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4G/5G Indoor CPE Router

ST-500

Product Overview

ST-500 Cellular indoor router is a wireless communication product developed based on 3G/4G LTE/5G network requirements. Supports 3G/4G LTE/5G global frequency bands. Supports 3G/4G LTE/5G internet high speed access.

Support 5G NSA. Up to 3.4Gbps (DL)/600Mbps (UL) of NSA mode. 5G SA maximum 2.4Gbps (DL)/1Gbps (UL) access bandwidth service. It supports 2 Gigabit Ethernet ports, one RJ11 telephone port, and supports VOLTE voice.

Support for 802.11AX WIFI 6, 2.4GHz/5GHz dual-band function. And provide users with WIFI 6, AX3000 large bandwidth hotspot sharing. Meet the access and sharing of more than 32 users' WIFI hotspots. Meet the needs of families, enterprises, and chain stores to provide 4G/5G high-speed Internet access services.

Products Features :

- Wireless Mobile Broadband 3G/4G LTE/ 5G Connection. Supports 3G/4G/5G global frequency bands.
- Compliant with IEEE 802.11a/b/g/n/ac/ax,AX3000,2*2 MIMO WIFI 6, support tri-band 2.4 GHz/5 GHz .
- System crashes and automatically recovers. The system automatically maintains the data link and is permanently online.
- Supports Multiple VPN tunnels for data encryption .
- Power supply. DC 12V/1.5A
- ABS plastic material shell. Novel and fashionable appearance.

Easy to use and easy maintenance

- User friendly web interface for user interaction.
- Supports Central Management Platform.
- Supports local web UI and remote FOTA update firmware.

Operating system

- Built-in OpenWRT 19.07 operating system.

Cellular feature	
3G/4G/5G data connectivity	It provides data connectivity on ۵G NR SA and NSA, LTE-FDD, LTE-TDD, DC-HSDPA, HSPA+, HSDPA,HSUPA and WCDMA networks.
3G/4G/5G Frequency bands	• Version E **5G NR:** **5G NSA:**n1/3/5/7/8/20/28/38/40/41/75/76/77/78 **5G SA:**n1/3/5/7/8/20/28/38/40/41/75/76/77/78 **DL 4 × 4 MIMO:**n1/3/5/7/8/20/28/38/40/41/75/76/77/78 **LTE FDD:**B1/3/5/7/8/20/28/32 **LTE-TDD:**B38/40/41/42/43 **DL 4 × 4 MIMO:**B1/3/5/7/8/20/28/32/38/40/41/42/43 **WCDMA:** B1/B5/B8 • Version NA **5G NR:** **5G NSA:**n2/5/7/12/13/14/25/26/29/30/38/41/48/66/70/71/77/78 **5G SA:**n2/5/7/12/13/14/25/26/29/30/38/41/48/66/70/71/77/78 **DL 4 × 4 MIMO:**n2/5/7/12/13*/14/25/26*/29/30/38/41/48/66/70/71/77/78 **LTE FDD:**B2/4/5/7/12/13/14/17/25/26/29/30/66/71 **LTE-TDD:**B38/41/42/43/48 **LAA:** B46 **DL 4 × 4 MIMO:**B2/4/5/7/2/13/14/17/25/26/29/30/38/41/42/43/48/66/71 **WCDMA:** B1/B2/B4/B5 • Version LA **5G NSA:** n2/5/7/8/28/38/40/66/71/78 **5G SA:** n2/5/7/8/28/38/40/66/71/78 **DL 4 × 4 MIMO:** n2/4/5/7/8/28/38/66/71/78 **LTE FDD:** B2/4/5/7/8/26/28/66 **LTE-TDD:** B38/40/42/43 **DL 4 × 4 MIMO:** B2/ 4/ 5/ 7/ 8/ 26/ 28/ 38/ 40/42/ 43/ 66 **WCDMA:** B2/B4/B5
3G/4G/5G Data rates	**5G NSA.** Max 3.4Gbps (DL)/600Mbps (UL) **5G SA.** Max 2.4Gbps (DL)/1Gbps (UL) **LTE.** Max 1.6Gbps (DL)/200Mbps (UL) **HSPA+.** Max 42Mbps (DL)/ 5.76Mbps (UL) **WCDMA** Max 384Kbps (DL)/384Kbps (UL)

