

# H6501

## 5G Industrial Gateway



### Overview

H6501 5G Industrial Gateway is a high-performance industrial protocol gateway with edge computing capability provided by its open software architecture. It has a variety of communication methods, including cellular, local wireless, wired and fieldbus network, supporting link control algorithm to ensure reliable network communication. The industry-oriented design makes it adaptable to wide temperature ranges and strong electromagnetic interference environments. H6501 is suitable for remote data acquisition from industrial PLC, RTU, meters, etc. with integrated protocol database, machine control by its rich I/O interfaces, as well as remote maintenance via our cloud platform, making it an ideal choice in the field of industrial IoT.

### Highlights

#### Global Cellular Communication & Remote Management

- Release16 & Release 17 compliance on 5G-sub6 & Redcap
- Backward support 4G/3G for global network bands
- Multi-WAN options: 5G, LTE &, GigE, dual SIM backup
- Hongdian Cloud remote management with location information

#### Powerful System Performance & Rich Hardware Interfaces

- Quad-core Cortex-A55, 2.0GHz, 1Tops, 2GB DDR4, 8GB eMMC
- Wireless Interfaces: Wi-Fi 6, Bluetooth 5.2, Lora optional
- I/O Interfaces: 4 RJ45, VCC-IN/OUT, 4 DI, 2 relays, 2 serial, USB 2.0, TF card
- Expansion: More interfaces with Z4-ex I/O modular product

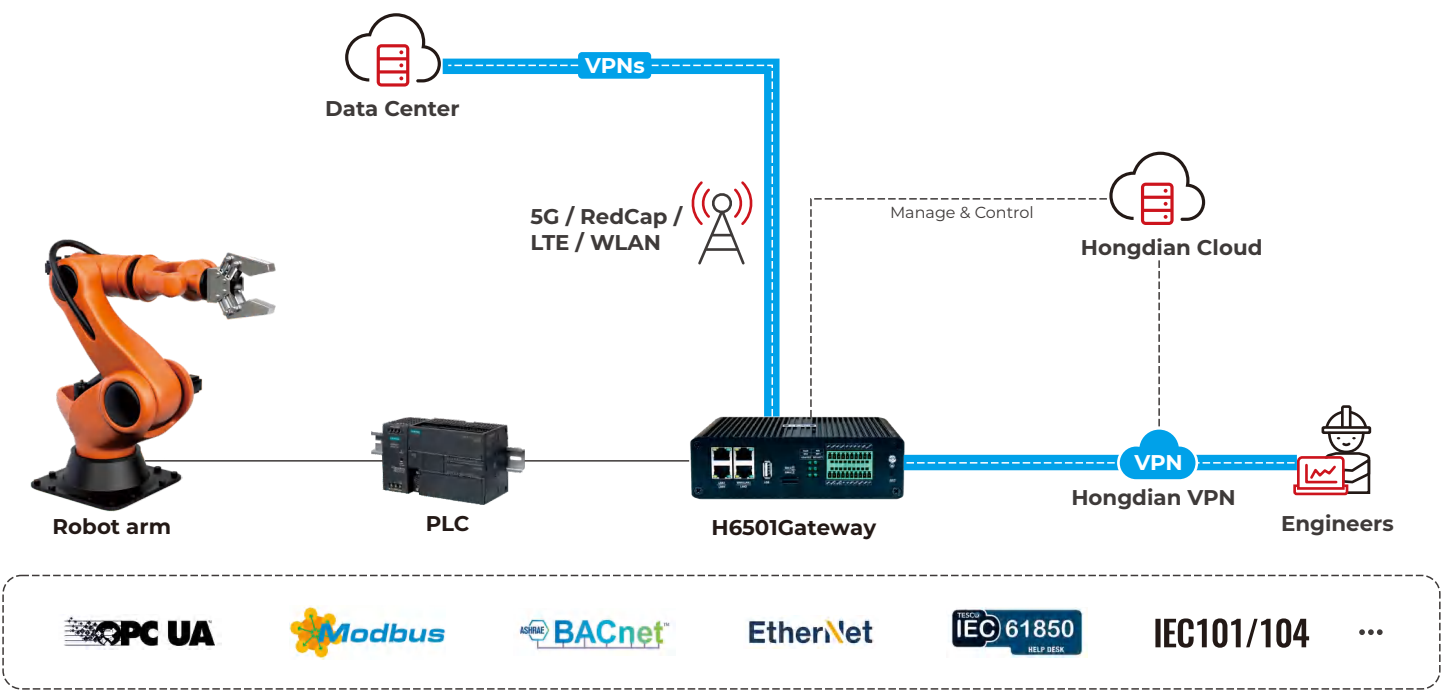
#### Integrated Industrial Data & Security Features

