

Beijer
ELECTRONICS
GT-228F
Digital Output
Module



Beijer ELECTRONICS GT-228F Digital Output Module User Manual

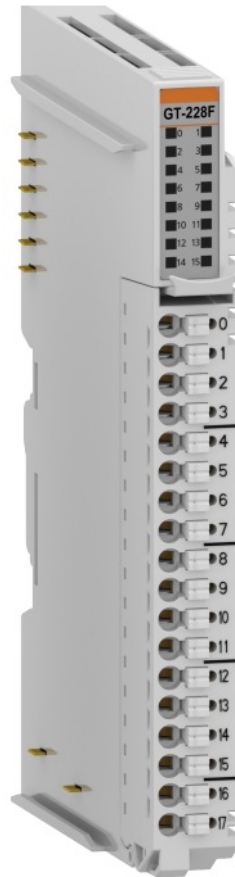
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Beijer ELECTRONICS GT-228F Digital Output Module



Specifications

- **Channels:** 16
- **Input Voltage:** 24 VDC
- **Current Rating:** 2 A
- **Output Type:** Source
- **Terminal Type:** Cage Clamp
- **Short Circuit Protection:** No
- **Terminal Type:** 18 pt Removable Terminal

Product Usage Instructions

Installation

1. Ensure the power is off before installation.
2. Mount the GT-228F Digital Output Module securely in a suitable location.
3. Connect the input voltage (24 VDC) to the module.
4. Wire the output channels as required using the cage clamp terminals.

Setup

1. Configure the module according to your system requirements.
2. Check the wiring connections for accuracy.
3. Ensure all connections are secure before powering on the module.

Usage

1. Apply power to the module and verify proper functionality.
2. Monitor the output channels for correct operation.
3. If troubleshooting is needed, refer to the user manual for guidance.

About This Manual

- This manual contains information on the software and hardware features of the Beijer Electronics GT-228F Digital Output Module. It provides in-depth specifications and guidance on the installation, setup, and usage of the product.

Symbols Used in This Manual

- This publication includes Warning, Caution, Note and Important icons where appropriate to point out safety-related or other important information.

The corresponding symbols should be interpreted as follows:



WARNING

The Warning icon indicates a potentially hazardous situation which, if not avoided, could result in death or serious injury, and major damage to the product.



CAUTION

The Caution icon indicates a potentially hazardous situation which, if not avoided, could result in minor or moderate injury, and moderate damage to the product.



NOTE

The Note icon alerts the reader to relevant facts and conditions.



IMPORTANT

The Important icon highlights important information.

Safety

- Before using this product, please read this manual and other relevant manuals carefully. Pay full attention to safety instructions!
- In no event will Beijer Electronics be responsible or liable for damages resulting from the use of this product.
- The images, examples and diagrams in this manual are included for illustrative purposes.

- Because of the many variables and requirements associated with any particular installation, Beijer Electronics cannot take responsibility or liability for actual use based on the examples and diagrams.