Cellular feature	
3G/4G/5G Receiving Sensitivity	5G NR-FDD n1(20MHz), -94.3 dBm 5G NR-FDD n2(20MHz), -94.3 dBm 5G NR-FDD n3(20MHz), -94.5 dBm 5G NR-FDD n5(10MHz), -95.5 dBm 5G NR-FDD n7(20MHz), -94.7 dBm 5G NR-FDD n8(20MHz), -96.2 dBm 5G NR-FDD n12(15MHz), -96.7 dBm 5G NR-FDD n13(10MHz), -97.6 dBm 5G NR-FDD n14(10MHz), -98.7 dBm 5G NR-FDD n18(15MHz), -98 dBm 5G NR-FDD n20(20MHz), -96.9 dBm 5G NR-FDD n25(20MHz), -94.6 dBm 5G NR-FDD n26(20MHz), -95 dBm 5G NR-FDD n28(20MHz), -96 dBm 5G NR-FDD n30(10MHz), -95.4 dBm 5G NR-TDD n38(20MHz), -93.4 dBm 5G NR-TDD n40(20MHz), -93.8 dBm 5G NR-TDD n41(100MHz), -85.8 dBm 5G NR-TDD n66(40MHz), -92.3 dBm 5G NR-TDD n71(20MHz), -96.5 dBm 5G NR-TDD n77(100MHz), -87.4 dBm 5G NR-TDD n78(100MHz), -87.8 dBm 5G NR-TDD n79(100MHz), -87.2 dBm LTE-FDD B1(10MHz) , -97.3 dBm LTE-FDD B2(10MHz) , -97.8 dBm LTE-FDD B3(10MHz) , -97.6 dBm LTE-FDD B4(10MHz) , -98.2 dBm LTE-FDD B5(10MHz) , -100.3 dBm LTE-FDD B7(10MHz) , -97.1 dBm LTE-FDD B8(10MHz) , -99.7 dBm LTE-FDD B12(10MHz) , -100.8 dBm LTE-FDD B13(10MHz) , -98.7 dBm LTE-FDD B14(10MHz) , -99.5 dBm LTE-FDD B17(10MHz) , -100.3 dBm LTE-FDD B18(10MHz) , -100.3 dBm LTE-FDD B19(10MHz) , -100.3 dBm LTE-FDD B20(10MHz) , -100.5 dBm LTE-FDD B25(10MHz) , -97.7 dBm LTE-FDD B26(10MHz) , -100.3 dBm LTE-FDD B28(10MHz) , -99.7 dBm LTE-FDD B29(10MHz) , -98.2 dBm LTE-FDD B30(10MHz) , -97.3 dBm LTE-FDD B32(10MHz) , -97.3 dBm LTE-FDD B66(10MHz) , -98 dBm LTE-FDD B71(10MHz) , -99.7 dBm LTE-TDD B38(10MHz) , -95.7 dBm LTE-TDD B39(10MHz) , -98.7 dBm LTE-TDD B40(10MHz) , -96.6 dBm LTE-TDD B41(10MHz) , -95.7 dBm LTE-TDD B42(10MHz) , -96.8 dBm LTE-TDD B43(10MHz) , -97.1 dBm LTE-TDD B46(10MHz) , -96.2 dBm LTE-TDD B48(10MHz) , -96.9 dBm WCDMA B1 , -109 dBm WCDMA B2 , -109 dBm WCDMA B4 , -110 dBm WCDMA B5 , -111 dBm WCDMA B8 , -112dBm

