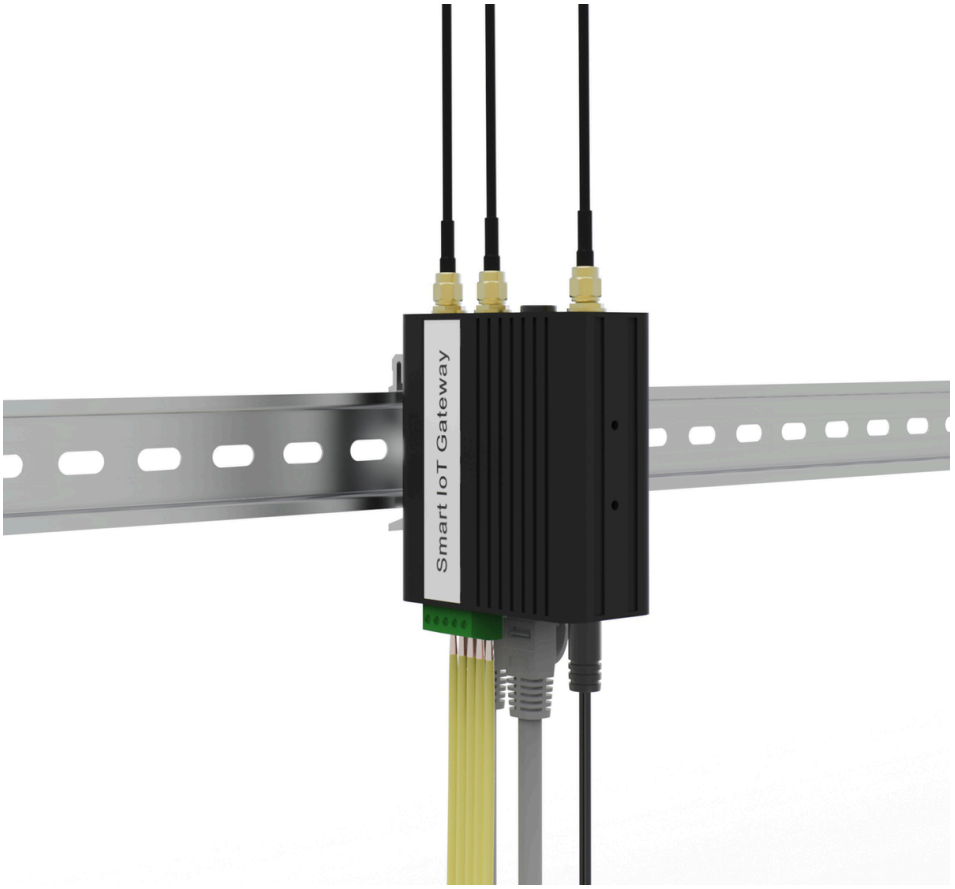
YZW280

4G INDUSTRIAL ROUTER



Industrial automation

Energy & metering

Smart agriculture

Remote monitoring

Building automation

4G LTE Cat-4

2 × Gigabit Ethernet

2 × RS485

1 × SIM

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Features

Modem

Cellular data rates	LTE Cat 4 version: theoretical peak LTE-FDD downlink 150 Mbps / uplink 50 Mbps and LTE-TDD downlink 130 Mbps / uplink 30 Mbps; other cellular versions depend on the ordered module
Cellular status	RSSI signal strength, SINR, RSRP, RSRQ, serving band, IMSI and ICCID
APN and authentication	APN and account settings, with no authentication (NONE), PAP, CHAP or PAP+CHAP authentication
PDP IP type	IPv4, IPv6 or dual-stack IPv4v6 for the cellular data connection

Wireless

Wireless operating mode	2.4 GHz IEEE 802.11b/g/n; AP (wireless access point) or STA (wireless client) mode
Wi-Fi security	WPA2-PSK, WPA-PSK; AES
SSID visibility	Configurable SSID broadcast; the wireless network name can be hidden
Wi-Fi clients	Multiple wireless clients in AP mode

Ethernet

WAN	1 × WAN port, 10/100/1000 Mbps, compliance with IEEE 802.3, IEEE 802.3u standards, supports auto MDI/MDIX
LAN	1 × LAN port, 10/100/1000 Mbps, compliance with IEEE 802.3, IEEE 802.3u standards, supports auto MDI/MDIX

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
m2mCloud	Cloud-authorized remote networking and access to on-site devices, including PLC/HMI program upload/download with compatible vendor programming tools

