UA Series IIoT Communication Server

UA-5231 **UA-5231M**

UA-5231M-3GWA
**UA-5231M-4GE**
UA-5231M-4GC

Features

- OPC UA Server
- MQTT Client Service
- MQTT Broker Inside
- ARM CPU, 1.0 GHz
- 512 MB RAM and 512 MB Flash
- Linux kernel 3.2.14 OS
- Real-Time Capability
- 64-bit Hardware Serial Number for Software Protection
- Support Redundancy (OPC UA)
- Support PID Logic Control
- 10/100/1000 Mbit/s Ethernet Port
- 4 Serial Ports (RS-232/RS-485)
- Operating Temperature: -25 ~ +75°C

Introduction

UA-5200 series is a series of IIoT (Industrial IoT) communication servers. The built-in OPC UA Server, MQTT Broker and Client functions meet the requirements of connecting MES, ERP, SCADA and Cloud services. The UA series could access I/O modules and controllers in the field via communication interface such as Ethernet, RS-232, and RS-485 or through protocols like Modbus TCP/RTU/ASCII. UA-5200 series support the Cloud service platform "IFTTT" which can connect more than 500 web apps. The logic control "If This Then That" allows users to receive firsthand notification messages through the most commonly used mobile apps when an event is triggered. UA series connects IT to OT and integrates all the devices as well as web-based apps into the Cloud. This allows managers to improve production performance and enhance their factory competitiveness for Industrial IoT.

System Integration Main Architecture
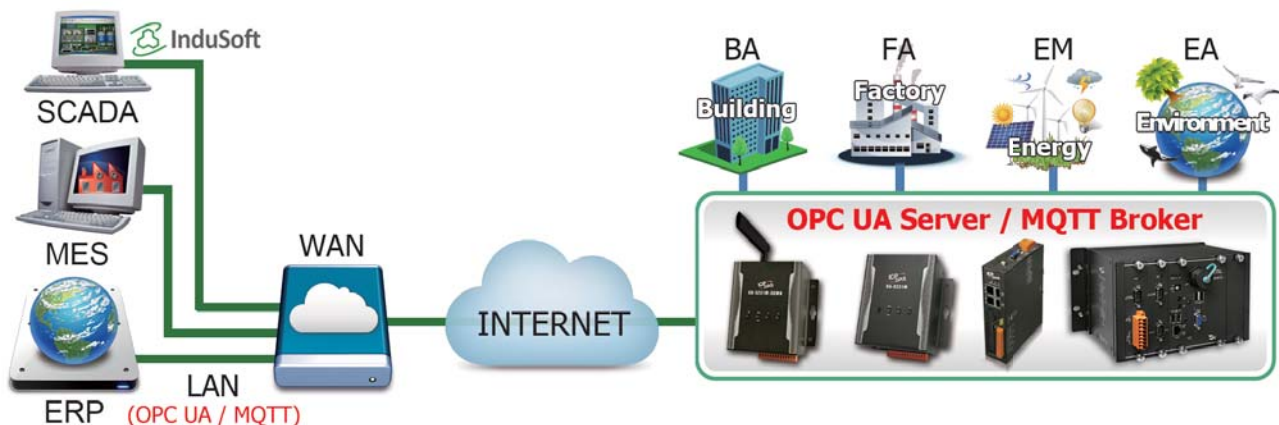
Functions
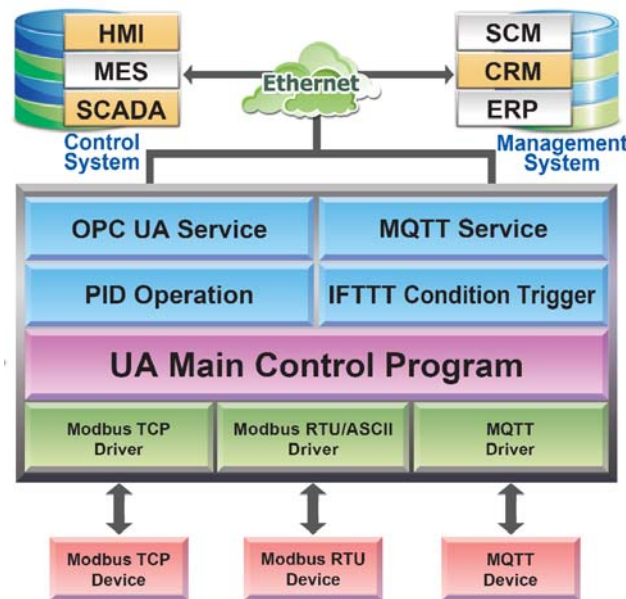
Built-in OPC UA Server Service

