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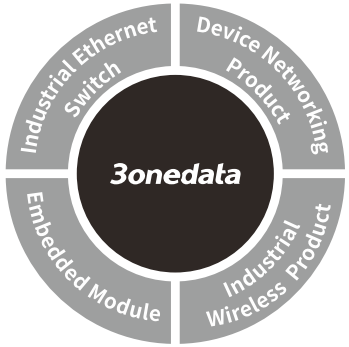
ICPE2300 Series
Industrial Indoor 5G Wireless Router
Quick Installation Guide



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【Package Checklist】

Please check whether the package and accessories are intact while using the device for the first time.

1. 5G CPE
2. DIN-Rail mounting attachment
3. 2.4G omnidirectional antenna x2
4. 5.8G omnidirectional antenna x2
5. 5G Sub-6G omnidirectional antenna x4
6. Magnetic sucker base and connecting line x8
7. SIM card ejection pin
8. Certification
9. Warranty card

If any of these items are damaged or lost, please contact our company or dealers, we will solve it ASAP.

【Product Overview】

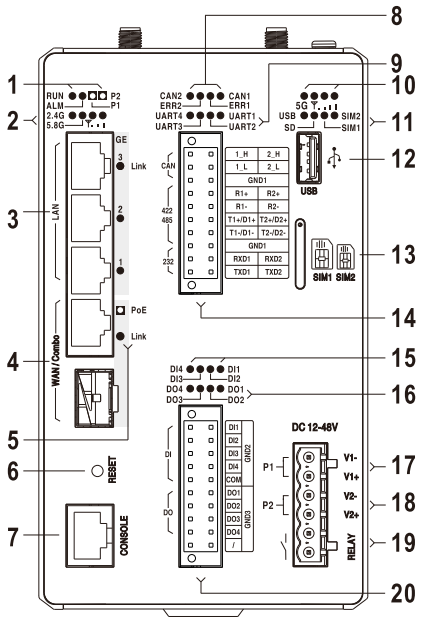
This series product is DIN-Rail Industrial-grade Indoor 5G Wireless Router. Models as follows:

Model I. ICPE2300-2A-1GC3GT-2C4D4IO-2225-2LV (1 Gigabit COMBO port (PoE WAN) + 3 Gigabit copper ports (LAN) + 2 2.4G antennas + 2 5.8G antennas + 4 5G Sub-6G antennas + 2 RS-232 + 2 RS-485/422 + 2 CAN + 4 DI + 4DO, 12~48VDC single power and dual input).

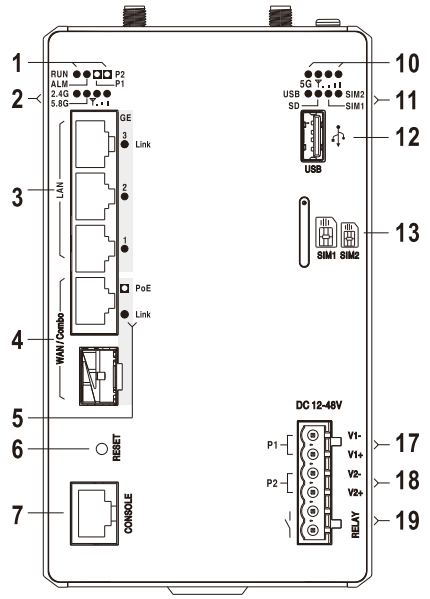
Model II. ICPE2300A-BW-8A25-1GC3GT-PD2P12_48 (1 Gigabit COMBO port (PoE WAN) + 3 Gigabit copper ports (LAN) + 2 2.4G antennas + 2 5.8G antennas + 4 5G Sub-6G antennas, 12~48VDC single power and dual input).