- 5G B-code Timing and built-in RTC
- Common industrial protocols & PLC drivers, 3rd party cloud integration
- Data Protection with IPsec/OpenVPN/GRE/L2TP/PPTP/DMVPN
- Hongdian Cloud VPN remote access & SD-WAN networking

#### Easy APP Development & Deployment

- Container support: Docker for app deployment
- Development Languages: C, C++, Java, Python
- Simplify development with SDKs and APIs
- Cloud based APP deployment with Hongdian Cloud

Topology diagram



Smart Manufacturing



Smart Factory



Water Pump



HMI

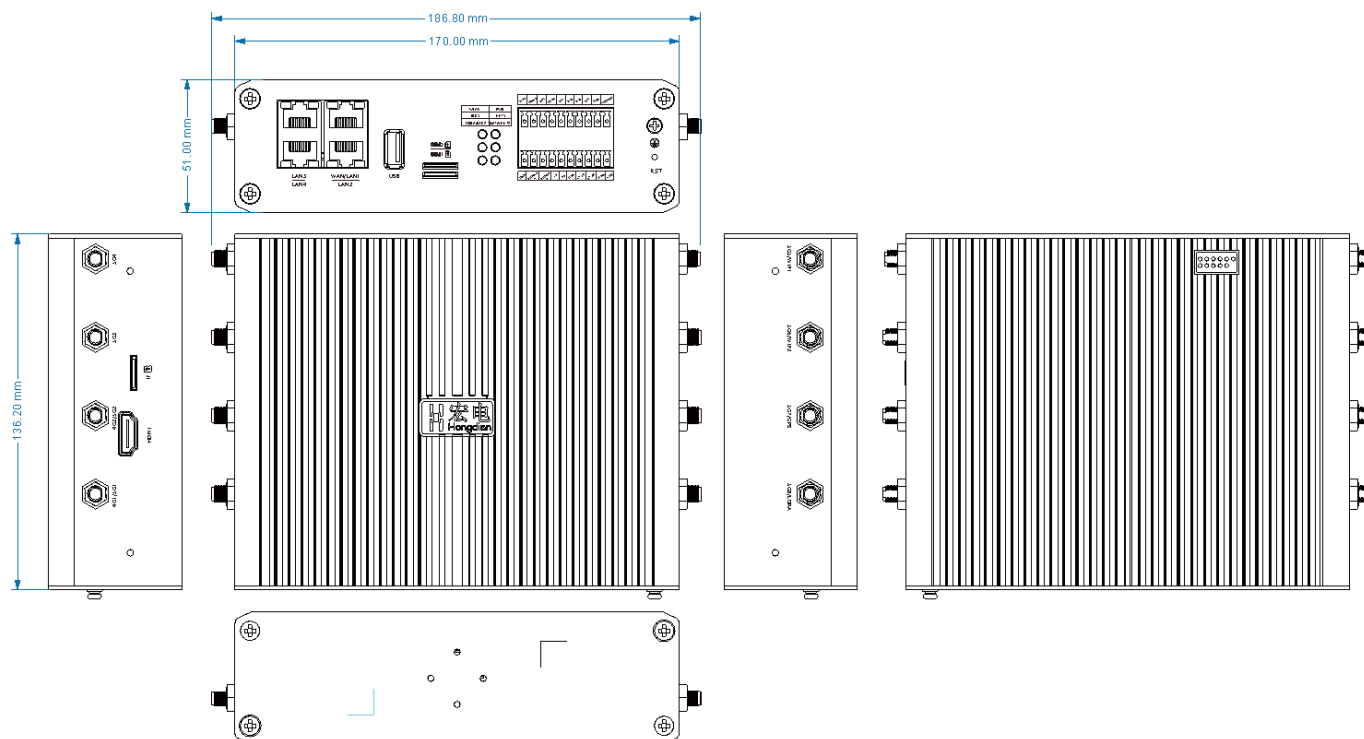
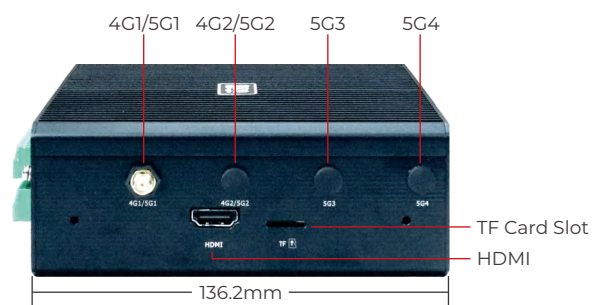
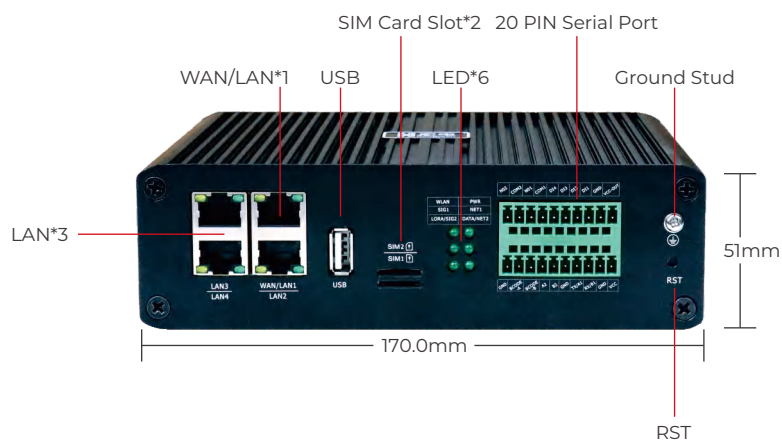
Specification