Compliable with IEC 62541 Standard. Provides functions of **Redundancy**, **Transmission Security Encryption**, Active Transmission, Error Detection, Communication Failure Recovery, etc. to connect SCADA or OPC UA Clients. Allowed up to 8000 OPC UA tags and up to 20 sessions for the OPC UA Client connection.

Built-in MQTT Broker Service

MQTT Broker inside and compliable with MQTT V.3.1.1 protocol. Provides functions of IoT **Active M2M** Transmission, QoS Quality Service, Retain Mechanism, Identity Verification, Encryption, Will, MQTT Client Drivers, etc. The Broker can connect up to 400 MQTT Clients.

Support IFTTT Logic Control and APP Message Notification

UA can combine the IFTTT cloud platform functions and send messages over 460 Web APPs (such as Line, Facebook, Twitter, etc.) when the special events occur. The device I/O change can be set to trigger the event of the IFTTT cloud service, and the IFTTT logic control (If This, Then That) will immediately let the pre-set Web Service (Such as LINE) send a message to one user or group to handle the event immediately.

Support IoT Cloud Platforms Connection

UA can actively connect connect to Amazon AWS, Microsoft Azure or other IoT platforms to send over the I/O data. The IoTstar Features:

- Based on Public Cloud: Microsoft Azure, IBM Bluemix, Amazon AWS
- Data Analysis and Report by Public Tools
- Remote Management and Maintenance
- Remote Monitoring and Control
- Cloud Big Data

Provide Step Box of Function Wizard for Easy Setup

The Web UI of UA provides a wizard-like Step Box in the Function Wizard area to guide user step by step to complete the project or function. It provides many items for setting the Communication Conversion, Azure Connecting, Function Configuration, PID Operation, Condition Trigger the APP Message Notification, and will be more. It will help users to set projects easily and quickly even for the new users.

