ICP DAS

UA-2641M

UA Series IIoT Communication Server
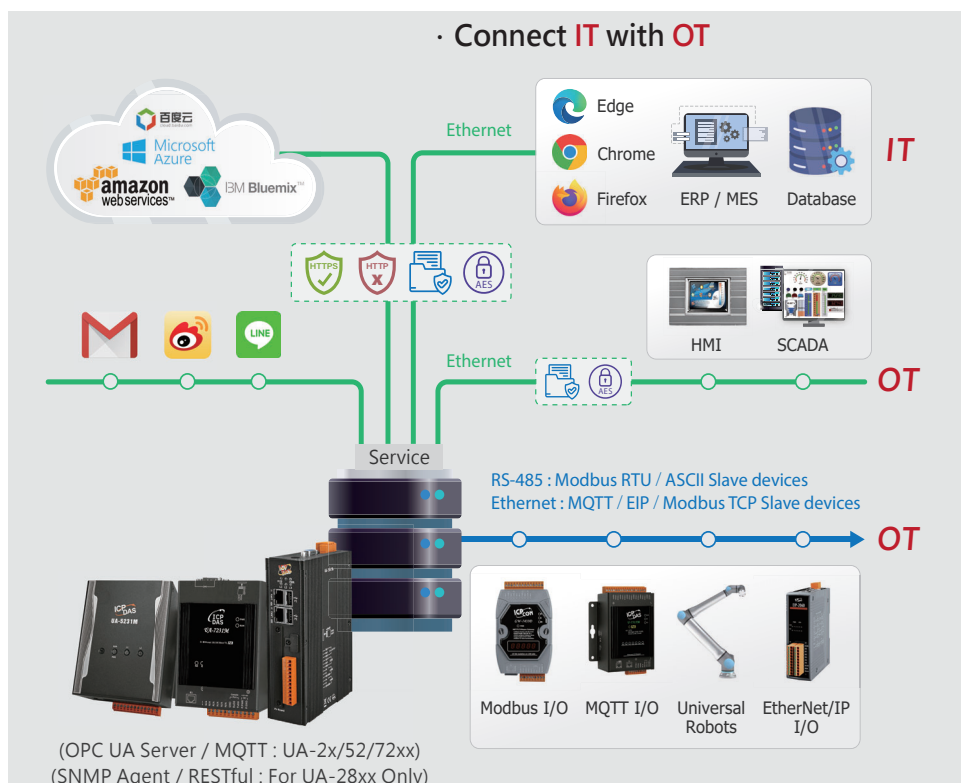2 Ethernet Ports

Features

- OPC UA Server
- MQTT Client Service
- MQTT Broker Inside (non-SSL & SSL/WebSocket)
- Support to Execute OPC UA and MQTT Communication at the Same Time
- Provide Modbus TCP/Serial Master communication protocol
- Support Local Data Logger / Remote Database
- Support IFTTT Logic Control & APP Notify
- Support PID Logic Operation
- Support SNMP, RESTful Communication
- ARM Quad-Core CPU, 1.0 GHz
- 1 GB RAM and 8 GB eMMC Flash
- 2 x 10/100/1000 Mbit/s Ethernet Port
- 4 Serial Ports (RS-232/RS-485)

CE UKCA RoHS

Introduction

UA-2600 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.
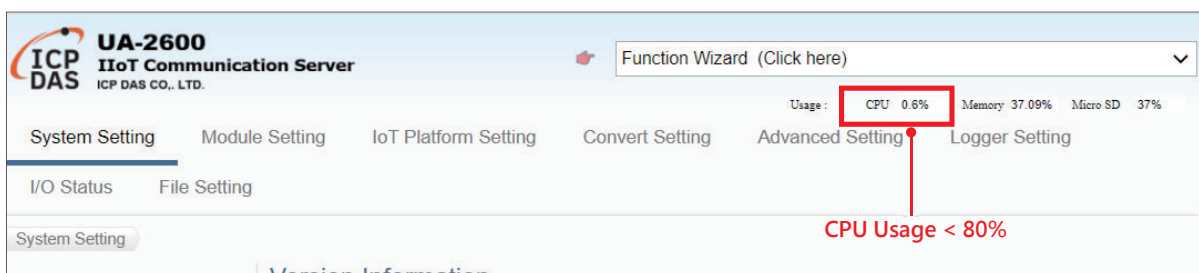
System Architecture

(OPC UA Server / MQTT : UA-2x/52/72xx)
(SNMP Agent / RESTful : For UA-28xx Only)

