

UA-2241M **UA-2241MX-4GE**
UA-2241MX-4GC

UA Series IIoT Communication Server

2 Ethernet Ports

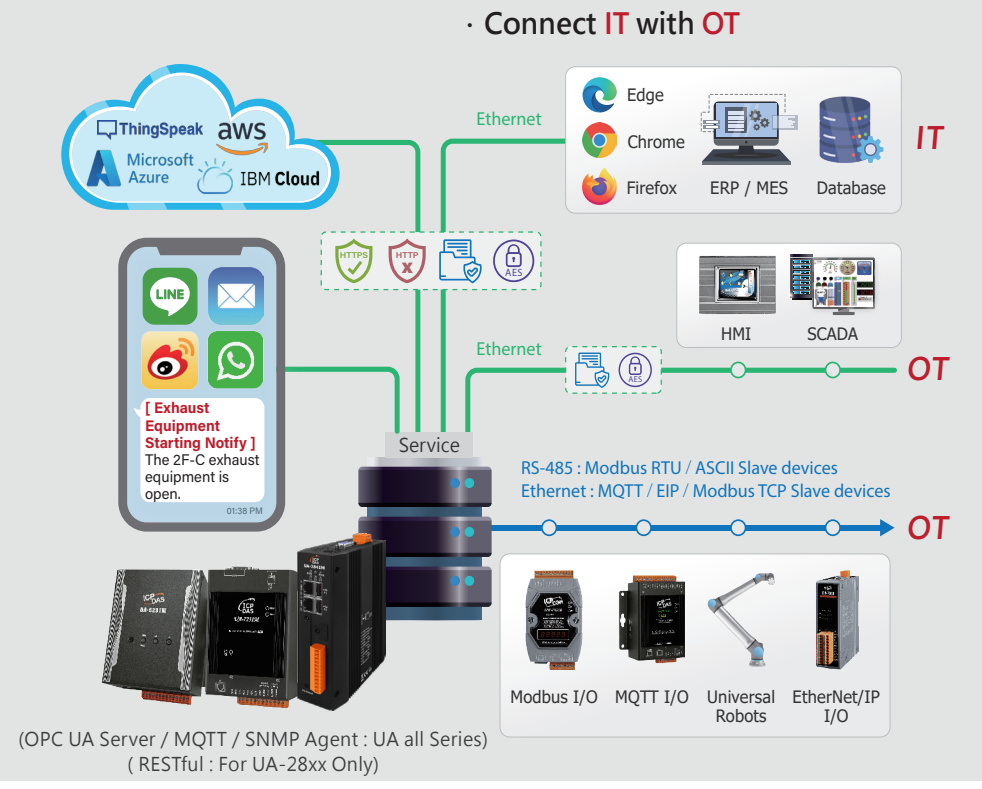
Features

- Simultaneous Writing for Remote Database and Local Data Logger
- Offline Data Recovery Mechanism for Remote Database
- Support to Enable OPC UA, MQTT and SNMP at the Same Time
- MQTT Broker (Including WebSocket)
- Support a Complete Information Protection Mechanism - HTTPS, OpenVPN Client, SNMP v3, Communication Encryption, Dynamic Blocklist, Whitelist
- IoT Cloud Platform Connection - Microsoft Azure, Amazon Web Services, IBM Cloud, ThingSpeak
- IFTTT Logic Control Triggers the APP Notification Function
- PID Logic Operation Function

Introduction

UA-2200 Series is a series of **IIoT** (Industrial IoT) **Communication Server** for integrating the system and devices of IT and OT. UA features the IIoT Gateway function that allows users to access the remote I/O modules and controllers via Modbus TCP/RTU/ASCII, MQTT, and EtherNet/IP communication protocols. IIoT gateway function can also convert these I/O data to OPC UA, MQTT, and SNMP protocols (enabled at the same time) for the needs of connecting with the MES, ERP, SCADA, and Cloud services. Besides, UA features the Data Logger function that allows users to write the I/O data directly into the remote database (MS SQL / MySQL / MariaDB), and save to the local file (.csv) as the historical records. UA supports Cloud platform that can connect to Amazon AWS, Microsoft Azure or other Cloud platforms to send over the I/O data; and support Cloud logic service platform "IFTTT" which can connect many web APPs that allows users to receive first-hand notification messages through the most commonly used mobile APPs when an event triggered. UA Series enhances the networking and interoperability between IT and OT. Through UA series, users can easily deploy for Industrial IoT.

