Product Name	GAO Tek 4G IoT Edge Computing Gateway
Product SKU	GAOTek-ECP-115
Product URL	https://gaotek.com/product/gaotek-4g-iot-edge-computing-gateway/

CONTENTS

1. INTRODUCTION

➢ IOT Edge computing gateway is remote monitoring, maintenance and problem diagnosis through secure remote connection and effective control of various industrial applications such as automation, transportation and energy will greatly reduce operational costs.

➢ At the same time, in the current new crown epidemic led to strict prevention and control policies in many places, the operation and maintenance service personnel often cannot get to the scene in time.

➢ Therefore, to promote remote intelligent services based on industrial Internet of Things, through remote operation and maintenance methods, engineers can respond to the on-site needs of the project in a timely and rapid manner without going out.

2. FEATURES AND BENEFITS

2.1 FEATURES

- Hight Performance CPU processor Band 1.5 GHz
- 2GB memory Build in 8GB eMMC
- 1 channel Gigabit WAN port
- 4-channel 100-megabit LAN port
- 3 channel RS232/485 serial port
- 1 channel CAN port

2.2 BENEFITS

- Wi-Fi / WLAN/ 4G Remote communication.
- Industrial grade standard hardware processor/chipset/communication module.
- Data real-time collection and process complex control computing.

3. PRODUCT APPLICATION

➤ Fully industrialized hardware design, from processing chips, communication modules to electronic devices, all adopt high industrial grade standards.

➤ The gateway, routing, switch, VPN, device monitoring and other multi-functional in one, while built-in a complete industry protocol library to facilitate device docking.

➤ **Application areas:** Collecting data from the sensor devices deployed in each production line in each production chain, analyzing and processing them through relevant algorithms and tools, forming valuable data for decision-making, and realizing the digitalization of industrial production processes.

➤ we make the gateway, cloud server, terminal computer to establish a remote connection to help users easily realize remote operation and maintenance, as well as equipment data collection. Management and control.
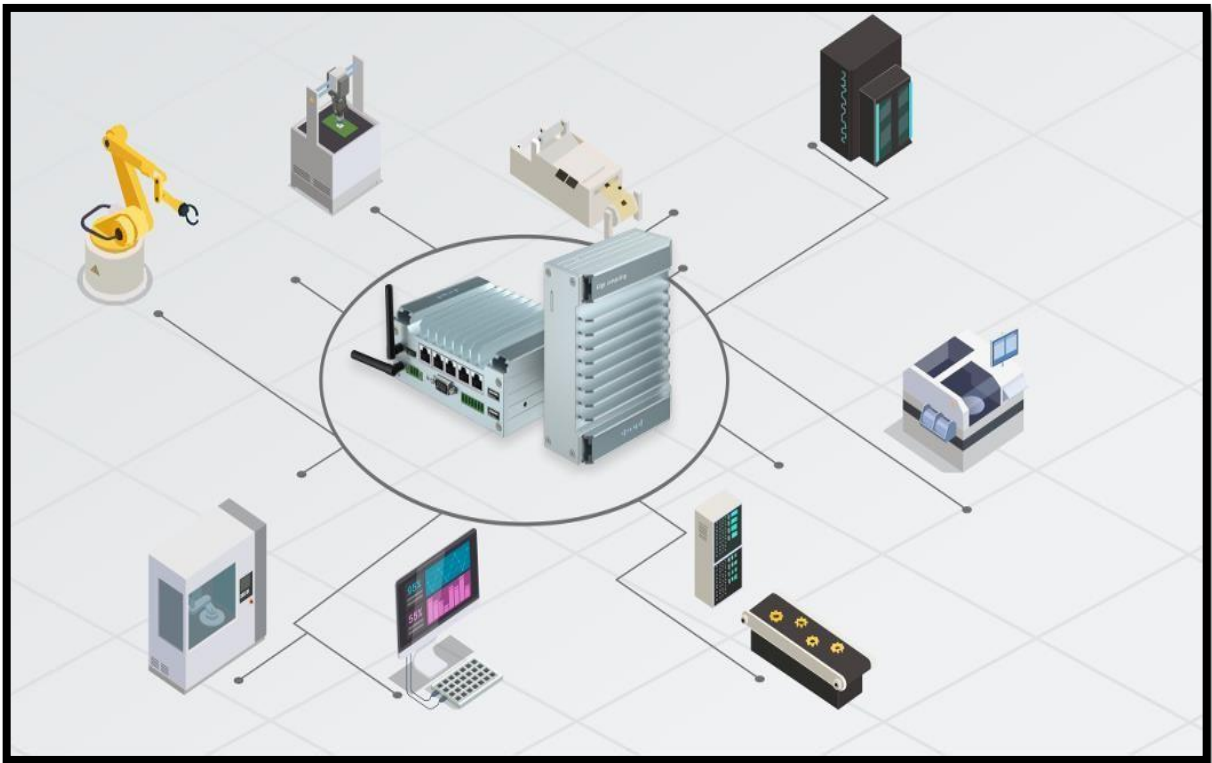
4. SERIAL PORTAL COMMUNICATION

