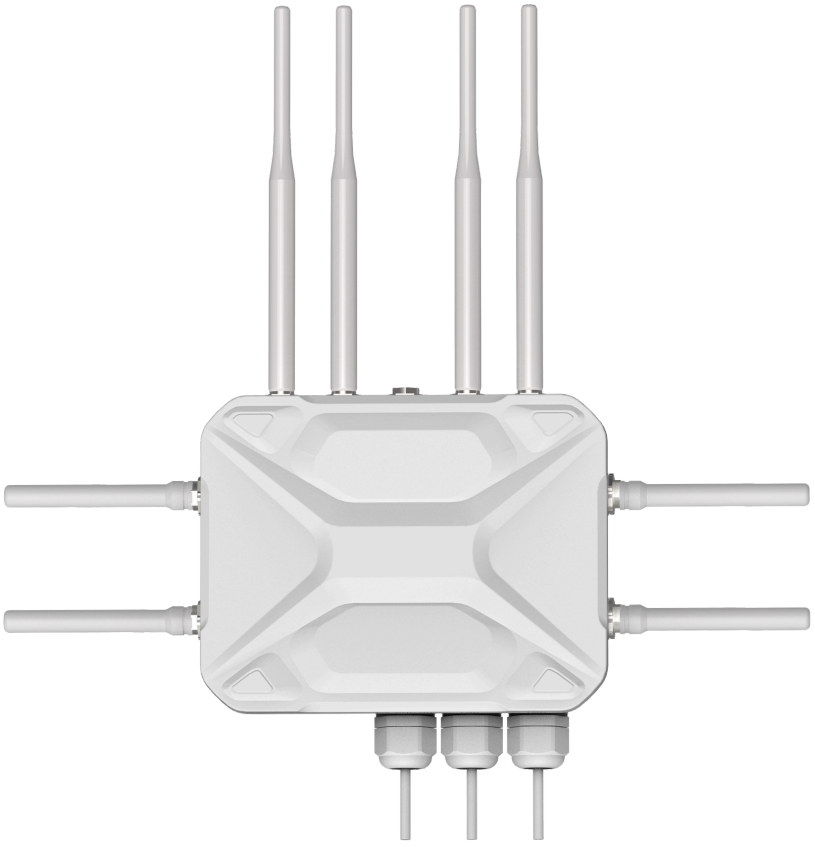
YZW900



5G NR Outdoor CPE

Wi-Fi AX3000

Dual-SIM

48 V PoE

IP67

DATASHEET

Features

Cellular

Cellular versions	5G version illustrated; a 4G version can be selected when ordering; module, bands and cellular antennas follow the order
Cellular data rates	5G Sub-6 version, theoretical peaks: SA downlink 2 Gbps / uplink 1 Gbps; NSA downlink 2.2 Gbps / uplink 575 Mbps; LTE Cat 12 downlink 600 Mbps / Cat 13 uplink 150 Mbps; WCDMA downlink 42.2 Mbps / uplink 11 Mbps; actual support depends on the ordered module
Cellular status	RSSI, SINR, RSRP, RSRQ, serving band, IMSI and ICCID
APN and authentication	Configurable APN and account settings with NONE, PAP, CHAP or PAP+CHAP authentication
PDP IP type	IPv4, IPv6 or dual-stack IPv4v6 cellular data connections
SIM switching	Single cellular modem with per-SIM profiles and switching policies; dual SIM does not mean two concurrent cellular links

Wireless

Wireless operating mode	2.4 GHz IEEE 802.11b/g/n/ax and 5 GHz IEEE 802.11a/n/ac/ax; AP or STA mode
Channel widths	2.4 GHz: 20/40 MHz; 5 GHz: 20/40/80/160 MHz; available channels depend on the configured regulatory region
Wi-Fi security	WPA/WPA2/WPA3 and WPA2/WPA3 mixed modes with AES encryption
SSID and clients	Configurable SSID broadcast and AP isolation; multiple wireless clients in AP mode

Ethernet

Ports	3 × RJ45, 10/100/1000 Mbps; default 1 × WAN + 2 × LAN; WAN also receives PoE power

Network

Routing	Static routes with destination network, gateway, outgoing interface and route metric settings
Network protocols	TCP, UDP, IPv4/IPv6, ICMP, ARP, DHCP, DNS, NTP, HTTP/HTTPS, SSH2 and MQTT
WAN access	Static IP, DHCP and PPPoE uplinks with IPv4/IPv6 configuration
Connection monitoring	ICMP reachability checks with configurable primary/backup targets, source interface, interval, retry count and recovery action
DHCP	IPv4 DHCP server with address pool, lease time, gateway/DNS settings and static IP-to-MAC assignments; configurable stateful/stateless IPv6 address allocation
Cellular link monitoring	Cellular connectivity monitoring with configurable IPv4/IPv6 probe targets
NAT	IPv4 DNAT, SNAT, MASQ and DMZ rules for port forwarding and address translation

