YZW1010

4G Industrial Router



Industrial automation | Remote maintenance | Energy & metering | Serial networking | Remote networking

4G Cat 1 / Cat 4 | Dual SIM | 2 × 10/100 Ethernet | RS232 + RS485

DATASHEET

Features

Modem

Cellular options	4G LTE Cat 1 / Cat 4, selected when ordering
Theoretical data rates	Cat 1 bis: 10 Mbps downlink / 5 Mbps uplink; Cat 4: 150 Mbps downlink / 50 Mbps uplink; actual rates depend on the module, network and radio conditions
SIM operation	One cellular modem with two SIM trays; SIM selection and failover follow the configured connection policy
APN and authentication	APN, username/password and NONE/PAP/CHAP/PAP+CHAP authentication; PDP protocol options depend on the installed modem
Cellular status	Connection state, signal, network type, operator, SIM state, module information and IP addressing

Wireless

Wireless standard	2.4 GHz IEEE 802.11b/g/n; 20/40 MHz channel width
Operating modes	Access point (AP) or station (STA)
Wireless security	WPA/WPA2-PSK with AES; SSID hiding, AP isolation and wireless access authorization
Connected clients	Multiple clients in AP mode, with connection status and client-list display

Ethernet

Ports	2 × RJ45, 10/100 Mbps; default 1 × WAN/LAN + 1 × LAN
WAN access	IPv4/IPv6 static addressing, DHCP and PPPoE; WAN/LAN port can be configured for WAN access or LAN use

Network

Routing	Static routes with destination network, gateway, outgoing interface and metric settings
Network protocols	TCP, UDP, IPv4/IPv6, ICMP, ARP, DHCP, DNS, NTP, HTTP/HTTPS, SSH2 and MQTT; FTP and Telnet clients
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
Link supervision	Cellular-link keepalive with configurable IPv4/IPv6 probe targets and connection status monitoring
NAT	IPv4 DNAT, SNAT, MASQ and DMZ rules for port forwarding and address translation
QoS	Upload/download traffic rules by interface, network and optional port, with rate, ceiling rate and priority settings

DDNS	Configurable DDNS provider, account/token, domain and update interval, with an IPv6 update option
Uplink failover	WAN/cellular priority with configurable ICMP keepalive and automatic failover/recovery according to available configured links

Security

Firewall	Stateful packet filtering and management-service access permissions for available access zones such as LAN and VPN
Attack prevention	Configurable DDoS limiting, IP-spoofing, port-scan and SYN-flood rules, plus multicast and IDENT access restrictions
Address Filter	LAN Internet restriction switch with VPN/m2mCloud-only access; disable, blacklist and whitelist modes; IP-only, MAC-only and combined IP+MAC matching. Rules support input/forward direction, TCP/UDP/ICMP, source/destination IP or CIDR, ports and destination interface
Domain Filtering	Configurable disabled, blacklist or whitelist domain-filtering modes

VPN

OpenVPN	Supports dual client instances and a server instance operating independently
WireGuard	IPv4-only tunnels with public/private-key authentication and optional pre-shared keys; up to 4 peer configurations, remote-subnet routes, keepalive, full-tunnel routing and masquerading
ZeroTier	Joins multiple virtual networks by network ID, with independent controls for managed IP/routes and global routes; provides node and virtual-network connection status monitoring
IPsec	IKEv1/IKEv2 and PSK authentication; tunnel and transport modes; configurable local/remote subnets, encryption/authentication parameters and PFS for site-to-site connectivity
L2TP	Client and server operation with account authentication, client address pools, remote-subnet routes, LCP keepalive and MTU/MRU settings for remote access and site interconnection
m2mCloud	m2mCloud remote networking and access to on-site devices; supports PLC program upload/download with the corresponding programming software, without a fixed public IP or inbound port forwarding at the site
GRE	GRE tunnels with local/peer endpoints, virtual addresses and tunnel-key identifiers; GRE itself does not provide encryption
PPTP	PPTP client and server configuration with account authentication and PPP parameters for legacy-network compatibility

Modbus Acquisition & Reporting

Acquisition mode	Modbus TCP/RTU master polling configured by device and command; RTU uses RS232 or RS485
Read function codes	01 Read Coils; 02 Read Discrete Inputs; 03 Read Holding Registers; 04 Read Input Registers
Data formats	16-bit signed/unsigned integers; 32-bit signed/unsigned integers (ABCD); 32-bit floating point (ABCD/CDAB)
Device and command management	Up to 16 devices, with up to 32 acquisition commands per device; supports RTU serial or TCP connections