Product Certifications

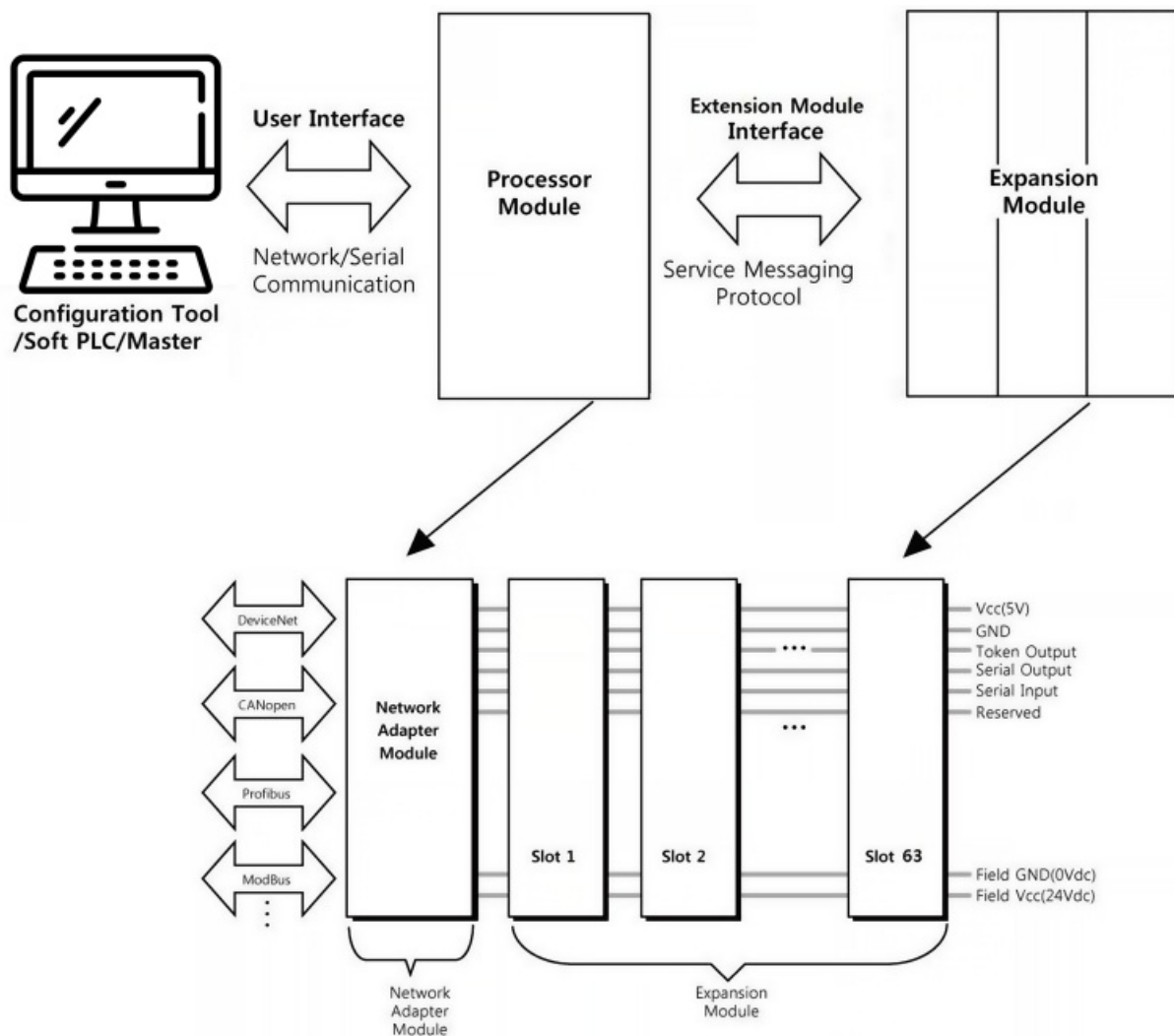
The product has the following certifications.



General Safety Requirements

- **WARNING:** Do not assemble the products and wires with power connected to the system. Doing so cause an “arc flash”, which can result in unexpected dangerous events (burns, fire, flying objects, blast pressure, sound blast, heat).
- Do not touch terminal blocks or IO modules when the system is running. Doing so may cause electric shock, short circuit or malfunction of the device.
- Never let external metallic objects touch the product when the system is running. Doing so may cause an electric shock, short circuit or malfunction of the device.
- Do not place the product near inflammable material. Doing so may cause a fire.
- All wiring work should be performed by an electrical engineer.
- When handling the modules, ensure that all persons, the workplace, and the packing are well grounded.
- Avoid touching conductive components, The modules contain electronic components that may be destroyed by electrostatic discharge.
- **CAUTION:** Never use the product in environments with temperatures over 60°C. Avoid placing the product in direct sunlight.
- Never use the product in environments with over 90% humidity.
- Always use the product in environments with pollution degree 1 or 2.
- Use standard cables for wiring.

