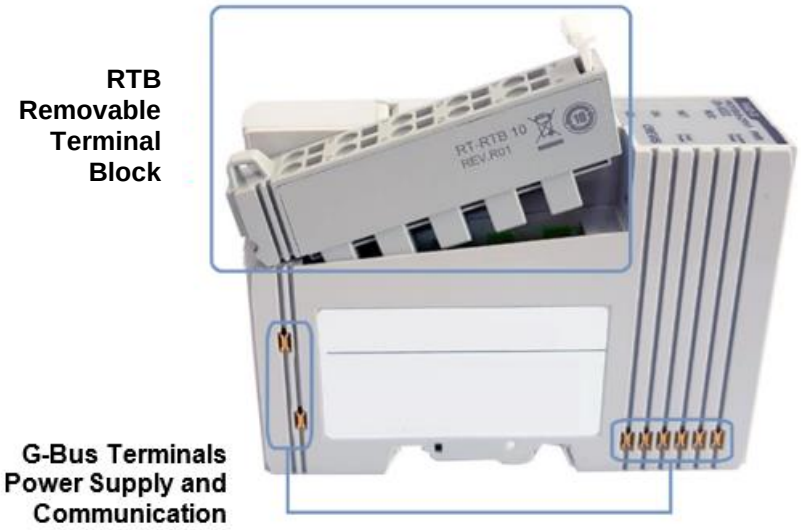
Serie Description

The Altus G Series of distributed remote I/O systems was developed for industrial automation applications that require high performance, modularity, and flexibility. Designed for DIN rail mounting, it offers a comprehensive range of digital and analog input and output modules, specialty modules, and network heads supporting major industrial protocols such as PROFINET, EtherNet/IP, EtherCAT, MODBUS TCP, among others. With removable terminal block (RTB) connectors, power and status indicator LEDs, DIN rail locking clips, and a compact design (starting at 12 mm width), the G Series provides easy installation, efficient maintenance, and space savings. Its high-speed internal bus (1 ms) ensures optimal response times for critical applications. The slice technology enables assembly without the need for busbars, cabinets, or backplanes for power and communication between modules.

Its main features include:

- DIN rail mounting
- DIN rail locking mechanism
- Expandability of up to 63 modules per system
- Network interfaces (heads) for PROFINET, EtherNet/IP, MODBUS TCP, EtherCAT, among others
- Internal bus with 1 ms communication cycle
- RTB removable terminal blocks (facilitate maintenance)
- Power and status indicator LEDs
- Compact design: network heads starting at 22 mm (GL) or 54 mm (GN); I/O modules starting at 12 mm



Ordering Information

Included Items

The product package contains the following items:

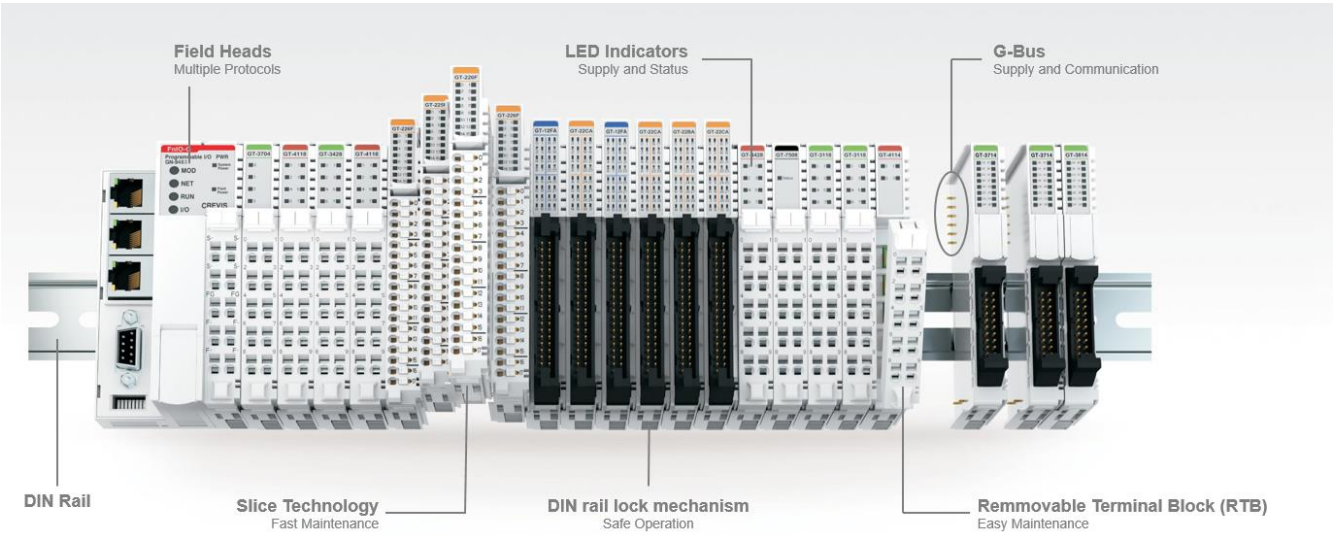
- One G Series Network Adapter / Field Head
- One End Module

Product Code

Code	Module Description
GL-9087	PROFINET Network Adapter (10 slots)
GL-9089	MODBUS TCP/UDP and EtherNet/IP Network Adapter(16 slots)
GN-9261	CANopen Network Adapter (63 slots)
GN-9287	PROFINET Network Adapter (32 slots)
GN-9289	MODBUS TCP/UDP and EtherNet/IP Network Adapter (63 slots)
GN-9386	EtherCAT Network Adapter (63 slots)
Consult our commercial team for more options of modules, temperature sensors, fast I/O, I/O link, HART, etc.	

Advantages and Applications

- Modular flexibility for system expansion
- Compact design and panel space savings
- Simplified wiring and easy module replacement
- Fast and accurate communication between modules
- Ideal for manufacturing, process, energy, sanitation, infrastructure, and machinery industries.

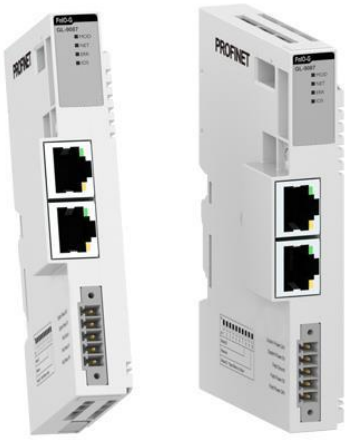


Doc.Code: CE157911 Version: A

Network Adapters / Field Heads Comparative

	GL-9087	GL-9089	GN-9261	GN-9287	GN-9289	GN-9386
Communication Protocol	PROFINET	MODBUS TCP/UDP EtherNet/IP	CANopen	PROFINET	MODBUS TCP/UDP EtherNet/IP	EtherCAT
Number of Expansion modules	10	16	63	32	63	63
Dimensions (W x H x D)	22 x 109 x 70	22 x 109 x 70	54 x 99 x 70	54 x 99 x 70	54 x 99 x 70	54 x 99 x 70

GL-9087 – PROFINET network Adapter



GL-9087 – Description

The GN-9087 module is a network adapter designed for operation with the PROFINET protocol. It supports up to 10 modules, features two RJ45 ports, and includes a status LED panel. The unit is mounted directly on a DIN rail, and slice technology enables fast connection to the internal bus, eliminating the need for wiring or cabling for power supply and communication. The device is certified for electromagnetic immunity, vibration resistance, and reliable operation over a wide temperature range.