【Panel Design】

➢ **Front view**

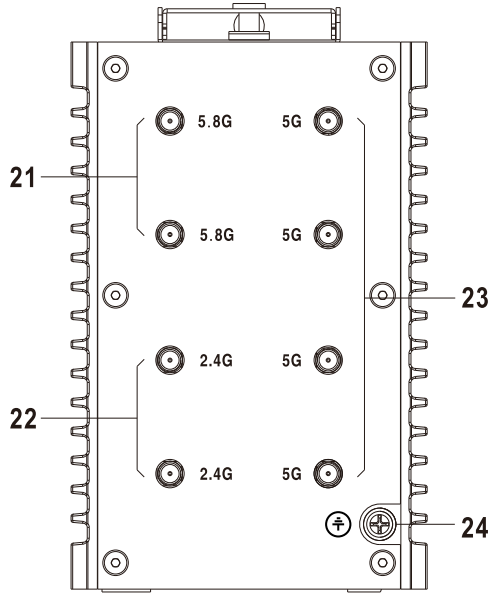


Model I

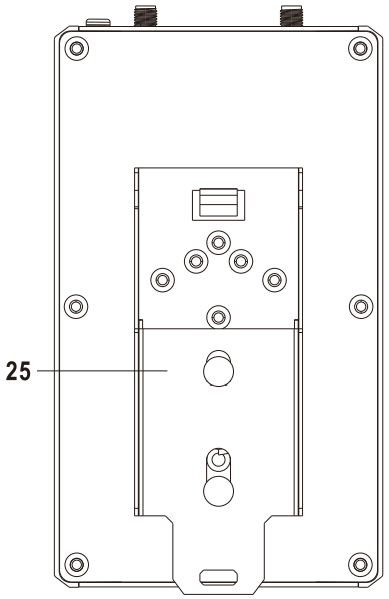


Model II

➢ **Top view**



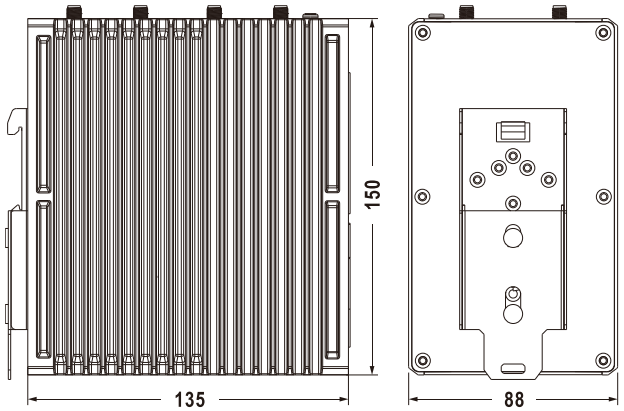
➢ **Rear View**



1. System indicators, from left to right in turn they are:
   Running Indicator (RUN)
   Alarm Indicator (ALM)
   Power Supply Indicator (P1-P2)
2. WiFi Indicators, from left to right in turn they are:
   2.4G wireless signal indicator (2.4G)
   5.8G wireless signal indicator (5.8G)
   2.4G/5.8G bridge signal strength indicator (Ⓨ.ıı)
3. 10/100/1000Base-T(X) Gigabit copper port (LAN1-LAN3)
4. 10/100/1000Base-T(X) Gigabit PoE copper port and 1000Base-X Gigabit SFP combo port (WAN/COMBO)
5. Ethernet port indicators, form top to bottom in turn they are:
   Gigabit copper port indicator (Link:1-3)
   PoE indicator (PoE)
   Gigabit COMBO port indicator (Link)
6. RESET button
7. CONSOLE port
8. CAN indicators, from left to right in turn they are:
   CAN port State indicator (CAN2)
   CAN port Error indicator (ERR2)
   CAN port error indicator (ERR1)
   CAN port state indicator (CAN1)
9. Serial port indicator (UART1-UART4)
10. 5G indicators, from left to right in turn they are:
    5G NR indicator(5G)
    5G NR bridge signal strength indicator (Ⓨ.ıı)
11. USB, SD, SIM indicators, from left to right in turn they are:
    USB interface indicator (USB)
    SD card indicator (SD)
    SIM card indicator (SIM1-SIM2)
12. USB interface(USB)
13. SD/SIM card slot(SIM)
14. CAN port, RS-485/422 RJ45, RS-485/422 terminal blocks
15. DI Indicator (DI4-DI1)
16. DO Indicator (DO4-DO1)
17. Terminal blocks for power1 input (P1)
18. Terminal blocks for power2 input (P2)
19. Relay output alarm(RELAY)
20. DI, DO terminal block
21. 5.8G antenna interface(5.8G)
22. 2.4G antenna interface(2.4G)
23. 5G Sub-6G antenna interface(5G)
24. Grounding screw
25. DIN-Rail mounting kit

【Mounting Dimension】

Unit: mm

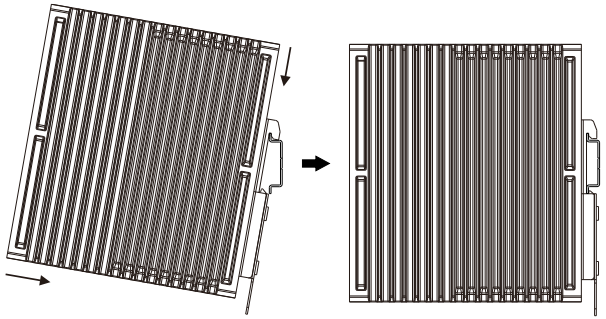


Notice Before Mounting:

- Don't place or install the device in area near water or moist, keep the relative humidity of the device surrounding between 5%~95% without condensation.
- Before power on, first confirm the supported power supply specification to avoid over-voltage damaging the device.
- The device surface temperature is high after running; please don't directly contact to avoid scalding.