➢ The Edge Computing Gateway provides a simple and reliable serial networking solution when you need to integrate field serial devices to an Ethernet or cloud platform.

➢ Helps serial devices easily access the network, allowing your PC, cell phone to access serial data directly over the network from any location.

➢ Designed to connect industrial automation serial devices such as PLCs, sensors, meters, motors, drives, barcode readers and displays, supporting common protocols such as MODBUS, Mitsubishi, Omron, Siemens, Schneider, Delta, etc.
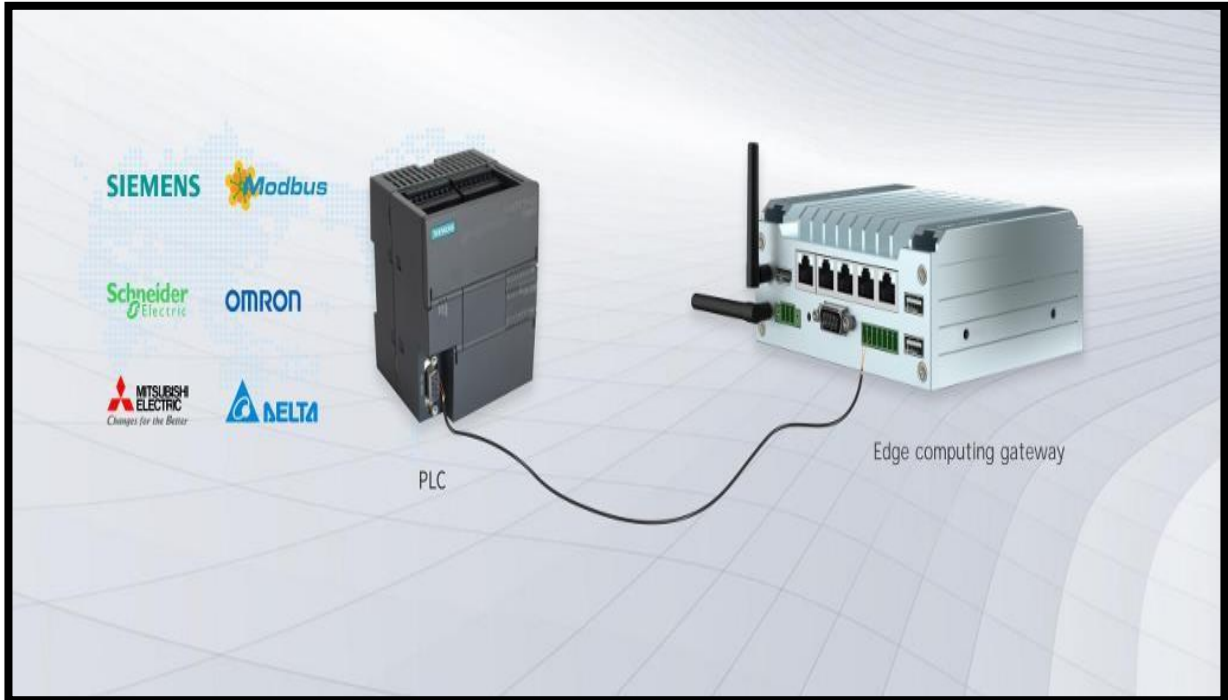
5. LANE COMMUNICATION

➢ **Network interface:** external network access methods are WAN port network cable, LTE 4G, 2.4G WIFI, connecting serial and Ethernet devices to WAN or cellular network; 4 LAN ports are subnet access port.

➢ **Routing capabilities:** Efficiently segmenting networks, routing capabilities streamline data flow and simplify IP management, enabling seamless adaptation to diverse network scenarios in factory automation environments.

➢ **Protect critical network:** systems such as water treatment systems in pumping stations, DCS systems in oil and gas applications, and PLC/SCADA systems in factory automation by protecting internal networks from unauthorized access by external hosts.

