



ComIn I500

Industrial Grade 5G Wi-Fi 6 Dual Band Wireless Router

- Support 5G NR Sub-6 Cellular Network
- Up to 100 Devices
- Rugged Industrial Enclosure, Anti-Interference, External Antenna
- Gigabit Ethernet Ports and Serial Interface with Pass-through
- Standard 48V PoE Power / 12V DC Power Input
- 3000Mbps Dual Band Wi-Fi 6 802.11ax
- Support Remote Management and Upgrade

Product Description

ComIn I500 is an industrial grade 5G Wi-Fi 6 dual-band wireless router, that integrates multiple functions such as new 5G cellular broadband Internet access, high speed Wi-Fi transmission, serial port pass-thru transmission, and backend remote management. It is based on MT7981 chipset solution with 2x2 802.11ax that support data transfer rate up to 3000Mbps and enable to build a stable high-speed wireless network. In addition, ComIn I500 has high-performance wireless characteristics, which can obtain larger wireless coverage area and better wall penetration performance, meeting the application scenario requirements of high-density wireless terminals.

At the same time, ComIn I500 also has good compatibility and supports the access of most wireless terminals on the market. Users can use mobile phones, tablets or laptops to connect conveniently. It provides more processing performance, richer interfaces and higher network connection speed than ordinary industrial routers.

This product is suitable for different application scenarios, such as vehicle Wi-Fi, video transmission, PLC remote control, intelligent express cabinet, video surveillance, 5G coverage, etc.

Product Features

Wi-Fi 6 (IEEE 802.11ax) Standard

- 802.11ax, as the latest generation of IEEE 802.11 Wi-Fi standard, can increase user access capacity and bandwidth in high-density access scenarios, reduce service delays, and enhance user experience.
- Support 2.4GHz and 5GHz dual-frequency UL/DL MU-MIMO, enabling router to send data to multiple terminals at the same time, and the utilization rate of wireless spectrum resources is higher than predecessor 802.11ac.
- Support 1024QAM modulation, data transmission efficiency is increased by 40% compared with 802.11ac (256QAM).
- Support UL/DL OFDMA technology, use different subcarriers to transmit data to multiple terminals at the same time, reduce delay and improve network efficiency.
- Support spatial multiplexing technology, through the BSS coloring mechanism (BSS coloring) so that AP and terminal can distinguish overlapping BSS (basic service set), to minimize co-channel interference.
- Support target wake time* mechanism, allowing AP and terminal to negotiate sleep and wake time, reducing conflicts between terminals and unnecessary wake-up times, saving terminal power, and improving battery life.

Multi-User Uplink and Downlink-multiple Input and Multiple Output Technology (MU-MIMO)

Support MU-MIMO technology, support up to 4 spatial streams, 2.4GHz frequency band supports 2 spatial streams, 5GHz frequency band supports 2 spatial streams, through DL/UL MU-MIMO technology, AP can send data to multiple terminals at the same time, The utilization rate of wireless spectrum resources has been doubled, increasing the number of access users and bandwidth, and improving user experience in high-density access scenarios.

High-Speed Access

Supports 160MHz bandwidth. The increase in bandwidth has increased the available data sub-carriers and expanded the transmission channel; in addition, the use of 1024QAM modulation, MU-MIMO and other technologies makes the 5GHz single frequency band rate up to 2.4Gbps, and the whole machine rate is up to 3Gbps.

5GHz Priority

The AP supports both 2.4GHz and 5GHz dual-band access. By controlling the terminal to preferentially access the 5GHz frequency band, dual-frequency end users in the 2.4GHz frequency band are migrated to the 5GHz frequency band, reducing the load and interference on the 2.4GHz frequency band, and improving user experience.