About the G-series System

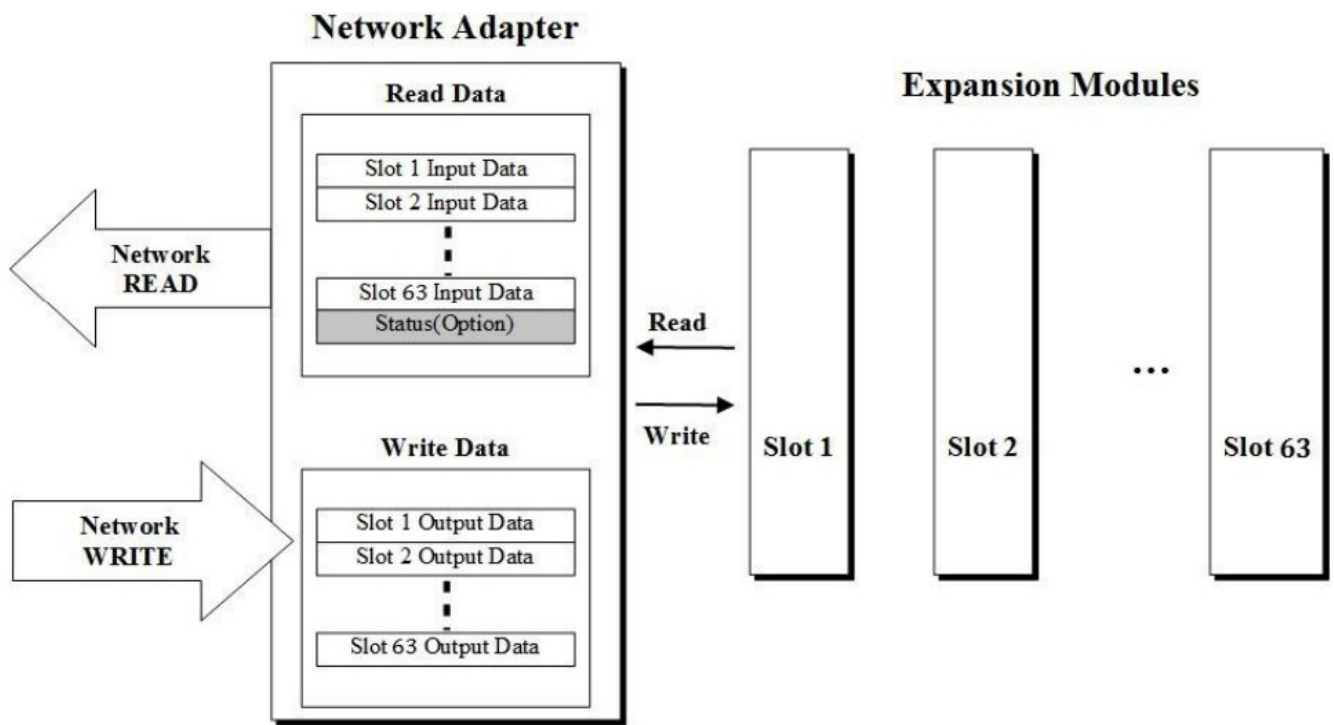


System overview

- **Network Adapter Module** – The network adapter module forms the link between the field bus and the field devices with the expansion modules.
- The connection to different field bus systems can be established by each of the corresponding network adapter modules, e.g., for MODBUS TCP, Ethernet IP, EtherCAT, PROFINET, CC-Link IE Field, PROFIBUS, CANopen, DeviceNet, CC-Link, MODBUS/Serial, etc.
- **Expansion Module** – Expansion module types: Digital IO, Analog IO, and Special modules.
- **Messaging** – The system uses two types of messaging: Service messaging and IO messaging.

IO Process Data Mapping

- An expansion module has three types of data: IO data, configuration parameters, and memory register. The data exchange between the network adapter and the expansion modules is made via IO process image data by internal protocol.



Data flow between network adapter (63 slots) and expansion modules

- The input and output image data depend on the slot position and the data type of the expansion slot.
- The ordering of input and output process image data is based on the expansion slot position.
- Calculations for this arrangement are included in the manuals for network adapters and programmable IO modules.
- Valid parameter data depends on the modules in use.
- For example, analog modules have settings of either 0-20 mA or 4-20 mA, and temperature modules have settings such as PT100, PT200, and PT500.
- The documentation for each module describes the parameter data.

Specifications

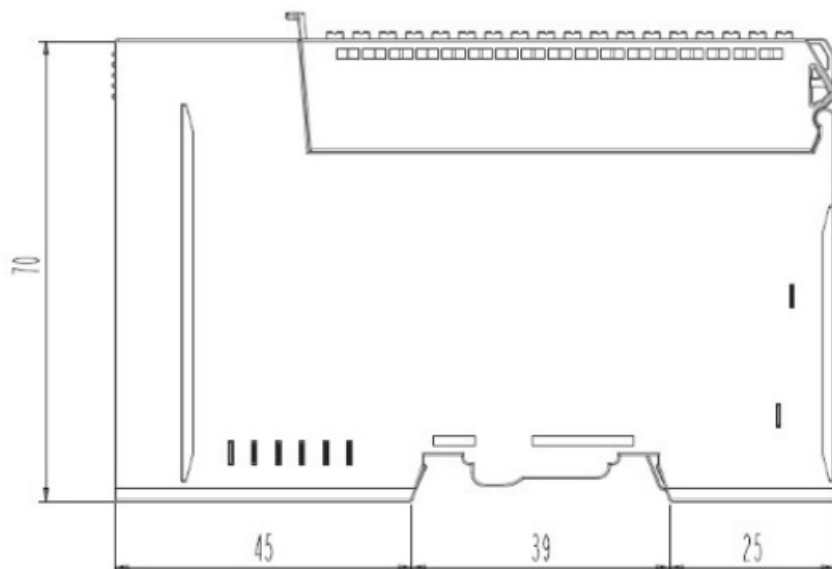
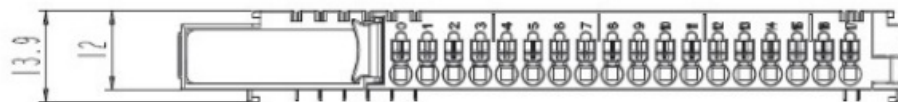
Environmental Specifications