➢ **Mapping function:** also known as static port mapping, the mapping function ensures a fixed port on the WAN gateway forwards data to specified intranet IP and port, enabling seamless external access to internal devices.
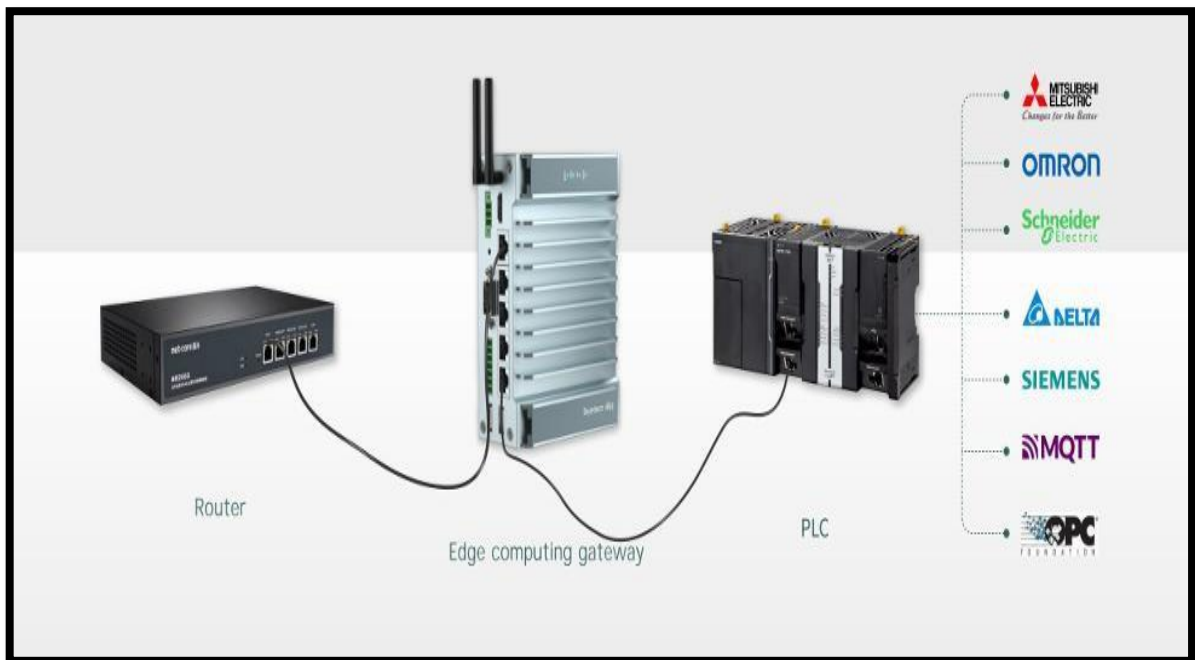
6. PLATFORM COMMUNICATION

