DAUDIN CO., LTD.

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V2.0.5

iO-GRID X Series
GX-CL120
Module User Manual

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DAUDIN CO., LTD.

No. 19, Wuquan 2nd Rd., Wugu Dist., New Taipei City 248

Tel: 886-2-8069-9000
Fax: 886-2-2290-1707
E-mail: service@daudin.co
Web: https://www.daudin.co/tw

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Caution (ATTENTION):

1. THIS DEVICE IS FOR INDOOR USE ONLY, DON'T PUT OR USE IT IN HIGH TEMPERATURE AND HIGH MOISTURE ENVIRONMENT.

   CET EQUIPEMENT EST DESTINE A UN USAGE INTERIEUR UNIQUEMENT NE PAS STOCKER OU UTILISER DANS UN ENVIRONNEMENT A HAUTE TEMPERATURE ET HAUTE HUMIDITE.
2. AVOID FALLING AND BUMPING OTHERWISE THE ELECTRICAL COMPONENTS WILL BE DAMAGED.

   ÉVITEZ DE TOMBER ET DE VOUS ÉCRASER, SINON LES COMPOSANTS ÉLECTRIQUES SERONT ENDOMMAGÉS
3. DON'T TRY TO DISASSEMBLE OR OPEN THE COVER UNDER ANY CIRCUMSTANCE IN ORDER TO AVOID DANGER.

   NE TENTEZ JAMAIS DE DEBALLER OU D'OUVRIR LE COUVERCLE POUR EVITER TOUT DANGER.
4. IF THE EQUIPMENT IS USED IN A MANNER NOT SPECIFIED BY THE MANUFACTURER, THE PROTECTION PROVIDED BY THE EQUIPMENT MAY BE IMPAIRED.

   SI L'APPAREIL N'EST PAS UTILISE DE LA MANIERE INDIQUEE PAR LE FABRICANT, LA PROTECTION FOURNIE PAR L'APPAREIL PEUT ETRE ALTEREE.
5. THE INSTALLATION THAT THE SAFETY OF ANY SYSTEM INCORPORATING THE EQUIPMENT IS THE RESPONSIBILITY OF THE ASSEMBLER OF THE SYSTEM.

   L'INSTALLATION DE TOUT SYSTÈME INTÉGRANT CET ÉQUIPEMENT EST LA RESPONSABILITÉ DU CONSTRUCTEUR DU SYSTÈME.
6. USE WITH COPPER CONDUCTORS ONLY. INPUT WIRING: MINIMUM 28 AWG, 85°C, OUTPUT WIRING: MINIMUM 28 AWG, 85°C

   DESTINÉ À ÊTRE UTILISÉ AVEC DES CONDUCTEURS EN CUIVRE SEULEMENT. CABLAGE D'ENTREE: MINIMUM 28 AWG, 85 ° C. CABLAGE DE SORTIE: MINIMUM 28 AWG, 85 ° C.
7. FOR USE IN A CONTROLLED ENVIRONMENT. REFER TO MANUAL FOR ENVIRONMENTAL CONDITIONS.

   POUR UN ENVIRONNEMENT CONTROLE. REPORTEZ-VOUS AU MANUEL DES CONDITIONS ENVIRONNEMENTALES.
8. DISCONNECT ALL SOURCES OF SUPPLY BEFORE SERVICING.

   COUPER TOUTES LES SOURCES D'ALIMENTATION AVANT DE FAIRE L'ENTRETIEN ET LES RÉPARATIONS.
9. PROPER VENTILATION IS REQUIRED TO REDUCE THE RISK OF HAZARDOUS OR EXPLOSIVE GAS BUILDUP DURING INDOOR CHARGING. SEE OWNERS MANUAL.

UNE VENTILATION ADÉQUATE EST NÉCESSAIRE AFIN DE RÉDUIRE LES RISQUES D'ACCUMULATION DE GAZ DANGEREUX OU EXPLOSIFS DURANT LA RECHARGE À L'INTÉRIEUR. VOIR LE MANUEL D'ENTRETIEN.

10. PLEASE BE SURE TO USE CERTIFIED POWER SUPPLY WITH SELV OUTPUT OR CERTIFIED POWER SUPPLY PROVIDING DOUBLE INSULATION EVALUATED BY UL60950-1, UL 62368-1, OR UL61010-1 AND UL61010-2-201 STANDARDS.

    VEUILLEZ VOUS ASSURER D'UTILISER UNE ALIMENTATION CERTIFIÉE AVEC SORTIE SELV OU UNE ALIMENTATION CERTIFIÉE OFFRANT UNE DOUBLE ISOLATION ÉVALUÉE PAR LES NORMES UL60950-1 OU UL 62368-1 OU UL61010-1 ET UL61010-2-201.

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1. Notes on This Document

Note.
Please retain this document!
This document is part of the product. Please keep this document for the entire lifespan of the product.
Pass the document to any subsequent users.
Please also ensure that any supplements or updates to this document are included if necessary.

1.1 Validity of This Document

This document is only applicable to the "GX Series EtherCAT®."
The "GX Series EtherCAT®" product should only be installed and operated according to the instructions in this manual and system specifications.
Applicable to iO-GRID System GX Series.

1.2 Copyright

This manual, including all diagrams and illustrations, is protected by copyright. Any third party using this manual in violation of copyright regulations is prohibited. Reproduction, translation, archiving (e.g., photocopying), or any modifications must be authorized in writing by DAUDIN CO., LTD.
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1.3 Property rights

Third-party trademarks are used in this documentation. This section contains the trademarks used. The “®” and “TM” symbols are omitted hereinafter.

- EtherCAT® is a registered trademark and patented technology of Beckhoff Automation GmbH.
- EtherNet/IP™ is a registered trademark of Open DeviceNet Vendor Association, Inc (ODVA).
- Modbus® is a registered trademark of Schneider Electric, licensed to the Modbus Organization, Inc.
- PROFINET® is a registered trademark of Siemens AG.

1.4 Symbols

DANGER

Personal Injury!

Indicates a high-risk, imminent danger situation that could result in death or severe injury if not avoided.

DANGER

Electric Shock Hazard!

Indicates a high-risk, imminent danger situation that could result in death or severe injury if not avoided.

WARNING

Personal Injury!

Indicates a moderate-risk, potential hazard situation that could result in death or severe injury if not avoided.

CAUTION

Personal Injury!

Indicates a low-risk, potential hazard situation that could result in minor or moderate injury if not avoided.

NOTICE

Property Damage!

Indicates a potential hazardous situation that could result in property damage if not avoided.

NOTICE

Electrostatic Discharge (ESD) may cause property damage!

Indicates a potential hazardous situation that could result in property damage if not avoided.

1.5 Digital Representation

Table 1: Number Representation

Number Code	Example	Comment
Decimal	150	Decimal Notation
Hexadecimal	0x96	Hexadecimal Notation
Binary	“150” 1001 0110	Binary Notation

2. Important Notes

This section provides a general summary of the key safety requirements and comments mentioned in each individual section. To ensure your health and prevent damage to the equipment, it is crucial to read and follow the safety guidelines carefully.

2.1 Legal Basis

2.1.1 Subject to Change Without Notice

DAUDIN CO., LTD. reserves the right to make any changes or modifications.
DAUDIN CO., LTD. holds all rights and patents granted through patent or utility model protections.
While third-party products are mentioned, their patents are not referenced. Therefore, the existence of such rights cannot be excluded.

2.1.2 Applicable Personnel

All operations on the iO-GRID System GX Series equipment must be performed by qualified electrical experts with sufficient automation knowledge.
These experts must be familiar with the current specifications, guidelines, and automation environment of the equipment.
Any changes to the couplers or controllers must be carried out by qualified personnel with adequate PLC programming skills.

2.1.3 Basic Requirements for Using the iO-GRID System GX Series

The modular iO-GRID system's field bus coupler, controller, and I/O modules in the GX series receive both digital and analog signals from sensors and transmit them to actuators or higher-level control systems. With the controller, these signals can also be processed (or pre-processed).
This product meets IP20 protection standards and is designed for use in dry indoor environments. It is equipped with protective features to prevent finger injuries, with openings no larger than 12.5 mm in diameter. However, protection against water damage is not guaranteed.
This product is classified as open equipment. It should only be installed in enclosures (such as tool-fixed enclosures or operation rooms) that meet the requirements outlined in the "Safety Recommendations" section. The specified safety measures (precautions) must be followed. The product can be used in environments where dust, corrosive fumes, gases, or ionizing radiation may be present, provided no additional protective measures are required.

It is suitable for installation in automated systems.
If the product meets emission limits (interference emissions), it is permitted under EN 61000-6-3.
In household applications, the product can be operated without further measures as long as it complies with the emission limits (interference emissions) permitted under EN 61000-6-3. Please follow the installation guidelines!

2.1.4 Technical Specifications for Device Use

The equipment is shipped with hardware and software configurations designed to meet specific application requirements.
These modules do not include user-serviceable or repairable parts.
The following actions will void all warranties and liability:
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- Performing unauthorized repairs
- Making hardware or software modifications not covered in this manual
- Misusing components

For further details, refer to the contract agreement. If you need to request modifications or new hardware and software configurations, please contact us directly.
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DAUDIN CO., LTD.

2.1.5 Packaging

The packaging is made of reusable materials.
Packaging regulations may differ by country, following directives PPWD 94/62/EU and 2004/12/EU.
Proper disposal of packaging materials protects the environment and promotes sustainable resource use.

- Adhere to national and local regulations for packaging disposal.
- Recycle, reuse, and recover packaging materials wherever possible.

Improper disposal can harm the environment and waste valuable resources.

2.2 Safety Recommendations (Precautions)

To install and operate the equipment on your system, follow these safety precautions:

DANGER

Do not operate the equipment while powered on!

Before performing any operation, switch off all power supplies to the equipment for installation, repair, or maintenance.

DANGER

Install the equipment only in a suitable enclosure!

The device is an open system and must be housed in a proper enclosure
that meets the following requirements:

- Ensures maximum protection. Does not exceed the permissible pollution level.
- Provides adequate touch protection.
- Prevents fire from spreading outside the enclosure.
- Offers sufficient protection against UV radiation.
- Ensures mechanical stability.
- Restricts access to authorized personnel only and can only be opened using tools.

DANGER

Ensure disconnection and overcurrent protection!

This equipment is designed for installation in automation technology systems.
It does not integrate disconnection protection. The connected system must be fuse-protected.
Proper disconnection and overcurrent protection should be provided on the system side.

DANGER

Ensure standard connections!

Minimize risks of personal injury and system failures by installing data and power lines according to standards, ensuring correct terminal assignment.
Adhere to applicable EMC directives for your device.

WARNING

Use only SELV/PELV power supplies!

All field signals and power connections to the fieldbus coupler/controller must be powered by SELV/PELV supplies.

CAUTION

Insufficient conductor cross-sections can cause temperature increases.

To avoid heat risks, use conductors with cross-sections that meet the following requirements: Maximum required load current. The specified technical data for the conductor cross-section applies only to the mechanical connection capability at the clamping points.

CAUTION

Avoid touching hot surfaces!

The enclosure surface may become hot during operation. If the equipment operates in high-temperature environments, allow it to cool before handling.

NOTICE

Do not connect to the internet!

Use devices equipped with Ethernet or RJ-45 connectors only within a LAN.
Never connect these devices to the internet.

NOTICE

Ensure proper contact with the DIN rail!

There must be appropriate electrical contact between the DIN rail and the device to maintain the device's EMC properties and functionality.

NOTICE

Replace defective or damaged equipment!

Replace any defective or damaged equipment/modules (e.g., in cases of deformation).

NOTICE

Protect components from corrosive and insulating materials!

Modules are not resistant to materials such as aerosols, silicone, or triglycerides.
If such materials are unavoidable, install the modules in corrosion-resistant enclosures.
Clean tools and materials are essential for handling the equipment/modules.

NOTICE
Clean only with approved tools and materials!
Use isopropyl alcohol to clean the enclosure and contaminated contacts.

NOTICE
Do not use any contact sprays!
Do not use contact sprays or any other sprays that might damage or contaminate the contact areas.

NOTICE
Avoid reversed polarity connections!
Incorrect polarity of data and power lines may damage the equipment.

NOTICE
Prevent electrostatic discharge (ESD)!
These devices contain electronic components that are sensitive to static discharge.
Follow safety precautions as per DIN EN 61340-5-1/-3 to prevent ESD.
Ensure proper grounding of the environment, personnel, workspace, and packaging when handling the equipment.

2.3 Special Usage Conditions for Ethernet Devices

Unless stated otherwise, Ethernet devices are designed for use within local networks.
When using Ethernet devices with your computer, please follow these guidelines:

- Avoid direct connections to open networks like the Internet or office networks for control components and control networks. Use a firewall to protect control components and networks.
- Turn off unnecessary ports and services in control components (e.g., PLC and CODESYS) to reduce the risk of cyber attacks and improve security. Only enable ports and services when needed for debugging or configuration.
- Limit physical and electronic access to all automation components to authorized personnel only.
- Change default passwords before first use! Doing so will reduce the following risk: Unauthorized access to your system.
- Regularly update your passwords! Doing so will reduce the following risk: Unauthorized access to your system.
- If remote access to control components and networks is necessary, always use a VPN to ensure secure communication.
- Conduct regular threat analyses. Performing regular threat assessments allows you to verify that the implemented measures meet your security requirements.
- In your system's security configuration, use a "defense-in-depth" strategy to restrict and control access to individual products and networks effectively.

3. System Description

The iO-GRID System GX Series is a modular input/output (I/O) system that works independently of the field bus. It combines a field bus coupler/controller (1) and modular I/O modules (2), creating a field bus node compatible with any signal type.

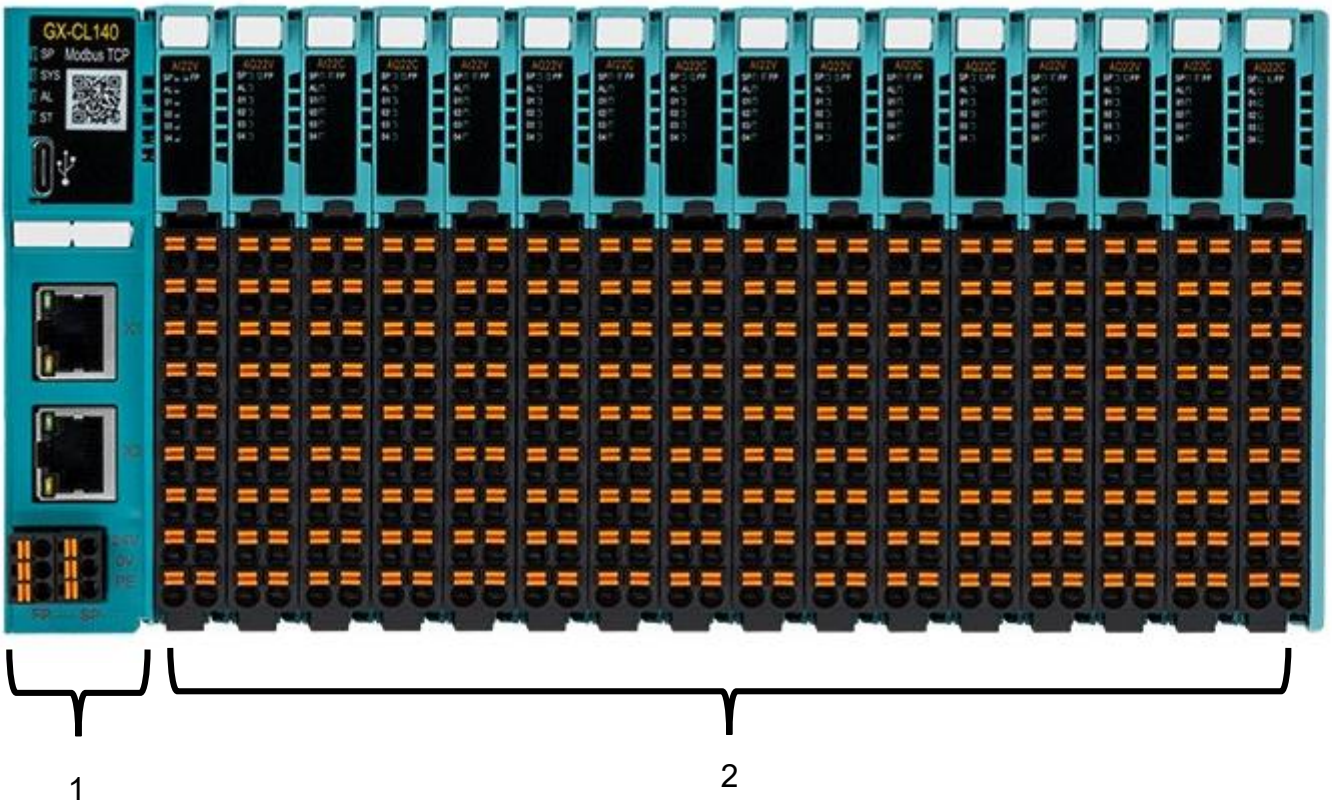


Figure 3.1: Example of a Field Bus Node

The field bus coupler/controller is compatible with various field bus systems.
The coupler includes a field bus interface, electronic components, and a power supply for the system.
The field bus interface provides the physical connection to the respective field bus.
The electronic components process data from the bus modules and make it available for field bus communication.

The iO-GRID System GX Series supports a wide range of digital and analog I/O signals. Specialized I/O modules for specific functions can also be connected to the field bus coupler/controller.

3.1 Labels

The front labels display:

- Device name
- Names of display elements, connectors, and control components

The side labels display:

- Manufacturer identification
- Connector pin assignments
- Certification information

3.2 Storage, Assembly, and Transportation

Whenever possible, components should be stored in their original packaging.
The original packaging also provides optimal protection during transportation.
Components must be stored and transported appropriately in suitable containers or packaging.
Therefore, ESD precautions should be considered in this process.

3.3 Assembly Guidelines/Standards

- DIN 60204: Safety of machinery – Electrical equipment of machines
- DIN EN 50178: Electronic equipment for use in power installations
- EN 60439: Specification for low-voltage switchgear and controlgear assemblies

3.4 Power Supply

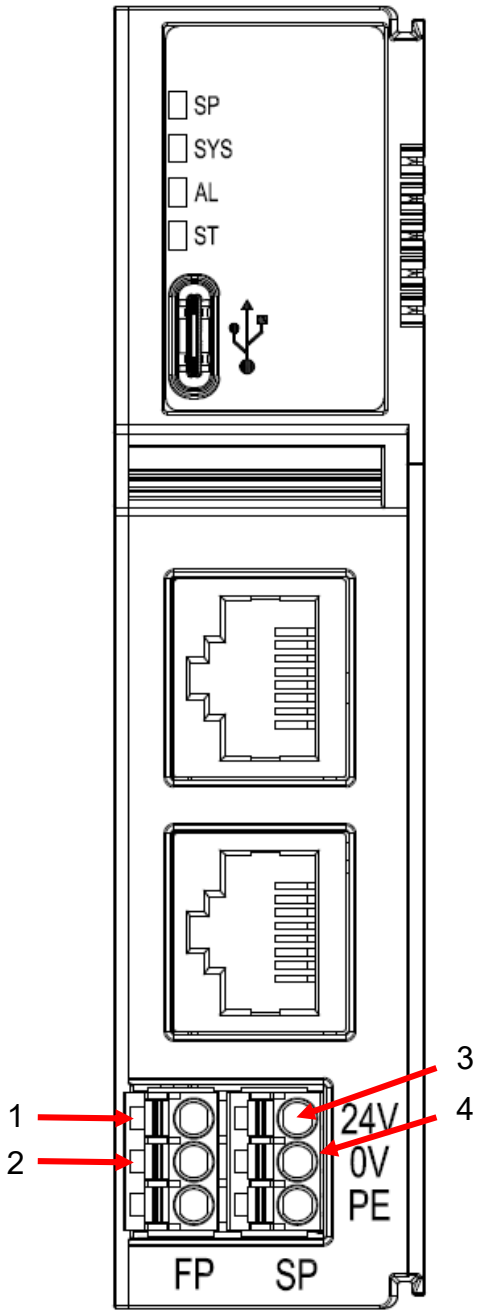


Figure 3.2: Power Supply

Pos.	Description
1	fieldbus power supply 24 VDC (−15% / +20%)
2	fieldbus power supply 0 V
3	System power supply 24 VDC (−15% / +20%)
4	System power supply 0 V

4. Introduction

The X-Series Bus Coupler Module features a modular design combining a coupler with I/O modules, enabling easy replacement or expansion of modules. It includes an automatic boot scanning function for modules and dynamic I/O module station number configuration, optimizing system setup.

4.1 Coupler Product Interfaces and Functions

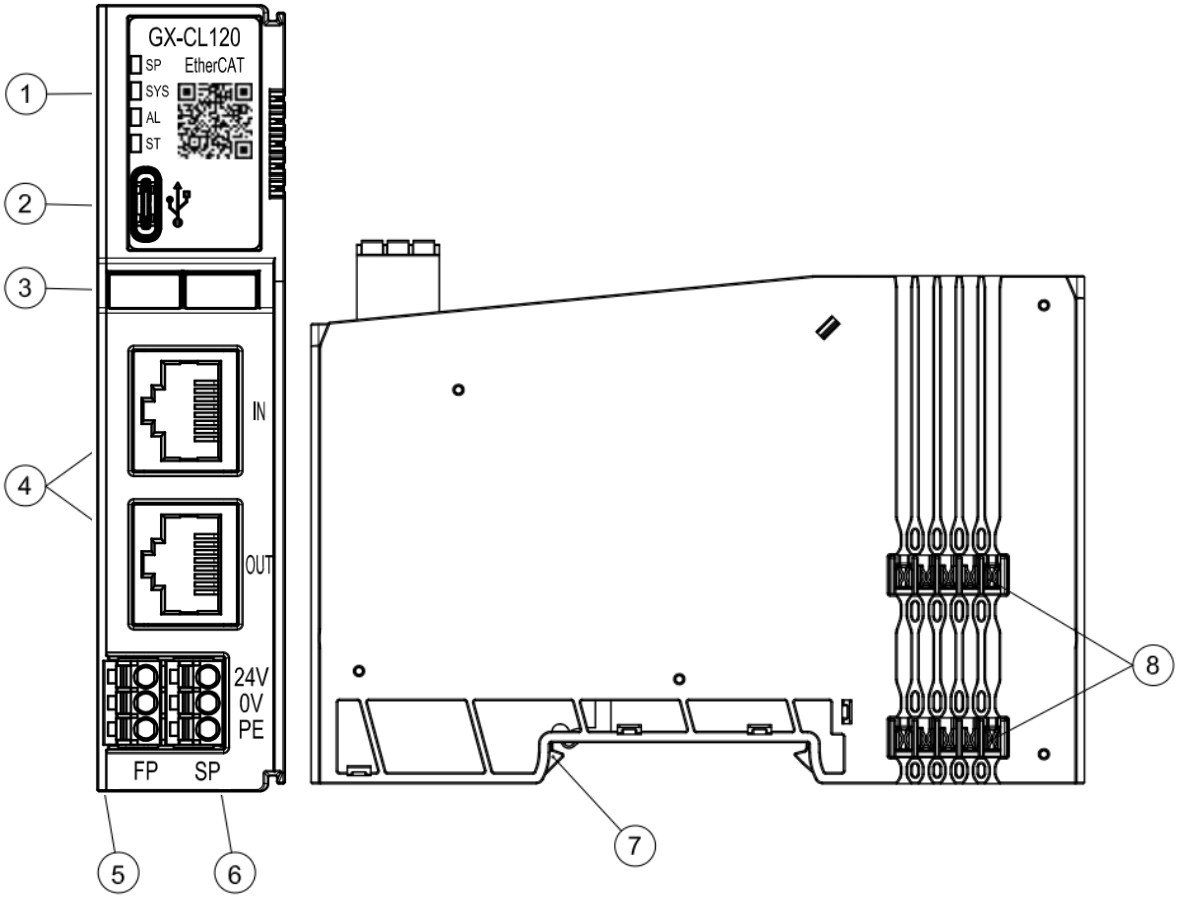


Figure 4.1 Front and Side Views of the Coupler

NO.	Name	Description
1	Module Status Indicator Light	Coupler system and communication status indicator light
2	Configuration Interface	USB Type C, System Configuration
3	Nameplate Slot	Slot for the module nameplate; users can define names as needed
4	Network Communication Interface	RJ45 x 2, System Network Protocol Communication Interface
5	Fieldbus Power Interface	Fieldbus (Field) Power Interface, 24V DC, Push-in Terminals
6	System Power Interface	Module System Power Interface, 24V DC, Push-in Terminals
7	Module Fixing	Used to secure and fasten modules to the rail

NO.	Name	Description
	Clamps	
8	Internal Bus	System communication and power bus interface

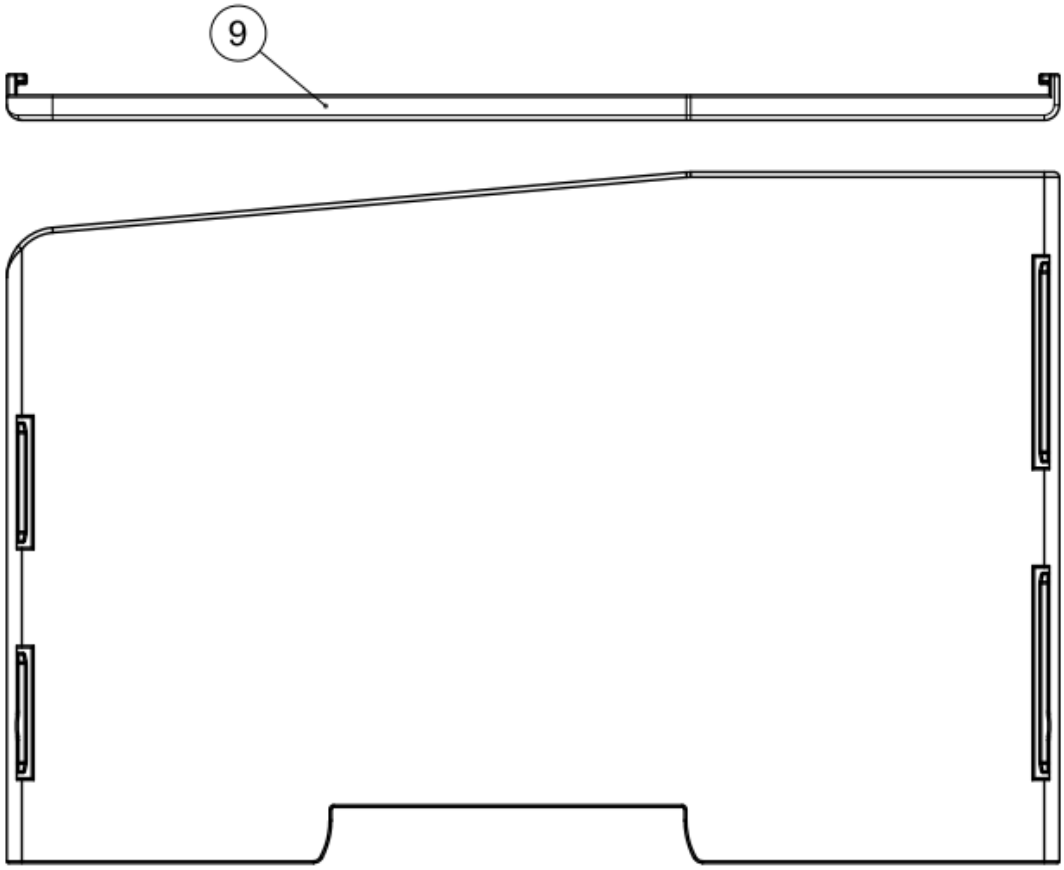


Figure 4.2 Side Cover Plate

NO.	Name	Description
9	Module Side Cover Plate	Accessory to prevent exposure of the internal bus, placed on the rightmost module

4.2 Coupler Indicator Light Overview

Coupler Indicator Light				
Name	Label	Color	Status	Description
Power Indicator Light	SP	Green	On	Normal Power Supply
			Off	Module Not Powered
System Indicator Light	SYS	Red	On	System is in update mode (system updating)
			Off	System is in operational mode
			Flashing	Blinks three times to reset to factory defaults
		Green	On	System running
			Off	System Stopped
		Red + Green	Flashing 1	System initialization to module station number configuration stage (flashes at 20Hz)
			Flashing 2	System is waiting for network connection before operation (flashes at 4Hz)
Alarm Indicator Light	AL	Red	On	Issues such as station failure, IO data exceeding 1024 bytes, over 64 IO modules, polling timeout
			Off	No Error Alarm
		Green	Off	Normal Mode
			Flashing	Abnormal IO module polling status (e.g., the load side power is not supplied, module detecting overvoltage/overcurrent, analog module initialization failure, analog module open circuit, exceeding measurement or setting range, etc.)
Connection Status Indicator Light	ST	Red	Off	No issues
			Flashing 1	Parameter not set or abnormal. Invalid Configuration error causes failure to enter OP mode (200ms on, 200ms off flashing frequency).
			Flashing 2	Local Error. Device transitions from OP mode to SafeOpErr mode due to an issue (200ms on, 1000ms off).
			Flashing 3	Timeout/Watchdog trigger, 200ms on, 200ms off, 200ms on, 1000ms off cycle.
		Green	On	OP mode
			Off	INIT mode
			Flashing 1	PRE-OP mode (200ms on, 200ms off flashing frequency).
			Flashing 2	SAFE-OP mode (200ms on, 1000ms off).
			Flashing 3	BOOTSTRAP mode (50ms on, 50ms off flashing frequency).

Coupler Indicator Light				
Name	Label	Color	Status	Description
Connection Status Indicator Light	IN OUT	Orange		No function
		Green	On	Connected to device
			Flashing	Data transmission

4.3 IO Module Panel Overview

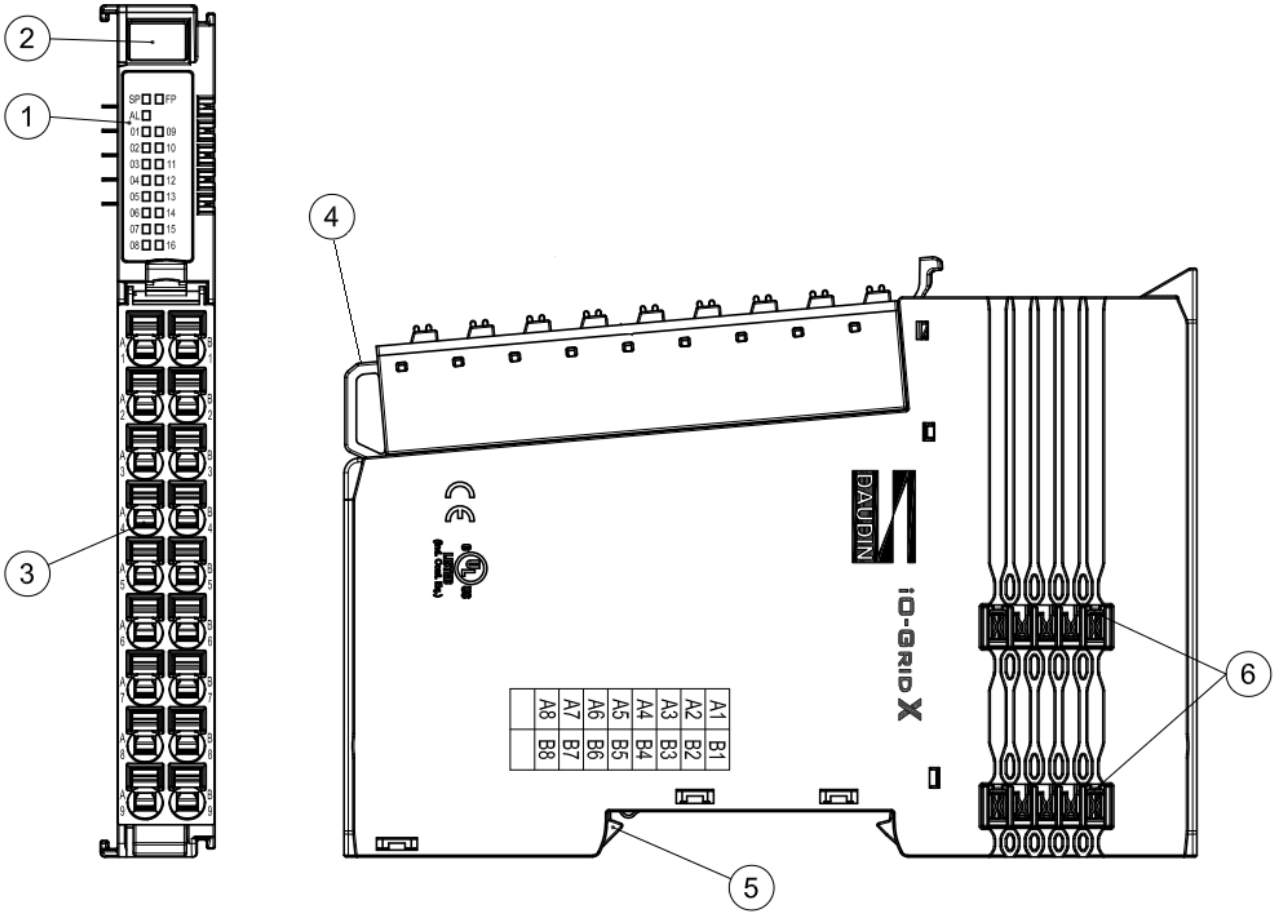


Figure 4.3 Digital Module View

NO.	Name	Description
1	Module Status Indicator Light	IO module system, power, and channel status indicator light
2	Nameplate Slot	Slot for the module nameplate; users can define names as needed
3	Module IO Signal Interface	Signal interface terminal, pluggable type
4	Signal Cable Retaining Ring	Position for securing the signal cable junction
5	Module Fixing Clamps	Used to secure and fasten modules to the rail
6	Internal Bus (Right Side)	Connects to the communication and power bus interface of the next module

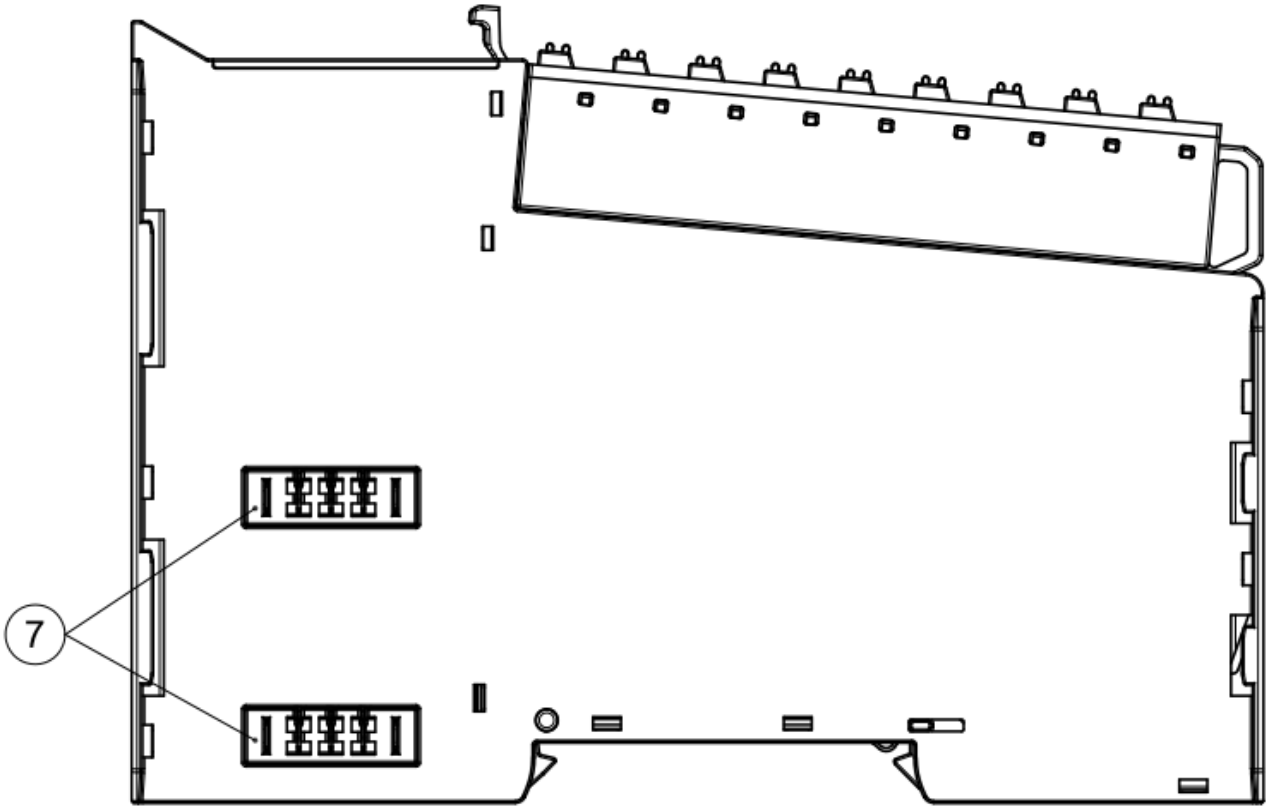


Figure 4.4

NO.	Name	Description
7	Internal Bus (Left Side)	Connects to the communication and power bus interface of the previous module

4.3.1 Digital Input/Output Module

The indicator lights for the digital input/output module are described in the table below.