Operating temperature	-20°C – 60°C
UL temperature	-20°C – 60°C
Storage temperature	-40°C – 85°C
Relative humidity	5% – 90% non-condensing
Mounting	DIN rail
Shock operating	IEC 60068-2-27 (15G)
Vibration resistance	IEC 60068-2-6 (4 g)
Industrial emissions	EN 61000-6-4: 2019
Industrial immunity	EN 61000-6-2: 2019
Installation position	Vertical and horizontal
Product certifications	CE, FCC, UL, cUL

General Specifications

Power dissipation	Max. 50 mA @ 5 VDC
Isolation	I/O to Logic: Photocoupler isolation Field power: Non-isolation
UL field power	Supply voltage: 24 VDC nominal, Class 2
Field power	Supply voltage: 24 VDC nominal Voltage range: 15-30 VDC Power dissipation: 40 mA @ 24 VDC
Single wiring	I/O cable max. 0.75 mm ² (AWG 18)
Weight	48 g
Module size	12 mm x 109 mm x 70 mm

Dimensions

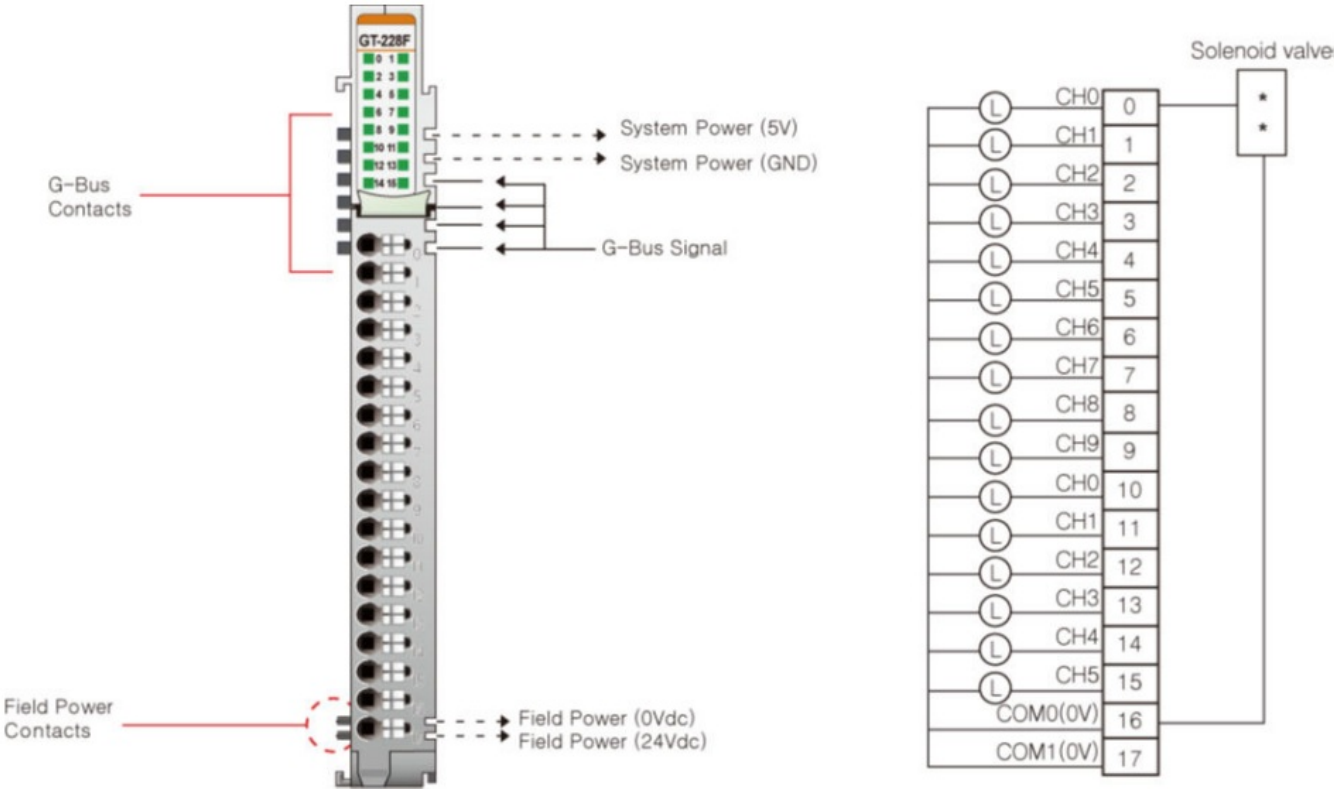


Module dimensions (mm)