▤ Hardware Specifications

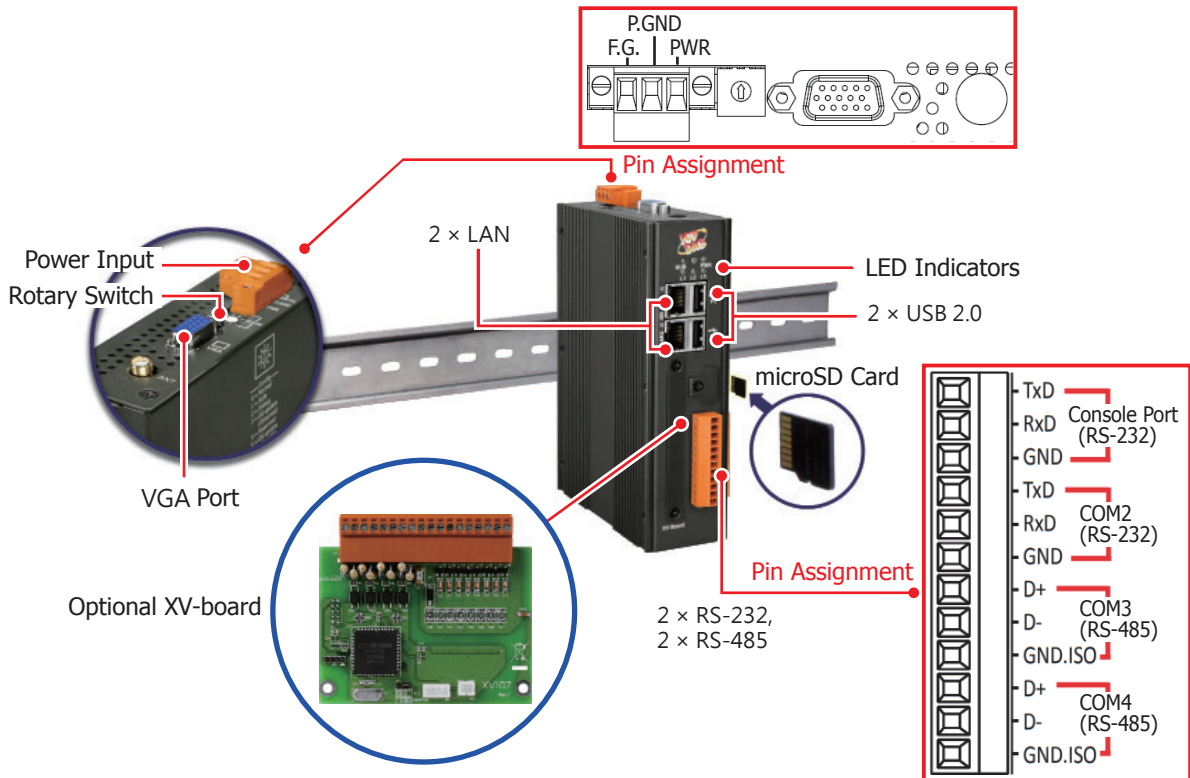| Model	UA-2641M
Main Unit	
CPU	ARM Quad-Core 1.0 GHz
System Memory	· DDR3 SDRAM 1 GB
Storage	· Flash 8 GB · microSD socket with one 4 GB microSD card (support up to 32 GB microSDHC card or 2 TB microSDXC card) · mSATA Socket, Solid-state drive (SSD) can be expanded by accessories
Non-Volatile Memory	· FRAM 64 KB · MRAM 128 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
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
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
HMI	
Rotary Switch	1 x 10 Position (0 ~ 9)
Port Expansion	
Expansion Bus	1, for one optional XV-board (Support XV511i to expand 4 RS-485 ports)
Power	
Input Range	+12 ~ +48 VDC
Consumption	10 W
Mechanical	
Casing	Metal
Dimensions (mm)	35 x 167 x 119 (W x L x H)
Installation	DIN-Rail Mounting
Environmental	
Operating Temperature	-25 ~ +75°C
Storage Temperature	-40 ~ +80°C
Ambient Relative Humidity	10 ~ 90% RH (non-condensing)

