

Chapter 8 LSIS: GLOFA-GM PLC


8.1 PLC List


InfoU is able to connect to GLOFA-GM PLC.

PLC	CPU module	Connection method	Comm. method	Connection Module	Remarks
GLOFA-GM	GMR/GM1/2/3	CPU module direct connection method	RS-232C	CPU module	-
		Link	RS-232C	G3L-CUEA	Cnet
		Link	RS-422/485	G3L-CUEA	Cnet
		Link	Ethernet	G3L-EUTB	Open type FEnet
	GM4	CPU module direct connection method	RS-232C	CPU module	-
		Link	RS-232C	G4L-CUEA	Cnet
		Link	RS-422/485	G4L-CUEA	Cnet
		Link	Ethernet	G4L-EUTB	Open type FEnet
	GM6	CPU module direct connection method	RS-232C	CPU module	-
		Link	RS-232C	G6L-CUEB	Cnet
		Link	RS-422/485	G6L-CUEC	Cnet
		Link	Ethernet	G6L-EUTB	Open type FEnet
	GM7U	CPU module direct connection method	RS-232C	CPU module	-
		Link	RS-232C	G7L-CUEB	Cnet
		Link	RS-422/485	G7L-CUEC	Cnet
	GM7	CPU module direct connection method	RS-232C	CPU module	-
		Link	RS-232C	G7L-CUEB	Cnet
		Link	RS-422/485	G7L-CUEC	Cnet

Notice

1. Dedicated Ethernet module (GxL-EUTC, ERTC) is not supported.
2. Terminology

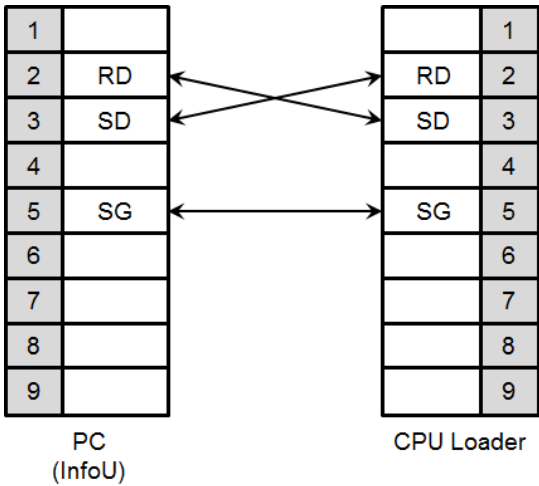
 CPU module direct connection: executes serial communication through the loader port of the CPU module.

 Link: executing serial communication with the communication module of the PLC

8.2 Wiring Diagram

8.2.1 CPU module direct connection method: Loader

Connecting InfoU and GLOFA-GM PLC with CPU module direct connection method (RS-232C) is as follows.



Notice

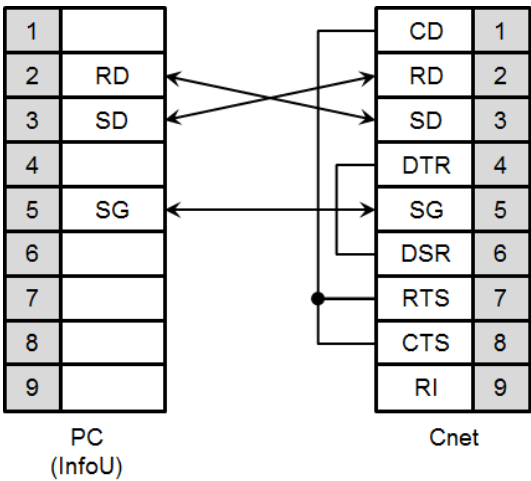
Cautions when wiring cable

- ☞ In the CPU module loader port is a CPU module that provides built-in Cnet. Be careful not to connect to other pins when wiring.
- ☞ CPU module loader port is D-SUB 9P, Female. Use a Male connector when wiring the cable.

8.2.2 Link method: Cnet

Cnet is specified into RS-232C and RS-422/485 type.