Modbus Acquisition & Reporting

Acquisition mode	Modbus TCP/RTU master acquisition, configured by device and command; RTU uses an available port matching the ordered RS485/RS232 hardware configuration
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 devices, with up to 32 acquisition commands per device; supports RTU serial or TCP connections
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 reporting, either periodically or after polling; IEC 60870-5-104 integration uses immediate acquisition updates rather than the MQTT/TCP/UDP periodic-report setting
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
Serial-port sharing	Serial data forwarding and remote serial access; DTU, Modbus RTU polling and cloud remote serial access cannot use the same physical port simultaneously

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

DTU transparent transmission	Serial-to-TCP/UDP client or server operation, with primary/backup servers, login data, heartbeat and timeout settings
DTU MQTT	MQTT serial-data access with account authentication, client ID, publish/subscribe topics, QoS 0/1/2 and keepalive settings
Serial protocol gateway	Modbus RTU/ASCII master or slave modes and DNP3 master/outstation modes, using the device serial interface
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

Cloud remote access	Remote access from an authorized m2mCloud client to the router and LAN-connected PLCs, HMIs and other devices for configuration, diagnostics and maintenance
PLC program upload/download	PLC program upload (PLC to engineering PC), download (engineering PC to PLC) and remote commissioning through m2mCloud using the corresponding programming software, reducing on-site service visits and travel costs
Remote networking	Cloud-controlled L3 routing or L2 bridging for remote-subnet or same-subnet access; L3 mode supports up to 10 remote IPv4 subnet routes
NAT traversal and relay	L3 mode supports P2P direct communication or server relay; L2 bridging uses relay. No fixed public IP or inbound port forwarding is required at the site, simplifying cellular and NAT network access
Remote serial access	Authorized remote access through the platform serial-proxy client to a fitted RS485 or optional RS232 port; DTU, Modbus RTU and remote serial access cannot own the same port simultaneously
Cloud monitoring and maintenance	Reports device model, firmware version, uptime, cellular signal, dial-up state and tunnel status; supports cloud-issued device reboot commands for centralized monitoring and troubleshooting
Connection recovery	Supports automatic reconnection of the cloud management session and tunnel after network connectivity is restored, subject to valid platform authorization
Communication security	TLS protects the cloud management connection; tunnel traffic is encrypted with a group key distributed by the platform
Requirements	Requires the corresponding m2mCloud platform, authorization, client and reachable IPv4/UDP service. PLC operations require compatible programming software, device permissions and correct site network settings

Hardware Features

CPU	MT7621AT
RAM	512 MB, DDR3
FLASH storage	16 MB, SPI NOR Flash

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 OS
Kernel version	Linux 5.4
Script runtime	Shell

Power

Connector	Industrial round DC power socket, 9–36 V DC input (nominal 12 V DC)
Input voltage range	9 – 36 V DC, reverse polarity protection
Power consumption	< 3 W

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

Ethernet	2 × RJ45 ports, 10/100/1000 Mbps
Serial	2 × RS485; 1 port can be factory-configured as RS232 instead (specify when ordering)
Status LEDs	1 × SYS system LED, 1 × NET cellular-network LED, 1 × SIG cellular-signal LED, 1 × WIFI wireless LED, 1 × WAN/LAN port LED and 1 × LAN port LED
SIM	1 × removable SIM card tray, 1.8 V / 3 V
Power	Barrel DC input, 9–36 V; the old DC5–36V enclosure marking is not a 5 V supply rating
Antenna connectors	2 × cellular SMA connectors, both fitted as standard: MAIN (main antenna) and DIV (diversity antenna); 1 × Wi-Fi SMA connector; the DIV antenna is supplied according to the order; no GPS function
Reset	Release before 5 s to reboot; hold for at least 5 s and release to restore factory settings

Physical Specification

Casing material	Metal casing, supporting DIN rail installation
Dimensions (W × H × D)	84.81 × 65.09 × 32.70 mm
Weight	130 g
Mounting options	Sideways DIN rail installation