Status Indicator Light				
Name	Label	Color	Status	Description
System Power Indicator Light	SP	Green	On	System power is normal
			Off	System power is abnormal
Field Bus Power Indicator Light	FP	Green	On	Field bus power is normal
			Off	Field bus power is abnormal
Module Status Indicator Light	AL	Red	Flashing 1	Module not successfully assigned (flashing at 10Hz)
			Flashing 2	Module has an error warning (flashing at 2Hz) For example: No field bus power provided
			Off	No error
Channel Indicator Light	01~0F	Green	On	Channel Input/Output Normal
			Off	No signal input/output on the channel

I. GX-DI40N Indicator Lights and Module Side Label Diagram

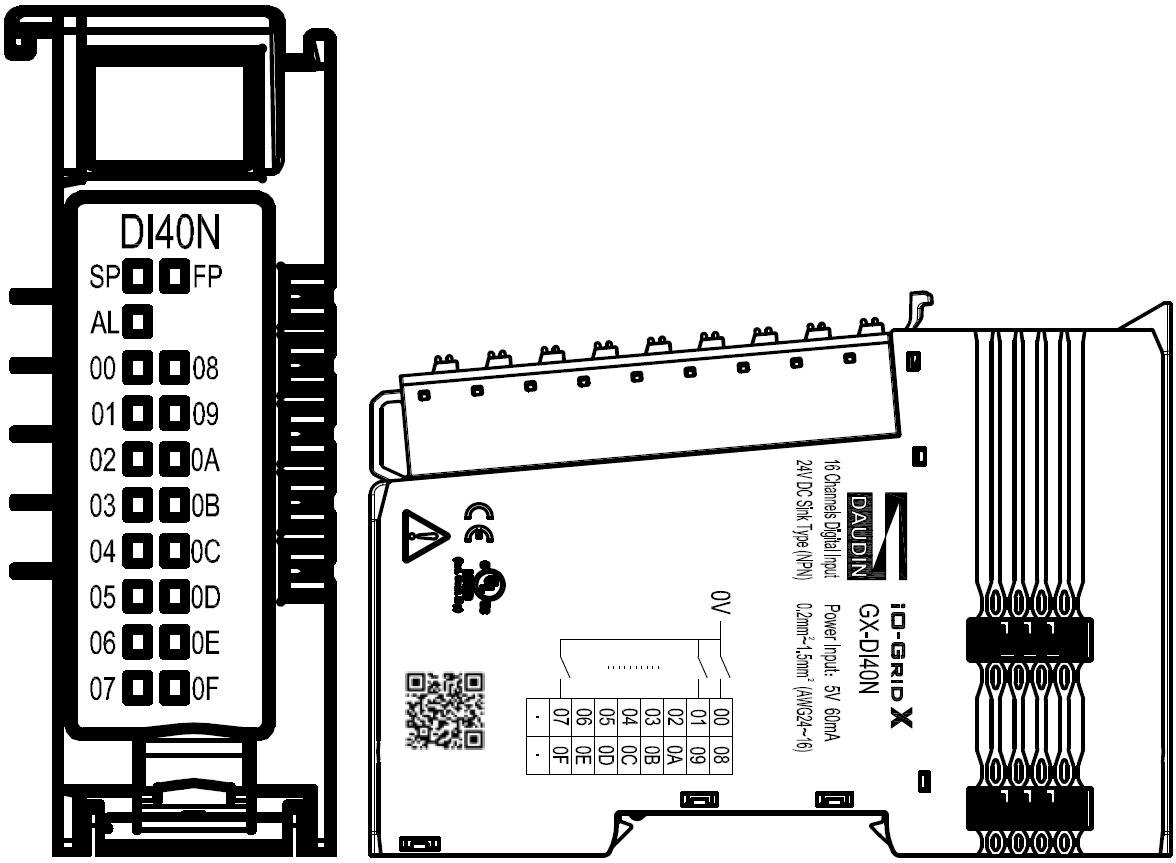


Figure 4.5 GX-DI40N Diagram

II. GX-DI40P Indicator Lights and Module Side Diagram

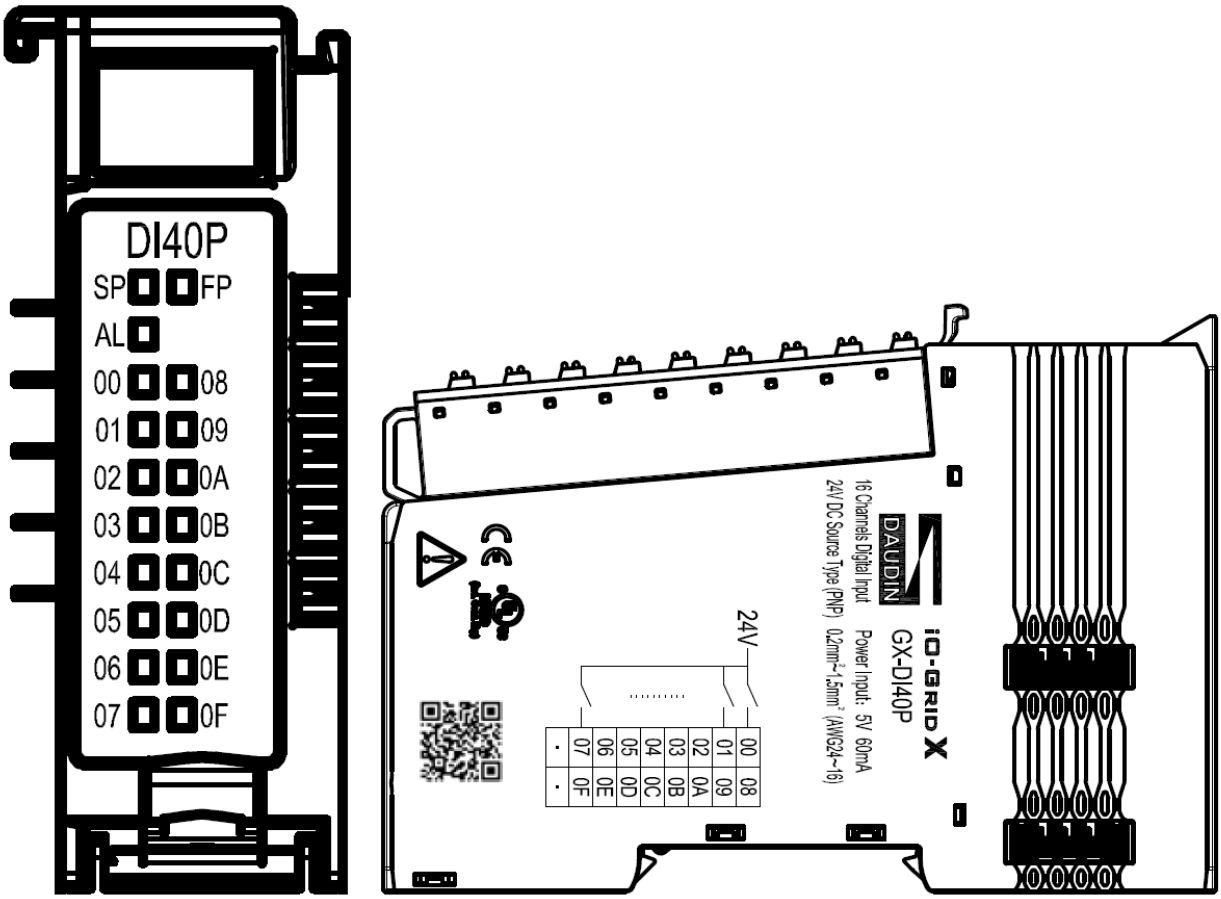


Figure 4.6 GX-DI40P Diagram

III. GX-DI50N Indicator Lights and Module Side Diagram

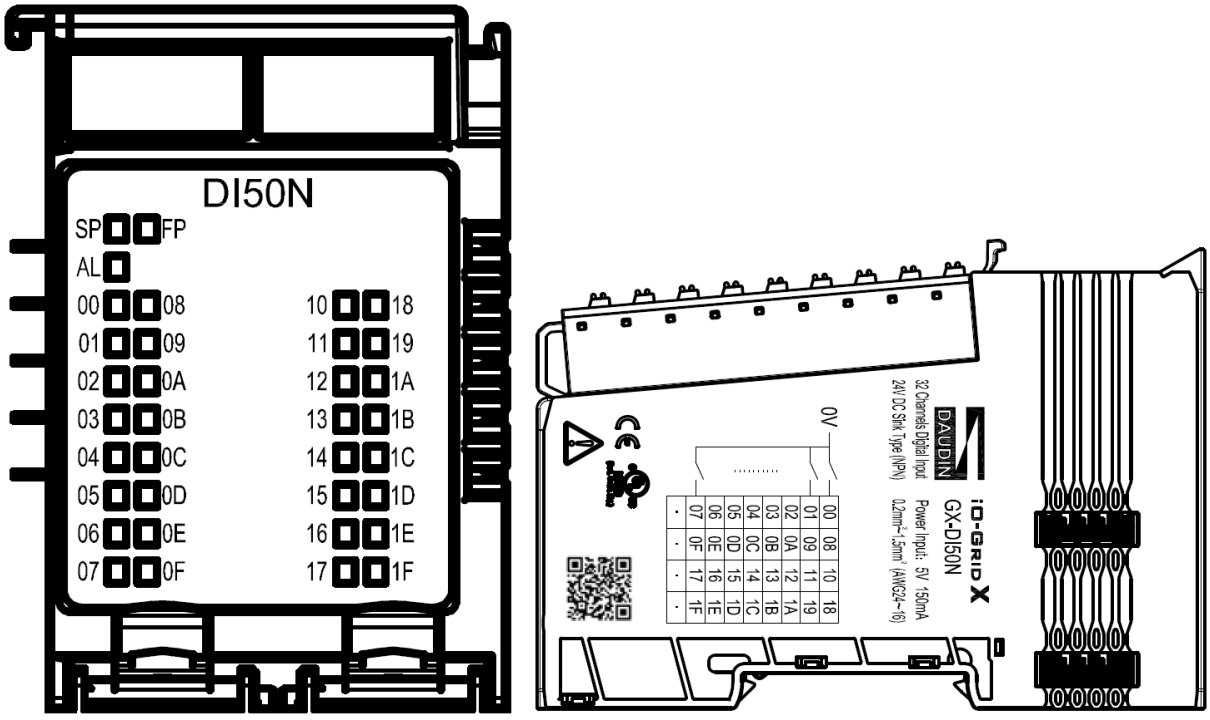


Figure 4.7 GX-DI50N Diagram

IV. GX-DI50P Indicator Lights and Module Side Diagram

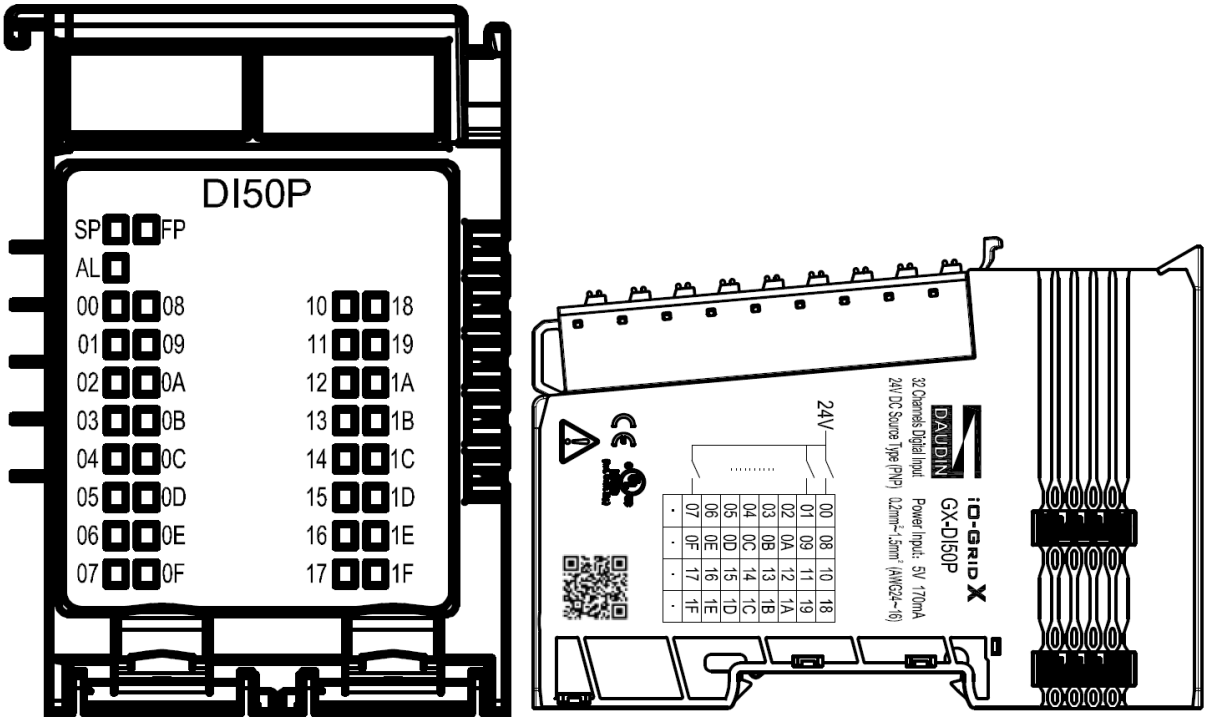


Figure 4.8 GX-DI50P Wiring Diagram

V. GX-DI51N Indicator Lights and Module Side Diagram

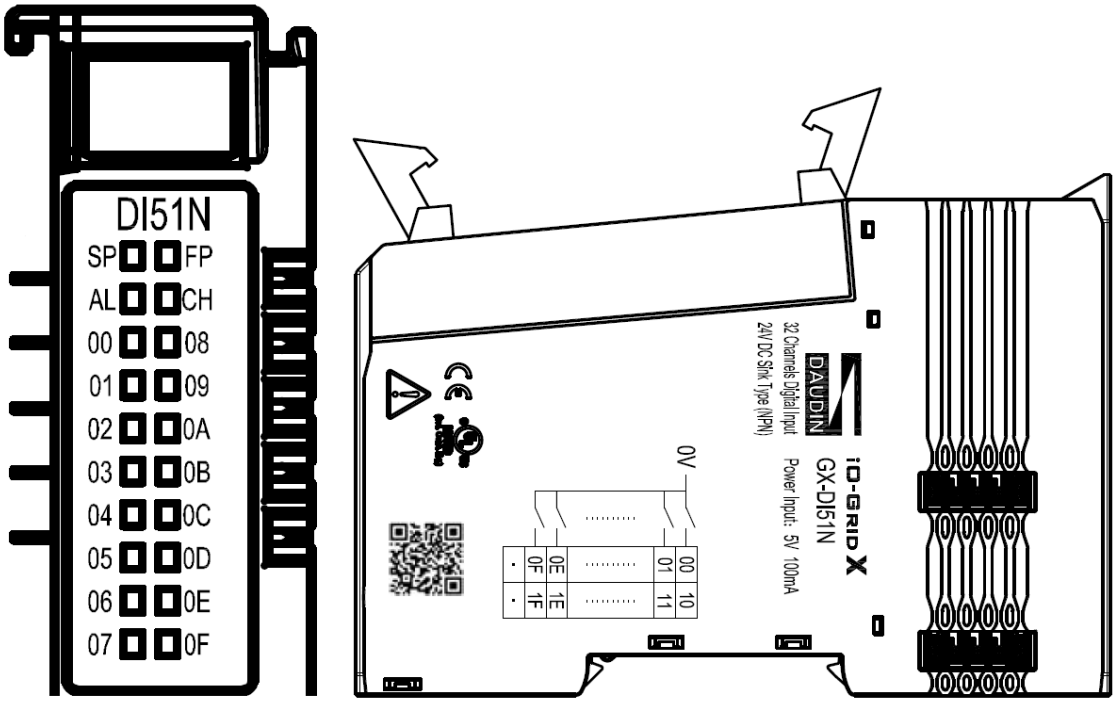


Figure 4.9 GX-DI51N Diagram

VI. GX-DI51P Indicator Lights and Module Side Diagram

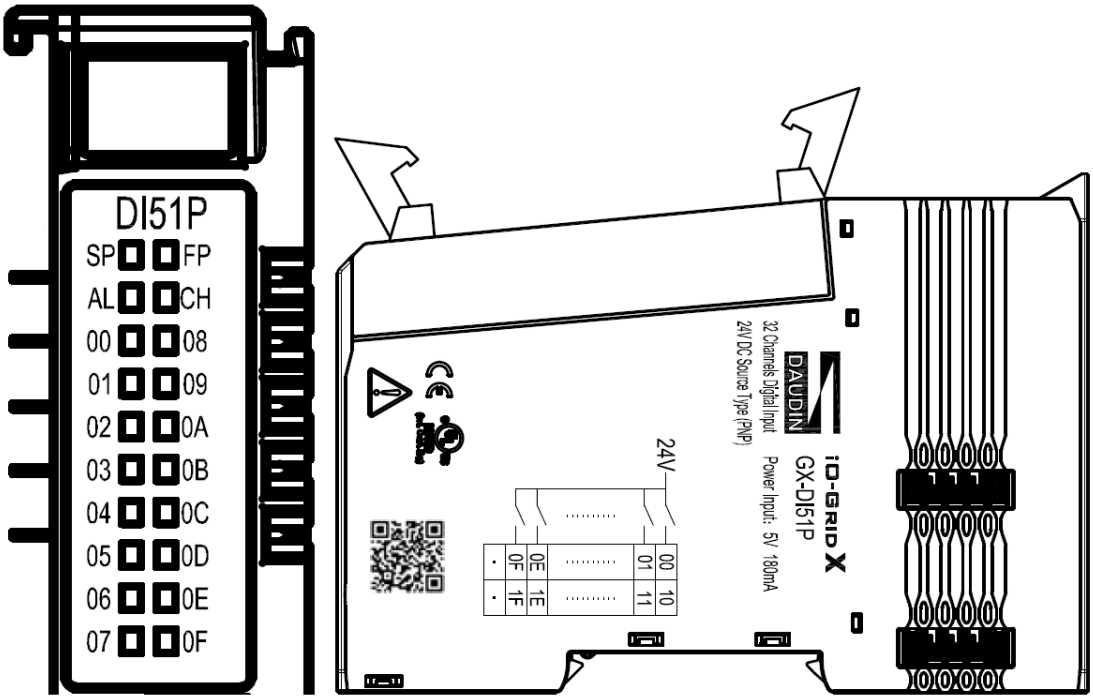


Figure 4.10 GX-DI50N Diagram

VII. GX-DQ40N Indicator Lights and Module Side Diagram

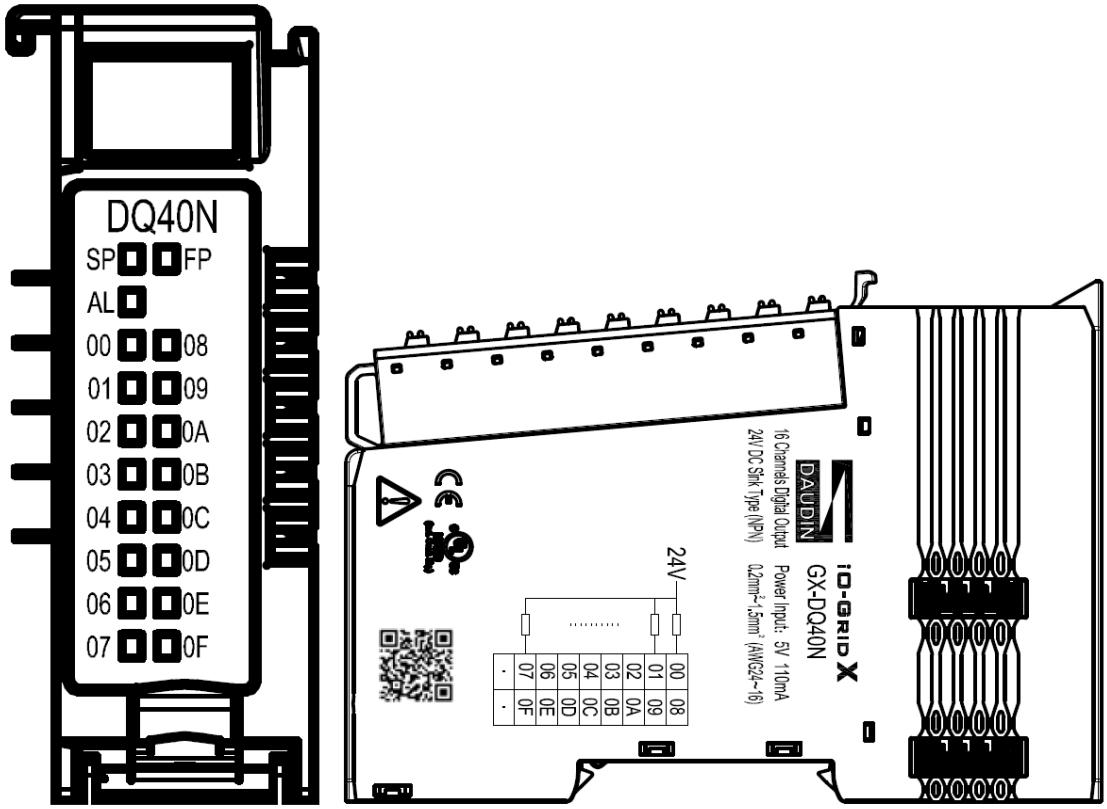


Figure 4.11 GX-DQ40N Diagram

VIII.GX-DQ40P Indicator Lights and Module Side Diagram

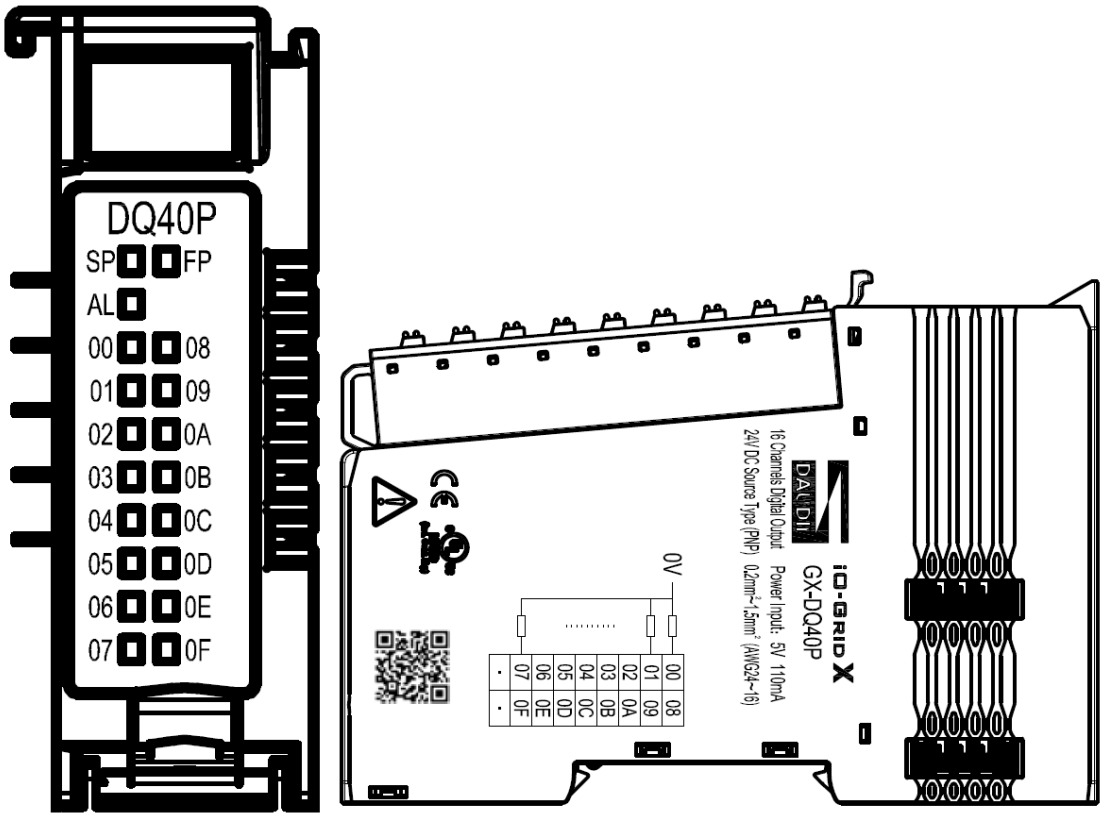


Figure 4.12 GX-DQ40P Diagram

IX. GX-DQ50N Indicator Lights and Module Side Diagram

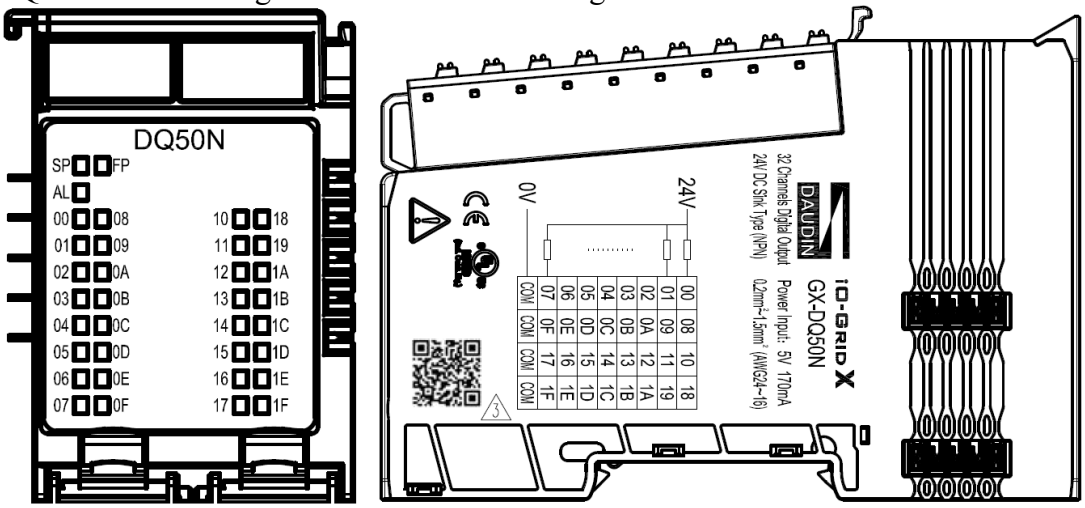


Figure 4.13 GX-DQ50N Diagram

X. GX-DQ50P Indicator Lights and Module Side Diagram

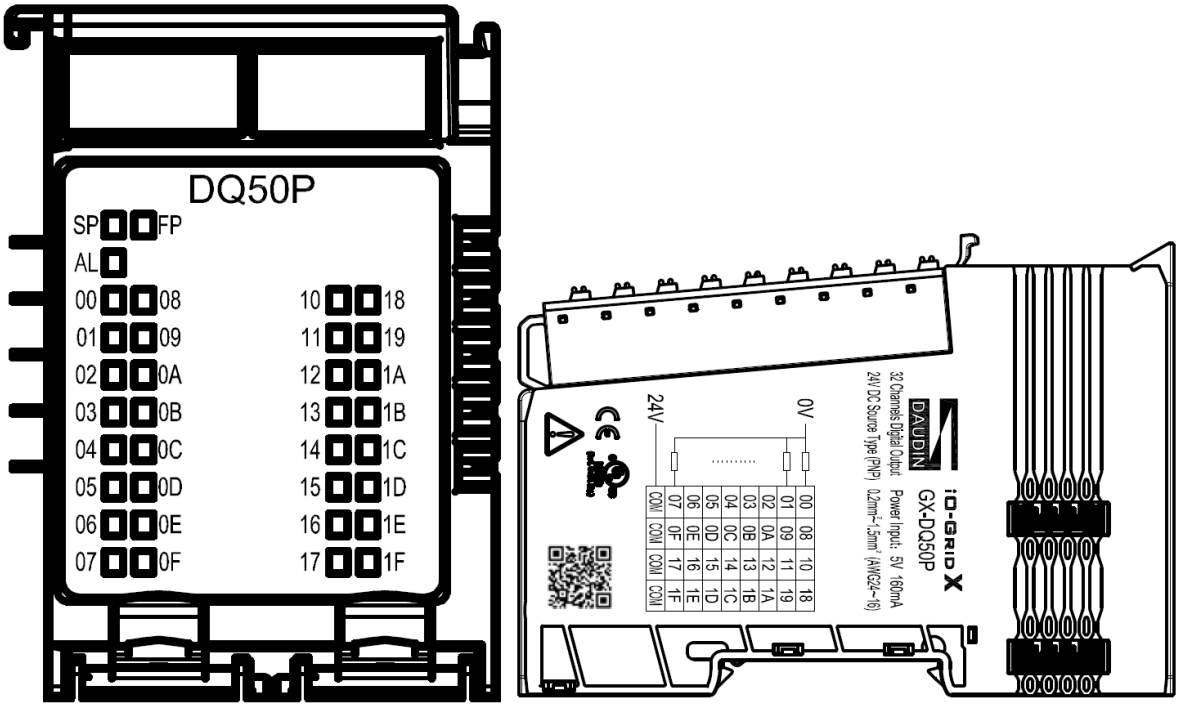


Figure 4.14 GX-DQ50P Diagram

XI. GX-DQ51N Indicator Lights and Module Side Diagram

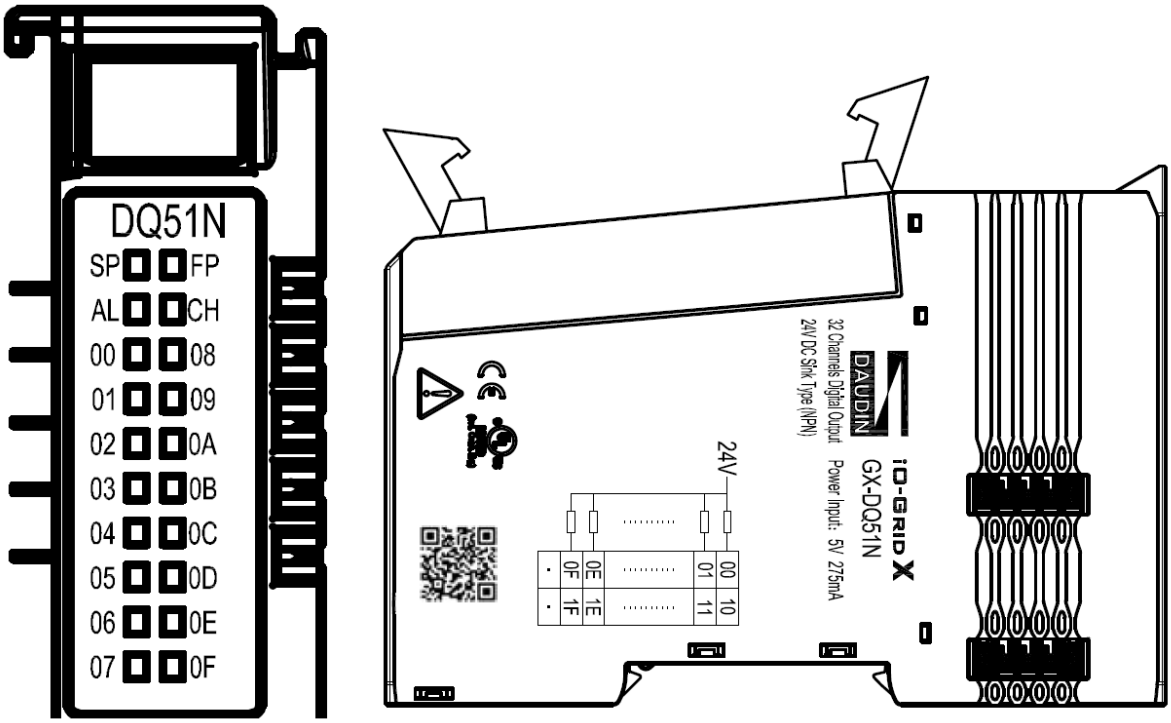


Figure 4.15 GX-DQ51N Diagram

XII. GX-DQ51P Indicator Lights and Module Side Diagram

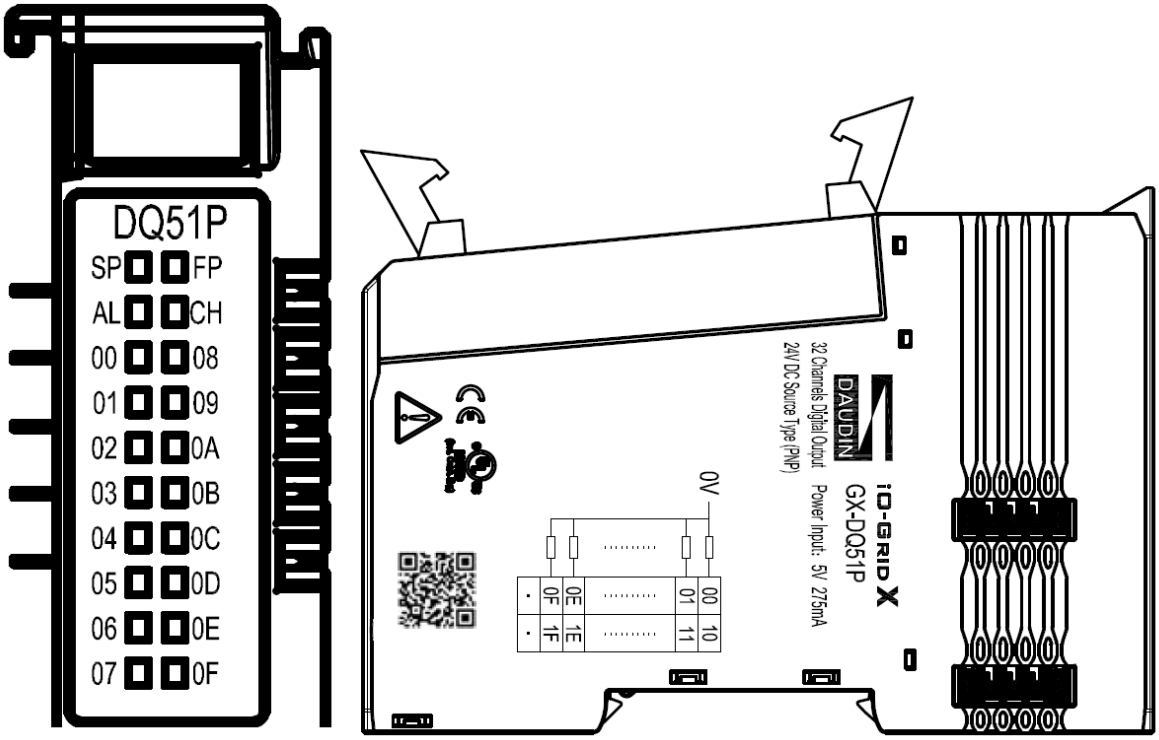


Figure 4.16 GX-DQ51P Diagram

4.3.2 Analog Input/Output Module

The indicator lights for the analog input/output module are explained in the table below.

