chart

Product Model	ALXB10	ALXB15A/B	ALXB15i
			
Product Qualitative	Ethernet to WIFI Bridge		Ethernet to WIFI Bridge
WIFI protocol	a/b/g/n	ac/a/b/g/n	IEEE802.11 ac/a/b/g/n
Operating Frequency	2.4GHz & 5GHz		2.4GHz/5GHz
Equipment size	65mm * 50mm * 22mm		82mm*45mm*22mm
External Interface	RJ45 Internet port（10M/100M self-adaptive）, microUSB		Ethernet port（10M/100M self-adaptive）
LED indicator	Power indication, network connection indication		Power indication, network connection indication
Security and Encryption Types	Security：WEP_PSK、WPA/WPA2_PSK Encryption：AES、TKIP、MIX		
Antenna form	Built-in/External		
Materials	Plastic	Plastic	Metal
Configuration Tool	PC software tool/Applets		
Main function	Ethernet to WIFI, support Layer 2 forwarding, support roaming, plug and play		
EAP Encrypted Authentication	✓（Optional）	✓（Optional）	✓（Optional）
MIMO	——	✓（standard）	✓（standard）
Mesh	——	✓（standard）	✓（standard）
Roaming	✓（standard）	✓（standard）	✓（standard）
Country code settings	✓（standard）	✓（standard）	✓（standard）
Operating Temperature	30 ℃ ～ +85℃		
MCU	ARM Cortex M4	ARM Cortex M4	ARM Cortex M4, 196KB RAM
Power supply method	powered by MICROUSB		
Relevant certificates	ROHS/CE/FCC certifications		

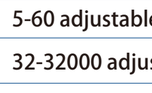
Product Model	ALXB16A/B
	
Product Qualitative	Ethernet to WIFI6
WIFI protocol	IEEE802.11 ax/ac/a/b/g/n
Operating Frequency	2.4GHz & 5GHz
Equipment size	65mm*50mm*21mm
External Interface	RJ45/100M, Micro USB
LED indicator	Power indication, network connection indication
Security and Encryption Types	Security：WEP_PSK、WPA/WPA2_PSK; Encryption：AES、TKIP
Antenna form	Built-in/External
Materials	Plastic
Configuration Tool	Professional PC configuration tool
Main function	Ethernet to WIFI, support Layer 2 forwarding, support roaming, plug and play
EAP Encrypted Authentication	✓（Optional）
MIMO	-
Mesh	x
Roaming	✓
Country code settings	✓
Operating Temperature	-40℃~85℃
MCU	ARM Cortex M4
Power supply method	Micro USB 5V1A
Relevant certificates	Not available for the moment

Product Model	ALXR10
	
Product Qualitative	Industrial grade ETH+WiFiAP<->4G router
Size	129mm * 62mm * 16.3mm
Wired communication	standard Ethernet 10M/100M(standard RJ45 connector)
Wireless communication	WIFI/4G
SIM card type	Micro SIM
Microcontroller	ARM Cortex M4
Wireless standard	LTE Cat1
4G antenna	Built-in
Wi-Fi antenna	Built-in
Power supply method	USB interface：5VDC
LED indicater	2 LED indicators:Power and network connection indications
RTC(Real Time Clock)	Built-in
Operating Temperature	-30 ℃ ～ +85℃
Operating Humidity	25%RH~95%RH（no condensation）
Relevant certificates	ROHS/CE/FCC cetifications

Product Model	WSP25
	
Product Qualitative	Wireless switch
WiFi protocol support	IEEE802.11 ac/a/b/g/n, 2.4GHz/5GHz
Security and Encryption Types	Security：WEP_PSK、WPA/WPA2_PSK; Encryption：AES、TKIP、MIX
Main chip	ARM Cortex M4, 196KB RAM
External storage	1MB Flash
Transmit power 2.4G	+17.5dBm(11b 11Mbps)、+17dBm(11g 36Mbps)、+16dBm(11n MCS6)
Transmit power 5.8G	+16dBm(11a 36Mbps)、+15.5dBm(11n MCS5)、+14dBm(11ac MCS5)
Receiving sensitivity 2.4G	-88dBm (11b 11Mbps)、-84dBm (11g 36Mbps)、-78dBm (11n MCS6)
Receiving sensitivity 5.8G	-83dBm (11a 36Mbps)、-78dBm (11n MCS5)、-77dBm（11ac MCS5）
Antenna Specifications	SMA inner bore, gain 3dbi（black/white）
Product Specifications (without antenna)	82mm (L) * 45mm (W) * 22mm (H)
Ethernet interface	International standard POE, 10M/100M self-adaptive
USB interfaces	1、microUSB 2、Network configuration and firmware upgrade
Status indicators	2 indicators: Power and network connection indicaters
Operating Temperature	-30° C ~ 85° C
Relevant certificates	ROHS/CE/FCC cetifications