Operating Environment

Operating temperature	−30 °C ~ 75 °C
Operating humidity	< 95 % non-condensing

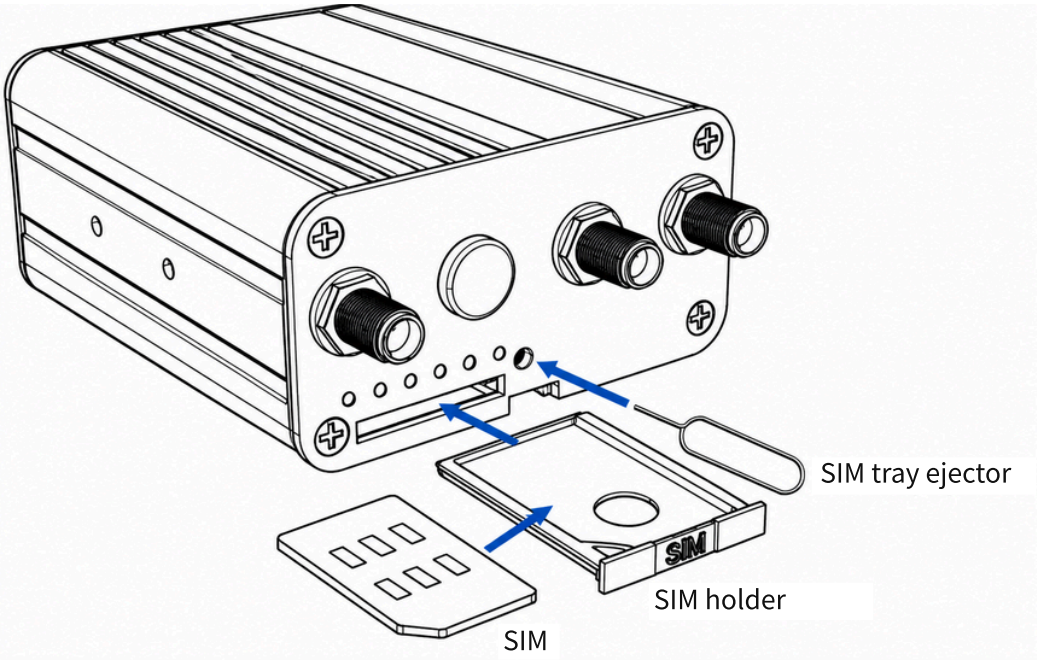
EMC Reference Standards

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

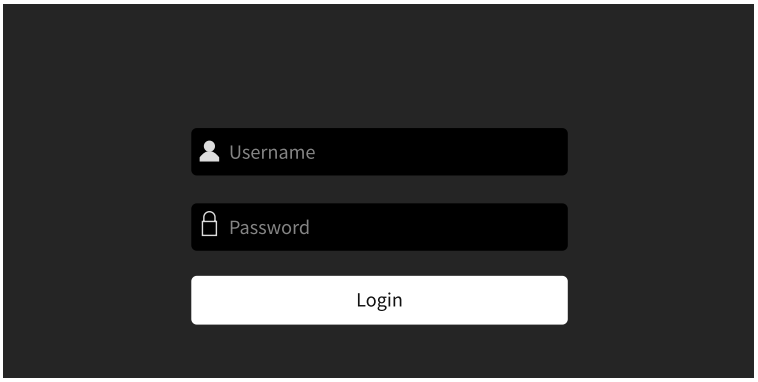
1. Push the SIM button with the SIM needle.
2. Pull out the SIM holder.
3. Insert your SIM card into the SIM holder.
4. Slide the SIM holder back into the router.
5. Connect the cellular MAIN antenna and Wi-Fi antenna; connect the DIV diversity antenna if supplied.
6. Connect the power adapter to the socket on the front of the device. Then plug the other end of the power adapter into a power outlet.
7. Connect to the device wirelessly using SSID and password provided on the device information label or use an Ethernet cable connected to LAN port.



SIM card installation

Login to Device

1. To enter the router's Web interface (WebUI), enter the management address shown on the device label in your browser.
2. Log in with the credentials provided on the device label or in the delivery documentation; image A is a login-screen example.
3. Go to the Overview page and pay attention to the Signal Strength indication (image B) after login. To maximize the cellular performance try adjusting the antennas or changing the location of your device to achieve the best signal conditions.