Output Specifications

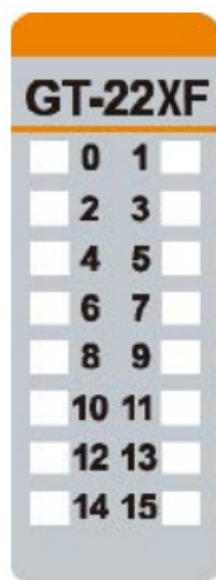
Output per module	16 points source type
Indicators	16 green output status
Output voltage range	24 VDC nominal 15 VDC – 30 VDC
On-state voltage drop	Max. 1.5 VDC @ 2 A
On-state min. current	Min. 1 mA
Off-state leakage current	Max. 0.5 uA
Output signal delay	OFF to ON: Max. 0.1 ms ON to OFF: Max 0.8 ms
Output current rating	Refer to the specifications of the network adapter: <ul style="list-style-type: none"> GT-9XXX: Max. 2.0 A per channel / Max. 10 A per unit GL-9XXX: Max. 2.0 A per channel / Max. 8 A per unit
Protection	None
Common type	16 points / 2 COM

Wiring Diagram



Pin no.	Signal description
0	Output channel 0
1	Output channel 1
2	Output channel 2
3	Output channel 3
4	Output channel 4
5	Output channel 5
6	Output channel 6
7	Output channel 7
8	Output channel 8
9	Output channel 9
10	Output channel 10
11	Output channel 11
12	Output channel 12
13	Output channel 13
14	Output channel 14
15	Output channel 15
16	Common (Field power 0 V)
17	Common (Field power 0 V)

LED Indicator



LED no.	LED function/description	LED color
0	OUTPUT channel 0	Green
1	OUTPUT channel 1	Green
2	OUTPUT channel 2	Green
3	OUTPUT channel 3	Green
4	OUTPUT channel 4	Green
5	OUTPUT channel 5	Green
6	OUTPUT channel 6	Green
7	OUTPUT channel 7	Green
8	OUTPUT channel 8	Green
9	OUTPUT channel 9	Green
10	OUTPUT channel 10	Green
11	OUTPUT channel 11	Green
12	OUTPUT channel 12	Green
13	OUTPUT channel 13	Green
14	OUTPUT channel 14	Green
15	OUTPUT channel 15	Green

Channel Status

Status	LED	Indicates
Not signal	Off	Normal operation
On signal	Green	Normal operation

Mapping Data Into the Image Value

Output Image Value

Bit no.	Bit 7	Bit 6	Bit 5	Bit 4	Bit 3	Bit 2	Bit 1	Bit 0
Byte 0	D7	D6	D5	D4	D3	D2	D1	D0
Byte 1	D15	D14	D13	D12	D11	D10	D9	D8



Output Module Data

D7	D6	D5	D4	D3	D2	D1	D0
D15	D14	D13	D12	D11	D10	D9	D8

Parameter Data

Valid parameter length: 4 Bytes

[illegible]

Hardware Setup



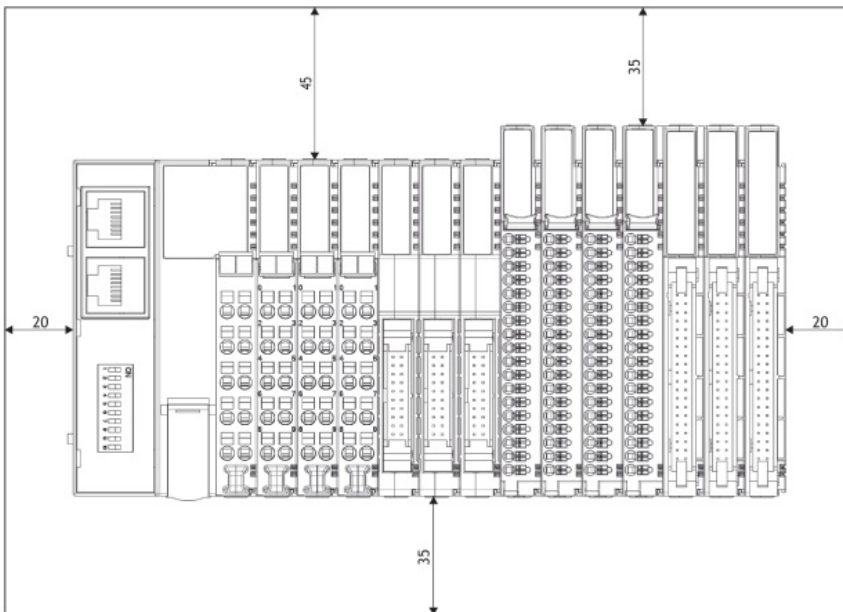
- **CAUTION:** Always read this chapter before installing the module!
- Hot surface! The surface of the housing can become hot during operation. If the device is used in high ambient temperatures, always let the device cool down before touching it.
- Working on energized devices can damage the equipment! Always turn off the power supply before working on the device.

