

MaxGate800 Series

DIN Rail ARM Cortex-A55 Industrial Smart Gateway



- Support 2×Gigabit SFP ports, 8×Gigabit copper ports, 12×RS485, 4×CAN, 26×I/O (16 DI+8 DO+2 AI), 1×HDMI and 1×USB2.0
- 5G or 4G cellular network optional, dual SIM card single standby, customizable 5G LAN
- Dual-band Wi-Fi 6 optional, which can be used as a wireless client to access the wireless network
- Support ring network redundancy protocols such as MW-Ringv1/v2, ERPS, STP/RSTP, etc.
- Support serial port and CAN port terminal device networking, and can convert TCP, UDP, Modbus, HTTPD, WebSocket, MQTT and other protocols
- Support I/O digital/analog detection and control
- Provide application layer programming sample code to facilitate secondary development
- Support dual DC12~48V power input
- High-strength aluminum alloy casing, IP40 protection level, fanless casing for heat dissipation, the device can reliably work in harsh industrial environments of -40°C ~+75°C





Product Description

MaxGate800 series is a DIN rail ARM Cortex-A55 industrial communication intelligent gateway, integrating switches, Wi-Fi 6/4G/5G (optional), Modbus gateway, CAN gateway, and I/O Gateway and other functions, supporting 2 Gigabit SFP ports, 8 Gigabit copper ports, 12 RS485, 4 CAN, 26 I/O (16 DI+8 DO+2 AI), 1 channel HDMI, 1 channel USB2.0 and 1 channel dual Nano SIM card slot; using a high-performance low-power quad-core 64-bit ARM Cortex-A55 processor with a main frequency of 2GHz, paired with 2GByte DDR4 and 8GByte eMMC, running smoothly. With abundant hardware resources and a variety of peripheral interfaces, the data collected by the terminal device can be transmitted over the device's LAN, WAN, WLAN or cellular network.

This product has rich protocols, strong stability, good tailor ability and scalability, comprehensive support for various communication interface drivers, and supports multiple hardware platforms and architectures; it provides onboard 8GByte eMMC storage and external USB2.0 HOST interface, which facilitates customers' secondary development, has the possibility of application self-recovery, and can realize system redundancy function through multiple backup methods. The hardware adopts high-standard industrial protection design, with selected industrial-grade components and high-strength aluminum alloy casing, which is sturdy and durable; low power consumption, wide temperature and wide voltage design, fanless casing for heat dissipation, and supports $-40^{\circ}\text{C}\sim+75^{\circ}\text{C}$ operating temperature, passed strict safety regulations and EMC tests to meet the application needs of harsh industrial environments. The products can be widely used in industrial automation, comprehensive energy, smart cities, smart transportation, smart mines, smart factories and other fields.



Benefits and Features

- Adopt 4-core 64-bit ARM Cortex-A55 processor with a main frequency of up to 2GHz to meet edge computing needs
- Support 2GB DDR4 memory and 8GB eMMC storage, which facilitates secondary development and can be customized with larger memory and Flash
- Based on Debian10, using Linux4.0 or above kernel, supporting apt package manager, easy to download and install software
- Support Docker, making secondary development and deployment of own programs quick and easy
- Support network card, serial port, RS485, GPIO, eMMC, HDMI, I2C, RTC, built-in Watchdog, USB, Wi-Fi and other drivers, and provides application layer programming sample code and a general cross-compilation environment to facilitate secondary development.
- Built-in Modbus gateway, CAN gateway, IO gateway functions, and supports user secondary development
- Support switching function and provide a variety of network protocols, such as MW-Ringv1/v2, ERPS, STP/RSTP, VLAN, LACP, LLDP, SNMPv1/v2c/v3, RMON, QoS, 802.1X, IGMP Snooping, ACL, etc.
- The WAN port can connect to the external network through dynamic/static/PPPoE dial-up methods
- Support multiple network access modes such as wired, Wi-Fi 6, 4G/5G/5G LAN (only wired is supported by default)
- Support multiple file systems and multiple network protocols
- Support VPN client and server to build a private network
- Support MQTT to connect to Alibaba Cloud, OneNet, Tencent Cloud, Huawei Cloud, Maiwei Cloud or other cloud platforms to realize the interconnection of everything between the device and the cloud
- Support DDM digital diagnostic monitoring, which can detect DDM optical module temperature, voltage, current, transmit optical power, receive optical power, etc.
- Support RTC to provide accurate real-time clock, and the device can continue to maintain time even after power off