Status Indicator Light				
Name	Label	Color	Status	Description
System Power Indicator Light	SP	Green	On	System power is normal
			Off	System power is abnormal
Field Bus Power Indicator Light	FP	Green	On	Field bus power is normal
			Off	Field bus power is abnormal
Module Status Indicator Light	AL	Red	Flashing 1	Module not successfully assigned (flashing at 10Hz)
			Flashing 2	Module has an error warning (flashing at 2Hz) For example: Fieldbus power is not supplied or measurement/control range exceeded.
			Off	No error
Channel Indicator Light	A0~A3 / A0~A7	Green	On	Channel Input/Output Normal
			Off	Error (module not calibrated)
			Flashing	Warning (measurement/control range exceeded), open-loop detection

I. GX-AI21V Indicator Lights and Module Side Diagram

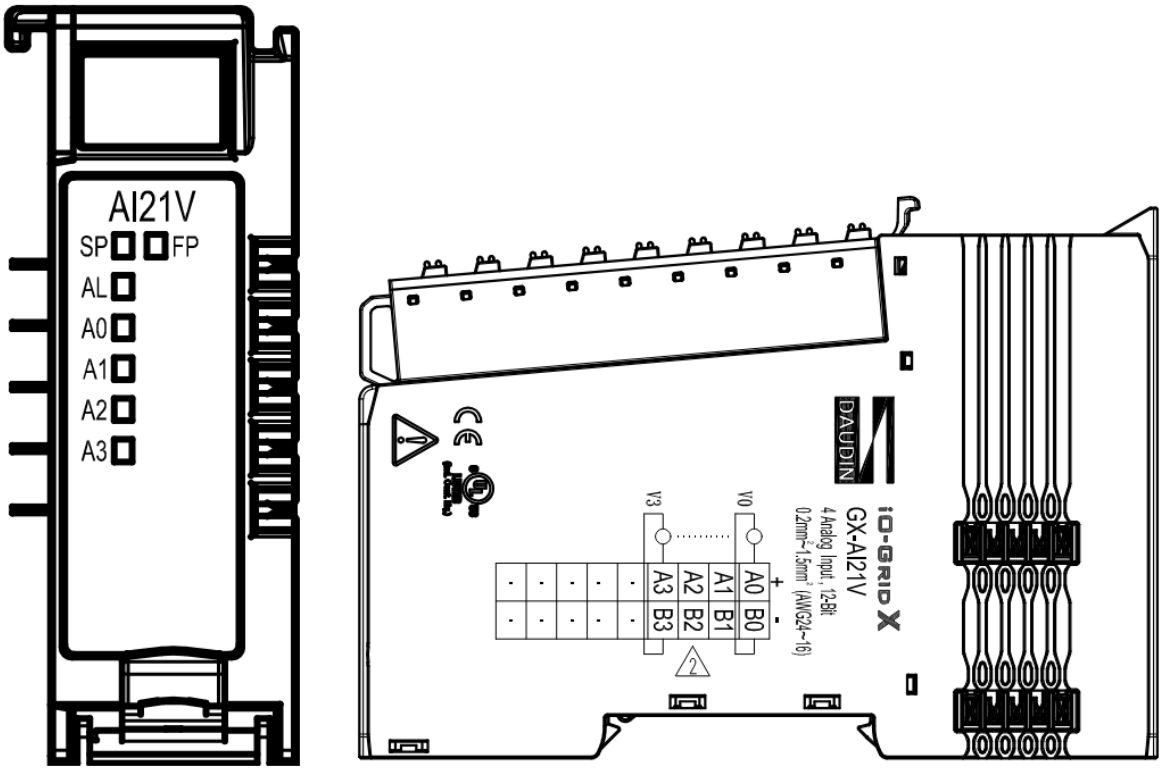


Figure 4.17 GX-AI21V Wiring Diagram

II. GX-AI21C Indicator Lights and Module Side Diagram

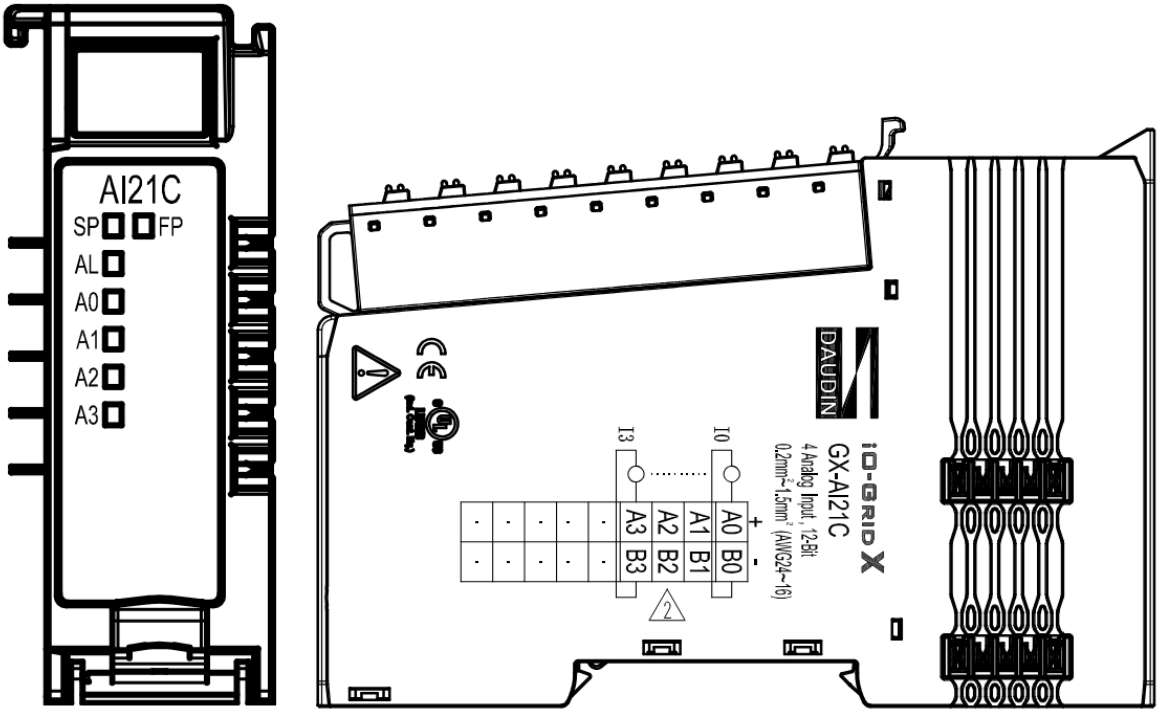


Figure 4.18 GX-AI21C Wiring Diagram

III. GX-AI22V Indicator Lights and Module Side Diagram

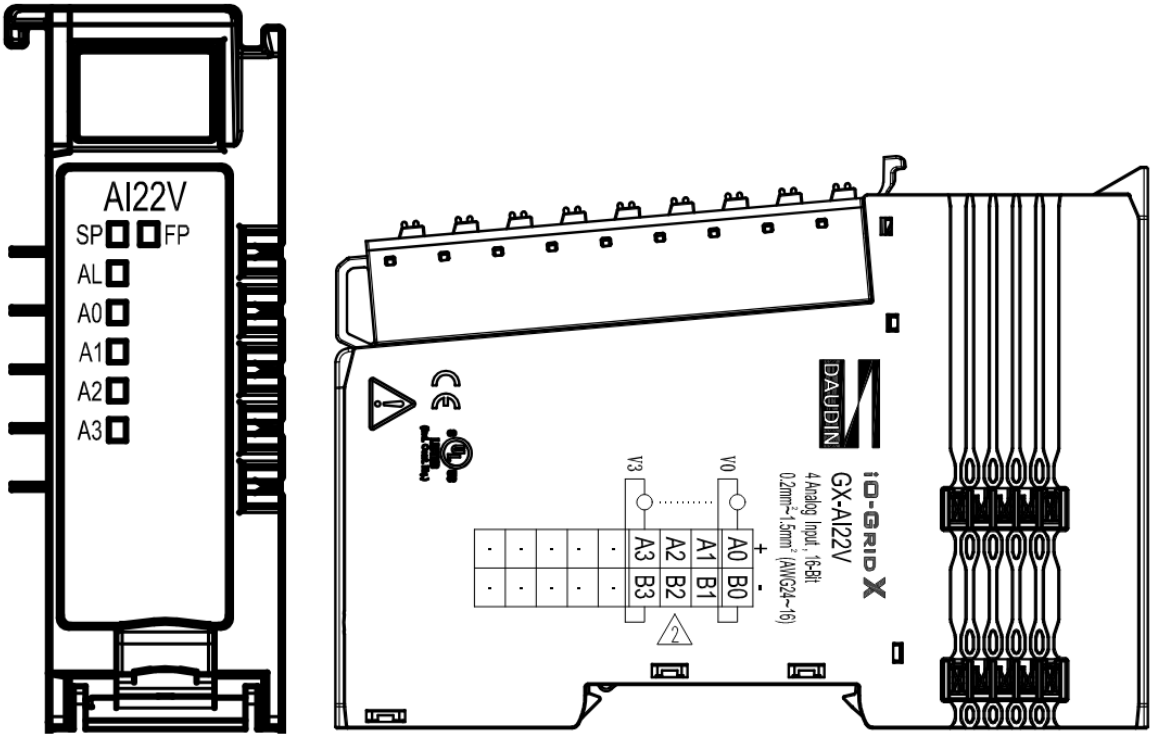


Figure 4.19 GX-AI22V Wiring Diagram

IV. GX-AI22C Indicator Lights and Module Side Diagram

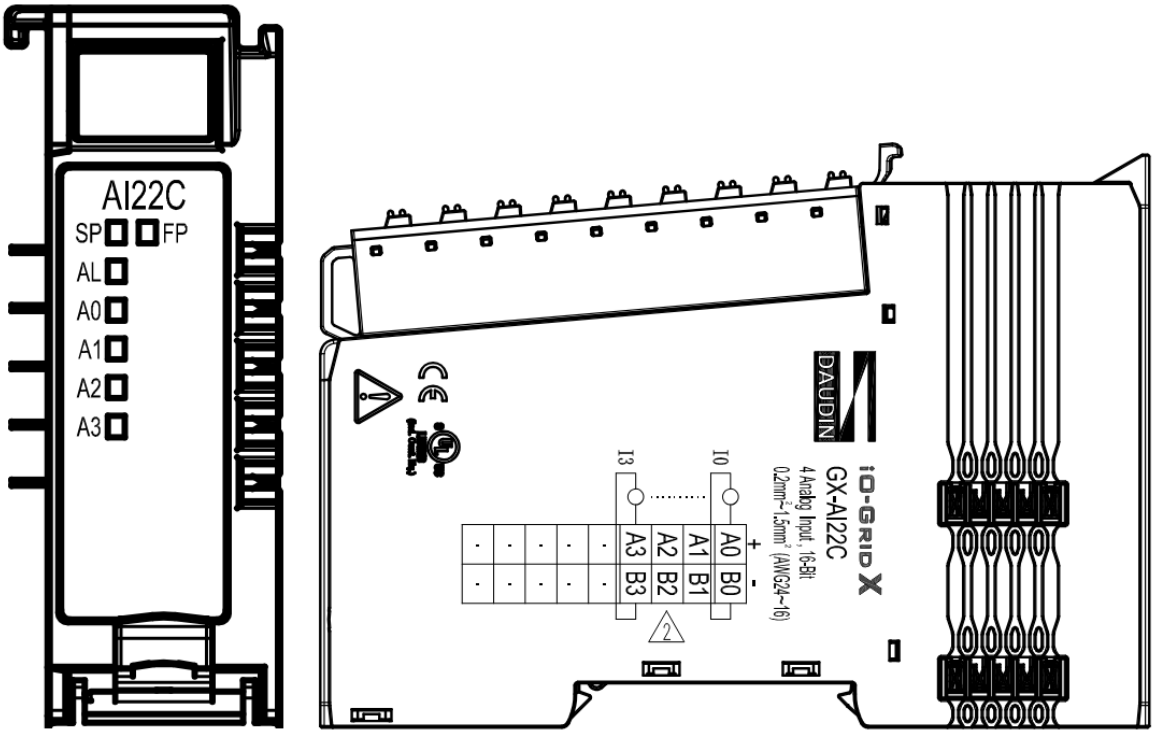


Figure 4.20 GX-AI22C Wiring Diagram

V. GX-AI31V Indicator Lights and Module Side Diagram

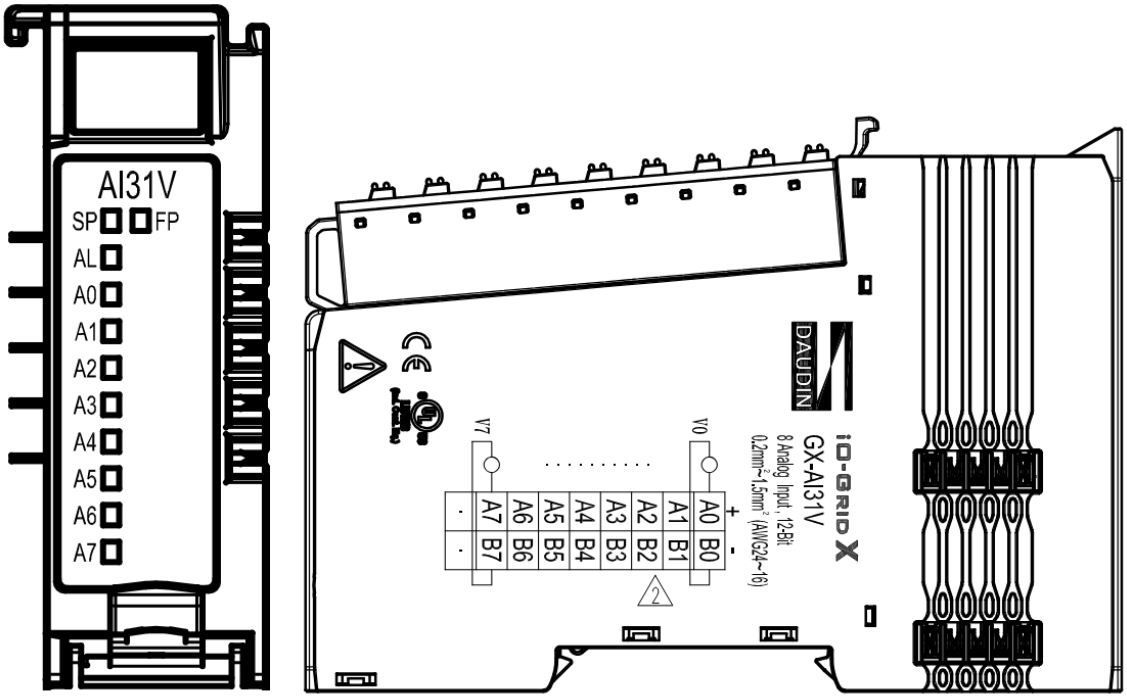


Figure 4.21 GX-AI22C Wiring Diagram

VI. GX-AI31C Indicator Lights and Module Side Diagram

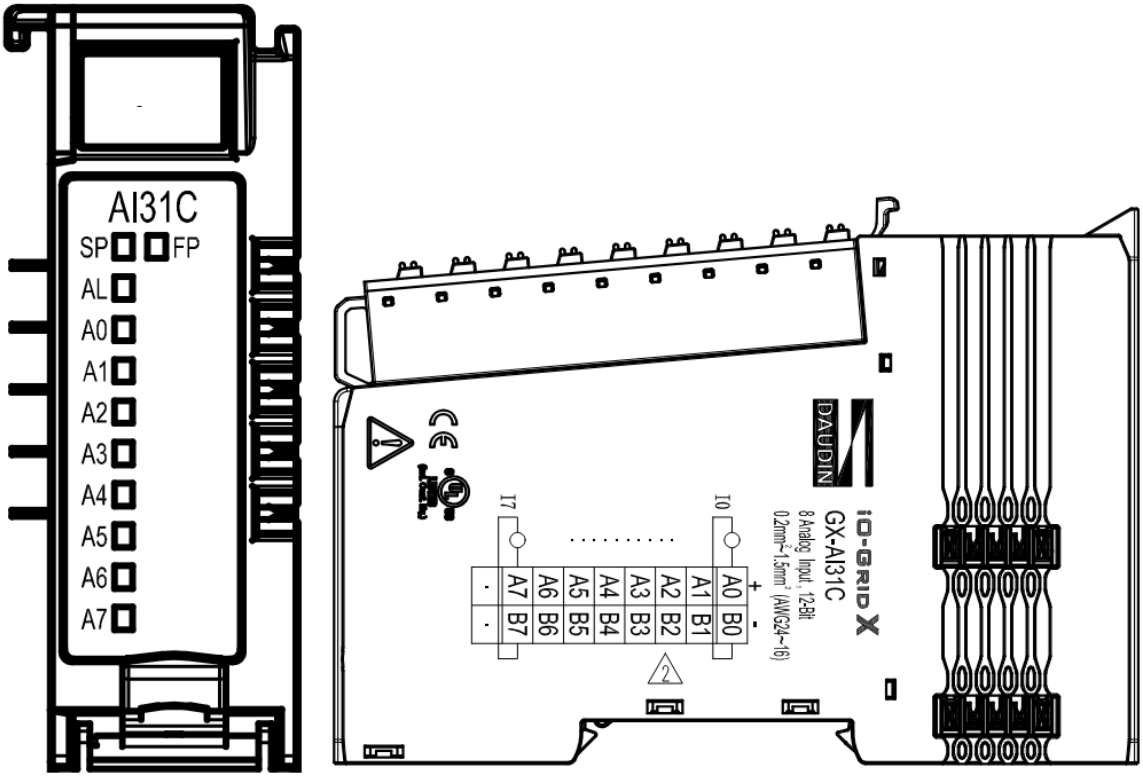


Figure 4.22 GX-AI31C Wiring Diagram

VII. GX-AI32V Indicator Lights and Module Side Diagram

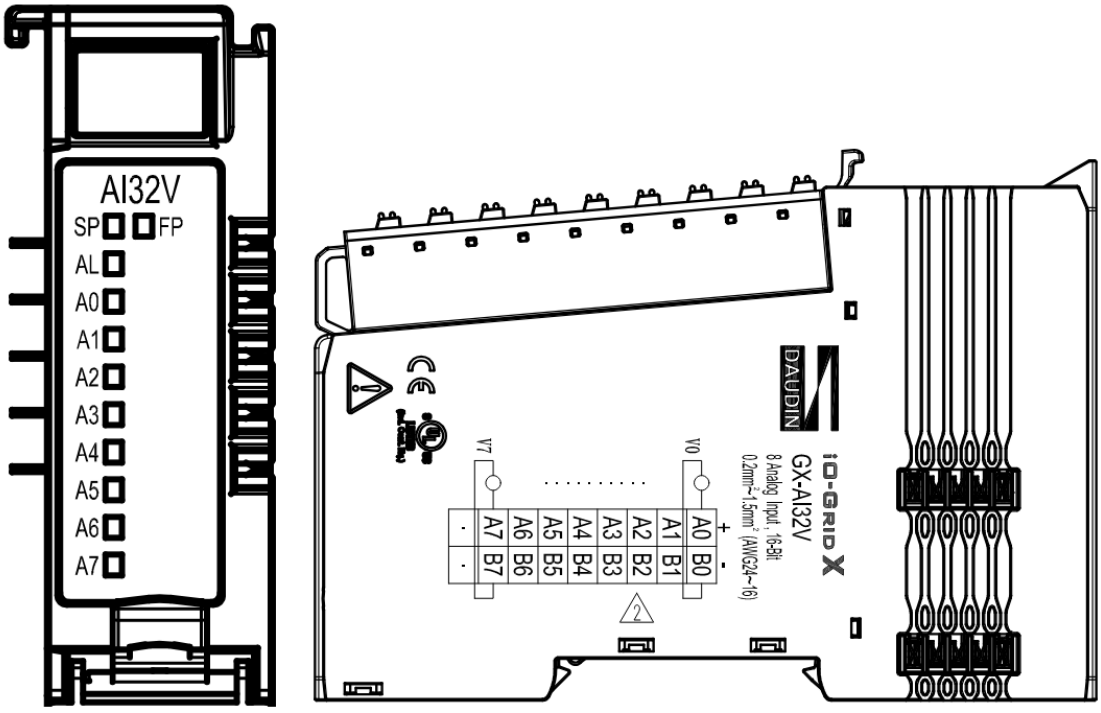


Figure 4.23 GX-AI32V Wiring Diagram

VIII.GX-AI32C Indicator Lights and Module Side Diagram

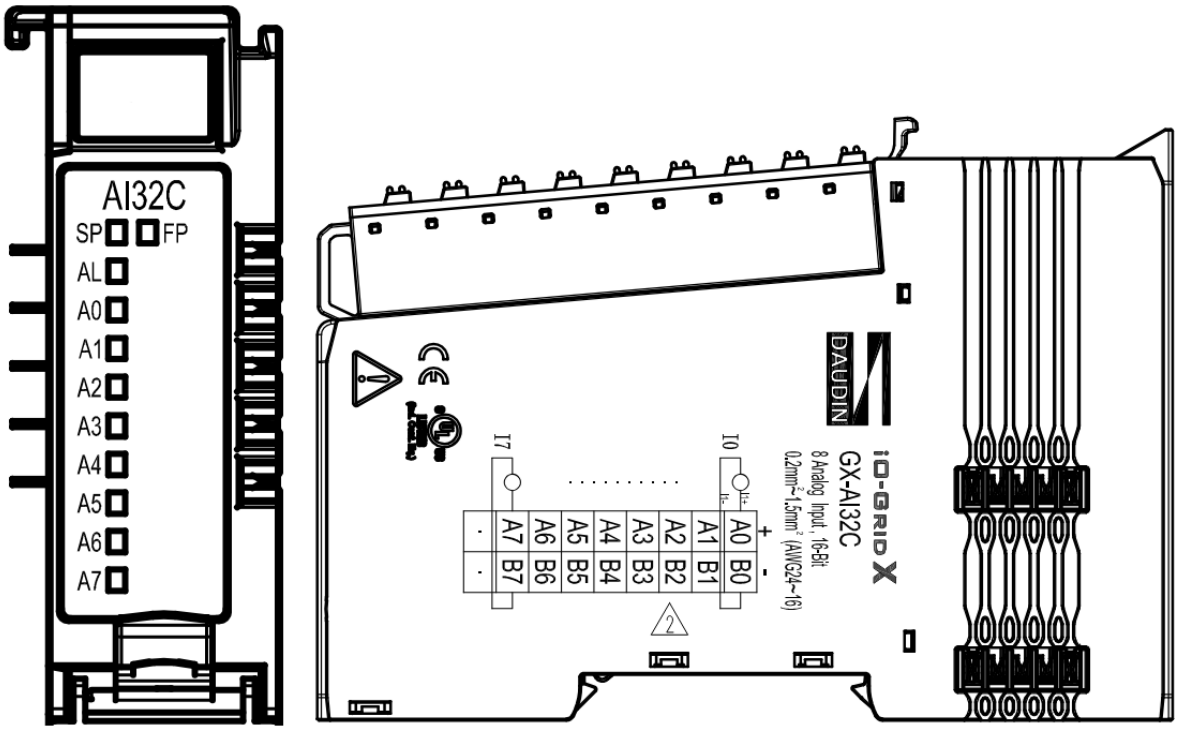


Figure 4.24 GX-AI32C Wiring Diagram

IX. GX-AQ21V Indicator Lights and Module Side Diagram

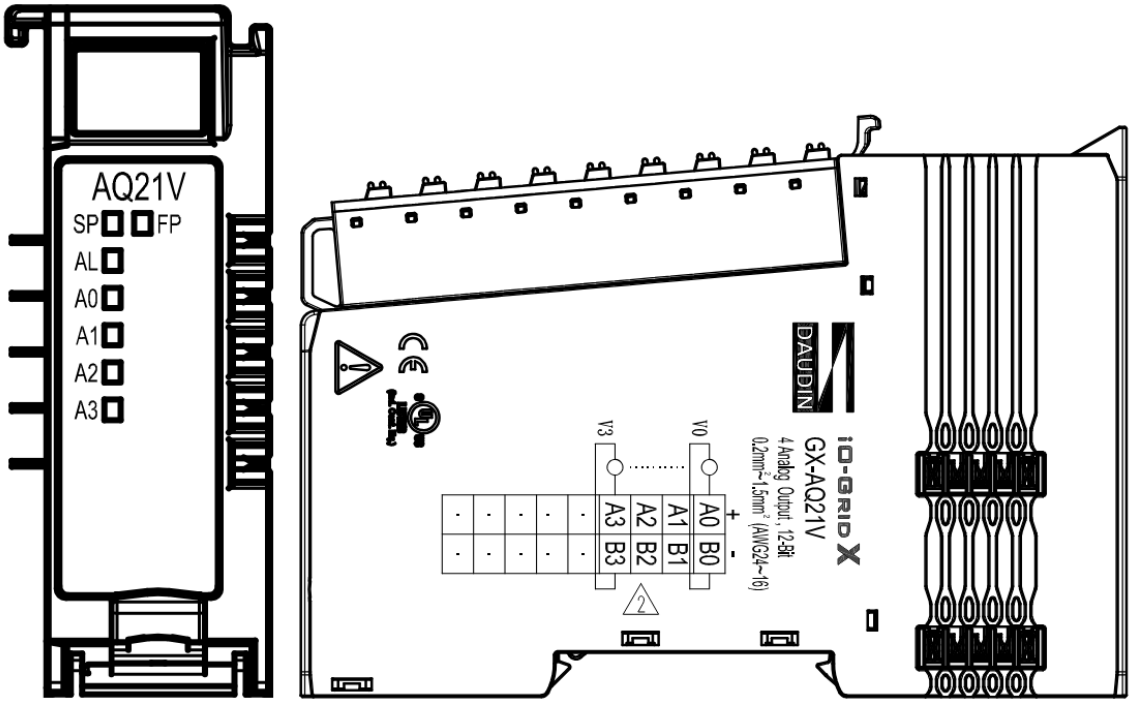


Figure 4.25 GX-AQ21V Wiring Diagram

X. GX-AQ21C Indicator Lights and Module Side Diagram

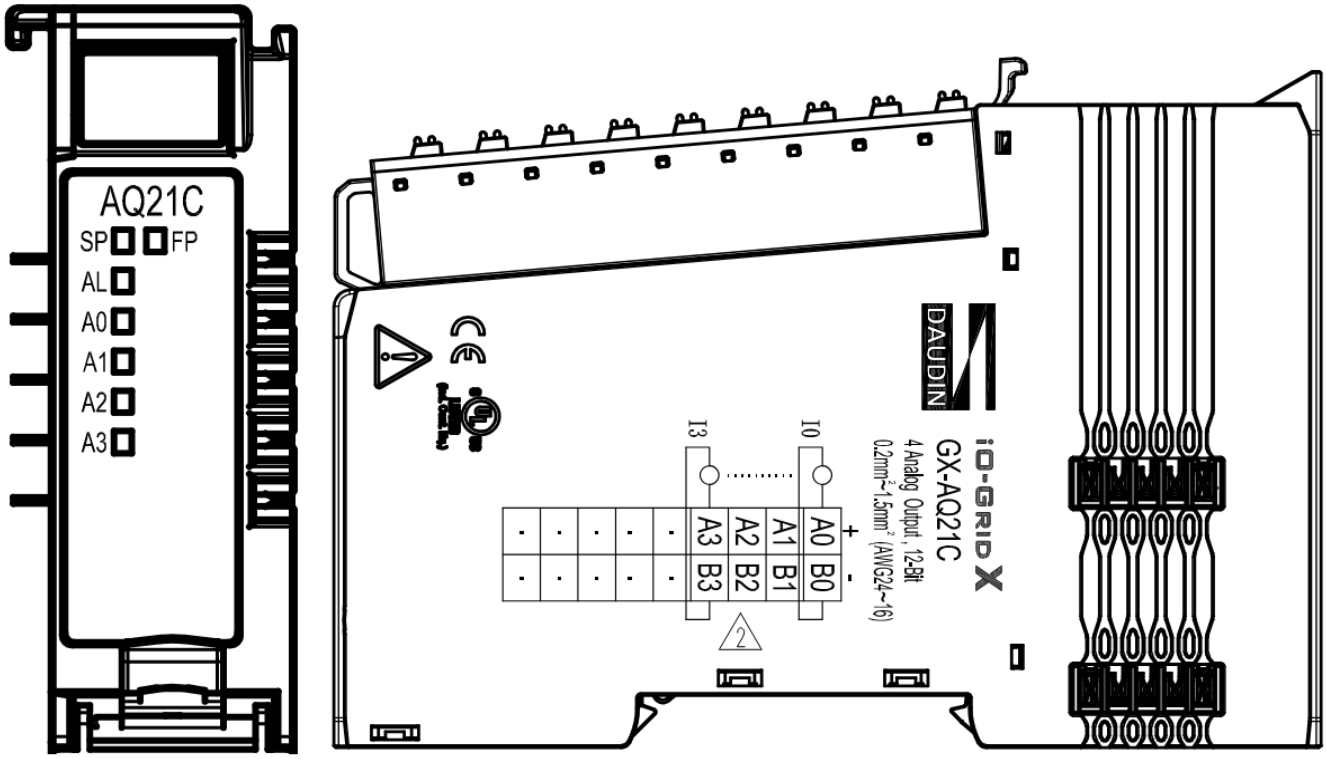


Figure 4.26 GX-AQ21C Wiring Diagram

XI. GX-AQ22V Indicator Lights and Module Side Diagram

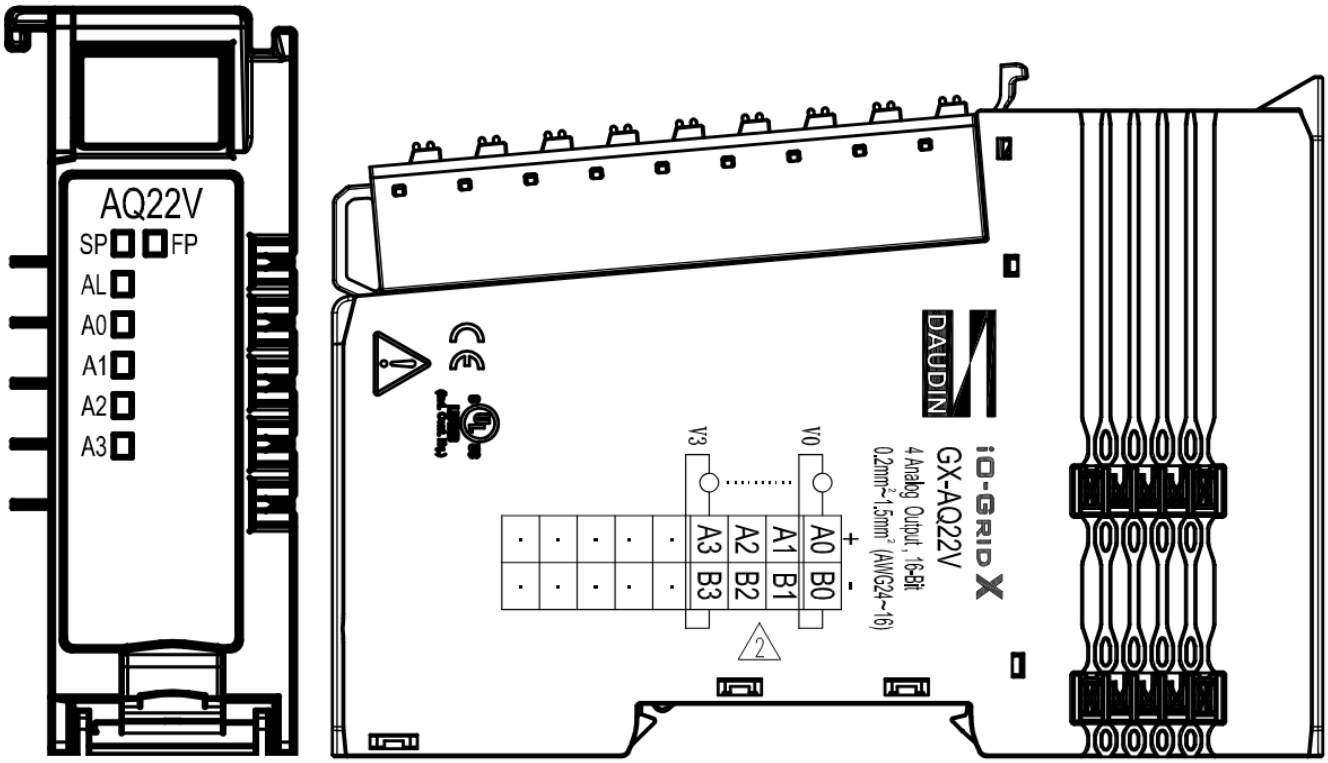


Figure 4.27 GX-AQ22V Wiring Diagram

XII. GX-AQ22C Indicator Lights and Module Side Diagram

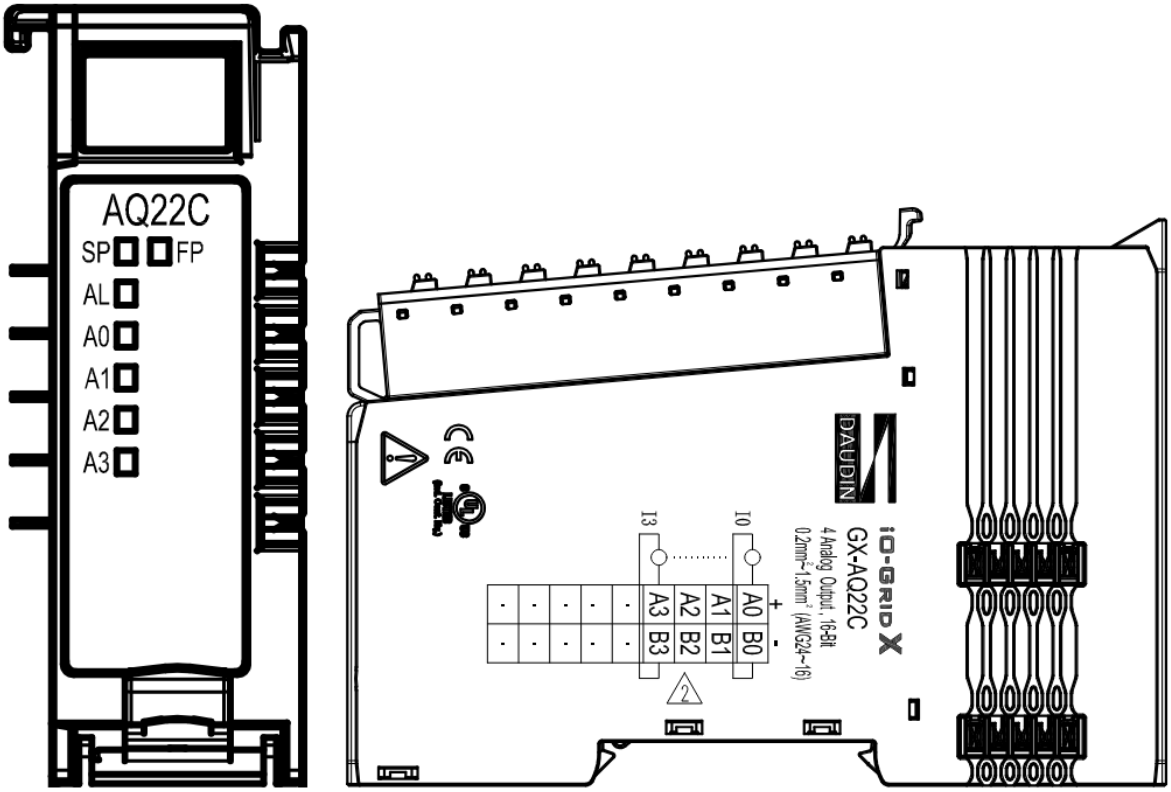


Figure 4.28 GX-AQ22C Wiring Diagram

XIII.GX-AQ31V Indicator Lights and Module Side Diagram

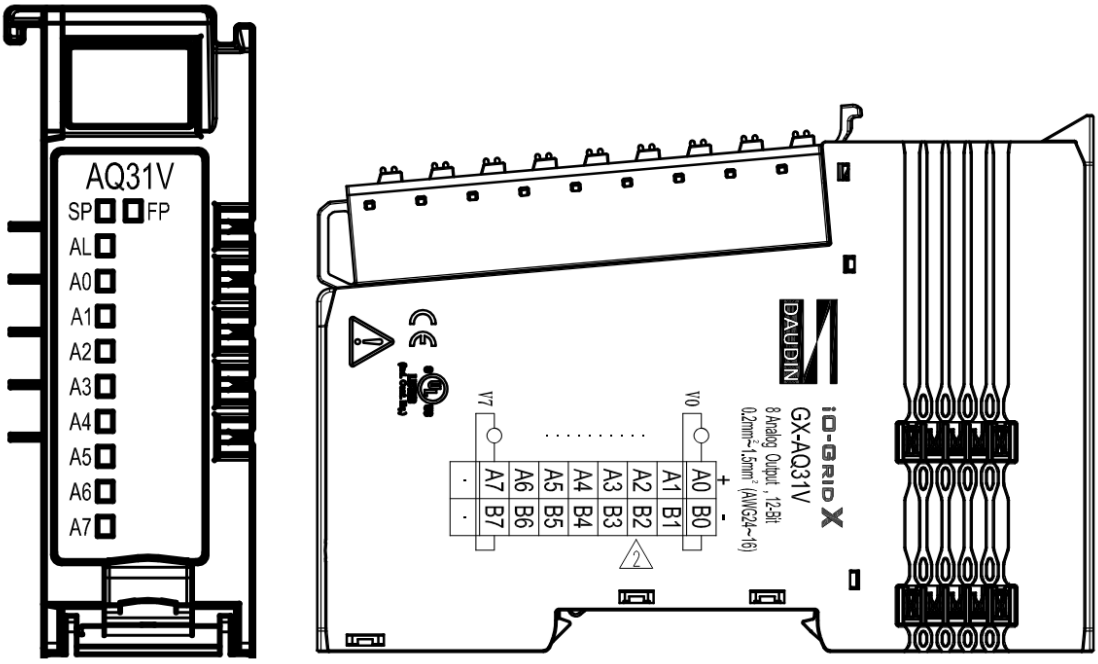


Figure 4.29 GX-AQ31V Wiring Diagram

XIV. GX-AQ31C Indicator Lights and Module Side Diagram

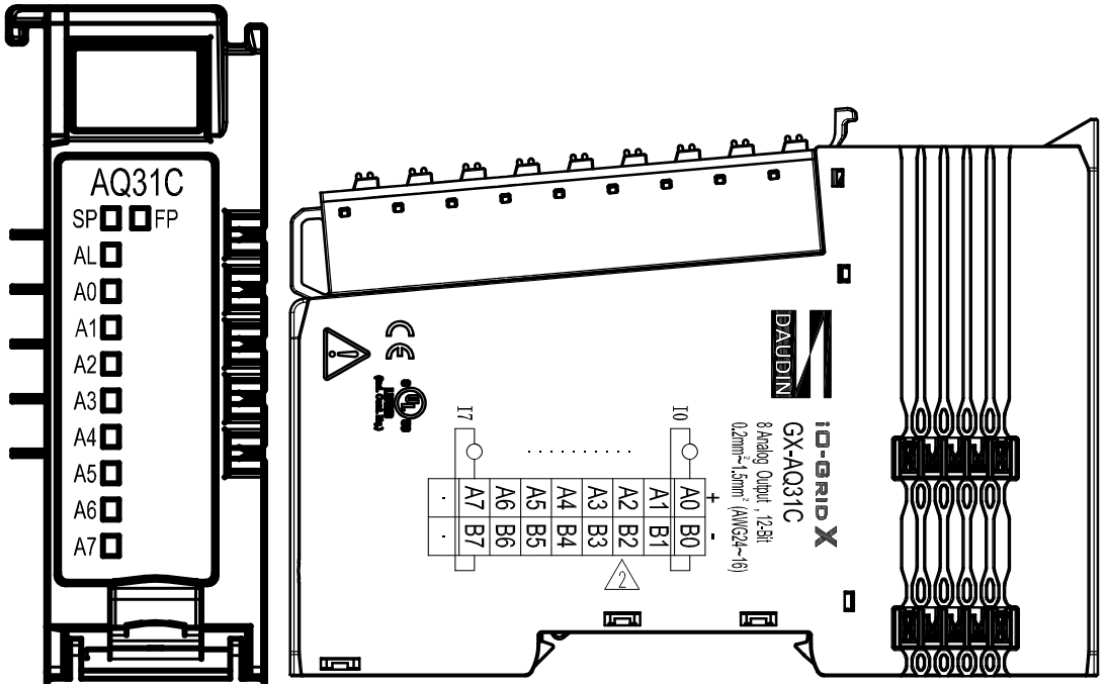


Figure 4.30 GX-AQ31C Wiring Diagram

XV. GX-AQ32V Indicator Lights and Module Side Diagram

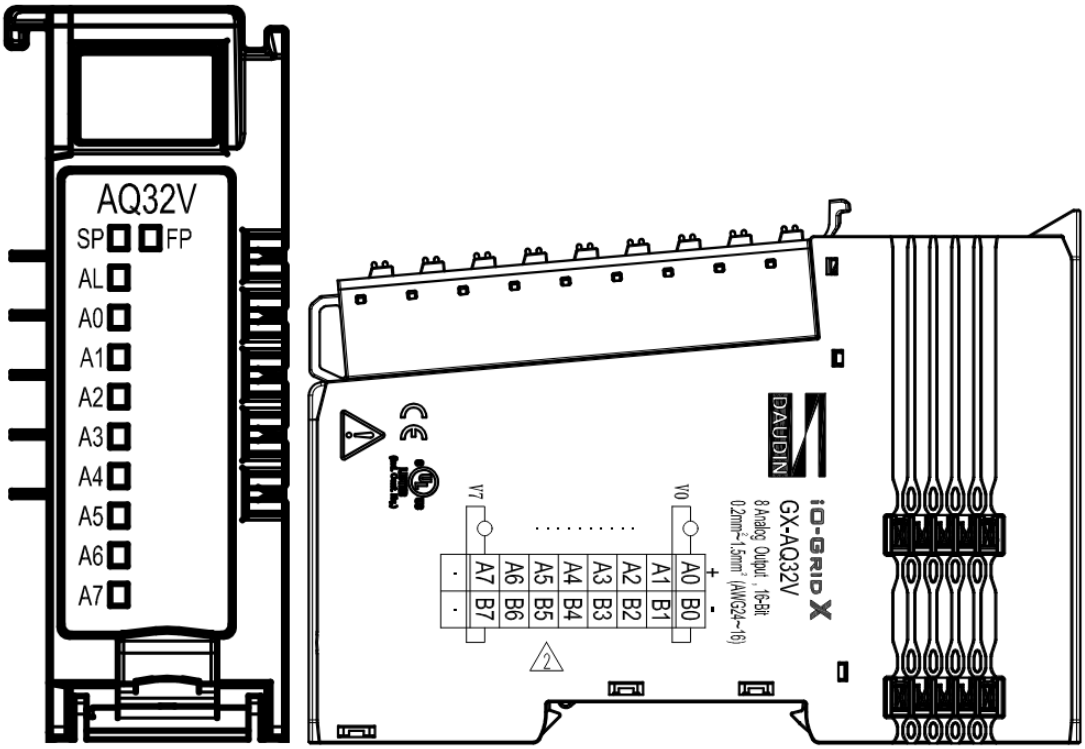


Figure 4.31 GX-AQ32V Wiring Diagram

XVI. GX-AQ32C Indicator Lights and Module Side Diagram

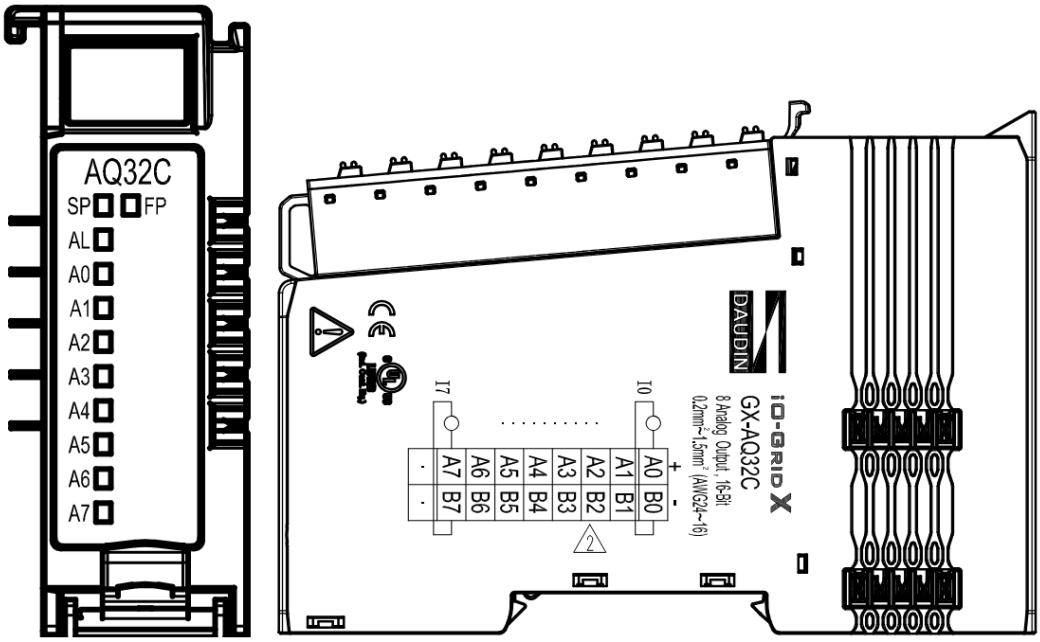


Figure 4.32 GX-AQ32C Wiring Diagram

4.4 Module Specifications

4.4.1 Communication Port Specifications

Communication Port Specifications	
Bus Protocol	EtherCAT®
Bus Interface	2 x RJ-45
Speed	100 Mbps