Industrial Design

- Based on MT7981 Chipset Solution
- Wide voltage input design: 9 ~ 36V
- Industrial grade software and hardware watchdog design, trouble free and reliable operation in power station, transportation, and industrial control environment application
- Industrial grade EMC electromagnetic compatibility and radiation performance, passed the GB/T17626.5-2008 Level 4 test standard
- Industrial grade components, working temperature: -30 ~ +60°C
- Industrial enclosure, suitable for extreme environments
- Fan-less heat dissipation technology effectively reduces the failure rate of the equipment
- Meet the trouble-free and reliable operation under vibration and shock environment

Rugged, Stable and Reliable

- Apply complete anti-disconnection mechanism that to ensure the end data terminal is always online
- The product passed EMC test requirements
- The Ethernet interface built-in 1.5KV electromagnetic isolation protection GB/T17626.5-2008 (Level 4)
- SIM/UIM interface built-in 15KV ESD protection GB/T17626.5-2008 (Level 4)
- Built-in reserve phase protection and overvoltage protection for the power interface

High Speed Cellular Network

- Support 5G SA (Standalone) and NSA (Non-Standalone) network
- Backward compatible with 4G Cat18 (uplink) & Cat20 (downlink) or Cat12 (uplink) & Cat13 (downlink)
- Support Band Lock, Base Station Lock
- Support SIM PIN Code Lock
- Support Network Mode Lock

Hardware Specifications

Model	I500
Dimension	150mm x 114mm x 40mm (Excluding Antenna)
Weight	457g
Installation	Hanging-Ear or Din-Rail Installation
LED Indicators	1 x PWR LED Indicator 1 x SYS LED Indicator 1 x Wi-Fi 2.4GHz LED Indicator 1 x Wi-Fi 5.8GHz LED Indicator 1 x NETWORK LED Indicator 3 x Cellular Signal LED Indicator
Interfaces	1 x 1GbE RJ45 Port (WAN Support 48V PoE Input) 1 x 1GbE RJ45 Port (LAN) 2 x SMA-MALE Antenna Connector (Wi-Fi) 4 x SMA-FEMALE Antenna Connector (Cellular) 1 x Drawer style SIM card holder (3FF)
Phoenix Terminal	Specifications: 7 x 3.5mm V+ (DC Input) V- (DC Input) GND (RS232) TXD (RS232) RXD (RS232) 485+ (RS485) 485- (RS485)
Power Input	DC 9V~36V/1.5A
Power Consumption	12W
Environment	
Operating Temperature	-30°C to +60°C
Storage Temperature	-40°C to +85°C
Operating Humidity	5% - 95% (non-condensing)
Air Pressure	86kPa ~ 106kPa Altitude
Safety Certification	can do according to the customer's request
Stability	
Annual Failure Rate	AFR < 1.5% (Continuous Operation Status)
Chipset Solution	
CPU	MTK MT7981BA+MT7976CN+MT7531AE
Flash	32MB SPI Flash

RAM	256MB DDR3L memory				
Wi-Fi Characteristics					
Wi-Fi Standards	2.4GHz: 802.11b/g/n/ax 5GHz: 802.11a/n/ac/ax				
Max Speed Rate	2.4GHz: Max. 574Mbps 5GHz: Max. 2400Mbps				
Antenna	2 x 5dBi Dipole Antenna (Each Radio)				
Working Frequency	2.4GHz Radio: 2.412GHz ~ 2.472GHz				
	5GHz Radio: 5.180 ~ 5.825GHz				
Max. Transmit Power	2.4GHz Radio: 21dBm@MCS0, 19dBm@MCS7 5GHz Radio: 21dBm@MCS0, 19dBm@MCS7				
Data Rate	2.4G Radio: 802.11b: 1, 2, 5.5, and 11Mbps 802.11g: 6, 9, 12, 18, 24, 36, 48, and 54Mbps 802.11n HT20/ HT40: MCS0~MCS15 (400/ 800ns GI) 802.11ax HE20/ HE40: MCS0 ~ MCS11(400/ 800ns GI)				
	5G Radio: 802.11a: 6, 9, 12, 18, 24, 36, 48 and 54Mb/s 802.11n HT20/ HT40: MCS0~MCS15(400/ 800ns GI) 802.11ac VHT20/VHT40/VHT80: MCS0 ~ MCS9(400/ 800ns GI) 802.11ax HE20/ HE40/HE80/HE160: MCS0 ~ MCS11(400/ 800ns GI)				
2.4GHz Reception Sensitivity	802.11g	54M	-76dBm	6M	-92dBm
	802.11n HT20	MCS7	-87dBm	MCS0	-89dBm
	802.11n HT40	MCS7	-71dBm	MCS0	-73dBm
5GHz Reception Sensitivity	802.11a	54M	-76dBm	6M	-92dBm
	802.11ac HT20	MCS7	-70dBm	MCS0	-90dBm
	802.11ac HT40	MCS7	-68dBm	MCS0	-87dBm
	802.11ac HT80	MCS9	-59dBm	MCS0	-84dBm