➤ The gateway adopts high-performance-ARM system and rich driver interface to realize high-speed, accurate and urgent data acquisition, storage, transmission, edge processing, and convenient data communication with various devices or systems in industrial sites.
➤ Embedded edge real-time database for local storage of collected data.
➤ Edge data can be transmitted in real time via wired or wireless to various public and private Industrial Internet platforms.
➤ The gateway connects to the external network and communicates with the platform through 4G, WF, and WAN-port, and the commonly used protocols are TCP, UDP, MQTT, HTTP/HTTPS.
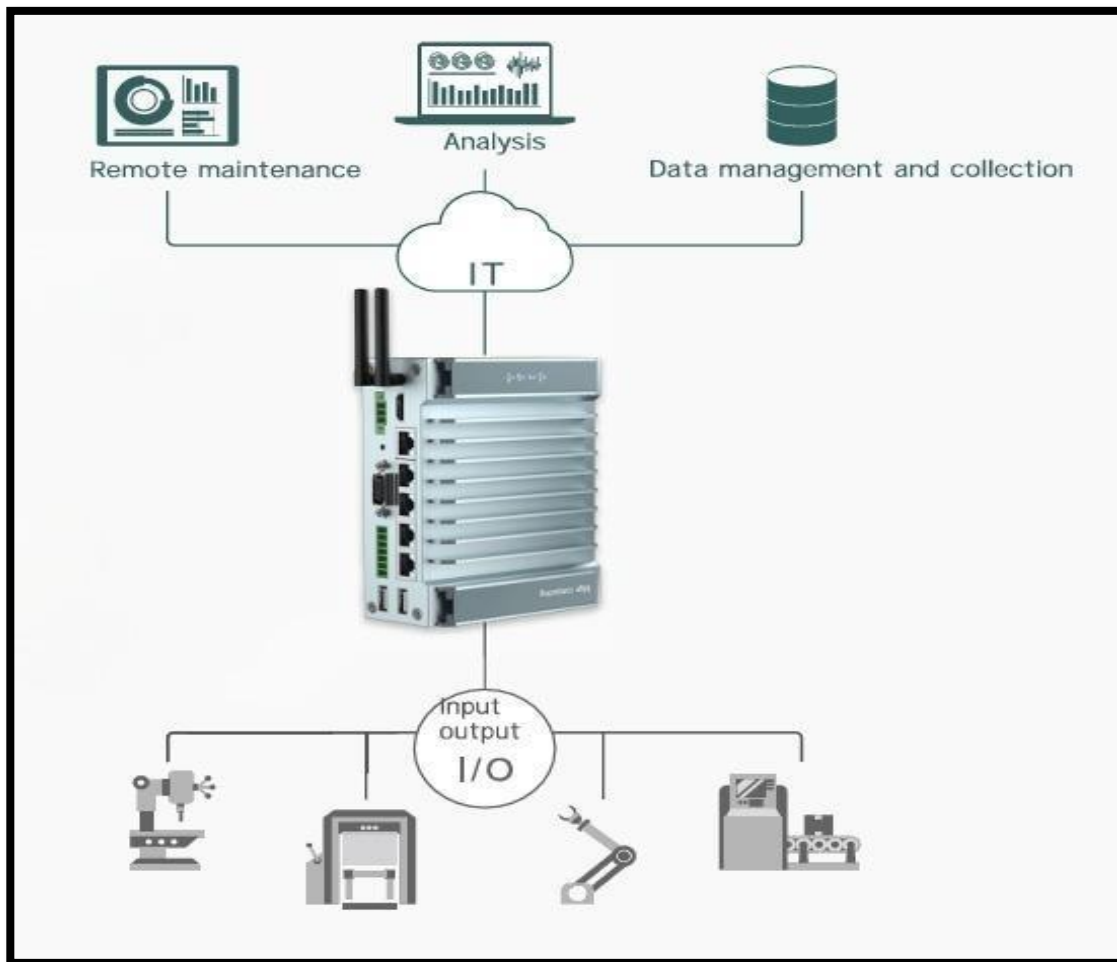
7. EDGE COMPUTING

Edge computing, which sinks the capabilities of the cloud to the edge side, uses the JAVASCRIPT language to quickly develop scripts and seamlessly deploy them to the edge nodes, fully utilizing the computing resources of the gateway to solve the problems encountered in real-time, reliability, and economy of operation and maintenance at the edge.

7.1 FEATURES OF EDGE COMPUTING

➢ **Real-time response:** data produced by the device can be operated locally and can respond quickly to local events.
➢ **Discontinuous transmission:** can work continuously in a disconnected or weak network environment and can synchronize the latest data to the cloud when the network is restored.
➢ **Data calculation:** can aggregate and clean equipment data locally, process them in a hierarchical manner, and then transfer the processed data to the cloud for storage and analysis.
➢ **Protocol development:** use the JAVASCRIPT language to develop equipment communication protocols to support rapid access to pan-devices.
➢ **Remote operation and maintenance:** view the computing resources and operation of the gateway in the cloud, and remotely access the gateway backend in the cloud for operation and maintenance.
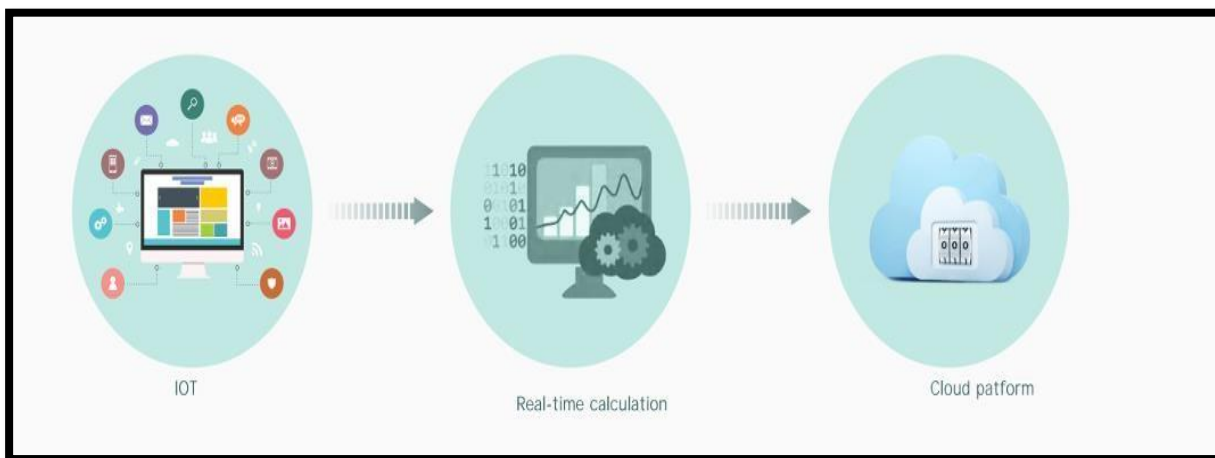
8. HD DISPLAY