4.4.2 Electrical Specifications

Electrical Specifications		
Coupler	Working Voltage	24 VDC (-15%~+20%)
	Working Current	Max.100 mA
Digital Input Module	Working Voltage	24 VDC (-15%~+20%)
	Working Current	Max.60mA
Digital Output Module	Working Voltage	24 VDC (-15%~+20%)
	Working Current	Max.150mA
Analog Input Module	Working Voltage	24 VDC (-15%~+20%)
	Working Current	Max.120mA
Analog Output Module	Working Voltage	24 VDC (-15%~+20%)
	Working Current	Max.112mA

4.4.3 General Specifications

General Specifications		
Size (W x D x H)	Coupler	25 x 105 x 69mm
	IO Module	12 x 105 x 69mm
Weight	Coupler	80g
	IO Module	64g
Operating Temperature	-10 … 60°C	
Storage Temperature	-25 … 85°C	
Relative Humidity	RH 95%, non-condensing	
Altitude Limit	< 2000m	
IP Protection Level	IP 20	
Pollution Degree	II	
Safety Certifications	CE	
Wire Gauge Range (IEC / UL)	0.2mm² … 1.5mm² (AWG 24...16)	
Recommended Terminals	DN00510D DN00710D	

4.4.4 Digital Module Specifications

Digital Input Specifications	
Number of Channels	16 or 32 Channels
Rated Voltage	24VDC
Signal Type	SINK(NPN) / SOURCE(PNP)
Signal 0 Voltage Range (NPN)	15VDC…30 VDC
Signal 1 Voltage Range (NPN)	0 VDC…10 VDC
Signal 0 Voltage Range (PNP)	0 VDC…10 VDC
Signal 1 Voltage Range (PNP)	15 VDC…30 VDC
Isolation	Optocoupler Isolation
Protection Circuit	Overvoltage Protection
Input Filtering Time	3ms
System Indicator Light	2 green lights (SP, FP), 1 red light (AL)
Channel Indicator Light	16, 32 green lights, input channel status
Digital Output Specifications	
Number of Channels	16 or 32 Channels
Rated Voltage	24VDC
Signal Type	SINK(NPN) / SOURCE(PNP)
Load Specifications	Resistive Load, Inductive Load, Lamp Load
Channel Rated Current	≦0.5 A
Isolation	Optocoupler Isolation
Protection Circuit	Overvoltage Protection
System Indicator Light	2 green lights (SP, FP), 1 red light (AL)
Channel Indicator Light	16, 32 green lights, output channel status

4.4.5 Analog Module Specifications

Analog Input Specifications	
Number of Channels	4 or 8 Channels
Resolution	12 bit / 16 bit
Input Signal (Voltage Type)	-10 V ~ +10 V, 0 V ~ +10 V, 0 V ~ +5 V, 1 V ~ + 5 V
Input Signal (Current Type)	0~20mA、4~20mA
Accuracy	±0.1%
Input Impedance (Voltage Type)	≥1 MΩ impedance, typical
Input Impedance (Current Type)	< 250Ω
Sampling Rate	1 ms
Isolation	Optocoupler Isolation
System Indicator Light	2 green lights (SP, FP), 1 red light (AL)
Channel Indicator Light	4 or 8 green lights, input channel status

Analog Output Module Specification	
Number of Channels	4 or 8 Channels
Resolution	12 bit / 16 bit
Signal	-10 V … +10 V, 0 V … +10 V, 0 V … +5 V, 1 V … + 5 V
Signal	0…20mA、4…20mA
Load impedance (Voltage)	> 2 KΩ
Load impedance (Current)	< 500Ω
Sampling Rate	Photocoupler Isolation
Isolation	2 green indicators (SP, FP), 1 red indicator (AL)
System Indicators	4 or 8 green indicators for output statuts

4.5 Module Dimensions

4.5.1 Coupler Dimensions

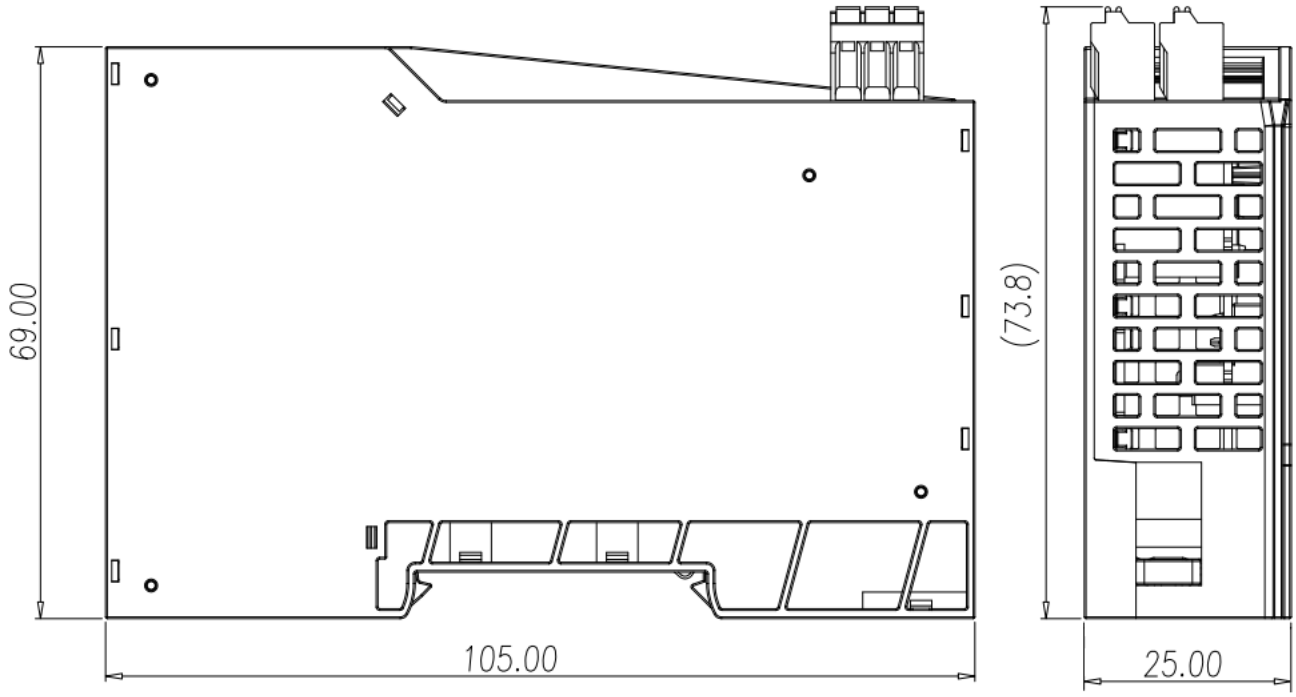


Figure 4.29 Coupler Dimensions Diagram

4.5.2 IO and Functional Module Dimensions

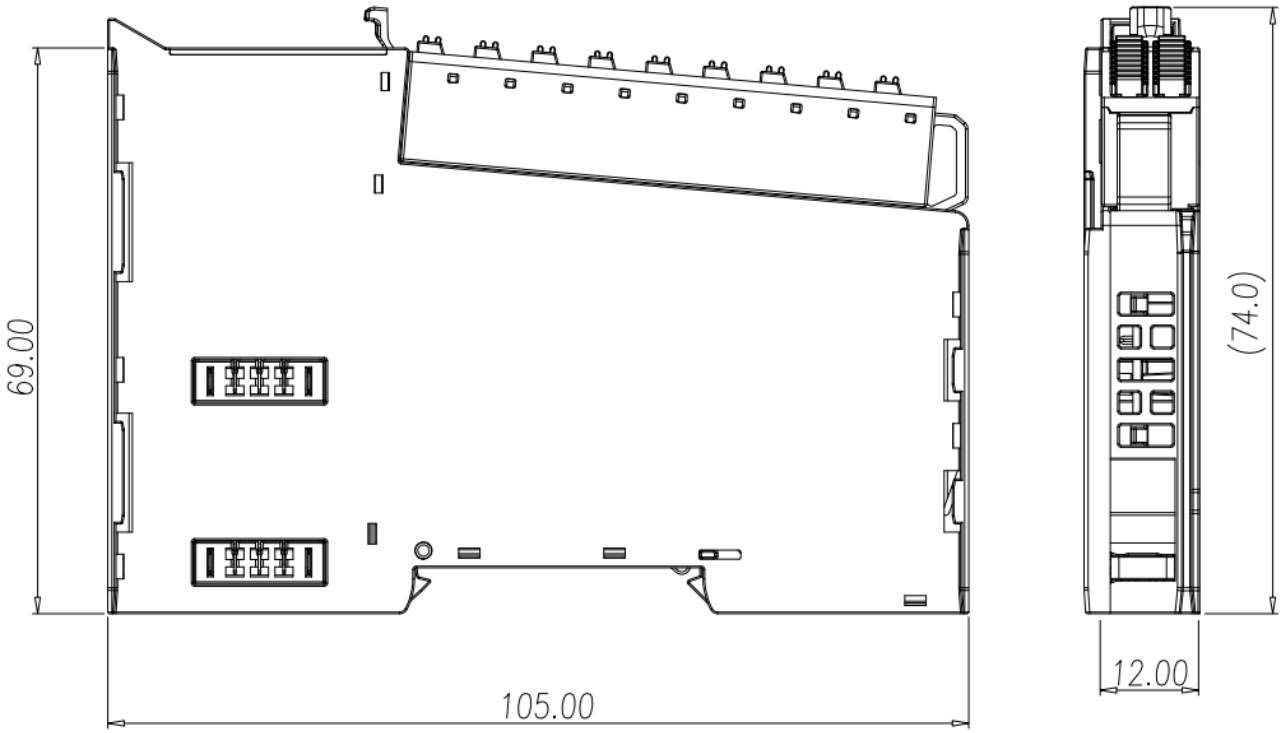


Figure 4.30 IO Module Dimensions Diagram

5. Common Module List

Part Number	Description	Remarks
GX-CL120	EtherCAT® Coupler	
GX-DI40N	16-Channel Digital Input Module	SINK(NPN)
GX-DI40P	16-Channel Digital Input Module	SOURCE(PNP)
GX-DI50N	32-Channel Digital Input Module	SINK(NPN)
GX-DI50P	32-Channel Digital Input Module	SOURCE(PNP)
GX-DQ40N	16-Channel Digital Output Module	SINK(NPN)
GX-DQ40P	16-Channel Digital Output Module	SOURCE(PNP)
GX-DQ50N	32-Channel Digital Output Module	SINK(NPN)
GX-DQ50P	32-Channel Digital Output Module	SOURCE(PNP)
GX-AI21V	4-Channel Analog Input Module, 12-bit	-10…10VDC、0…10VDC 0…5VDC、1…5VDC
GX-AI22V	4-Channel Analog Input Module, 16-bit	
GX-AI31V	8-Channel Analog Input Module, 12-bit	
GX-AI32V	8-Channel Analog Input Module, 16-bit	
GX-AQ21V	4-Channel Analog Output Module, 12-bit	
GX-AQ22V	4-Channel Analog Output Module, 16-bit	
GX-AQ31V	8-Channel Analog Output Module, 12-bit	
GX-AQ32V	8-Channel Analog Output Module, 16-bit	
GX-AI21C	4-Channel Analog Input Module, 12-bit	0…20mA 4…20mA
GX-AI22C	4-Channel Analog Input Module, 16-bit	
GX-AI31C	8-Channel Analog Input Module, 12-bit	
GX-AI32C	8-Channel Analog Input Module, 16-bit	
GX-AQ21C	4-Channel Analog Output Module, 12-bit	
GX-AQ22C	4-Channel Analog Output Module, 16-bit	
GX-AQ31C	8-Channel Analog Output Module, 12-bit	
GX-AQ32C	8-Channel Analog Output Module, 16-bit	

6. Installation and Removal

6.1 Installation

Align each module's side with the direction indicated by the arrow, and snap it onto the upper side of the DIN rail.
Once each module is positioned, the latch will automatically secure the module to the rail.

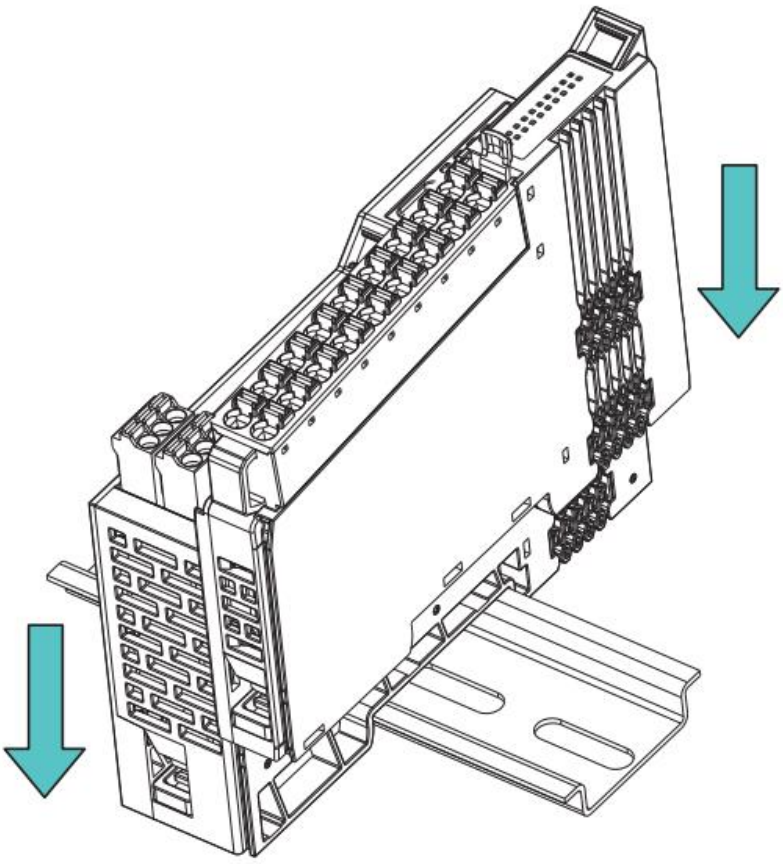


Figure 6.1 Module Installation Diagram

※Note: If the clip fails to engage, press the top of the clip to reset and secure it to the rail.

6.2 Removal

Use a screwdriver to pull down the plastic clip at the bottom of each module.
Following the reverse order of installation, remove each module from the DIN rail.

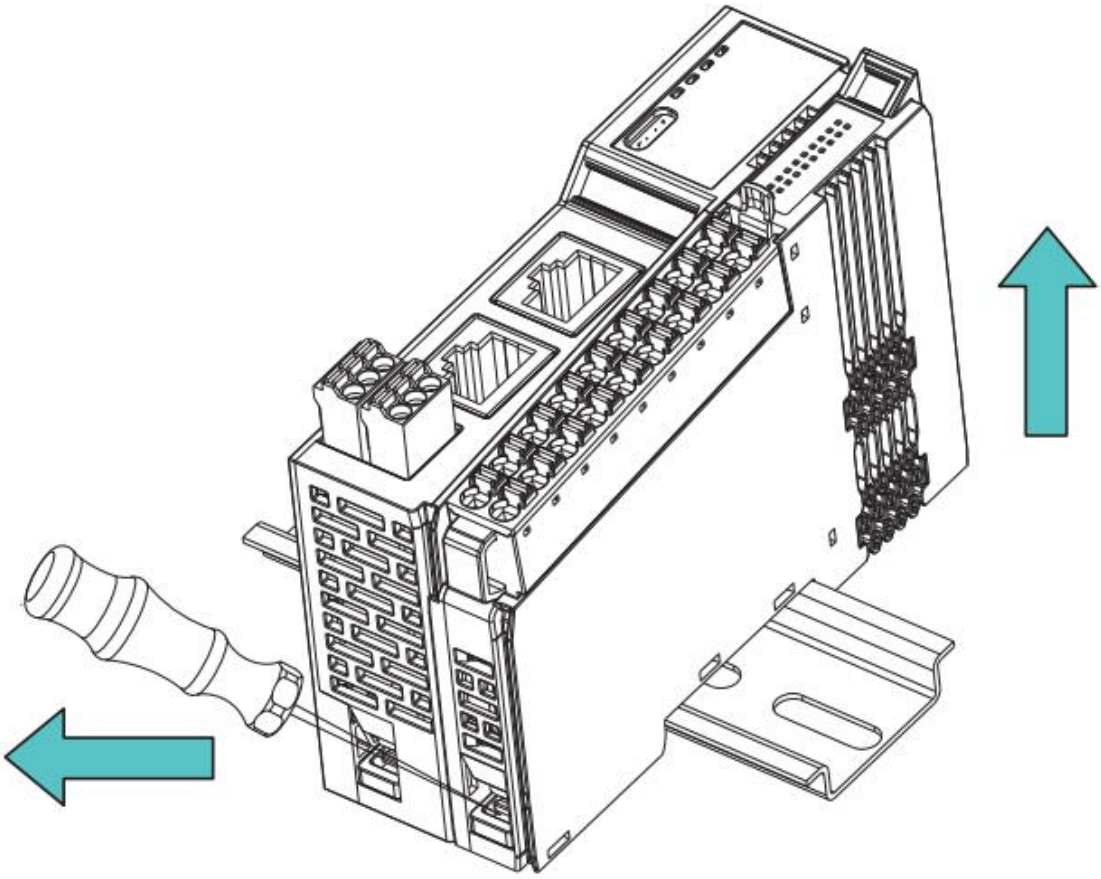
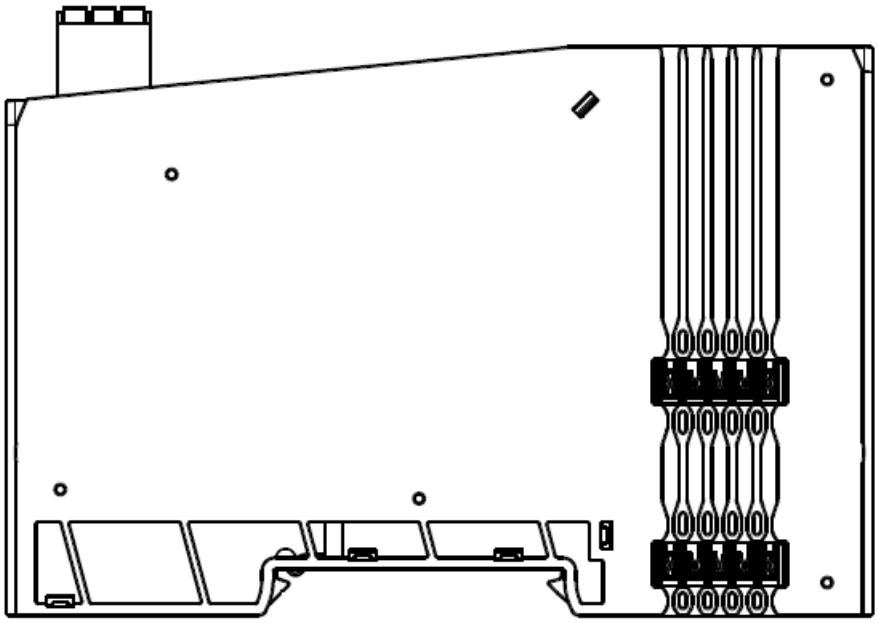


Figure 4.2 Module Removal Diagram

7. Connecting Devices

7.1 Internal Communication Method

Communication between the fieldbus coupler and I/O modules is achieved through the side-mounted gold fingers.
The system and field equipment power supply for the I/O modules is also provided via the side gold fingers.
The side gold finger contact points consist of 10 data contact points.



7.2 Field Power Supply

The field equipment power supply is also connected to the I/O module via the side gold fingers. Therefore, the field-side power supply connected to the coupler must match the external equipment's power supply, and no additional connection to the COM point is required at the module end.

8. Module Wiring Instructions

8.1 Coupler Module Wiring Diagram

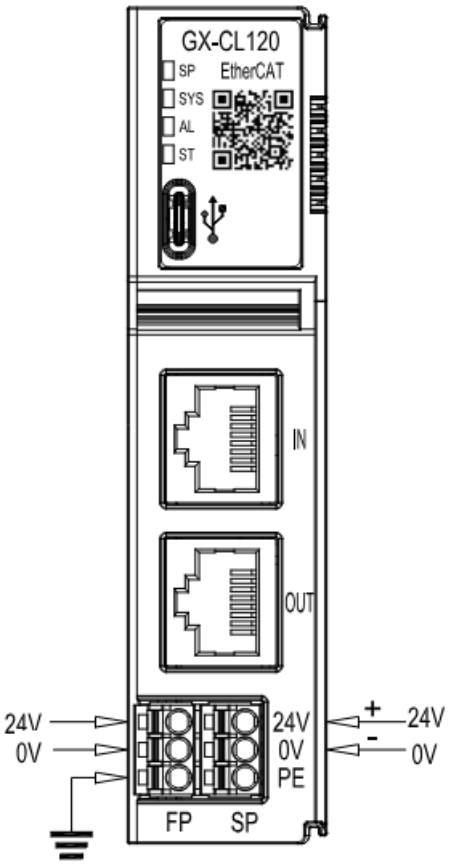


Figure 8.1 Coupler Wiring Diagram

8.2 Digital IO Module Wiring Diagram

8.2.1 GX-DI40N

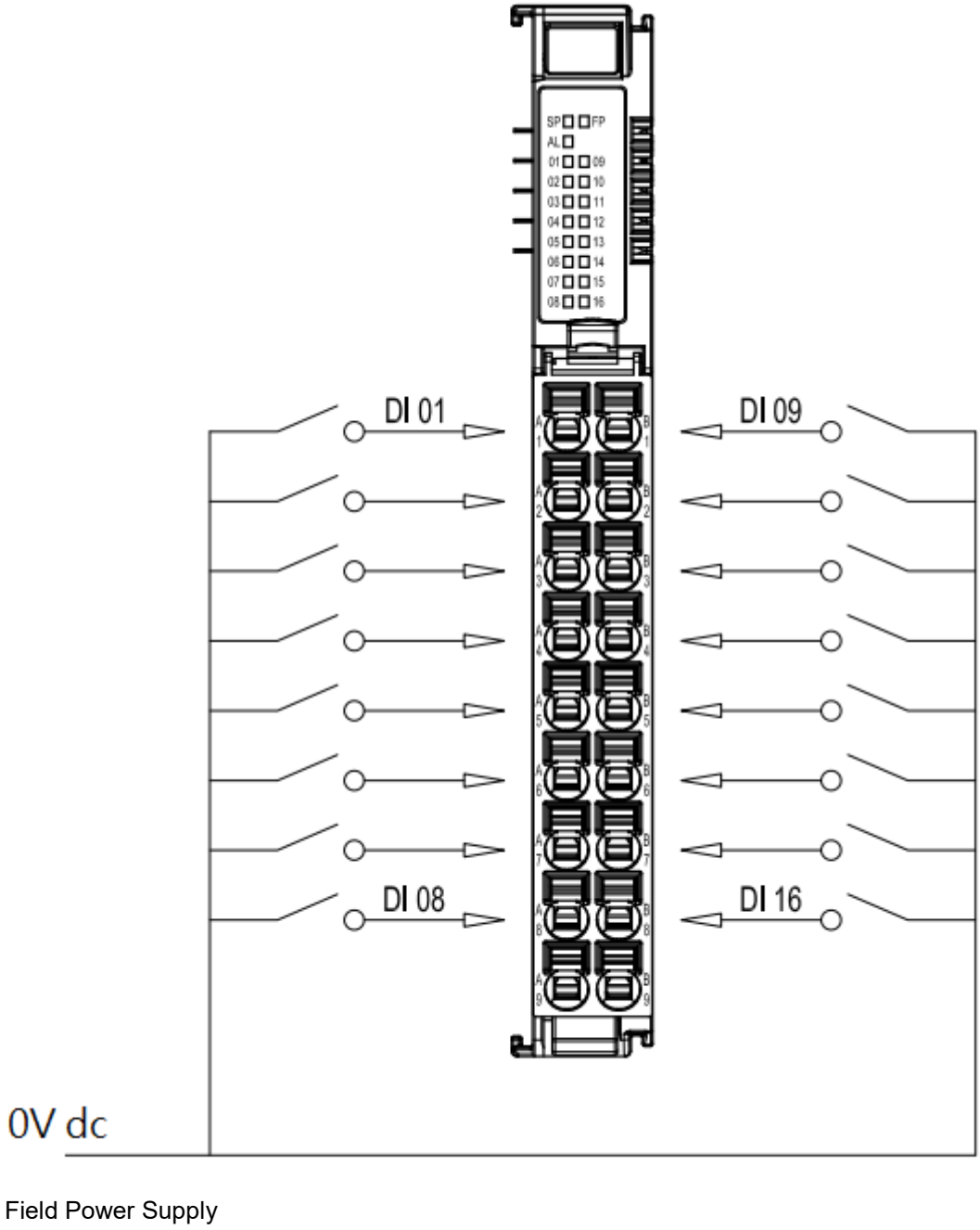


Figure 8.2 GX-DI40N Wiring Diagram

8.2.2 GX-DI40P

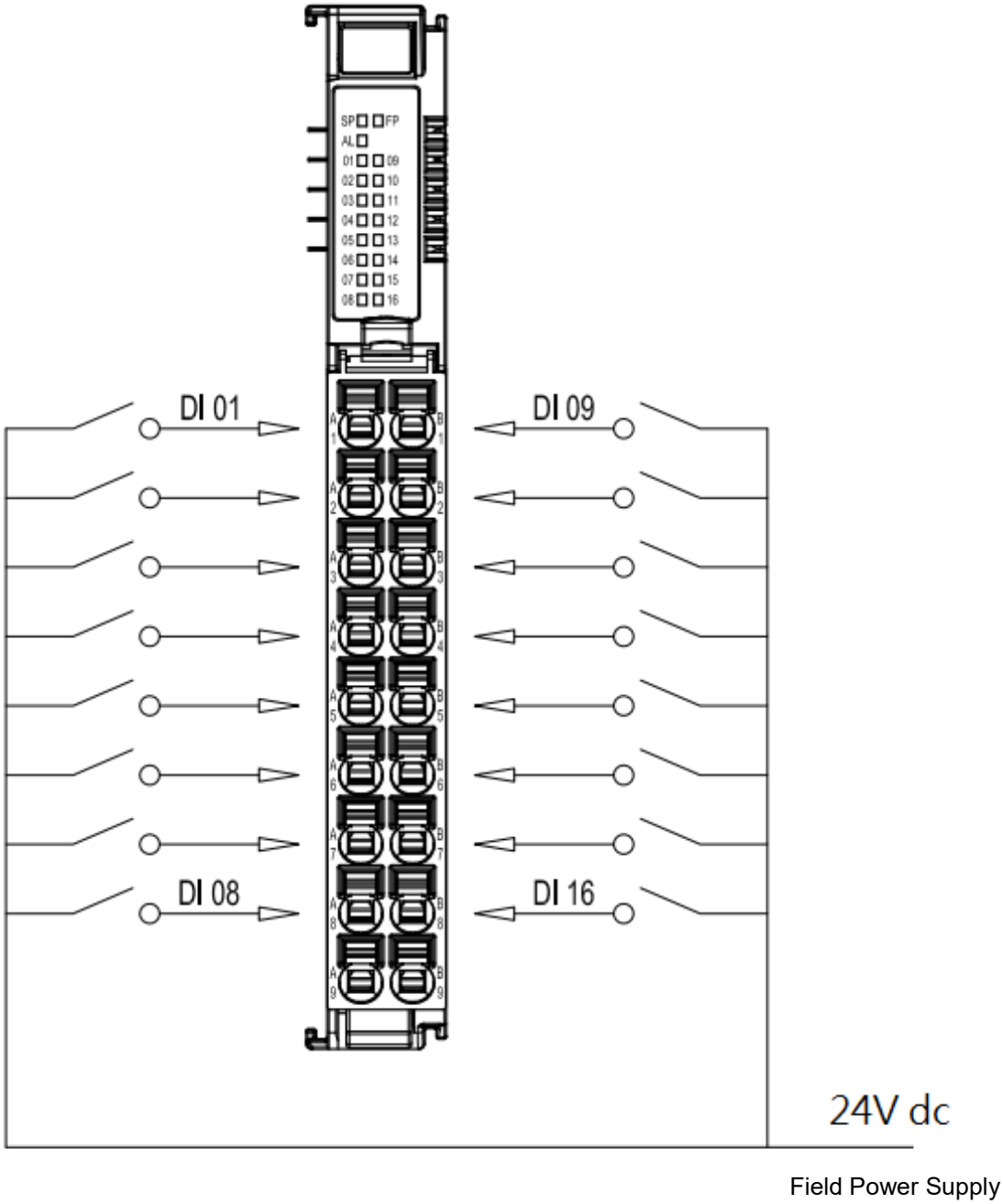


Figure 8.3 GX-DI40P Wiring Diagram

8.2.3 GX-DI50N

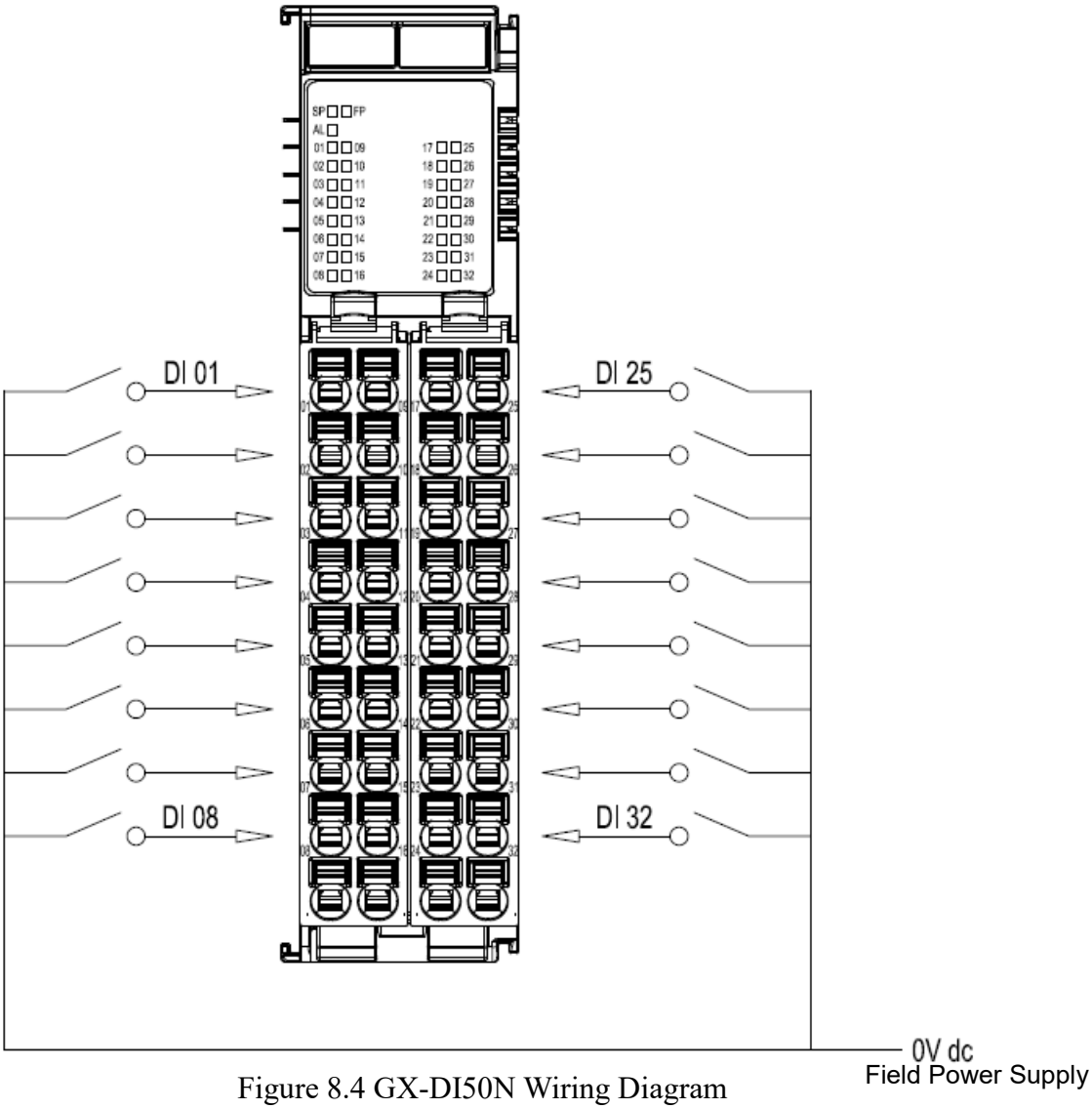


Figure 8.4 GX-DI50N Wiring Diagram

8.2.4 GX-DI50P

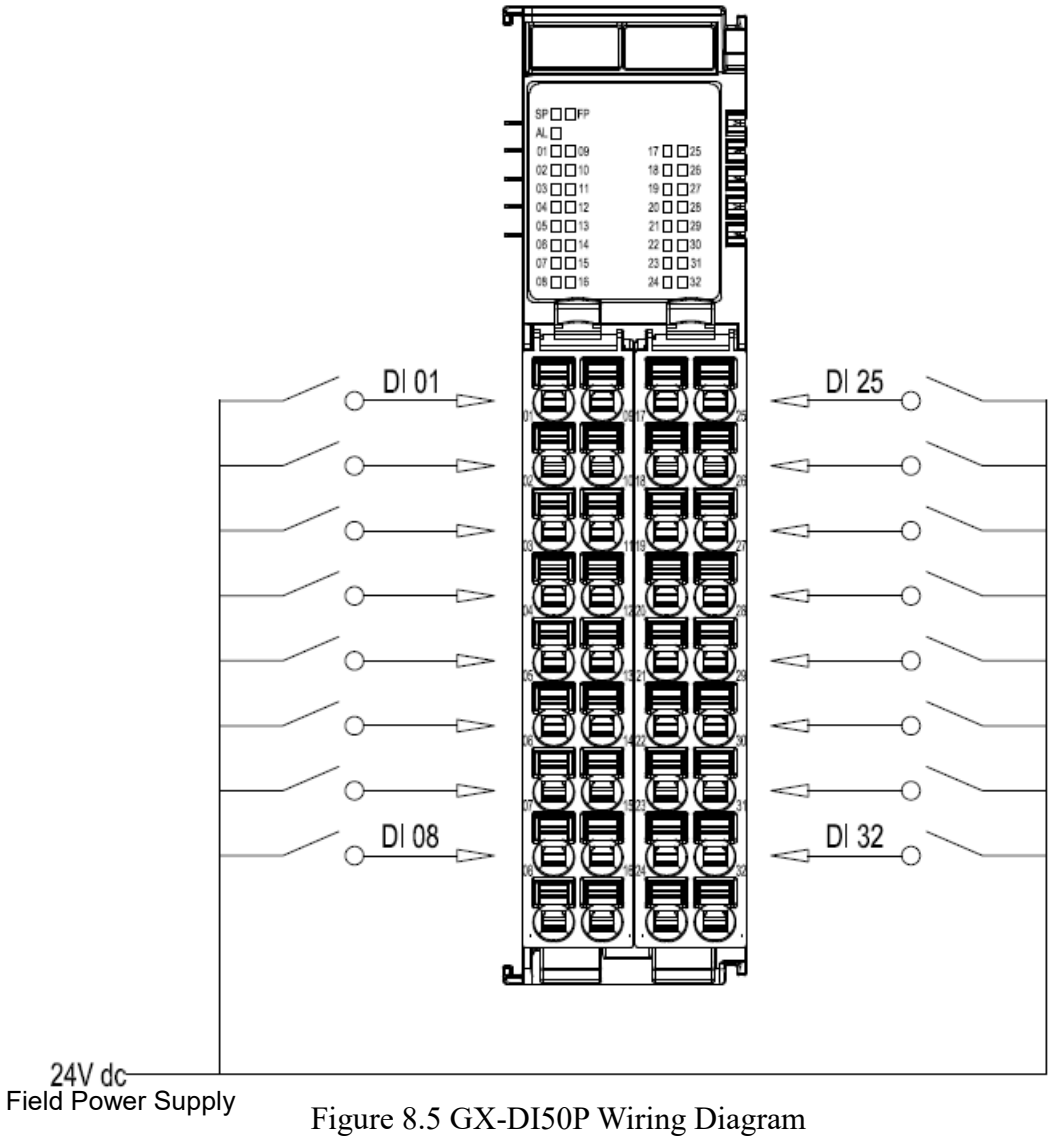


Figure 8.5 GX-DI50P Wiring Diagram

8.2.5 GX-DI51N

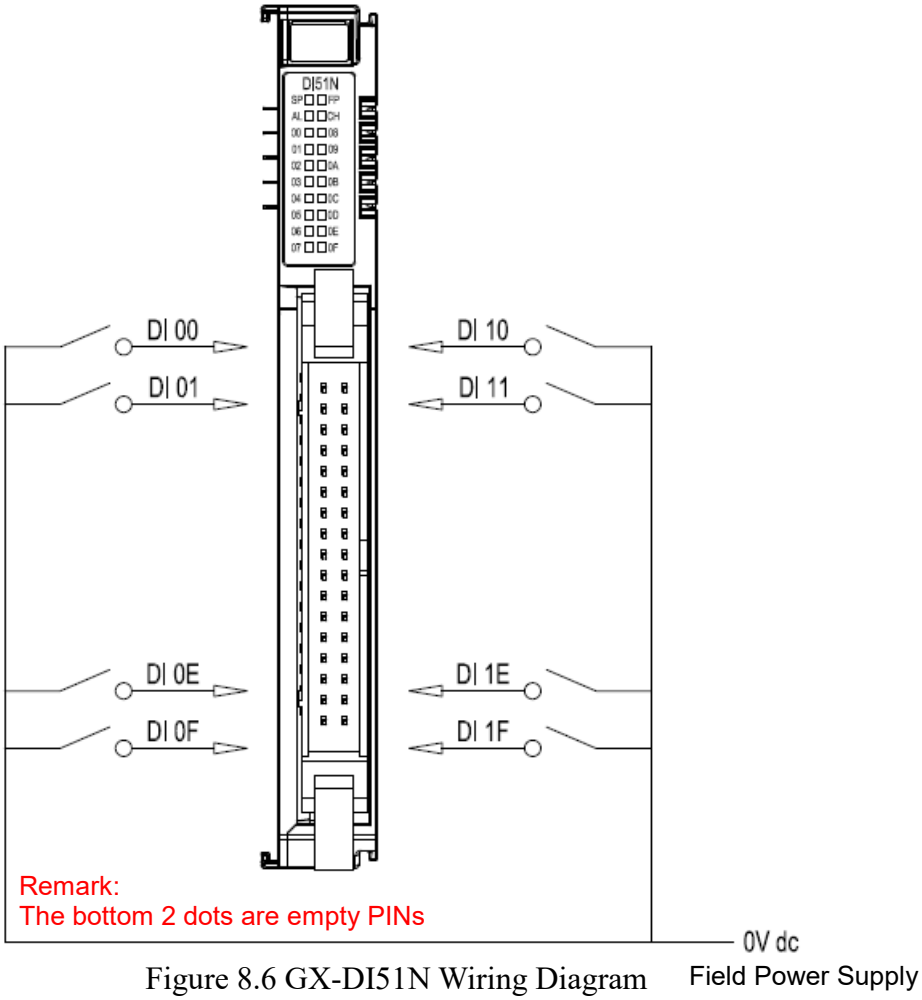
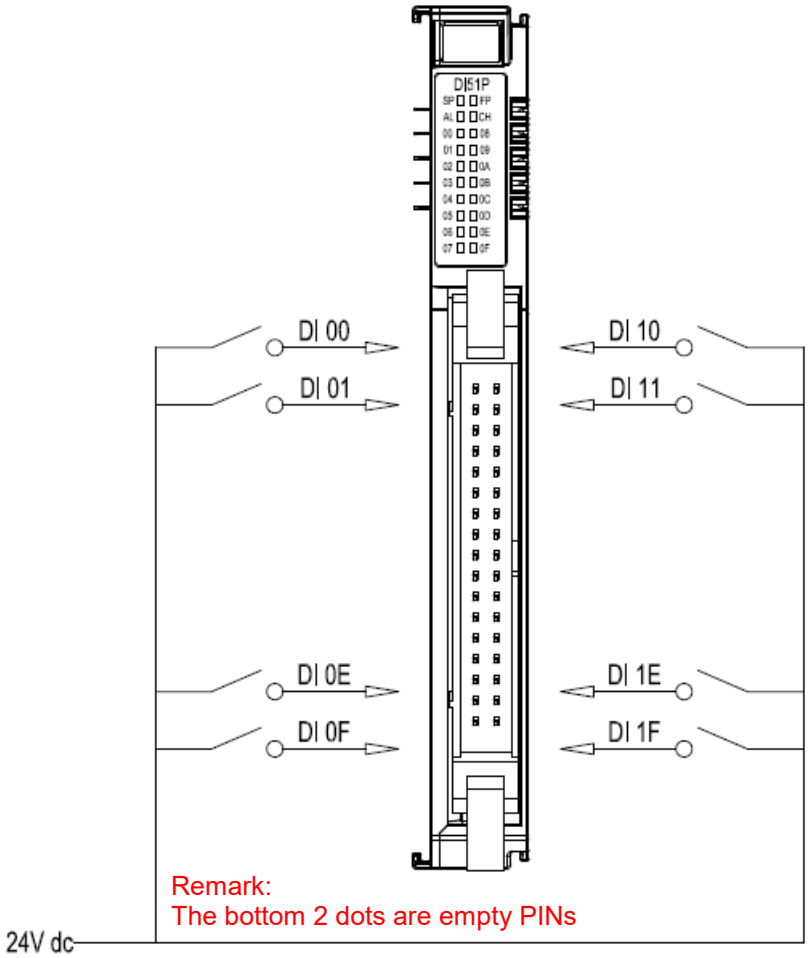