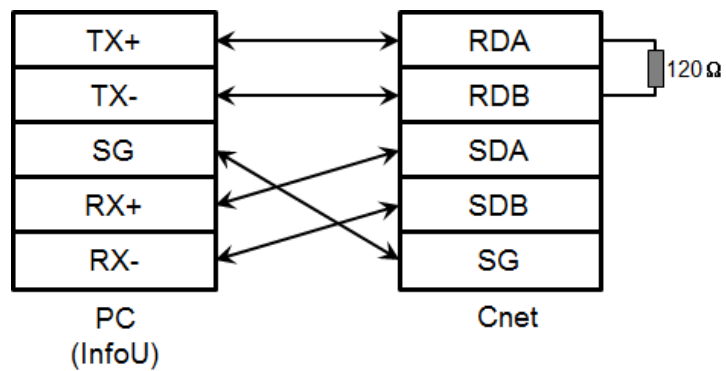
Below is the wiring of RS-232C Cnet.



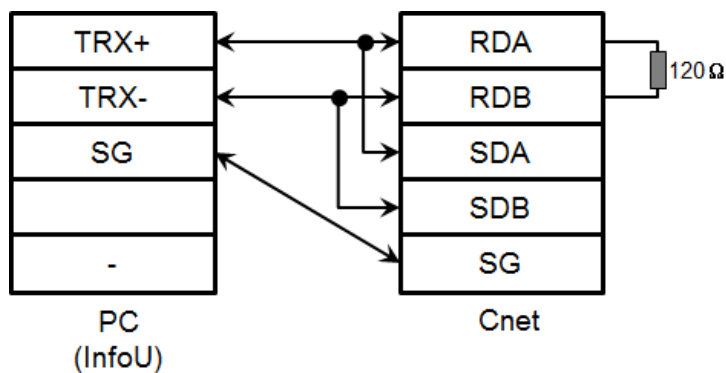
Notice

- ☞ Since GLOFA-GM Cnet(RS-232C) uses flow control, it will not communicate if it is not wired as above.

RS-422 wiring is as below.



RS-485 wiring is as below.



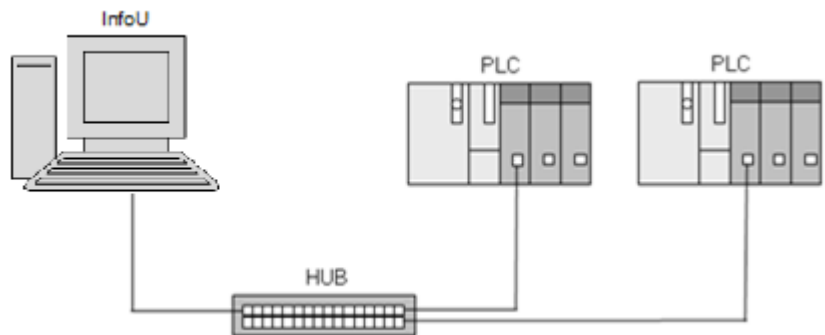
Notice

- PC에서 RS-422/485 결선을 사용하려면 RS232 to RS422/485 컨버터가 필요합니다.
- PLC의 RS-422/485 포트는 단자대로 되어 있으므로 별도의 컨버터가 필요 없습니다.

8.2.3 Link method: FEnet

(1) Ethernet specification

Ethernet can be connected in 2 ways as below figure.





Notice

When connecting hub-node, direct cable has to be used and cross cable has to be used when connecting 1:1.

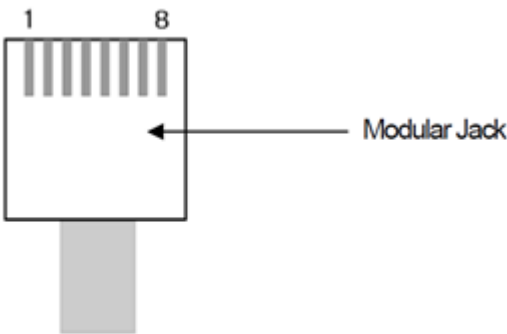
(2) Ethernet cable

Ethernet cable gets specified into 2 cables according to its type.

When communicating through LAN, connected to network equipment like a hub, direct cable is used. (In case of hub-node connection) Direct connection is available among equipments and in this case, cross cable is used.

Method for wiring a direct cable is as follows.

