WEINTEK

Gateway Series

cMT-G01X / cMT-G02X

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Chapter1. Overview

1.1. Specification

IIoT Gateway

Features

- OPC UA, MQTT, Modbus industrial protocol support
- Built-in 256 MB FLASH and 256 MB RAM
- Fan-less Cooling System
- cMT-G02X supports WiFi compatible with 802.11 b/g/n

Model		cMT-G01X	cMT-G02X
Memory	FLASH	256 MB	
	RAM	256 MB	
Processor	CPU	Quad-core RISC	
I/O Port	SD Card Slot	N/A	
	USB Host	USB 2.0 × 1	
	Ethernet	10/100 Base-T × 2	10/100 Base-T × 1
	COM Port	COM1: RS-232 2W, COM2: RS-485 2W/4W, COM3: RS-485 2W	
	WiFi	N/A	IEEE 802.11 b/g/n 802.11b: max 19.52 dBm 802.11g: max 15.35 dBm 802.11n: max 15.28 dBm
	RS-485 Built-in Isolation	N/A	
	CAN Bus	N/A	
	Audio Output	N/A	
RTC		Built-in	
Power	Input Power	24±20%VDC	
	Power Isolation	Built-in	
	Power Consumption	230mA@24VDC	450mA@24VDC
	Voltage Resistance	500VAC (1 min.)	
	Isolation Resistance	Exceed 50MΩ at 500VDC	
Mechanical	Enclosure	Plastic	
	Dimensions W×H×D	27 × 130 × 115 mm	
	Weight	Approx. 0.18 kg	
	Mount	35 mm DIN rail mounting	
Environment	PCB Coating	Yes	
	Protection Structure	IP20	
	Storage Temperature	-20° ~ 70°C (-4° ~ 158°F)	
	Operating Temperature	-20° ~ 55°C (-4° ~ 131°F)	
	Relative Humidity	10% ~ 90% (non-condensing)	
	Altitude	3,000 m	
	Vibration Endurance	10 to 25Hz (X, Y, Z direction 2G 30 minutes)	
Certificate	CE	CE marked	
	UL	cULus Listed	
Software	EasyBuilder Pro	V6.09.02 or later	
	Weincloud	EasyAccess 2.0 (Optional)	

1.2. Dimensions

cMT-G01X
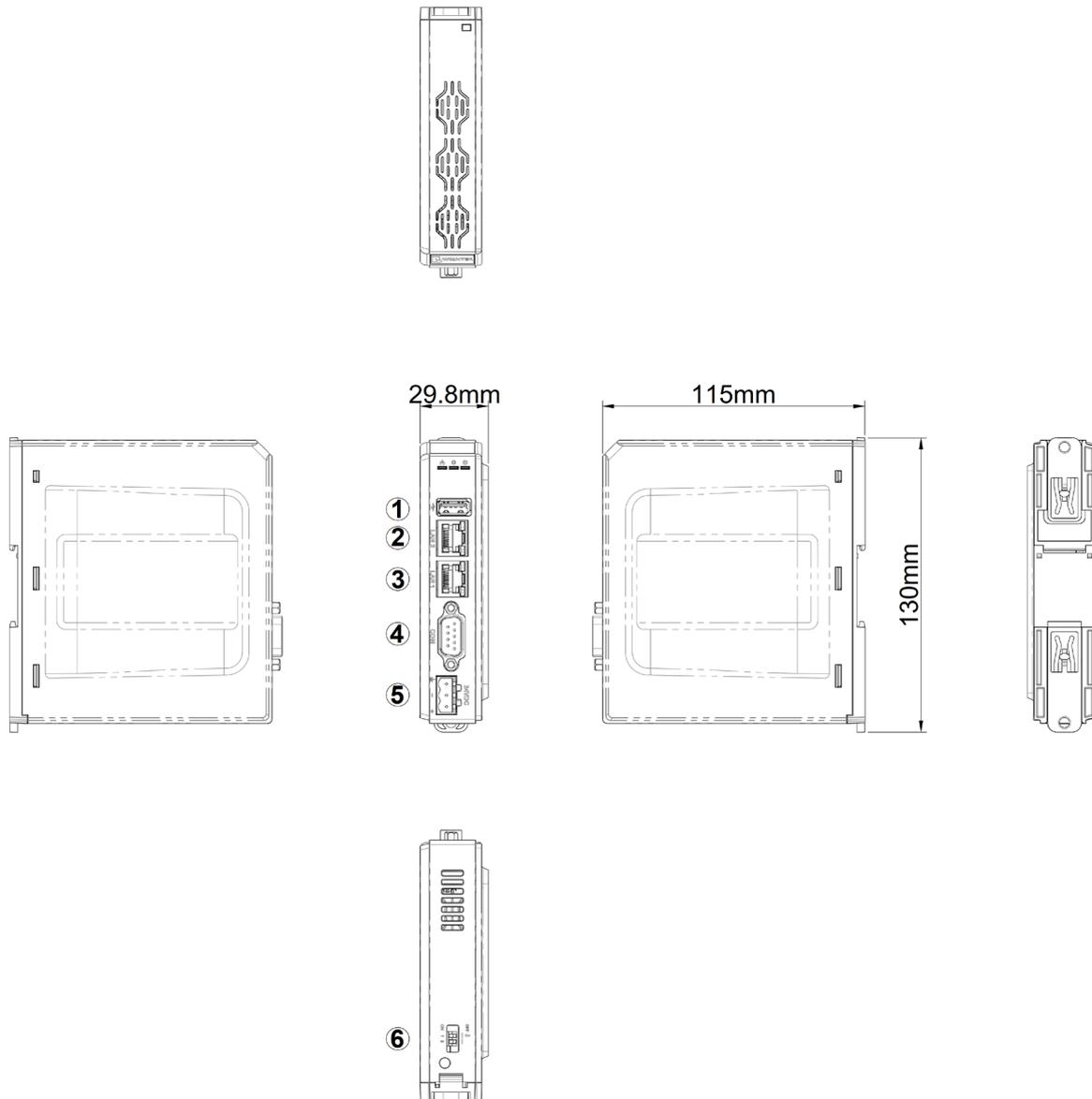
1	USB Host
2	LAN 2
3	LAN 1
4	COM1: RS-232 2W COM2: RS-485 2W/4W COM3: RS-485 2W
5	Power Connector
6	DIP Switch