QoS	Upload/download traffic rules by interface, subnet and optional port, with base rate, ceiling rate and priority settings
DDNS	Configurable DDNS provider, account/token, domain and update interval, with an IPv6 update option
Uplink failover	Link priority, ICMP health checks and primary/backup uplink failover
Load balancing	Uplink traffic distribution by source IP or session, with ICMP link health checks
Uplink policy constraints	Load balancing cannot operate together with multi-link primary/backup policies or WireGuard IPv4 full-tunnel routing; it does not aggregate bandwidth for a single connection
VLAN	Up to 10 entries, VID 4–4094; Tagged/Untagged VLAN traffic on available LAN ports, with per-VLAN IPv4 subnet and DHCP server settings

Security

Firewall	Stateful packet filtering with management-service access controls by network zone
Attack prevention	Configurable DDoS limiting, IP-spoofing, port-scan and SYN-flood rules, with multicast and IDENT restrictions
Address filtering	Blacklist/whitelist modes with IP-only, MAC-only or combined IP/MAC filtering, and protocol, port and interface-based access rules
LAN Internet access restriction	When enabled, blocks direct Internet forwarding from LAN clients through ordinary uplinks; retains local LAN communication and VPN/m2mCloud forwarding, subject to the other firewall rules
Domain filtering	Disabled, blacklist or whitelist modes with configurable domain rules

VPN

OpenVPN	Two client instances and an independently running server
WireGuard	IPv4 encrypted tunnels with up to 10 peers, optional pre-shared keys, persistent keepalive and remote-subnet routes
ZeroTier	Join up to 10 ZeroTier virtual networks, with configurable acceptance of controller-managed addresses and routes; controller authorization is required
IPsec	IKEv1/IKEv2, pre-shared-key authentication, tunnel/transport modes and local/remote subnet configuration
L2TP	L2TP client/server with PPP authentication, client address pools and subnet routes; L2TP itself does not encrypt traffic
DMVPN	Hub/Spoke dynamic multipoint VPN using mGRE, NHRP and IPsec
VXLAN	VXLAN Layer 2 tunnels with VNI, remote endpoint and UDP port settings; VXLAN itself does not encrypt traffic
GRE	GRE tunnels for existing-network interconnection; GRE itself does not encrypt traffic
PPTP	PPTP client/server with account authentication and PPP settings for legacy-network compatibility

PLC & Instrument Acquisition (eMMC Required)

Application prerequisite	Requires optional eMMC with the corresponding application runtime preinstalled
Protocol options	39 network protocol options; no physical serial-protocol acquisition

PLC families	Network drivers for Siemens S7, Mitsubishi MC, Omron FINS/CIP, Inovance, Keyence, Delta, Panasonic, Xinje, Beckhoff ADS and Allen-Bradley; select a driver supported by the connected controller
Instrument protocols	Modbus TCP, RTU/ASCII over TCP, DL/T 698 TCP and IEC 60870-5-104; over-TCP protocols require compatible network endpoints, not a local serial port
Configuration capacity	Up to 10 connections, 2500 points per connection and 25000 enabled points in total with 1 GB RAM; these are configuration limits, not scan-rate guarantees
Point configuration	Point name, identifier, address, type and read/write mode; per-connection polling interval and per-point periodic-write settings
Point-table management	CSV import/export, point editing and monitoring; available operations depend on the selected protocol

PLC Data Reporting (eMMC Required)

Application prerequisite	Requires optional eMMC with the corresponding application runtime preinstalled
Reporting protocol	MQTT; up to 10 reporting rules, each selecting 1 or more configured PLC data sources
Message format	Format 1 JSON: deviceId, deviceName, params, status, reason, because; params point objects contain identifier, name, source, type and string value; report status is numeric 0/1, not a write reply
Connection and topics	Server, port, credentials, 1–86400 s reporting period, publish/subscribe/reply topics and CA certificate; optional SN suffix is configured independently for each topic

Node-RED (Optional; eMMC Option Required)

Ordering option	Optional Node-RED; requires optional eMMC with the corresponding application runtime preinstalled
Flow development	Node-RED 3.0.2 with browser-based flow editing; flow data stored on the optional eMMC
Network nodes	Modbus TCP and MQTT nodes; additional packages must match the installed runtime; no physical serial-port service
Maintenance	Runtime status, editor access, download-source settings, admin password change, runtime-package upgrade and flow reset

PLC Cloud Writes over MQTT (eMMC Required)

Application prerequisite	Requires optional eMMC with the corresponding application runtime preinstalled
Downlink topic	Publish to the enabled rule's effective subscription topic, not its publish/reply topic; when SN suffix is enabled, append /SN using the device's actual SN
JSON fields	A single JSON object, 1–4096 UTF-8 bytes; identifier/name/addr selectors and value are strings; source or data_source is a data-source name selected in this rule
Example request	{"source":"PLC_A","identifier":"1","value":"25.5"}
Matching and permissions	Use source + identifier for unambiguous selection; without source, the first matching point in rule source order is used; the point must be writable and its value/type valid
Execution result	With a reply topic configured, replies contain status=success/failure, reason and the request in data; write_applied means protocol-write success, not physical-state readback; reply QoS is 0
Reply example	{"status":"success","reason":"write_applied","data": {"source":"PLC_A","identifier":"1","value":"25.5"}}
Failure handling	Missing/read-only points, invalid values or unavailable connections can fail writes; a timeout or absent reply does not prove no write occurred; read back before retrying