【DIN-Rail Mounting】

The product adopts 35mm standard DIN-Rail mounting which is suitable for most industrial scenes, mounting steps as follows:



Step 1. Check if the DIN-Rail mounting kit is installed firmly.

Step 2. Clip the upper part of the DIN-Rail mounting kit, i.e. the fixed side, into the DIN rail.

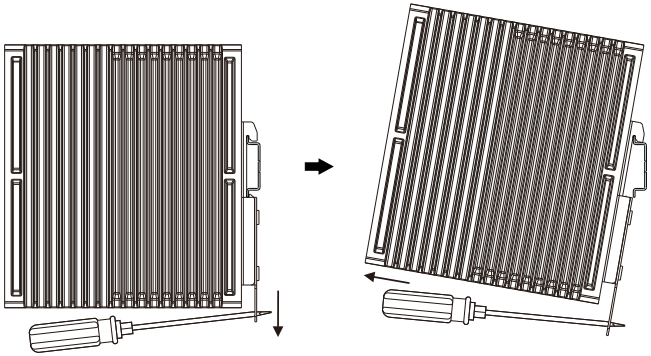
Step 3. Press the lower side of the device and insert the lower part of DIN-Rail mounting kit (the side with spring support) into DIN-Rail.

Tips:

The DIN-Rail spring support is a metal sheet that can move up and down, and there will be a sound after it is clamped in.

Step 4. Check and confirm the product is firmly installed on DIN rail, then mounting ends.

【Disassembling DIN-Rail】



Step 1. Power off the device.

Step 2. Use a slot type screwdriver or other tools to move the DIN rail spring support downward; At the same time, move the lower side of the device outward and move out the lower part of the DIN rail mounting kit.

Step 3. Lift the device upward slightly, move out the upper part of DIN-Rail mounting kit. Disassembling ends.

Notice before power on:

- Power ON operation: First insert the power supply terminal block into the device power supply interface, then plug the power supply plug contact and power on.
- Power OFF operation: First, remove the power plug, then remove the wiring section of terminal block. Please pay attention to the above operation sequence.

【Power Supply Connection】

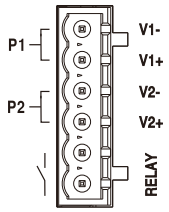
➢ **PoE power supply**

The WAN/COMBO port of this series device supports PoE power receiving, which conforms to IEEE802.3af/at standard.

➢ **12~48VDC power supply**

The series device provides 6-pin 5.08mm pitch power supply terminal blocks and power supply occupies the top 4 pins. It supports two independent DC power inputs, P1 and P2. The power supply supports redundant input backup. When two power supply input at the same time, the device will still run non-stop if one power supply fails. The power supply supports non-polarity connection, and the equipment can still work normally after reverse connection. The definitions of power pin are shown in the left figure, and the power input range is 12~48VDC.

【Relay Connection】

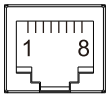


This series device provides 6-pin 5.08mm pitch terminal blocks, relay occupies the lower 2 pins. Relay terminals are a set of normally open contacts of the device alarm relay. They are open circuit in the state of normal non alarm, closed when any alarm information occurs. The relay can externally connect to alarm lights or alarm buzzer or other switching value collecting device in order to timely notify operators when the alarm occurs. (This function is reserved.)

【Reset Button Setting】

The series device provides 1 RESET button, press the RESET button for 1~2s and release it, and the device will restart automatically; Press and hold the RESET button for 5s and release it, and the device will automatically restore the factory defaults.

【Console Port Connection】



The series of device provides 1 program debugging port based on RS-232 serial port which can conduct device CLI command management after connecting to PC. The interface adopts RJ45 port, the RJ45 pin definition as follows:

Pin No.	2	3	5
Pin Definition	TXD	RXD	GND

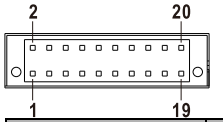
【USB Port Connection】

This series device provides1 Type-A USB 2.0 Female interface, this interface is reserved.