cMT-G02X
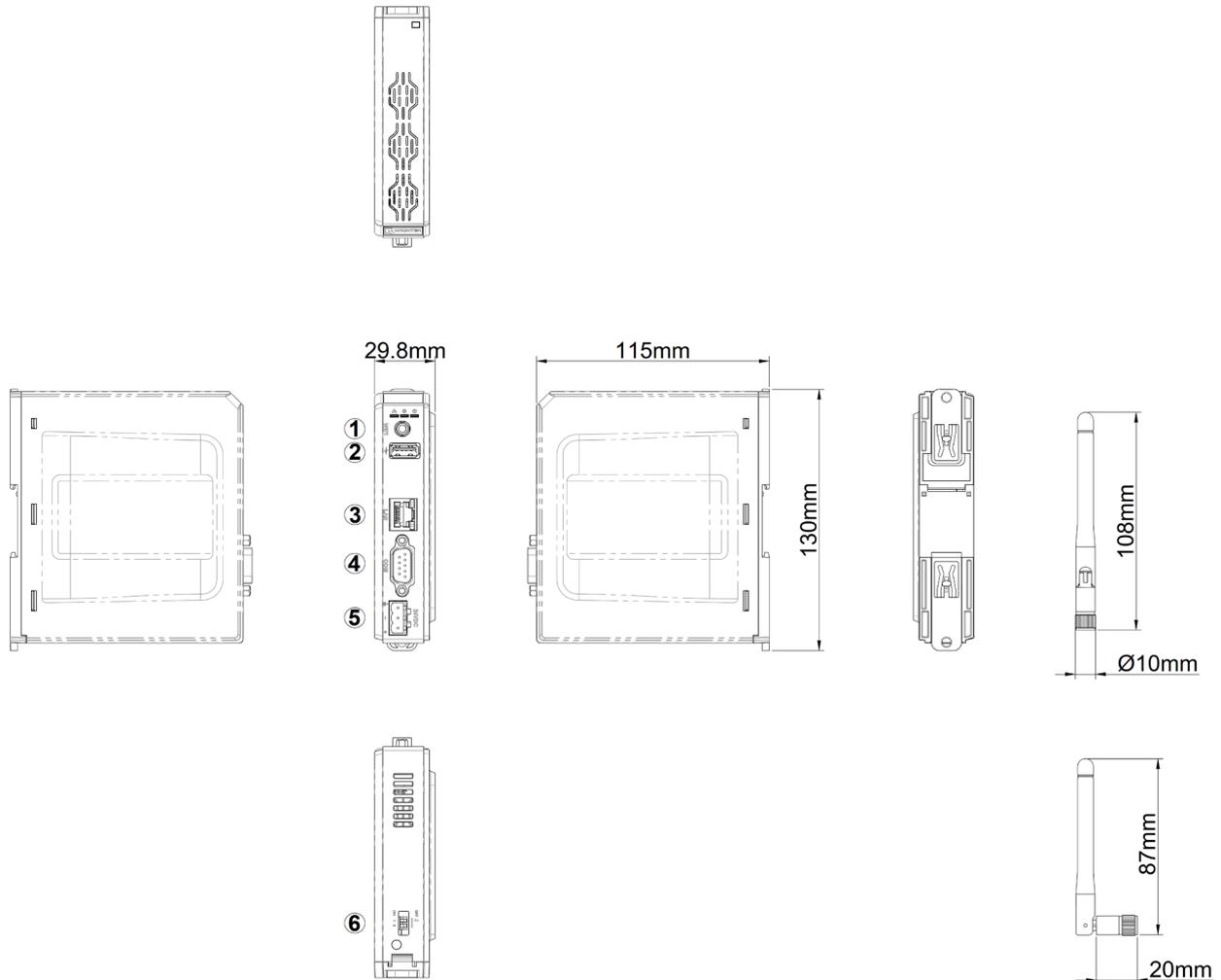
1	WiFi
2	USB Host
3	LAN
4	COM1: RS-232 2W COM2: RS-485 2W/4W COM3: RS-485 2W
5	Power Connector
6	DIP Switch

1.3. Connector Pin Designations

COM1 RS-232 2W, COM2 RS-485 2W/4W, COM3 RS-485 2W 9 Pin, Male, D-sub

PIN#	COM1 RS-232 2W	COM2 RS-485		COM3 RS-485 2W
		2W	4W	
1				Data-
2	RxD			
3	TxD			
4				Data+
5	GND			
6		Data+	RX+	
7		Data-	RX-	
8			TX+	
9			TX-	

1.4. Restoring Factory Default

Each IIoT Gateway is equipped with a DIP switch. Set the switch to the desired mode as shown below, then restart the device.

SW1	SW2	Mode
OFF	OFF	Normal Mode
ON	OFF	Restore Ethernet IP Settings
OFF	ON	Boot Loader Mode
ON	ON	Restore Factory Default

Factory Default IP Settings:

cMT-G01X:

Ethernet 1: DHCP

Ethernet 2: 192.168.100.1

cMT-G02X

WiFi: DHCP

Ethernet: DHCP

When performing a factory reset, all project files and data on the IIoT Gateway will be erased. Please re-download them afterward.

