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

UA Series IIoT Communication Server

2 Ethernet Ports

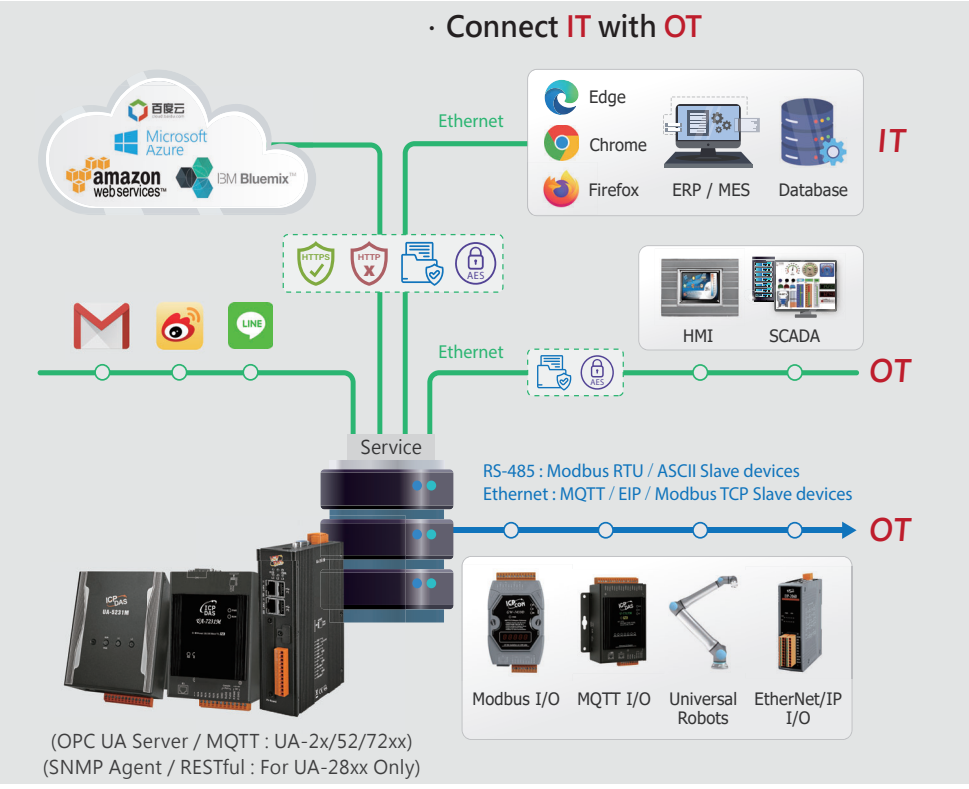
Features

- Simultaneous Writing for Remote Database and Local Data Logger
- Offline Data Recovery Mechanism for Remote Database
- Support to Enable OPC UA and MQTT at the Same Time
- MQTT Broker (Including WebSocket)
- Support a Complete Information Protection Mechanism - HTTPS, Communication Encryption, Block List
- IoT Cloud Platform Connection - Microsoft Azure, Amazon Web Services, IBM Bluemix, Alibaba Cloud
- 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 or MQTT protocols 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



Hardware Specifications

Model	UA-2241M	UA-2241MX-4GE	UA-2241MX-4GC
Main Unit			
CPU	ARM CPU, 1.0 GHz		
System Memory	DDR3 SDRAM 512 MB		
Storage	· Flash 512 MB · microSD socket with one 4 GB microSD card (support up to 32 GB microSDHC card)		
Non-Volatile Memory	FRAM 64 KB		
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		
HMI			
Rotary Switch	1 x 10 Position (0 ~ 9)		
Ethernet			
Ports	2 x RJ-45, 10/100/1000 Based-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		
Environmental			
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)

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) • Recommend Max. 20 Client Sessions, and Max. 8000 Tags (Note 1). (Without using encrypted communication).
MQTT Broker	Support the MQTT v3.1.1 protocol, provide MQTT message transmission and distribution management, and support TLS(1.2)/SSL and Web Socket communications. Recommend to keep the connection number of Clients within 200. Max. 400 Client Devices. (Note 1)
MQTT Client	Connect the MQTT Broker to read/control the devices supporting the MQTT protocol. Or connect the MQTT Broker to externally read/control the devices supporting other protocols that link with the UA series (MQTT Ver. 3.1.1; TLS Ver. 1.2). Recommend Max. 200 Connections. (Note 1)
Modbus TCP Master	To read or control the devices that support standard Modbus TCP Slave protocol. Recommend 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)
EtherNet/IP Scanner	Support connect EIP-2000 series modules of ICP DAS. Recommend Max. 50 devices per UA. (Note 1)
XV-board	Support XV-board series modules of ICP DAS.
Data Logger (Note 2)	
Local Data Logger	Record I/O data, and save to the local MicroSD card or SSD in CSV format.
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.
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.
IoT Service Integration (Note 2)	
Microsoft Azure	MQTT Service can connect to MS Azure IoT Hub for Cloud platform service.
Amazon Web Services	MQTT Service can connect to AWS IoT Core for Cloud platform service.
IBM Bluemix	MQTT Service can connect to IBM Bluemix for Cloud platform service.
IFTTT	Support Logic event sending to IFTTT Web platform. IFTTT Logic Trigger APP (Line, Twitter, Gmail ...)