■ Software Specifications

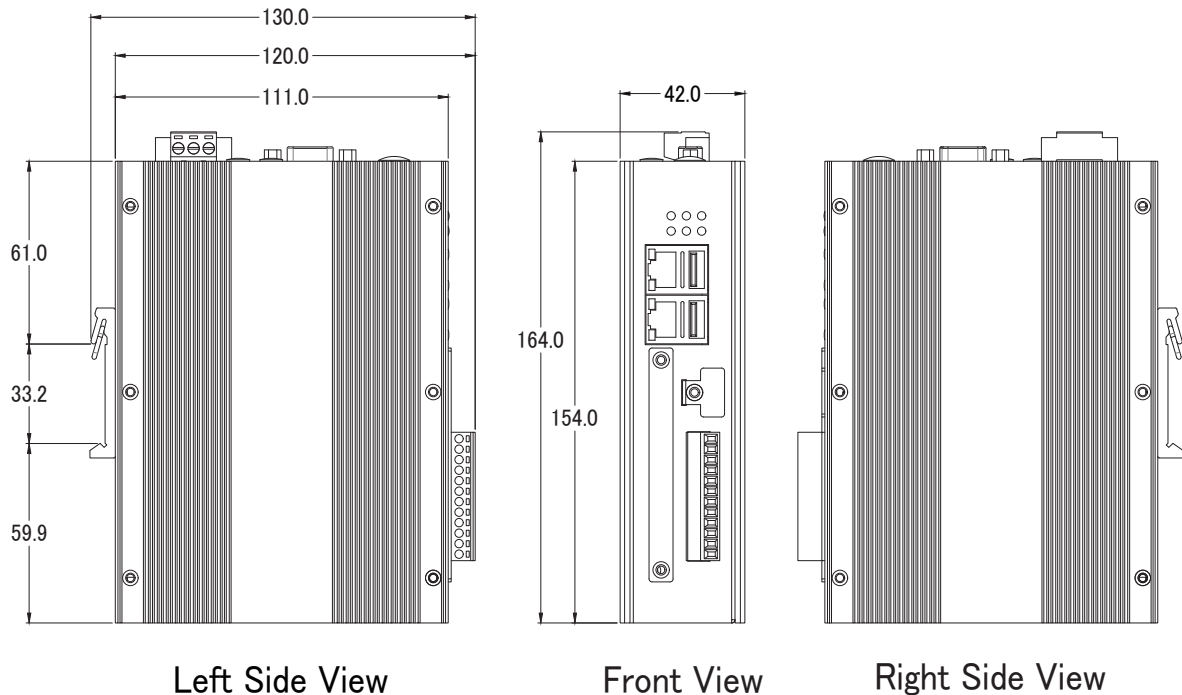| Model	UA-2641M
OS	
Linux	Linux Kernel 4.1.15
Protocol	

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 to keep the maximum number of sessions within 40 connections. Max. 8000 Tags. (Note 1)

MQTT Broker	Compliance with MQTT v3.1.1 protocol. Support MQTT message distribution management. Recommend to keep the connection number of Client within 400. Max. 1800 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 linking with the UA series (MQTT Ver. 3.1.1; TLS Ver. 1.2). Max. 400 Connections. (Note 1)
Modbus TCP Master	To read or control the devices that support standard Modbus TCP Slave protocol. Recommend to keep the maximum number of devices within 200 connections. (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) for better communication quality. (Note 1)
EtherNet/IP Scanner	Support connect EIP-2000 series modules of ICP DAS. Recommend no more than 100 devices per UA. (Note 1)
SNMP	Provide SNMP Agent service, for users to external access the devices connected with the UA through the SNMP communication. Max. 10 read commands and 10 write commands at the same time.
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.
Data Logger	
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. 2 Databases per Time, Max. 1000 Tags per database connection.
Function	
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	
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: 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)

CPU Usage < 80%

◼ Appearance/Pin Assignment

P.GND
F.G. | PWR

Pin Assignment

Power Input
Rotary Switch
VGA Port
Optional XV-board

2 × LAN
LED Indicators
2 × USB 2.0
microSD Card

Pin Assignment

2 × RS-232,
2 × RS-485

TxD
RxD — Console Port (RS-232)
GND

TxD
RxD — COM2 (RS-232)
GND

D+
D- — COM3 (RS-485)
GND.ISO

D+
D- — COM4 (RS-485)
GND.ISO

◼ Dimensions (Units: mm)

130.0
120.0
111.0
61.0
33.2
59.9

42.0
164.0
154.0

Left Side View   Front View   Right Side View

◼ Ordering Information

UA-2641M CR	IIoT Communication Server (Metal), with Quad-core ARM CPU and 2 Ethernet (RoHS)

◼ Option Accessories

XV511i CR	4-channel RS-485 I/O Expansion Board (RoHS)