Command configuration	Configurable command name, slave address, register start/count, mapping address, writable attribute and independent acquisition period
RTU serial parameters	Serial1 (RS232) or Serial2 (RS485); 300–230400 bps, 8 data bits, none/even/odd parity and 1/2 stop bits
Acquisition and reporting timing	Per-command acquisition period: 1-86400 s; response timeout: 30-120000 ms; MQTT/TCP/UDP support optional periodic reporting at intervals of 1-86400 s
Data reporting	MQTT, TCP and UDP data reporting; IEC 60870-5-104 protocol integration
MQTT settings	Server address/port, account authentication and CA certificates; per-device publish/subscribe topics; writable commands accept downlink control through subscribed messages
IEC 60870-5-104 settings	Configurable communication port, common address and acquisition-command mapping addresses
Serial-port sharing	RTU acquisition and DTU services cannot own the same serial port simultaneously; Modbus TCP acquisition does not occupy the serial port

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 and DNP3 master/outstation modes, using an available local serial port
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 the existing admin account password can be changed
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 to RS232 or RS485 through the platform serial-proxy client; the same port cannot simultaneously be owned by DTU or Modbus RTU polling
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	Automatically reconnects the cloud management session and restores the tunnel after a recoverable interruption, reducing the need for on-site manual reconnection
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

Firmware

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

Hardware Features

CPU	MediaTek MT7628AN/NN
RAM	128 MB DDR2
Flash storage	16 MB SPI NOR Flash

System Characteristics

Operating system	OpenWrt-based Linux
Kernel version	Linux 4.9.87
Script runtimes	Shell, Python 3.9.17

Power

Power input	Industrial round DC socket, 9–36 V DC input (nominal 12 V DC); a dedicated power supply rated for ⩾ 1 A output is recommended
Standby power	1.19–1.45 W; power consumption varies with the fitted module and operating state

Physical Interfaces

Ethernet ports	2 × RJ45, 10/100 Mbps; default 1 × WAN/LAN + 1 × LAN

Serial ports	1 × RS232 + 1 × RS485, independently configurable and able to operate concurrently through the 5-pin terminal
Terminal pinout	Left to right: TX, RX, GND, A, B; TX/RX/GND for RS232, A/B for RS485
Serial settings	300–230400 bps; DTU: 5/6/7/8 data bits, none/even/odd parity, 1/2 stop bits; Modbus RTU uses 8 data bits
Serial-port ownership	Each port is owned by one service at a time; DTU, RTU polling and remote serial access cannot share the same port concurrently
SIM	2 × pull-out SIM trays; one modem switches between the two SIMs
Antennas	ANT1 and ANT3: 4G SMA female connectors; ANT2: Wi-Fi SMA female connector
Indicators	SYS (power), CEL (cellular connection), SIG (cellular signal), WLAN (Wi-Fi), FE1/FE2 (Ethernet)
Reset	1 × RST button; short press to reboot; hold for 15 s to restore factory settings

Physical Specification

Enclosure	Sheet-metal enclosure, fanless cooling
Dimensions	99.7 × 98.8 × 24.4 mm
Weight	266 g
Mounting	Mounting brackets as standard; DIN-rail mounting supported