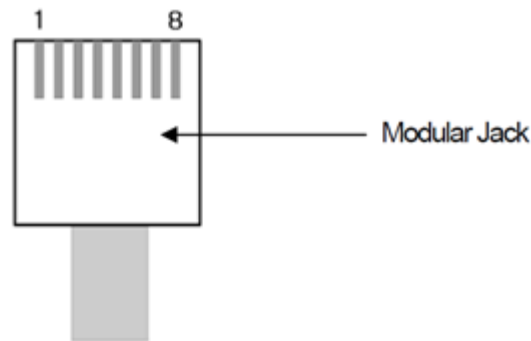
1	White-oragne	↔	White-oragne	1
2	Orange	↔	Orange	2
3	White-green	↔	White-green	3
4	Blue	↔	Blue	4
5	White-blue	↔	White-blue	5
6	Green	↔	Green	6
7	White-brown	↔	White-brown	7
8	Brown	↔	Brown	8



'White-yellow', 'White-green', 'White-blue', 'White-brown' from above figure is indicated on the coating of the cable. For example, 'white-blue' has blue stripes on white coating.

Method for wiring of cross cable is as follows.

1	White-orange	↔	White-green	1
2	Orange	↔	Green	2
3	White-green	↔	White-orange	3
4	Blue	↔	Blue	4
5	White-blue	↔	White-blue	5
6	Green	↔	Orange	6
7	White-brown	↔	White-brown	7
8	Brown	↔	Brown	8



Notice

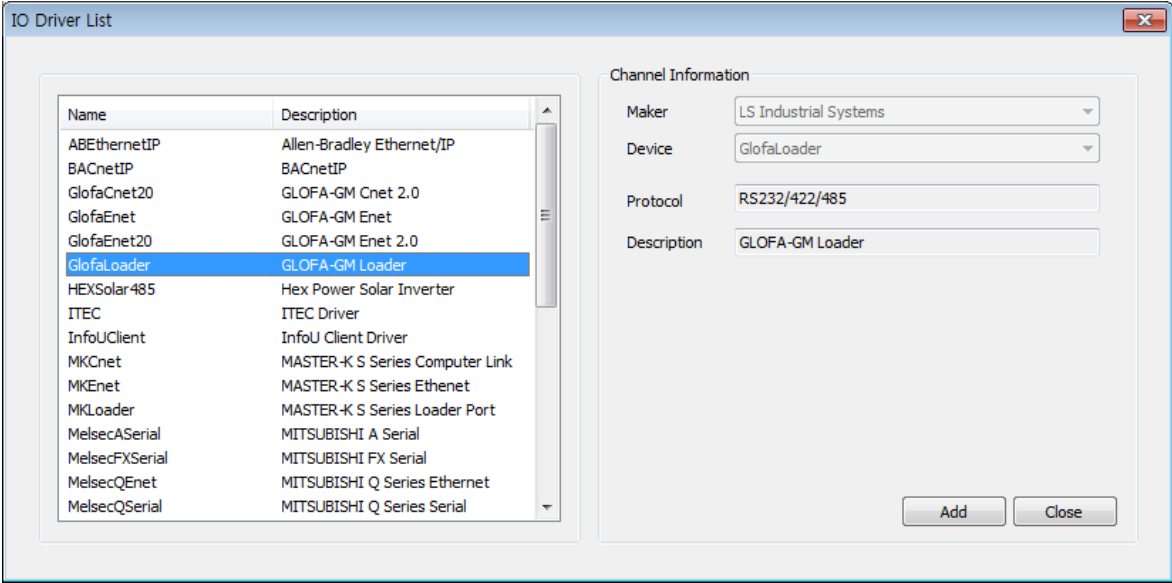
- ☞ Use according to the connection method.
- ☞ Wire the cable by using a modular tool. Bad connection may occur.
- ☞ If the lock part of the modular jack gets damaged, it may not get fixed to the RJ45 connector (Ethernet connector) and bad connection may occur.
- ☞ The UTP cable is made out of solid wire material. Therefore, it may break when heavily bent or shaken.
- ☞ It is advisory to use a plug cover when wiring cables.