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Cellular feature	
5G NR features	• 3GPP Release 16 • Supported modulations:- Uplink: π/2-BPSK, QPSK, 16QAM, 64QAM and 256QAM - Downlink: QPSK, 16QAM, 64QAM and 256QAM • Supported SCS: 15 kHz 2 and 30 kHz 2 • SA 3 and NSA 3 operation modes supported on all the 5G band • Option 3x, 3a, 3 and Option 2 • Maximum transmission data rates 4:- NSA: 3.4 Gbps (DL)/ 550 Mbps (UL),- SA: 2.4 Gbps • (DL)/ 900 Mbps (UL)
LTE features	• 3GPP Release 16 • LTE Category: DL Cat 19/ UL Cat 18 • Supported modulations. - Uplink: QPSK, 16QAM and 64QAM and 256QAM - Downlink: QPSK, 16QAM and 64QAM and 256QAM • Supports 1.4/3/5/10/15/20 MHz RF bandwidth • Maximum transmission data rates . - 1.6 Gbps (DL)/ 200 Mbps (UL)
UMTS features	• 3GPP Release 9, DC-HSDPA, HSPA+, HSDPA, HSUPA and WCDMA. • Supported modulations. QPSK, 16QAM and 64QAM • Maximum transmission data rates. - HSPA+. 42 Mbps (DL)/ 5.76 Mbps (UL) - WCDMA. 384 kbps (DL)/ 384 kbps (UL)
3G/4G/5G Transmitting Power	• Class 3 (24dBm+1/-3dB) for WCDMA bands. • Class 3 (23dBm±2dB) for LTE-FDD bands. • Class 3 (23dBm±2dB) for LTE-TDD bands. • Class 3 (23dBm±2dB) for 5G NR bands. • Class 2 (26dBm±2dB) for LTE B38/B40/B41/B42 bands. • Class 2 (26dBm±2dB) for 5G NR n41/n77/n78/n79 bands .
Antennas	4 * 4G/5G internal antenna,4*4 MIMO, with 50 Ω impedance.
SIM card feature	
SIM card	Supports 1* SIM slots, 1.8V / 3V . Or 1* eSIM card. **(Optional)**

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Hardware feature	
CPU	Qualcomm SDX62, ARM Cortex - A7,1.8GHz
MEMORY	NAND FLASH 4Gb, LPDDR4X 4Gb
Hardware interface	2* LAN gigabit Ethernet ports. 1*USB3.1 port,1*RJ11 VOLTE **(Optional)**
Watchdog	Built-in watchdog feature.
Key button	Reset, WPS
Protection level	Ethernet port , Contact electric shock, +/-4KV, air discharge: +/-8KV.
LED status indicator	Power, 5G, WIFI
Power Supply	Power supply input. DC 12V/1.5A
Peak current	Max current. 2.5A @12V
Working current	Max 450 mA, 5.4W @12 V
Power Consumption	**Idle.** 120mA, 1.44W @12 V **Data link.** Max 450 mA, 5.4W @12 V **Peak.** Max 710mA , 8.52W @12V
Temperature	Operating Temperature 0 °C ~+50°C, Storage Temperature -10~+55°C
Environment humidty	5%~95% ,no condensation.
Ingress Protection	IP30
Housing	ABS plastic material, white shell.
Dimensions	110mm*112mm * 195mm
Installations	Desktop placement
Weight	370g
Wi-Fi 6E	
WLAN	• IEEE 802.11 a/b/g/n/ac/ax, AX3000 wifi 6 . Max bandwidth 2975Mbps • Supports 2.4G/5GHz WIFI 6. • Supports Dynamic Frequency Selection (DFS, radar detection). • Supports 20 MHz/40 MHz channel bandwidth for 2.4 GHz and 20 MHz/40 MHz/80 MHz/160 • MHz channel bandwidth for 5 GHz. • Supports 2x2 Multi-User Multiple-Input Multiple-Output (MU-MIMO).
Wireless Mode	Supports AP or station mode.
Wireless Security	Supports WPA2-PSK (AES), WPA/WPA2-PSK (TKIP/AES) protocols for Wi-Fi Authentication .
WIFI Modulation	Supports DSSS (1/2Mbps),CCK(1/2/5.5/11Mbps),OFDM(6/9/12/18/24/36/48/54Mbps),OFDM technology combined with BPSK,QPSK, 16-QAM,64-QAM,256-QAM,1024-QAM,820.11b adopts CCK and DSSS modulation techno