【Mounting SIM Card】

This series device supports 1 SIM card slot which can insert 1 Micro SIM card, 1 Nano SIM card or 1 Micro-SD card, in which SD card is reserved. When the SIM card needs to be changed, the device should be power off first in case of damaging the card.

【Antenna Connection】



The series antenna specifications provided by the device are shown below:

Type	P/N	Gain（dBi）	Quantity（pcs）
2.4G wireless	3005040101	5	2
5.8G antenna	3005040102	5	2
5G Antenna	3005040098	3	4
Magnetic sucker base	3005040090	—	4
Magnetic sucker base	3005040115	—	4

【Serial Port and CAN Port Connection】

The Model I of this series device provides 2 RS-232, 2 RS-485/422 and 2 CAN ports, and adopts 2*10 PIN 3.5mm pitch terminal blocks. The pin definitions are as follows:

Interface / Description	PIN	Definition	PIN	Definition
CAN1、CAN2	1	CAN1_H	2	CAN2_H
	3	CAN1_L	4	CAN2_L
CAN, Serial Ground signal, Common terminal	5	GND1	6	GND1

RS-485/422 (serial port1,2)	7	R1+	8	R2+
	9	R1-	10	R2-
	11	T1+/D1+	12	T2+/D2+
	13	T1-/D1-	14	T2-/D2-
CAN, Serial Ground signal, Common terminal	15	GND1	16	GND1
RS-232 (serial port 3,4)	17	RXD1	18	RXD2
	19	TXD1	20	TXD2

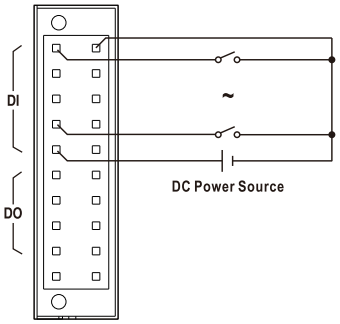
【I/O Port Connection】

This series device Model I provides 4 DI input and 4 DO output, and adopts 2*10 PIN 3.5mm pitch terminal blocks. The pin definition as shown below:

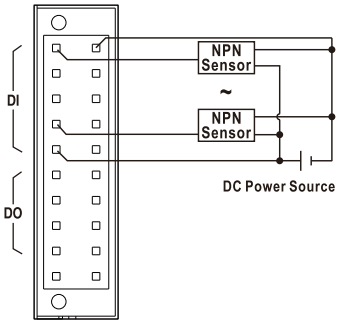
Interface / Description	PIN	Definition	PIN	Definition
DI input, therein COM is DI common terminal	1	DI1	2	GND2
	3	DI2	4	
	5	DI3	6	
	7	DI4	8	
	9	COM	10	
DO output	11	DO1	12	GND3
	13	DO2	14	
	15	DO3	16	
	17	DO4	18	
	19	/	20	

- **DI channel**

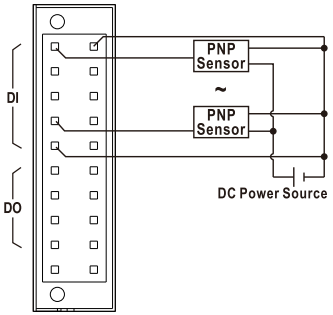
DI channel is compatible with dry contact and wet contact. Wet contact supports Sink (PNP) and Source (NPN) types. Common wiring methods are as follows.



Dry contact wiring diagram



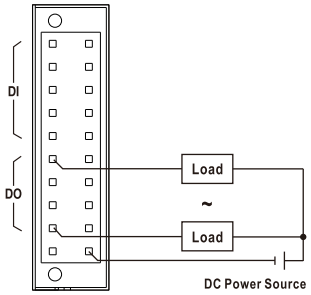
Wet contact Source (NPN) wiring diagram



Wet contact Sink PNP) wiring diagram

- **DO channel**

Do channel supports Sink (PNP) type output. Common wiring methods are as follows.