8.3 I/O Driver Setting

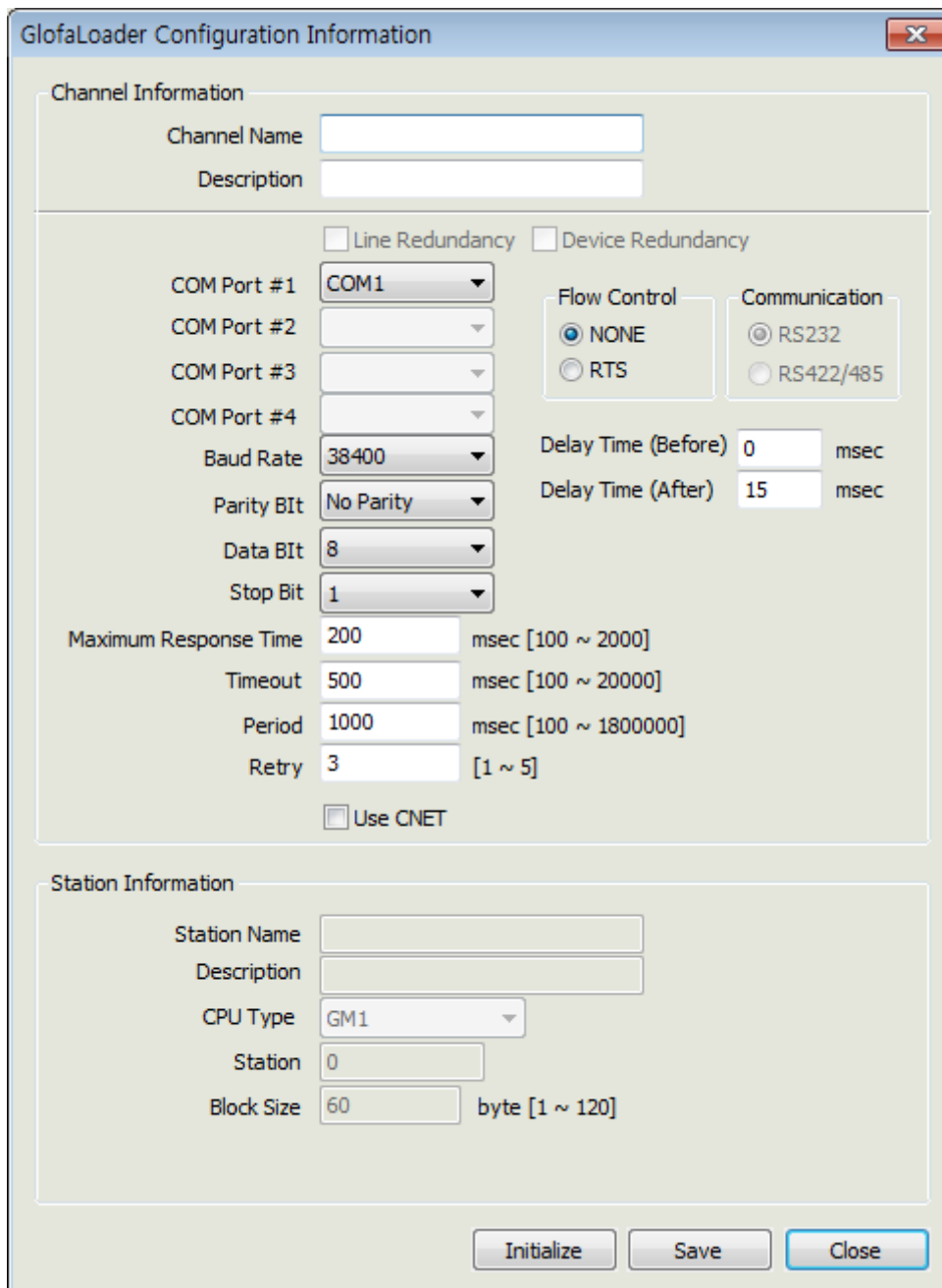
8.3.1 CPU module direct connection method: Loader

- (1) PLC Setting
 PLC Loader 통신 설정은 GMWIN 프로그램을 사용하여 설정합니다.

- (2) InfoU Setting: GlofaLoader
 - 1) Add Channel



Select “GLOFALoader” from the I/O driver list and press “Add”.



GlofaLoader Configuration Information

Channel Information

Channel Name

Description

☐ Line Redundancy ☐ Device Redundancy

COM Port #1

COM Port #2

COM Port #3

COM Port #4

Baud Rate

Parity Bit

Data Bit

Stop Bit

Maximum Response Time msec [100 ~ 2000]

Timeout msec [100 ~ 20000]

Period msec [100 ~ 1800000]

Retry [1 ~ 5]

☐ Use CNET

Flow Control: ☒ NONE ☐ RTS

Communication: ☒ RS232 ☐ RS422/485

Delay Time (Before) msec

Delay Time (After) msec

Station Information

Station Name

Description

CPU Type

Station

Block Size byte [1 ~ 120]

- Channel Name: Input a channel name.
- Description: Input some information on the channel.
- COM Port #1: Select a communication port.
- Baud Rate: Select a communication speed.
- Parity Bit: Select a parity bit.
- Data Bit: Select a data bit.
- Stop Bit: Select a stop bit.
- Maximum Response: It refers to a certain time period that will take to receive a response after requesting data.
- Time Out : It refers to a certain time period during which any response to the request for data is not

made and after passing such a time period, the system will declare timeout to move on to the next process. The time period to be set will be a base to judge communication errors.