➢ The gateway comes with 1 HDMI output, supporting 4K 60 FPS output.
➢ Display can be connected to computer monitors, TVs and other displays with HDMI input interfaces for scenarios requiring real-time monitoring on site.
➢ USB interface to access the mouse and keyboard for human-computer interaction (touch panel with USB interface can also used).


HDMI Portal
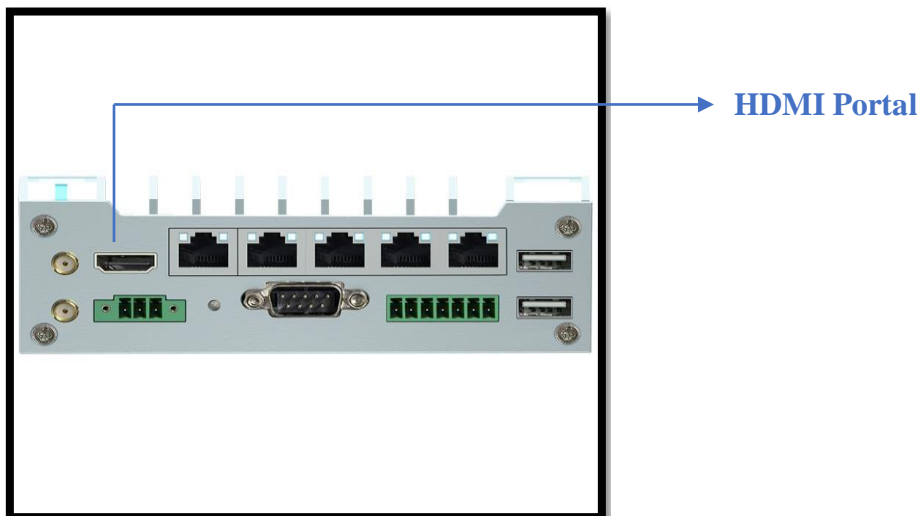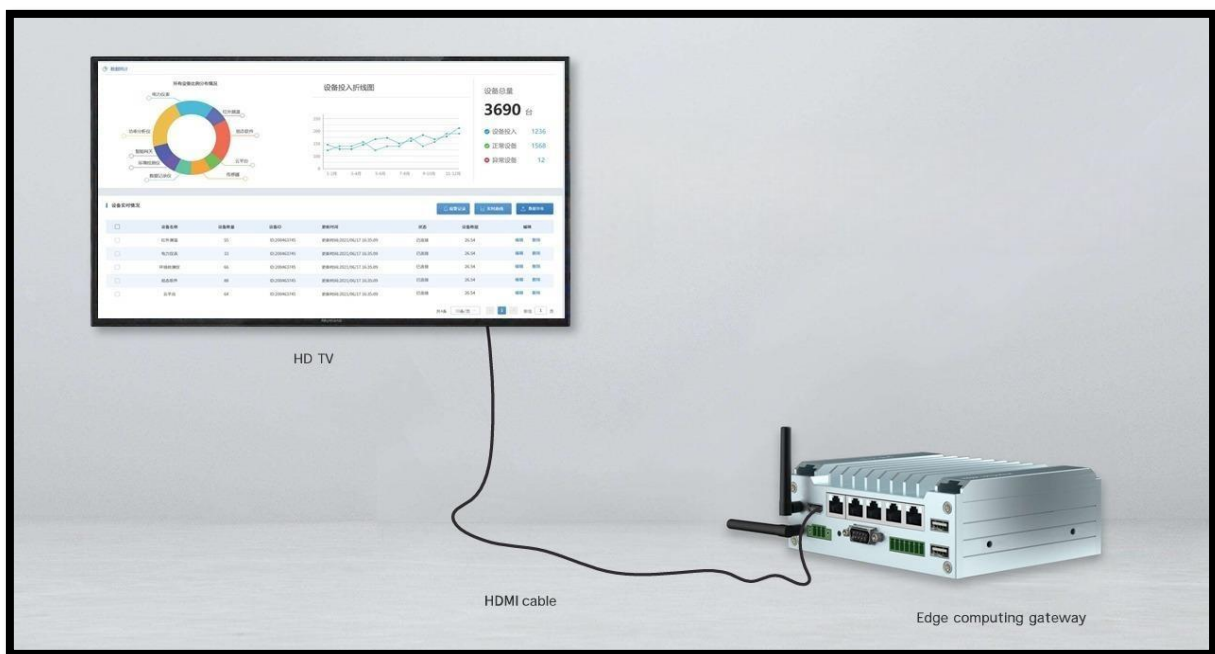
9. REMOTE DESKTOP AND DOWNLOAD