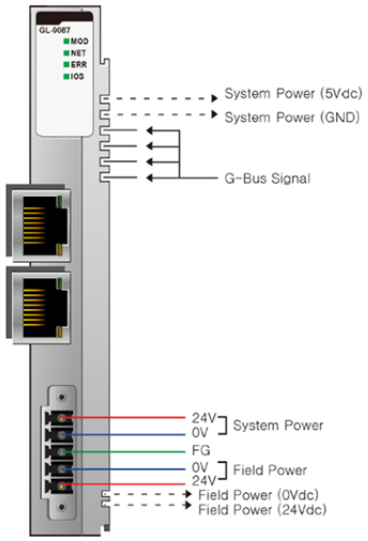
GL-9087 – Características Gerais

Communication	
Type	Slave Node – Profinet
Protocol	Profinet
Max modules	10 Slots
Baudrate	100Mbps Full duplex
Connection interface	RJ-45 socket x 2
General	
Power supply	Supply: 24Vdc (nominal) Range: 15 ~ 28.8Vdc Reverse polarity protection
Power dissipation	55mA @ 24Vdc
Current for I/O module	1.0A @ 5Vdc
Isolation	System power to internal logic : Non-Isolation System power I/O driver : Isolation
Field Power I/O	Supply: 24Vdc (Max. 28.8Vdc) *Field Power range is different depending on IO Module series. Refer to IO Module's specification.
Max Current Field Power I/O	8.0A Max.
Installation / Environment	
Weight	76g
Dimensions	22mm x 109mm x 70mm (W x H x D)

Mounting	DIN rail
Position	Vertical and horizontal installation available
I/O wiring	Max. 2.0mm² (AWG 14)
Operating temperature	-40°C ~ 60°C
Storage temperature	-40°C ~ 85°C
Relative Humidity	5% ~ 90% (non-condensing)
Certifications	
Shock Operating	IEC 60068-2-27
Vibration resistance	Based on IEC 60068-2-6 DNVGL-CD-0039 : Vibration Class B, 4g
Industrial Emissions	EN 61000-6-4:2007/A1:2011
Industrial Immunity	EN 61000-6-2:2005
Product Certifications	CE, FCC, RoHS, UL

GL-9087 – Frontal view and pin connections

The following image illustrates the equipment frontal panel, its components and pin connections.



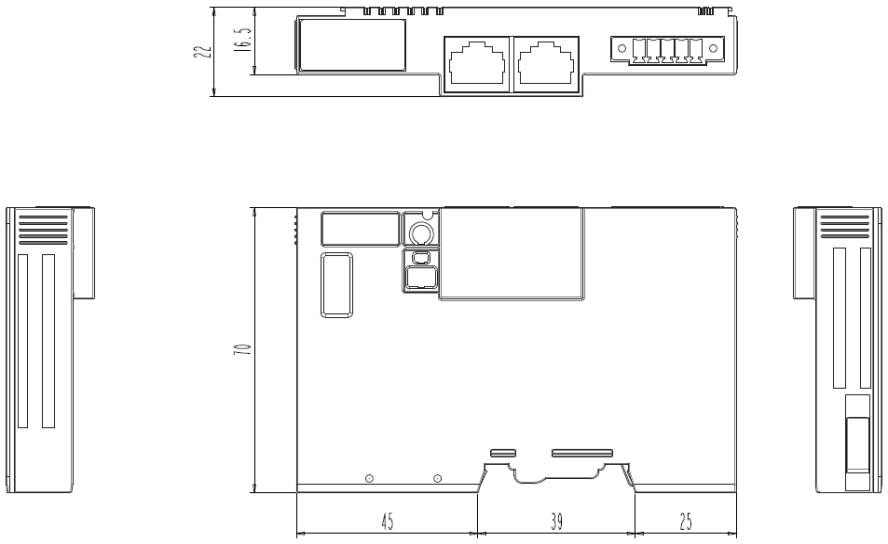
GL-9087 – LED Indicator

LED Indicator	LED Status	Description
MOD – Module Status	OFF	No power is supplied to the unit
	Green	The unit tis operating in normal condition
	Red	The device has an unrecoverable fault - Memory or CPU error
NET – Network status	OFF	No power is supplied to the unit
	Green	Normal communication

	Flashing Green	Communication Identification
	Flashing Red	DCP configuration error
ERR – Network error	OFF	No error
	Red	Communication connection error
IOS – Expansion modules status	OFF	Device may not be powered
	Flashing Red	Adapter has no expansion modules
	Green	Exchanging I/O data
	Red	One or more modules in fault state

GL-9087 – Dimensions

22mm x 109mm x 70mm (W x H x D)



Doc.Code: CE157911 Version: A

GL-9089 – MODBUS TCP/UDP and Ethernet/IP network adapter

GL-9089 – Description

The GN-9089 module is a network adapter designed to operate with MODBUS TCP/UDP and EtherNet/IP protocols. It supports up to 16 modules, provides two RJ45 communication ports, DIP switches for IP address configuration, and a front panel with four status LEDs. The unit is mounted directly on a DIN rail, and slice technology enables fast connection to the backplane bus, eliminating the need for wiring or cabling for power supply and inter-module communication. The device is certified for electromagnetic immunity, vibration resistance, and reliable operation over a wide temperature range.

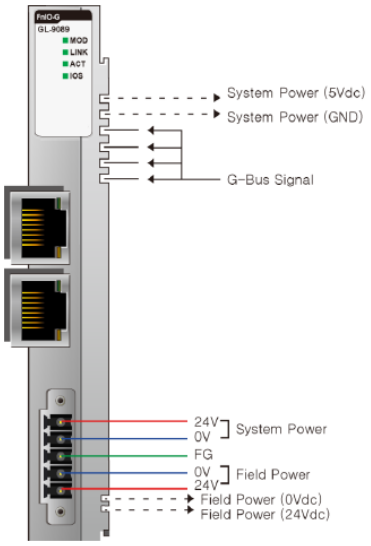
GL-9089 – General Features

Communication	
Type	Slave node – MODBUS TCP/UDP
Protocol	MODBUS TCP/UDP / Ethernet IP
Max modules	10 Slots
Baudrate	100Mbps Full duplex
Connection interface	2 x RJ-45 socket
General	
Power Supply	Supply: 24Vdc (nominal) Range: 15 ~ 28.8Vdc Reverse polarity protection
Power Dissipation	55mA @ 24Vdc
Current for I/O modules	1.0A @ 5Vdc
Isolation	System power to internal logic : Non-Isolation System power I/O driver : Isolation
Field Power I/O	Supply: 24Vdc (Max. 28.8Vdc) *Field Power range is different depending on IO Module series. Refer to IO Module's specification.
Max Current Field Power I/O	8.0A Max.
Installation / Environment	
Weight	76g

Dimensions	22mm x 109mm x 70mm (W x H x D)
Mounting	DIN rail
Position	Vertical and horizontal installation is available
I/O wiring	Max. 2.0mm² (AWG 14)
Operation temperature	-40°C ~ 60°C
Storage temperature	-40°C ~ 85°C
Relative Humidity	5% ~ 90% (non-condensing)
Certifications	
Shock Operating	IEC 60068-2-27
Vibration resistance	Based on IEC 60068-2-6 DNVGL-CD-0039 : Vibration Class B, 4g
Industrial Emissions	EN 61000-6-4:2007/A1:2011
Industrial Immunity	EN 61000-6-2:2005
Product Certifications	CE, FCC, RoHS, UL

GL-9089 – Frontal view and pin connections

The following image illustrates the equipment frontal panel, its components and pin connections.



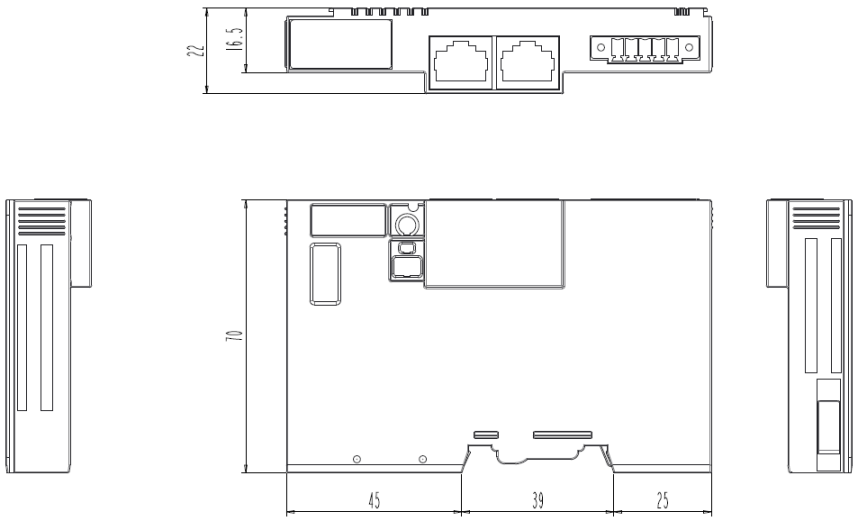
GL-9089 – LED Indicator

LED Indicator	LED Status	Description
MOD – Module status	OFF	No power is supplied to the unit
	Green	The unit is operating in normal condition
	Flashing Green	The device needs commissioning due to configuration missing, incomplete or incorrect.