Wi-Fi 6E	
Transmission Data Rates	• 802.11b:1,2,5.5,11Mbps • 802.11g\a:6,9,12,18,24,36,48,54Mbps • 802.11n_HT20:MCS0~MCS7 • 802.11n_HT40:MCS0~MCS7 • 802.11ac_HT20: MCS0~MCS8 • 802.11ac_HT40: MCS0~MCS9 • 802.11ac_HT80: MCS0~MCS9 • 802.11ax_HT20: MCS0~MCS11 • 802.11ax_HT40: MCS0~MCS11 • 802.11ax_HT80: MCS0~MCS11 • 802.11ax_HT160:MCS0~MCS13
WIFI transmit power	• 2.4GHz, 802.11b/11Mbps:17.03dBm • 2.4GHz, 802.11g/6Mbps:15.56dBm • 2.4GHz, 802.11g/54Mbps:12.92dBm • 2.4GHz, 802.11n,HT20@MCS0:15.71dBm • 2.4GHz, 802.11n,HT40@MCS0:15.69dBm • 2.4GHz, 802.11n,HT20@MCS7:13.31dBm • 2.4GHz, 802.11n,HT40@MCS7:13.42dBm • 2.4GHz, 802.11ax,HE20@MCS11:9.68dBm • 2.4GHz, 802.11ax,HE40@MCS11:9.93dBm • 5GHz, 802.11a@6Mbps:15.77dBm • 5GHz, 802.11a@54Mbps:14.47dBm • 5GHz, 802.11n,HT20/MCS0:16.65dBm • 5GHz, 802.11n,HT40/MCS0:16.92dBm • 5GHz, 802.11n,HT20/MCS7:14.41dBm • 5GHz, 802.11n,HT40/MCS7:14.21dBm • 5GHz, 802.11ac,HT20/MCS8:16.65dBm • 5GHz, 802.11ac,HT40/MCS9:14.64dBm • 5GHz, 802.11ac,HT80/MCS9:14.25dBm • 5GHz, 802.11ax,HT20/MCS11:10.5dBm • 5GHz, 802.11ax,HT40/MCS11:10.57dBm • 5GHz, 802.11ax,HT80/MCS11:11.29dBm • 5GHz, 802.11ax_HE160/MCS13:8dBm
WIFI Rx Sensitivity	• 2.4GHz, 802.11b@11Mbps:-89.4dBm • 2.4GHz, 802.11g@6Mbps:-93.6dBm • 2.4GHz, 802.11g@54Mbps:-75.8dBm • 2.4GHz, 802.11n/ac@HT20-MCS0:-93.7dBm • 2.4GHz, 802.11n/ac@HT20-MCS7:-74.6dBm • 2.4GHz, 802.11n/ac@HT40-MCS0:-89.7dBm • 2.4GHz, 802.11n/ac@HT40-MCS7:-70.2dBm • 2.4GHz, 802.11ac@VHT20-MCS7:-70.2dBm • 2.4GHz, 802.11ax@HE20-MCS0:-96.7dBm • 2.4GHz, 802.11ax@HE20-MCS11:-65.4dBm • 2.4GHz, 802.11ax@HE40-MCS0:-93.6dBm • 2.4GHz, 802.11ax@HE40-MCS11:-63.4dBm • 5GHz, 802.11a@6Mbps: -96.3dBm • 5GHz, 802.11a@54Mbps: -78.8dBm • 5GHz, 802.11n@HT20-MCS0: -95.7dBm • 5GHz, 802.11n@HT20-MCS7: -76.7dBm • 5GHz, 802.11n@HT40-MCS0: -92dBm • 5GHz, 802.11n@HT40-MCS7: -73.5dBm • 5GHz, 802.11ac@VHT20-MCS8: -72.5dBm • 5GHz, 802.11ac@VHT40-MCS9: -68dBm • 5GHz, 802.11ax@HE20-MCS0: -97dBm • 5GHz, 802.11ax@HE20-MCS11: -65dBm • 5GHz, 802.11ax@HE40-MCS0: -93dBm • 5GHz, 802.11ax@HE40-MCS11: -63dBm
Antennas	• 2*2 MIMO internal internal antenna with 50-9Ω0dimBmpedance.
WIFI hotspot sharing	• Supports more than 32 users to share WIFI access to the Internet.