System Architecture



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Hardware Specifications

Model	UA-2241M	UA-2241MX-4GE	UA-2241MX-4GC
Main Unit			
CPU	ARM CPU, 1.0 GHz		
System Memory	512 MB DDR3 SDRAM		
Storage	512 MB Flash microSD socket with one 4 GB microSD card (supports up to 32 GB microSDHC card)		
Non-Volatile Memory	64 KB FRAM		
Real Time Clock	Provide second, minute, hour, date, day of week, month, year		
Display			
Signal	VGA (Analog RGB), reserved		
LED Indicators			
Status	PWR (Power), RUN (Running), L1, L2, L3	PWR (Power), RUN (Running), L1, L2, L3, 4G	PWR (Power), RUN (Running), L1, L2, L3, 4G
I/O Expansion			
I/O Type	Support 1 optional XV-board to expand I/O or RS-485 ports (*1)		
COM Ports			
Console Port	RS-232 (RxD, TxD and GND); Non-isolated		
ttyO2	RS-485 (Data+, Data-); 2500 VDC isolated		
ttyO4	RS-232 (RxD, TxD and GND); Non-isolated		
ttyO5	RS-485 (Data+, Data-); 2500 VDC isolated		
Baud Rate	1200, 2400, 4800, 9600, 19200, 38400, 57600, 115200		
Data Format	7N1, 7E1, 7O1, 7N2, 7E2, 7O2, 8N1, 8E1, 8O1, 8N2, 8E2, 8O2 (Among which, Modbus RTU is available in: 8N1, 8E1, 8O1, 8N2)		
HMI			
Rotary Switch	1 x 10 Position (0 ~ 9)		
Ethernet			
Ports	2 x RJ-45, 10/100/1000 Base-TX (Auto-negotiating, Auto MDI/MDI-X, LED indicators)		
USB			
Connector	2 x 2.0 host		
Power			
Input Range	+12 ~ +48 VDC		
Consumption	4.8 W	6.5 W	
Mechanical			
Casing	Metal		
Dimensions (mm)	35 x 167 x 119 (W x L x H)		
Installation	DIN-Rail		
Environment			
Operating Temperature	-25 ~ +75°C		
Storage Temperature	-40 ~ +80°C		
Humidity	10 ~ 90% RH (non-condensing)		
3G System Wireless Communication			
Data Transmission Rate	-	· DC-HSPA+ Download: Max. 42 Mbps; Upload: Max 5.76 Mbps · TD-SCDMA Download: Max. 4.2 Mbps; Upload: Max 2.2 Mbps · CDMA2000 EVDO Download: Max. 14.7 Mbps; Upload: Max 5.4 Mbps	
Frequency Band	-	· WCDMA 850/900/2100 MHz	· WCDMA 900/2100 MHz · TD-SCDMA 1900/2100 MHz · CDMA2000 (BC0) 800 MHz
4G System Wireless Communication (*2)			
Data Transmission Rate	-	· Download Max 100 Mbps; Upload Max 50 Mbps	
Frequency Band	-	· FDD LTE: B1/B3/B5/B7/B8/B20	· FDD LTE: B1/B3/B8 · TDD LTE: B38/B39/B40/B41

*1. Refers to the **UA website** Supported List for the available **XV-board** and supported UA models.
*2. 4G System Note: UA-2241MX-4GE: Support 4G LTE (FDD) Communication (Asia Only, Except China)
UA-2241MX-4GC: Support 4G LTE (FDD, TDD) Communication (For China only)