	Green/Red Toggle	MODBUS error
	Flashing Red	Recoverable fault
	Red	Unrecoverable fault – Memory or CPU error
LINK – Physical Connection	OFF	Device may not be powered
	Green	Adapter Ethernet controller physically connected
ACT (ACTIVE) – Data Exchange (MODBUS TCP)	OFF	Device is idle or may not be powered
	Flashing Green	Adapter exchanging data/Traffic present
ACT (ACTIVE) – Data Exchange (Ethernet/IP)	OFF	Device does not have IP address or may not be powered
	Green	Device has an IP address and at least one established connection
	Flashing Red	Connection time out in one or more of the connections the device has
IOS – Expansion module status	OFF	Device may not be powered
	Flashing Red	Adapter has no expansion module
	Green	Exchanging I/O data
	Red	One or more expansion module occurred in fault state

GL-9089 – Dimensions

22mm x 109mm x 70mm (W x H x D)



GN-9261 –CANopen network Adapter

GN-9261 – Description

The GN-9261 module is a network adapter (network head) designed for operation with the CANopen protocol. It supports up to 63 modules, features a communication interface connector, DIP switches for baud rate configuration, device address selection switches, and a front panel with six status LEDs. The unit is mounted directly on a DIN rail, and slice technology enables fast connection to the backplane bus, eliminating the need for wiring or cabling for power supply and inter-module communication. The device is certified for electromagnetic immunity, vibration resistance, and reliable operation over a wide temperature range.

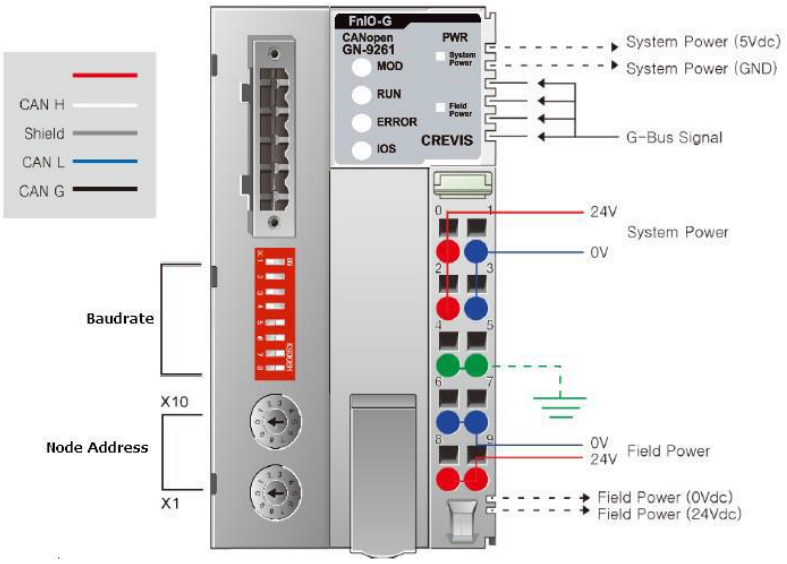
GN-9261 – General Features

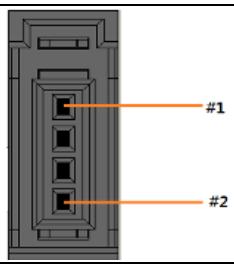
Communication	
Type	Slave node – CANopen
Protocol	CANopen
Max modules	63 Slots
Baudrate	10, 20, 50, 100, 125, 250, 500, 800, 1000kbps (default 1000kbps)
Connection interface	5 pin socket
General	
Power supply	Supply: 24Vdc (nominal) Range: 15 ~ 30Vdc Reverse polarity protection
Power dissipation	70mA @ 24Vdc
Current for I/O module	1.5A @ 5Vdc
Isolation	System power to internal logic : Non-Isolation System power I/O driver : Isolation
Field Power I/O	Supply: 24Vdc (Max. 28.8Vdc) *Field Power range is different depending on IO Module series. Refer to IO Module's specification.
Max Current Field Power I/O	10.0A Max.
Installation / Environment	

Weight	162g
Dimensions	54mm x 99mm x 70mm (W x H x D)
Mounting	DIN rail mounting
Position	Vertical and horizontal installation available
I/O wiring	Max. 2.0mm² (AWG 14)
Operating temperature	-40°C ~ 70°C
Storage temperature	-40°C ~ 85°C
Relative Humidity	5% ~ 90% (non-condensing)
Certifications	
Shock Operating	IEC 60068-2-27
Vibration resistance	Based on IEC 60068-2-6 DNVGL-CD-0039 : Vibration Class B, 4g
Industrial Emissions	EN 61000-6-4:2007/A1:2011
Industrial Immunity	EN 61000-6-2:2005
Product Certifications	CE, FCC, RoHS, UL

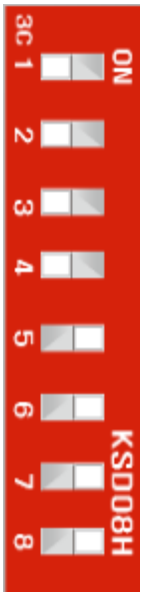
GN-9261 – Frontal view and pin connections

The following image illustrates the equipment frontal panel, its components and pin connections.





RS232 connector for MODBUS/RTU configuration		
Pin	**Signal**	**Description**
1	Reserved	-
2	TXD	RS232 TXD
3	RXD	RS232 RXD
4	GND	RS232 GND



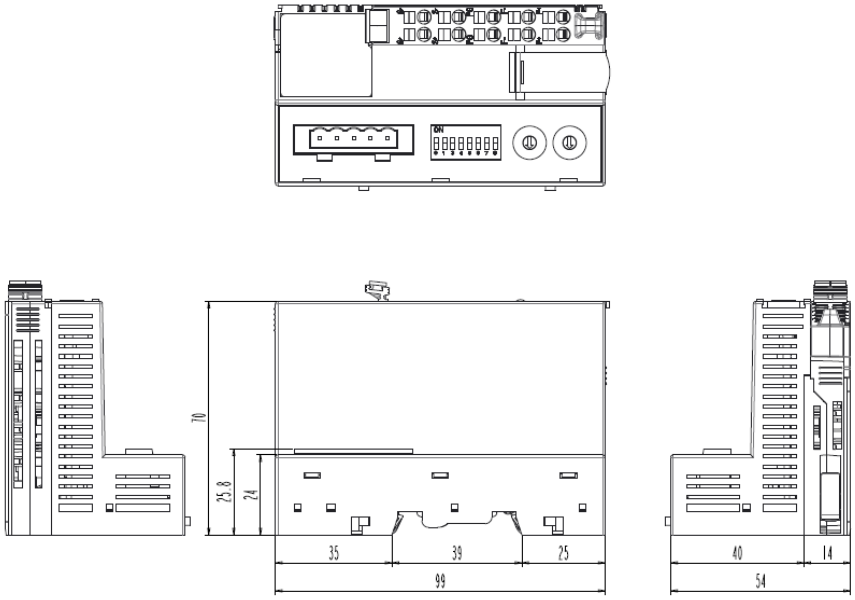
DIP	Description	
1	Terminal Resister	ON: Terminal Resister On
2	Reserved	
3		
4		
5	Baudrate #4	Default : 0 (1000kbps) 5 6 7 8 (ex.) 0 0 0 1 : 10Kbps 0 0 1 0 : 20Kbps 0 0 1 1 : 50Kbps 0 1 0 0 : 100Kbps 0 1 0 1 : 125Kbps 0 1 1 0 : 250Kbps 0 1 1 1 : 500Kbps 1 0 0 0 : 800Kbps 1 0 0 1 : 1000Kbps
6	Baudrate #3	
7	Baudrate #2	
8	Baudrate #1	

GN-9261 – LED Indicator

LED Indicator	LED Status	Description
MOD – Module Status	OFF	No power is supplied to the unit
	Green	The unit is operating in normal condition.
	Red	The device has an unrecoverable fault: Memory or CPU.
RUN – CANopen Status	OFF	Module is either not getting power, or it is NOT_ACTIVE status. Module is initializing.
	Flashing green	Module is stopped
	Flashing green	Module is in pre-operational
	Green	Module is in operational
ERROR – CANopen Error	OFF	No Error
	Single Flashing red	At least one of the error counters of the CAN controller has reached or exceeded the warning limit.
	Double Flashing red	A guard event (NMT-Slave or NMT-Master) or a Heartbeat event has occurred.
	Triple Flashing red	The SYNC message has not been received within then configured communication cycle period time out (see index 0x1006)
	Red	The CAN controller is bus off
IOS – Expansion Modules Status	OFF	Device may not be powered.
	Flashing Red	Adapter has no expansion module
	Green	Exchanging data
	Red	One or more expansion module occurred in fault state
System Power –System Supply Enabled	OFF	Not supplied 5Vdc for system power
	Green	Normal condition.
Field Power – Field Supply Enabled	OFF	Not supplied 24Vdc for system power
	Green	Normal condition.