Figure 8.6 GX-DI51N Wiring Diagram

8.2.6 GX-DI51P



Field Power Supply

Figure 8.7 GX-DI51P Wiring Diagram

8.2.7 GX-DQ40N

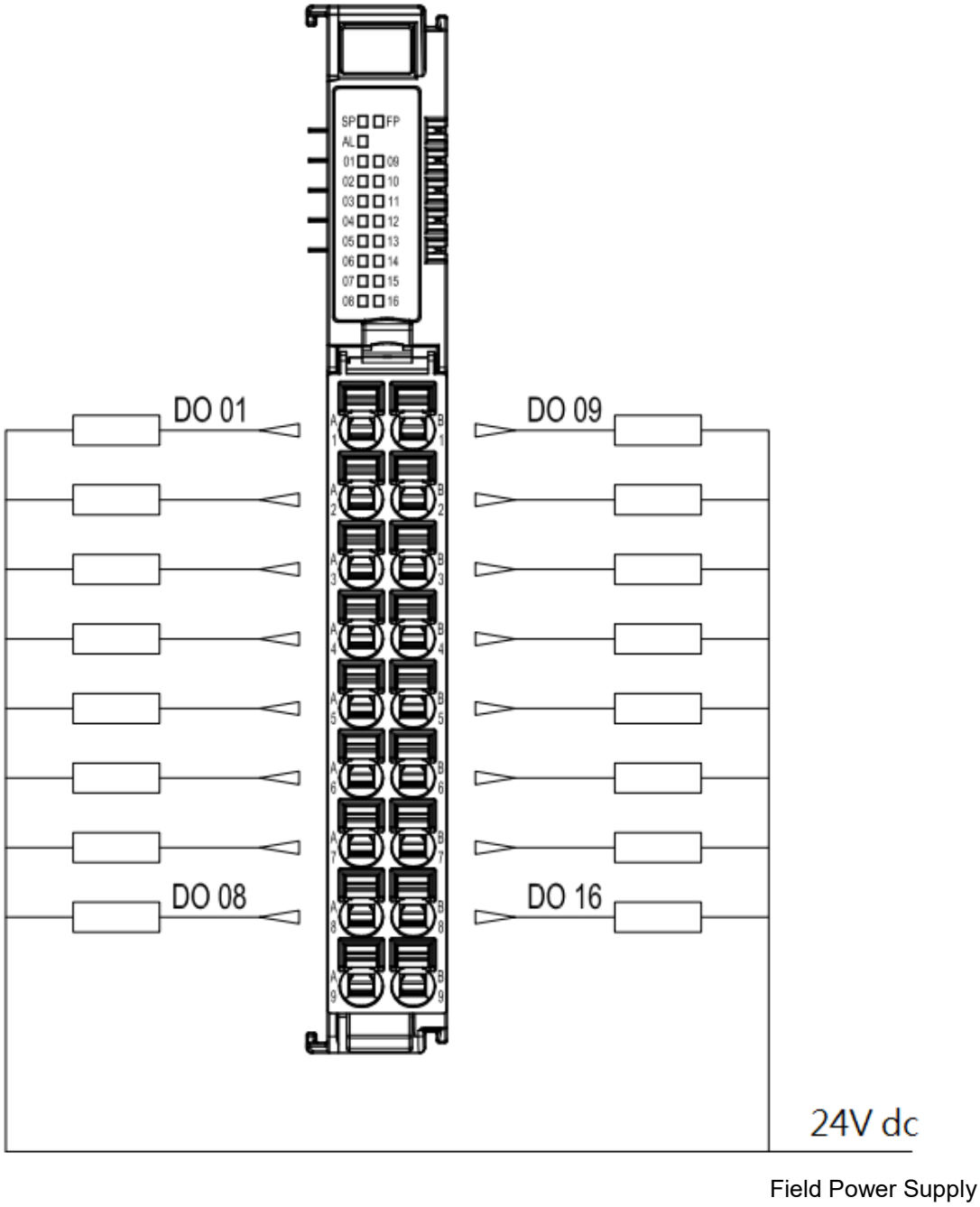


Figure 8.8 GX-DQ40N Wiring Diagram

8.2.8 GX-DQ40P

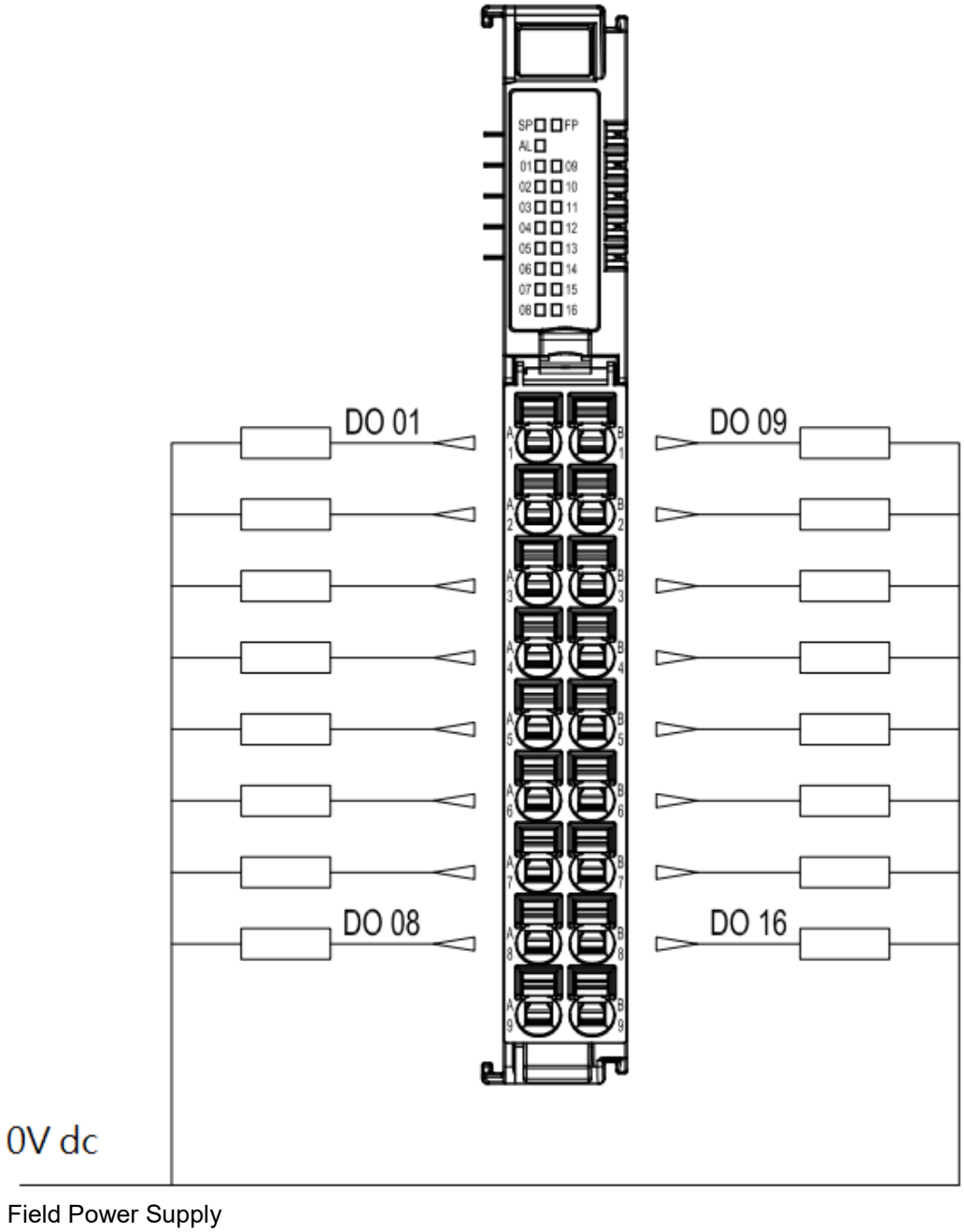


Figure 8.9 GX-DQ40P Wiring Diagram

8.2.9 GX-DQ50N

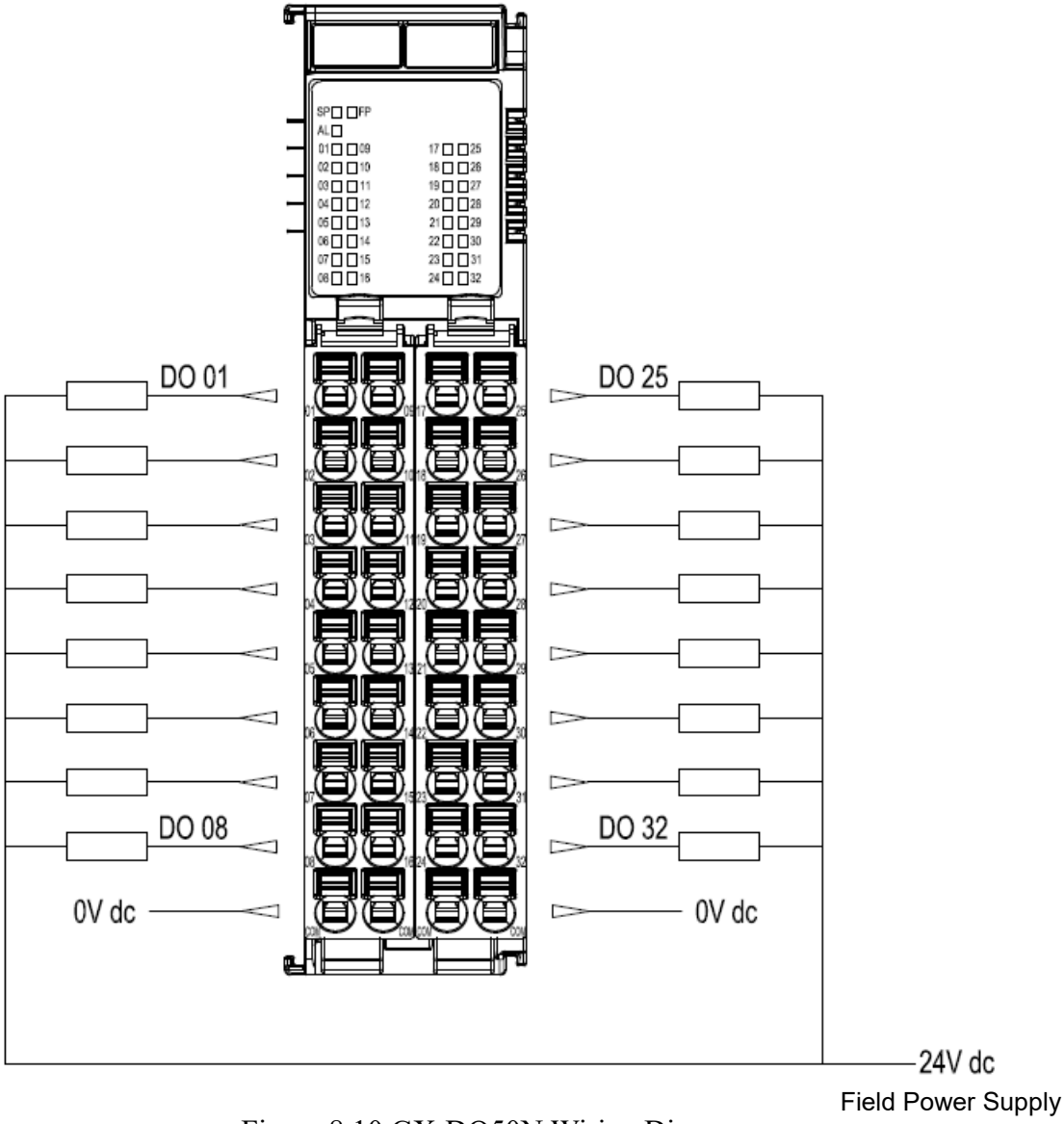


Figure 8.10 GX-DQ50N Wiring Diagram

8.2.10 GX-DQ50P

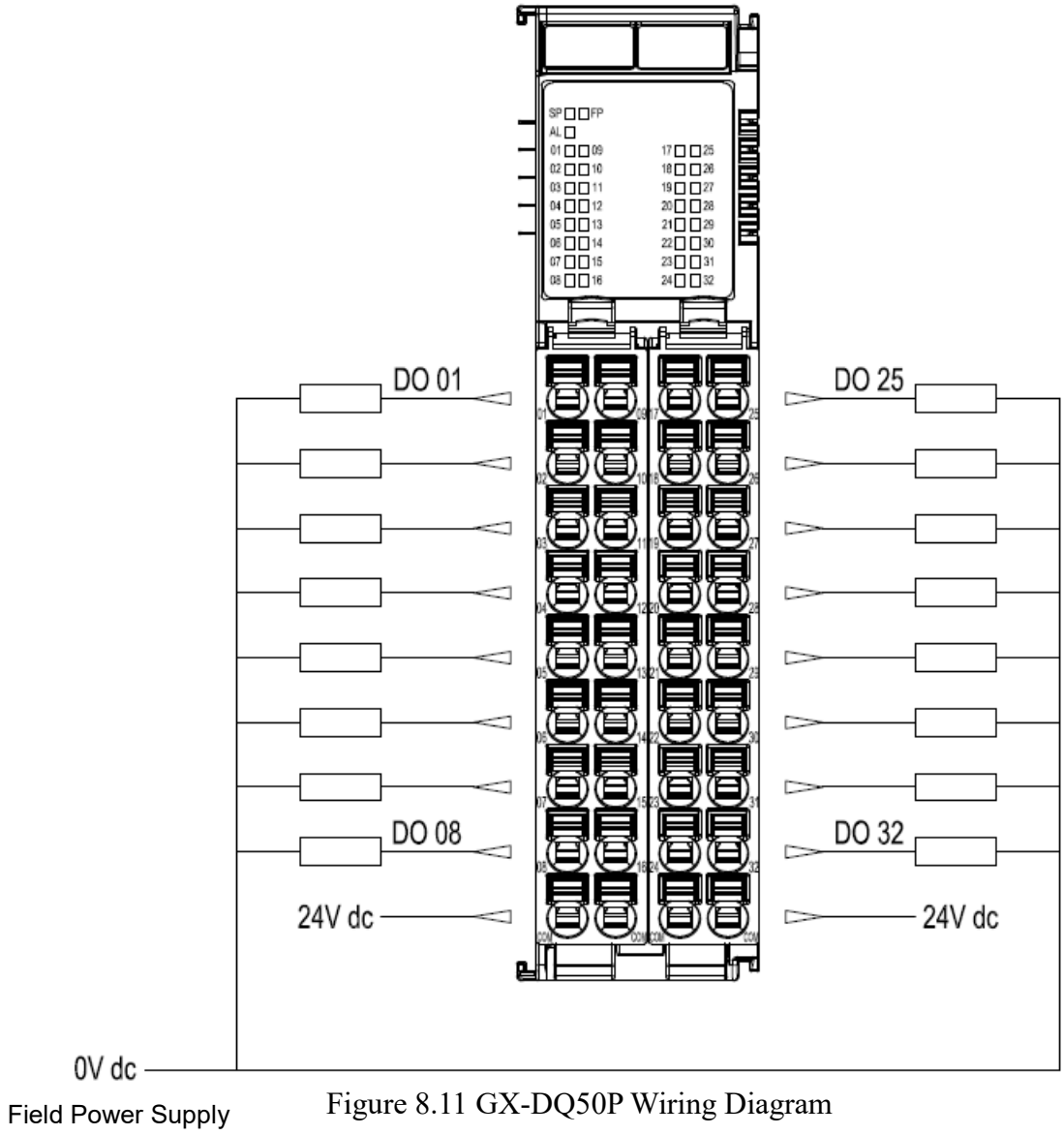


Figure 8.11 GX-DQ50P Wiring Diagram

8.2.11 GX-DQ51N

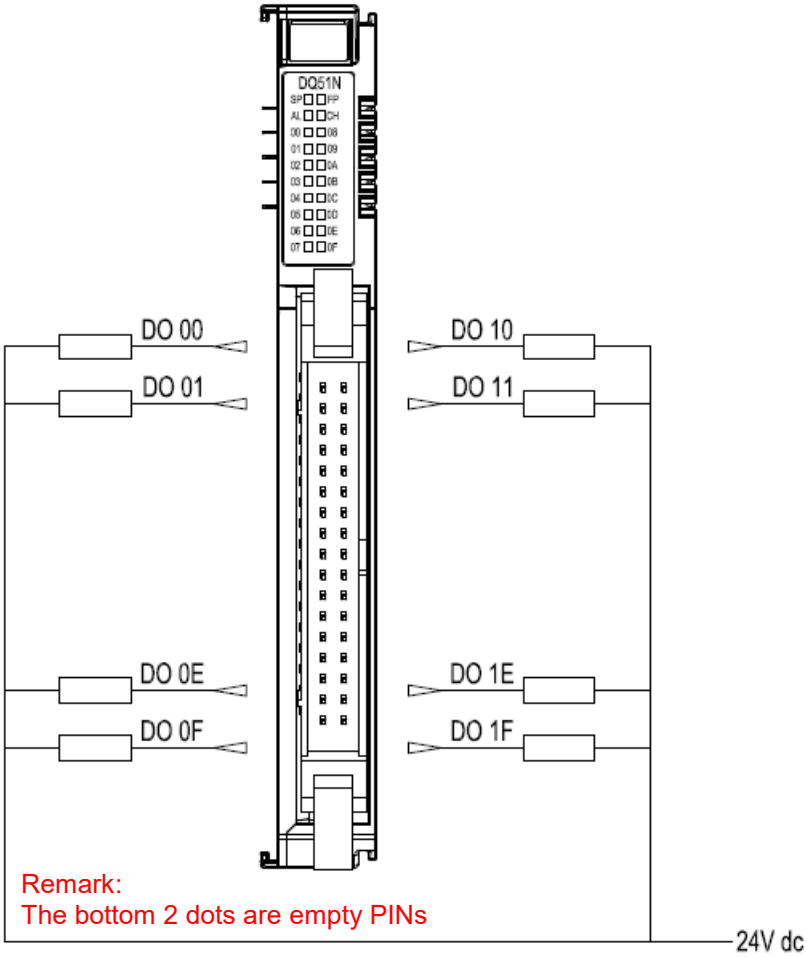
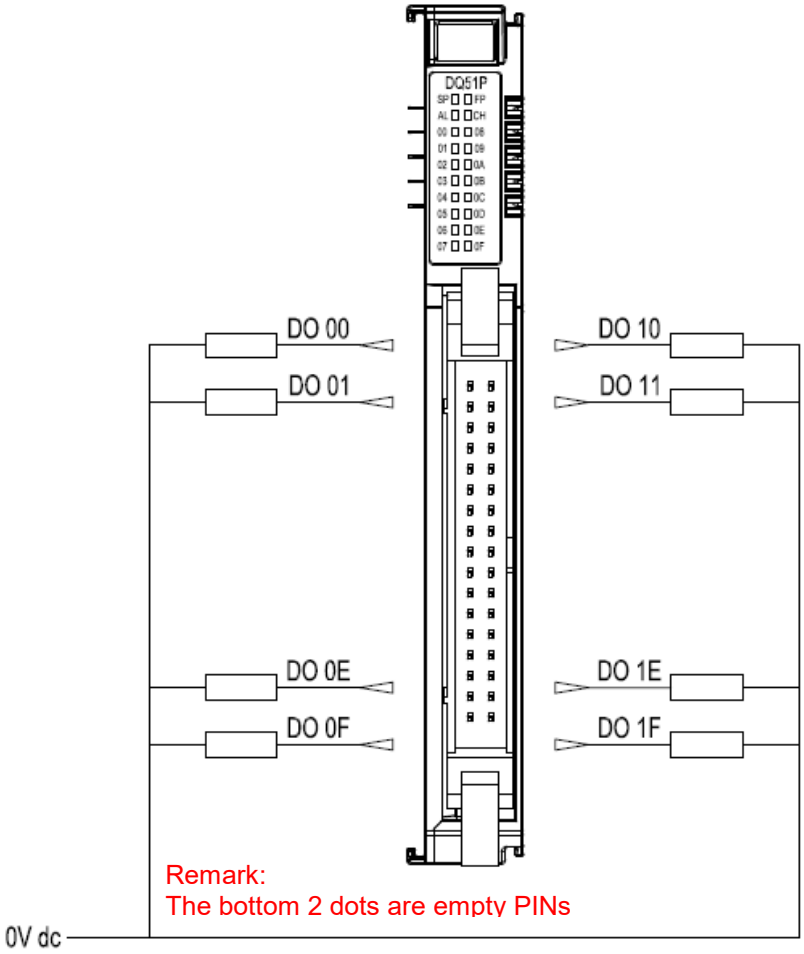