Product Model	AiKits@ALKXE3
	
Product Qualitative	Video encoder
Audio and video input — video input	1 channel VGA
Audio and video input — audio input	1 channel audio input
Audio and video output — video output	1 channel VGA
Audio and video output — audio output	1 channel audio output
Receiving sensitivity — Encoding type	H. 264 / h. 265 is optional
Receiving sensitivity — Encoding frame rate	5-60 adjustable
Receiving sensitivity — Bit rate	32-32000 adjustable
Receiving sensitivity — Post-encoding resolution	1920x1080/1680x1056/1280x720/1024x576/850x480/720x576/720x540/720x480/720x404/704x576/640x480/640x360/608x448/544x480/480x480/480x384/480x360/480x320/480x272/480x270/400x320/400x224/352x480/352x228/320x256/320x240/320x180/240x180/176x144/ same as input resolution
Receiving sensitivity — Flow	支持 RTMP/ RTSP /HTTP TS/HTTP FLV/HLS/
Audio encoding — Encoding sample rate	2 indicators: Power and network connection indicaters
Audio encoding — Encoding methods	-30° C ~ 85° C
Audio encoding — Encoding bit rate	AAAC:48000-320000 adjustable/AAC+:24000-48000 adjustable/ AAC++:12000-32000 adjustable/MP3:64000-320000 adjustable/ MP2:64000-320000 adjustable/AC3:40000-640000 adjustable
Audio encoding — RTSP flow	disable/enable optional
General function — Internet	Gigabit
General function — Configuration management	Configuration management via WEB
General function — Power supply	12V/DC,2A
General function — Power consumption	4W

Product Model	AiKits@ALKXD3
	
Product Qualitative	Video encoder
Media access — Standard protocol	RTSP/HTTP TS/HTTP FLV/RTMP/UDP
Media access — Privite protocol	HTTP PTE
video decode — Type	H.265/H.264
video decode — Frame rate	1-60
video decode — Resolution	Maximum support 2160P@30
video decode — Number of ways	1 to 4 way
video decode — Bit rate	32-32000
Audio decode — Type	G711A/G711U/AAC+/AAC++/MP2/MP3
Audio decode — Number of channels	single channel/dual channel
Audio decode — Sample rate Hz	8000/11250/22500/44100/48000
Audio decode — Number of ways	1 way
Vedio output — CVBS	720x576@25
Vedio output — Color	brightness, contrast, chroma, saturation, adjustable
Vedio output — HDMI	——
Vedio output — VGA	the same as HDMI
Audio encoding — HDMI	48KHz dual channel output
Audio encoding — 3.5MM	dual channel output
Audio encoding — Enable	enable/disable
General function — Internet	Gigabit
General function — Configuration management	Configuration management via WEB
General function — Power supply	12V/DC,2A
General function — Power consumption	<5W

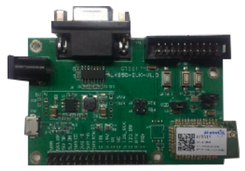
Product Model	DGW410/411
	
Product Qualitative	Bluetooth to 4G-CAT1/NB-IOT mobile wireless data repeater
Bluetooth technology	BLE 4.0/5.0
bluetooth frequency	2402-2480 MHz
Equipment size	81mm * 47mm * 17mm
Network mobile technology	NB:B1/B3/B5/B7/B8 4G:LTE FDD:N1/B3/B5/B8 LTE TDD:B34/B38/B39/B40/B4
equipment status	Power indication, network connection indication
Security and Encryption Types	Security：WEP_PSK、WPA/WPA2_PSK Encryption：AES、TKIP、MIX
Antenna form	External
Monitor	OLED monitor
Configuration Tool	PC software tool/Applets
BLE coverage	15M
BLE operating mode	Master mode
BLE receiving sensitivity	-85 dBm
Cloud interface protocols	LWM2M, http, MQTT, etc.
Battery capacity	1500mh rechargeable lithium battery
Operating Temperature	-30 ℃ ～ +85℃
MCU	ARM Cortex M4
Charging method	MICRO USB 5V-1A
Relevant certificates	ROHS/CE/FCC certifications