GN-9261 – Dimensions

54mm x 99mm x 70mm (W x H x D)



Doc.Code: CE157911 Version: A

GN-9287 –PROFINET network Adapter

GN-9287 – Description

The GN-9287 module is a network adapter (network head) designed for operation with the PROFINET protocol. It supports up to 32 modules, provides two RJ45 communication ports, DIP switches, and a front panel with four status LEDs. The unit is mounted directly on a DIN rail, and slice technology enables fast connection to the backplane bus, eliminating the need for wiring or cabling for power supply and inter-module communication. The device is certified for electromagnetic immunity, vibration resistance, and reliable operation over a wide temperature range.

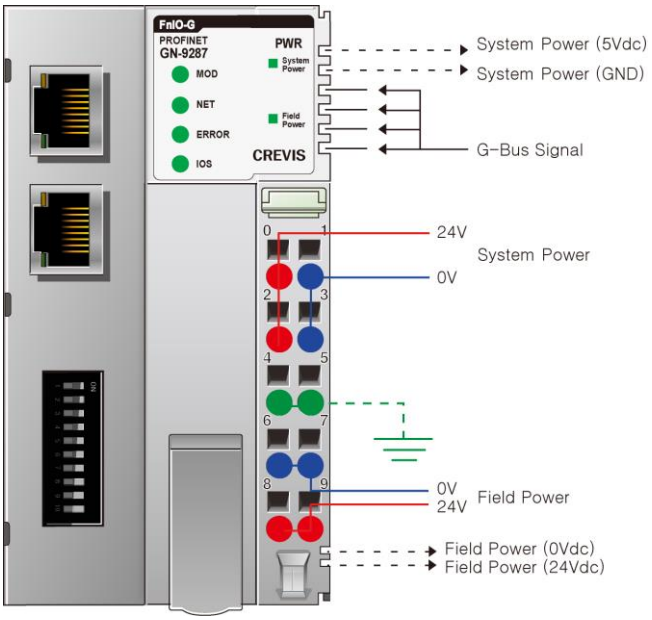
GN-9287 – General Features

Communication	
Type	Slave node – Profinet
Protocol	Profinet
Max modules	32 Slots
Baudrate	100Mbps Full duplex
Connection interface	2 x RJ-45 socket
General	
Power supply	Supply: 24Vdc (nominal) Range: 15 ~ 30Vdc Reverse polarity protection
Power dissipation	70mA @ 24Vdc
Current for I/O module	1.5A @ 5Vdc
Isolation	System power to internal logic : Non-Isolation System power I/O driver : Isolation
Field Power I/O	Supply: 24Vdc (Máx. 30Vdc) *Field Power range is different depending on IO Module series. Refer to IO Module's specification.
Max Current Field Power I/O	10.0A Max.
Installation / Environment	
Weight	172g

Dimensions	54mm x 99mm x 70mm (L x A x P)
Mounting	DIN rail mounting
Position	Vertical and horizontal installation available
I/O wiring	Max. 2.0mm² (AWG 14)
Operating temperature	-40°C ~ 60°C
Storage temperature	-40°C ~ 85°C
Relative Humidity	5% ~ 90% (non-condensing)
Certifications	
Shock Operating	IEC 60068-2-27
Vibration resistance	Based on IEC 60068-2-6 DNVGL-CD-0039 : Vibration Class B, 4g
Industrial Emissions	EN 61000-6-4:2007/A1:2011
Industrial Immunity	EN 61000-6-2:2005
Product Certifications	CE, FCC, RoHS, UL

GN-9287 – Frontal view and pin connections

The following image illustrates the equipment frontal panel, its components and pin connections.



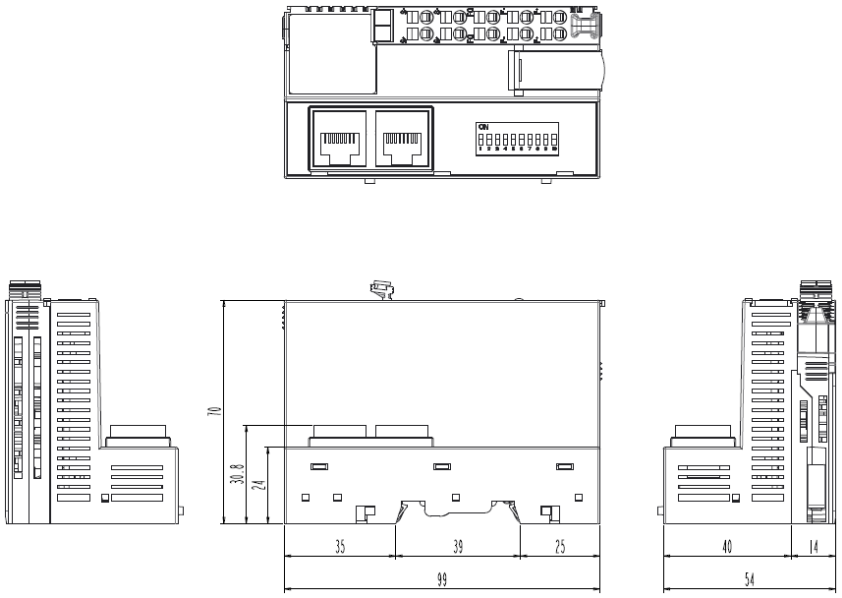
GN-9287 – LED Indicator

LED Indicator	LED Status	Description
MOD – Module Status	OFF	Not power is supplied to the unit.
	Green	The unit is operating in normal condition.

	Red	The device has an unrecoverable fault: Memory or CPU.
NET – Network status	OFF	No power is supplied to the unit.
	Green	Normal communication.
	Flashing Green	Communication identification.
	Flashing Red	DCP configuration error
ERR – Network error	OFF	No error.
	Red	Communication connection error.
IOS – Expansion modules status	OFF	Device may not be powered.
	Flashing Red	Adapter has no expansion module
	Green	Exchanging I/O data.
	Red	One or more expansion module occurred in fault state
System Power –System Supply Enabled	OFF	Not supplied 5Vdc for system power
	Green	Normal condition.
Field Power – Field Supply Enabled	OFF	Not supplied 24Vdc for system power
	Green	Normal condition.

GN-9287 – Dimensions

54mm x 99mm x 70mm (W x H x D)



Doc.Code: CE157911 Version: A

GN-9289 – MODBUS TCP/UDP and Ethernet/IP network Adapter

GN-9289 – Description

The GN-9289 module is a network adapter (network head) designed for operation with MODBUS/TCP, MODBUS/UDP, and EtherNet/IP protocols. It supports up to 63 modules, provides two RJ45 communication ports, DIP switches for IP address configuration, and a front panel with six status LEDs. The unit is mounted directly on a DIN rail, and slice technology enables fast connection to the backplane bus, eliminating the need for wiring or cabling for power supply and inter-module communication. The device is certified for electromagnetic immunity, vibration resistance, and reliable operation over a wide temperature range.

