YZW380S

4G INDUSTRIAL ROUTER • OPTIONAL 5G • NO WI-FI / GPS



Industrial automation

Video surveillance

Building automation

Energy & metering

Edge networking

4G LTE

5× Gigabit

RS232 • RS485

DIN-rail • IP30

DATASHEET

Features

Modem

Cellular data rates	Standard 4G LTE Cat 4: theoretical FDD downlink 150 / uplink 50 Mbps; TDD downlink 130 / uplink 30 Mbps. 5G is a device hardware option; rates and bands follow the selected 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
SIM switching	Per-SIM connection profiles and switching policies for two SIM slots using one cellular modem

Ethernet

WAN	1 × WAN port by default, 10/100/1000 Mbps, auto MDI/MDIX
LAN	4 × LAN ports by default, 10/100/1000 Mbps, 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
WAN/LAN port roles	Default 1WAN+4LAN; configurable as 2WAN+3LAN, 3WAN+2LAN or 4WAN+1LAN; at least 1 LAN port is retained
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 polling configured by device and command; RTU supports either independent RS232 or RS485 port
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 access to either RS232 or RS485 through the platform serial-proxy client; DTU, Modbus RTU and remote serial access cannot own the same port simultaneously; different ports can run independently
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
Power consumption	4G configuration reference: < 3 W; optional 5G consumption varies with the module and operating state

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

Ethernet	5 × RJ45 Gigabit Ethernet ports; default 1 × WAN + 4 × LAN
Serial	1 × RS232 + 1 × RS485, two independent ports supporting concurrent operation; shared 5-pin serial terminal (TX/RX/GND and A/B)
Status LEDs	9 LED positions: SYS, NET, SIG, WIFI, LAN4–LAN1 and WAN; WIFI is inactive.
SIM	2 × Nano SIM push-push slots (press to lock, press again to eject), 1.8 V / 3 V; single cellular modem with SIM switching, not dual-cellular concurrent operation
Power	Industrial round DC power socket, 9–36 V DC input (nominal 12 V DC)
Antenna connectors	4G: one cellular antenna at ANT0; ANT1 reserved. No Wi-Fi/GPS. Optional 5G connectors and antennas match the ordered hardware.
GPS	Not available; no GPS option
Reset	1 × RST button; release before 5 s to reboot; hold for at least 5 s and release to restore factory settings

Physical Specification

Casing material	Metal enclosure
Dimensions (W × H × D)	127.10 × 89.52 × 24.00 mm
Weight	280 g
Mounting options	DIN-rail mounting and mounting ears

Operating Environment

Operating temperature	−30 °C ~ 75 °C
Operating humidity	< 95 % non-frosting
Ingress Protection Rating	IP30