- Period: It refers to an interval to request data.
- Retry: Set up the number of times to retry when communication fails.

2) Add Station

GlofaLoader Configuration Information

Channel Information

Channel Name: GlofaLoader
Description:

☐ Line Redundancy ☐ Device Redundancy

COM Port #1: COM1
COM Port #2:
COM Port #3:
COM Port #4:
Baud Rate: 38400
Parity Bit: No Parity
Data Bit: 8
Stop Bit: 1

Flow Control: ☒ NONE ☐ RTS
Communication: ☒ RS232 ☐ RS422/485

Delay Time (Before): 0 msec
Delay Time (After): 15 msec

Maximum Response Time: 200 msec [100 ~ 2000]
Timeout: 500 msec [100 ~ 20000]
Period: 1000 msec [100 ~ 1800000]
Retry: 3 [1 ~ 5]

☐ Use CNET

Station Information

Station Name:
Description:
CPU Type: GM1
Station: 0
Block Size: 60 byte [1 ~ 120]

Initialize Save Close

- Station Name: Input a station name.
- Description: Input some information on the station.
- CPU Type: Select a CPU type.
- Station Number: Input the station number.
- Block Size: Input a block size of PLC communication.

- 3) I/O Address
- I/O Address Type

: %MX0, %MB0, %MW0, %MD0, %ML0

: %MB0.0, %MW0.0, %MD0.0, %ML0.0

8.3.2 Link method: Cnet

- (1) PLC Setting
- Set Cnet communication parameter of the PLC(except GM7/GM7U) through frame editor. (Refer to Cnet I/F Module instruction manual) Set Cnet as below.

Cnet Frame Editor (untitled.frm)

File Online Option Monitor Help

Channel

☒ RS232 side

☐ RS422 side

Basic Parameters

Station: 00

Type: Null Modem

Init Command: ATZ

Baud Rate: 38400

Data Bit: 8

Parity: None

Stop Bit: 1

Monitor Entry

☐ 4x32

☒ 16x20

Frame List

0

1

2

3

4

5

6

7

8

9

Frame Informations

Tx/Rx:

Header:

SG1:

SG5:

SG2:

SG6:

SG3:

SG7:

SG4:

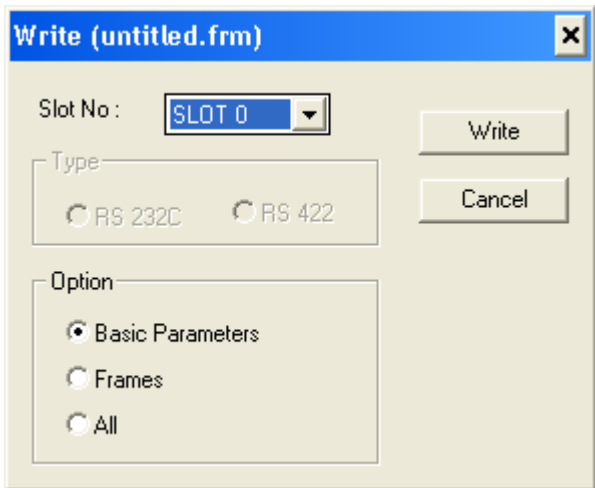
SG8:

Tailer:

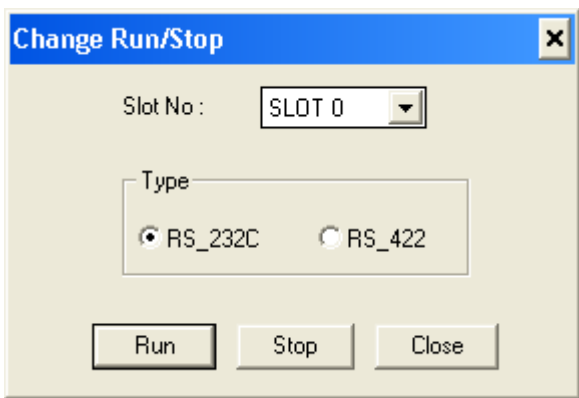
BCC:

Set communication channel to 'RS232 side' and set communication parameter. When setting RS-422/485, set 'RS422 side'. Be sure to select '16 x 20' for monitor registration size.

