3onedata
Make network communication more reliable

ICPE2300 Series

DIN-Rail Mounting

Industrial Indoor 5G Wireless Router

- Support 1 Gigabit COMBO port (WAN/LAN, optional RJ45 or SFP slot), 3 Gigabit copper ports(LAN), 2 2.4G antenna interfaces, 2 5.8G antenna interfaces and 4 5G Sub- 6G antenna interfaces (2 RS-232, 2 RS-485/422, 2 CAN and 4 I/O are optional)
- CAN port and serial port support multiple operating modes like TCP Server, TCP Client, UDP Server, UDP Client, etc.
- I/O port supports working modes such as DI, Counter, DO and Pulse Output. DI channel and DO channel can be managed via Modbus TCP Master.
- Support 5G NR cellular wireless network, compatible with 3G/4G LTE all networks
- Support 2.4GHz and 5.8GHz dual bands
- Support 12~48VDC single power supply dual input, and WAN port supports 48VDC PoE power supply input
- Support -40~75℃ wide operating temperature range

Industrial Grade

Introduction

ICPE2300 series is industrial 5G wireless router. Its PoE power receiving conforms to IEEE802.3af/at protocol standard. This series has two products, provides multiple interfaces including COMBO port, Gigabit copper port, USB, 2.4G antenna interface, 5.8G antenna interface and 5G Sub-6G antenna interface, RS-232, RS-485/422, CAN and I/O. It adopts DIN-Rail mounting, which can meet the requirements of different application scenes.

Network management system supports multiple software functions, like 3G/4G/5G Cellular WAN, WAN Settings, WIFI & 4G/5G roaming, ICMP Link Test, Link Backup, Dynamic Domain Name, Routing List Setting, WLAN Settings, Port Forwarding, Port Redirection, DMZ Settings, UPnP Settings, VRRP, RIP, OSPF, Static DHCP, QoS etc. It also supports firewall functions, such as IP Filtering, MAC Filtering, URL Filtering and Keyword Filtering and IP Address Black/White List and VPN tunneling functions including GRE, IPSec, PPTP, L2TP. Each serial port or CAN port supports 4 TCP or UDP sessions, and supports multiple operating modes like TCP Server, TCP Client, UDP Server, UDP Client, UDP Rang and UDP Multicast. I/O port supports working modes such as DI, Counter, DO and Pulse Output. Network management system could bring you great user experience through its friendly interface design and easy and convenient operation.

RESET button can realize device reboot and one-key factory default restoration. Hardware adopts fanless, low power consumption, wide temperature and voltage design and has passed rigorous industrial standard tests, which can suit for the industrial scene environment with harsh requirements for EMC. The device can be widely used in factory automation, petrochemical, power monitoring, indoor LAN, converting 5G signal into WiFi coverage, achieving remote access applications of terminal equipment through 5G and other industries.