1.5. LED Indicator

The LED indicators show the device status:

| Icon	Color	Description
	Blue	Indicates LAN1 / LAN2 communication status.
	Orange	Indicates power status.
	Green	Used to identify the IIoT Gateway. The LED can be turned on/off by toggling system register LB-11959, and can also flash when triggered from the web / download interface.

1.6. Battery

The cMT-G01X/cMT-G02X uses a CR1220 lithium battery to keep the real-time clock (RTC) running.

1.7. Power Connection

Power: The unit can be powered by DC power only, and its voltage range is compatible with most controller-based DC systems. The internal power conditioning is handled by a switching power supply, and the peak inrush current at startup can reach 500 mA.

cMT-G01X / cMT-G02X voltage range: 24$\pm$20% VDC
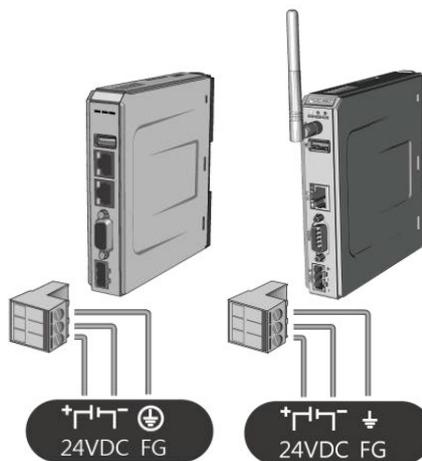
Note: Connect positive DC line to the '+' terminal and the DC ground to the '-' terminal.

Chapter2.   cMT-G01X/G02X System Setting

Connect the cMT-G01X/G02X using an Ethernet cable, then configure the system settings through the web interface.

2.1. Search for cMT-G01X/G02X's IP address

Launch UtilityManagerEX, select the IIoT Gateway Series, and open one of the functions such as Reboot, Download, or Upload. In the search interface, the [Search and Change IP] function is available. This function scans the network for cMT Series HMIs or cMT-G01X/G02X and can locate them even when the PC and device are not on the same subnet. The tool can be used to verify and modify the IP address of the cMT-G01X/G02X. Once the IP address is obtained, other settings can then be performed.
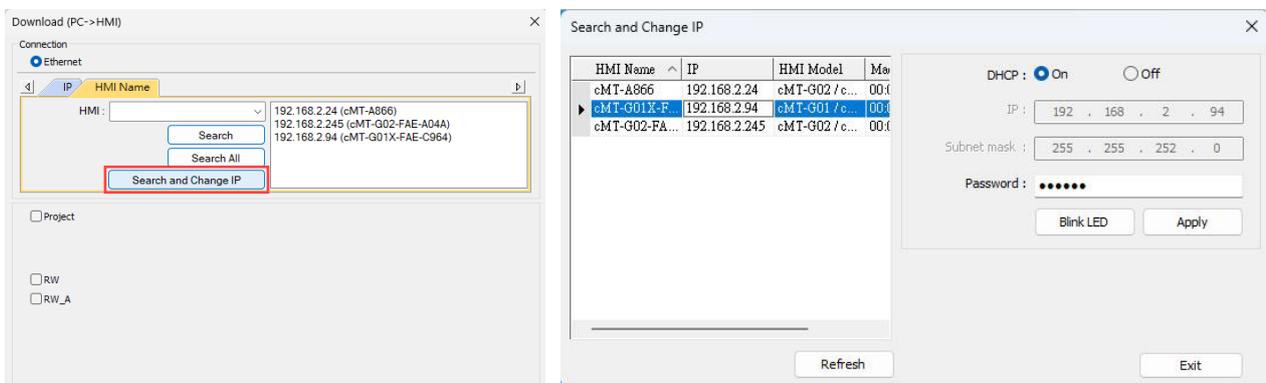
2.2. Configure via Web Browser

Open a web browser (Internet Explorer, Chrome, Firefox, or Safari) and enter the IP address of the cMT-G01X/G02X (for example: 192.168.100.1) to access the device's home page. The home page displays basic system information and provides a language selection option.

Note:

On the cMT-G01X, Ethernet Port 1 defaults to DHCP, while Ethernet Port 2 uses the fixed IP address 192.168.100.1.

On the cMT-G02X, both Ethernet and Wi-Fi default to DHCP.

2.3. System Setting

This section introduces the system settings pages of the cMT-G01X/G02X.

The system provides three privilege levels:

[Admin]: Full access. All system settings can be modified after login.

[Update]: Limited access. Fewer settings can be modified compared to [Admin].

[History]: Read-only access for downloading history data (Recipes and Event Logs).

Name	Description
System	
Info	An identification light trigger is provided, along with functions to modify the display name and date/time settings.
Diagnostics	Collect HMI information for troubleshooting unexpected Gateway errors.
Network	
Ethernet	Configure Ethernet port settings, including IP, Mask, Gateway, and DNS.
WiFi (cMT-G02X only)	Enable/disable WiFi or configure wireless network settings. Scan and connect to access points, and configure IP, Mask, Gateway, and DNS.
Project	
Project Management	Project-related operations and settings: **[Restart Project]:** Restart the project on the