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Software Specifications

Model	UA-2200 Series
OS	
Linux	Linux Kernel 3.2.14
Protocol (Note 1, Note 2)	
OPC UA Server	• OPC Unified Architecture: 1.02 • Core Server Facet • Data Access Server Facet • Method Server Facet • UA-TCP UA-SC UA Binary • User Authentication: Username/Password, X.509 Certificate • Security Policy: > None > Basic128Rsa15 (Sign / Sign & Encrypt) > Basic256 (Sign / Sign & Encrypt) > Basic256Sha256 (Sign / Sign & Encrypt) > Aes128_Sha256_RsaOaep (Sign / Sign & Encrypt) > Aes256_Sha256_RsaPss (Sign / Sign & Encrypt) • Recommend Max. 20 Client Sessions, and Max. 8000 Tags (Note 1). (Without using encrypted communication).
MQTT Broker	Supports the MQTT v3.1.1 protocol, with message transmission and distribution management. Provides standard MQTT and WebSocket communication, using TLS v1.2 encryption for security. Recommend client/device connections to 200, with a max of 400. (Note 1)
MQTT Client	Connects to an MQTT Broker to read or control devices supporting the MQTT communication protocol. Enables external systems to read or control devices connected to the UA via MQTT communication. Supports MQTT v3.1.1 and TLS v1.2 encryption for security. Recommended max. 200 connections. (Note 1)
Modbus TCP Master	To read or control the devices that support standard Modbus TCP Slave protocol. Max. 100 modules. (Note 1)
Modbus RTU/ASCII Master	A max. of 3 ports: ttyO2, ttyO4, ttyO5 to connect other Modbus RTU Slave devices (e.g. M-7000). Recommend Max. 32 devices per port (32*3 port=96) for better communication quality. (Note 1) Inserting an XV511i board can expand to 32 * 4 ports = 128 devices
XV-board	Support XV-board series modules of ICP DAS.
EtherNet/IP Scanner	Support connect EIP-2000 series modules of ICP DAS. Recommend Max. 50 devices per UA. (Note 1)
SNMP Agent	Provide SNMP Agent service, for users to external access the devices connected with the UA through the SNMP communication. Supports V1, V2c, and V3 communication. Max. 10 read commands and 10 write commands at the same time.
VPN	Supports OpenVPN Client
Firewall	
Whitelist	List IP addresses and ranges allowed through the firewall to prevent unauthorized access and system attacks.
Dynamic Blocklist	Set conditions to monitor the connection status of the service port. When the external IP connections exceed the condition setting value, the dynamic blocklist will automatically block the subsequent connection of the IP to avoid a large number of abnormal connections from blocking network services and protect system stability.
Data Logger (Note 2)	
Local Data Logger	Record I/O data, and save to the local MicroSD card in CSV format. Support Modbus RTU module (Master), Modbus TCP module (Master)
Remote Database	Record I/O data, and send to the remote database of MS SQL / MySQL / MariaDB. Recommend Max. 1 Database per Time, and Max. 1000 Tags. Support Modbus RTU module (Master), Modbus TCP module (Master), and MQTT module. The same I/O tag can only be assigned to one database connection of the same type.
Function (Note 2)	
PID Function	Combine the remote I/O devices for the PID logic control system.
Internal Module	Can create virtual variables as an intermediary for reading, writing, or data exchange. Max. 1000 internal variables (Tags)
IoT Service Integration (Note 2)	
Cloud Connection Supported	MQTT Service can connect to Microsoft Azure, Amazon Web Services, IBM Cloud, ThingSpeak
IFTTT	Support Logic event sending to IFTTT Web platform. IFTTT Logic Trigger APP (Line, Twitter, Gmail ...)

Note 1: The specifications in the table are the maximum number of connections or usage when using a single Protocol.