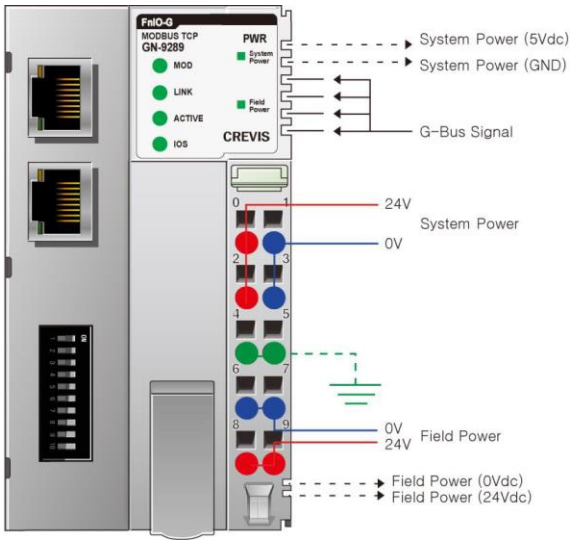
GN-9289 – General Features

Communication	
Type	Slave node – MODBUS TCP/UDP
Protocol	MODBUS TCP/UDP / Ethernet IP
Max modules	63 Slots
Baudrate	100Mbps Full duplex
Connection interface	2 x RJ-45 socket
General	
Power supply	Supply: 24Vdc (nominal) Range: 15 ~ 30Vdc Reverse polarity protection
Power dissipation	70mA @ 24Vdc
Current for I/O module	1.5A @ 5Vdc
Isolation	System power to internal logic : Non-Isolation System power I/O driver : Isolation
Field Power I/O	Supply: 24Vdc (Máx. 28.8Vdc) *Field Power range is different depending on IO Module series. Refer to IO Module's specification.

Max Current Field Power I/O	10.0A Max.
Installation / Environment	
Weight	162g
Dimensions	54mm x 99mm x 70mm (W x H x D)
Mounting	DIN rail mounting
Position	Vertical and horizontal installation available
I/O wiring	Max. 2.0mm² (AWG 14)
Operating temperature	-40°C ~ 60°C
Storage temperature	-40°C ~ 85°C
Relative Humidity	5% ~ 90% (non-condensing)
Certifications	
Shock Operating	IEC 60068-2-27
Vibration resistance	Based on IEC 60068-2-6 DNVGL-CD-0039 : Vibration Class B, 4g
Industrial Emissions	EN 61000-6-4:2007/A1:2011
Industrial Immunity	EN 61000-6-2:2005
Product Certifications	CE, FCC, RoHS, UL

GN-9289 – Frontal view and pin connections

The following image illustrates the equipment frontal panel, its components and pin connections.

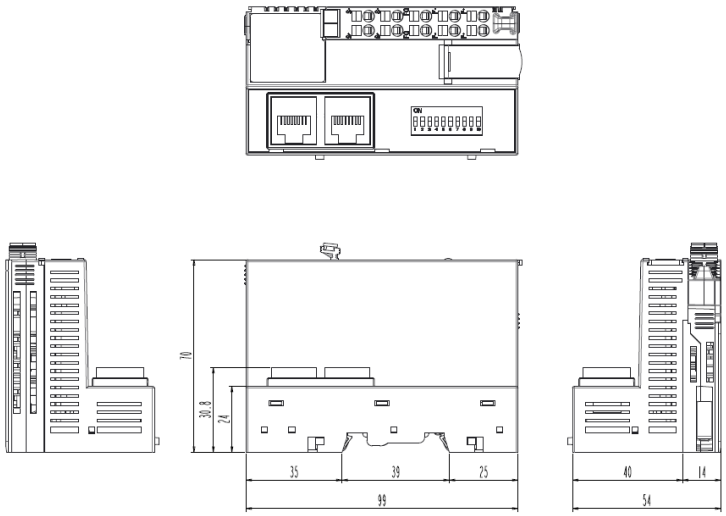


GN-9289 – LED Indicator

LED Indicator	LED Status	Description
MOD – Module Status	OFF	No power is supplied to the unit.
	Green	The unit is operating in normal condition.
	Flashing green	The device needs commissioning due to configuration missing, incomplete or incorrect.
	Green/Red Toggle	MODBUS error.
	Flashing red	Recoverable Fault. EEPROM checksum fault
	Red	The device has an unrecoverable fault: Memory or CPU.
LINK – Physical Connection	OFF	Device may not be powered.
	Green	Adapter Ethernet Controller physically connected
ACT (ACTIVE) – Data Exchange (MODBUS TCP)	OFF	Device may not be powered
	Flashing green	Adapter exchanging data/Traffic present
ACT (ACTIVE) – Data Exchange (Ethernet/IP)	OFF	Device does not have IP address or may not be powered
	Green	Device has an IP address and at least one established connection
	Flashing red	Connection time out in one or more of the connections the device has
IOS – – Expansion modules status	OFF	Device may not be powered
	Flashing red	Adapter has no expansion module.
	Green	Exchanging I/O data.
	Red	One or more expansion module occurred in fault state.
Field Power – Ssytem Supply Enabled	OFF	Not supplied 5Vdc for system power
	Green	Normal condition.
Field Power – Field Supply Enabled	OFF	Not supplied 24Vdc for system power
	Green	The unit is operating in normal condition.

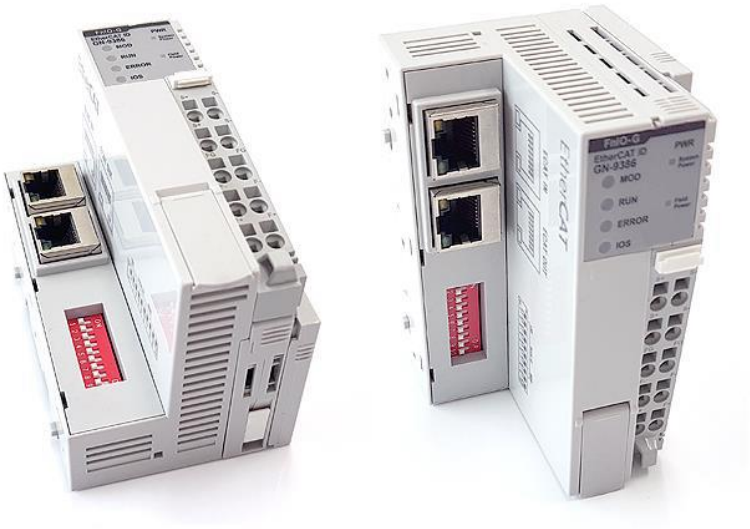
GN-9289 – Dimensions

54mm x 99mm x 70mm (W x H x D)



Doc.Code: CE157911 Version: A

GN-9386 –EtherCAT network Adapter



GN-9386 – Description

The GN-9386 module is a network adapter (network head) designed for operation with the EtherCAT protocol. It supports up to 63 modules, features RJ45 communication ports (input and output), DIP switches for device ID configuration, and a front panel with six status LEDs. The unit is mounted directly on a DIN rail, and slice technology enables fast connection to the backplane bus, eliminating the need for wiring or cabling for power supply and inter-module communication. The device is certified for electromagnetic immunity, vibration resistance, and reliable operation over a wide temperature range.

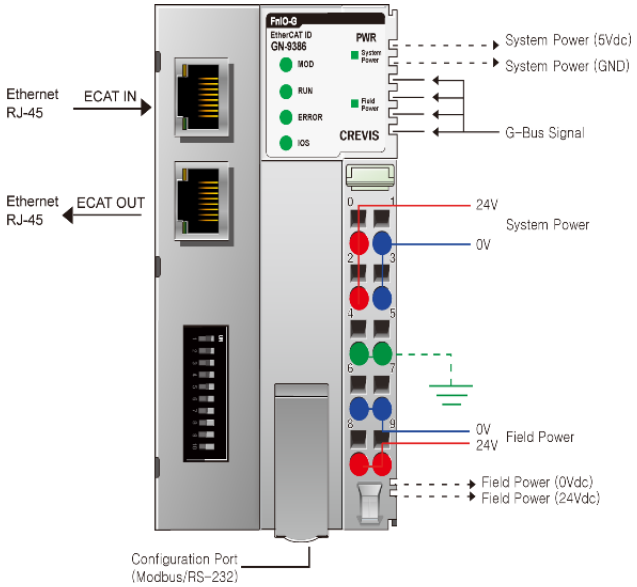
GN-9386 – General Features

Communication	
Type	Slave node – EtherCAT
Protocol	EtherCAT
Max modules	63 Slots
Baudrate	100Mbps Full duplex
Connection interface	RJ-45 socket x2 (IN/OUT)
General	
Power supply	Supply: 24Vdc (nominal) Range: 15 ~ 30Vdc Reverse polarity protection
Power dissipation	70mA @ 24Vdc
Current for I/O module	1.5A @ 5Vdc
Isolation	System power to internal logic : Non-Isolation System power I/O driver : Isolation
Field Power I/O	Supply: 24Vdc (Máx. 30Vdc) *Field Power range is different depending on IO Module series. Refer to IO Module's specification.