		cMT-G01X/G02X.
		[Update Project]: Update the *.cxob project file to the cMT-G01X/G02X.
		[Backup Project]: Back up the project file from the cMT-G01X/G02X to the PC.
		[USB/SD Update]: Manage files stored on the USB drive of the cMT-G01X/G02X.
	Email	Email-related settings.
		[SMTP]: Configure SMTP settings for sending emails.
		[Contacts]: Edit the email contact list through the web interface.
		[Upload]: Upload contact information created using the Administrator Tools.
	Enhanced Security	Enhanced Security Mode settings affecting OPC UA account access:
		[Account]: Add users or modify passwords and privileges.
		[Import User Accounts]: Import user accounts created using the Administrator Tools.
	Recipe	Recipe update, backup, and clear operations.
Data		
	Backup Data	Historical data operations: download data to the PC or delete existing data.
Features		
	OPC UA	OPC UA settings. For details, refer to Chapter 6: Using the Web Interface to Manage OPC UA.
	Communication	View or modify communication parameters for devices connected to the cMT-G01X/G02X.
	FTP	FTP server settings.
Weincloud		
	EasyAccess 2.0	EasyAccess 2.0 settings and operations, including Hardware Key, activation interface, and proxy settings. For details, refer to the EasyAccess 2.0 User Manual.
Administration		
	System Password	Configure login passwords for each privilege

	level and the password used for project file transfers.
Security	Configure login security for the system settings webpage, including password strength rules, expiration, and HTTPS encryption.
OS Update	Operating system update settings.

Chapter3.   Updating Web Package and OS

The cMT-G01X/G02X supports Web Package and OS updates via Ethernet.

Launch UtilityManagerEX and select [IIoT Gateway Series] » [Maintenance] » [cMT-Gateway/CTRL OS Update].

3.1 Updating Web Package

1.   Select the HMI.

2.   Select [Web package] and specify the source file.

3.   Click [Update] to begin.

3.2 Updating OS

1.   Select the HMI.

2.   Select [OS]. A warning message appears; read the message carefully before proceeding.

3.   After returning to the update window, specify the source file and click [Update].

4.   A message appears reminding not to turn off the HMI during the update.

![WEINTEK logo]

Chapter4. How to Create a cMT-G01X/G02X Project

This chapter explains how to create a project for using the cMT-G01X/G02X as an OPC UA Server.

The basic workflow includes three steps:

1. Add a driver in the Device List in EasyBuilder Pro.
2. Enable the OPC UA Server and configure communication addresses.
3. Download the project to the HMI.
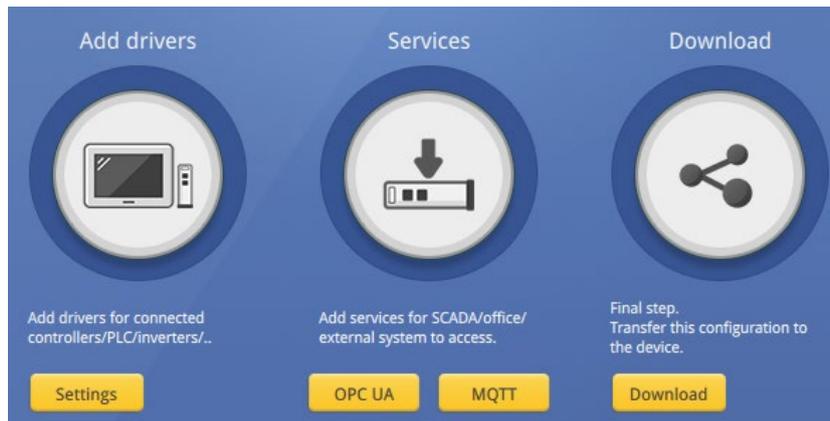
The following sections describe the detailed OPC UA Server configuration procedure.

4.1. Create a New Project

Step 1. Launch EasyBuilder Pro and select cMT-G01X/G02X as the model.

Step 2. Add a PLC device in the Device List and configure communication parameters.
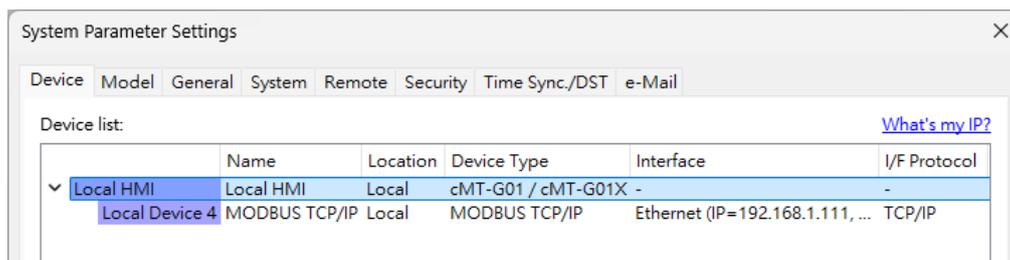
Step 3. Open [IIoT/Energy] » [OPC UA Server], or click the OPC UA icon in the editing window, then select [Enable] to enable the OPC UA Server.