In order to set parameter value to the PLC, select slot number in which the Cnet module is installed as below.



When write is done, start operation as below.

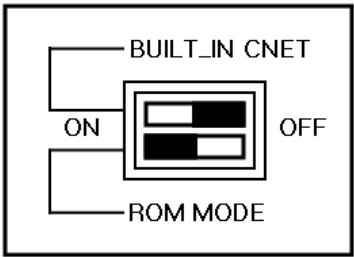


Be sure to set operation mode from the Cnet module.
Because operation mode setting differs according to each Cnet, refer to Cnet I/F Module instruction manual.

Notice

- 1. Communication state check
 - ☞ Frame editor has a monitoring function. Communication data may be checked using this function.
 - ☞ There are RX, TX LEDs on the Cnet module. These LEDs blink rapidly when communicating normally.
- 2. Cautions when setting PLC
 - ☞ Be sure to reset the PLC after setting the communication parameter of the frame editor. (Refer to instruction manual for specific details)
 - ☞ This manual only explains briefly. Be sure to refer to the Cnet I/F Module instruction manual when setting.

To use built-in Cnet, set the 'BUILT_IN_CNET' switch to 'ON' from GM7/GM7U.



Set communication parameter from GMWIN.

Communication method

Station No.: 0

Baud rate: 38400

Parity bit: None

Data bit: 8

Stop bit: 1

Communication channel

☒ RS485

Initial command:

ATZ

Notice

1. Cautions when setting PLC
 - ☞ This manual only explains briefly. Be sure to refer to the GMWIN instruction manual when setting.
2. Cautions when setting XP-Builder InfoU
 - ☞ When configuring RS-422/485 1:N, set transmission stand-by time.