Safety and format boundary	Use retain=false and compatible PLC programming/access policies; this string-value format and execution reply do not apply to the independent Modbus collector

Modbus Acquisition & Reporting

Acquisition mode	Modbus TCP master polling configured by device and command; no local RTU serial interface
Read function codes	01 Read Coils; 02 Read Discrete Inputs; 03 Read Holding Registers; 04 Read Input Registers
Data types and byte order	Web-selectable types: signed/unsigned 16-bit integers; signed/unsigned 32-bit integers (ABCD); 32-bit floating point (ABCD/CDAB byte order)
Device and command management	Up to 16 TCP device connection profiles and 32 commands per profile; per-command slave address
Command configuration	Command name, slave address, Modbus register start/count, IEC104 mapping address, Writable flag and per-command polling period
Acquisition and reporting timing	Per-command polling period: 1–86400 s; response timeout: 30–120000 ms; MQTT/TCP/UDP periodic reporting interval: 1–86400 s
Data reporting	MQTT/TCP/UDP: immediate or periodic reporting; in periodic mode, each point's first sample is sent immediately and later reports use fresh samples only; IEC104 updates immediately
MQTT settings	Broker address/port, account authentication and CA certificate configuration; per-device publish/subscribe topics, with MQTT downlink writes for writable commands
IEC 60870-5-104 settings	Communication port, common address and information object address (IOA) mapped from each command's mapping address; the IOA is not the slave's Modbus register address

Modbus Cloud Writes over MQTT

Connection prerequisites	Enable Modbus collection and select MQTT reporting. Connect the cloud client and collector to the same MQTT broker, with the required authentication and topic permissions; TCP/UDP reporting does not accept MQTT downlink writes
Device-side configuration	Configure the target device connection and commands, including slave address, read function, start address, quantity and data type. Enable Writable for each controlled command; its name becomes the JSON key
Downlink topic	Set a non-empty, device-specific Subscribe topic. The cloud publishes to this exact topic, not the device's Publish topic. Avoid shared control topics and +/# wildcards
JSON payload	Use a flat JSON object, e.g. {"command_name":123}. Each key matches a configured command name and each value is a JSON number; no device-ID, address, function-code or nested data envelope is required
Integer and coil example	Topic: plant/site1/plc1/set; payload: {"run":1,"setpoint":1200}. Configure run as a writable coil and setpoint as a writable uint16 holding-register command before sending
Floating-point example	{"temperature_set":25.5}; temperature_set must be a writable floating-point holding-register command with the correct byte order and at least 2 consecutive registers configured
Coil write	A writable command configured for read function 01 uses write function 05. Send numeric 0 or 1 for OFF or ON; JSON false/true are not accepted as numeric values
Holding-register write	A writable command configured for read function 03 uses write function 06 for a 16-bit value, or function 16 (0x10) for a 32-bit value occupying 2 consecutive registers
Read-only areas	Read functions 02 (discrete inputs) and 04 (input registers) are not writable, even if Writable is enabled. Unconfigured or non-writable commands are skipped

Value validation	Use values within the configured type's range. Integer types reject fractional values; floating-point commands accept finite numbers. Strings, Boolean values, arrays, objects and null are not write values
Address and byte order	The collector reuses the configured slave and 0-based Modbus PDU start address, then encodes the value using the configured type/byte order. Mapping addresses are not MQTT downlink selectors; apply any slave-specific scaling in the cloud
Multiple commands and arrays	An object may contain multiple command keys, processed independently rather than as an atomic transaction. Each key writes a scalar at its configured start address; arbitrary register-array block writes are not supported
Payload size	Payload length: 1–511 bytes after UTF-8 encoding. Empty payloads and messages of 512 bytes or more are discarded; send valid JSON with numeric values
Execution confirmation	MQTT delivery is not Modbus execution confirmation. There is no dedicated MQTT write-response payload; check subsequent collected readback and device logs. Disconnections, a full queue or slave errors may prevent a write
Control-message safety	Publish control messages with retain=false to avoid replaying old commands when subscriptions reconnect. Restrict write access using broker topic permissions and prevent unconfirmed or repeated control actions
Example and firmware scope	The topics, command names and values above are examples, not defaults; configure them against the slave register map. Requires collector firmware with MQTT downlink writes; available types and byte orders follow the delivered firmware

Application Services

MQTT Broker	Local MQTT broker with plain/TLS transport, listen address/port, anonymous or username/password authentication and server certificate/key settings
SNMP	SNMPv2c/SNMPv3 management and SNMPv2c Trap reporting; configurable community, Trap destination and SNMPv3 authentication/privacy parameters
Scheduled tasks	Scheduled device or cellular-modem restart by day of week and time
SMS	SMS sending with character-set selection and a trusted-number list
SMTP and event alarms	SMTP email with optional STARTTLS/TLS; email/SMS notifications for configured events such as weak signal, modem-status changes, failed logins and firewall attacks
Network diagnostics	Ping and traceroute diagnostics with configurable target and source IP