Step 4.   Open [Tags] of the device and click [New Tag] to add tags used by the OPC UA Server. Click [OK] when finished.
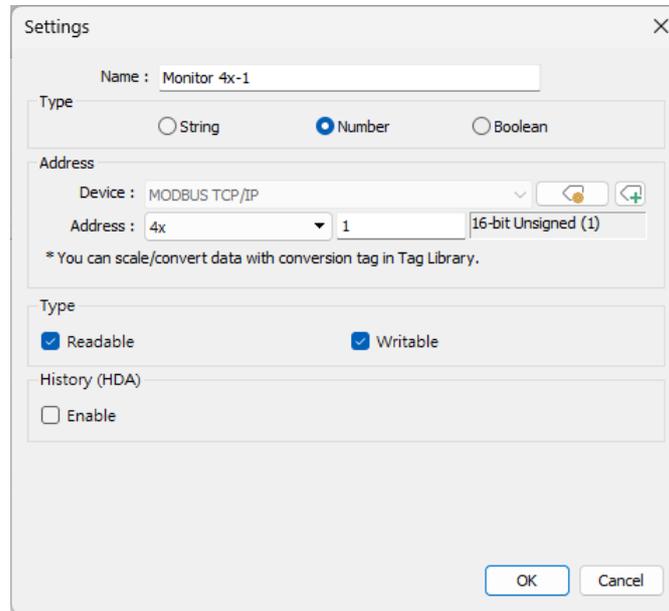
Step 5.   The created tags appear in the OPC UA Server settings window. When managing a large number of tags, export them as a CSV/Excel file for editing, then import them back into the project.
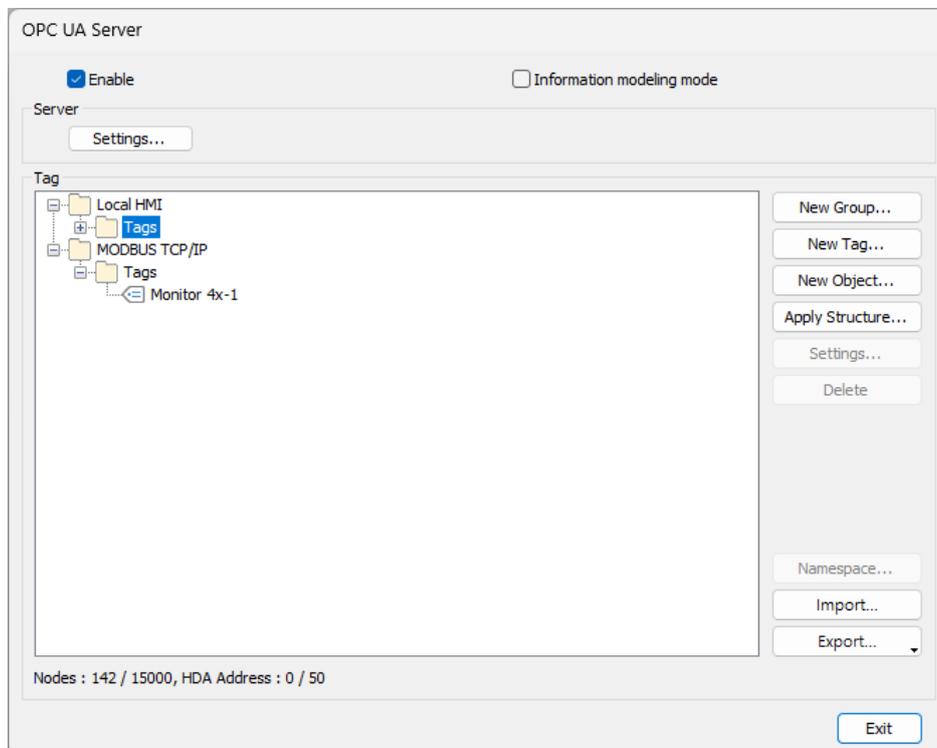
4.2. Download Project to cMT-G01X/G02X

The executable project format for the cMT-G01X/G02X is *.cxob.

In EasyBuilder Pro, compile the project through [Project] » [Compile] to generate a *.cxob file.
After compilation, the project can be downloaded using either method below:

Method 1: Download via EasyBuilder Pro
Click [Project] » [Download], set the HMI's IP address, and download the project via Ethernet.

Method 2: Download via Web Interface
Open a web browser (IE, Chrome, or Firefox) and enter the cMT-G01X/G02X IP address (e.g., 192.168.100.1).
After logging in, navigate to [Project Management] » [Update Project] and upload the project file from the PC to the cMT-G01X/G02X.

4.3. Monitoring OPC UA Client

After the project is downloaded, use any OPC UA Client software to connect to the cMT-G01X/G02X OPC UA Server and monitor PLC data.
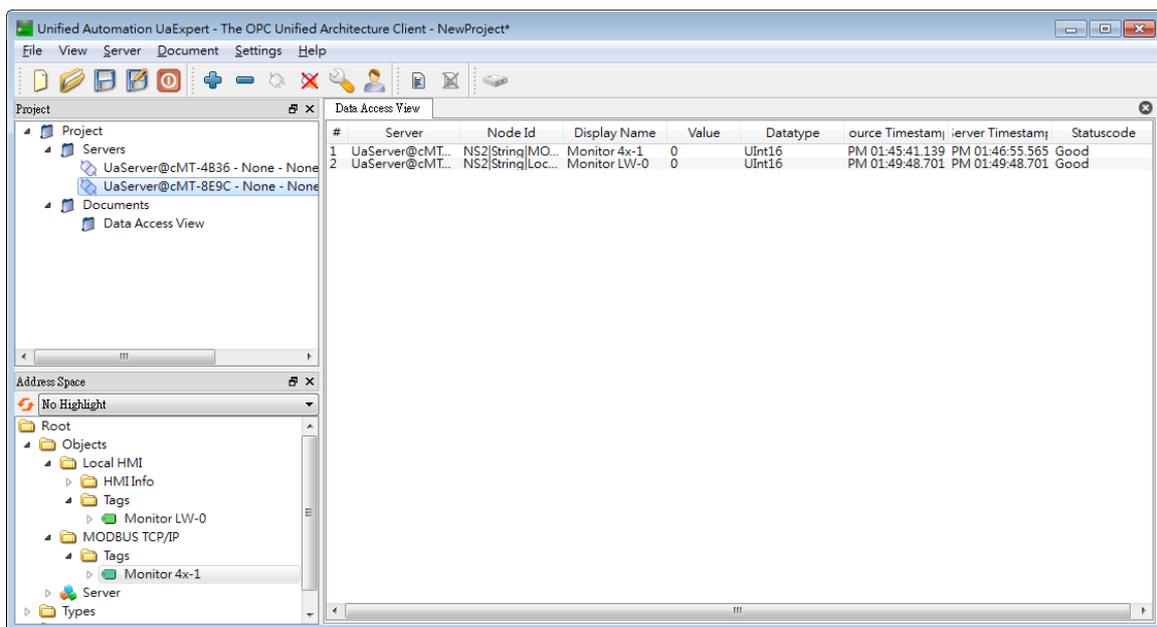
Note: The screenshot above shows an example using UaExpert. For OPC UA Client configuration details, refer to the respective software manual.