Specifications

System	
Processor	4-core 64-bit ARM Cortex-A55, clocked at 2GHz
OS	Debian10 (Linux4.19.219)
Memory	2GB DDR4
Storage	8GB eMMC
Software	
Industrial BUS	<p>Support Modbus RTU Master, Modbus RTU Slave, Modbus ASCII Master, Modbus ASCII Slave, UDP Client, UDP Server, UDP Multicast, TCP Server, TCP Client, RealCOM_MCP, RealCOM_CCP, RealCOM_MW, Pair Connection Master, Pair Connection Slave, HTTPD Client, WebSocket Client, MQTT and other serial port to network modes</p> <p>Support serial port forwarding, RFC2217</p> <p>Support Modbus slave mapping, Modbus pre-reading, and Modbus address mapping batch reading and writing</p> <p>Supports CAN-to-network modes such as UDP Client, UDP Server, UDP Multicast, TCP Server, TCP Client, Pair Connection Master, Pair Connection Slave, Modbus TCP Slave, HTTPD Client, WebSocket Client, MQTT, etc.</p> <p>Support packet length, packet interval, heartbeat packet, SSL encryption, and data encryption</p> <p>Support CAN ID filtering and restart without data</p>
I/O Controller	<p>Support DI, DO, AI detection and DO control</p> <p>DO supports restart hold, AI supports current type 4-20mA and voltage type 0-10V</p> <p>Support Modbus TCP instructions to read data and control, DI supports 02 function code, DO supports 01/05/0F function code, and AI supports 04 function code</p>
Routing Function	<p>Support 4G/5G cellular network or Wi-Fi6 wireless client optional</p> <p>Support static routing, link check, network diagnosis</p> <p>Support port forwarding, access control, custom rules, DMZ, QoS</p> <p>Support VPN clients and servers, dynamic DNS, and cloud services</p>
Switching	<p>Support port configuration, port speed limit, storm suppression, storm detection, port aggregation, LACP, port statistics</p> <p>Support 802.1Q VLAN, port isolation, static unicast MAC binding</p> <p>Support fast ring network, ERPS, RSTP</p> <p>Support IGMP-Snooping, static multicast MAC binding</p> <p>Support ACL, 802.1X authentication, email logs, alarms, and loopback detection</p> <p>Support SNMP, RMON, LLDP, port mirroring, network diagnostics, optical module DDM</p>

☑☑☑ Specifications

System Management	<p>Support WEB, Telnet, SSH access control</p> <p>WAN supports DHCP, static address, PPPoE connection</p> <p>Support DNS, LAN DHCP server</p> <p>Support local/network clock synchronization, automatic adjustment to daylight saving time, system logs, scheduled tasks, and certificate management</p> <p>Support scheduled/immediate restart, configuration file upload and download, and system upgrade</p>	
Wi-Fi Radio Frequency Parameters (MaxGate800-W)		
Wireless Standards	IEEE802.11b/g/n/ac/ax	
Working Frequency	2.4GHz~2.4835GHz、 5.15GHz~5.835GHz	
Modulation	CCK, DQPSK, DBPSK, BPSK, QPSK, 16QAM, 64QAM, 256QAM, 1024QAM	
Band Bandwidth	20MHz/40MHz/80MHz	
Theoretical Transfer rate	2.4GHz : 574Mbps 5GHz : 1201Mbps	
Max. TX Power	802.11b : 18±1.5dBm 802.11g : 15±1.5dBm 802.11n HT20/HT40 : 15±1.5dBm 802.11ac HT80 : 13±1.5dBm	
RX Sensitivity	1Mbps: -95dBm@PER < 8% 11Mbps: -88dBm@PER < 8% 54Mbps: -73dBm@PER < 10% 65Mbps: -71.5dBm@PER < 10% 1201Mbps: -65dBm@PER < 10%	
Cellular Network	4G(MaxGate800-4G)	5G(MaxGate800-5G)
Network Format	LTE-FDD, LTE-TDD, WCDMA, GSM	5G NR SA/NSA, LTE-FDD, LTE-TDD, WCDMA
Working Frequency	LTE-FDD: B1/3/5/8 LTE-TDD: B34/38/39/40/41 WCDMA: B1/5/8 GSM: 900/1800MHz	5G NR SA: n1/28/41/77/78/79 5G NR NSA: n41/78/79 LTE-FDD: B1/2/3/5/7/8/20/28 LTE-TDD: B34/38/39/40/41 WCDMA: B1/2/5/8
MIMO	/	DL 4 × 4: n1/n41/n77/n78/n79 UL 2 × 2: n41/n77/n78/n79 DL 2 × 2: n28/LTE