Features and Benefits

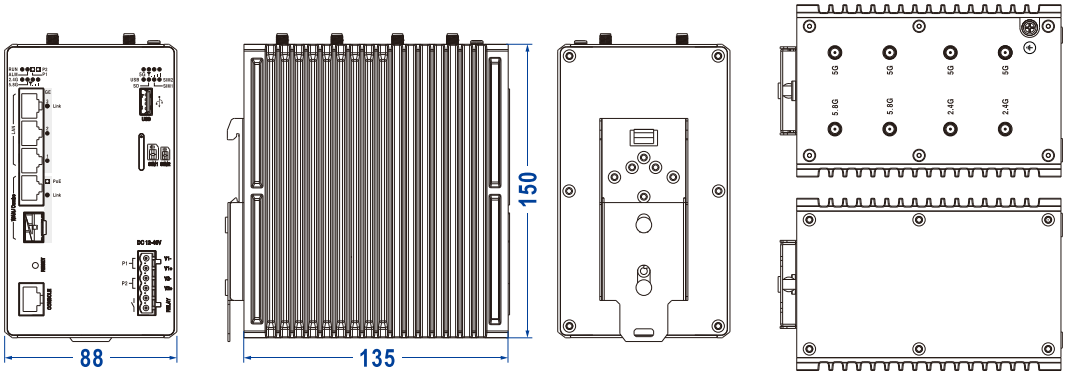
- Support high-speed wireless connection, 2.4GHz transmission speed could reach 300Mbps, 5.8GHz could reach 867Mbps, 5G Sub-6G could reach 2Gbps
- Support dual-band 2×2MIMO and 2 2.4G and 2 5.8G RF omnidirectional antennas; Support 5G Sub-6G 4×4MIMO and 4 omnidirectional antennas
- WAN network supports link backup and WiFi & 4G/5G roaming mode, which can access extranet through wired (WAN port) or wireless (WiFi) and be link backup with 3G/4G/5G cellular network.
- Support redundant backup of dual SIM cards, embedded 5G wireless communication module, compatible with 3G/4G/5G Cellular network
- WAN port supports PPPoE dialing, obtaining IP by DHCP, static IP and LAN mode
- Support DMZ isolation zone, establishing a buffer zone between non-secure system and security system
- Support network firewall, which can implement filtering and forwarding of IP, MAC, URL, keyword, etc.

- Support DHCP server, which can be used for distributing IP address with different strategies
- Support multicast transparent transmission to realize transparent transmission of multicast data between WAN, LAN, and 5G
- Support DDNS function, user can access server through domain names
- Support VPN encryption protocols like GRE, PPTP, L2TP and IPSEC, which can ensure the privacy and integrity of data and prevent replay attack
- Support port forwarding, port redirection functions and so on, which can realize address translation
- VRRP, RIP, OSPF could implement dynamic router configuration
- QoS supports real-time traffic classification and priority setting
- Support wireless user management and user event, and support blacklist and whitelist filtering rules, wireless user online/offline notification
- WWM can achieve better transmission quality of voice, video and other applications in wireless networks
- Support WPA/WPA2 wireless encryption method of both personal edition and enterprise edition and TKIP/AES encryption algorithm
- Support system log, ping test and route tracking, user can conduct network diagnosis and troubleshooting.
- TCP supports multi-connection, which enables up to 4 users to monitor and manage serial and CAN devices simultaneously
- Stand-alone or multi-device communication is supported in UDP mode, which enables multiple users to monitor or manage serial and CAN devices simultaneously
- Support DI channel status detection and counter mode, and can be used as dry contact or wet contact
- Support DO channel state control and digital pulse output mode, with the maximum pulse frequency of 500Hz