4.4. On-line/Off-line Simulation

On-line or Off-line Simulation in EasyBuilder Pro can be used to verify OPC UA tag behavior.
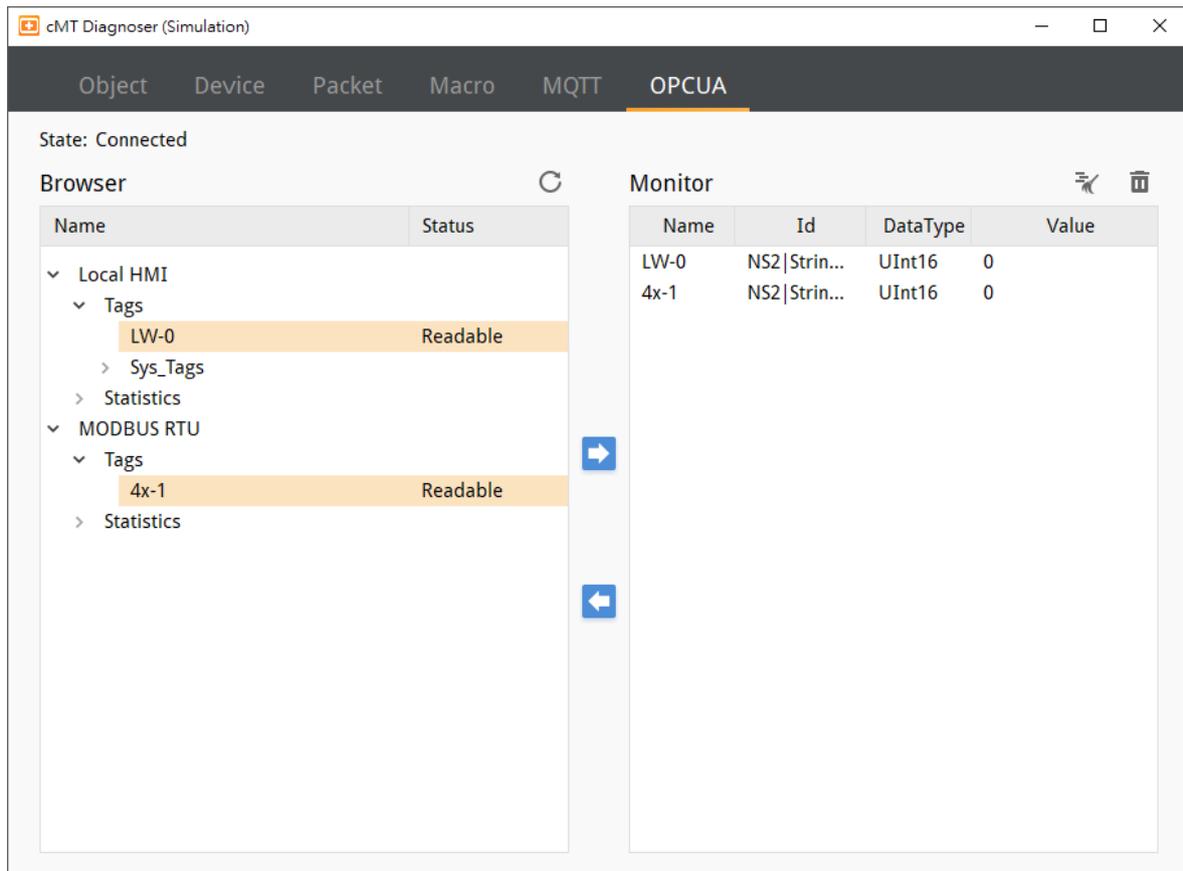In On-line Simulation, cMT Diagnoser can read and write PLC values.
Note that On-line Simulation is limited to 10 minutes.

Step 1. Select [Project] » [On-line Simulation] or [Off-line Simulation] to open the cMT Diagnoser window.

Step 2. Add the desired tags to the Monitor pane on the right.

Step 3. In On-line Simulation, PLC tag values update in real time.

Chapter5.   Functions Supported by cMT-G01X/G02X

- OPC UA Server
  https://dl.weintek.com/wksite/SharedDocument/IIoTManual/OPC-UA-Server-UserManual-eng.pdf
- EasyAccess 2.0
  https://support.ihmi.net/ea20/
- Modbus TCP/IP Gateway
- OPC UA Client
- MQTT (MQTT Sesrver / Subscriber / Publisher)
- Administrator Tools
- Time Synchronization (NTP)
- Macro
- Project Protection
- Communication with iE/XE/eMT/mTV HMI models.
- Pass-through Communication
- Data Transfer (Global) object
- Off-line / On-line Simulation
- Recipes (RW, RW_A)
- Event Log (Note: History data stored on an external device cannot be read.)
- E-Mail
- Scheduler
- Web-based Management for OPC UA and Communication Parameters

Chapter6.　Using the Web Interface to Manage OPC UA

6.1. Overview

The cMT-G01X/G02X provides a web-based interface for accessing OPC UA settings.

Enter the IP address of the cMT-G01X/G02X in a web browser to open the system settings page. Log in using the system password (default: 111111).

Recommended screen resolution: 1024 × 768 or higher.

From the menu on the left, open the OPC UA settings page. This page includes controls for enabling or disabling the OPC UA Server, along with server Status information. The OPC UA settings page contains the following tabs: Server Setting, Edit Node, Certificates, Discovery, and Advanced.

Tab	Description
Server Setting	Configure server settings such as port, name, security settings, and user authentication.
Edit Node	Manage tags used by the OPC UA server.
Certificates	Manage certificates used by the OPC UA server.
Discovery	Manage the Discovery Server list.
Advanced	Advanced options and functions.