【Checking LED Indicator】

The series of devices provide LED indicators to monitor its operating status, which has simplified the overall troubleshooting process. The function of each LED is described in the table below:

LED	Indicate	Description
RUN	ON	The device is powering on or the device is abnormal.
	Blinking	The device is running normally
	OFF	The device is powered off or the device is abnormal.
ALM	ON	Device restore factory setting alarm
	OFF	Without device alarm
P1-P2	ON	Power P1/P2 is running normally
	OFF	Power P1/P2 is disconnected or running abnormally
2.4G/ 5.8G	ON	Wireless WiFi network is enabled
	Blinking	Wireless WiFi is in an active network status
	OFF	Wireless WiFi network is running abnormally or turned off
⧩	○ ○	The indicators are all off, indicating that no 2.4G/5.8G bridge has been established
	☼ ○	One indicator is on. It means 2.4G/5.8G signal at the opposite end is weak
	☼ ☼	All indicators are on. It means 2.4G/5.8G signal at the opposite end is strong

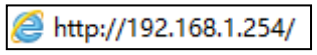
LED	Indicate	Description
Link1-3 /Link	ON	LAN/WAN port connection has established a valid network connection
	Blinking	LAN/WAN port is in network active status
	OFF	LAN/WAN port connection has not established a valid network connection
PoE	ON	PoE power input in WAN port is normal
	OFF	WAN port has no PoE power input or is receiving power abnormally
CAN1-CAN2	Blinking	CAN port exists data transmission
	OFF	CAN port is not transmitting data or transmitting data abnormally
ERR1-ERR2	ON	CAN port has fault
	OFF	CAN port is working normally
UART1-UART4	Blinking	Serial port is sending/receiving data
	OFF	Serial port is not transmitting/receiving data, or data abnormally
5G	ON	5G network is enabled
	Blinking	5G network is in an active network status
	OFF	5G network is running abnormally or turned off
Y.ıı	○ ○ ○	The indicators are all off, indicating that no 5G/4G bridge has been established
	☼ ○ ○	One indicator is on. It means 5G/4G signal at the opposite end is weak
	☼ ☼ ○	Two indicators are on. It means 5G/4G signal at the opposite end is normal
	☼ ☼ ☼	All indicators are on. It means 5G/4G signal at the opposite end is strong
USB	ON	USB interface has been connected
	OFF	USB interface has not been connected
SD	OFF	Reserved
SIM1-SIM2	ON	SIM1/SIM2 card is enabled or has dialed successfully
	OFF	SIM1/SIM2 card is disabled or installed abnormally
DI1-DI4	ON	The state between DI channel and GND is conducted
	Blinking	Pulse signal input, DI channel state changes continuously
	OFF	The state between DI channel and GND is open circuit
DO1-DO4	ON	The state between DO channel and GND is conducted
	Blinking	Pulse signal output, DO channel state changes continuously
	OFF	The state between DO channel and GND is open circuit

【Logging in to WEB Interface】

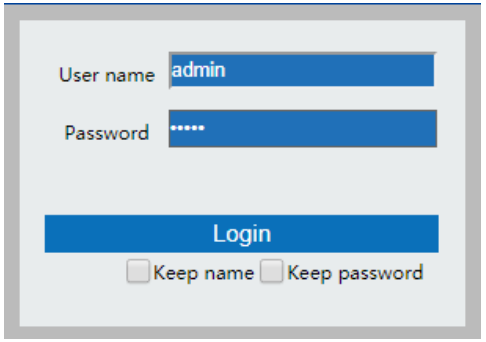
This device supports WEB management and configuration. Computer can access LAN port of the device via Ethernet interface. The way of logging in to device's configuration interface via IE browser is shown as below.

Step 1. Configure the IP addresses of computer and the device's LAN port to the same network segment, and the network between them can be mutually accessed.

Step 2. Enter device's IP address in the address bar of the computer browser.



Step 3. Enter device's username and password in the login window as shown below.



Step 4. Click "Login" button to login to the WEB interface of the device.

Note:

- The default IP address of the device's LAN port is "192.168.1.254".
- The default user name and password of the device are "admin".
- If the user name or password is lost, user can restore it to factory settings via restoring factory setting button; all modified configurations will be cleared after restoring to factory settings, so please backup configuration file in advance.
- Please refer to user manual for specific configuration method of logging in to WEB interface and other configurations about network management function.