Space Requirements

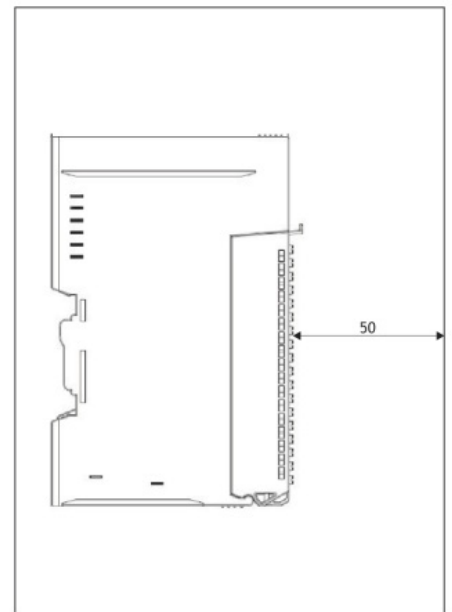
- The following drawings show the space requirements when installing the G-series modules. The spacing creates space for ventilation and prevents conducted electromagnetic interference from influencing the operation.
- The installation position is valid vertically and horizontally. The drawings are illustrative and may be out of proportion.



- **CAUTION:** NOT following the space requirements may result in damaging the product.



Vertical and horizontal space requirements



Required distance to door

Mount Module to DIN Rail

- The following chapters describe how to mount the module to the DIN rail.



- **CAUTION:** The module must be fixed to the DIN rail with the locking levers.

Mount GL-9XXX or GT-XXXX Module

- The following instructions apply to these module types.
- GL-9XXX
- GT-1XXX

- GT-2XXX
- GT-3XXX
- GT-4XXX
- GT-5XXX
- GT-7XXX
- **GN-9XXX** modules have three locking levers: one at the bottom and two on the side. For mounting instructions, refer to Mount GN-9XXX Module.