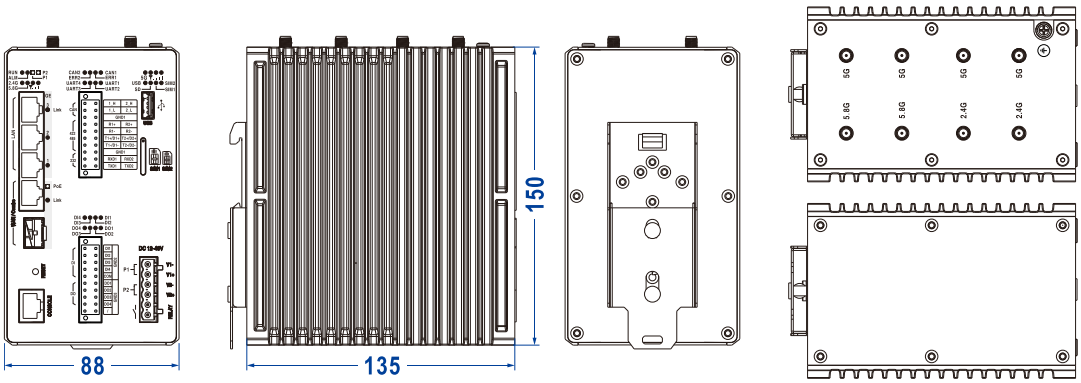
Dimension

Unit: mm

- ICPE2300A-BW-8A25-1GC3GT-PD2P12_48



- ICPE2300-2A-1GC3GT-2C4D4IO-2225-2LV



Specification

Standard & Protocol	IEEE 802.3 for 10Base-T IEEE802.3u for 100Base-TX IEEE 802.3ab for 1000Base-T IEEE 802.3z for 1000Base-X 3GPP Rel-15 for 5G NR 3GPP Rel-14 for 4G LTX 3GPP Rel-18 for 3G WCDMA IEEE802.11b/g/n/a/ac for WLAN IEEE802.11i for wireless security IEEE802.11r for fast roaming IEEE802.3af/at for PoE/PoE+
WAN Mode	Link backup (access to Internet by WAN network or 5G dialing, WAN supports DHCP/static IP/PPPoE dialing); WiFi & 4G/5G roaming (wireless roaming or access to Internet by 5G dialing)
Cellular Network	3G/4G/5G cellular network, network type 5G NR/LTE FDD/ LTE TDD/ WCDMA/ TD-SCDMA/ CDMA/ EVDO
WLAN	WAP/WAP2 personal/enterprise edition encryption mode, hidden wireless SSID, wireless user isolation, wireless transmission power adjustment, maximum user limit, packet segmentation and RTS threshold, China/US wireless channel, WMM
Management	Mobile network detection, local area network, dynamic domain name, UPnP settings, static DHCP, QoS, log management, device alias, access settings, timed restart, backup and recovery, firmware upgrade
Security Policy	Wireless user black/white list, wireless user event notice, IP filtering, MAC filtering, URL filtering, keyword filtering, IP address black/white list, port

	forwarding, port redirection, DMZ settings
VPN Tunnel	GRE, PPTP Client/Server, L2TP Client/Server, IPSec
Multicast	Multicast Translate
Troubleshooting	System Log, Ping Test and Route Tracking
Routing Technique	VRRP, RIP, OSPF, routing list settings
Time Management	NTP Client
Wi-Fi Radio Frequency	802.11B/g/n: 2.412GHz~2.4835GHz 802.11Ac/n/a: 5.18GHz~5.825GHz RF power output: 20dBm Modulation methods: DBPSK, DQPSK, CCK, OFDM, 16-QAM, 64-QAM, 256-QAM
Wi-Fi 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
Wi-Fi 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 NR 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 NR Bandwidth (downward, upward)	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
Interface	Gigabit copper port: 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 port: 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 (optional): 2 RS-232 and 2 RS-485/422, with 2*10-pin 3.5mm pitch terminal blocks (serial port occupies 14 pins) CAN (optional): 2 CAN, with 2*10PIN 3.5mm pitch terminal blocks (CAN occupies 6 pins) I/O port (optional): 4 DI and 4 DO, with 2*10PIN 3.5mm pitch terminal blocks USB port: 1 Type-A USB 2.0 Female, this interface is reserved SIM card slot: 1 Micro SIM card slot and 1 Nano SIM card slot, redundant backup; 1 Micro-SD card Slot for reservation Console port: CLI command line management port(RS-232), RJ45 Alarm port: 6-pin 5.08mm pitch terminal blocks (2 pins for relay), support 1 relay alarm output, this interface is reserved
Serial Port (optional)	Standard: EIA RS-232C, RS-485, RS-422 Quantity of serial port: 2 RS-232 serial ports, 2 RS-485/422 2IN1 serial ports RS-232 signal: RXD, TXD, GND RS-485 signal: D+, D-, GND RS-422 signal: T+, T-, GND, R+, R- Baud rate: 110bps-921600bps Data bit: 5bit, 6bit, 7bit, 8bit Parity bit: None, Even, Odd, Space, Mark Stop bit: 1bit, 1.5bit, 2bit Interface form: adopt 2*10PIN 3.5mm pitch terminal blocks (serial port occupies 14 pins) Direction control: RS-485 direction adopts Automatic Data Direction Control (ADDC) Load capacity: RS-485/422 end supports 32-node polling environment Transmission distance: RS-232, 15m; RS-485/422, 1200m Work modes: Realcom, TCP Server, TCP Client, UDP Server, UDP Client
CAN (optional)	Standard: CAN2.0A, CAN2.0B Interface quantity: 2 CAN ports CAN signal: CANH, CANL Duplex mode: 2-wire Half Duplex Mode Baud Rate:5/10/20/50/100/125/250/500/800/1000kbps Load capacity: support concurrent transmitting of 110 nodes Transmission distance: 40m~10km