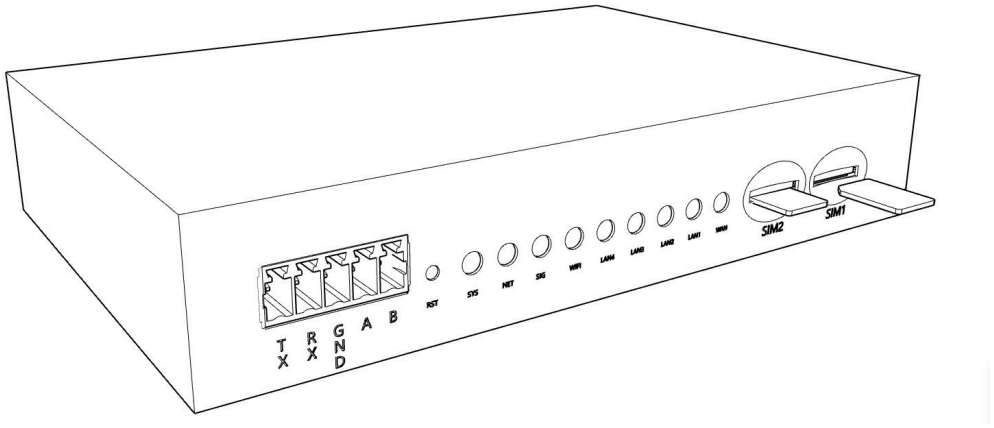
EMC Reference Standards

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

DATASHEET

Hardware Installation

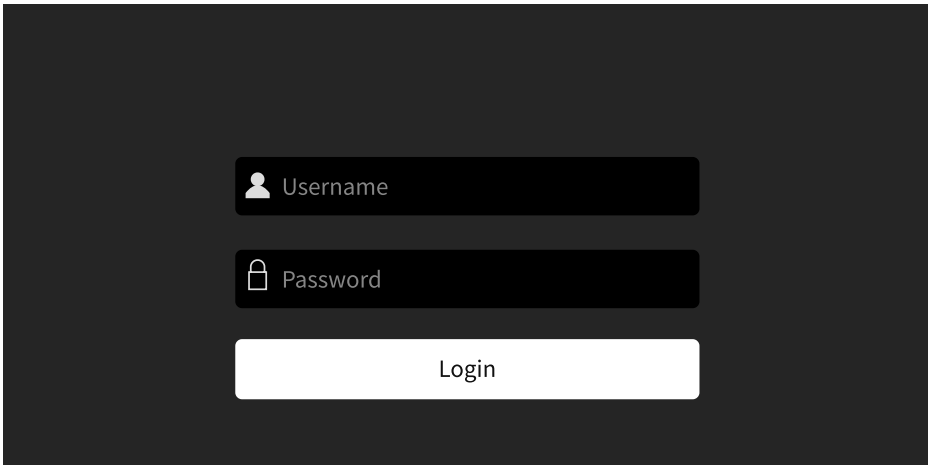
1. Press a Nano SIM into the SIM1 or SIM2 push-push slot until it locks; press again to release and eject the card.
2. Connect the standard 4G antenna to ANT0. ANT1 is reserved; Wi-Fi and GPS are unavailable. Use the matching RF connectors and antennas on an optional 5G device.
3. Connect the power adapter to the rear DC socket. The input must be within 9–36 V DC; nominal supply is 12 V DC.
4. Connect the computer to a LAN port by Ethernet and log in to the Web interface using the address and account supplied with the device.



SIM card installation

Login to Device

1. Open the management address provided on the device label or in the delivery documentation in your browser.
2. Log in with the supplied account and password; image A is a login-screen example.
3. Check cellular connection and signal parameters on the overview page and adjust antenna or device placement 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	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 standard; 5G device hardware option; no Wi-Fi or GPS
Max RF power	4G reference: 23 dBm @ LTE; optional 5G follows the selected module and band

Bundled Accessories Specifications*

4G antenna	698~960 / 1710~2690 MHz, 50 Ω, gain** 5 dBi, SMA male connector
5G antenna (with option)	Quantity, bands, gain and connectors match the selected 5G module

**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.*

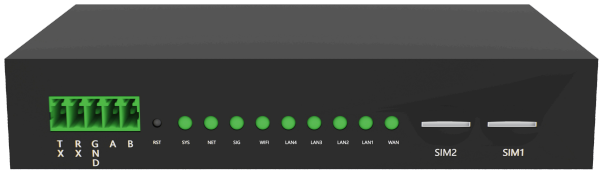
DATASHEET

What's in the Box

Package contents • YZW380S

- 1 × YZW380S device (Standard)
- 1 × Packaging box (Standard)
- 1 × 4G magnetic-mount antenna (Standard)
- 1 × 12 V DC power adapter (Standard)
- 1 × Ethernet cable, 1 m (Standard)
- 1 × 5-pin screw terminal (Standard)
- 1 pair × Mounting ears (Standard)
- 1 × DIN-rail mounting hardware (Optional)
- Per module × 5G cellular antenna (With selected option)





YZW380S
Standard • 1



DIN-rail mounting hardware
Optional • 1



4G magnetic-mount antenna
Standard • 1



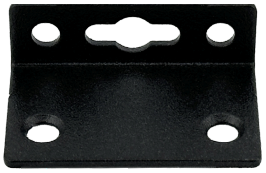
12 V DC power adapter
Standard • 1



Ethernet cable, 1 m
Standard • 1



5-pin screw terminal
Standard • 1



Mounting ears
Standard • 1 pair



5G cellular antenna
With selected option • Per module

Standard accessories are supplied with the base configuration; optional accessories are selected separately. The 5G antenna set replaces the 4G set with the 5G device option; quantities are not added. Wi-Fi and GPS are unavailable; reserved enclosure positions do not imply fitted hardware.