Installation / Environment	
Weight	167g
Dimensions	54mm x 99mm x 70mm (W x H x D)
Mounting	DIN rail mounting
Position	Vertical and horizontal installation available
I/O wiring	Max. 2.0mm² (AWG 14)
Operating temperature	-40°C ~ 70°C
Storage temperature	-40°C ~ 85°C
Relative Humidity	5% ~ 90% (non-condensing)
Certifications	
Shock Operating	IEC 60068-2-27
Vibration resistance	Based on IEC 60068-2-6 DNVGL-CD-0039 : Vibration Class B, 4g
Industrial Emissions	EN 61000-6-4:2007/A1:2011
Industrial Immunity	EN 61000-6-2:2005
Product Certifications	CE, FCC, RoHS, UL

GN-9386 – Frontal view and pin connections

The following image illustrates the equipment frontal panel, its components and pin connections.



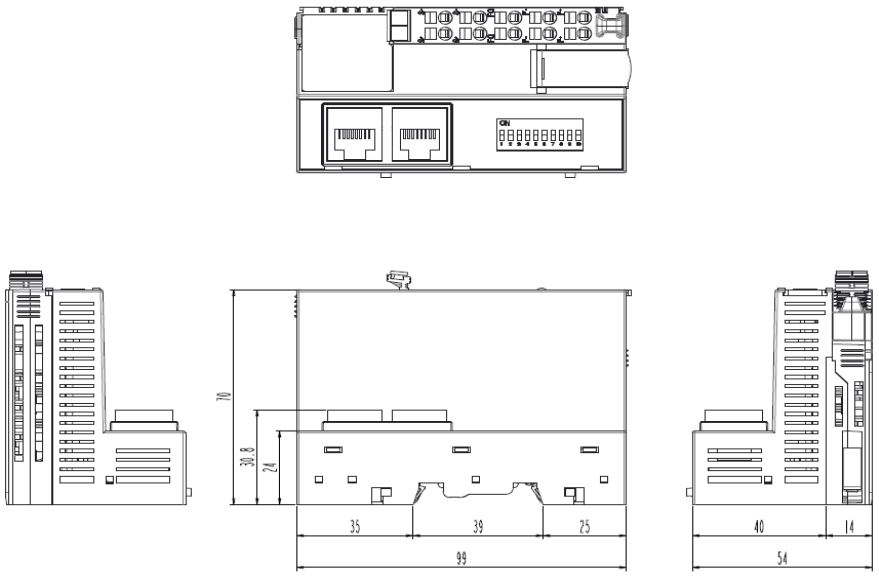
GN-9386 – LED Indicator

LED Indicator	LED Status	Description
MOD – Module Status	OFF	No power is supplied to the unit.
	Green	The unit is operating in normal condition.

	Flashing Green	The EEPROM parameter is not initialized yet. Serial Number is zero value (0x00000000)
	Flashing Red	The unit has occurred recoverable fault in self testing. EEPROM checksum fault.
	Red	The unit has occurred unrecoverable fault in self testing. Firmware fault
RUN	OFF	State of the EtherCAT State Machine: INIT = Initialization.
	Blinking Green	State of the EtherCAT State Machine: PREOP = Pre Operation.
	Single Flash Green	State of the EtherCAT State Machine: SAFEOP = Safe Operation.
	Flashes Green	State of the EtherCAT State Machine: BOOT = Bootstrap (Update of the coupler firmware).
	Green	State of the EtherCAT State Machine: Operational.
ERROR	OFF	No error.
	Blinking Red	Invalid configuration.
IOS – Expansion Module Status	OFF	Device has no expansion module or may not be powered.
	Flashing Green	Internal Bus is normal but does not exchanging I/O data.
	Green	Exchanging I/O data.
	Red	One or more expansion module occurred in fault state.
	Flashing Red	Failed to initialize expansion module.
System Power –System Supply Enabled	OFF	Not supplied 5Vdc for system power
	Green	Normal condition.
Field Power – Field Supply Enabled	OFF	Not supplied 24Vdc for system power
	Green	Normal condition.

GN-9386 – Dimensions

54mm x 99mm x 70mm (W x H x D)



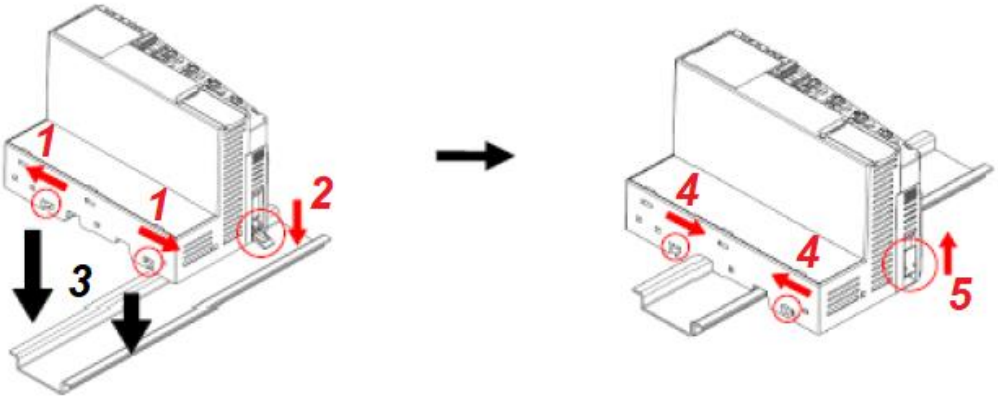
Mounting and Instalation

The installation of modules is made directly on DIN rail, without necessity of backplates. For installation, do the following steps:

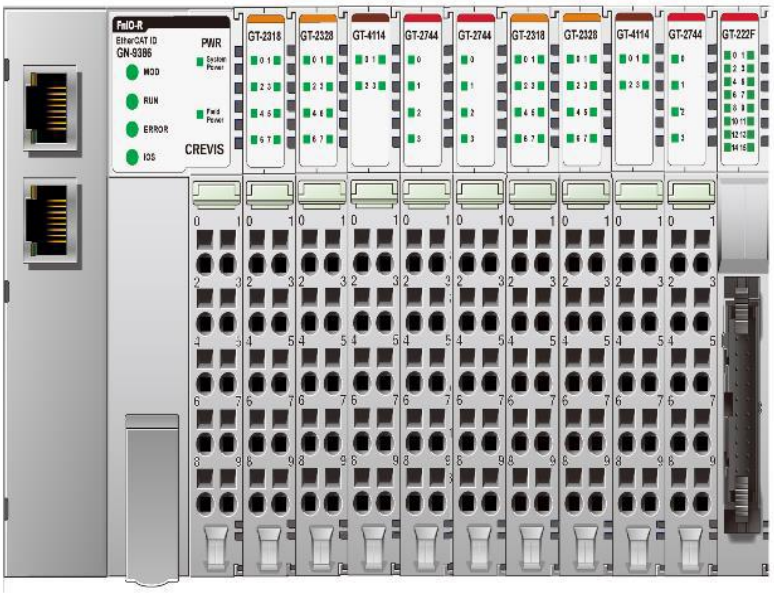
- Move the DIN rail fitting* to the open position;
- Move the DIN rail lock to the UNLOCK position (horizontal);
- Fit and press the module on the rail;
- Move the DIN rail fitting to the closed position;
- Move the DIN rail lock to the LOCK position (vertical).

*Only the network adapters have the rail fitting. The expansion modules have only rail locks.

For remove or exchanging modules, do the reversal steps of installation.



Its necessary 1 network adapter for block / system. The following image represents an example of a typical configuration, having a network adapter ad the I/O expansion modules, from left to right.



