

UA-2841M

UA Series IIoT Communication Server

Quad-Core CPU and 2 Ethernet Ports

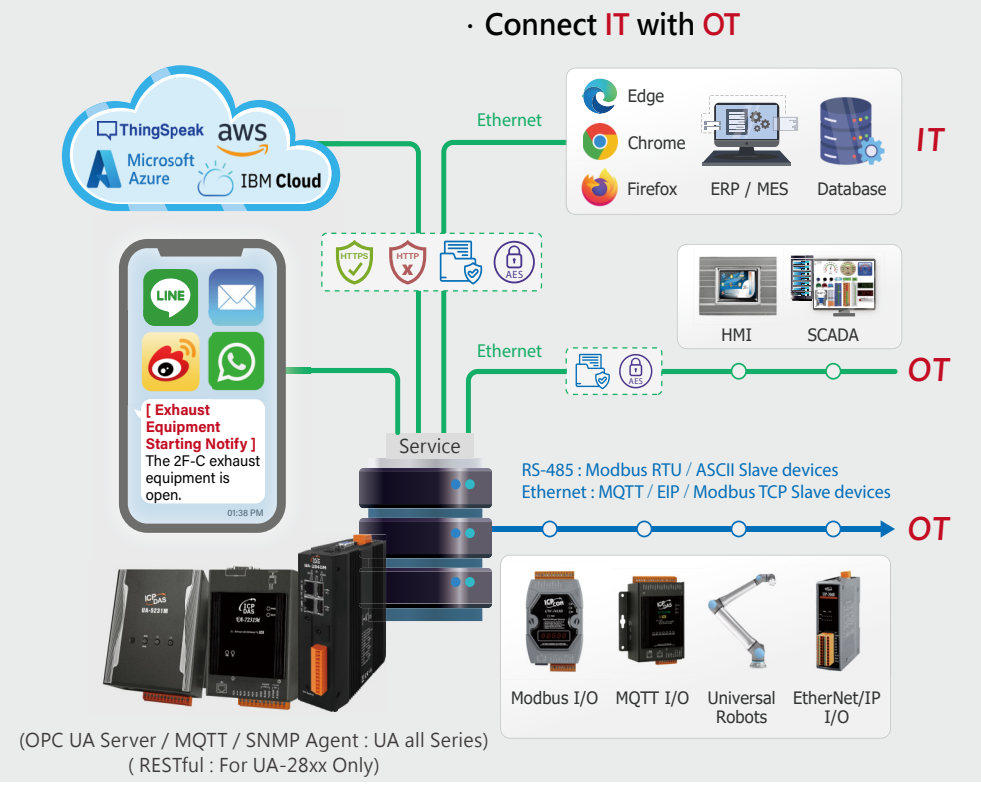
Features

- Simultaneous Writing for Remote Database and Local Data Logger
- Offline Data Recovery Mechanism for Remote Database
- Support to Enable OPC UA, MQTT, SNMP and RESTful 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-2841M is an **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, SNMP, and RESTful 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 / PostgreSQL), 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-2841M
Main Unit	
CPU	ARM Quad-Core 1.6 GHz
System Memory	2 GB DDR4 SDRAM
Storage	8 GB eMMC microSD socket with one 4 GB microSD card (supports up to 32 GB microSDHC card or 2 TB microSDXC card)
Non-Volatile Memory	64 KB FRAM 128 KB MRAM
Real Time Clock	Provide second, minute, hour, date, day of week, month, year
Display	
Signal	VGA (Analog RGB), reserved
LED Indicators	
Status	1 x PWR (Power), 1 x RUN (Running), 3 x User Defined LEDs
COM Ports	
Console Port	RS-232 (RxD, TxD and GND); Non-isolated
COM 2	RS-232 (RxD, TxD and GND); Non-isolated
COM 3	RS-485 (Data+, Data-); 2500 VDC isolated
COM 4	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	10 W
Mechanical	
Casing	Metal
Dimensions (mm)	46 x 164 x 129 (W x L x H)
Installation	DIN-Rail Mounting
Environment	
Operating Temperature	-25 ~ +70°C
Storage Temperature	-40 ~ +80°C
Humidity	10 ~ 90% RH (non-condensing)