Management & Maintenance

WEB UI	HTTP/HTTPS management for status, configuration and maintenance; HTTPS is enabled through the management-access settings
CLI	SSH2/Telnet command-line access with configurable management-service permissions
Administrator password	Only supports changing the password of the existing admin account
Configuration management	Configuration export/import and factory reset
Logs	Event/system logs, service runtime status and remote-log server/port settings
Time synchronization	NTP server and backup server, synchronization interval and time-zone settings, plus manual time entry

m2mCloud Remote Access

Remote networking	Cloud-authorized L3 routed or L2 bridged access to on-site networks; the tunnel mode is assigned by the cloud platform

Connectivity	Peer-to-peer connectivity or server relay, subject to network conditions and platform authorization; a public IP is not required at the site
Remote subnets	Up to 10 remote IPv4 subnet routes in L3 mode; rules remain saved but inactive in L2 mode; default routes are not accepted
Program upload/download	Use compatible vendor PLC/HMI programming tools for remote program upload/download, debugging and maintenance over the authorized channel
Connection recovery	Automatic reconnection of the cloud management session and tunnel after connectivity recovers, with valid platform authorization
Operational benefits	Centralized remote access for distributed sites, reducing on-site visits and repeated local network setup; compatibility depends on the end device and vendor tool

Hardware Features

CPU	MT7981B, dual-core ARM Cortex-A53, 1.3 GHz
RAM	1 GB DDR4
Flash	32 MB SPI NOR Flash
eMMC option	Optional 4–128 GB eMMC; not fitted in the base configuration

Firmware

Update	Web firmware upload with a choice to retain the configuration or restore factory settings after upgrade

System Characteristics

Operating system	OpenWrt-based Linux
Kernel version	Linux 5.4
Script runtimes	Shell as standard; Python 3.9.17 and Node.js require optional eMMC and a preinstalled runtime package

Power

Power input	48 V IEEE 802.3af/at PoE powered device (PD), through WAN only; no separate DC input
PSE option	Optional PoE power output to connected devices; specify when ordering; separate from WAN PoE reception
Power consumption	< 12 W; consumption depends on fitted modules and operating state; external PSE loads require a separate power budget

Physical Interfaces (Ports, LEDs, Antennas, Buttons, SIM)

Ports	3 × RJ45, 10/100/1000 Mbps; default 1 × WAN + 2 × LAN; WAN also receives PoE power
Serial and digital I/O	No serial ports, DI or DO
Status LEDs	6 status indicators for power, cellular link, cellular signal, cellular technology and Wi-Fi
SIM	2 × pull-out SIM trays behind the protective cover, 1.8 V / 3 V; one modem with SIM switching
Antenna connectors	5G illustration: 4 × cellular SMA + 4 × Wi-Fi SMA; cellular antenna configuration follows the ordered version
Reset	1 × RESET button; release before 5 s to reboot; hold for at least 5 s and release to restore factory settings

Physical Specification

Casing	Die-cast metal enclosure
Dimensions (W × H × D)	217.30 × 164.00 × 52.00 mm
Weight	1063 g
Mounting	Pole mounting

Operating Environment

Operating temperature	−30 °C ~ +75 °C
Operating humidity	< 95 % non-frosting
Ingress protection	IP67