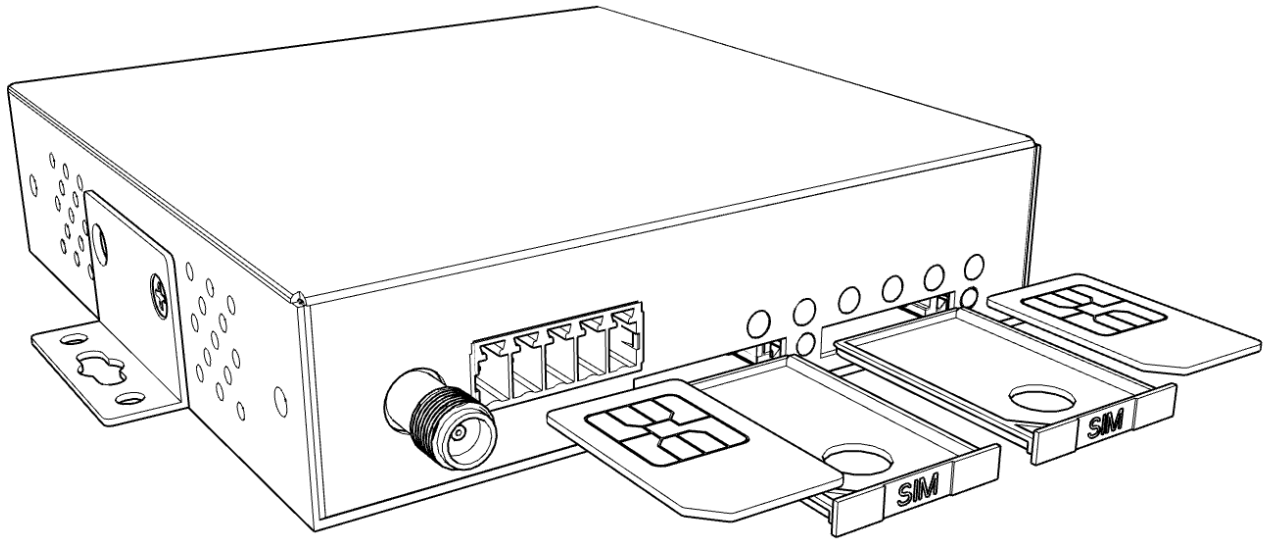
Operating Environment

Operating temperature	−30～75 °C
Storage temperature	−40～85 °C
Operating humidity	< 95 % non-frosting
Ingress protection	IP30

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Hardware Installation

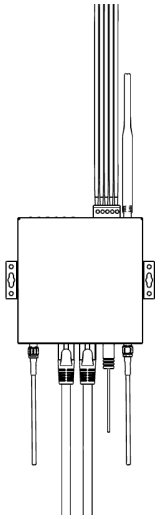
1. Power off. Remove the SIM tray, place the SIM to match its notch, then fully reinsert the tray
2. Connect the two 4G antennas to ANT1/ANT3 and the Wi-Fi antenna to ANT2
3. Connect TX/RX/GND for RS232 and A/B for RS485; check the interface type before wiring
4. Connect the PC to LAN and uplink to WAN; apply 9–36 V DC using a dedicated ⩾1 A supply



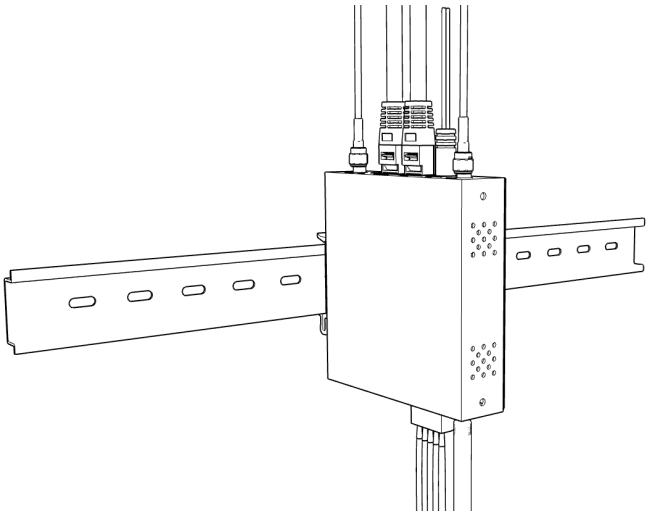
SIM tray installation illustration

Mounting Options

Mounting brackets are supplied as standard; DIN-rail mounting is also supported. Leave clearance for antennas and wiring, and keep ventilation openings clear.



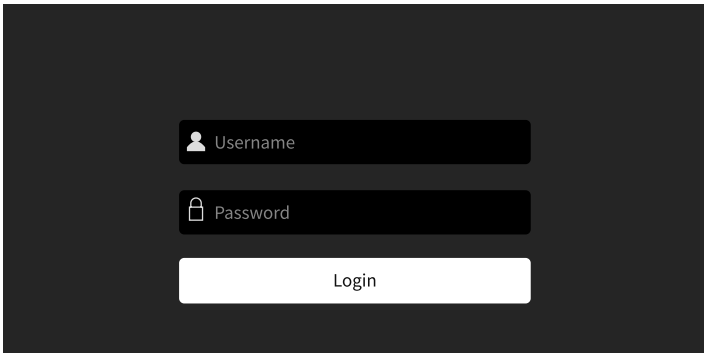
Mounting brackets (standard)



DIN-rail mounting (supported)

Login & Connectivity Check

Use the management address and credentials supplied with the device to log in. Check cellular connectivity, SIM state and signal, and adjust antenna placement as needed. The illustrations below are generic UI examples; use the delivered network settings.