Product Model	DGW810	DGW611
		
Product qualitative	Bluetooth to Wi-Fi	Bluetooth to 4G/5G/Wi-Fi 5
Bluetooth technology	Bluetooth4.2（BT/BLE）	BLE5.x
Bluetooth frequency	2402-2480MHz	2402-2480MHz
Equipment size	65mm*50mm*22mm	70mm*12mm*130mm
Equipment status	Power indication, network connection indication	OLED display
Network mobile technology	IEEE 802.11a/b/g/n, 2.4/5GHz	IEEE 802.11ax/ac/a/b/g/n, 2.4/5GHz; 4G/5G, China Mobile,China Unicom,China Telecom all netcom
Security and Encryption Types	WPA/WPA2/AES/TKIP	WPA/WPA2/AES/TKIP
Antenna form	Built-in	Built-in PCB antenna
Configuration Tool	Professional PC configuration tool	Professional PC configuration tool;NFC
Bluetooth coverage range	15m	15m
Bluetooth operating mode	Master mode(Up to 4 slave devices can be connected simultaneously)	Master mode(Up to 6 slave devices can be connected simultaneously)
Bluetooth receiving sensitivity	-85dBm	-85dBm
Cloud interface protocols	LWM2M,http,MQTT,etc.	MQTT,TCP,http,etc.
Battery capacity	有源	4000mAh可充电锂电池
Operating Temperature	-30℃~80℃	0℃~50℃
MCU	ARM Cortex M4	ARM Cortex M4
Charging method	Micro USB 5V1A	Type-C 5V1A
Relevant certificates	Not available for the moment	Not available for the moment

Alinket Technology Software and Hardware Integrated Product Selection Manual (PCBA)

PCBA Product Selection Chart

Product Model	ALXG10 EVK	ALXG20 EVK	ALXG30 EVK	ALKL10 EVK
				
Product Qualitative	RS232 <-> ETH / WiFi	RS485 Master <-> WiFi	RS485 Master<->GPRS industrial gateway	Sensor->GPRS logistics transportation application
Communication/protocol	WiFi protocol：802.11b/g/n	WiFi protocol：802.11b/g/n	remote communication： support 2G network	remote communication： support 2G network
Equipement size	70mm * 45mm * 17mm	70mm * 45mm * 21mm	80mm * 55mm * 11mm	85mm * 30mm * 6mm
Interface	RJ45 network port， RS232	RS485	RS485	——
LED indicators	Power indication, network connection indication	Power indication, network connection indication	Power indication, network connection indication	Power indication, network connection indication
Antenna form	Built-in/External	Built-in/External	Built-in/External	External
Network configuration	One-click wireless configuration	One-click wireless configuration	One-click wireless configuration	One-click wireless configuration
Main function	RS232 to Wi-Fi STA/Ethernet(priority), plug-and-paly is available after network configuration	RS485 Master（9600）transparent transmit Wi-Fi STA and access the server as a TCP client	RS485 Master（9600）transparent transmit GPRS, plug-and-paly is available after network configuratio	Collect data from each sensor and send data to the server via 2G
Operating Temperature	-30℃ ~ +85℃	-30℃ ~ +85℃	-30℃ ~ +85℃	-30℃ ~ +85℃

Product Model	ALX411 EVK	ALX420A EVK	ALX850 EVK	ALXC12/ALXC20 EVK
				
Product Qualitative	RS232<->BLE development kit	RS232<->BT/BLE development kit	RS232<->2.4G/5.8GWi-Fi development kit	RS232<->2.4G/5.8GWi-Fi+BT/BLE development kit
Communication/protocol	Bluetooth technology： Bluetooth 4.1 version	Bluetooth technology： Bluetooth 4.2 version	Wi-Fi technology：802.11a/b/g/n	2.4G/5.8G Wi-Fi & Bluetooth 4.1 dual mode
Frequency band	2402-2480MHz	2402-2480MHz	2.4G&5G	2.4G&5G
Interface	UART.SPI.GPIO.ADC	UART.SPI.GPIO.ADC.I2S.I2C	UART.SPI.GPIO.ADC.USB.I2C	UART.SPI.I2C/UART.SPI.GPIO.ADC.USB.I2C
Power consumption	-1milliamps@5Kbps	-10milliamps@5Kbps	-75milliamps@500Kbps	-80milliamps@5Kbps
Antenna	PCB antenna	ceramic antenna	A:ceramic antenna B:external antenna U.FL	A:PCB antenna B:external antenna U.FL
Operating mode	transparent transmission/ACM	transparent transmission/ACM	transparent transmission/ACM/mix transparent transmission and ACM	transparent transmission/ACM/mix transparent transmission and ACM
Main function	Connect up to 6 slave devices in master mode Support slave-master-slave bridge function or BLE gateway Support OTA upgrade High sensitivity receiving PCB antenna, coverage up to 50 meters	Connect up to 6 slave devices in master mode Support slave-master-slave bridge function or BLE gateway Support OTA upgrade High sensitivity receiving PCB antenna, coverage up to 50 meters	Support WiFi station and SoftAP dual mode Fast roaming (optimal trigger mechanism) Integrated ARMCortex-M4 microcontroller and 1MB Flash could ensure the excellent performance and stability of the system	Support WiFi station and SoftAP dual mode Fast roaming (optimal trigger mechanism) Integrated ARMCortex-M4 microcontroller and 1MB Flash could ensure the excellent performance and stability of the system
Coverage	50M	50M	50M	50M