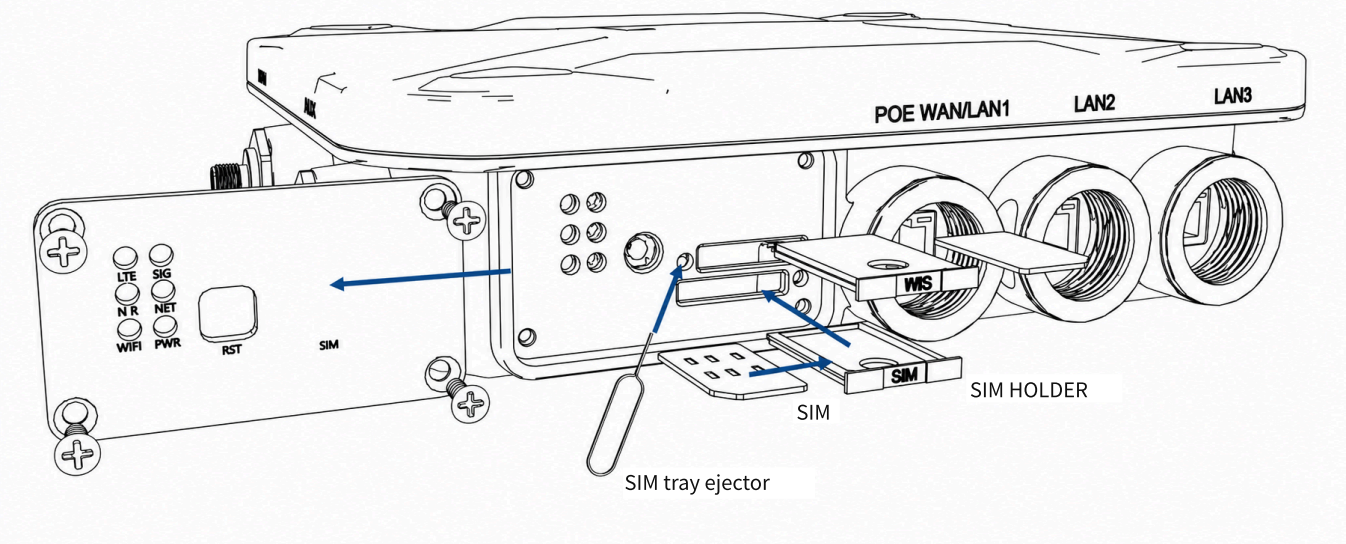
EMC Reference Standards

Standards	Draft EN 301 489-1 V2.2.0, Draft EN 301 489-17 V3.2.0, Draft EN 301 489-52 V1.1.0 FCC 47 CFR Part 15B (2017), ANSI C63.4 (2014)
ESD	EN61000-4-2: 2009
RS	EN 61000-4-3: 2006 + A1: 2008 + A2: 2010
EFT	EN 61000-4-4: 2012
Surge immunity (AC Power Line)	EN 61000-4-5: 2006
Surge immunity (Ethernet ports)	EN 61000-4-5: 2014, clause 7.1 of ITU-T K21
CS	EN 61000-4-6: 2009
DIP	EN 61000-4-11: 2004

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Hardware Installation

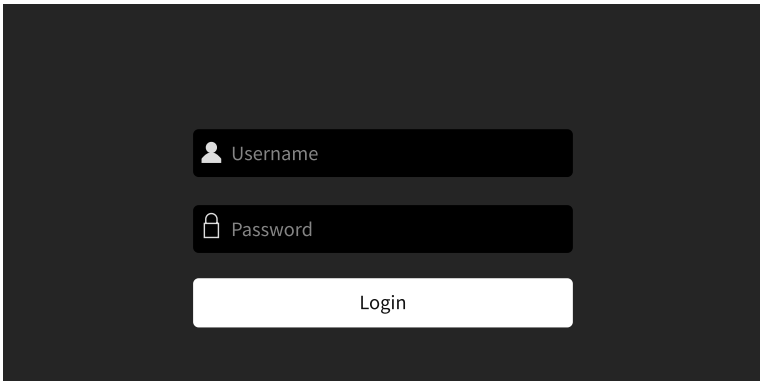
1. Disconnect power and remove the SIM protective cover. Press the tray eject button with the ejector tool and withdraw the SIM1 or SIM2 tray.
2. Align the card notch, insert the SIM into its tray, slide the tray back in, then refit and secure the cover.
3. Connect the cellular and Wi-Fi antennas to the corresponding connectors and fit the weatherproof Ethernet cable glands.
4. Connect a compatible 48 V IEEE 802.3af/at PoE source to WAN to power the CPE. There is no separate DC input.
5. Connect a computer through LAN or Wi-Fi. With the optional PSE function, follow the ordered output wiring and power budget.



SIM installation

Login to Device

1. Connect a computer to LAN or Wi-Fi and confirm the management address from the device label or delivery documents; the default is http://192.168.8.1.
2. Log in to Web management using the supplied credentials.
3. Check cellular connectivity and signal status, then adjust antenna placement and installation location as needed.



A. WebUI login example

Status	Connected (1 day 5 hour 1 min)
Signal	29[-55dbm]
Network Type	lte
Operator	CHINA MOBILE
SIM Status	SIM1 Ready
SIM ICCID	89860875********3901
SIM IMSI	46013******3901
Module IMEI	867997*****4786
Module Version	China-Mobile-ML307R (ML307R-DL-MBRH0S00)
IP	10.51.125.123/24

B. Cellular connection example (UI illustration; identifiers masked)

Technical Information

Radio Specifications

RF technologies	5G cellular and 2.4/5 GHz Wi-Fi in the illustrated version; cellular configuration follows the order
Maximum RF power	Reference 28 dBm @ 5G NR, 20.5 dBm @ Wi-Fi; depends on the module, band and operating parameters

Antenna Specifications

Cellular antenna	SMA male, 50 Ω; band and gain matched to the ordered cellular module
Wi-Fi antenna	2400–2500 / 5150–5850 MHz, 50 Ω, reference gain 5 dBi, SMA male

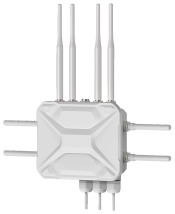
Antenna configuration depends on the ordered RF module; longer feeders cause greater signal attenuation. Antennas must comply with local regulations.

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What's in the Box

- 1 × YZW900 CPE
- 4 × 5G waterproof antennas (SMA male)
- 4 × Wi-Fi waterproof antennas (SMA male)
- 1 × 48 V PoE power adapter
- 1 × Ethernet cable (1 m)
- 1 × pole-mount bracket kit
- Packaging box





YZW900 CPE



5G antenna



Wi-Fi antenna



48 V PoE adapter



Ethernet cable



Pole-mount bracket

The illustrated 5G package includes the PoE power adapter; 4G cellular antennas and optional accessories follow the order.