Figure 8.12 GX-DQ51N Wiring Diagram Field Power Supply

8.2.12 GX-DQ51P



Field Power Supply

Figure 8.13 GX-DQ51P Wiring Diagram

8.3 Analog IO Module Wiring Diagram

8.3.1 GX-AI21V / GX-AI22V

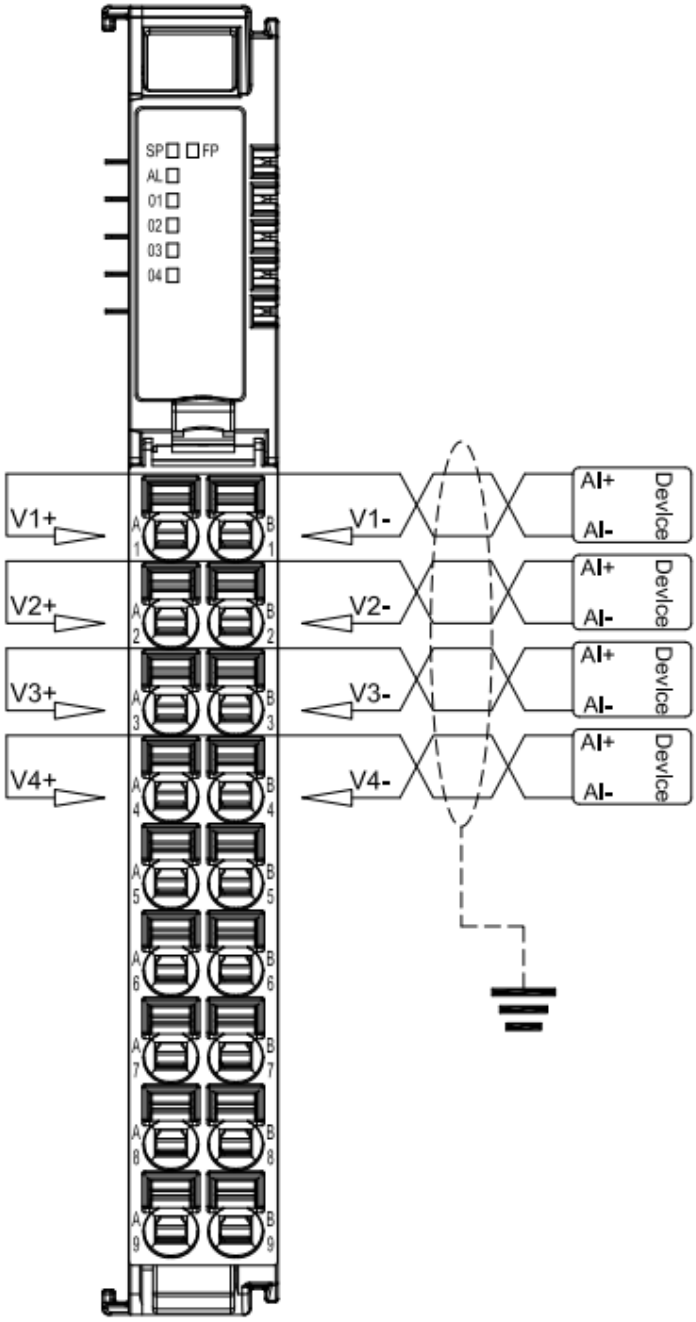


Figure 8.14 GX-AI21V / GX-AI22V Wiring Diagram

8.3.2 GX-AI21C / GX-AI22C

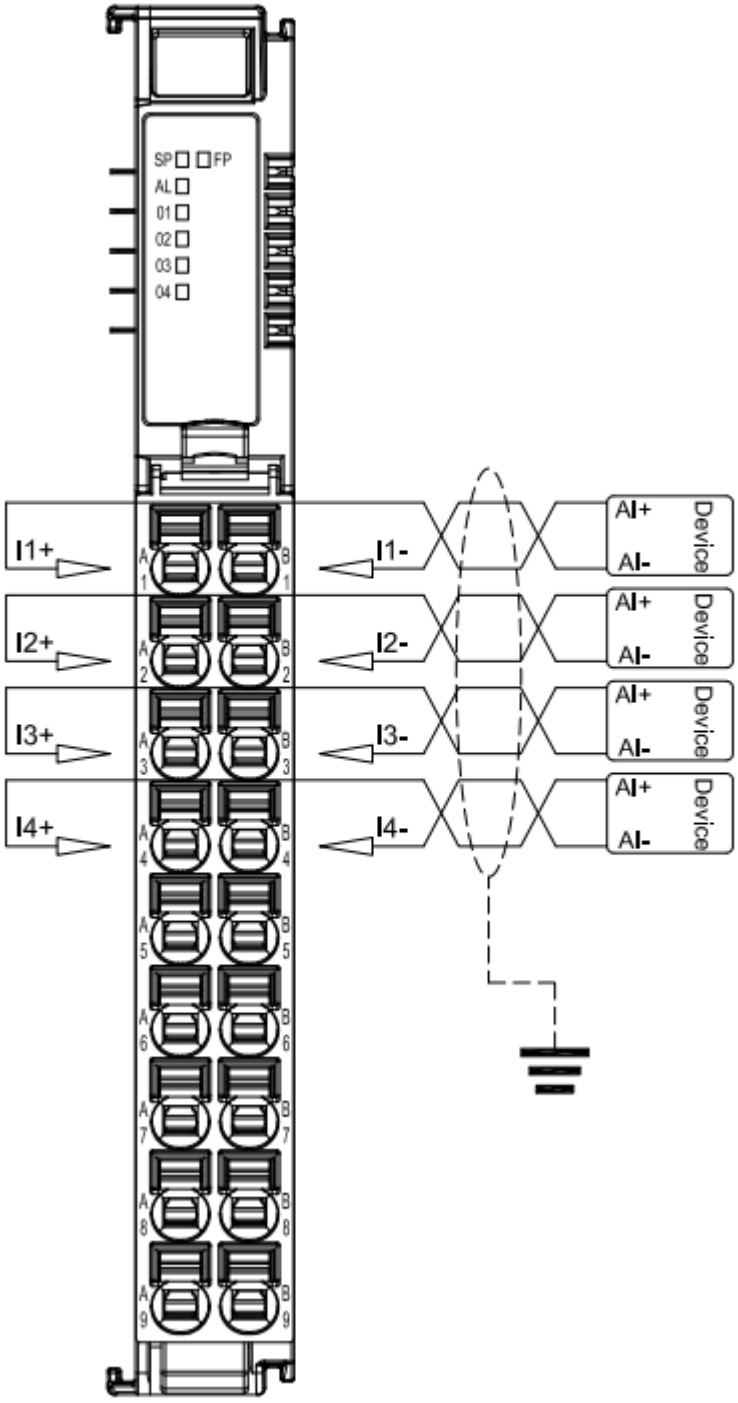


Figure 8.15 GX-AI21C / GX-AI22C Wiring Diagram

8.3.3 GX-AQ21V / GX-AQ22V

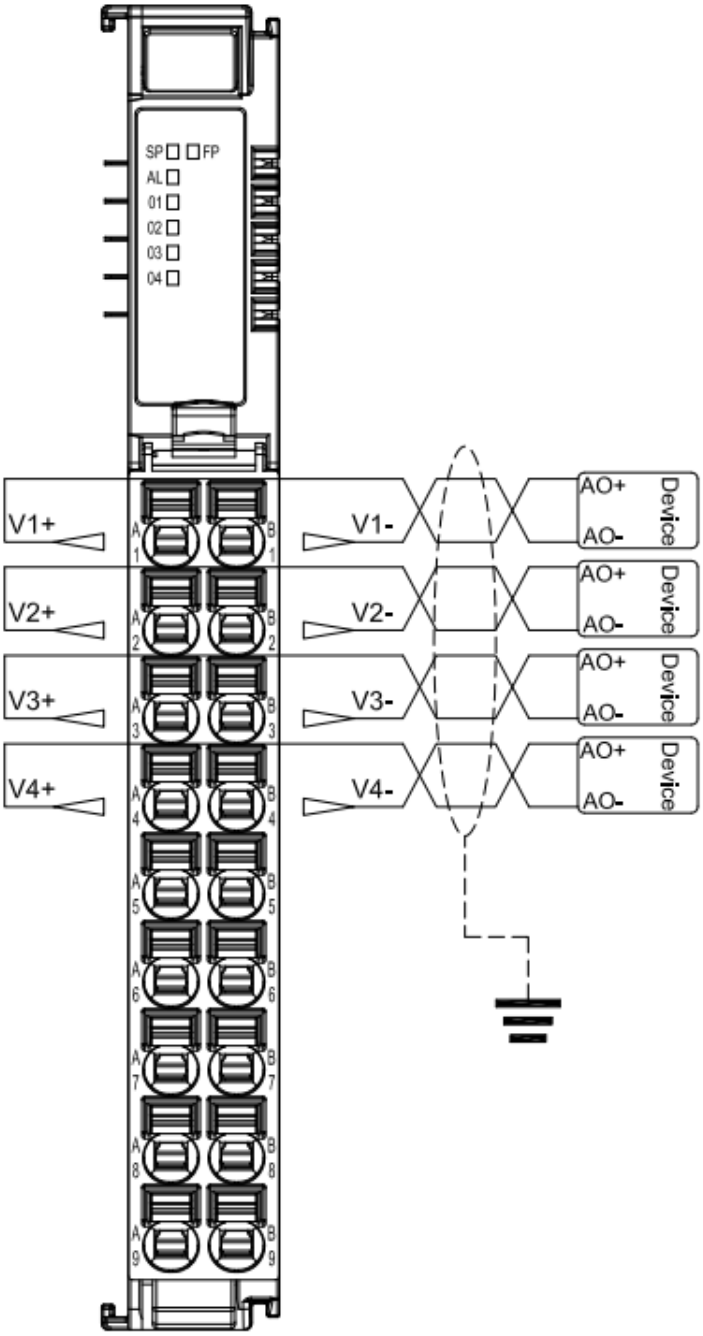


Figure 8.16 GX-AQ21V / GX-AQ22V Diagram

8.3.4 GX-AQ21C / GX-AQ22C

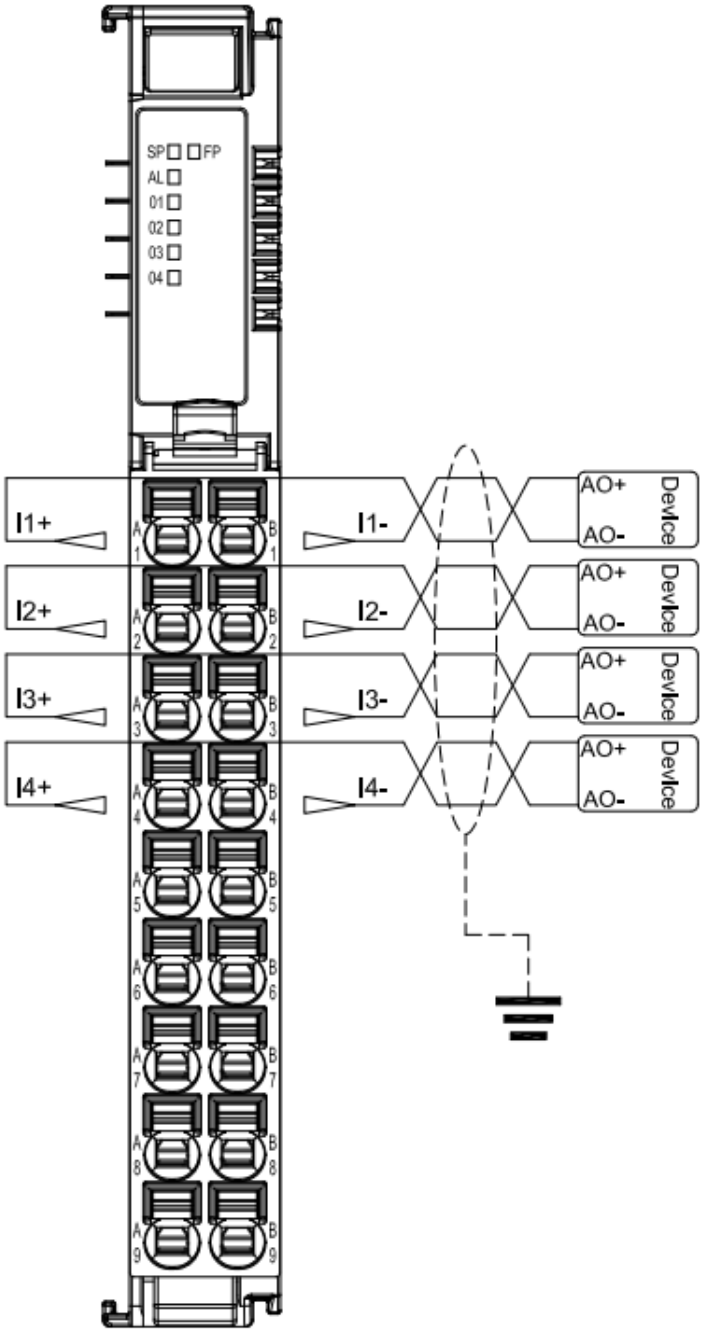


Figure 8.17 GX-AQ21C / GX-AQ22C Wiring Diagram

8.3.5 GX-AI31V / GX-AI32V

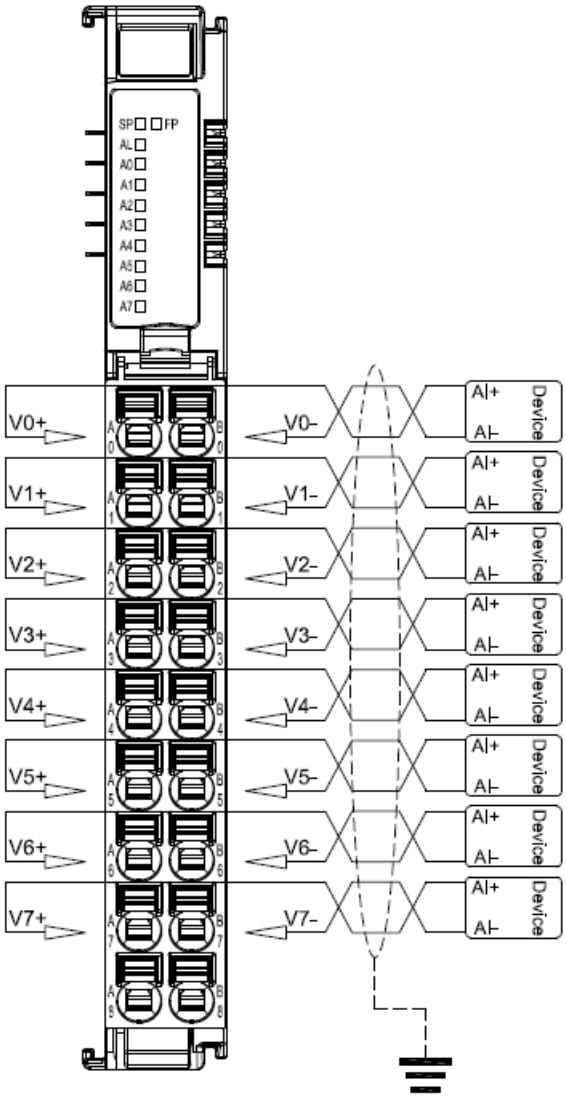


Figure 8.18 GX-AI31V / GX-AI32V Wiring Diagram

8.3.6 GX-AI31C / GX-AI32C

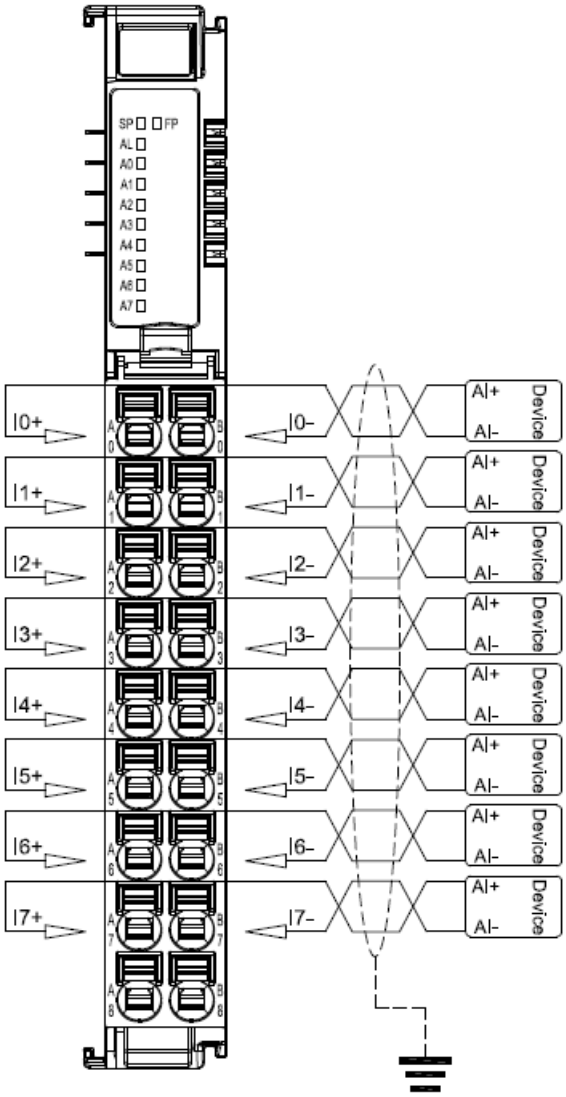


Figure 8.19 GX-AI31C / GX-AI32C Wiring Diagram

8.3.7 GX-AQ31V / GX-AQ32V

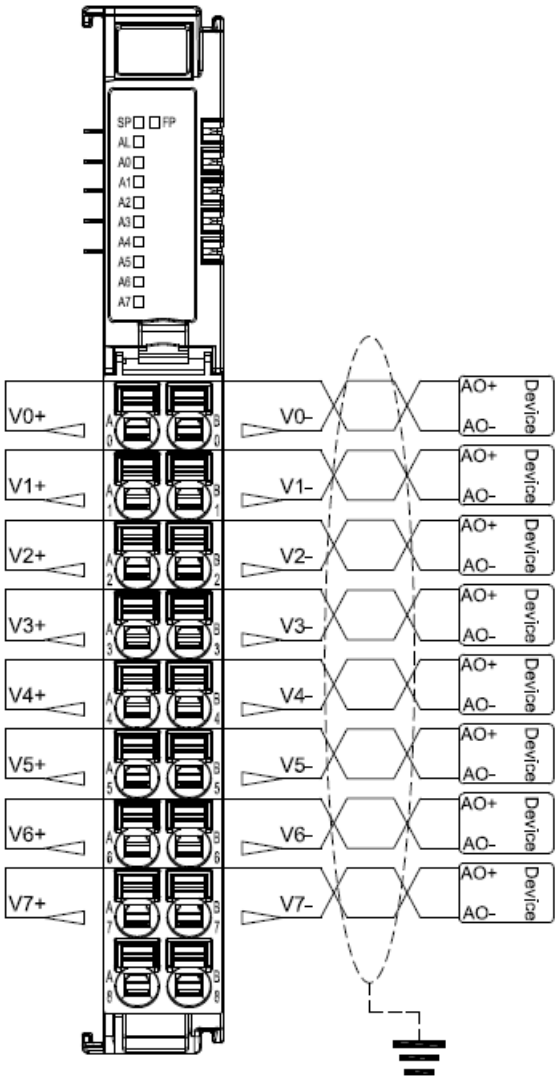


Figure 8.20 GX-AQ31V / GX-AQ32V Wiring Diagram

8.3.8 GX-AQ31C / GX-AQ32C

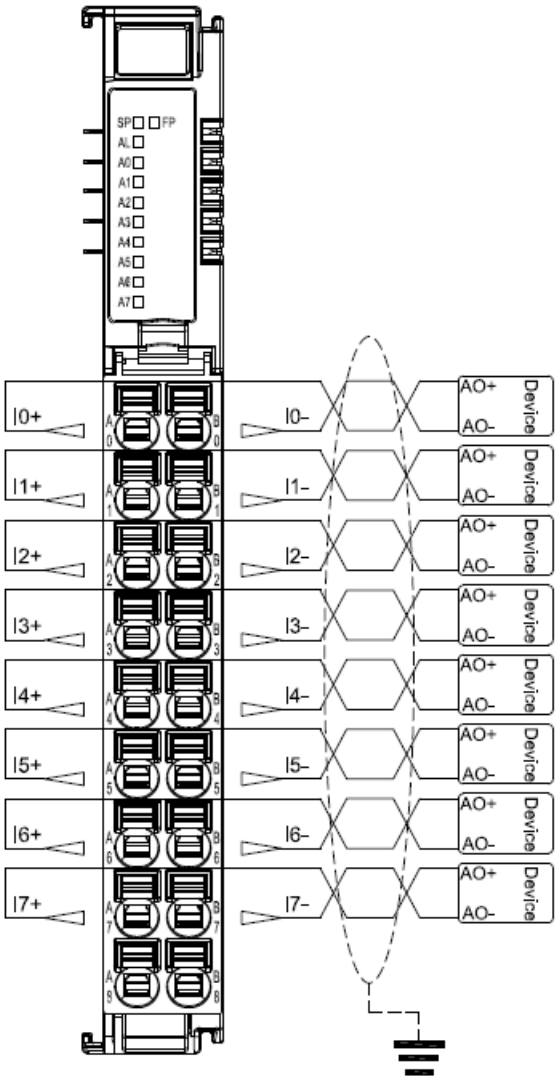


Figure 8.21 GX-AQ31C / GX-AQ32C Wiring Diagram

9. Parameter Setting and Configuration Instructions

9.1 Product Assembly Configuration

As shown in the image below, product configuration primarily involves couplers and I/O modules.

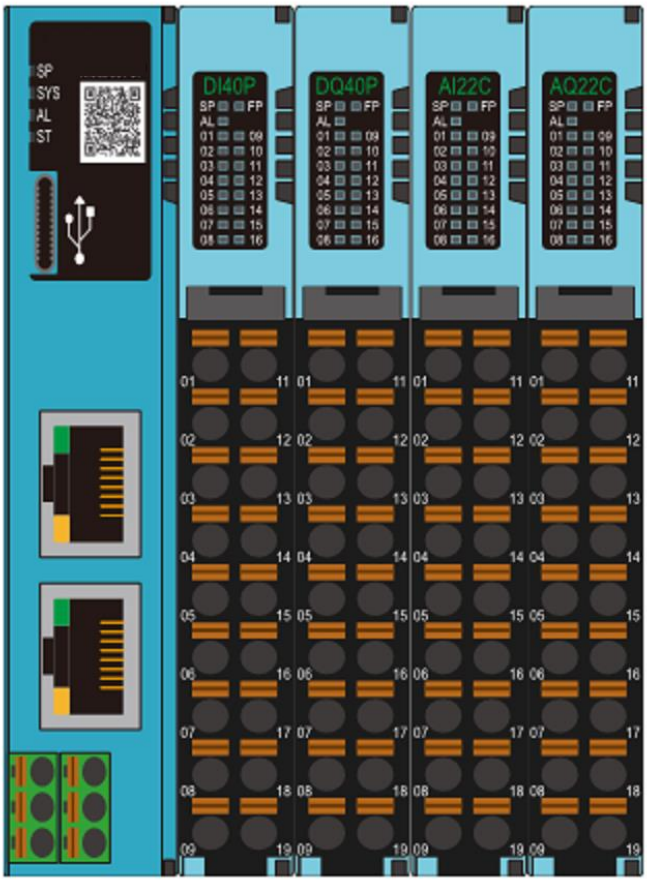


Figure 9.1

Quantity Limit for Configuration

1. A maximum of 64 physical I/O modules can be configured on the coupler.
2. The coupler can also configure a total of up to 64 modules[NOTICE], including both expanded virtual modules and physical modules.

NOTICE
Error code information will occupy 3 slot modules.

9.2 Coupler Parameter Explanation

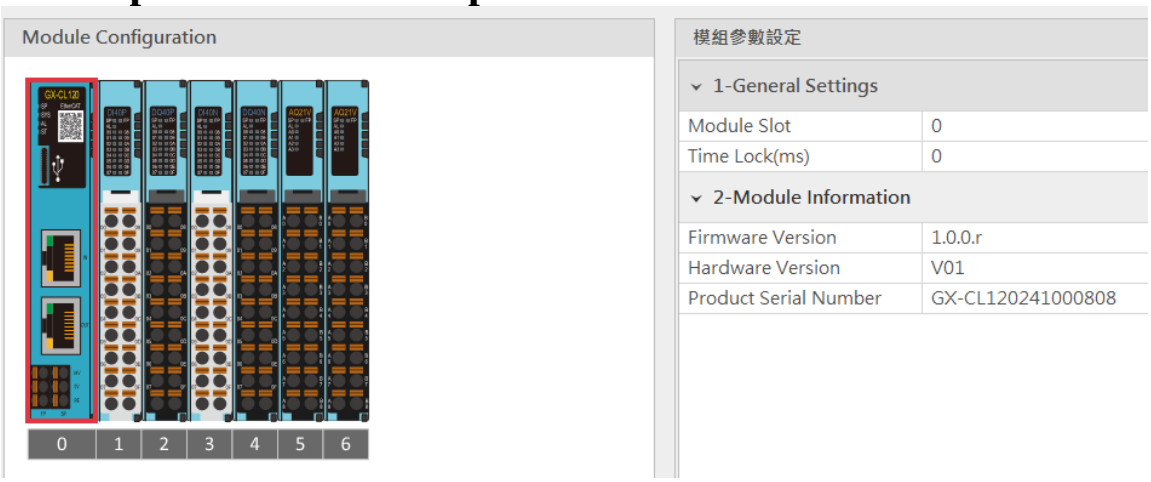


Figure 9.2 Coupler Parameters

9.2.1 General Settings

- Module Slot：Slot number (location) with the coupler being 0 at all times.
- Reset Time：If not set, this parameter is set to 0 by default, meaning that the reset function has not been activated. If set to 1000, the coupler module will exchange IO data with the host within 1 second. If no data is exchanged within this set period of time, the coupler module will control the output module to 0.

9.2.2 Module Information

- Firmware Version：The module's current firmware version.
- Hardware Version：Module hardware design version.
- Product Serial Number：The only identifier for DAUDIN products.

After completing the settings, proceed to upload the parameters as shown in Figure 6.3.

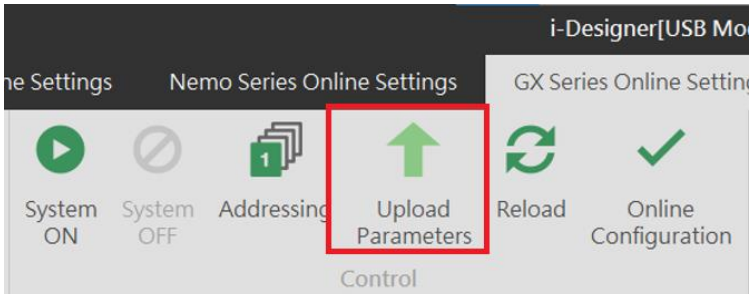


Figure 9.3 Upload Parameters

CAUTION

Before proceeding with relevant settings, system operation must be paused.

9.3 Factory Defaults

Apart from setting parameters through i-Designer, users can also reset system parameters using the reset button located inside the side casing.

Press Time/Mode	Application Mode
Light Press (<6 seconds)	Module restart (RESET)
Long Press (>6 seconds)	Restore default parameters (Application Mode)[Note]

Note: When the user presses and holds for six seconds, the SYS indicator will turn off or remain solid red. After releasing the button, a flashing red light indicates the restoration of factory backup values or parameter defaults has been completed.

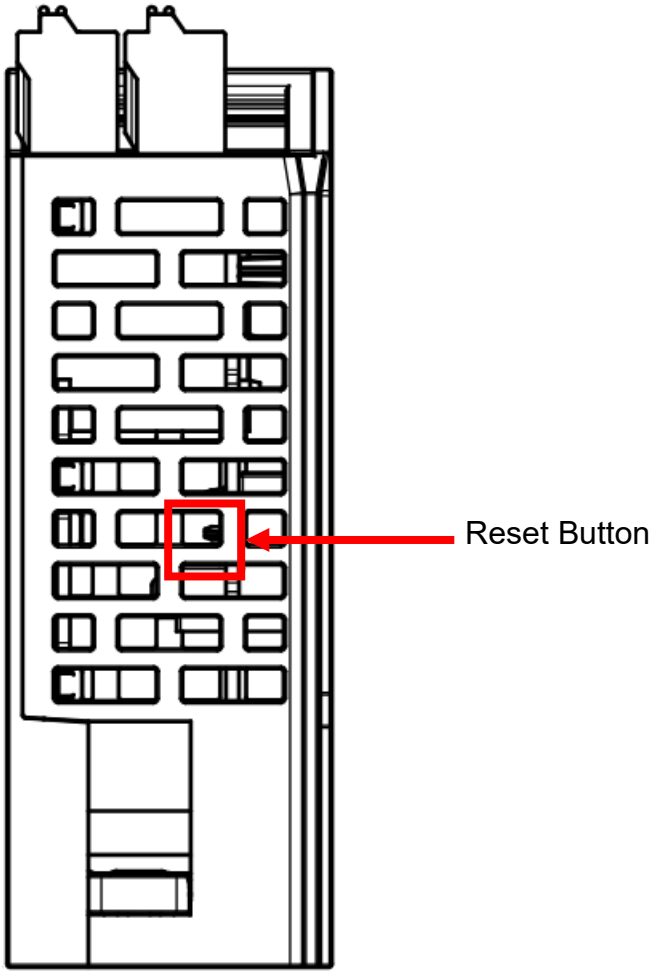
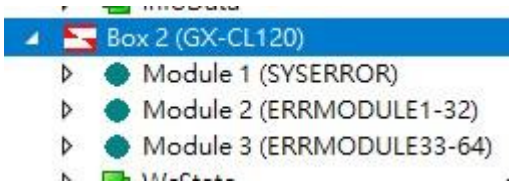


Figure 9.4 The System Reset Button.

9.4 Error Code Lookup

Users can check system error information and identify IO modules that triggered timeouts using the virtual modules "SYSERROR," "ERRMODULE1-32," and "ERRMODULE33-64."



SYSERROR: Records system error information as a 32-bit data structure, arranged in sequence from HSB (High Significant Bit) to LSB (Low Significant Bit).

Description	SYSERROR [4 Byte]							
	Bit 7	Bit 6	Bit 5	Bit 4	Bit 3	Bit 2	Bit 1	Bit 0
System Error [3]	Reserved							
System Error [2]	Reserved						Err17	Err16
System Error [1]	Err15	Err14	Err13	Err12	Err11	Err10	Err9	Err8
System Error [0]	Err7	Err6	Err5	Err4	Err3	Err2	Err1	Err0

Err0: Reserved
Err1: Bit set to 1 (Coupler/IO module): Indicates the first boot, with no relevant data in memory
Err2: Bit set to 1 (Coupler/IO module): Indicates memory exceeds the planned size
Err3: Bit set to 1 (Coupler/IO module): Indicates a Checksum error
Err4: Bit set to 1 (Coupler/IO module): Indicates boot failure
Err5: Bit set to 1 (IO module): Indicates that the power is not supplied to the load side of the IO module
Err6: Bit set to 1 (IO module): Indicates IO module over-voltage/over-current
Err7: Bit set to 1 (IO module): Indicates ADC read error in the analog module
Err8: Bit set to 1 (Coupler/IO module): Indicates memory write/erase operation failed
Err9: Bit set to 1 (Coupler): Indicates no saved station record in memory
Err10: Bit set to 1 (Coupler): Indicates the memory station record differs from the boot scan
Err11: Bit set to 1 (Coupler): Indicates no module station number was detected in the boot scan
Err12: Bit set to 1 (Coupler): Indicates communication timeout in Polling Mode for IO modules
Err13: Bit set to 1 (Coupler): Indicates station failure
Err14: Bit set to 1 (Coupler/IO module): Indicates data length in operating mode exceeds the set value
Err15: Bit set to 1 (Coupler): Indicates hot-swap function recovery failure
Err16: Bit set to 1 (Coupler): Indicates network initialization failure
Err17: Bit set to 1 (Coupler): Indicates register address exceeds the control range

Error Module (01-32): Logs timeout information for IO modules as a 32-bit data structure, arranged in sequence from HSB to LSB.

Description	ERRMODULE1-32 [4 Byte]							
	Bit 7	Bit 6	Bit 5	Bit 4	Bit 3	Bit 2	Bit 1	Bit 0
Module Error [3]	Slot32	Slot31	Slot30	Slot29	Slot28	Slot27	Slot26	Slot25
Module Error [2]	Slot24	Slot23	Slot22	Slot21	Slot20	Slot19	Slot18	Slot17
Module Error [1]	Slot16	Slot15	Slot14	Slot13	Slot12	Slot11	Slot10	Slot9
Module Error [0]	Slot8	Slot7	Slot6	Slot5	Slot4	Slot3	Slot2	Slot1

Slot1: IO module ID 1; Bit set to 1 indicates polling timeout for this module
Slot2: IO module ID 2; Bit set to 1 indicates polling timeout for this module
Slot3: IO module ID 3; Bit set to 1 indicates polling timeout for this module
:
(and so on)
:
Slot32: IO module ID 32; Bit set to 1 indicates polling timeout for this module

Error Module (33-64): Logs timeout information for IO modules as a 32-bit data structure, arranged in sequence from HSB to LSB.

Description	ERRMODULE33-64 [4 Byte]							
	Bit 7	Bit 6	Bit 5	Bit 4	Bit 3	Bit 2	Bit 1	Bit 0
Module Error [3]	Slot64	Slot63	Slot62	Slot61	Slot60	Slot59	Slot58	Slot57
Module Error [2]	Slot56	Slot55	Slot54	Slot53	Slot52	Slot51	Slot50	Slot49
Module Error [1]	Slot48	Slot47	Slot46	Slot45	Slot44	Slot43	Slot42	Slot41
Module Error [0]	Slot40	Slot39	Slot38	Slot37	Slot36	Slot35	Slot34	Slot33

Slot33: IO module ID 33; Bit set to 1 indicates polling timeout for this module
Slot34: IO module ID 34; Bit set to 1 indicates polling timeout for this module
Slot35: IO module ID 35; Bit set to 1 indicates polling timeout for this module
:
(and so on)
:
Slot64: IO module ID 64; Bit set to 1 indicates polling timeout for this module

9.5 Analog Module A/D and D/A Conversion Parameters and Settings

9.5.1 Voltage Input/Output Range (-10V to 10V)

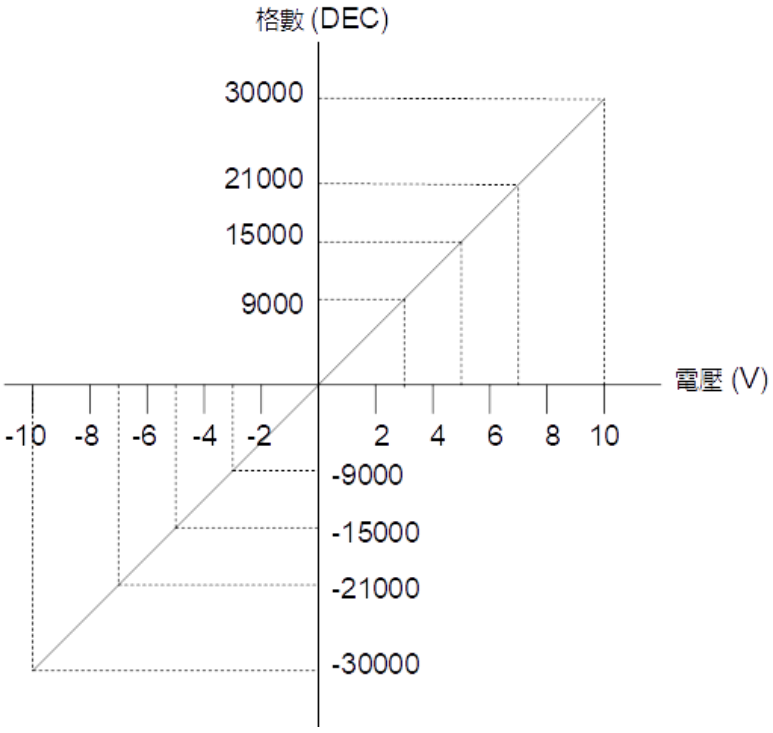


Figure 9.5 Conversion Characteristics for the -10V to 10V Range.

Voltage conversion table:

	0	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9
10	30000	30300	30600	30900	31200	31500	-	-	-	-
9	27000	27300	27600	27900	28200	28500	28800	29100	29400	29700
8	24000	24300	24600	24900	25200	25500	25800	26100	26400	26700
7	21000	21300	21600	21900	22200	22500	22800	23100	23400	23700
6	18000	18300	18600	18900	19200	19500	19800	20100	20400	20700
5	15000	15300	15600	15900	16200	16500	16800	17100	17400	17700
4	12000	12300	12600	12900	13200	13500	13800	14100	14400	14700
3	9000	9300	9600	9900	10200	10500	10800	11100	11400	11700
2	6000	6300	6600	6900	7200	7500	7800	8100	8400	8700
1	3000	3300	3600	3900	4200	4500	4800	5100	5400	5400
0	0	300	600	900	1200	1500	1800	2100	2400	2700
0	0	-300	-600	-900	-1200	-1500	-1800	-2100	-2400	-2700
-1	-3000	-3300	-3600	-3900	-4200	-4500	-4800	-5100	-5400	-5700
-2	-6000	-6300	-6600	-6900	-7200	-7500	-7800	-8100	-8400	-8700
-3	-9000	-9300	-9600	-9900	-10200	-10500	-10800	-11100	-11400	-11700
-4	-12000	-12300	-12600	-12900	-13200	-13500	-13800	-14100	-14400	-14700
-5	-15000	-15300	-15600	-15900	-16200	-16500	-16800	-17100	-17400	-17700
-6	-18000	-18300	-18600	-18900	-19200	-19500	-19800	-20100	-20400	-20700
-7	-21000	-21300	-21600	-21900	-22200	-22500	-22800	-23100	-23400	-23700
-8	-24000	-24300	-24600	-24900	-25200	-25500	-25800	-26100	-26400	-26700
-9	-27000	-27300	-27600	-27900	-28200	-28500	-28800	-29100	-29400	-29700
-10	-30000	-30300	-30600	-30900	-31200	-31500	-	-	-	-

NOTICE

Input/Output data range: -31500 (-10.50V) to 31500 (+10.50V). If the input/output data exceeds this range, values will be limited to the maximum value (31500) or the minimum value (-31500).

9.5.2 Voltage Input/Output Range (0V to 10V)

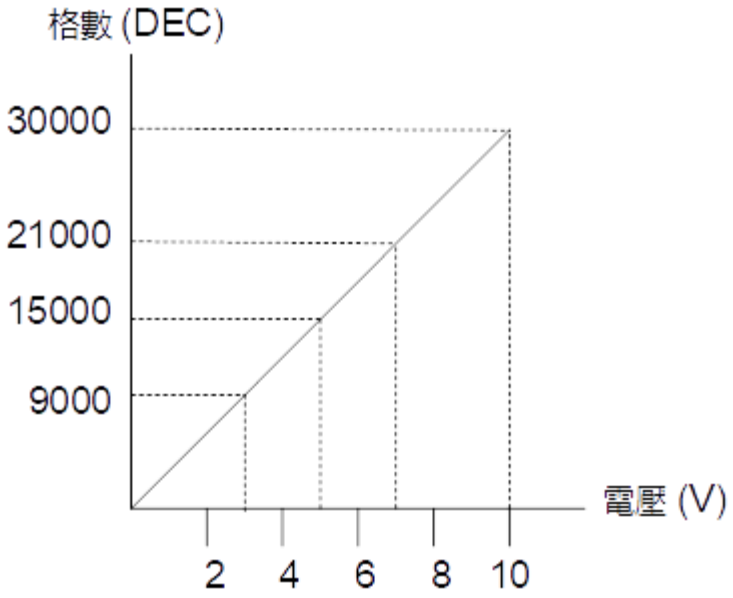


Figure 9.6 Conversion Characteristics for the 0V to 10V Range.

Voltage conversion table:

	0	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9
10	30000	30300	30600	30900	31200	31500	-	-	-	-
9	27000	27300	27600	27900	28200	28500	28800	29100	29400	29700
8	24000	24300	24600	24900	25200	25500	25800	26100	26400	26700
7	21000	21300	21600	21900	22200	22500	22800	23100	23400	23700
6	18000	18300	18600	18900	19200	19500	19800	20100	20400	20700
5	15000	15300	15600	15900	16200	16500	16800	17100	17400	17700
4	12000	12300	12600	12900	13200	13500	13800	14100	14400	14700
3	9000	9300	9600	9900	10200	10500	10800	11100	11400	11700
2	6000	6300	6600	6900	7200	7500	7800	8100	8400	8700
1	3000	3300	3600	3900	4200	4500	4800	5100	5400	5400
0	0	300	600	900	1200	1500	1800	2100	2400	2700
0	0	-300	-600	-900	-1200	-1500	-	-	-	-

NOTICE

Input/Output data range: -1500 (-0.50V) to 31500 (+10.50V).

If the data falls outside this range, it will be limited to the maximum of 31500 (or a minimum of -1500.)

9.5.3 Current Input/Output Range: 0–20mA

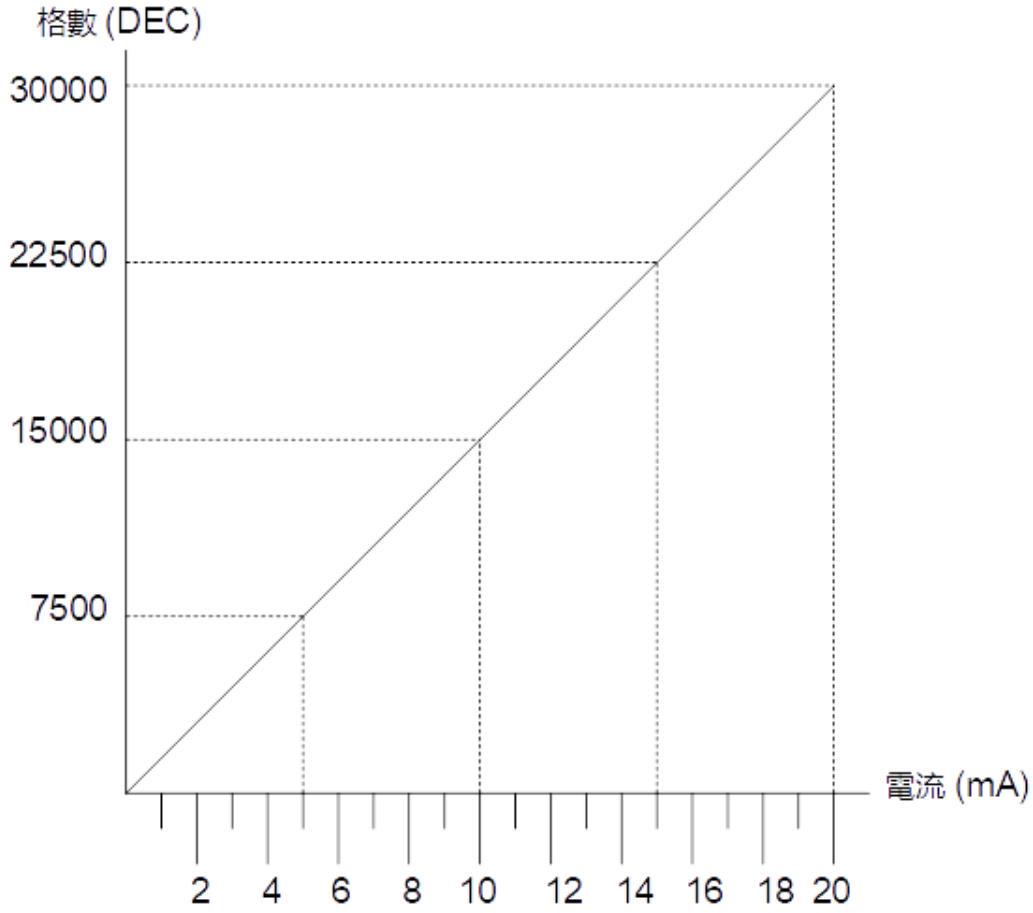


Figure 9.7 Conversion Characteristics for 0–20mA

Current Conversion Table

	0	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9
20	30000	30150	30300	30450	30600	30750	30900	31050	31200	31350
19	28500	28650	28800	28950	29100	29250	29400	29550	29700	29850
18	27000	27150	27300	27450	27600	27750	27900	28050	28200	28350
17	25500	25650	25800	25950	26100	26250	26400	26550	26700	26850
16	24000	24150	24300	24450	24600	24750	24900	25050	25200	25350
15	22500	22650	22800	22950	23100	23250	23400	23550	23700	23850
14	21000	21150	21300	21450	21600	21750	21900	22050	22200	22350
13	19500	19650	19800	19950	20100	20250	20400	20550	20700	20850
12	18000	18150	18300	18450	18600	18750	18900	19050	19200	19350
11	16500	16650	16800	16950	17100	17250	17400	17550	17700	17850
10	15000	15150	15300	15450	15600	15750	15900	16050	16200	16350
9	13500	13650	13800	13950	14100	14250	14400	14550	14700	14850
8	12000	12150	12300	12450	12600	12750	12900	13050	13200	13350
7	10500	10650	10800	10950	11100	11250	11400	11550	11700	11850
6	9000	9150	9300	9450	9600	9750	9900	10050	10200	10350
5	7500	7650	7800	7950	8100	8250	8400	8550	8700	8850
4	6000	6150	6300	6450	6600	6750	6900	7050	7200	7350
3	4500	4650	4800	4950	5100	5250	5400	5550	5700	5850
2	3000	3150	3300	3450	3600	3750	3900	4050	4200	4350
1	1500	1650	1800	1950	2100	2250	2400	2550	2700	2850
0	0	150	300	450	600	750	900	1050	1200	1350
0	0	-150	-300	-450	-600	-750	-900	-1050	-1200	-1350

NOTICE

The input/output data range is from -1500 (-1.0mA) to 31500 (+21.0mA).

If the data exceeds this range, it will be limited to the maximum of 31500 (or a minimum of -1500.)

9.5.4 Current Input/Output Range: 4–20mA

Conversion Characteristics:

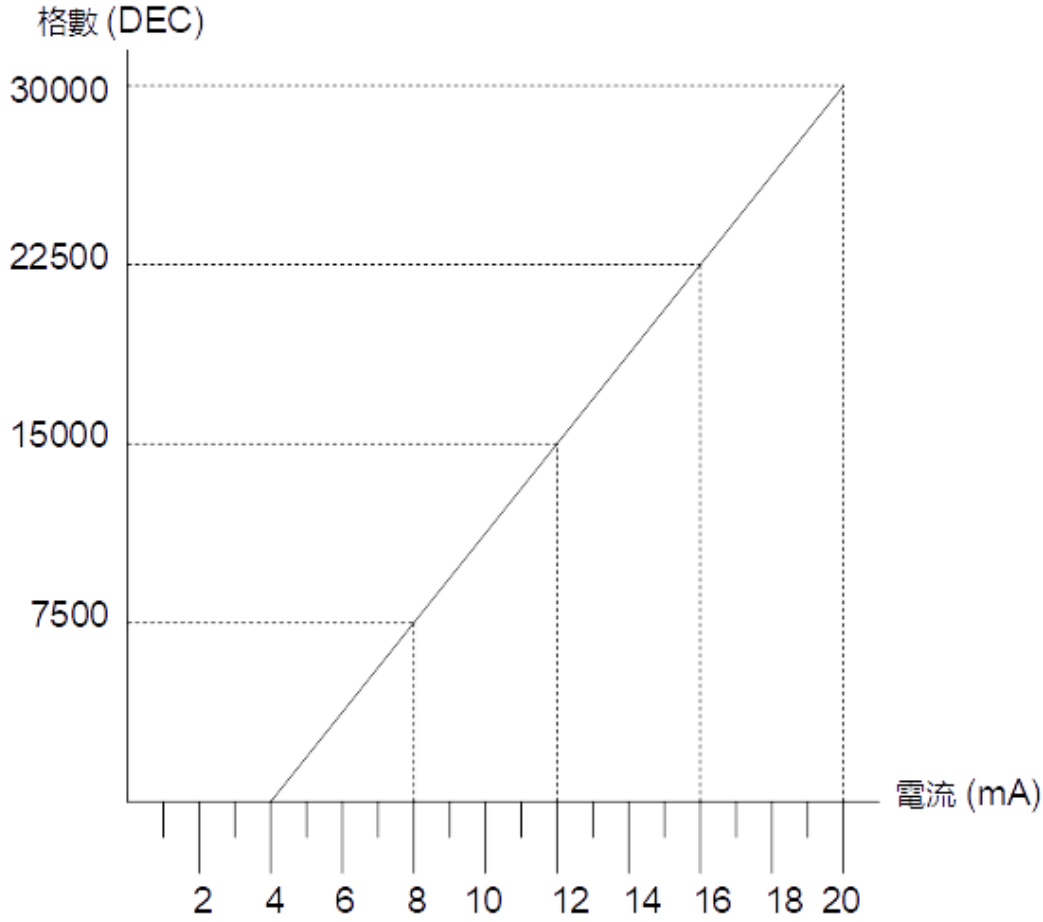


Figure 9.8 Conversion Characteristics for 4–20mA

Current Conversion Table

	0	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9
20	30000	30188	30375	30563	30750	30983	31125	31313	31500	
19	28125	28313	28500	28688	28875	29063	29250	29438	29625	29813
18	26250	26438	26625	26813	27000	27188	27375	27563	27750	27938
17	24375	24563	24750	24938	25125	25313	25500	25688	25875	26063
16	22500	22688	22875	23063	23250	23438	23625	23813	24000	24188
15	20625	20813	21000	21188	21375	21563	21750	21938	22125	22313
14	18750	18938	19125	19313	19500	19688	199875	20063	20250	20438
13	16875	17063	17250	17438	17625	17813	18000	18188	18375	18563
12	15000	15188	15375	15563	15750	15938	16125	16313	16500	16688
11	13125	13313	13500	13688	13875	14063	14250	14438	14625	14813
10	11250	11438	11625	11813	12000	12188	12375	12563	12750	12938
9	9375	9563	9750	9938	10125	10313	10500	10688	10875	11063
8	7500	7688	7875	8063	8250	8438	8625	8813	9000	9188
7	5625	5813	6000	6188	6375	6563	6750	6938	7125	7313
6	3750	3938	4125	4313	4500	4688	4875	5063	5250	5438
5	1875	2063	2250	2438	2625	2813	3000	3188	3375	2563
4	0	188	375	563	750	983	1125	1313	1500	1688
3	-		-1500	-1313	-1125	-983	-750	-563	-375	-188

NOTICE

The input/output data range is from -1500 (3.2mA) to 31500 (+20.8mA).

If the data exceeds this range, it will be limited to the maximum of 31500 (or a minimum of -1500.)

9.5.5 Function Setup Instructions

9.5.5.1 Offset Adjustment

When the output to an external device is 0 or the external device's output is 0, but the reading from the external device is not 0, or when an analog input module reads a non-zero value, the offset should be adjusted.

Example: If the module outputs 0V to the external device and the reading shows a deviation of -50 (DEC), set the OFFSET to 50.