| Hardware           |                                                              |                    |                                     |
|--------------------|--------------------------------------------------------------|--------------------|-------------------------------------|
| CPU                | Quad ARM Cortex-A55 2.0GHz                                   | NPU                | 1 TOPS for lightweight AI           |
| Memory             | 2GB                                                          | Built-in storage   | 8GB                                 |
| GPU                | Mali G52 2EE, OpenGL ES 1.1/2.0/3.2, OpenCL 2.0 & Vulkan 1.1 |                    |                                     |
| Cellular Interface |                                                              |                    |                                     |
| Modem              | 1 × LTE Cat4 or 1/2 × 5G NR SA/NSA                           | Number of Antennas | 2 (LTE version) or 4/8 (NR version) |
| SIM                | 2                                                            | Connector          | SMA-K                               |
| Wireless Interface |                                                              |                    |                                     |
| Standards          | 802.11b/g/n/ac/ax, AP or station modes                       | Frequency Bands    | 2.4 GHz & 5 GHz                     |
| Speed              | 583Mbps                                                      | Security           | WEP, WPA, WPA2                      |
| Encryption         | 64/128 AES, TKIP                                             | Antennas           | 2                                   |
| Connector          | SMA-K                                                        |                    |                                     |

# Specification

|                              |                                                                                                                                                  |                     |                                              |
|------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------|---------------------|----------------------------------------------|
| GNSS Interface               |                                                                                                                                                  |                     |                                              |
| Number of Antennas           | 1                                                                                                                                                | Connector           | SMA-K                                        |
| Peripheral Interface         |                                                                                                                                                  |                     |                                              |
| Etehernet                    | 4 × RJ45 10/100/1000Mbps adaptive (1 of which supports WAN, LAN switching)                                                                       |                     |                                              |
| Serial                       | 1 × RS-232/RS-232 + 1 × RS-485 serial port                                                                                                       | USB                 | 1 × USB2.0                                   |
| TF Card                      | 1                                                                                                                                                | HDMI                | 1                                            |
| Extension interface          | Extendable interface module H6500-EXT                                                                                                            |                     |                                              |
| Software                     |                                                                                                                                                  |                     |                                              |
| Auto Fail-over               | Between: 2 Cellulares, Cellular and WAN, Cellular and Wi-Fi (station mode), WAN and Wi-Fi (station mode)                                         |                     |                                              |
| Network Protocols            | PPP, PPPoE, TCP, UDP, DHCP, ICMP, NAT, HTTP, HTTPS, DNS, ARP, NTP, SMTP, Telnet, SSH, DDNS, etc.                                                 |                     |                                              |
| Network                      | APN, VPDN, VLAN, QoS                                                                                                                             |                     |                                              |
| Routing                      | Static Routing, Policy routing, RIP, OSPF and BGP, etc                                                                                           |                     |                                              |
| Firewall                     | NAT, PAT, DMZ, Port Forward, IP/Domain/MAC Filter, Access Control List                                                                           |                     |                                              |
| Attack Prevention            | DDOS prevention, Anti port scanning                                                                                                              |                     |                                              |
| VPN                          | PPTP/L2TP/GRE/IPSec/OpenVPN/DMVPN/WireGuard                                                                                                      |                     |                                              |
| Ipssec Encryption            | DES, 3DES, AES128, AES192, AES256                                                                                                                |                     |                                              |
| OpenVPN Encryption           | BF-CBC, DES-CBC, RC2-CBC, DES-EDE-CBC, DES-EDE3-CBC, DESX-CBC, RC2-40-CBC, CAST5-CBC, RC2-64-CBC, AES-128-CBC,AES-192-CBC, AES-256-CBC, SEED-CBC |                     |                                              |
| Remote Management            | HTTP, Telnet, SSH, SMS, SNMP V1/V2/V3, SNMP TRAP, Hongdian Sandora Cloud Platform                                                                |                     |                                              |
| Serial Ports Function        | Transparent, Modbus RTU, etc                                                                                                                     |                     |                                              |
| Industrial Protocol          |                                                                                                                                                  |                     |                                              |