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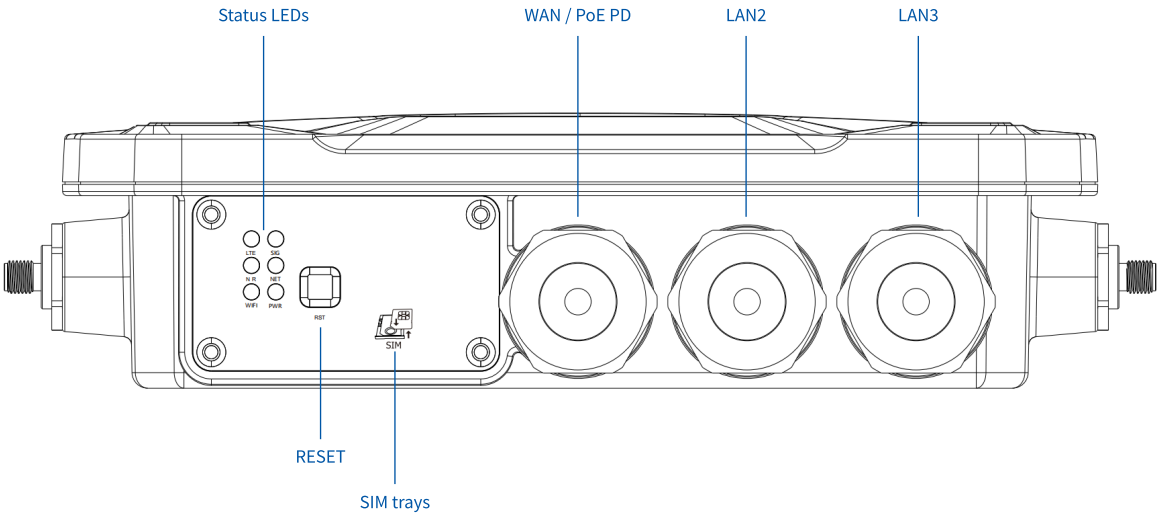
Available Versions

Product	Region	Frequency
YZW900 (5G)	China / SE Asia	5G (NR NSA): n41, n78, n79 5G (NR SA): n1, n3, n5, n8, n28, n41, n77, n78, n79 4G (LTE-FDD): B1, B3, B5, B8 4G (LTE-TDD): B34, B38, B39, B40, B41 WCDMA: B1, B5, B8
YZW900 (5G)	Europe	5G (NR NSA): n1, n3, n7, n28, n38, n40, n41, n77, n78 5G (NR SA): n1, n3, n5, n7, n8, n20, n28, n38, n40, n41, n66, n77, n78 4G (LTE-FDD): B1, B2, B3, B4, B5, B7, B8, B20, B28, B66 4G (LTE-TDD): B38, B40, B41 WCDMA: B1, B2, B5, B8
YZW900 (5G)	Global	5G (NR NSA/SA): n1, n2, n3, n5, n7, n8, n12, n13, n14, n18, n20, n25, n26, n28, n29, n30, n38, n40, n41, n48, n66, n70, n71, n75, n76, n77, n78, n79 4G (LTE-FDD): B1, B2, B3, B4, B5, B7, B8, B12, B13, B14, B17, B18, B19, B20, B25, B26, B28, B29, B30, B32, B66, B71 4G (LTE-TDD): B34, B38, B39, B40, B41, B42, B43, B48 WCDMA: B1, B2, B4, B5, B8, B19
YZW900 (Redcap 5G)	China	5G(NR): n1, n3, n5, n8, n28, n41, n78, n79 4G (LTE-FDD): B1, B3, B5, B8 4G (LTE-TDD): B34, B38, B39, B40, B41 WCDMA: B1, B5, B8
YZW900 (CAT 6)	Global, North America (optional), EMEA/APAC/Brazil (optional)	4G(LTE-FDD): B1, B2, B3, B4, B5, B7, B8, B12, B13, B14, B18, B19, B20, B25, B26, B28, B29, B30, B32, B66, B71 4G(LTE-TDD): B34, B38, B39, B40, B41, B42, B43, B46(LAA), B48(CBRS) WCDMA: B1, B2, B3, B4, B5, B6, B8, B19
YZW900 (CAT 12)	Global	4G(LTE-FDD): B1, B2, B3, B4, B5, B7, B8, B12, B13, B14, B17, B18, B19, B20, B25, B26, B28, B29, B30, B32, B66, B71 4G(LTE-TDD): B34, B38, B39, B40, B41, B42, B43, B46(LAA), B48(CBRS) WCDMA: B1, B2, B3, B4, B5, B6, B8, B19