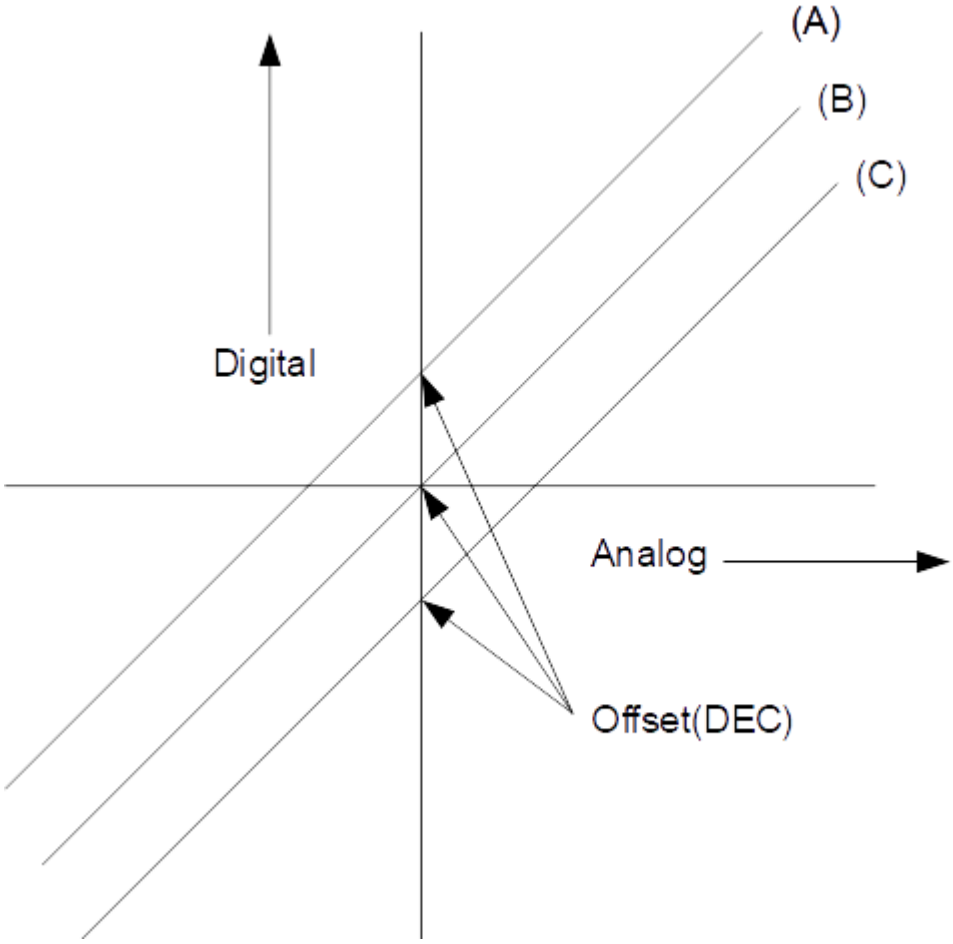


Figure 9.9 Offset Adjustment Diagram

(a): Reading is 100; set OFFSET to -100
(b): 0
(c): Reading is -100; set OFFSET to 100

9.5.5.2 Upper and Lower Limit Settings Example

For an output range of -10V to 10V, if the upper limit is set to 3000 (DEC) and the lower limit is set to 500 (DEC)

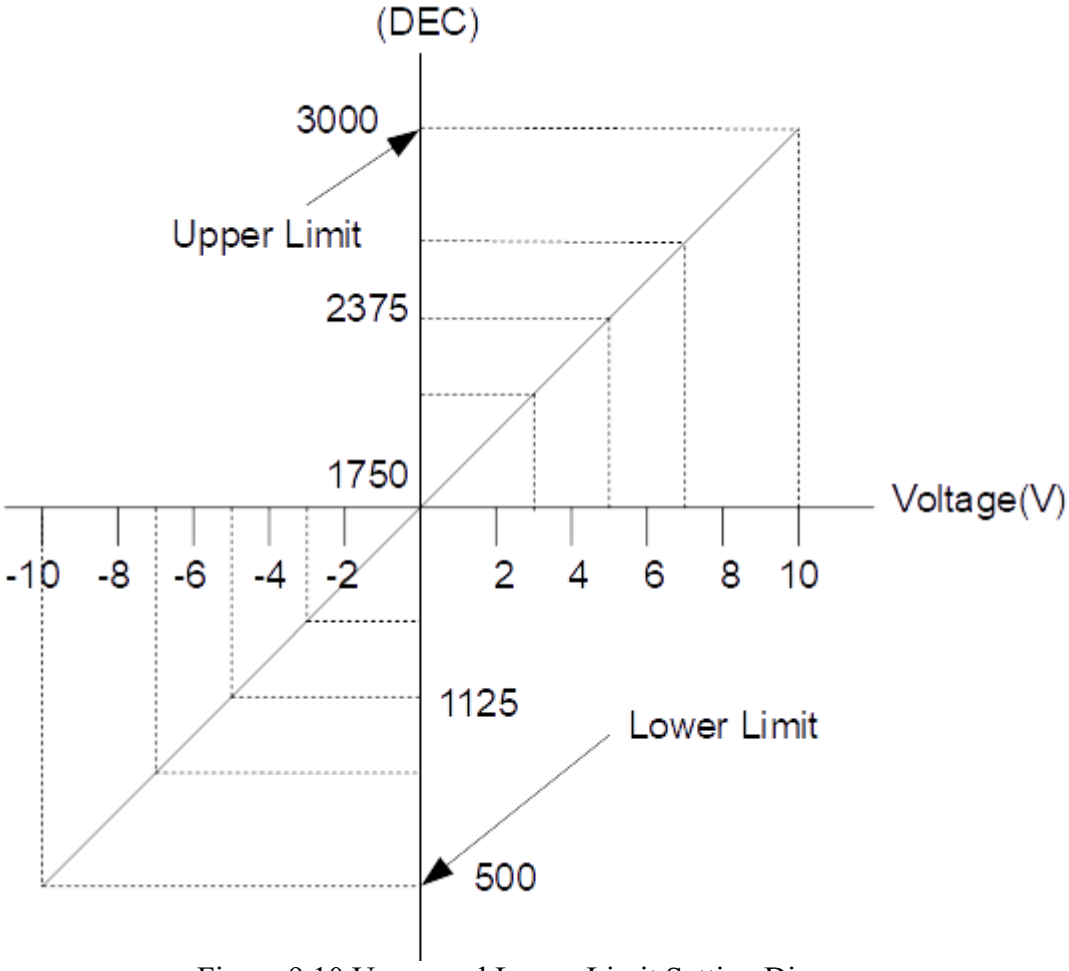


Figure 9.10 Upper and Lower Limit Setting Diagram

Original Register Value (DEC)	Upper/Lower Limit Register Value (DEC)	Analog Output Voltage
30000	3000	10
15000	2375	5
0	1750	0
-15000	1125	-5
-30000	500	-10

10. i-Designer Operating Instructions

10.1 Installation

Download the i-Designer program from the official website, then click on the program (as shown in the figure) to install it.

Figure 10.1 Program Icon

After reading the user agreement, please check the box and click Start Installation.

Figure 10.2 Click Start Installation

During installation, the progress will be displayed.

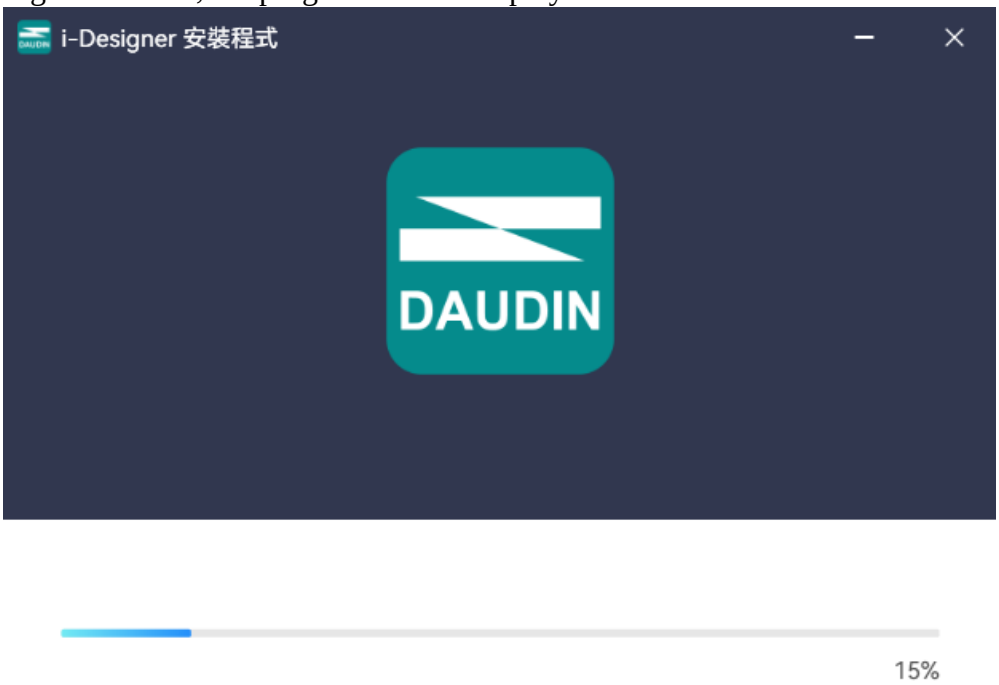


Figure 10.3 Installation Progress

Once the software installation is complete, you can choose to run it immediately by clicking the Finish button.

Figure 10.4 Installation Complete

10.2 UI Screen Description

After installation, locate the program icon on the desktop and click it to open the settings screen (see the figure below).

Figure 10.5 Program Icon

The screen is organized as follows, from top to bottom:

I. Tab Area: Select different product series or switch languages.
II. Function Key Area: Displays different function keys based on the selected tab.
III. Display and Configuration Area: Shows the module status and settings.
IV. Progress Display Area: Displays the progress of various functions in percentages, helping users understand the current execution status, such as configuration or updates.

Figure 10.6 Default Homepage

Tab Area:

(1) Homepage Tab: Provides information about i-Designer and options for switching the language. Refer to sections 8.2 and 8.3 for more details.

(2) Product Settings Tab: Used for setting parameters for various iO-GRID product series.

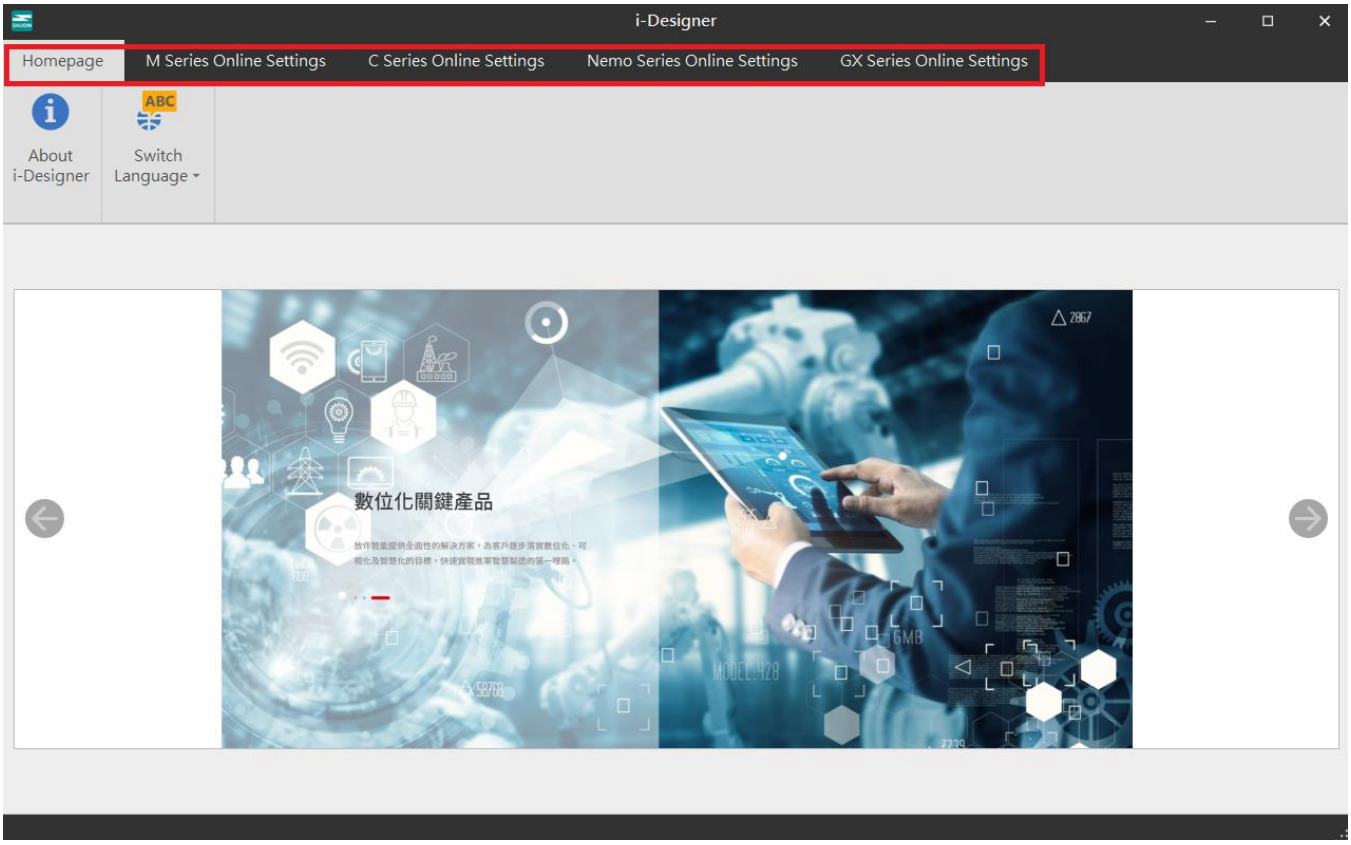


Figure 10.7 Tabs

Function Key Area:
The function keys displayed here vary based on the selected tab and product. The relevant descriptions are as follows:

Icon	Name	Description
	About i-Designer	Shows software version information.
	Switch Languages	Switches between Traditional Chinese, Simplified Chinese, and English.
	Connection Mode	Offers automatic or manual module connection modes.
	Connection Info	
	Connect	Connects to the module.
	Disconnect	Disconnects from the module.
	System stop	Temporarily stops the module system.
	System running	Starts the module system.
	Auto Station Assignment	Reconfigures the station numbers of the module system.
	Upload parameters	Updates the module settings.
	Online Adjustment	
	Check for Updates	Searches and compares the current module firmware version to check whether it is the latest.
	Firmware update	Manually updates the module firmware.
	Point Information Overview	Displays all operational data of the modules.

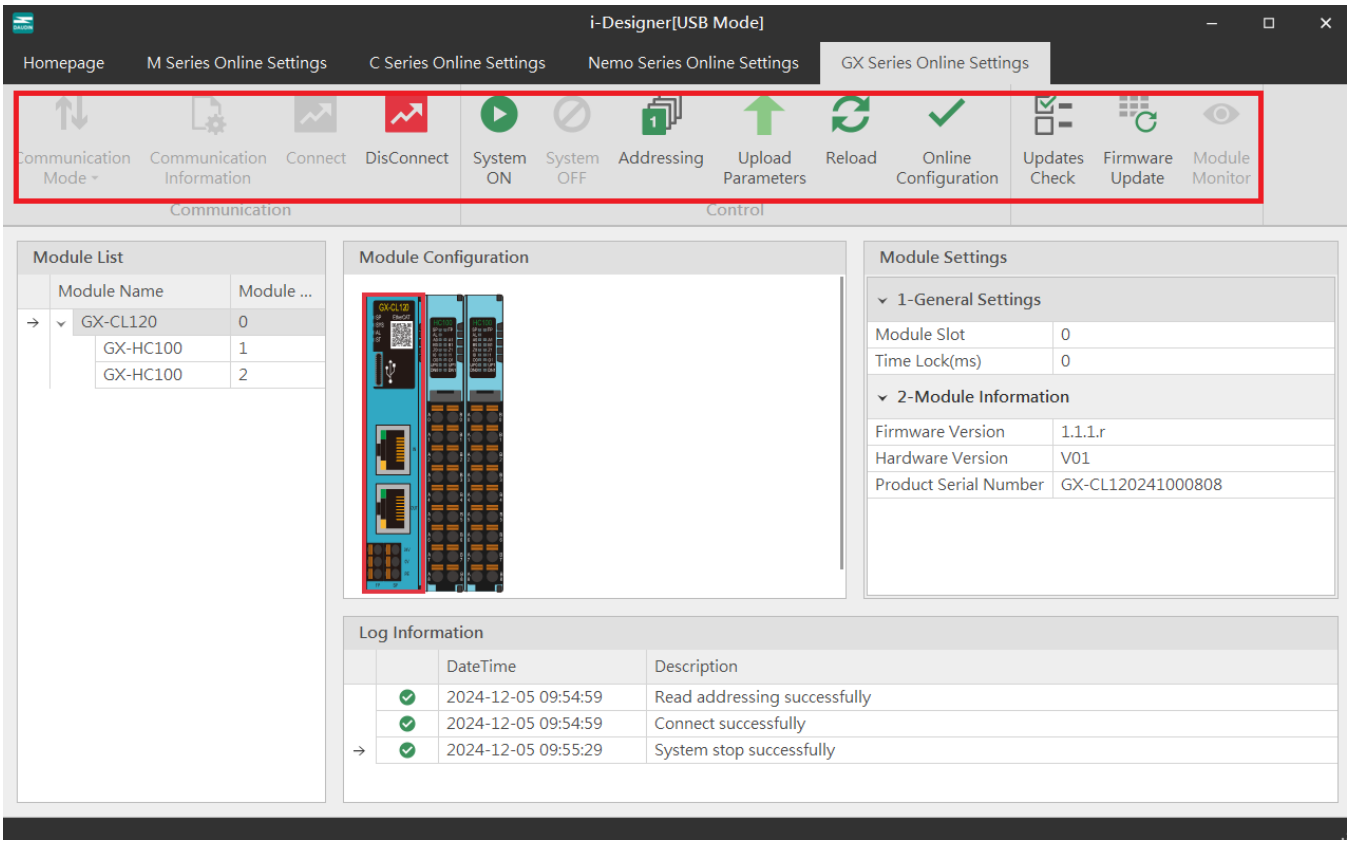


Figure 10.8 Function Key Area

Display and Configuration Area

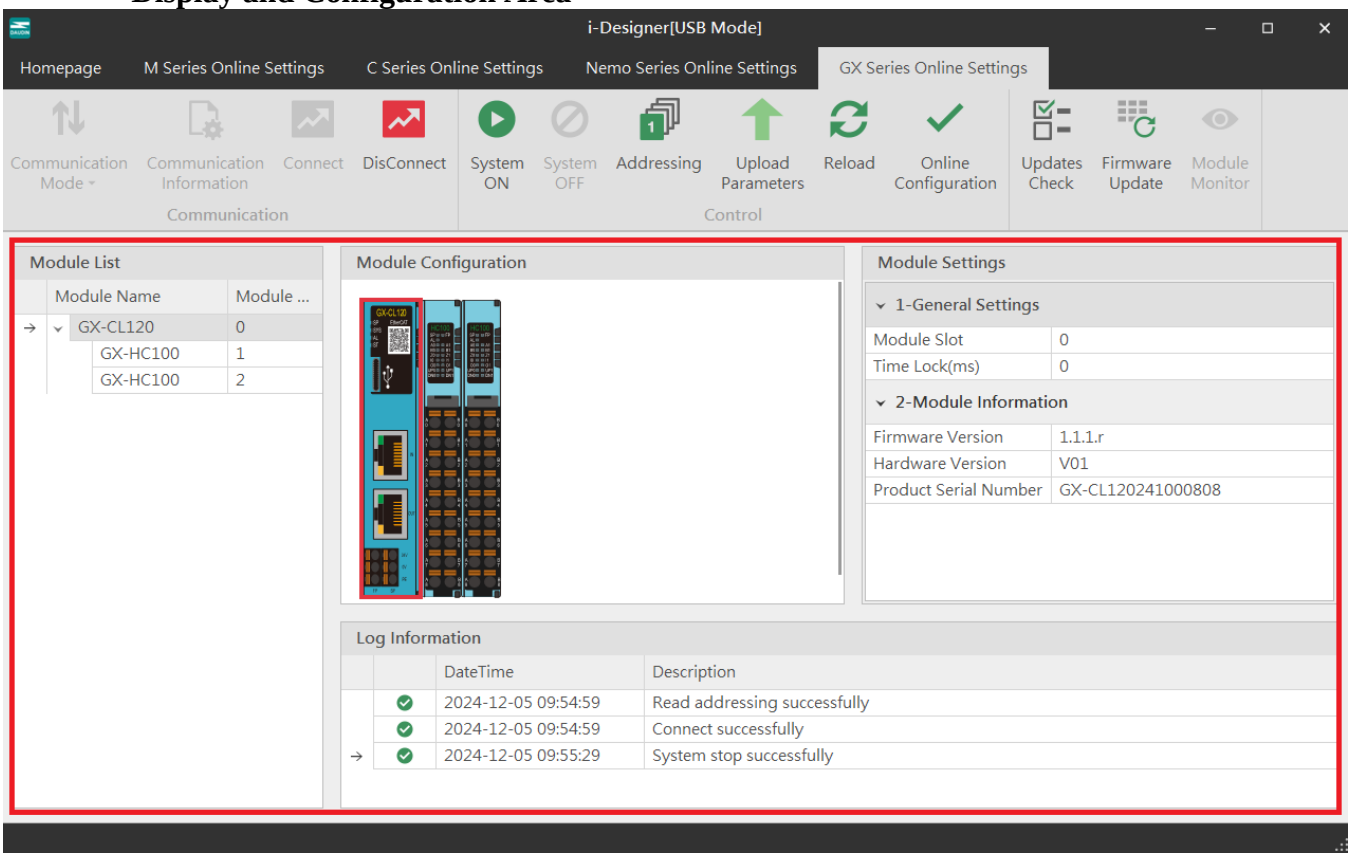


Figure 10.9 Display and Configuration Area

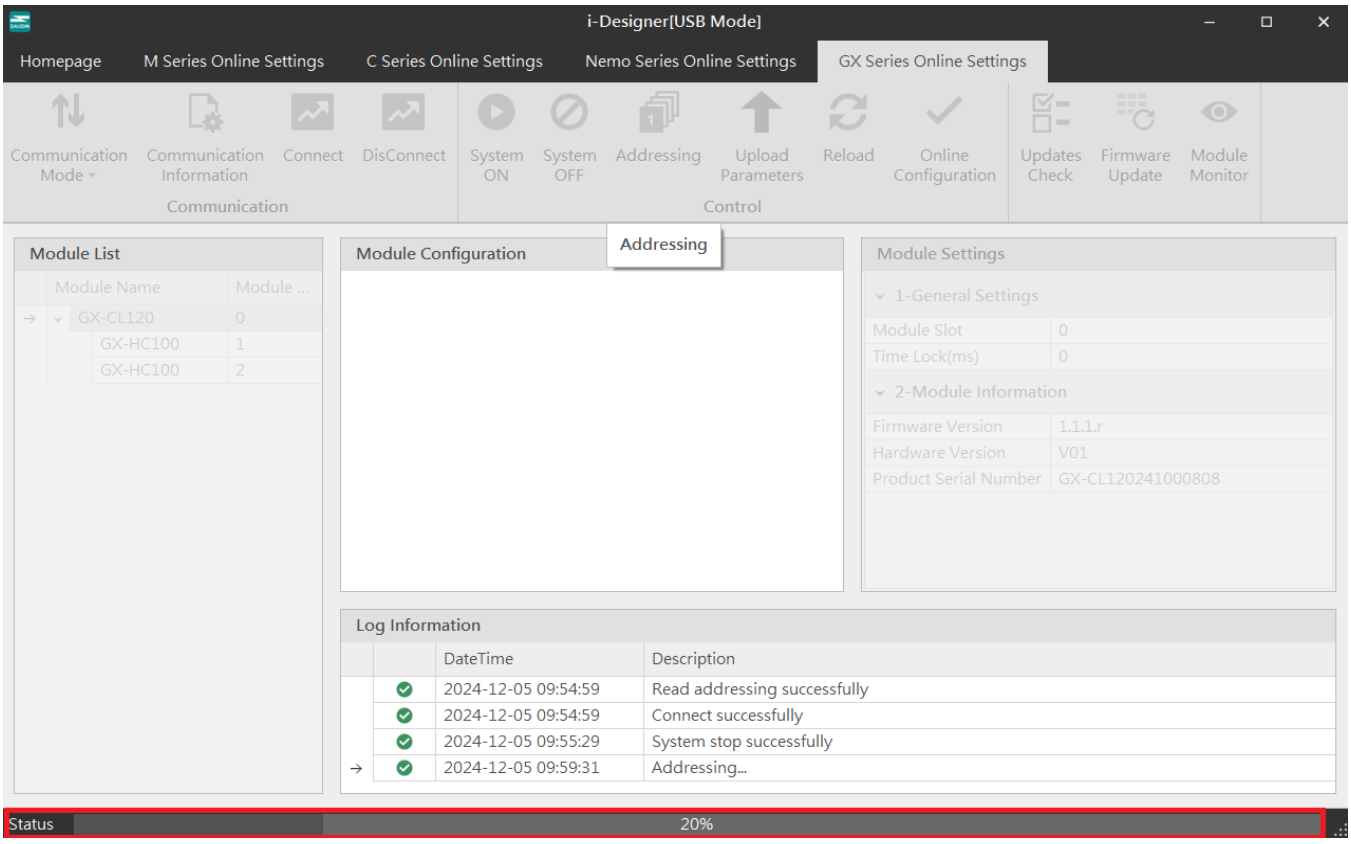


Figure 10.10 Progress Display Area

10.3 i-Designer Information Verification

Click on the homepage -> About i-Designer

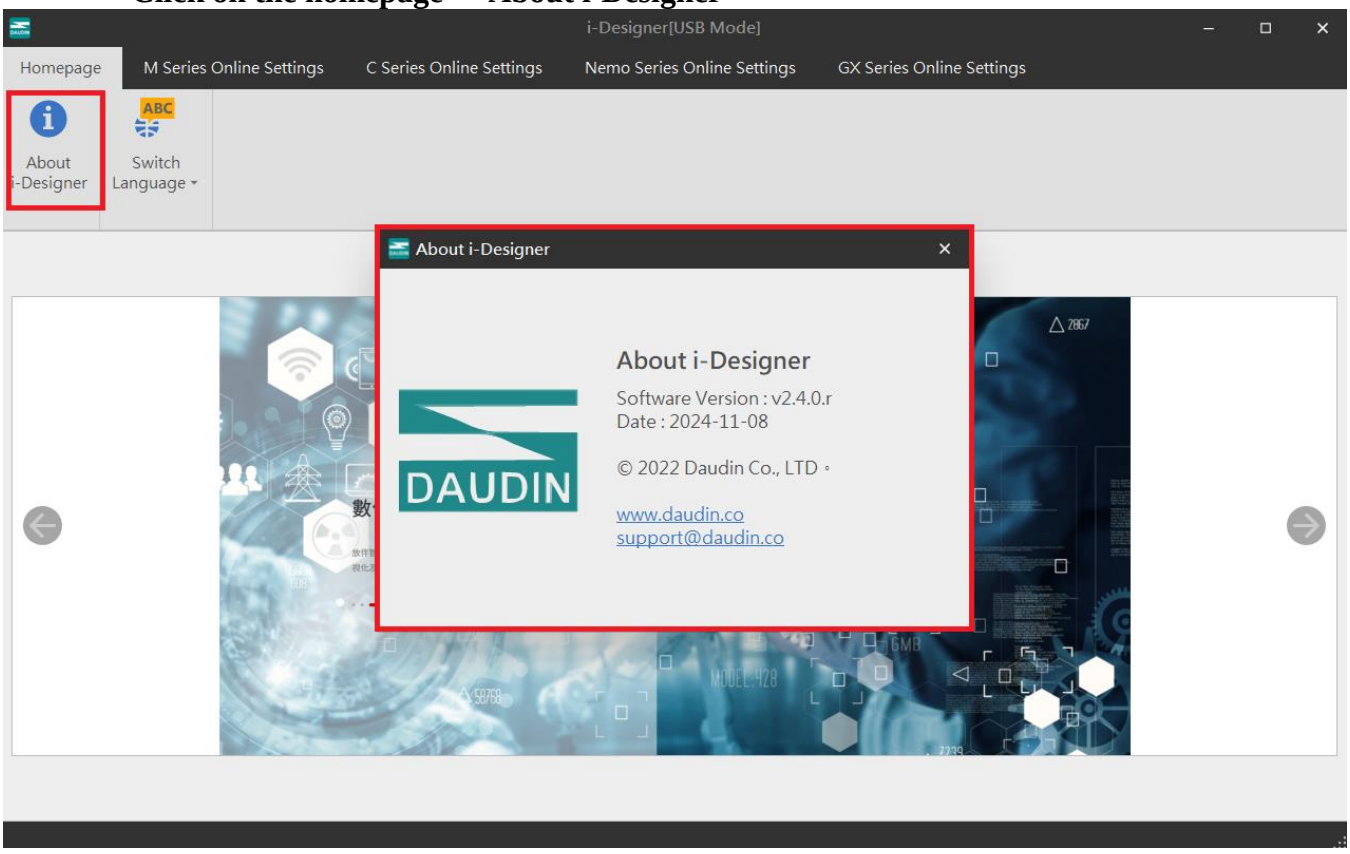


Figure 10.11 Software Information

10.4 Language Settings

i-Designer currently supports three languages: Traditional Chinese, Simplified Chinese, and English. Use this feature to change the language.

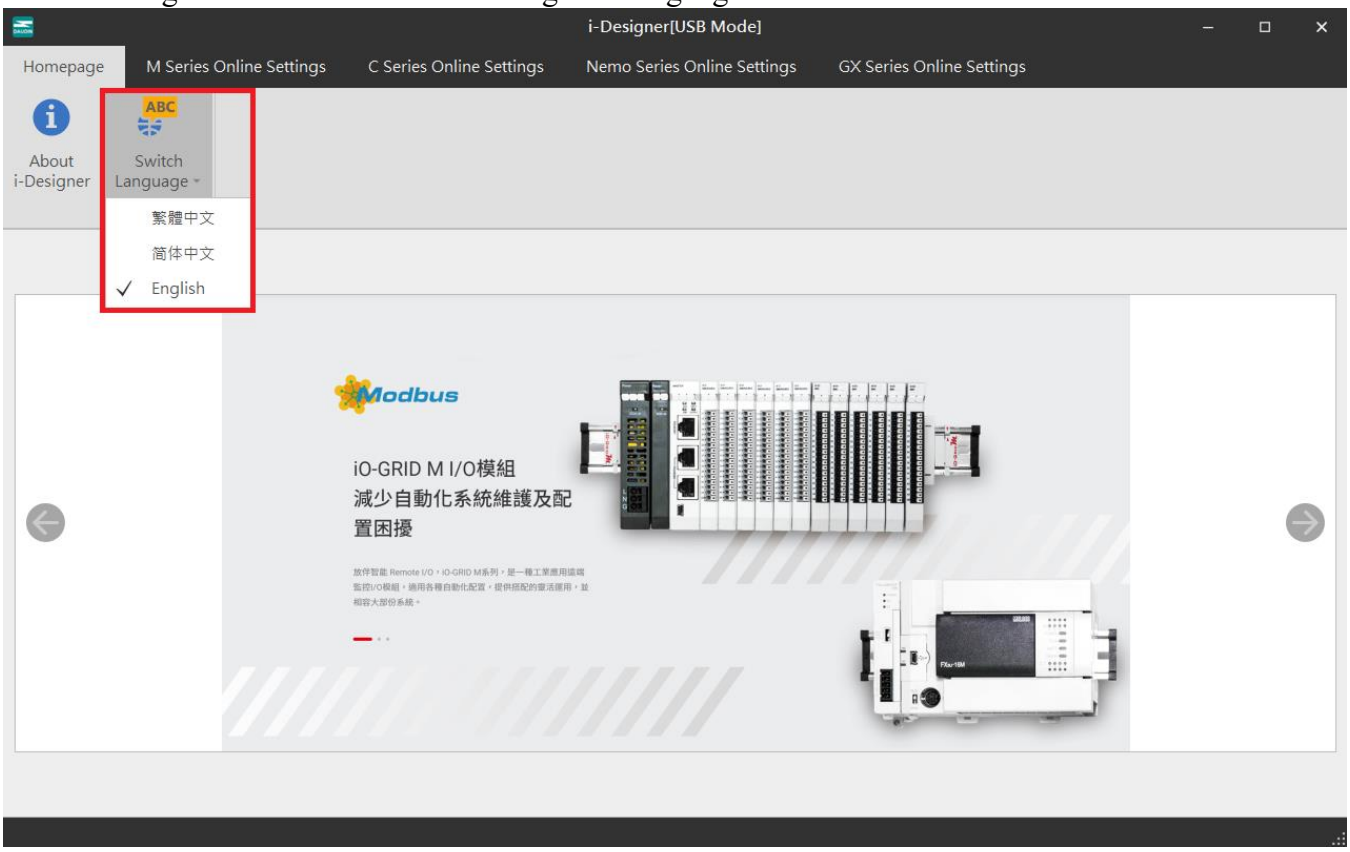


Figure 10.12 Language Selection

10.5 COM Port Connection Settings

i-Designer communicates with the iO-GRID coupler module primarily through the COM Port interface. Connection modes include automatic module search mode and manual COM Port connection mode.

Before setting up a custom connection with the iO-GRID, please confirm the COM Port number assigned to the coupler module to proceed with configuration.

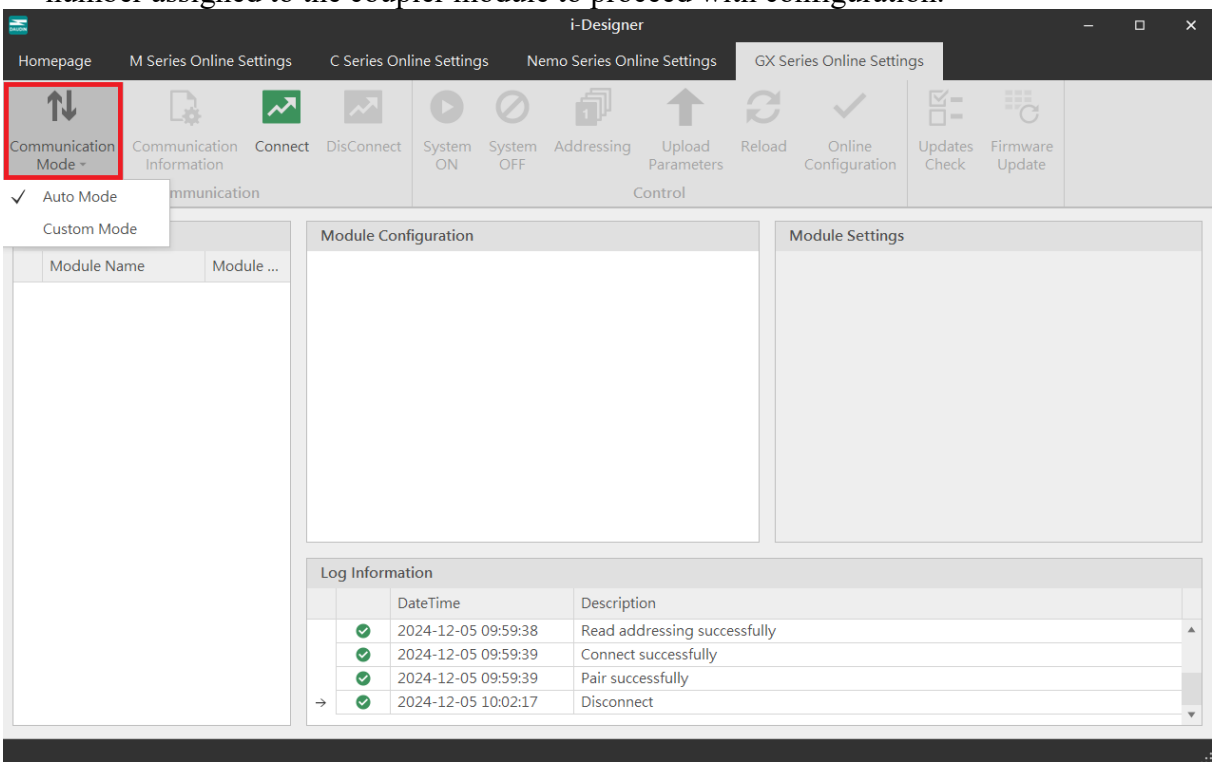


Figure 10.13 Connection Mode

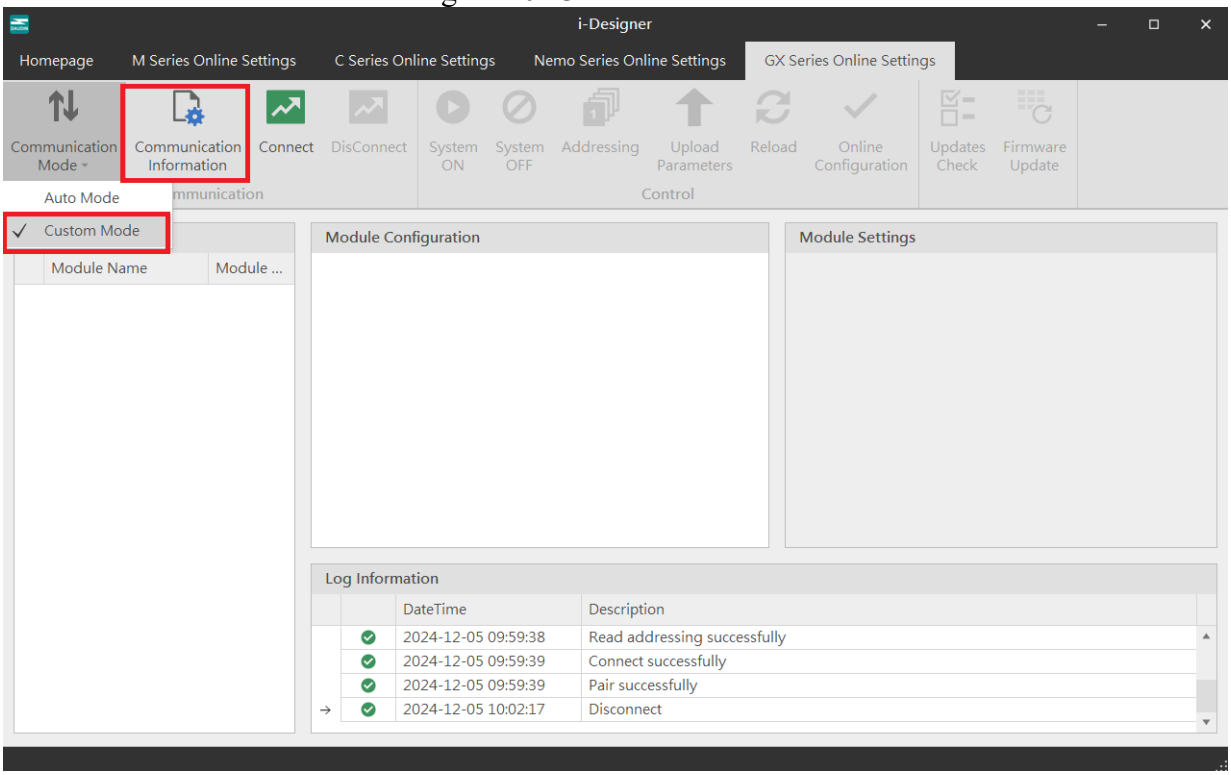


Figure 10.14 Custom Mode Settings

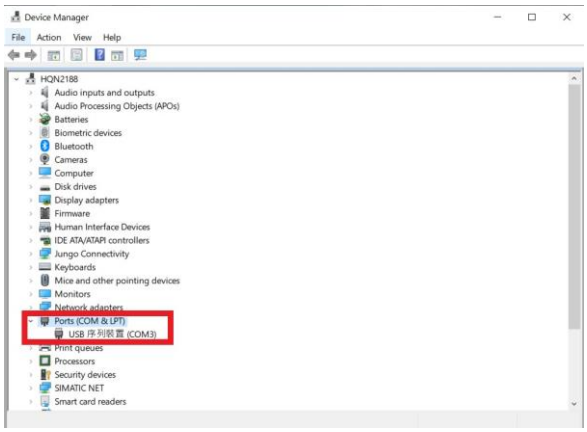


Figure 10.15 Confirm COM Port Number in Device Manager

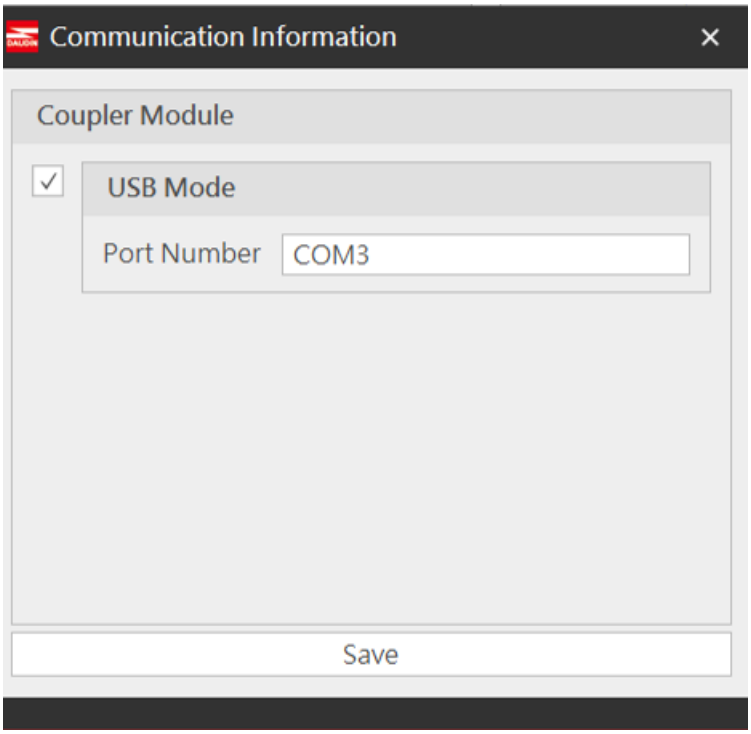


Figure 10.16 Set COM Port Connection

10.6 Connection Setting Instructions

Once the connection is successful, the current connection mode will be displayed in the window, and the firmware version of all modules will be detected. If the system is running, a pop-up window will ask whether to stop the system to perform firmware version detection for all modules.