➢ Remote Desktop: Edge computing gateway that allows you to easily connect and monitor a remote HMI and control it as if you were sitting in front of it. You don't have to care about external IPs, set up routing, open ports, or take the time and effort to set up a VPN network; the Edge Computing Gateway provides a complete solution to solve the above problems.

➢ Remote maintenance and update: Using VPN technology allows operators to diagnose the operating status of the machine and update the gateways program remotely without having to go to the site.

➢ It can be also using as PLC programming software (e.g. SIEMENS STEP7/ROCKWELL RSLOGIX500 and others) on your PC to remotely access the PLC equipment connected to the corresponding gateway for debugging and maintenance, and complete remote PLC program download, upload, and monitoring, solving on-site problems without having to leave home.

VPN Server

VPN Client

VPN Client
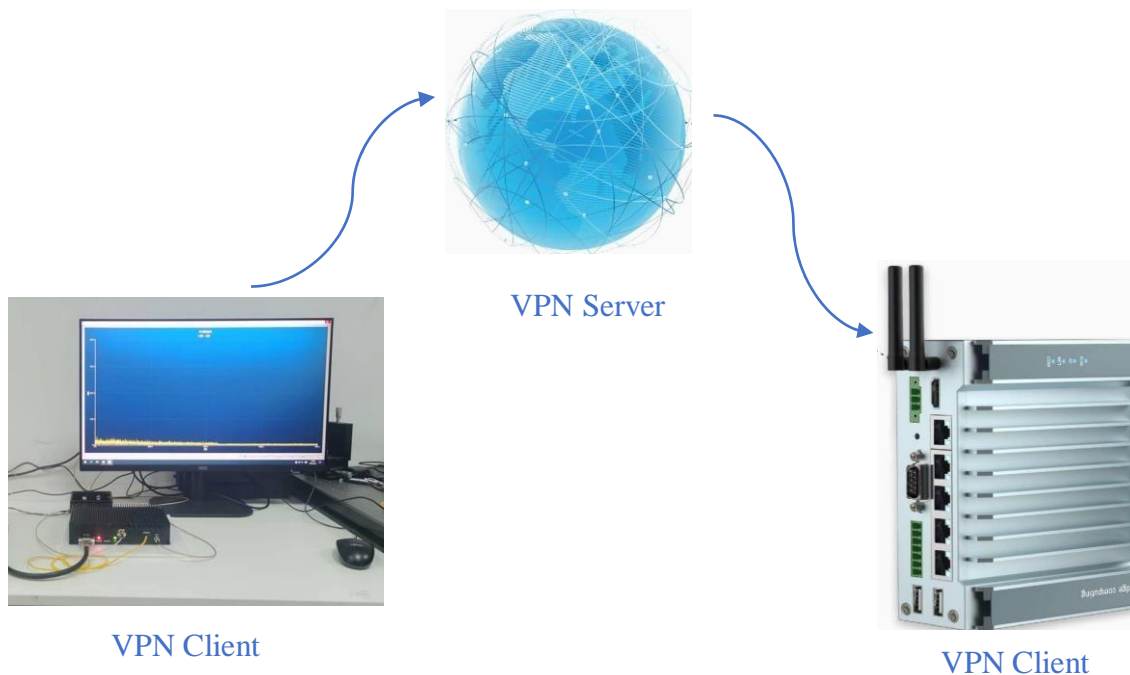
10. SECURITY

➢ **Security:** The gateway uses VPN to establish a virtual private channel on the public network with secure access to the internal network to ensure the security and stability of data transmission.