Web management 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

Cellular connection example (illustration; identifiers masked)

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What's in the Box

- 1 × YZW1010 device (Standard)
- 1 × Packaging box (Standard)
- 2 × 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 set × Mounting ears (Standard)





YZW1010
Standard • 1



4G magnetic-mount antenna
Standard • 2



Wi-Fi antenna
Standard • 1



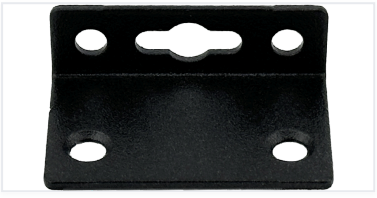
12 V DC power adapter
Standard • 1



Ethernet cable, 1 m
Standard • 1



5-pin screw terminal
Standard • 1



Mounting ears
Standard • 1 set

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

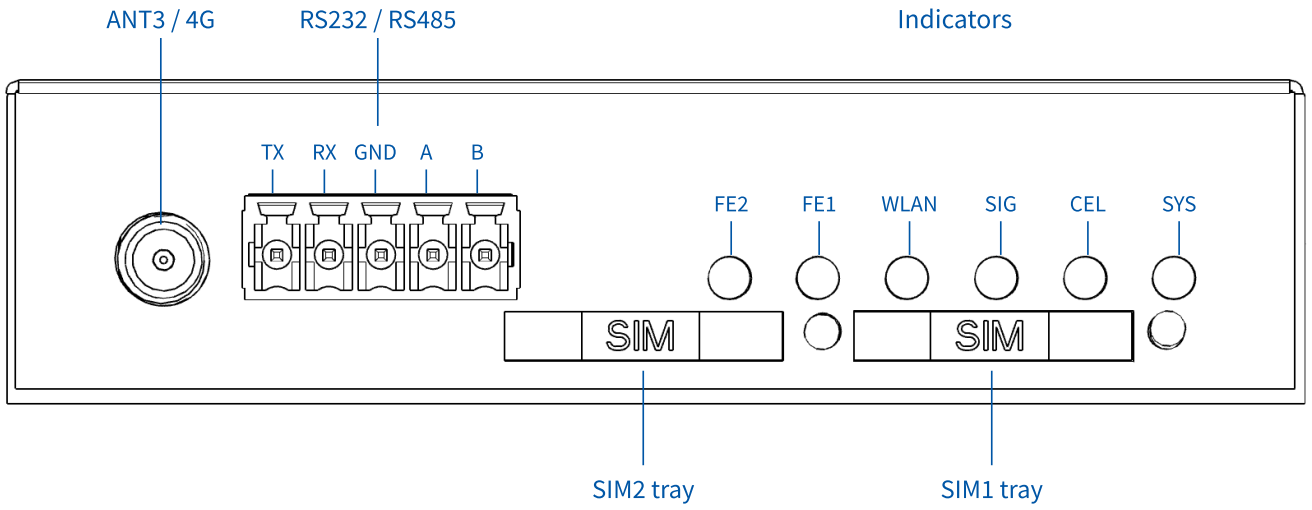
Ordering Options

Product	Cellular option	Description
YZW1010	4G LTE Cat 1	Regional modem selection; the EG800K-EU example supports LTE-FDD B1/B3/B5/B7/B8/B20/B28
YZW1010	4G LTE Cat 4	Confirm the specific module and frequency bands when ordering

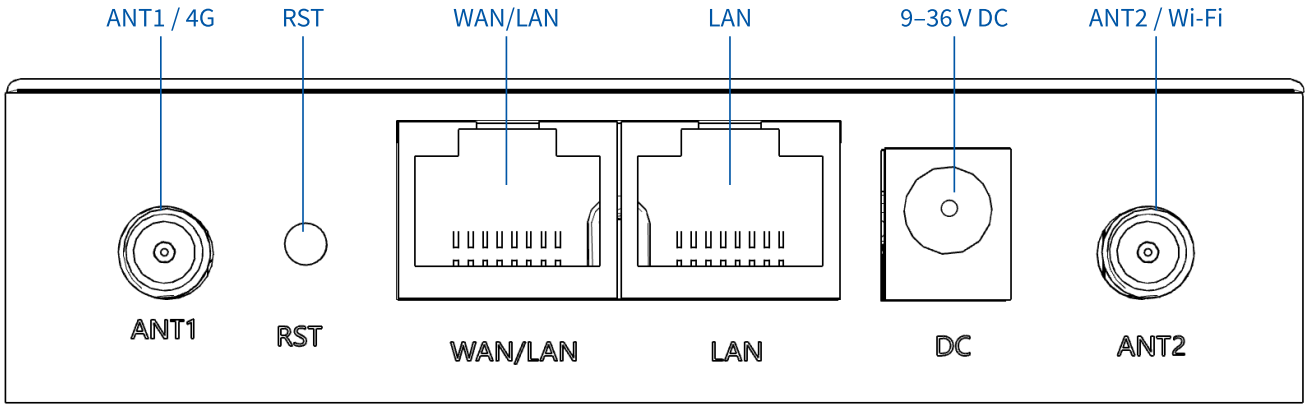
Both cellular options use the MT7628 platform and dual serial-port hardware described here; cellular capabilities, bands and antenna compatibility follow the selected module and confirmed order.