| Common Protocols             | OPC-UA Client&Server, BACNet/IP Client&Server, Modbus RTU/TCP/ASCII, Modbus Master, BACnet/IP, Ethernet/IP, IEC101/104, IEC61850-modbus, etc.    |                     |                                              |
| Cloud Integration            | MQTT, HTTPS, Hoditek HMP, TCP/UDP, etc                                                                                                           | Configuration Tool  | HDGatewayManager                             |
| Development                  |                                                                                                                                                  |                     |                                              |
| Deployment                   | Docker Container to deploy your own APP                                                                                                          |                     |                                              |
| Coding language              | C, C++, Java, Python, etc                                                                                                                        |                     |                                              |
| Hongdian Cloud Management    |                                                                                                                                                  |                     |                                              |
| Device Management            | Device status monitoring, configuration, OTA with schedule task, etc                                                                             |                     |                                              |
| Remote access                | One click VPN tunnel for remote access to machines, PLCs, RTUs, HMIs, meters, etc                                                                |                     |                                              |
| SD-WAN Networking            | Zero-touch-provisioning for branch networking with Overlay VPNs                                                                                  |                     |                                              |
| Power Supply and Consumption |                                                                                                                                                  |                     |                                              |
| Connector                    | 2 pin socket                                                                                                                                     | Voltage Input       | +9V~+48V DC                                  |
| Power Consumption            | 400mA@12V DC, Data transceiving: 1.5A@12V DC                                                                                                     |                     |                                              |
| Others                       |                                                                                                                                                  |                     |                                              |
| Reset Button                 | Yes                                                                                                                                              | Hardware Watchdog   | Yes                                          |
| LED Indicators               | 6 indicators for PWR, WLAN, NET1, SIG1, DATA/NET2, LORA/SIG2                                                                                     |                     |                                              |
| Physical Characteristics     |                                                                                                                                                  |                     |                                              |
| Ingress Protection           | IP30                                                                                                                                             | Housing & Weight    | Metal, 1060g                                 |
| Dimension                    | 170.0 × 136.2× 51.0(mm)                                                                                                                          | Installations       | Desktop, wall mounting and DIN rail mounting |
| Operating Temperature        | -35 ~ +75 °C                                                                                                                                     | Storage Temperature | -40 ~ +85 °C                                 |
| Relative Humidity            | 95%                                                                                                                                              |                     |                                              |

# Appearance



## Ordering info

| Part No.                 | Modem | Band                                                                                                                                                                                                                                                                       | Region* | RS-485 | DIDO | Wi-Fi                | Ethernet | HDMI | TF Slot |
|--------------------------|-------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------|--------|------|----------------------|----------|------|---------|
| <b>H6500-NRGL-2S-rW6</b> | 5G NR | <b>NSA/SA:</b> n1/2/3/5/7/8/12/13/14/18/20/25/26/28/29/30/38/40/41/48/66/70/71/75/76/77/78/79<br><b>LTE FDD:</b> B1/2/3/4/5/7/8/12/13/14/17/18/19/20/25/26/28/29/30/32/66/71<br><b>LTE TDD:</b> B34/38/39/40/41/42/43/48<br><b>LAA:</b> B46<br><b>WCDMA:</b> B1/2/4/5/8/19 | GL      | 2      | 4/2  | 802.11ax<br>2*2 MIMO | 4        | 1    | 1       |
| * GL-Global              |       |                                                                                                                                                                                                                                                                            |         |        |      |                      |          |      |         |

## Packing list

|                                                                                     |                                                                                     |                                                                                      |                                                                                       |
|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------|
|   |   |    |    |
| Packing Box                                                                         | H6501 5G Industrial Gateway                                                         | Power Adapter                                                                        | Ethernet Cable                                                                        |
|  |  |  |  |
| Wi-Fi Antennas                                                                      | 4G Antennas                                                                         | NR Antennas                                                                          | Mounting kits                                                                         |