➢ The VPN's tunneling protocol uses the Layer 3 tunneling protocol IPSEC, which jointly encrypts and authenticates IP packets at the network layer with the IKEV2 protocol, making communication more secure, stable, and efficient (currently one of the fastest VPN protocols for processing speed), ensuring data integrity and confidentiality.
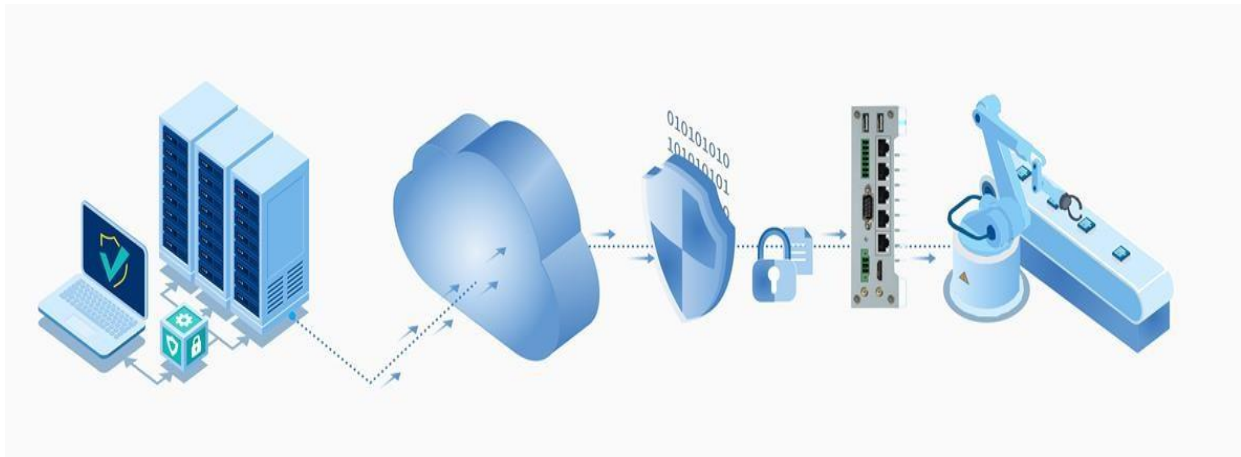
11. SPECIFICATION PARAMETERS

Processor	CPU	Allwinner TP507 Quad core band 1.5GHz
Storage	RAM	LPDDR4 2GB
	Memory	8G eMMC
	SD card slot	TF card
	USB Host	2 channels high speed USB HOST
	Ethernet port	1 channel WAN interface,4 channel LAN interface (10/100/1000Mbps Self-adaptive)
I/O Interface	WIFI	IEEE 802.11b/g/n
	4G	LTE Cat 1
	Serial port	1 channel RS232,2channel RS485
	CAN Bus	1 channel
	HDMI	1 channel HDMI output support 4K 60fps output
PLC		Time save HYM8563.
Electrical	Input power	DC10.5V-28V
	Power protection	Reverse protection, wrong wiring protection
	Power consumption	<5W
	Withstand voltage	500VAC (1 min)
	Insulation resistance	Over 50M0 (500VDC)
	Anti virbration	10-25Hz (X,Y,Z direction 2G/30min)

|		
Operation Environment	Working temperature	-10 -50 ℃
	Storage temperature	-20 - +60℃
	Environment humidity	10 - 90 **%RH (no** condensing)
	Cold method	Natural wind cold
Structure	Body shell material	Aluminum
	Dimension	140*110*50mm
	Installation	GB C45din rail
	Protection level	IP20
	Weight	500g
System		Linux
Software		WinIF V3.2