DATASHEET

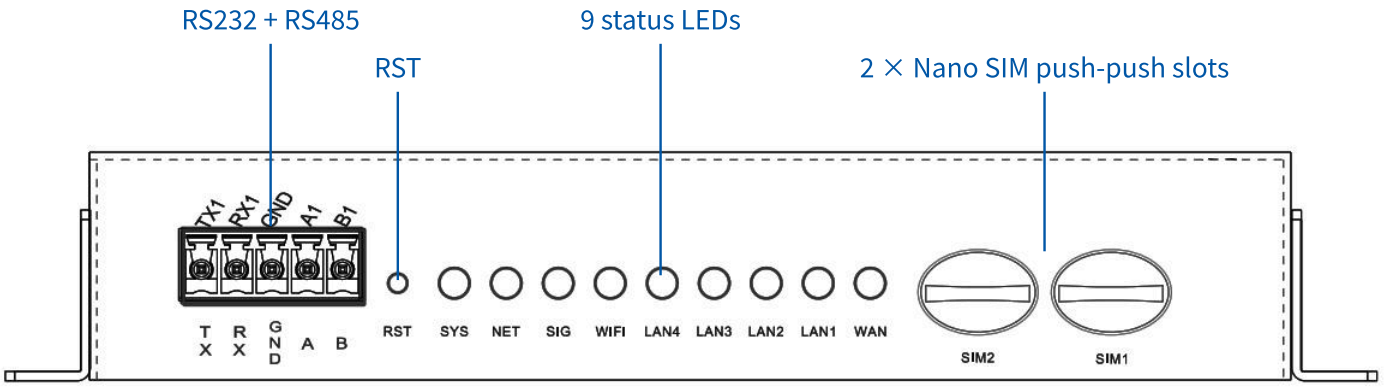
Available Versions

Product	Region (Operator)	Frequency
YZW380S(CN)	China, Southeast Asia	4G (LTE-FDD): B1, B3, B5, B8 4G (LTE-TDD): B34, B38, B39, B40, B41 WCDMA: B1, B5, B8 GSM / EDGE: B3, B8
YZW380S(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
YZW380S(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
YZW380S(EL)	Europe, Asia Pacific	4G (LTE-FDD): B1, B3, B5, B7, B8, B20, B28 4G (LTE-TDD): B38, B40, B41 WCDMA: B1, B5, B8
YZW380S(CAT1 CN)	China, Southeast Asia	4G (LTE-FDD): B1, B3, B5, B8 4G (LTE-TDD): B34, B38, B39, B40, B41
YZW380S(CAT1 EU)	Europe	4G (LTE-FDD): B1, B3, B5, B7, B8, B20, B28
YZW380S (5G option)	Selected module / region	5G bands follow the selected module and order; no Wi-Fi or GPS

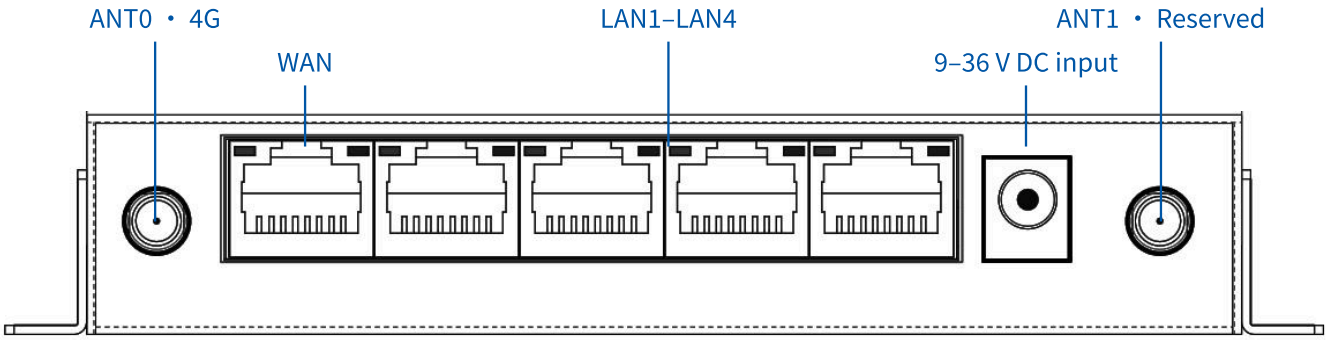
The price and lead-times for region (operator) specific versions may vary. For more information please contact us.

DATASHEET

Hardware



Front Panel



Rear Panel

DATASHEET

YZW380S Spatial Measurements & Weight

Main Measurements

Device outline*	127.10 × 89.52 × 24.00 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.*

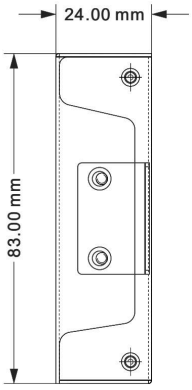
Top View

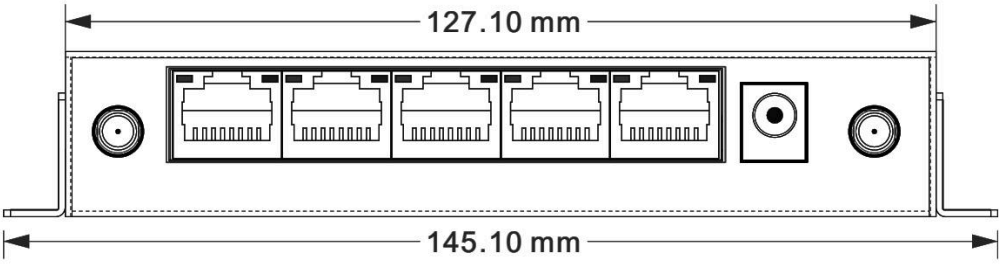
The measurements of YZW380S and its components are seen on the top:



Side and Rear Dimensions

Device thickness, mounting holes and rear dimensions are shown below:





Mounting Space Requirements

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