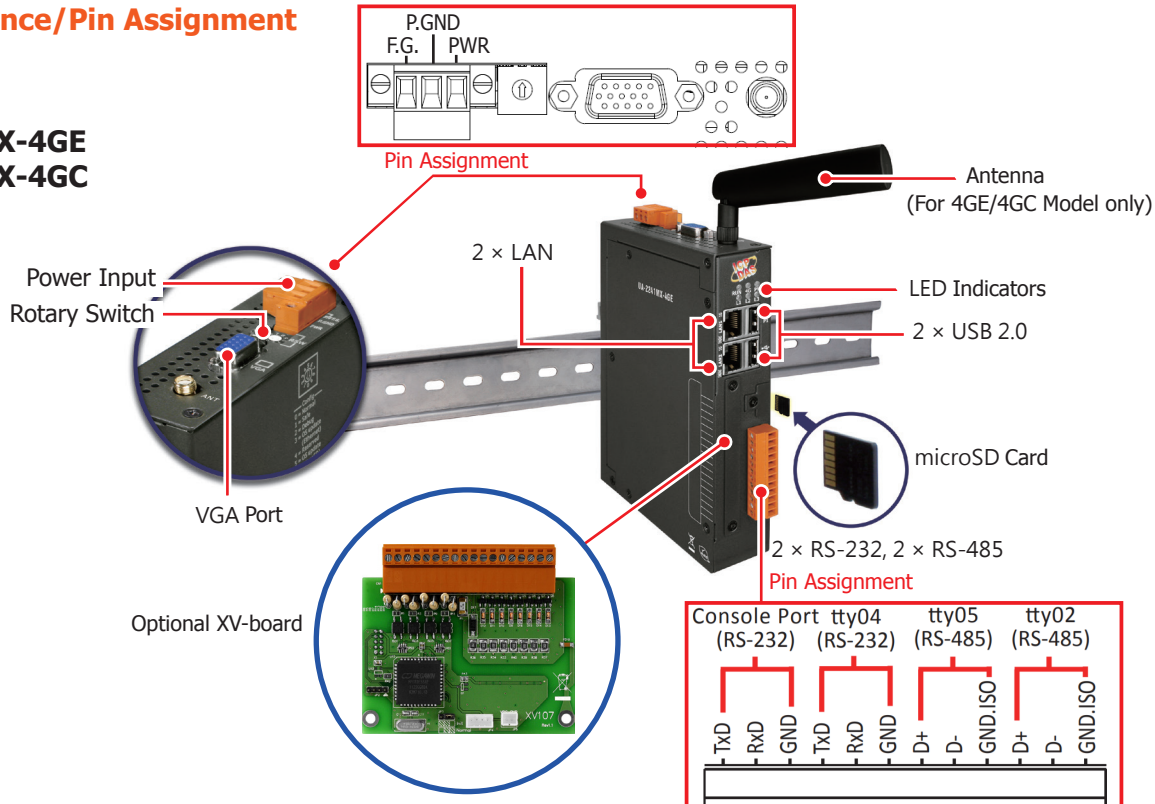
Note 2: When using multiple Protocol functions, the user needs to control the device number to under 80% of the CPU usage. Please refer to the CPU Usage of the UA Web UI. (as the figure below)



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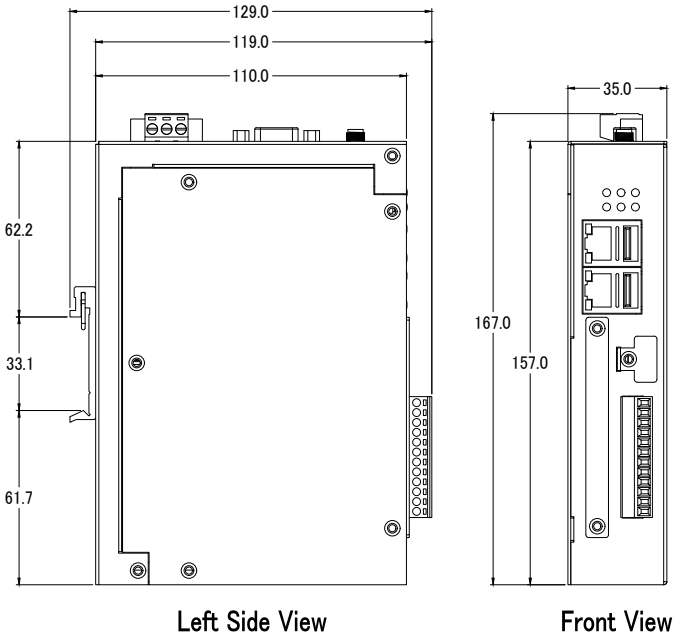
Appearance/Pin Assignment

UA-2241M
UA-2241MX-4GE
UA-2241MX-4GC



Dimensions (Units: mm)

UA-2241M
UA-2241MX-4GE
UA-2241MX-4GC



Ordering Information

UA-2241M CR	IIoT Communication Server with 2 Ethernet Ports (Metal Case, 1.0 GHz CPU) (RoHS)
UA-2241MX-4GE CR	IIoT Communication Server with 2 Ethernet Ports, 4G LTE (FDD) Wireless Communication (Metal Case) (RoHS) (Asia Only, Except China)
UA-2241MX-4GC CR	IIoT Communication Server with 2 Ethernet Ports, 4G LTE (FDD, TDD) Wireless Communication (Metal Case) (RoHS) (Asia Only, for China Only)

Option Accessories

I/O Expansion XV-board	XV107, XV107A, XV110, XV111, XV111A, XV116, XV119, XV303, XV306, XV307, XV310	For UA-2200 Series
RS-485 Expansion XV-board	XV511i	For UA-2241M

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