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	89860875102592713901
SIM IMSI	460130355343901
Module IMEI	867997075354786
Module Version	China-Mobile-ML307R (ML307R-DL-MBRH0S00)
IP	10.51.125.123/24

B. Overview example (status values vary by delivered device)

Technical Information

Radio Specifications

RF technologies	4G, WiFi
Max RF power	23 dBm @ LTE, 13.5 dBm @ WiFi

Bundled Accessories Specifications*

Cellular antenna	MAIN antenna supplied; DIV antenna per order; 698~960 / 1710~2690 MHz, 50 Ω, gain** 5 dBi, SMA male connector
WiFi antenna	2400~2500 MHz, 50 Ω, gain** 3 dBi, SMA male connector

*Order code dependent. **Higher gain antenna can be connected to compensate for cable attenuation when a cable is used. The user is responsible for the compliance with the legal regulations.*

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What's in the Box

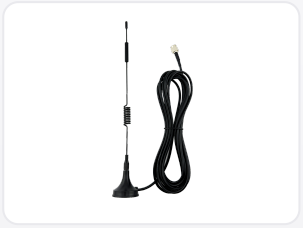
Package contents • YZW280

- 1 × YZW280 device (Standard)
- 1 × Packaging box (Standard)
- 1 × 4G magnetic-mount antenna (Standard)
- 1 × Wi-Fi antenna (Standard)
- 1 × 12 V DC power adapter (Standard)
- 1 × Ethernet cable, 1 m (Standard)
- 1 × 5-pin screw terminal (Standard)
- 1 × DIN-rail mounting hardware (Standard)





YZW280
Standard • 1



4G magnetic-mount antenna
Standard • 1



Wi-Fi antenna
Standard • 1



5-pin screw terminal
Standard • 1



12 V DC power adapter
Standard • 1



Ethernet cable, 1 m
Standard • 1



DIN-rail mounting hardware
Standard • 1

Standard accessories are supplied with the base configuration; optional accessories are selected separately.

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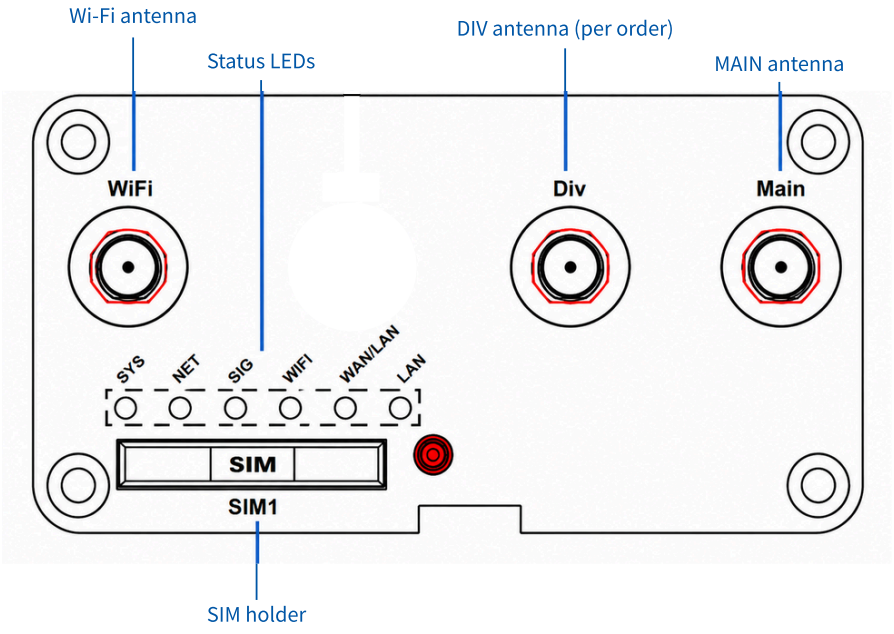
Available Versions

Product	Region (Operator)	Frequency
YZW280 (CN)	China, SE Asia	4G (LTE-FDD): B1, B3, B5, B8 4G (LTE-TDD): B34, B38, B39, B40, B41 WCDMA: B1, B5, B8 GSM / EDGE: B3, B8
YZW280 (EU)	Europe	4G (LTE-FDD): B1, B3, B5, B7, B8, B20, B28 4G (LTE-TDD): B38, B40, B41 WCDMA: B1, B5, B8 GSM / EDGE: B3, B8
YZW280 (AU)	Latin America, Australia, New Zealand	4G (LTE-FDD): B1, B2, B3, B4, B5, B7, B8, B28, B66 4G (LTE-TDD): B40 WCDMA: B1, B2, B4, B5, B8 GSM / EDGE: B2, B3, B5, B8
YZW280 (CAT1 CN)	China, SE Asia	4G (LTE-FDD): B1, B3, B5, B8 4G (LTE-TDD): B34, B38, B39, B40, B41
YZW280 (CAT1 EU)	Europe	4G (LTE-FDD): B1, B3, B5, B7, B8, B20, B28
YZW280 (5G RedCap)	China, SE Asia	5G SA: n1, n3, n5, n8, n28, n41, n78, n79 4G (LTE-FDD): B1, B3, B5, B8 4G (LTE-TDD): B34, B38, B39, B40, B41 LTE 1.8G: B59, B62 WCDMA: B1, B5, B8