12. PORT AND DIMENSIONS

12.1 PORT SPECIFICATION
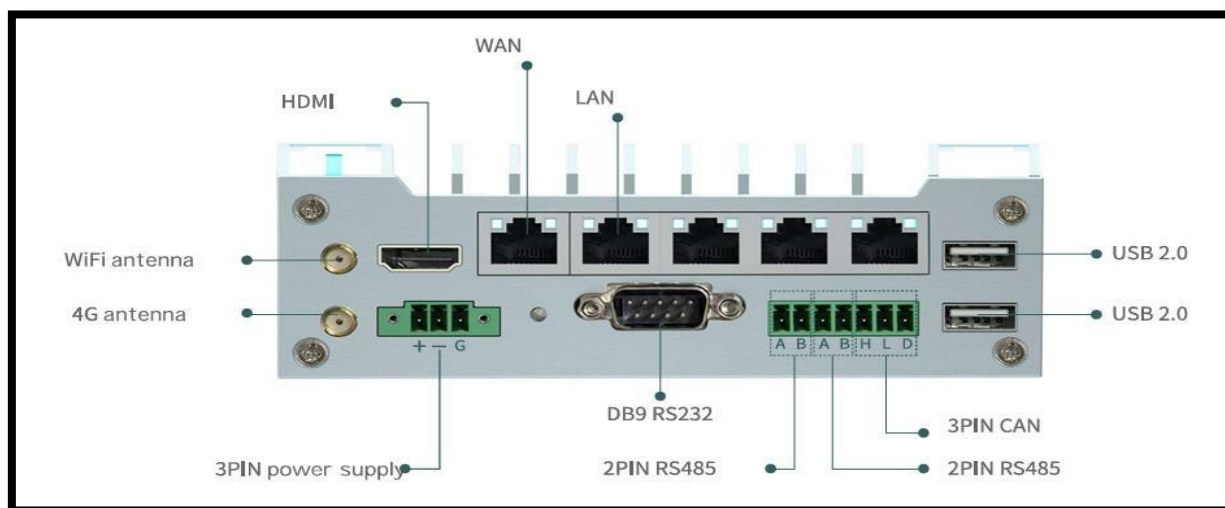
12.2 SCHEMATIC DIMENSIONS
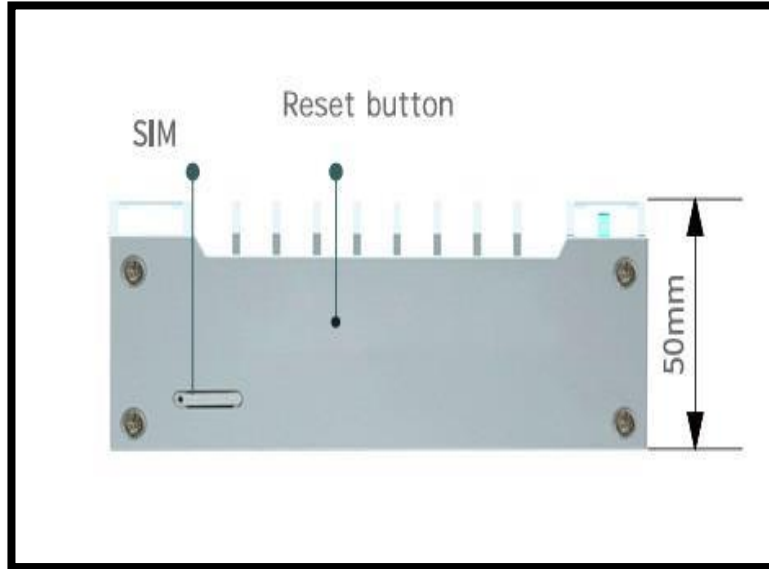
Side View Dimension
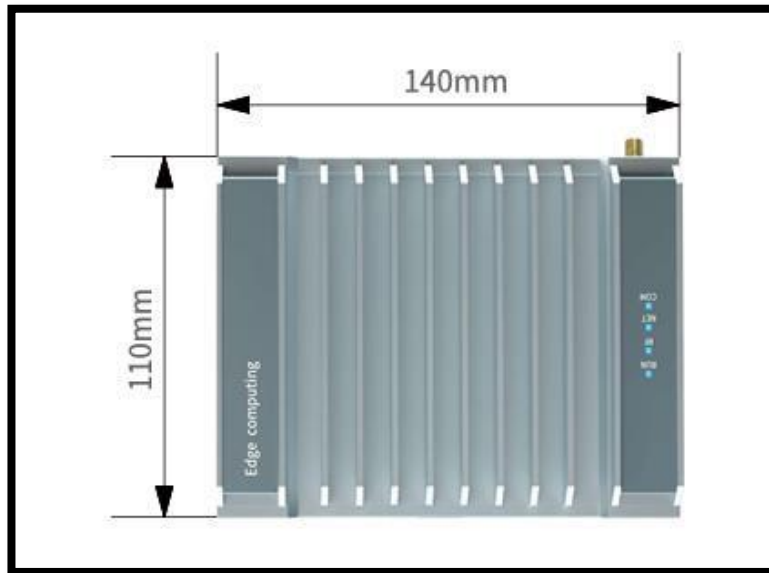
Top View Dimension

Contact us: sales@gaotek.com