5G/4G/3G/2G Technical Specifications

Cellular Technology	5G: 3GPP Release 15 NSA/SA operation, Sub-6 GHz CN Version: LTE DL Cat12, UL Cat13 GL & EU Version: LTE DL Cat19, UL Cat18		
Frequencies	CN (China Mainland)	EU	GL (Global)
	NSA: n41/n78/n79 SA: n1/n28/n41/n77/n78/n79 MIMO DL 4 × 4 MIMO: n1/ 41/ 77/ 78/ 79 UL 2 × 2 MIMO : n41/ 77/ 78/ 79 DL 2 × 2 MIMO: n28 LTE Category : DL Cat 12, UL Cat 13 LTE-FDD: B1/B2/B3/B5/B7/B8/ B20/B28 LTE-TDD: B34/B38/B39/ B40/B41 WCDMA: B1/B2/B5/B8	NSA: n1/n3/n5/n7/n8/n20/n28/n3 8/n40/n41/n71/n75/n76/ n77/n78 SA: n1/n3/n5/n7/n8/n20/n28/n3 8/n40/n41/n71/n75/n76/n77 /n78 LTE-FDD: B1/B3/B5/B7/B8/B20/B28/B 32/B71 LTE-TDD: B38/B40/B41/B42/B43 WCDMA: B1/B5/B8	5G NR (NSA): n1/2/3/5/7/8/12/13/14/18/20/25/26/28/29/ 30/3 8/40/41/48/66/70/71/75/76/77/78/79 5G NR (SA): n1/2/3/5/7/8/12/13/14/18/20/25/26/28/29/ 30/3 8/40/41/48/66/70/71/75/76/77/78/79 MIMO DL: 4x4 MIMO on n1, n3, n7, n38, n40, n41, n77, n78, n79 UL: 2x2 MIMO on n38, n40, n41, n77, n78, n79 DL: 2x2 MIMO on n8, n20, n28 LTE DL: Cat18, UL Cat19 LTE-FDD: B1/2/3/4/5/7/8/12/13/14/17/18/19/20/25/2 6/28 /29/30/32/66/71 LTE-TDD: B34/38/39/40/41/42/43/48 LAA: B46 WCDMA: B1/2/4/5/8/19
Data Rate	5G SA Sub-6: Max. 2Gbps(DL)/Max. 1Gbps(UL) 5G NSA Sub-6: Max. 2.2Gbps(DL)/Max. 575Mbps(UL) LTE: Max. 600Mbps (DL) / Max. 150Mbps (UL) WCDMA: Max. 42 Mbps (DL) / Max. 11 Mbps (UL)	5G SA Sub 6: Max 2.4Gbps DL / Max 900Mbps UL 5G NSA Sub 6: Max 3.4Gbps DL / Max 550Mbps UL LTE: Max 1.6Gbps DL / Max 200Mbps UL WCDMA: Max 42Mbps DL / Max 5.76Mbps UL	
Antenna Type	External Antenna		
Antenna Gain	3dBi		

Product View



Order Information

Product Model	Product Description
ComIn I500	Complete Product Unit including 1 x I500 5G Wi-Fi 6 Wireless Router Unit 1 x 12V/1.5A DC Power Adapter, European Standard Plug 2 x Dual Band Wi-Fi Antenna (2.4GHz and 5GHz Wi-Fi) 4 x Spring Magnetic Antenna (5G Cellular) 1 x Installation Accessories 1 x Network Cable

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