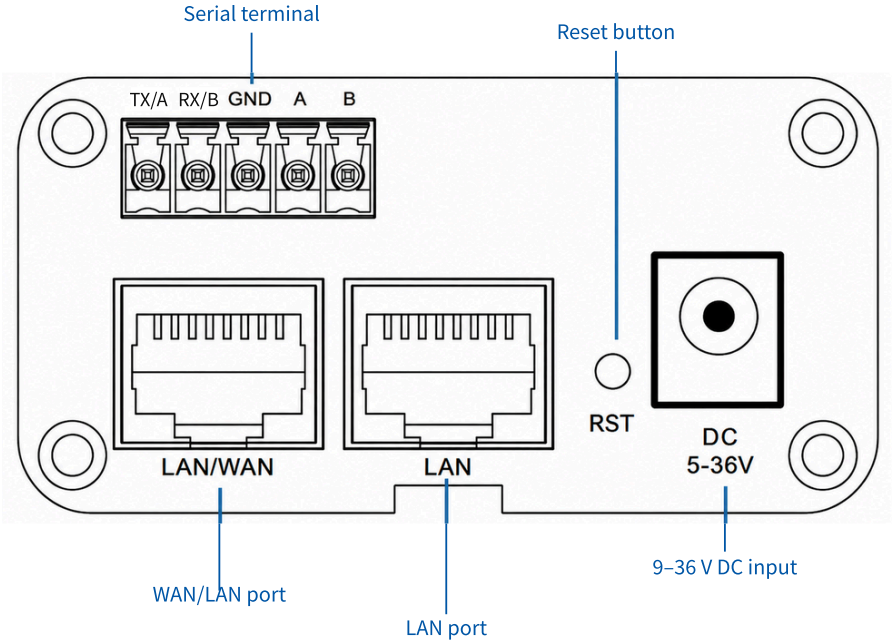
The price and lead-times for region (operator) specific versions may vary. For more information please contact us.

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Hardware



Front panel



Rear panel (2 × RS485 standard; 1 port can be ordered as RS232)

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YZW280 Spatial Measurements & Weight

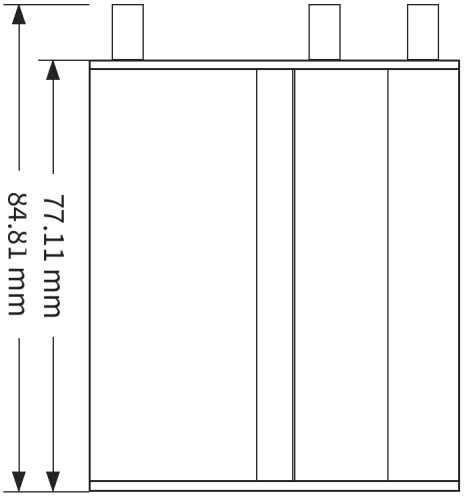
Main Measurements

Device outline*	84.81 × 65.09 × 32.70 mm
Box	262.00 × 125.00 × 85.00 mm

**See the drawings below for individual dimensions and measurement locations; external antennas and cables are excluded.*

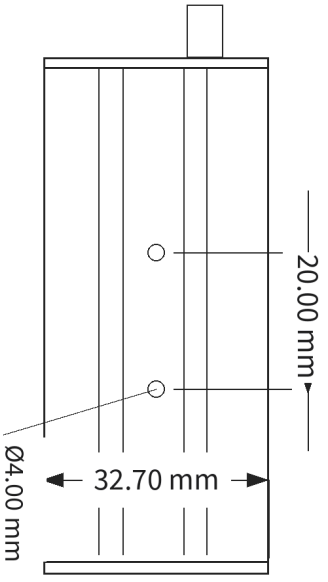
Outline Dimensions

The enclosure and projecting-connector dimensions are shown below:



Thickness and Mounting Holes

Device thickness, mounting-hole diameter and hole spacing are shown below:



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Mounting Space Requirements

The figure below depicts an approximation of the device's dimensions when cables and antennas are attached:

