



The G532i industrial edge computing gateway is a gateway platform-level device based on a new generation of virtualization technologies, with cloud-side collaboration, and capable of implementing multiple edge computing applications. It is usually used to output computing capabilities close to the collection node to implement data collection, data cleaning, local linkage, deep learning, fault diagnosis, and other functions. It provides users with a simple and reliable industrial Internet solution for industrial mutual control, device diagnosis, program maintenance, and fault alarms.

The G532i adopts the ARMv8 64-bit hardware architecture and has a modular design. Different function boards can be selected according to the needs. The fanless industrial-grade guide-rail installation design is dustproof and vibrationproof. The G532i provides Ethernet interfaces, RS485/232 serial interfaces, and Wi-Fi for access to user services, and it can access various industrial field terminals and transfer and analyze collected user data. Its built-in high-capacity storage can support long-term data caching requirements in the offline status. The uplink adopts the 2G/3G/4G/5G high-speed wireless network as the data bearer network, and supports multiple network standards, including 5G NSA/5G SA/FDD LTE/TDD LTE/WCDMA/GPRS.

The G532i adopts the standard Linux kernel, and a good secondary development environment is convenient for users to run various self-developed applications through docker or develop edge computing applications through python/C/go/JS/.NET. Compatible with IEC61131-3 programming tools, it can realize local linkage and data processing analysis of the device in the offline status.



## Highlights>>

- High industrial protection level of EMC3, fit for strong EMI environment
- Merging the communication device and IOT collection, following the IT/CT/OT convergence trend
- Multiple card combinations for different applications
- Multiple uplink network modes, including the wired mode and carrier's 2G/3G/4G/5G network
- Zigbee3.0 IOT access capabilities, able to access data of various wireless sensors

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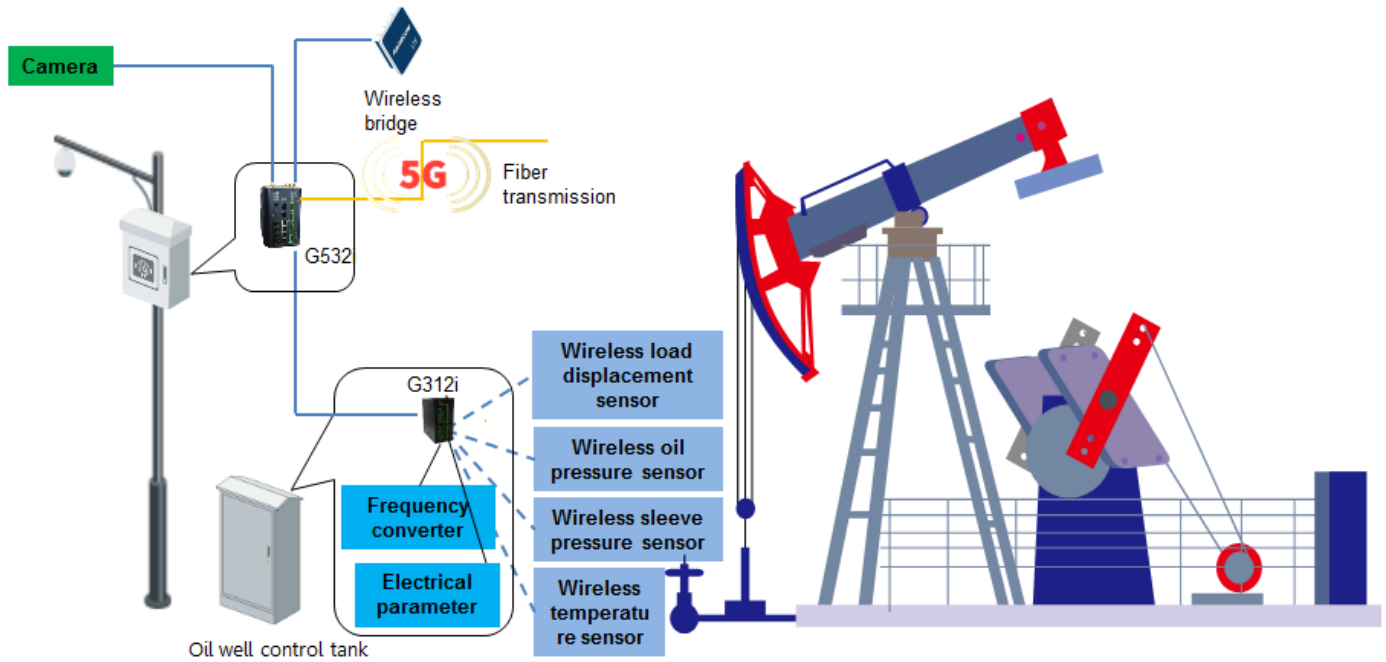
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- Certified by Alibaba Link Edge and AWS Greengrass edge computing frame
- Compatible with the Ubuntu Linux and container module for secondary development by users
- OpenPLC, able to control programming logic of the attached IO extension module

## Application >>



The online liquid level monitor monitors the oil well liquid level in real time. The data is connected to the G312i gateway of the IO extension of the oil well control cabinet through the RS485 interface, and finally to the G532i of the communication box. The G532i controls the frequency converter to adjust the stroke rate of the pumping unit and collects parameters of the pumping unit at the same time. It sends working parameters of the oil well to the production command center, which realizes dynamic local closed-loop parameter adjustment, energy saving, and consumption reduction, is unattended, and greatly reduces production costs and improves production efficiency.