Ethernet and Serial Communication Module Supporting

- In the Ethernet communication, the UA supports up to 100 Modbus TCP Slave module connections and up to 200 MQTT module connections.
- In the Serial communication, the UA provides three RS-232/RS-485 Serial ports, each of which can connect up to 32 Modbus RTU/ASCII Slave modules.
- Through the UA Web UI, the user can quickly set up the modules and display the module real-time statuses.
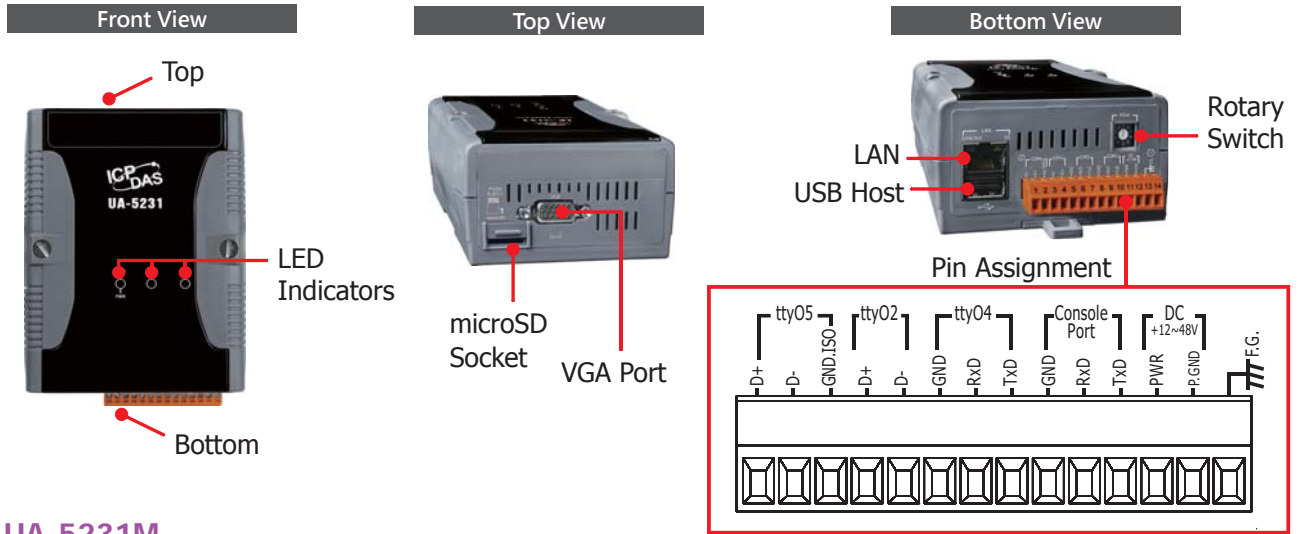
Specifications