【Specification】

Panel	
Gigabit copper port（LAN）	3 10/100/1000Base-T(X) self-adaptive RJ45 LAN ports, support automatic flow control, full/half duplex mode, MDI/MDI-X self-adaption
Gigabit COMBO indicator (WAN)	1 10/100/1000Base-T(X) self-adapting RJ45 port or 1000 Base-X SFP slot, it's WAN port by default; The copper port supports automatic flow control, full/half duplex, MDI/MDI-X self-adaptation, and

	support PoE power receiving
Antenna interface	● 2 2.4G antenna interfaces, RP-SMA-K(Female); ● 2 5.8G antenna interfaces, RP-SMA-K(Female); ● 4 5G Sub-6G antenna interfaces, SMA-K(Female);
Serial Port	2 RS-232 and 2 RS-485/422, with 2*10PIN 3.5mm pitch terminal blocks (serial port occupies 14 pins)
CAN	2 CAN, with 2*10PIN 3.5mm pitch terminal blocks (CAN occupies 6 pins)
DI	Interface quantity: 4 DI input Interface form: 2*10PIN 3.5mm pitch terminal blocks (DI occupies 10 pins) Counter frequency: ≤1kHz Working mode: DI or counter Input type: ● Dry contact (ON: GND short circuit; OFF: open circuit) ● Wet contact Source(NPN) (ON: 0~3VDC; OFF: 10~30VDC) ● Wet contact Sink (PNP) (ON: 10~30VDC: OFF: 0~3VDC)
DO	Interface quantity: 4 DO Output Interface form: 2*10PIN 3.5mm pitch terminal blocks (DO occupies 8 pins) Pulse frequency: ≤ 500Hz Working mode: DO or pulse output Rated current: 200mA/Channel Output type: Sink (PNP) Overcurrent protection: 650mA/Channel Overvoltage protection: 45VDC
USB interface	1 Type-A USB 2.0 Female, this interface is reserved
SIM card slot	1 Micro SIM card and 1 Nano SIM card, redundant backup; 1 Micro-SD card is reserved
Console port	CLI command line management port (RS-232), RJ45
Alarm interface	6-pin 5.08mm pitch terminal blocks (2-pin for relay), support 1 relay alarm output, this interface is reserved
Indicator	Running indicator, alarm indicator, power indicator, 2.4G indicator, 5.8G indicator, Wireless bridge signal strength indicator, interface indicator, PoE indicator, 5G indicator, 5G bridge signal strength indicator, USB indicator, SD card indicator, SIM card indicator, serial port indicator, CAN port indicator, DI indicator, DO indicator
WiFi Radio Frequency	
802.11b/g/n	2.412GHz~2.4835GHz
802.11ac/n/a	5.18GHz-5.825GHz
RF power output	20dBm
Modulation scheme	DBPSK、DQPSK、CCK、OFDM、16-QAM、64-QAM、256-QAM
WiFi Receiving Sensitivity	
802.11n_HT40	-82dBm@MCS0、-64dBm@MCS7
802.11n_HT20	-85dBm@MCS0、-67dBm@MCS7
802.11g/a	-91dBm@6Mbps、-72dBm@54Mbps
802.11b	-93dBm@1Mbps、-87dBm@11Mbps
802.11ac	-84dBm@MCS0、-59dBm@MCS9
WiFi Transmitting Power	
802.11n_HT40	23dBm@MCS0、20dBm@MCS7
802.11n_HT20	23dBm@MCS0、20dBm@MCS7
802.11g/a	23dBm@6Mbps、20dBm@54Mbps
802.11b	23dBm@1Mbps、20dBm@11Mbps
802.11ac	23dBm@MCS0、20dBm@MCS9
5G Operating Frequency Band	
5G NR	n1/n2/n3/n5/n7/n8/n12/n20/n28/n38/n40/n41/n48/n66/n71/n77/n78/n79
4G LTE-FDD	B1/B2/B3/B4/B5/B7/B8/B9/B12/B13/B14/B17/B18/B19/B20/B25/B26/B28/B29/B30/B32/B66/B71
4G LTE-TDD	B34/B38/39/B40/B41/B42/B48
3G WCDMA	B1/B2/B3/B4/B5/B6/B8/B19
5G **Bandwidth (downstream, upstream)**	
5G SA	DL 2.1Gbps；UL 900Mbps
5G NSA	DL 2.5Gbps；UL 650Mbps
LTE	DL 1Gbps；UL 200Mbps
WCDMA	DL 42Mbps；UL 5.76Mbps
Power Supply	
Input power supply	● WAN port: supports PoE power receiving, which conforms to IEEE802.3af/at standard ● power supply terminal: supports 12~48VDC single power and dual power input, supports input redundancy and nonpolarity, adopting 6-pin 5.08mm pitch terminal block(4-pin power supply)
Power Consumption	
Model II	No-load: 6.5W@24VDC Full-load: 20.0W@24VDC
Working Environment	
Working temperature	-40~75℃
Storage temperature	-40~85℃
Working humidity	5%～95% (no condensation)
Protection grade	IP40 (metal shell)