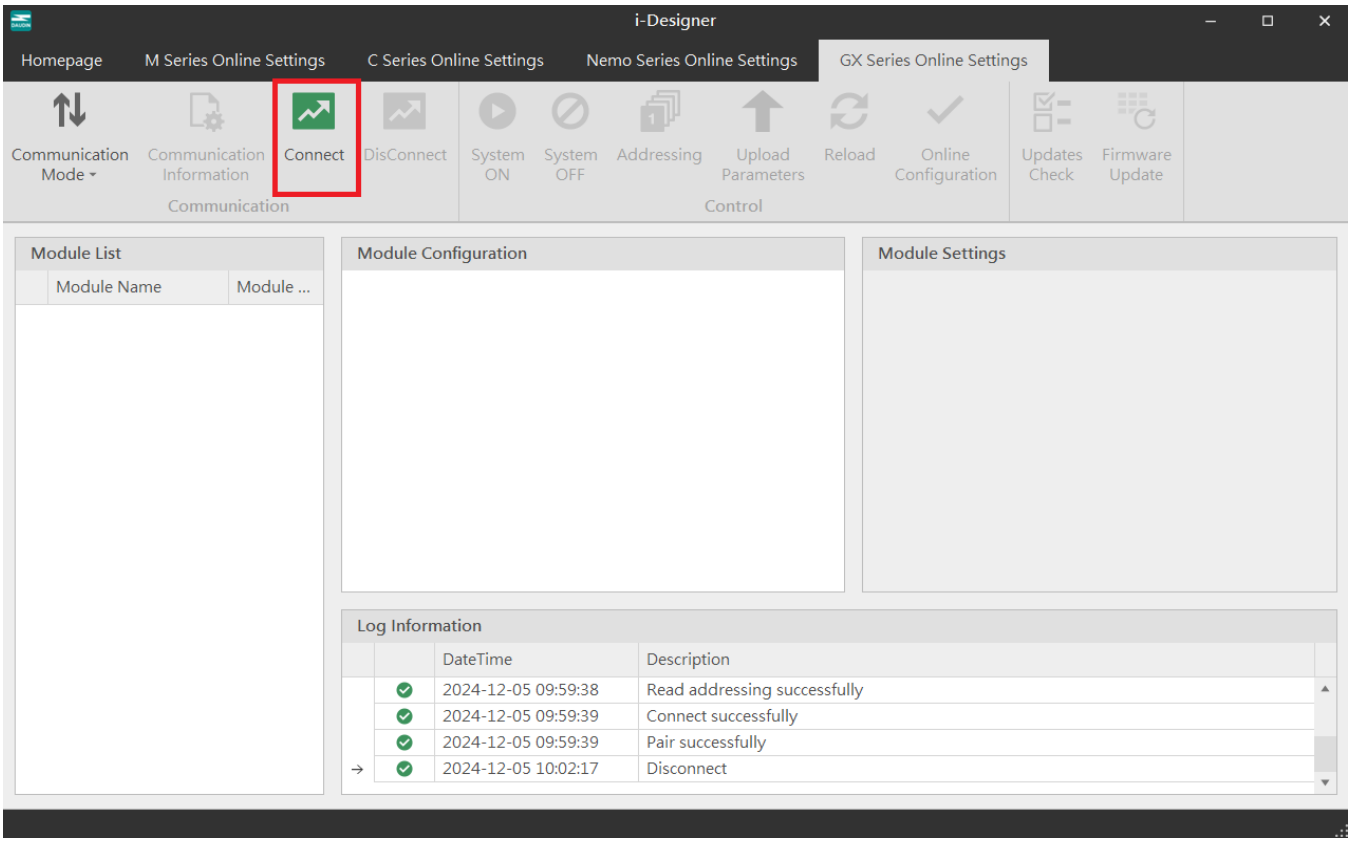


Figure 10.17 Executing Connection

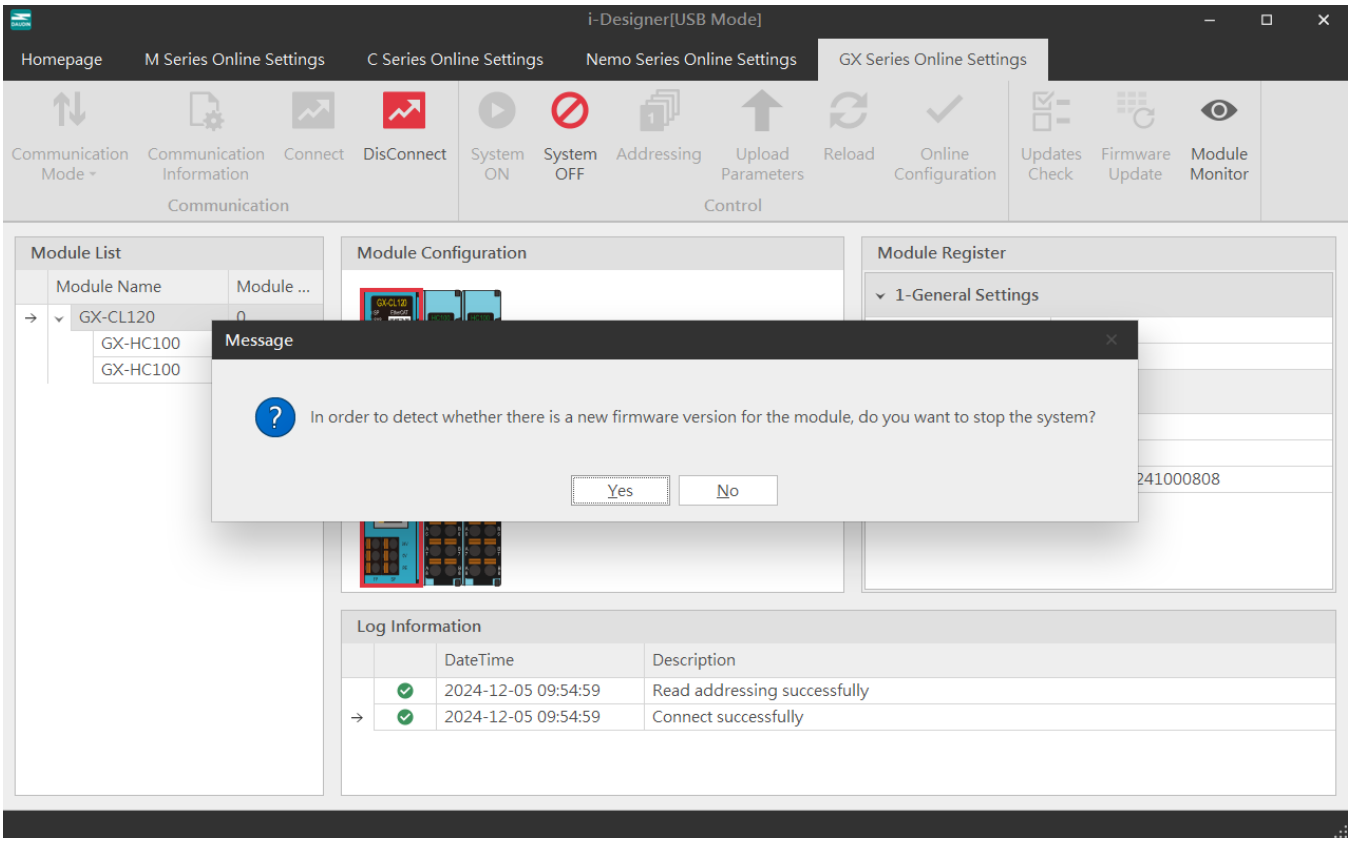


Figure 10.18 After Connection, Module Automatically Confirms Module Version and Prompts for Updates

If the system is stopped, i-Designer will automatically detect the module version.

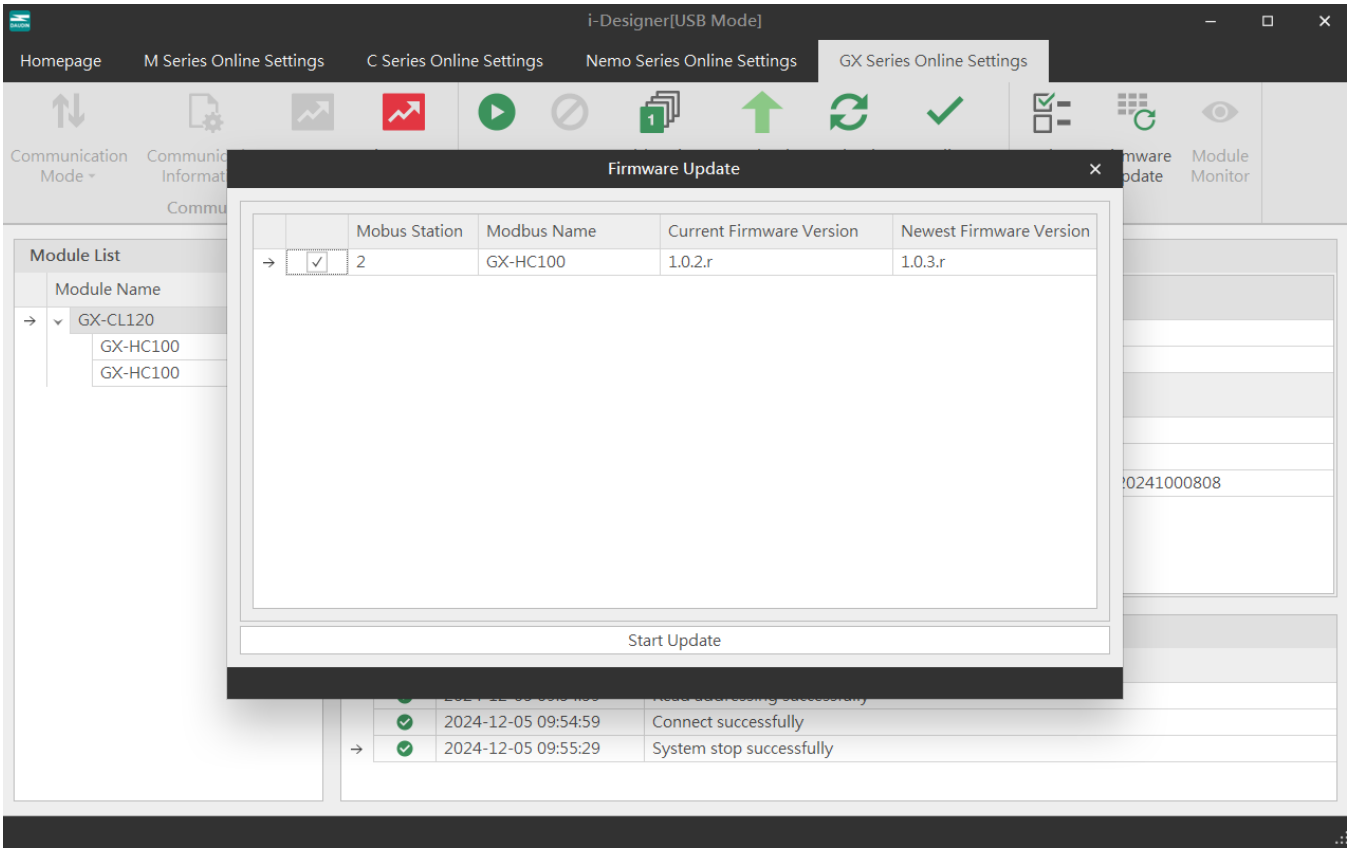


Figure 10.19 Module Version Information Display

Only after the system is stopped can the module functions be configured.

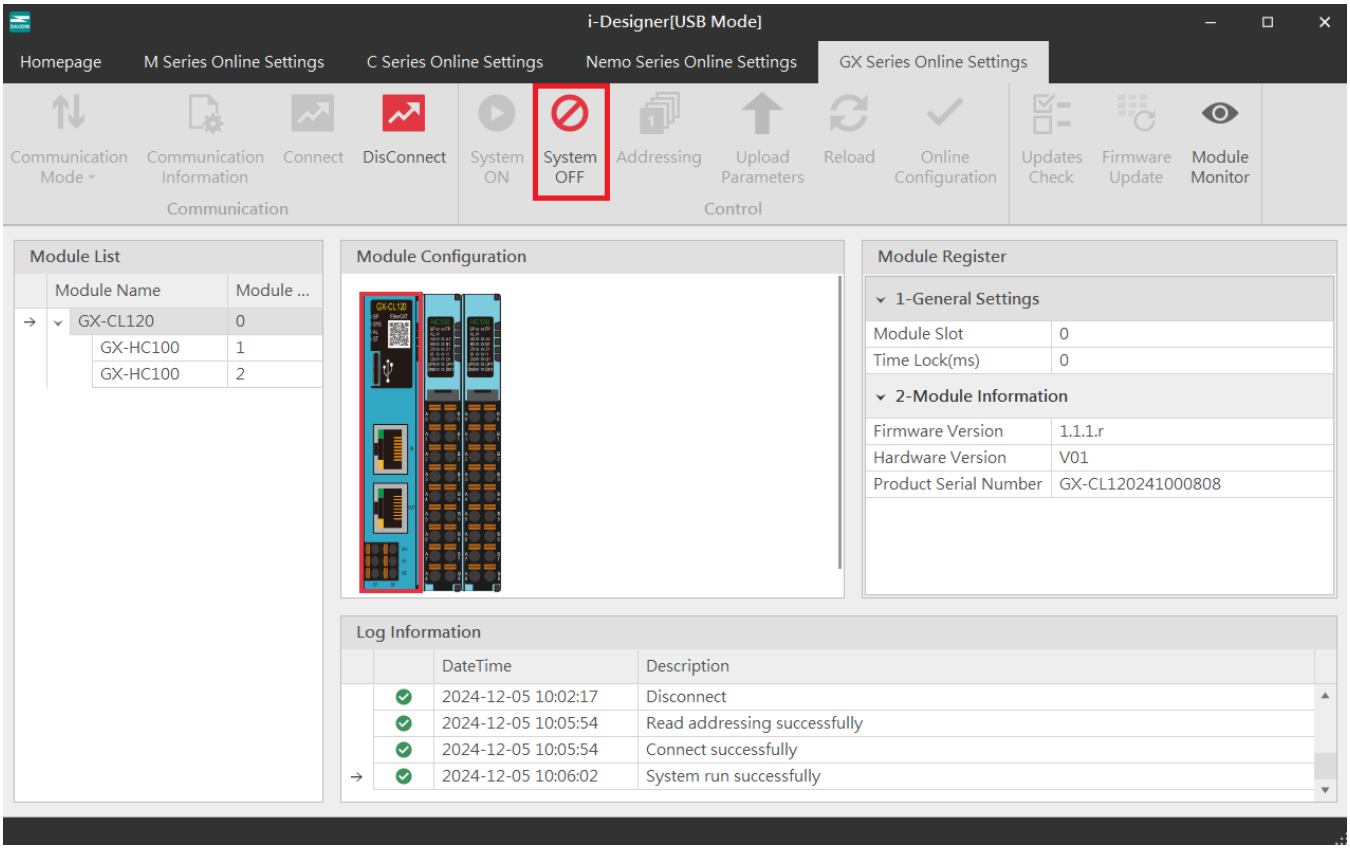


Figure 10.20 System Stop Screen

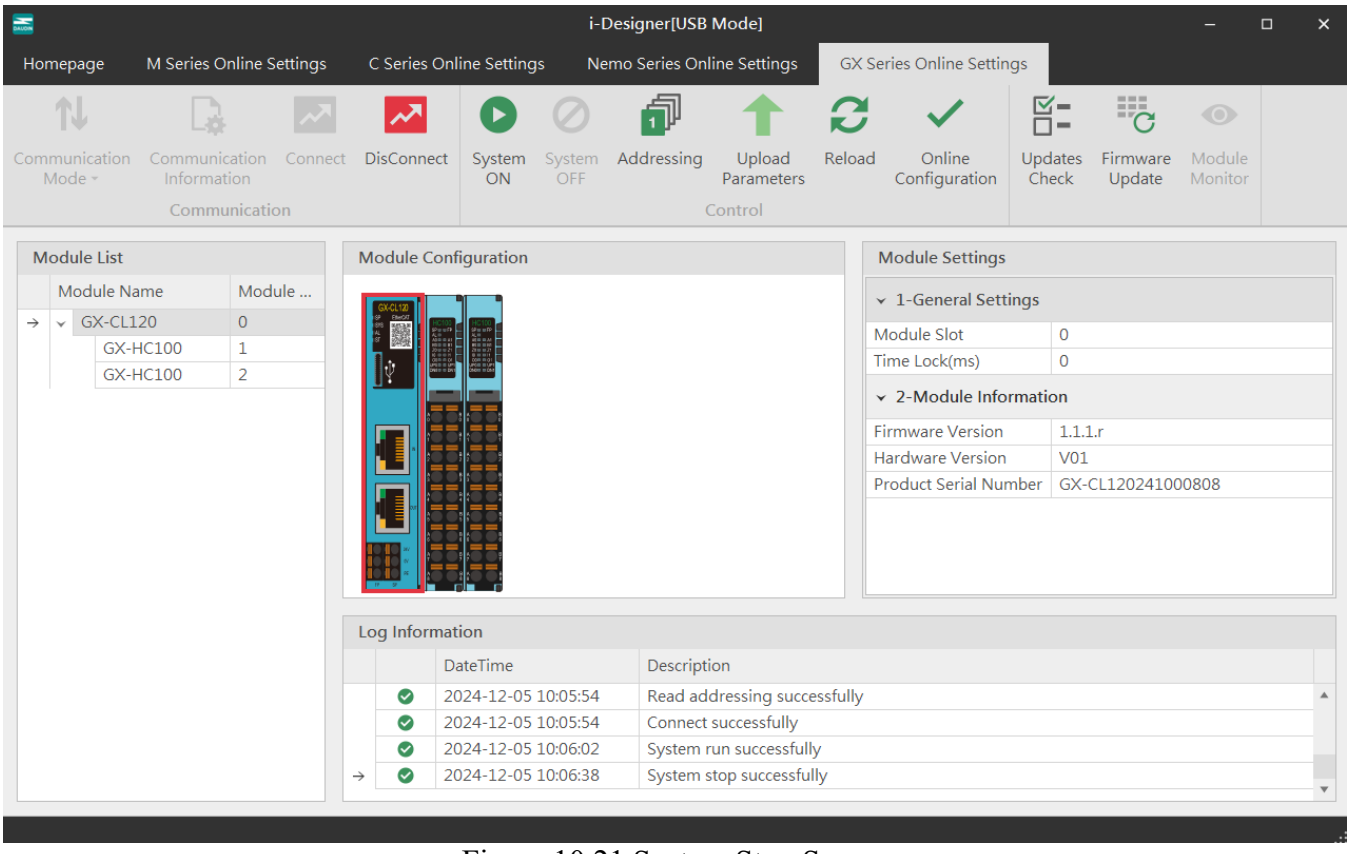


Figure 10.21 System Stop Screen

When connecting to X series modules, if the listed modules do not match the actual modules, you can search for modules through the Auto Station Assignment function.

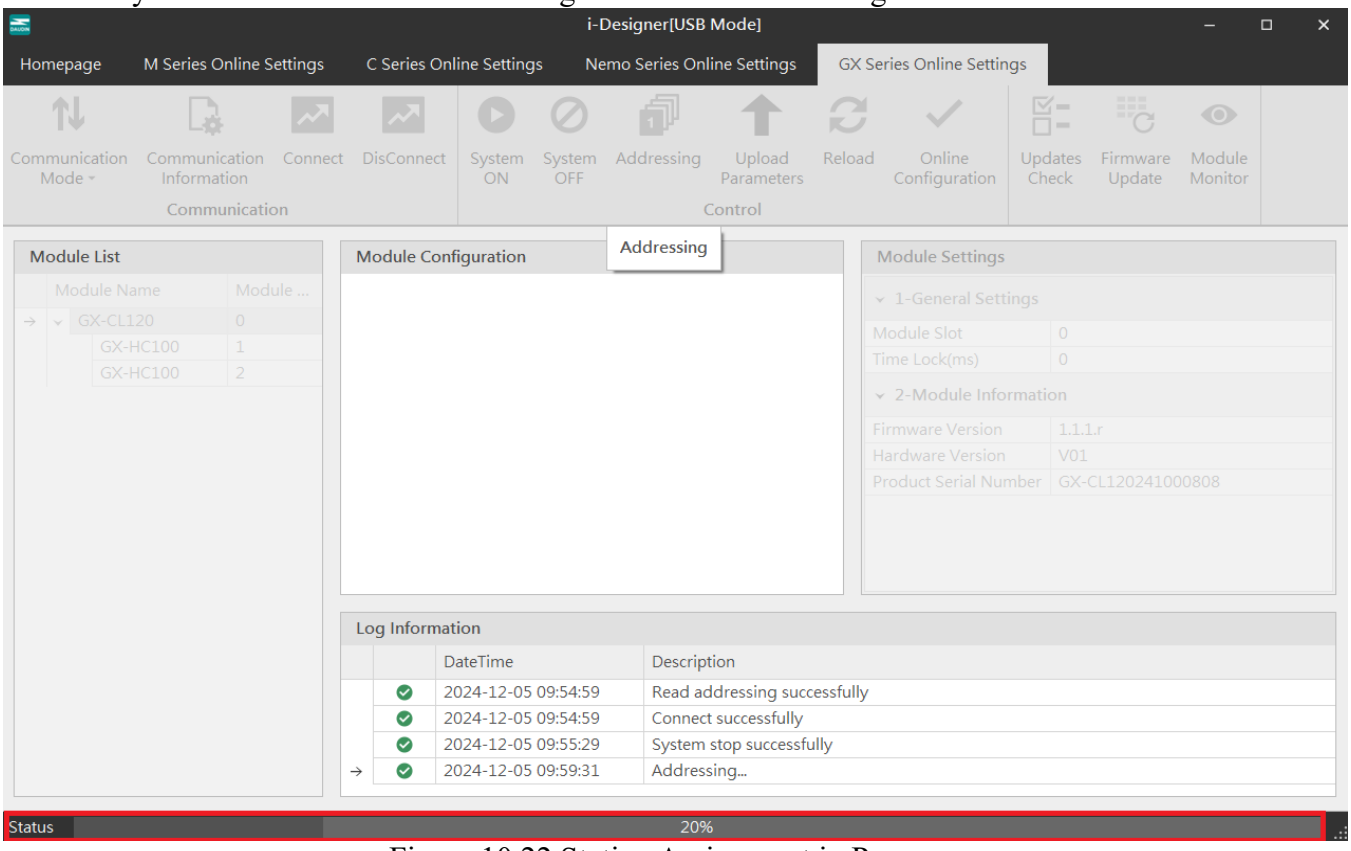


Figure 10.22 Station Assignment in Progress

After configuring the module functions, you must click "Upload Parameters" to save the settings correctly.

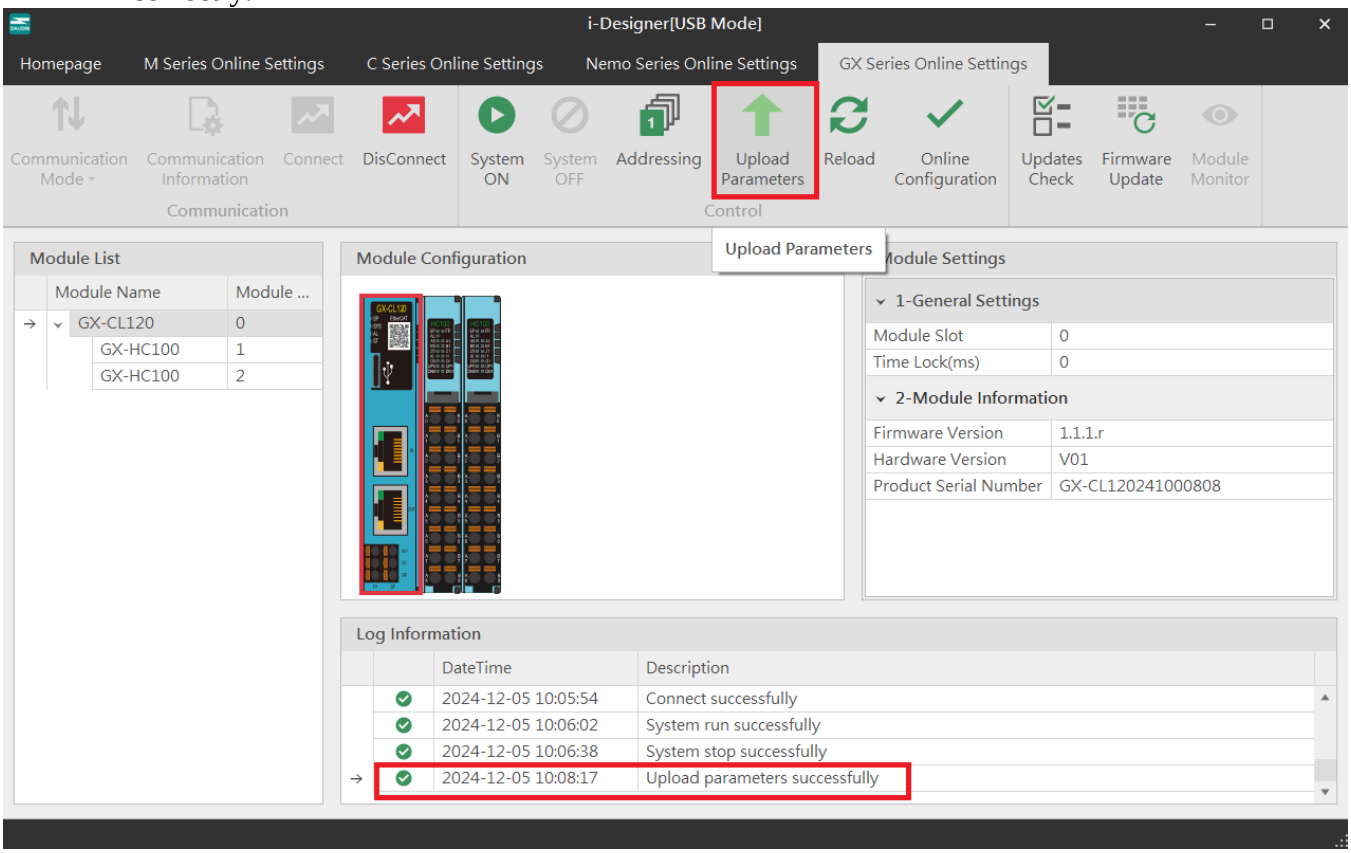


Figure 10.23 Screen After Uploading Parameters

You can view the IO point status through the online debugging feature.

Note: You must disconnect from the external master station before proceeding.

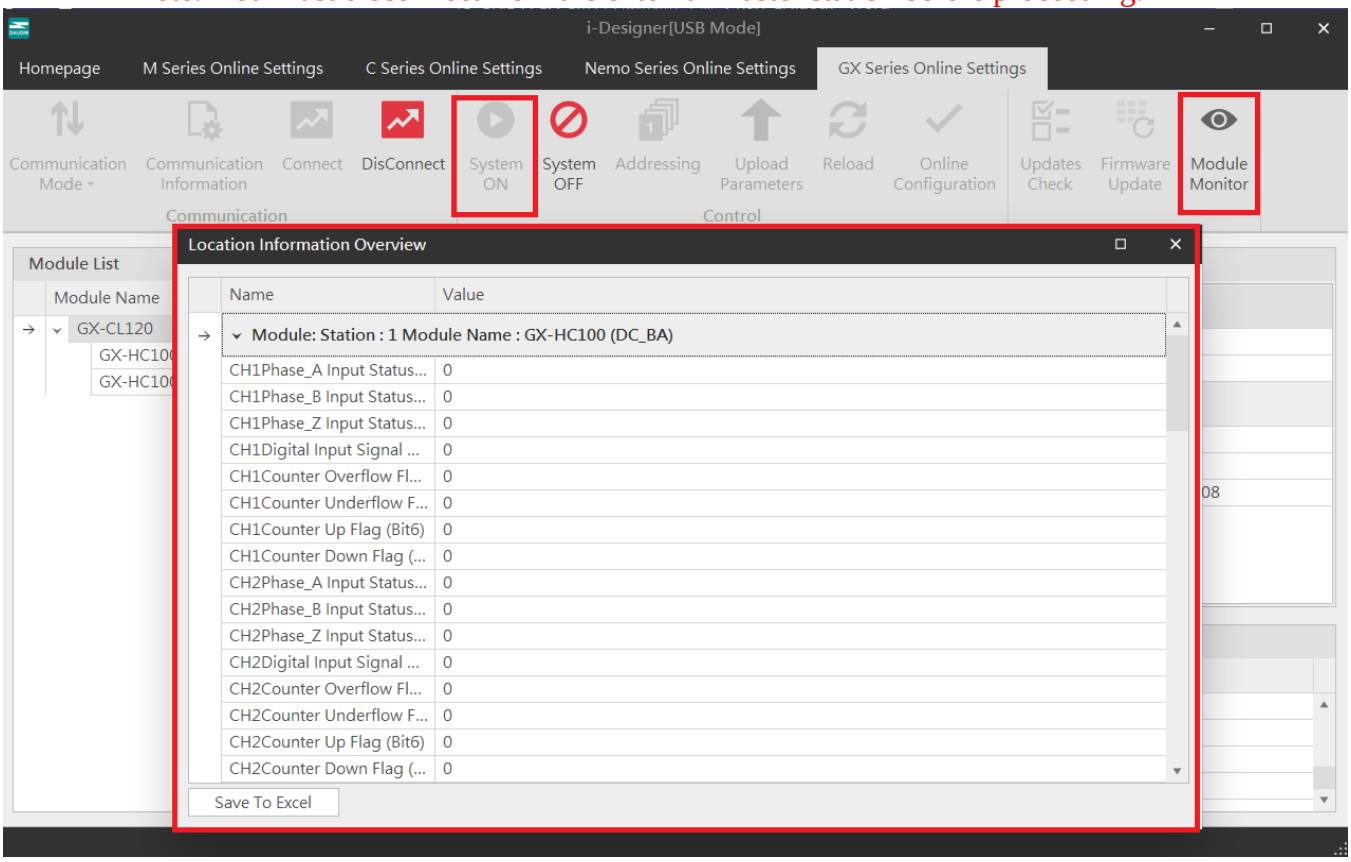


Figure 10.24 Online Adjustment Screen

The system will detect whether the current module version is the latest and prompt for updates.

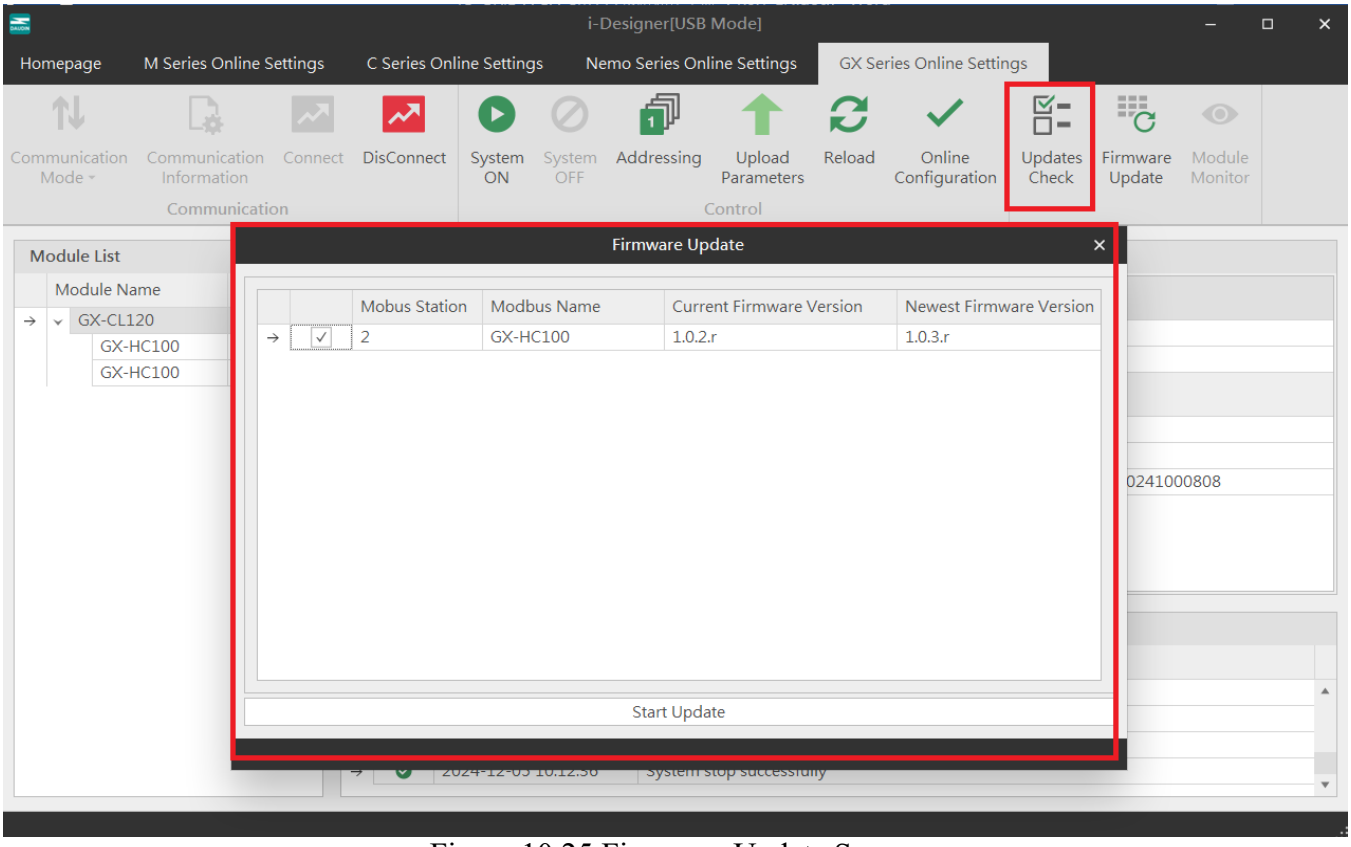


Figure 10.25 Firmware Update Screen

The GX-CL140 will display the Modbus register positions for the configured IO modules.

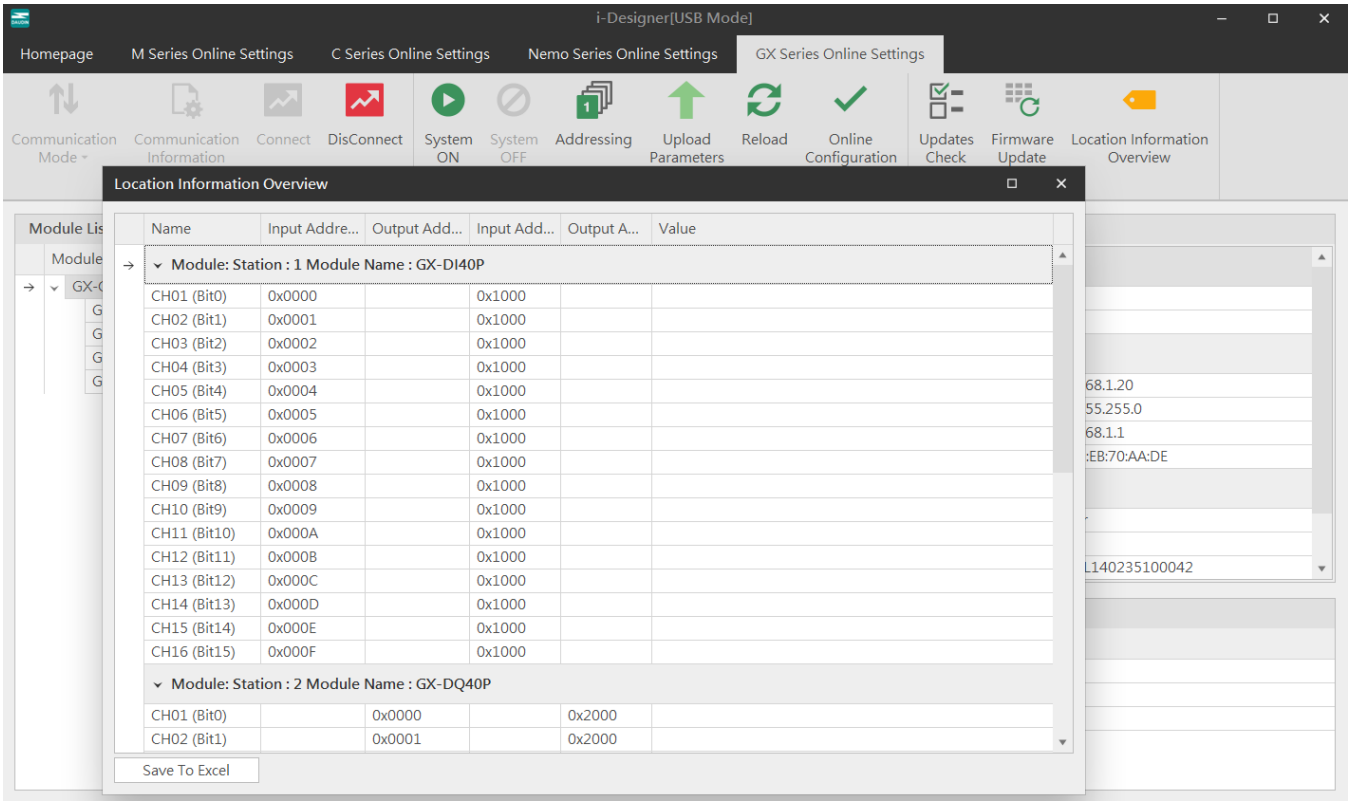


Figure 10.26 Point Information Overview Screen