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Hardware Interfaces



Front: 4G, dual serial terminal, SIM trays and indicators



Rear: 4G and Wi-Fi antennas, Ethernet, DC input and reset

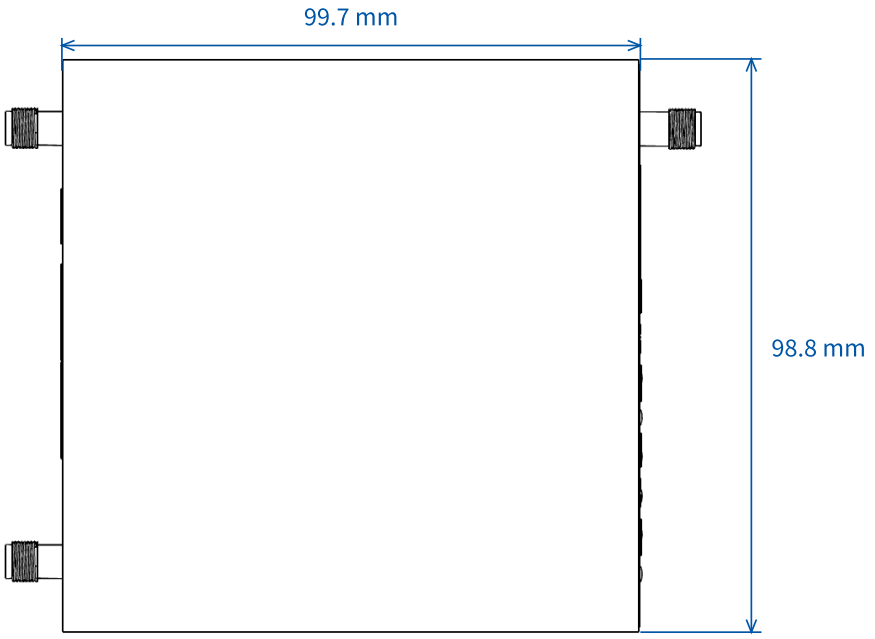
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Dimensions & Weight

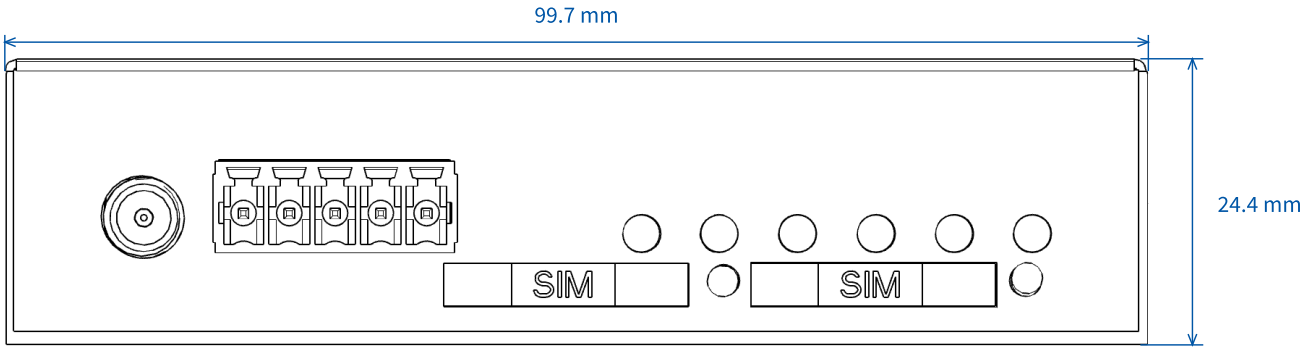
Main Measurements

Dimensions	99.7 × 98.8 × 24.4 mm
Weight	266 g

Dimensions refer to the enclosure and exclude antenna connectors and other protrusions.



Top view



Front view