Note 1: The specifi cations 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)

Appearance/Pin Assignment

UA-2241M
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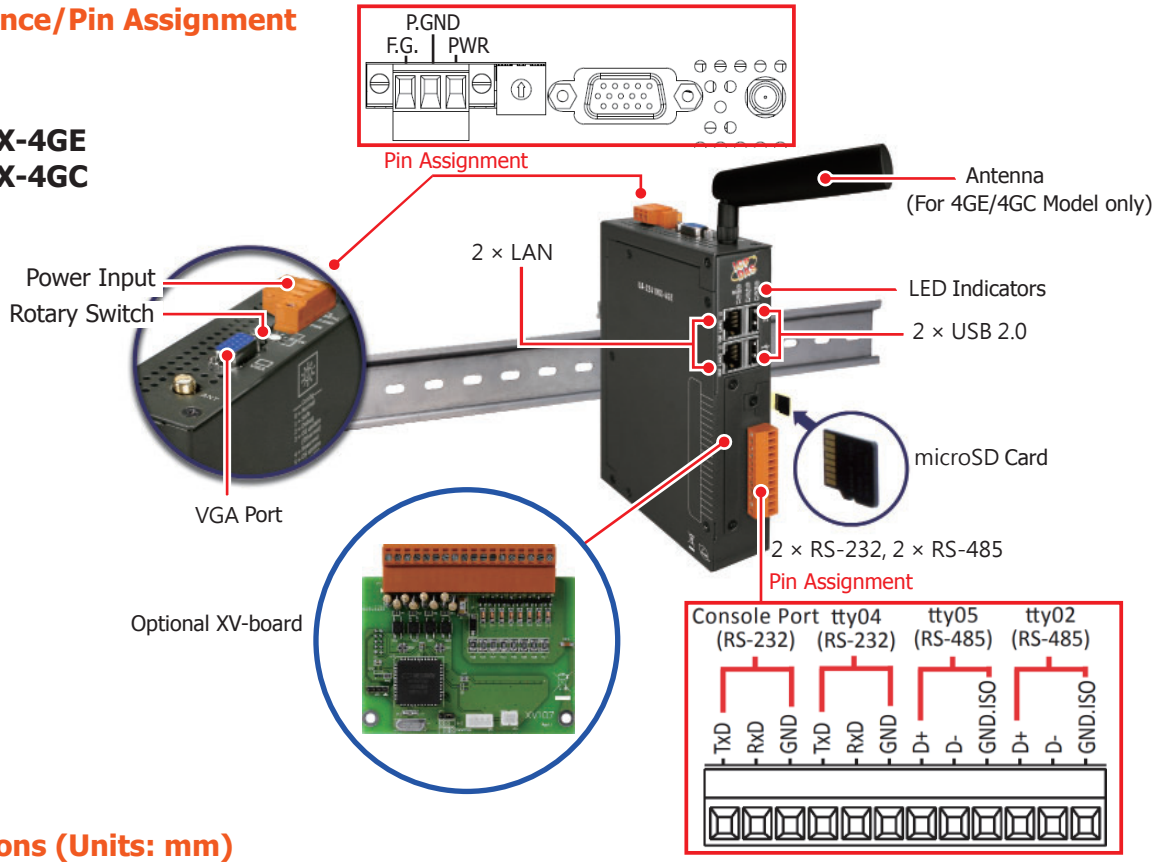

Dimensions (Units: mm)

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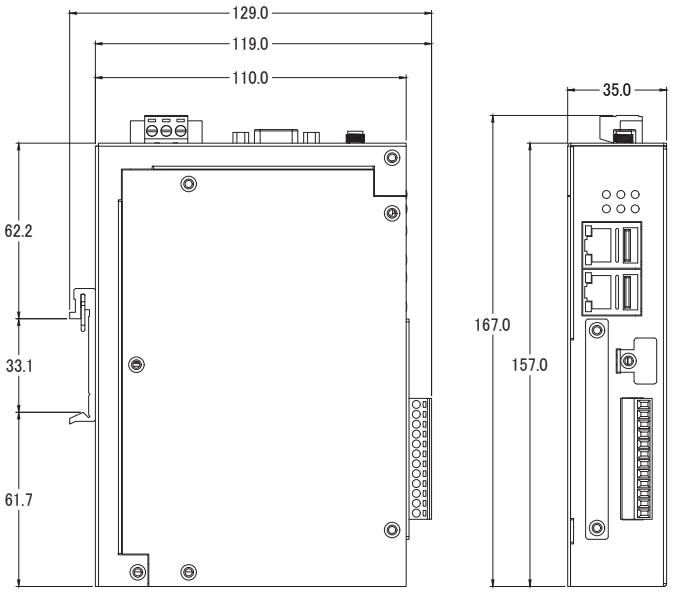

Ordering Information

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