Specifications

Theoretical Transfer rate	<ul style="list-style-type: none"> LTE-FDD: DL 150Mbps/ UL 50Mbps LTE-TDD: DL 130Mbps/ UL 30Mbps UMTS(HSPA+/HSUPA) : DL 21Mbps/ UL 5.76Mbps WCDMA: DL/ UL 384 kbps GRPS: DL/ UL 85.6kbps EDGE: DL/ UL 236.8kbps 	<ul style="list-style-type: none"> 5G SA Sub-6: DL 2Gbps/ UL 1Gbps 5G NSA Sub-6: DL 2.2Gbps/UL 575Mbps LTE: DL 600Mbps/UL 150Mbps UMTS(DC-HSDPA/HSUPA): DL 42.2Mbps/ UL 11Mbps WCDMA: DL/ UL 384 kbps
Max. TX Power	<ul style="list-style-type: none"> LTE-FDD: 23dBm±2dB LTE-TDD: 23dBm±2dB WCDMA: 24dBm+1/-3dB DCS1800(8-PSK): 26dBm±3dB EGSM900(8-PSK): 27dBm±3dB DCS1800: 30dBm±2dB EGSM900: 33dBm±2dB 	<ul style="list-style-type: none"> 5G NR n1/41: 23dBm±2dB 5G NR n28: 23dBm+2/-2.5dB 5G NR n77/78/79: 23dBm+2/-3dB 5G NR n41/n78/n79 HPUE: 26dBm+2/-3dB LTE: 23dBm±2dB(LTE-TDD B41 HPUE: 26dBm±2dB) WCDMA: 23dBm±2dB
RX Sensitivity	<ul style="list-style-type: none"> LTE-FDD(10MHz): -97dBm(B1)/ -97.5dBm(B3)/ -98dBm(B5)/ -98dBm(B8) LTE-TDD(10MHz): -96.5dBm(B34)/ -97dBm(B38)/ -97dBm(B39)/ -97dBm(B40)/ -96dBm(B41) WCDMA: -108dBm(B1)/ -109dBm(B5)/ -110dBm(B8) DCS1800: -108dBm EGSM900: -108dBm 	<ul style="list-style-type: none"> 5G NR FDD(5MHz): -106.5dBm(n1)/-101dBm(n28) 5G NR TDD(100MHz) : -92.5dBm(n41)/-92.5dBm(n77)/ -93dBm(n78)/ -92.5dBm(n79) LTE-FDD(10MHz): -101.5dBm(B1)/ -100dBm(B2)/ -100.5dBm(B3)/-100.6dBm(B5)/ -97.5dBm(B7)/ -101dBm(B8)/ -101.5dBm(B20)/-101dBm(B28) LTE-TDD(10MHz): -99.5dBm(B34)/-99.3dBm(B38)/ -100.3dBm(B39)/ -98.5dBm(B40)/-99.3dBm(B41) WCDMA: -112.8dBm(B1)/-112.5dBm(B2)/ -113dBm(B5)/-113.2dBm(B8)
Interface		
1G Fiber Port	2×1000Base-X Gigabit SFP slots	
1G Copper Port	8×10/100/1000Base-T(X) auto-sensing Gigabit copper ports, supporting full/half duplex, auto MDI/MDI-X connection, among which G1 is the WAN port and the others are LAN ports	