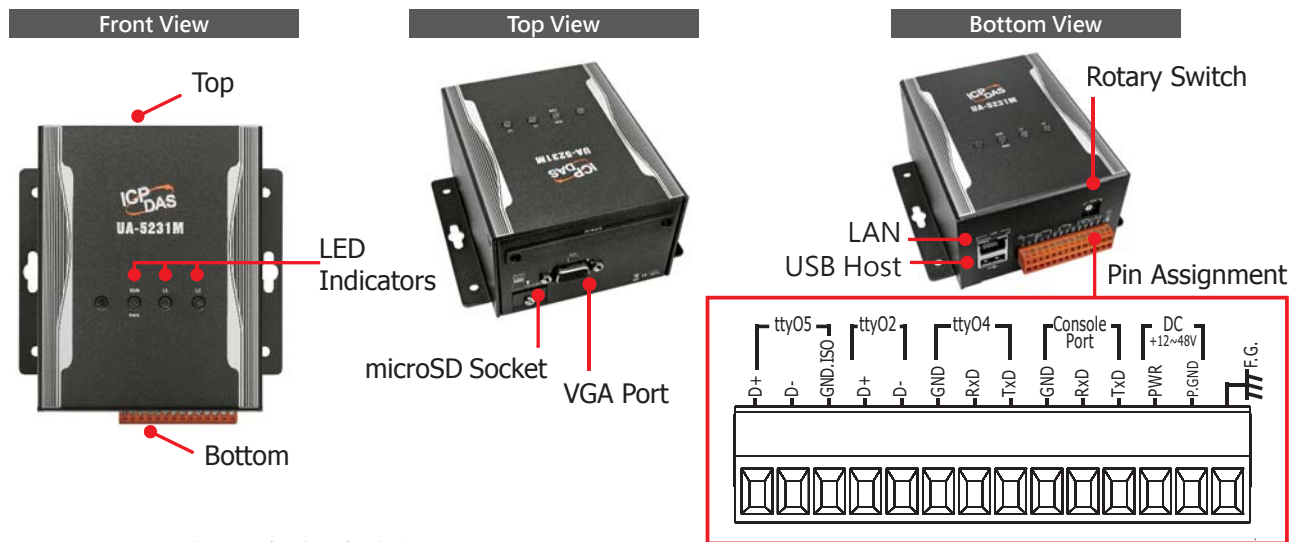| Model	UA-5231	UA-5231M	UA-5231M-3GWA	UA-5231M-4GE/4GC
System Software				
OS	Linux Kernel 3.2.14			
Embedded Service	SFTP server, Web server, SSH			
CPU Module				
CPU	ARM CPU, 1.0 GHz			
DDR3 SDRAM	512 MB			
Flash	512 MB			
FRAM	64 KB			
Expansion Flash Memory	microSD socket with one 4 GB microSD card (support up to 32 GB microSDHC card)			
RTC (Real Time Clock)	Provide second, minute, hour, date, day of week, month, year			
Hardware Serial Number	Yes, 64-bit Hardware Serial Number for Software Copy Protection			
Dual Watchdog Timers	Yes			
LED Indicators	4 LEDs (Power, Running and 2 user defined LEDs)			
Rotary Switch	Yes (0 ~ 9)			
VGA & Communication Ports				
VGA	1 (resolution: 640 × 480, 800 × 600, 1024 × 768, 1280 x 720)			
Ethernet	1			
	RJ-45; 10/100/1000 Based-TX (Auto-negotiating, Auto MDI/MDI-X, LED indicators)			
USB 2.0	1			
Console Port	RS-232 (RxD, TxD and GND); Non-isolated			
ttyO2	RS-485 (Data+, Data-); Non-isolated			
ttyO4	RS-232 (RxD, TxD and GND); Non-isolated			
ttyO5	RS-485 (Data+, Data-); 2500 V$_{DC}$ isolated			
Mechanical				
Dimensions (W x L x H) (mm)	91 x 132 x 52	117 x 126 x 58		
Installation	DIN-Rail Mounting			
Environmental				
Operating Temperature	-25 ~ +75°C			
Storage Temperature	-40 ~ +80°C			
Ambient Relative Humidity	10 ~ 90% RH (non-condensing)			
Power				
Input Range	+12 ~ +48 V$_{DC}$			
Consumption	4.8 W	6.5 W		
Wireless Communication (Only For UA-5231M-3GWA / UA-5231M-4GE / UA-5231M-4GC)				
GSM System	GSM: 850/900/1800/1900 MHz; GPRS class 12/10; GPRS station class B			
3G System	3GWA : WCDMA 850/900/1900/2100 MHz 4GE : WCDMA 850/900/2100 MHz 4GC : WCDMA 900/2100 MHz; TD-SCDMA 1900/2100 MHz; CDMA2000 (BC0) 800 MHz			
4G System	4GE : FDD LTE: B1/B3/B5/B7/B8/B20 MHz 4GC : FDD LTE: B1/B3/B8 MHz; TDD LTE: B38/B39/B40/B41 MHz			