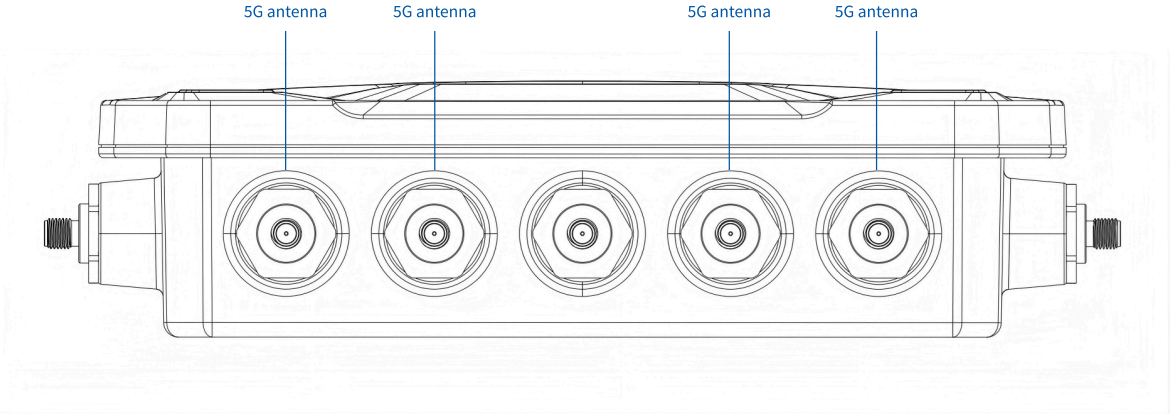
Module, bands and antennas follow the order; this table does not imply that one module supports every region.

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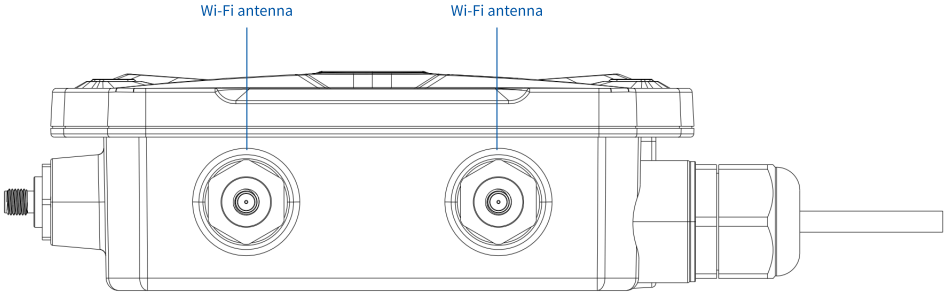
Hardware Interfaces



Ethernet and SIM access



Cellular antenna connectors



Wi-Fi antenna connectors (both sides)

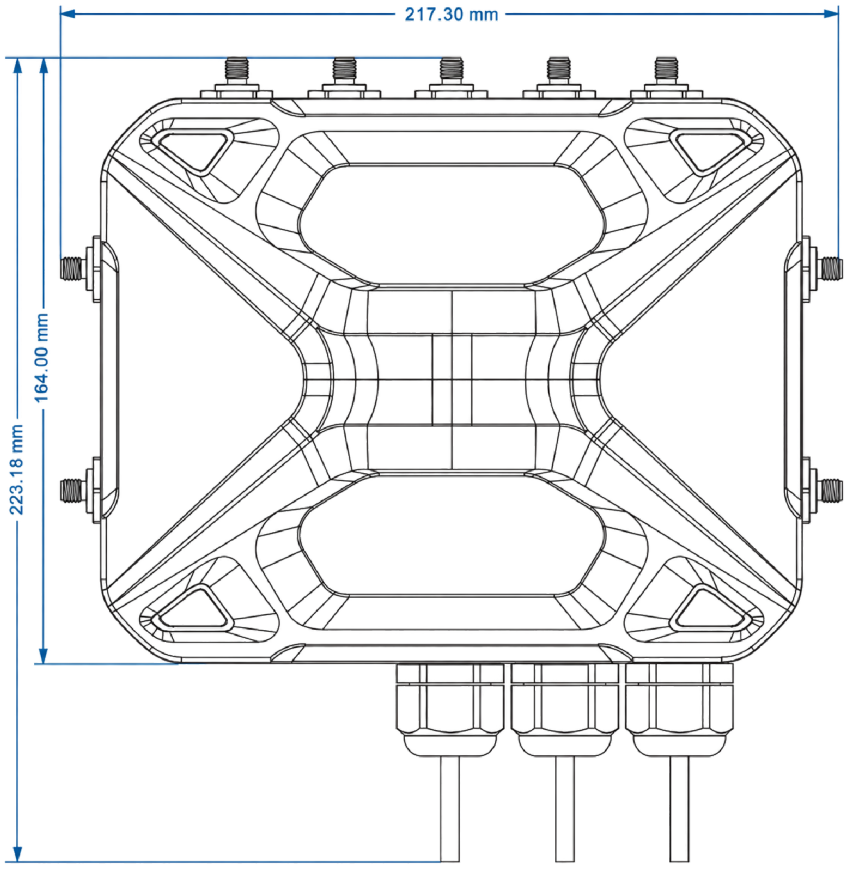
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Dimensions & Weight