Specifications

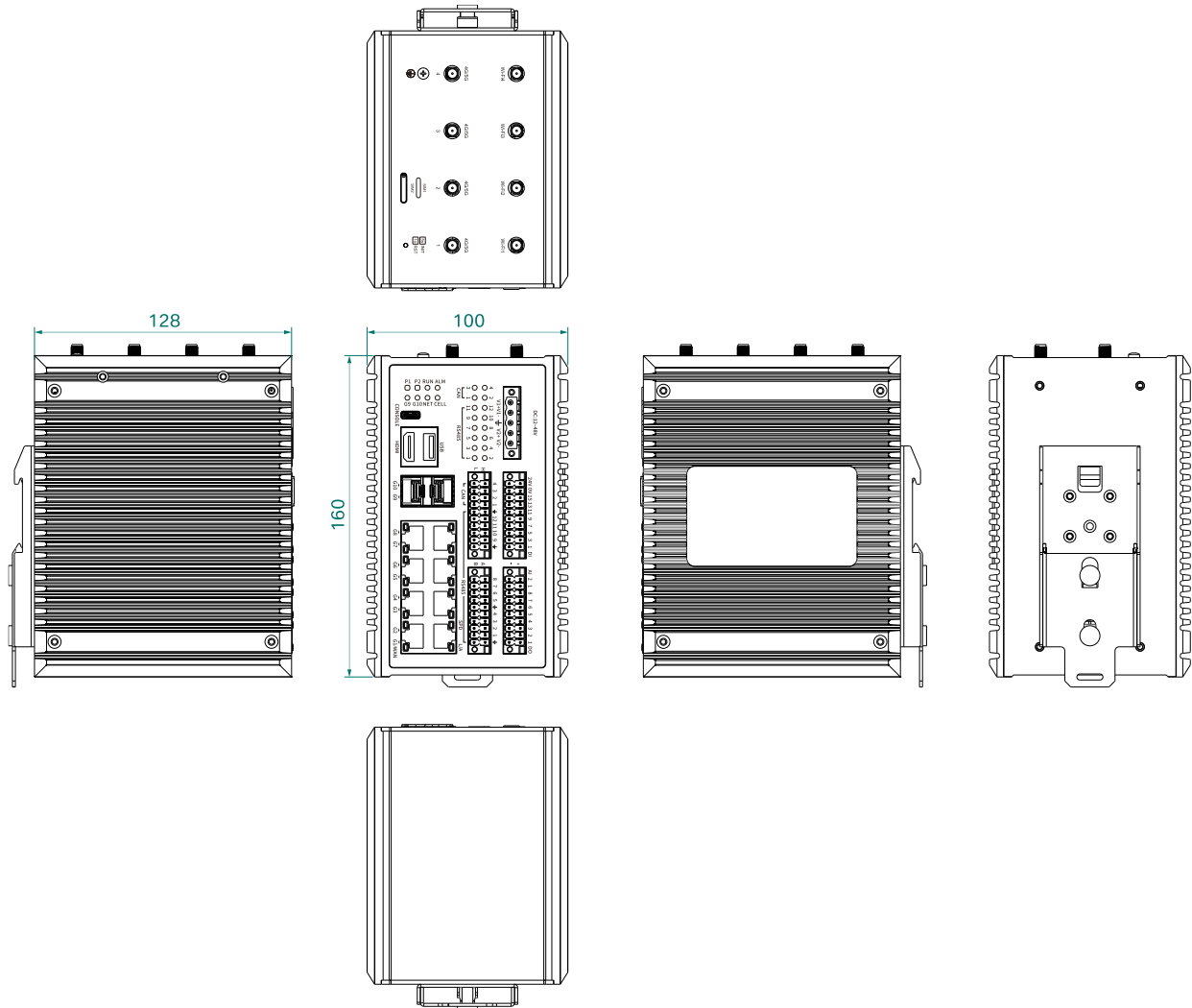
HDMI	1×HDMI interface, supports 1080p@120Hz or 4096x2304@60Hz video output
Button	Restart or restore factory settings with one click
Indicator	Power indicator, operation indicator, alarm indicator, Ethernet interface indicator, copper port speed indicator, network indicator, CELL indicator, CAN indicator, serial port indicator
Power Supply	
Input Voltage	DC12~48V, supports dual power supply redundancy, no polarity
Power Consumption	<22W @DC24V (5G)
Connection	5-position 5.08mm pitch lock terminal block
Physical Characteristics	
Dimensions	160×100×128 mm (excluding DIN-rail mounting clip)
Installations	35mm standard DIN rail installation
IP Code	IP40
Weight	About 1.75kg (excluding antenna)
Working Environment	
Operating Temp	-40°C~+75°C (MaxGate800-5G: -40°C~+60°C)
Storage Temp	-40°C~+85°C
Relative Humidity	5%~95% (no condensation)
Industry Standard	
EMC	IEC 61000-4-2 (ESD): Level 4 (contact discharge ±8kV, air discharge ±15kV) IEC 61000-4-5 (Surge): Level 3 (power supply: common mode ±2kV, differential mode ±2kV; Network port: common mode ±6kV, differential mode ±2kV; Serial port, CAN: common mode ±4kV, differential mode ±2kV) IEC 61000-4-4 (EFT): Level 4 (power supply: ±4kV; communication port: ±2kV)



Dimensions

Different models of this series of products have different numbers of antenna interfaces, but the dimensions are the same, as shown in the figure below.

Unit: mm (first angle projection)





Ordering Information

Standard Model	1G Fiber Port	1G Copper Port	Wi-Fi Antenna	4G Antenna	5G Antenna	RS485	CAN	DI	DO	AI	Power
MaxGate800	2	8	/	/	/	12	4	16	8	2	Dual DC12~48V power input
MaxGate800-W	2	8	2	/	/	12	4	16	8	2	
MaxGate800-4G	2	8	/	1	/	12	4	16	8	2	
MaxGate800-5G	2	8	/	/	4	12	4	16	8	2	



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