6.2. Startup / Shut Down
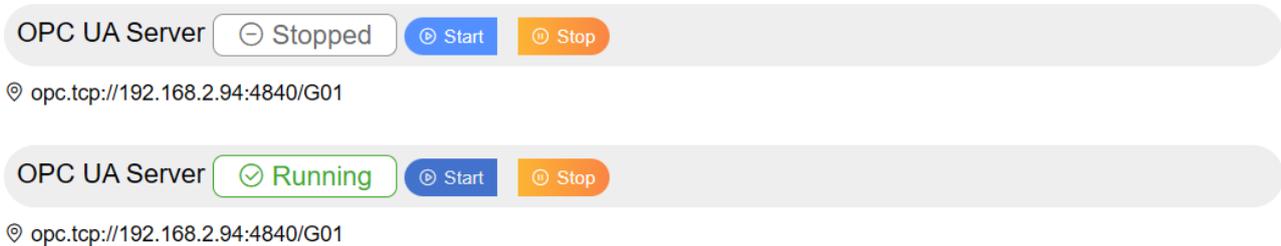
Use the Start / Stop button to start up or shut down the OPC UA server. If there is active client connection, when shutting down, the server will wait for a few seconds before closing off completely.
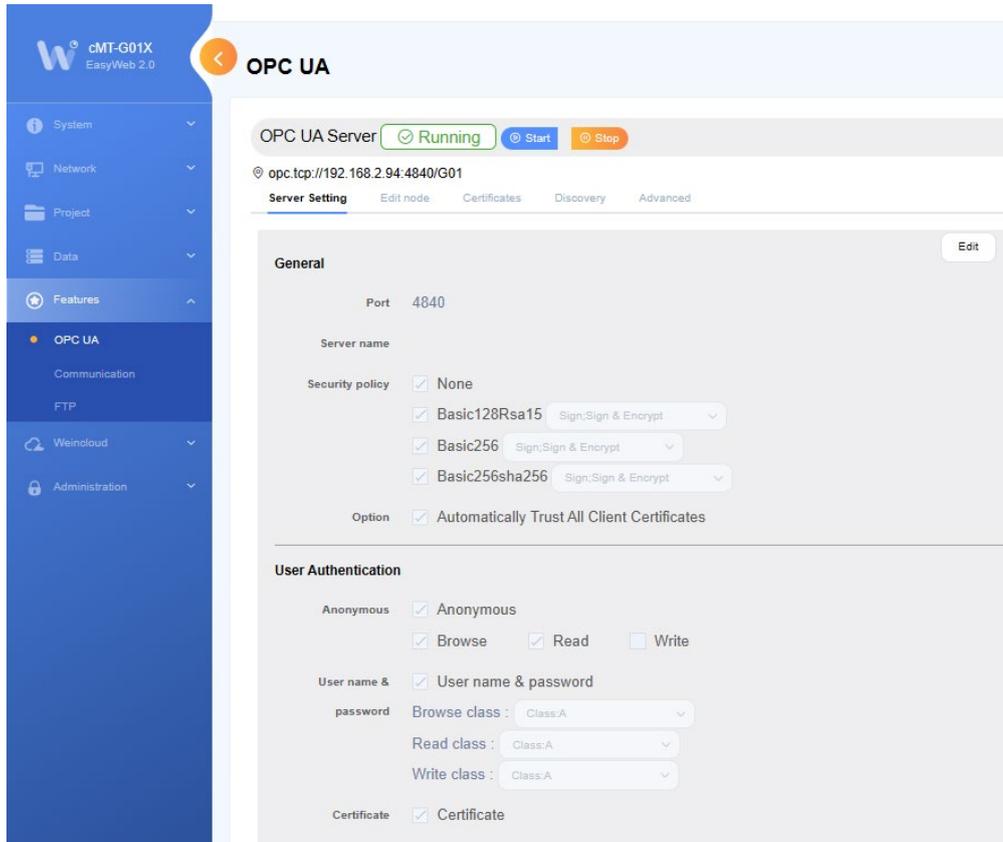
In addition to the buttons, a line of text also indicates the status of the server. The status is refreshed approximately every 10 seconds. An icon on the right ↻ indicates that the status is being refreshed.

Endpoint URL is also displayed for user's reference.

*Whenever a page refresh is desired, use the menu on the left. Avoid using the browser's refresh button to reload a tab as you may be asked to enter the password to log in again.

6.3. Server Setting

The Server Setting page shows general configurations of the OPC UA server.

| General	Function
Port	Access port of the OPC UA server
Server name	Server name of the OPC UA server
Security policy	Supported security policies. At least one must be selected. Supported Policy: None, Basic128Rsa15, Basic256, Basic256sha256 Mode: Sign, Sign & Encrypt
Option	Automatically Trust All Client Certificates: by enabling this option, the OPC UA server will trust the certificate from any client connection.

OPC UA server must be configured with at least one user authentication mode as listed in the following table.