I/O Guide Pro configuration Software

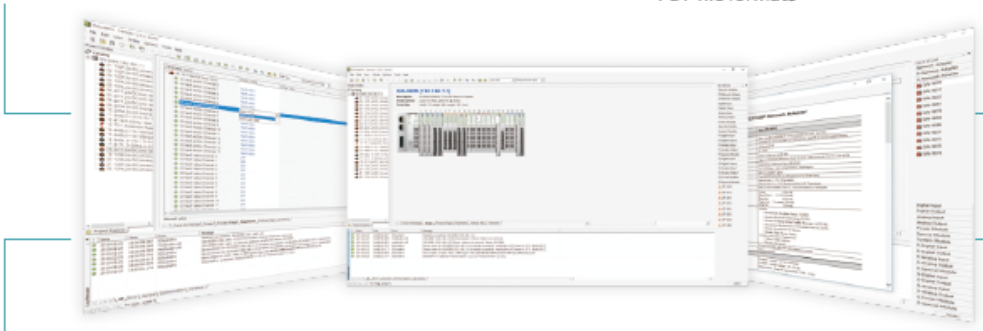
Simple Software Tool for User Convenience

Simulation

Enable to review configuration without modules via I/O Guide Pro
Dimension, Power Consumption, Possibility of expansion

Manual and Project Viewer

Provide the product information as the manual
Enable to export the User-configured project files in Excel or PDF file formats

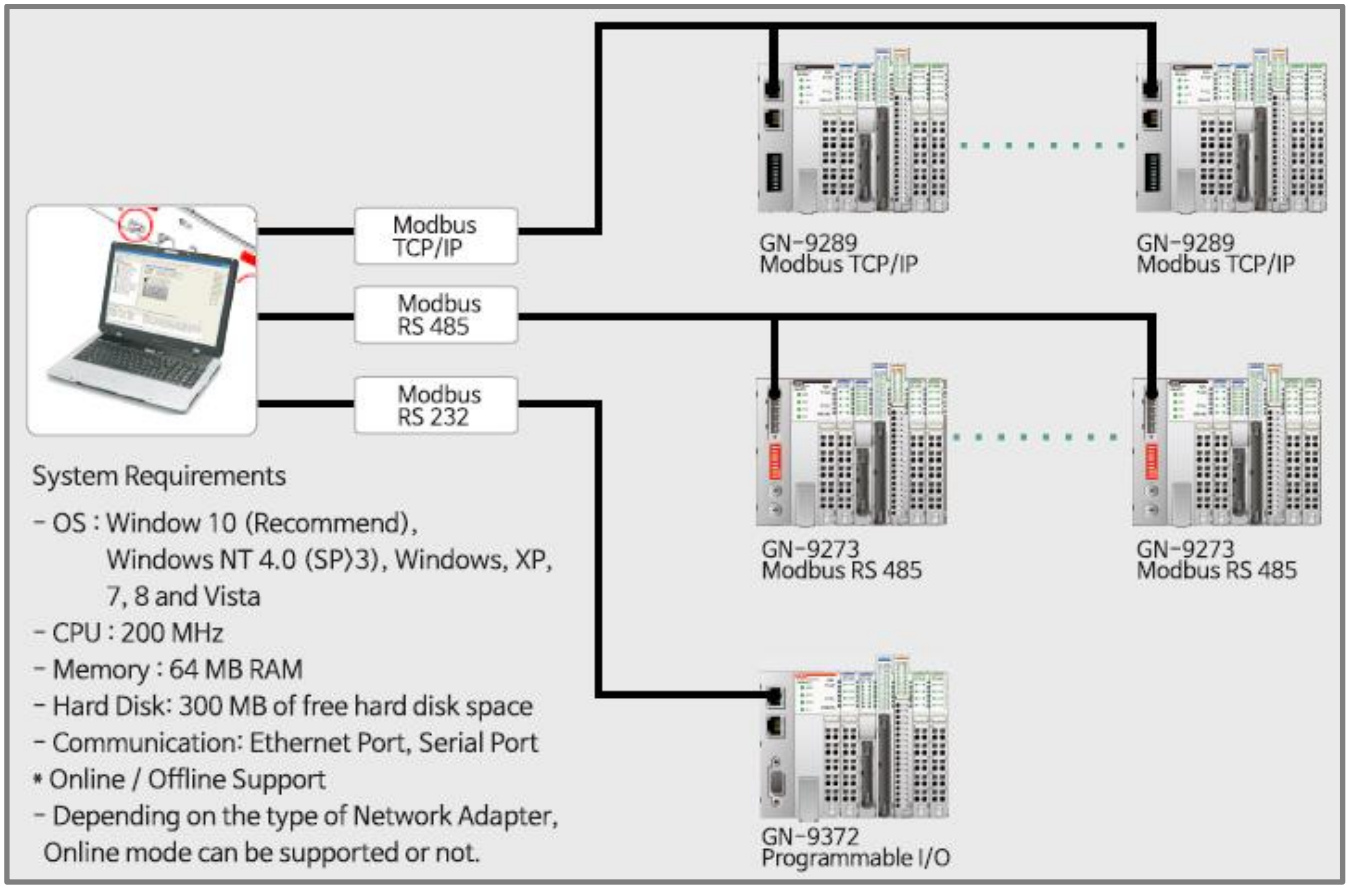


Parameter setting and View Address Map

Enable to change parameters of modules easily
Displaying input/output address map

BOOTP Server and Automatic Scan

IP setting and connecting communication online without a master
* Online - MODBUS protocol available



System Requirements

- OS : Window 10 (Recommend), Windows NT 4.0 (SP)3), Windows, XP, 7, 8 and Vista
- CPU : 200 MHz
- Memory : 64 MB RAM
- Hard Disk: 300 MB of free hard disk space
- Communication: Ethernet Port, Serial Port

* Online / Offline Support

- Depending on the type of Network Adapter, Online mode can be supported or not.

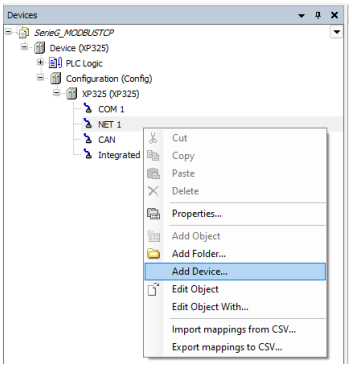
MODBUS TCP Configuration and Communication

The steps below guide the creation of a project in MasterTool for Xpress and the configuration of a MODBUS Client device, representing a G Series remote I/O block, to enable communication between them. Variables will be created and MODBUS mapping will be configured for reading and writing digital input and output modules connected to a network adapter.

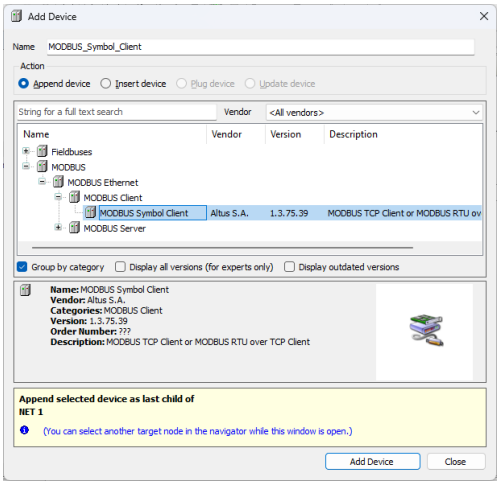
- Open MasterTool and create a new project for the CPU (e.g., XP325). The tutorial for creating a project for Xpress can be accessed at: https://suporte.altus.com.br/hc/pt-br/articles/7754631705485-Nexto-Xpress-Criando-um-projeto
- Create variables for inputs and outputs according to the expansion modules to be used. As an example, for 16 digital inputs and 16 digital outputs, 32 Boolean variables must be declared to represent them.

```
VAR_GLOBAL
    //Entradas Digitais GT-12DF
    DI000, DI001, DI002, DI003, DI004, DI005, DI006, DI007  :   BOOL;
    DI008, DI009, DI010, DI011, DI012, DI013, DI014, DI015  :   BOOL;

    //Saidas Digitais GT-226F
    DO000, DO001, DO002, DO003, DO004, DO005, DO006, DO007  :   BOOL;
    DO008, DO009, DO010, DO011, DO012, DO013, DO014, DO015  :   BOOL;

END_VAR
```