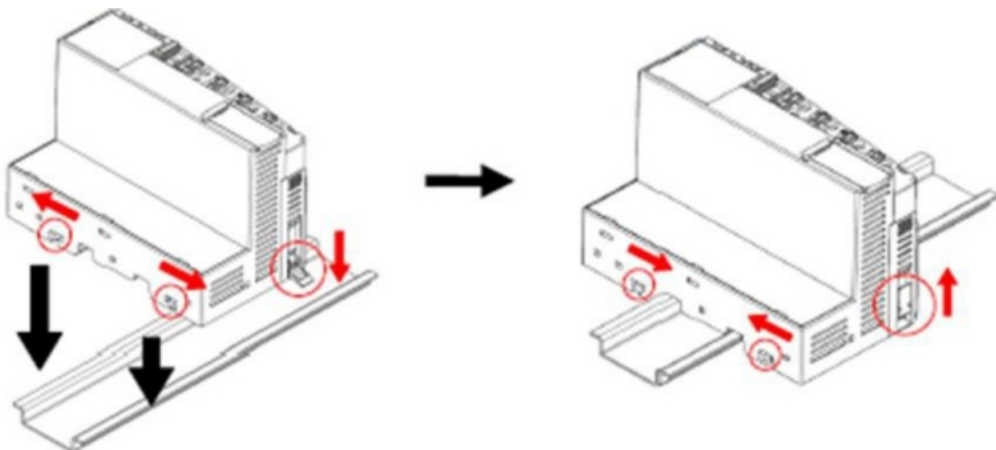
- Mount to DIN rail



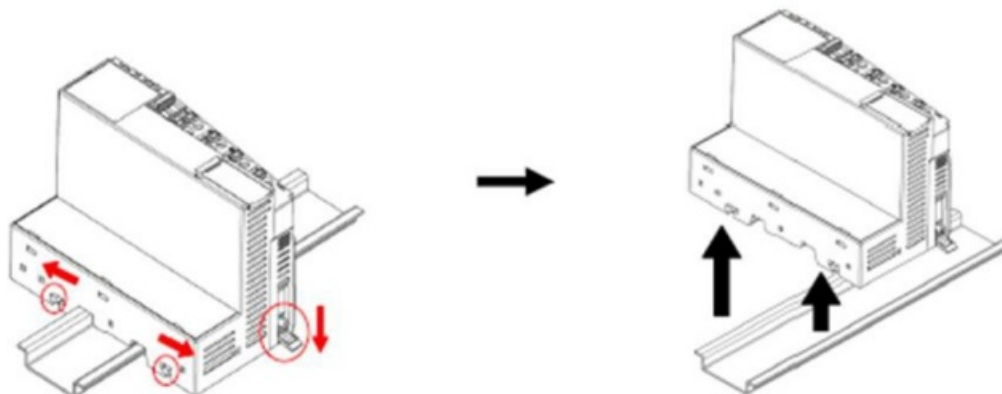
- Dismount from DIN rail

Mount GN-9XXX Module

- To mount or dismount a network adapter or programmable IO module with the product name GN-9XXX, for example GN-9251 or GN-9371, see the following instructions.



- Mount to DIN rail



- Dismount from DIN rail

Mount Removable Terminal Block

- To mount or dismount a removable terminal block (RTB), see the instructions below.

① Insert



② Lock



- Mount a removable terminal block

① Unlock




② Pull out



- Dismount a removable terminal block

Connect Cables to Removable Terminal Block

- To connect/disconnect cables to/from the removable terminal block (RTB), see the instructions below.

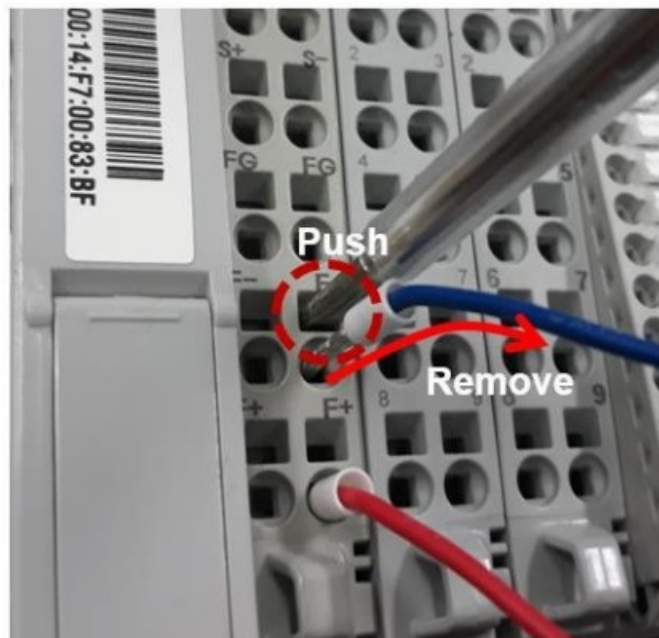
-  **WARNING:** Always use the recommended supply voltage and frequency to prevent damage to the

equipment and ensure optimal performance.