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Software Specifications

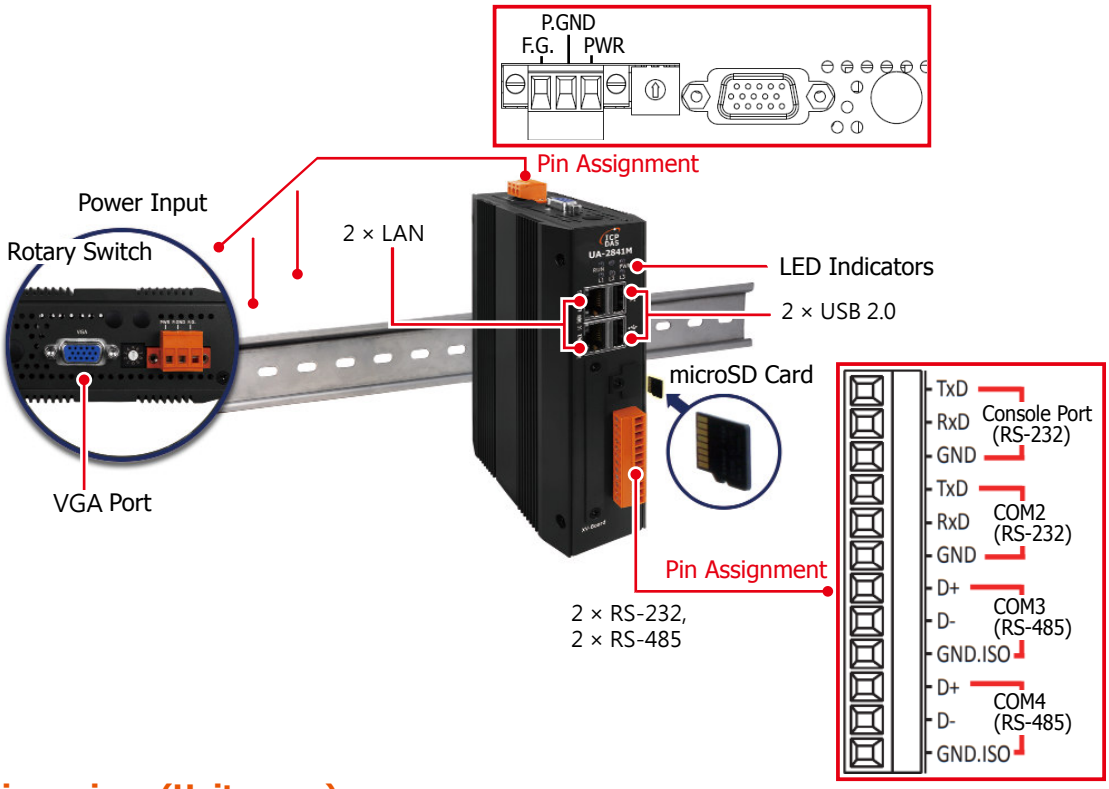
Model	UA-2841M
OS	
Linux	Linux Kernel 5.10.72
Protocol (Note 1, Note 2)	
OPC UA Server	• OPC Unified Architecture: 1.02 • Core Server Facet • Data Access Server Facet • Method Server Facet • UA-TCP UA-SC UA Binary • User Authentication: Username/Password, X.509 Certificate • Security Policy: > None > 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. 50 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 500, with a max of 2100. (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. 500 connections. (Note 1)
Modbus TCP Master	To read or control the devices that support standard Modbus TCP Slave protocol. Max. 250 modules. (Note 1)
Modbus RTU/ASCII Master	A max. of 3 ports: COM2, COM3, COM4 to connect other Modbus RTU Slave devices (e.g. M-7000). Recommend no more than 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 no more than 125 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	Support OpenVPN Client
RESTful	Provide RESTful API service, for users to external access the devices connected with the UA through the HTTP communication. Max. 20 read commands and 1 write command at the same time.
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 / PostgreSQL. Recommend Max. 3 Databases per Time, Max. 1000 Tags per database connection. 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. 3000 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.

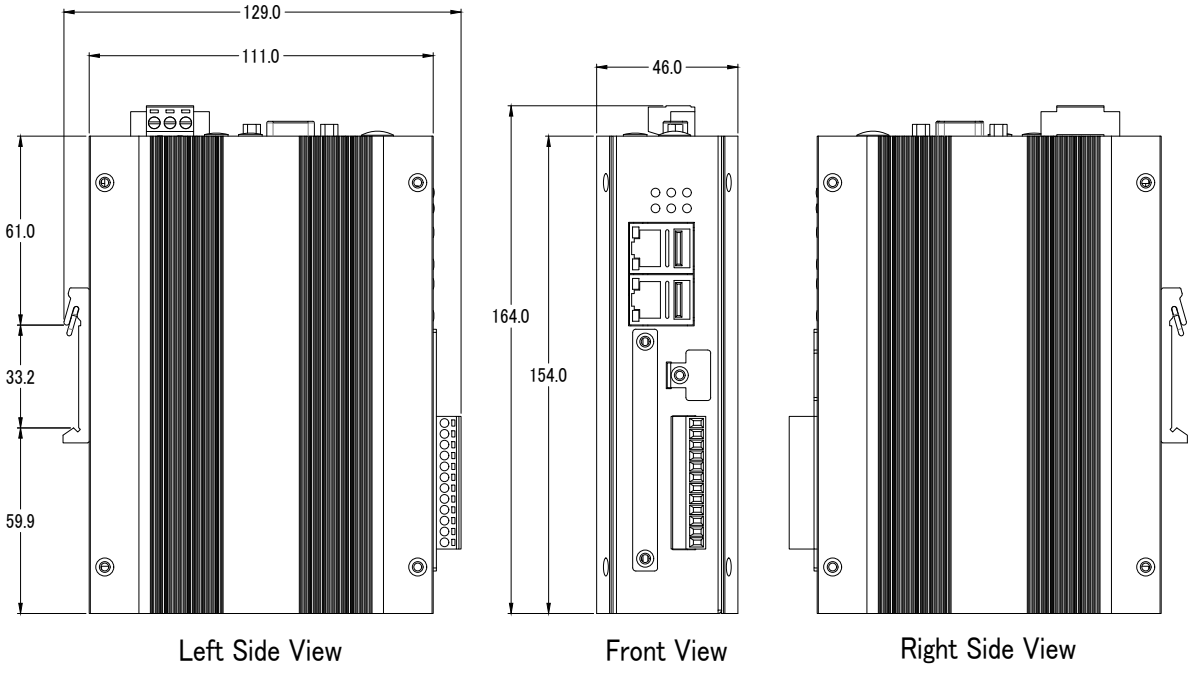
Note 2: When using multiple Protocol functions, the user needs to control the device number to under 80% of the CPU usage. Please refer to the CPU Usage of the UA Web UI.

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Appearance/Pin Assignment



Dimensions (Units: mm)



Ordering Information

UA-2841M CR	IIoT Communication Server, Metal, with ARM Quad-core CPU and 2 Ethernet Ports (RoHS)

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