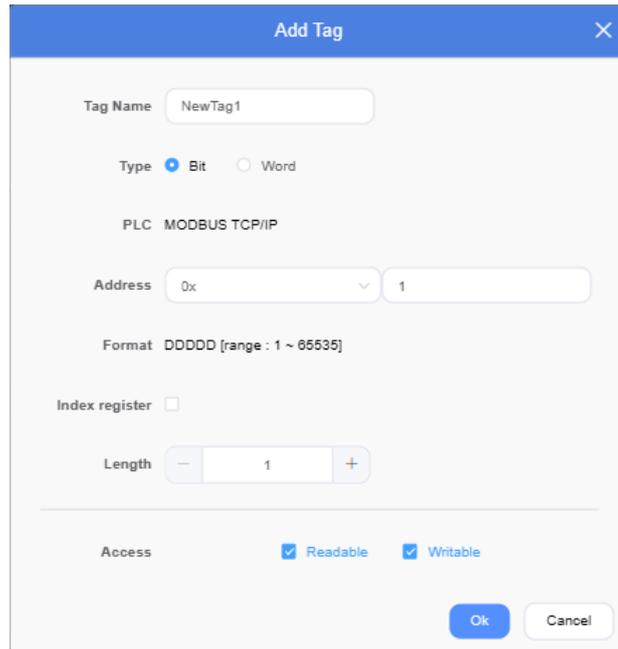| Authentication	Descriptions
Anonymous	Allow anonymous client connection. At least one of Browse, Read, or Write modes must be selected.
User name & Password	Allow user authentication with username and password. Each access mode, browse, read, and write can be assigned to a user class. User

Authentication	Descriptions
	classes are configured in the Enhanced Security mode on the web interface or in EasyBuilder Pro.
Certificate	User authentication with X.509 certificate

After completing settings, click the Save button to save the changes. OPC UA server will shut down momentarily and then restart for the changes to take effect.

6.4. Edit Node
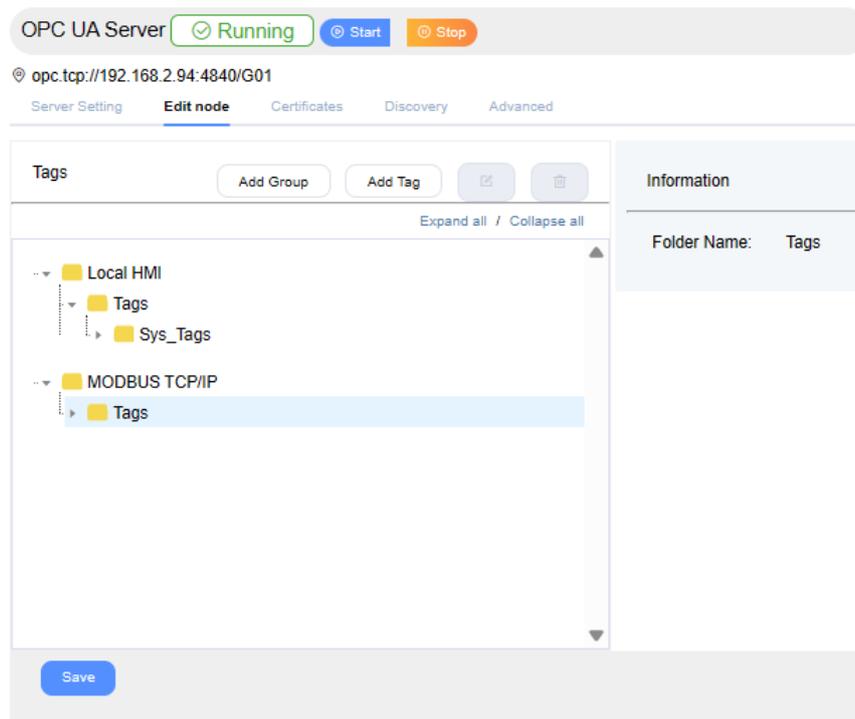
In this page, the user can view and manage the tags currently available in the OPC UA server. New nodes and groups can be added, while existing nodes and groups can be edited or deleted. For ease of navigation, detail information of the currently selected node/group is displayed on the right. After completing settings, it is necessary to click the Save button to save the changes. OPC UA server will shut down momentarily and then restart for the changes to take effect. Changes will be lost if one exits this page without saving.

Note that all modifications can only be made for existing drivers. It is not possible to change or add other drivers that are not already available. It is also not possible to edit the nodes used by Tag PLCs*.

*Tag PLCs are characterized by their use of name tags as device memory address as opposed to using device name with indices. Examples of Tag PLCs include: BACnet, Rockwell Free Tag Names , Siemens S7-1200,…etc.

6.5. Certificates

In this page, the user can manage certificates and revocation lists of the OPC UA server. Use the dropdown menu to access each page.

If "Allow anonymous client connection" (in the Server Setting tab) option is not active, OPC UA server will reject all client connections and place their certificates in the untrusted list. User may manually "trust" them in this page. Use the reload button 🔄 to repopulate the list of certificates if necessary.

Similarly, currently trusted certificates can be manually rejected on the same page.

Page	Description
Trusted Clients	Lists of trusted/rejected client certificates on the server. Supported operation: Trust/Reject, Remove, Import, Export.
Trusted Users	Lists of trusted/rejected user certificates on the server. Supported operation: Trust/Reject, Remove, Import, Export.
Own	Server's own certificate. Supported operation: Update, Remove. When updating own certificate, matching certificate and Private Key must be uploaded together; otherwise, update will fail. A self-signed, 20-year validity certificate will be generated automatically if own certificate is absent when server starts up.
Trusted Client Issuers	List of trusted client issuer certificates. Supported operation: Import, Remove, Export.
Trusted User Issues	List of trusted client issuer certificates. Supported operation: Import, Remove, Export.
Certificate Revocation List	Certificate revocation lists for client, user, client issuer, and user issuer. Supported operation: Import, Remove, Export

6.6. Discovery

OPC UA server can register itself with Local Discovery Servers. In this page, the user can maintain the list of discovery servers that OPC UA server will register with during startup. Should the discovery server be unavailable during server shutdown, the shutdown process will be slightly delayed.

After completing settings, click the Save button to save the changes. OPC UA server will shut down momentarily and then restart for the changes to take effect.

6.7. Advanced

Additional settings can be configured in the Advanced tab. The user can set the trace logging level and specific startup behavior of the OPC UA server. Furthermore, the trace log can be downloaded.

After completing settings, click the Save button to save the changes. OPC UA server will shut down momentarily and then restart for the changes to take effect.