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Software feature	
Parameter settings	Supports automatic detection of MNC and MCC parameters of global operators. Built-in global operator APN, user name, password and other network parameters. At the same time, manual setting of network parameters is supported.
Dial method	After the device is powered on, the system automatically dials up to connect to the network.
Protocol	Supports PPTP,L2TP,GRE,TCP,UDP,DHCP,HTTP,DDNS,TR-069,HTTPS,SSH etc protocol.
Routing	Supports static routing, multiple routing tables.
Bridge	Supports 4G/5G bridge mode feature.
Multiple APN	Supports multiple APN access network.
System Assurance	Supports system automatic detection mechanism, automatic recovery of system abnormality or crash.
Data Link Assurance	Built-in link maintenance and self-recovery mechanism.
Firewall	Support flexible access control of TCP, UDP, ICMP packets. Supports port Mapping, NAT etc feature.
DDNS	Supported some service providers, others can be configured manually.
Firmware update	Supports local WebUI and remote OTA update firmware.
Embedded system	**OpenWRT 19.07**
Application development	Supports secondary development of application functions based on our device motherboard software.
VPN	
VPN Feature	Supports Open VPN, IPSEC VPN,PPTP,L2TP etc VPN feature.
MONITORING & MANAGEMENT	
Web GUI	HTTP, Firmware Upgrade
Command Line Interface	SSHv2
Management platform	Remote Management Platform

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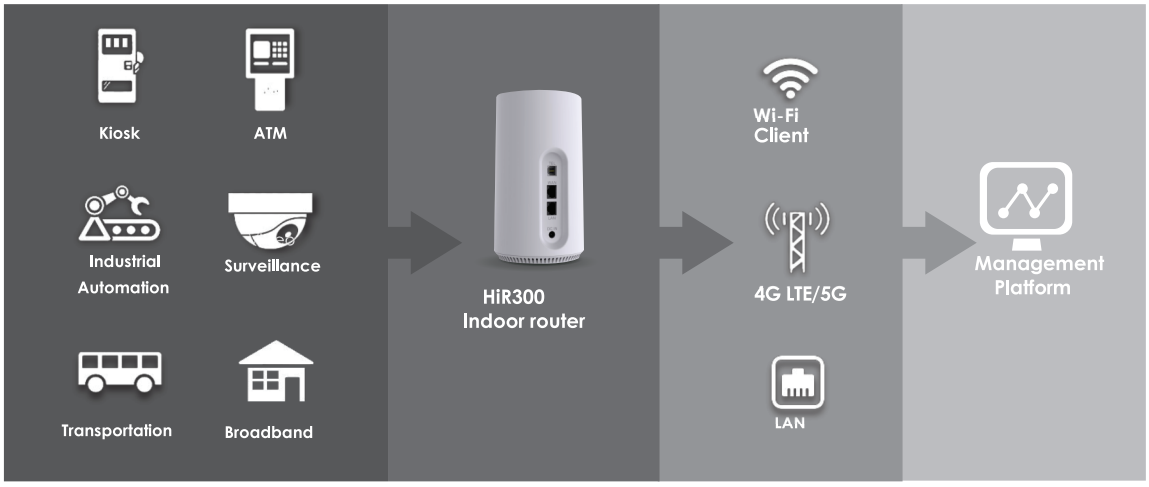
TYPICAL APPLICATION



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توجه :

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