- Connect cable

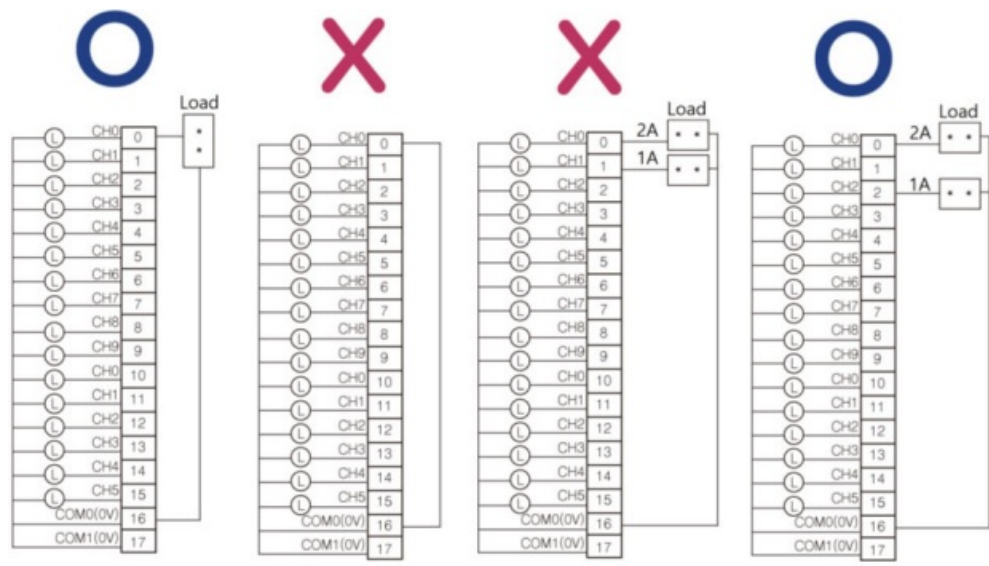


- Disconnect cable



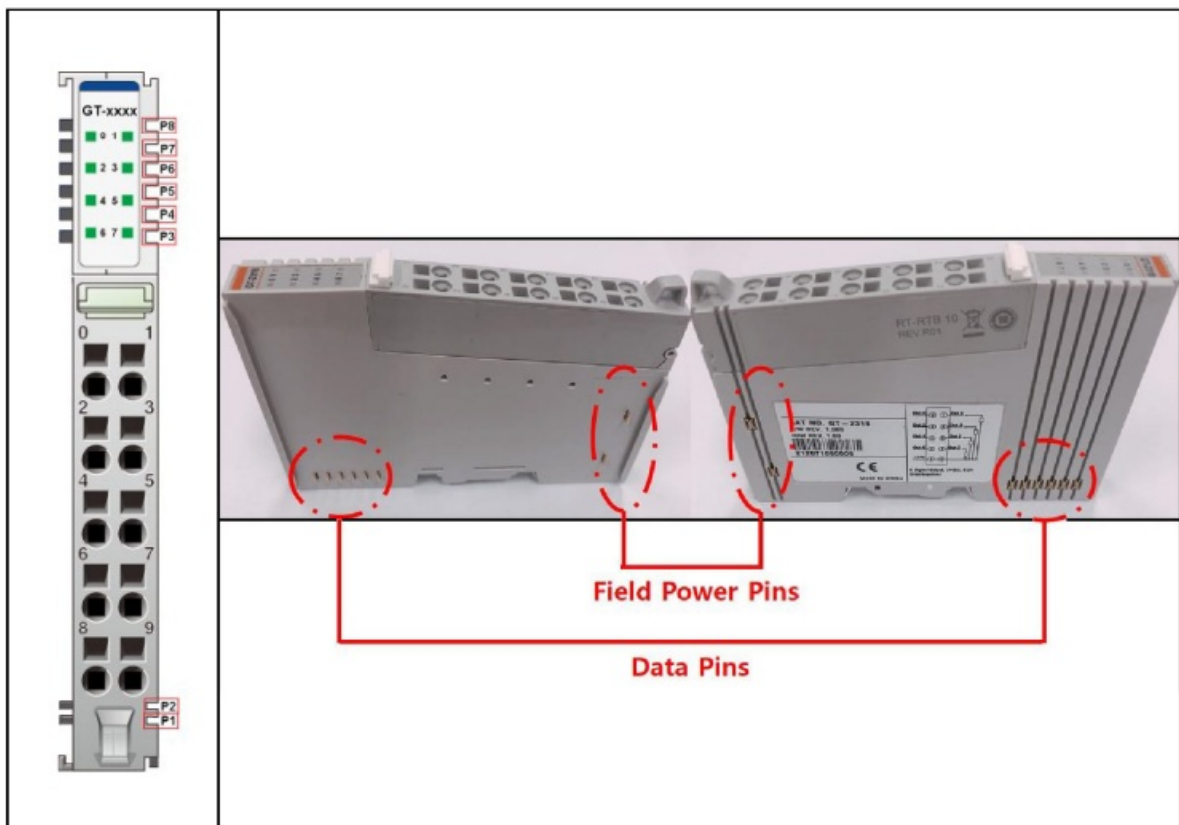
Wiring Guide

- **WARNING:** Observe the maximum output current of the I/O module. Parts may be damaged!
- Do not connect the input and GND pins without any load. Parts may be damaged! If you are using the current 1A, do not use the next channel.



Field Power and Data Pins

- Communication between the G-series network adapter and the expansion module, as well as the system /field power supply of the bus modules, is carried out via the internal bus. It is comprised of 2 Field Power Pins and 6 Data Pins.
- **WARNING:** Do not touch the data and field power pins! Touching can result in soiling and damage by ESD noise.



Pin no.	Name	Description
P1	System VCC	System supply voltage (5 VDC)
P2	System GND	System ground
P3	Token output	Token output port of processor module
P4	Serial output	Transmitter output port of processor module
P5	Serial input	Receiver input port of processor module
P6	Reserved	Reserved for bypass token
P7	Field GND	Field ground
P8	Field VCC	Field supply voltage (24 VDC)

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FAQ

- **Q: Is short circuit protection available on the GT-228F Digital Output Module?**
 - **A:** No, the module does not have short-circuit protection. Care should be taken to avoid short circuits during installation and usage.
- **Q: What type of terminal does the module use?**
 - **A:** The module uses cage clamp terminals for easy and secure wiring connections.

Documents / Resources



[Beijer ELECTRONICS GT-228F Digital Output Module](#) [pdf] User Manual
GT-228F Digital Output Module, GT-228F, Digital Output Module, Output Module, Module

References

- [User Manual](#)

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