UA Series PAC

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■ Specifications

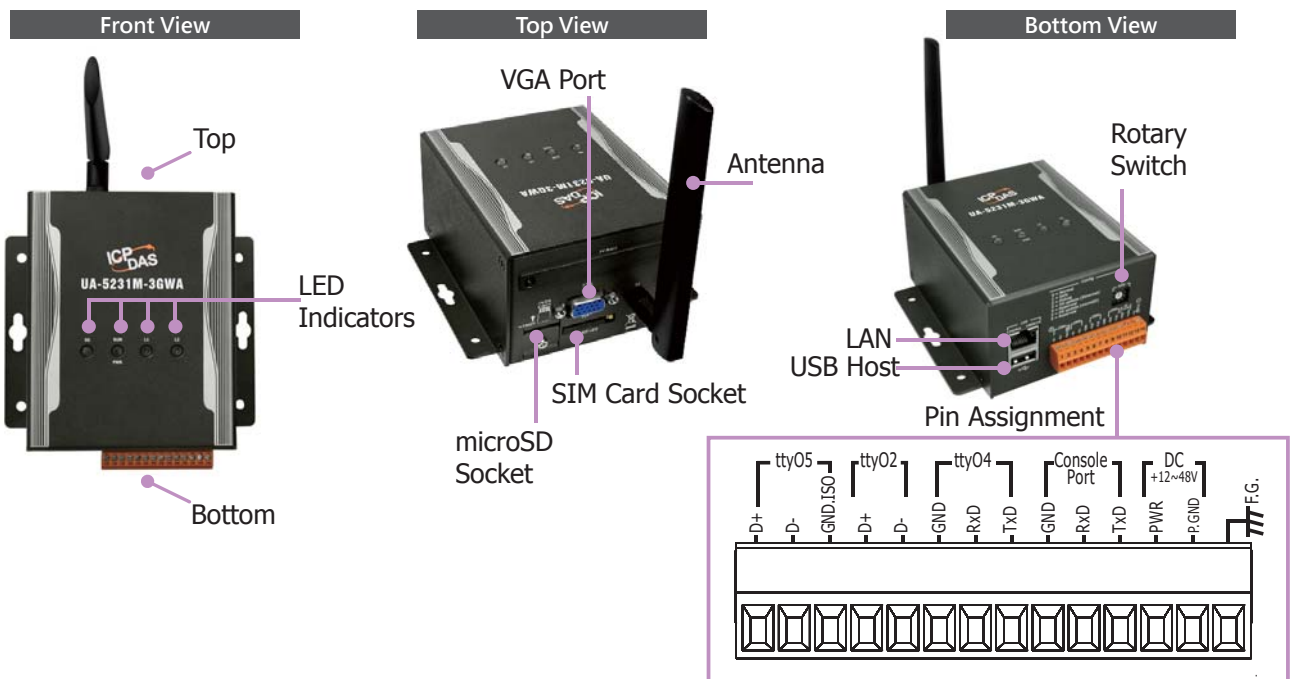| Software Specifications: UA Series	
OPC UA	
OPC UA Server	● OPC Unified Architecture: 1.02 ● Core Server Facet ● Data Access Server Facet ● Method Server Facet ● Client Redundancy Facet ● UA-TCP UA-SC UA Binary ● User Token User Name Password & X509 Certificate ● Security Policy 　∘ None 　∘ Basic128Rsa15 　　● Sign 　　● Sign & Encrypt 　∘ Basic256 　　● Sign 　　● Sign & Encrypt Recommend to keep the maximum number of sessions within 20 connections.
Modbus Master	
Modbus TCP	To read or control the devices that support standard Modbus TCP Slave protocol. Recommend to keep the maximum number of devices within 100 connections.
Modbus RTU/ASCII	A max. of 3 ports: ttyO2, ttyO4, ttyO5 to connect other Modbus RTU Slave devices (e.g. M-7000). Recommend no more than 32 devices per port for better communication quality.
MQTT	
MQTT Client	Connect the MQTT Broker to read/control the devices supporting the MQTT protocol.
MQTT Service	Connect the MQTT Broker to externally read/control the devices supporting other protocols that linking with the UA series.
MQTT Broker	Compliance with MQTT v3.1.1 protocol. Support MQTT message distribution management. Recommend to keep the connection number of Client within 400.
Virtual Device	
PID Function	Combine the remote I/O devices for the PID logic control system.

■ Appearance

UA-5231

Front View	Top View	Bottom View

Top

LED Indicators

Bottom

microSD Socket

VGA Port

Rotary Switch

LAN

USB Host

Pin Assignment

ttyO5 — D+ D- GND.ISO
ttyO2 — D+ D-
ttyO4 — GND RxD TxD
Console Port — GND RxD TxD
DC +12~48V — PWR P.GND
F.G.

UA-5231M

Front View	Top View	Bottom View

Top

LED Indicators

Bottom

microSD Socket

VGA Port

Rotary Switch

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USB Host

Pin Assignment

ttyO5 — D+ D- GND.ISO
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F.G.