**Figure 1 Unattended smart oil well solution**

## Key features>>

| Feature              | Subfeature         | Description   |
|----------------------|--------------------|---|
| Hardware performance | CPU                | ARM Cortex-A53 dual-core 1.2 GHz  |
|                      | Memory             | 1 GB DDR3L  |
|                      | Flash              | 8 GB eMMC   |
| Device interface     | Serial interface   | ● 3 RS485 interfaces (optical/electrical isolation can be selected)         |
|                      |                    | ● 1 RS232 interfaces (optical/electrical isolation can be selected)         |
|                      | Ethernet interface | ● LAN: four 1000 Mbit/s RJ45 interfaces, and two 1000 Mbit/s SFP interfaces |

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- WAN/LAN: 4 1000M RJ45 interfaces

**POE** 4 ways of POE 802.3af/at/bt, with the external DC48V power supply, able to supply power of up to 60 W per interface

**Short-distance wireless network** ZigBee coordinator

**Long-distance wireless network** 5G/4G/3G/2G network

**USB extension** One USB 3.0 type A

**SIM card** Micro SIM card, supporting dual-SIM card for backup and switching

**RTC** Super capacitor, supporting air transportation

**Power interface** 24 VDC, supporting the range of 9-32 VDC

## Appearance

**Dimensions**

- 150×135×80 mm (without cooling fins)
- 150×135×96 mm (with cooling fins)

**Antenna**

- 6\*SMA 5G antenna
- 1\*RSMA ZigBee antenna

**LEDs** PWR, SYS, 5G, ZigBee, USR1, USR2, Signal, TX/RX1, TX/RX2, TX/RX3, and TX/RX4

**Protection class** IP40

**Operating temperature** -25 to 70 temperature

## IOT

**OS** Compatible with Ubuntu customized Linux, with the kernel of 4.1

**Container management**

- Multi-container running, supporting inter-container communication
- Managing and monitoring container running
- Installing and managing containers and container patches
- Assigning different container management rights for different users

**Collection protocol**

- ModBus TCP/RTU;
- PLC protocols: Siemens, Schneider, AB, Mitsubishi, and Omron
- Electric power: DLT645/698 IEC101/104

**Platform protocols** ● MQTT+TLS and RCIOT management platforms

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- Siemens, Schneider, Alibaba, and Amazon cloud platforms

Network protocols

4G/5G

- 4G/5G APN domain mode
- KeepAlive online

NAT

DNAT and SNAT

VPN

- OPENVPN
- L2TP
- IPSEC
- VXLAN

Redundancy

Backup between the wired link and wireless link

Certificates and standards

- IEC61000-4-2 (ESD):  $\pm 6$  kV contact discharge,  $\pm 8$  kV air discharge
- IEC61000-4-3 (RS-): 10 V/m (80–1000 MHz)
- IEC61000-4-4 (EFT): power cable:  $\pm 2$  kV; data cable:  $\pm 2$  kV (5 kHz, 100 kHz)
- IEC61000-4-5 (Surge): power cable: CM $\pm 2$ kV/DM $\pm 1$ kV; data cable: CM $\pm 2$ kV
- IEC61000-4-6 (RF CI): 10V (150kHz~80MHz)
- IEC61000-4-8 (power frequency magnetic field): 100A/m lasting; 1000A/m ,1s to 3s
- IEC61000-4-9 (pulse magnetic field): 300A/m
- IEC61000-4-10 (damped oscillatory magnet field): 30A/m@1MHz
- IEC61000-4-12/18 (shock wave): CM 2.5kV, DM 1kV
- FCC Part 15/CISPR22 (EN55022): Class A
- IEC61000-6-2 (universal industrial standard)
- IEC60068-2-6 (anti-vibration)
- IEC60068-2-27 (anti-shock)
- IEC60068-2-32 (free fall)
- ROHS

## Ordering information>>

**G532i-B-10GE4R**

- Industrial 5G edge computing gateway, ARM A53 dual-core 1.2 GHz CPU, 1 GB memory, 8 GB Flash, one USB 3.0 type A interface, -40 to 70°C operating temperature
- Eight 1000 Mbit/s Ethernet electrical interfaces, 2 SFP 1000 Mbit/s optical interfaces, three 5.81-terminal RS485 interfaces, one 5.81-terminal RS232 interface

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- Industrial protection class: IP40
- 5G/4G/3G/2G uplink, dual micro-SIM card for dual-card single-standby, external antenna interface, and six 5G SMA connectors
- Input voltage range of the main power supply: 9–32 VDC
- Package box: 220V-12V 2A power adapter, 35-mm rail clip assembly, 2-PIN power terminal, 3-PIN RS485 terminal, six 2-m extended sucker antenna
- Supporting 5G+industrial Internet applications

## G532i-B-10GE4R-

### Z-P

- Industrial 5G edge computing gateway, ARM A53 dual-core 1.2 GHz CPU, 1 GB memory, 8 GB Flash, one USB 3.0 type A interface, -40 to 70°C operating temperature
- Eight 1000 Mbit/s Ethernet electrical interfaces, of which four support 802.3af/at/bt PoE, up to 60 W power supplied per interface, up to 120 W power supplied by these four interfaces
- 2 SFP 1000 Mbit/s optical interfaces, three 5.81-terminal RS485 interfaces, one 5.81-terminal RS232 interface
- Industrial protection class: IP40
- 5G/4G/3G/2G uplink, dual micro-SIM card for dual-card single-standby, one way of ZigBee short-distance IoT access, external antenna interface, six 5G SMA connectors, 1 ZigBee RSMA connector
- Input voltage range of the main power supply: 9–32 VDC; external 48 VDC power input interface for PoE
- Package box: 220V-12V 2A power adapter, 35-mm rail clip assembly, 2-PIN power terminal, 3-PIN PoE power terminal, 3-PIN RS485 terminal, seven 2-m extended sucker antenna
- Supporting 5G+industrial Internet applications

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