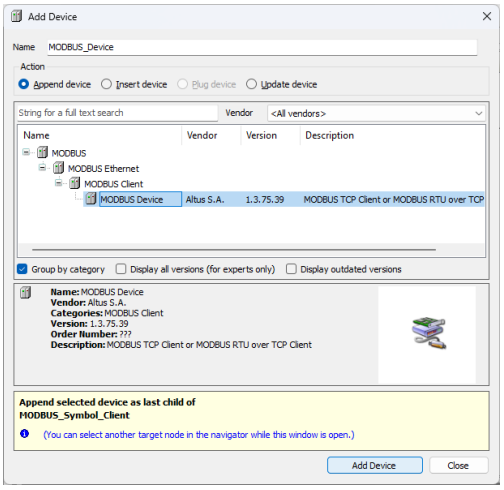
- Map variables and addresses. MODBUS addressing of the modules is assigned according to the order in which the modules are inserted on the bus. The MODBUS addressing for DI and DO expansion modules starts at 0x0000 and 0x0800, respectively. However, for coil reading, discrete input reading, and coil writing (single or multiple), the base address 0x0000 must be used for input modules and 0x1000 for output modules. Considering 1-based addressing, the addresses for inputs and outputs start at 0x0001 and 0x1001, respectively.
- In the equipment tree, right-click **NET 1** within **XP325 (XP325)** and select **Add Device…**.



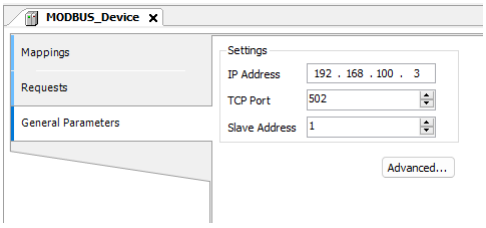
- The Add Device window will open. Select: **MODBUS → MODBUS Ethernet → MODBUS Client → MODBUS Symbol Client**, and click **Add Device**.



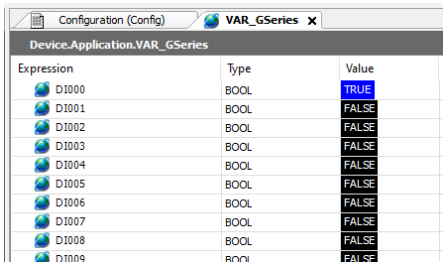
- With the window still open, select the created object in the equipment tree. Then, in the window, select: **MODBUS → MODBUS Ethernet → MODBUS Client → MODBUS Device**, and click **Add Device**. After adding the device, close the window.

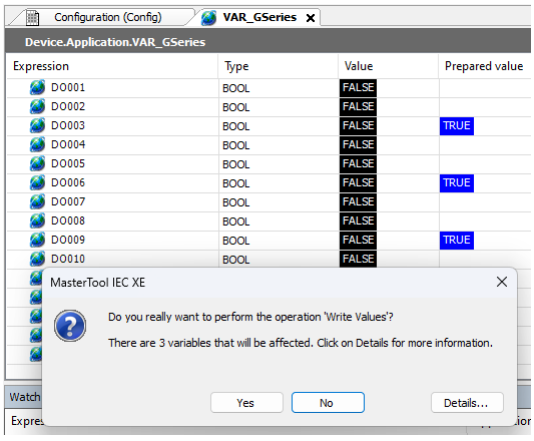


- Open the MODBUS Device added to the project and, on the **General Parameters** tab, configure the IP address and TCP port of the device (GL-9089 module). Refer to the GL-9089 Adapter manual for the procedure to change the IP address.



- Test the communication using the Variables screen in MasterTool.

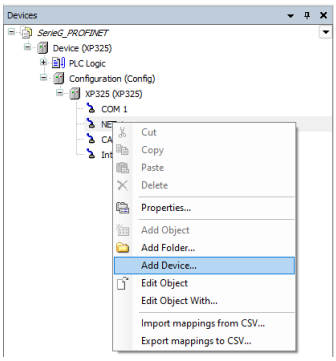




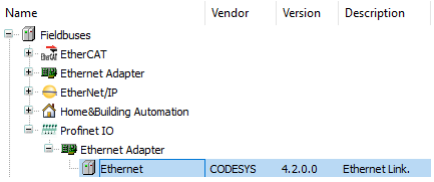
ROFINET Configuration and Communication

The steps below guide the creation of a project in MasterTool for Xpress and the configuration of a PROFINET device, representing a G Series remote I/O block, to enable communication between them. The digital input and output modules connected to a network adapter will be configured.

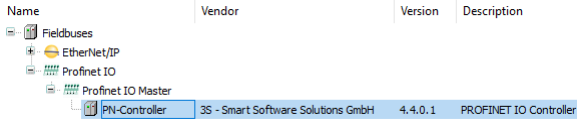
- Open MasterTool and create a new project for the CPU (e.g., XP325). The tutorial for creating a project for Xpress can be accessed at: https://suporte.altus.com.br/hc/pt-br/articles/7754631705485-Nexto-Xpress-Criando-um-projeto
- In the equipment tree, right-click **NET 1** within **XP325 (XP325)** and select **Add Device…**.



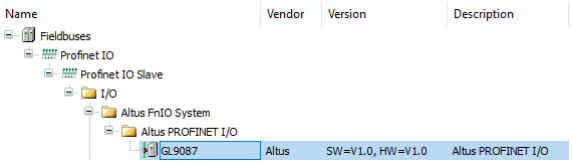
- The Add Device window will open. Select **FieldBuses → PROFINET IO → Ethernet** and click **Add Device**.



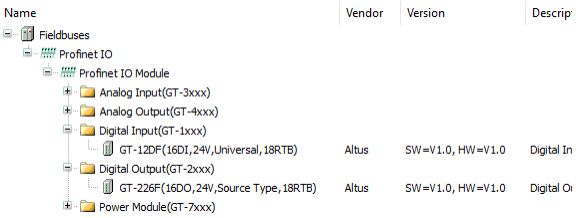
- With the window still open, select the created object in the equipment tree and then select **FieldBuses → PROFINET IO → PN-Controller**, and click **Add Device**.



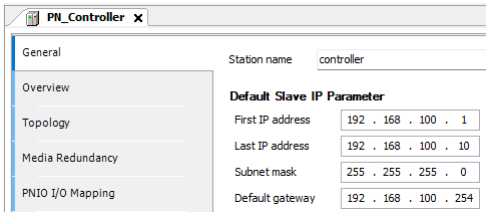
- With the window still open, select the created object in the equipment tree and then select **FieldBuses → PROFINET IO → PROFINET IO Slave → I/O → Altus FnIO System → Altus PROFINET I/O → GL9087**, and click **Add Device**.



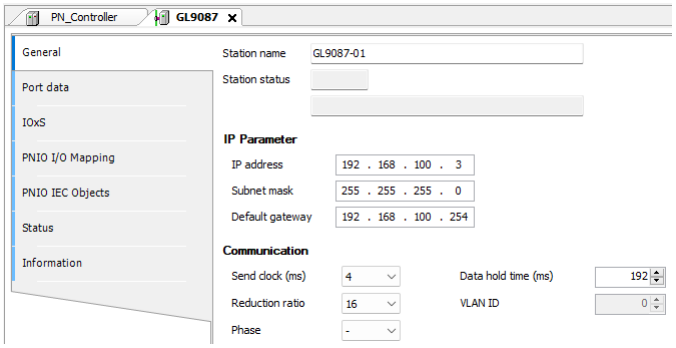
- With the window still open, select the created object (GL9087) in the equipment tree and then select **FieldBuses → PROFINET IO → PROFINET IO Module**. Select the desired expansion module and click **Add Device**. Repeat this step for all modules to be added. After finishing the device additions, close the window.



- Open the **PN_Controller** added to the project and, on the General tab, configure the IP address range for the devices, subnet mask, and gateway.



- Open the **GL9087** device added to the project and, on the **General** tab, configure the device name (according to the DIP switch configuration), the desired IP address (within the range configured in the PN_Controller), the subnet mask, and the gateway. Set the Send clock (ms) to 4 and the Reduction ratio to 16.



- Test the communication using the I/O mapping tab of the device in MasterTool.