UA-5231M-3GWA/4GE/4GC

Front View	Top View	Bottom View

Top

LED Indicators

Bottom

VGA Port

Antenna

SIM Card Socket

microSD Socket

Rotary Switch

LAN

USB Host

Pin Assignment

ttyO5 — D+ D- GND.ISO
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UA Series PAC

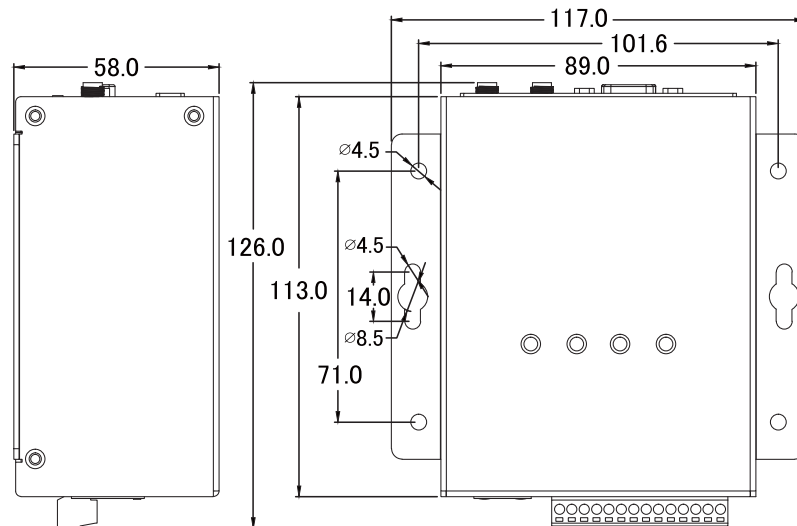## ▪ Dimensions

UA-5231

Unit: mm
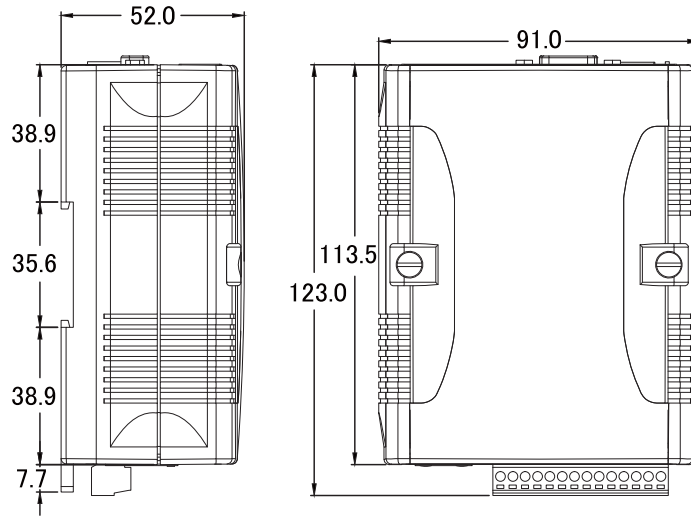
UA-5231M
UA-5231M-3GWA
UA-5231M-4GE
UA-5231M-4GC

Unit: mm

▪ Ordering Information

UA-5231 CR	IIoT Communication Server (RoHS)
UA-5231M CR	IIoT Communication Server (Metal) (RoHS)
UA-5231M-3GWA CR	IIoT Communication Server (Metal). Support 3G Wireless Communication (RoHS)
UA-5231M-4GE CR	IIoT Communication Server (Metal). Support 4G Wireless Communication (RoHS) Frequency Band for EMEA, Korea, Thailand, India and Taiwan
UA-5231M-4GC CR	IIoT Communication Server (Metal). Support 4G Wireless Communication (RoHS) Frequency Band for China

▪ Option Accessories

DIN-KA52F	24 V/1.04 A, 25 W Power Supply with Din-Rail Mounting
MDR-20-24	24 V/1 A, 24 W Power Supply with DIN-Rail Mounting