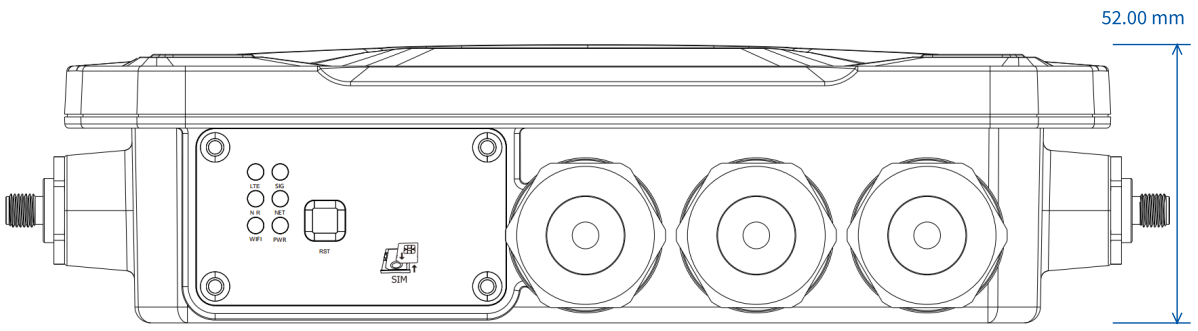
Main Measurements

Dimensions (W × H × D)	217.30 × 164.00 × 52.00 mm
Weight	1063 g
Box	360.00 × 300.00 × 80.00 mm

Housing dimensions exclude antenna connectors, screws and other protrusions; measurement locations are shown below.



Top view

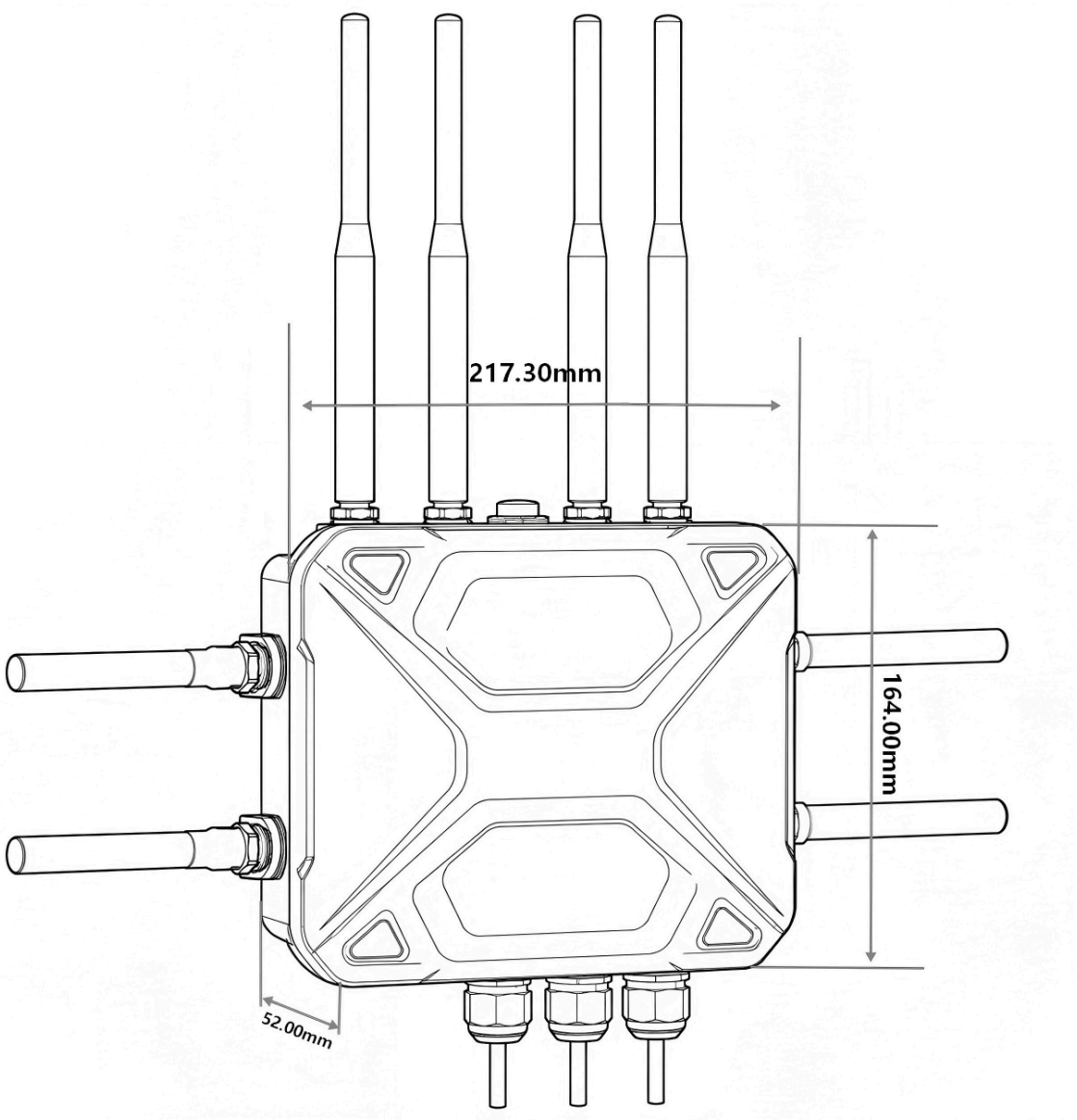


Side view

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Mounting Space Requirements

Allow installation and service clearance for antennas, Ethernet cables, weatherproof glands and the mounting bracket as illustrated.



Installation clearance

This datasheet illustrates the 5G version; a 4G version is available when ordering. Cellular modules, frequency bands and antenna configurations follow the confirmed order. eMMC and Node-RED are optional, not included in the base configuration.