	Interface form: 2*10PIN 3.5mm pitch terminal blocks (CAN occupies 6 pins) Work mode: TCP Server, TCP Client, UDP Server, UDP Client, UDP Rang and UDP Multicast
I/O Port (optional)	Interface quantity: 4 DI input, 4 DO output Interface form: 2*10PIN 3.5mm pitch terminal blocks (DI channel occupies 10 pins, DO channel occupies 8 pins) DI: ● Digital filtering: software configuration (1-65535ms) ● 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: ● Pulse frequency: ≤ 500Hz ● Working mode: DO or pulse output ● Output type: Sink (PNP) ● Rated current: 200mA/Channel ● Overcurrent protection: 650mA/Channel ● Overvoltage protection: 45VDC
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)
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
Power Consumption	ICPE2300A-BW-8A25-1GC3GT-PD2P12_48 ● No-load: 6.5W@24VDC ● Full-load: 20.0W@24VDC
Working Environment	Operating temperature: -40~75℃ Storage temperature:-40~85℃ Relative humidity: 5%～95%(no condensation)
Physical Characteristic	Housing: IP40 protection, metal Installation: DIN-Rail mounting

	Dimension (W x H x D): 88mm×150mm×135mm Weight: 1.68kg (ICPE2300A-BW-8A25-1GC3GT-PD2P12_48)
Industrial Standard	IEC 61000-4-2 (ESD, electrostatic discharge), Level 3 ● Air discharge:± 8kV ● Contact discharge: ±6kV IEC 61000-4-4 (EFT, electrical fast transient pulses), Level 3 ● Power supply: ±2kV ● Ethernet port: ±1kV IEC 61000-4-5 (Surge), Level 3 ● Power supply: common mode±2kV, differential mode±1kV ● Ethernet interface: ±2kV Shock: IEC 60068-2-27 Free fall: IEC 60068-2-32 Vibration: IEC 60068-2-6
MTBF	>250000 hours
Authentication	CE, FCC, RoHS
Warranty	5 years

Ordering Information

Available Models	Gigabit		Antenna Interface			Serial Port		CAN	I/O Port		Power Supply
	COMBO	RJ45	2.4G	5.8G	5G Sub-6G	RS-232	RS-485/422		DI	DO	
ICPE2300A-BW-8A25-1GC3GT-PD2P12_48	1	3	2	2	4	—	—	—	—	—	12~48VDC Or PoE power receiving
ICPE2300-2A-1GC3GT-2C4D4IO-2225-2LV	1	3	2	2	4	2	2	2	4	4	

Accessory List

Accessories	Quantity	Specification
2.4G omnidirectional antenna	2	2400~2483Mhz omnidirectional antenna, 5dBi, φ13×195mm, RP-SMA-J
5.8G omnidirectional antenna interface	2	5150~5850Mhz omnidirectional antenna, 5dBi, φ13×195mm, RP-SMA-J
5G Sub-6G omnidirectional antenna	4	600-960Mhz, 1710-2690Mhz, 3300-5900MHz omnidirectional antenna, 3dBi, SMA-J
Magnetic sucker base and connecting line	8	Black, line length 1.2m, RP-SMA-J/RP-SMA-K
SFP slot dust cap	1	Black, SFP slot dust cap
User Manual	1	Electronic files (QR code)
Quick Installation Guide	1	Electronic files (QR code)
DIN-Rail mounting attachment	1	DIN-Rail 35mm kit
SIM card ejection pin	1	—
Certification	1	—
Warranty card	1	—

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