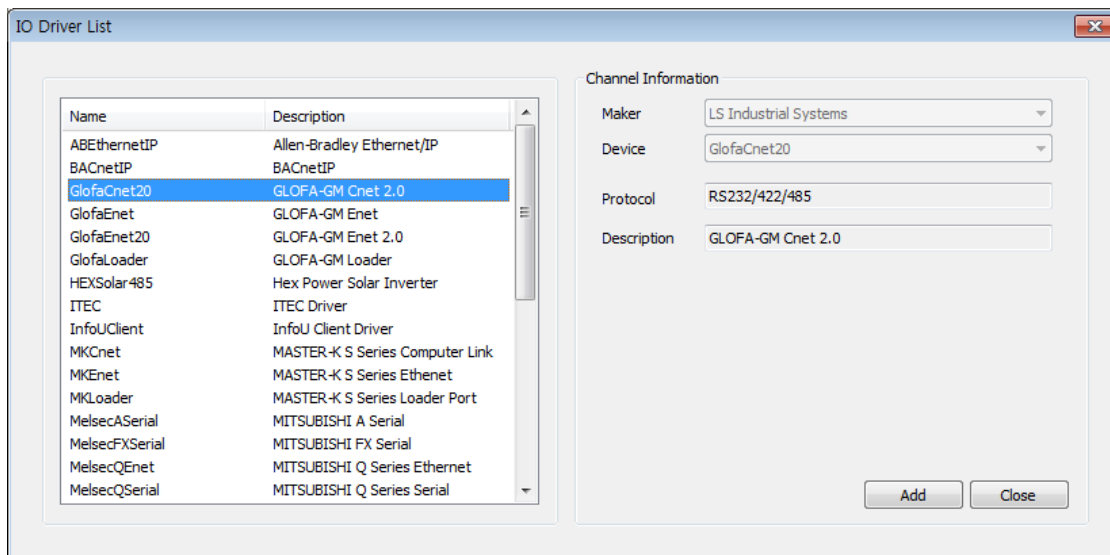
☒ Use RTS

Delay Time (Before) 0 msec

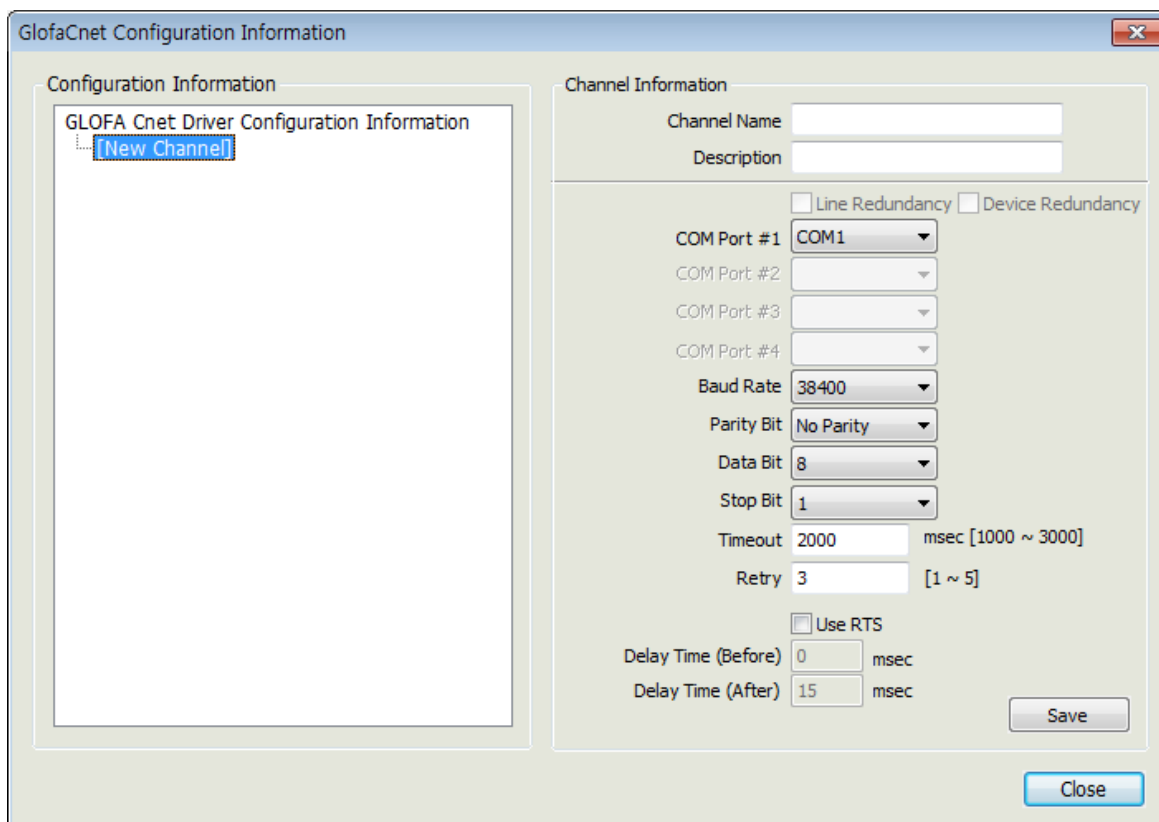
Delay Time (After) 15 msec

(2) InfoU Setting: GlofaCnet20

1) Add Channel



Select “GlofaCnet20” from the I/O driver list and press “Add”.



- Channel Name: Input a channel name.
- Description: Input some information on the channel.
- COM Port #1: Select a communication port.
- Baud Rate: Select a communication speed.

- Parity Bit: Select a parity bit.
- Data Bit: Select a data bit.
- Stop Bit: Select a stop bit.
- Time Out: It refers to a certain time period during which any response to the request for data is not made and after passing such a time period, the system will declare timeout to move on to the next process. The time period to be set will be a base to judge communication errors.
- Retry: Set up the number of times to retry when communication fails.
- Use RIS: Check ☒ in the box only when using Channel 485 and 422.
- Delay Time (Before): Information used only in Channel 485 and 422. The delay time right before requesting Data to PLC.
- Delay Time (After): Information used only in Channel 485 and 422. The delay time right after requesting Data to PLC.
- Save: If 'Save' button is pressed, Channel information will be saved and the saved information will add to the left "Configuration Information" tree.

GlofaCnet Configuration Information

Configuration Information

- GLOFA Cnet Driver Configuration Information
 - [New Channel]
 - GlofaCnet20**
 - [New Station]

Channel Information

Channel Name: GlofaCnet20

Description:

☐ Line Redundancy ☐ Device Redundancy

COM Port #1: COM1

COM Port #2:

COM Port #3:

COM Port #4:

Baud Rate: 38400

Parity Bit: No Parity

Data Bit: 8

Stop Bit: 1

Timeout: 2000 msec [1000 ~ 3000]

Retry: 3 [1 ~ 5]

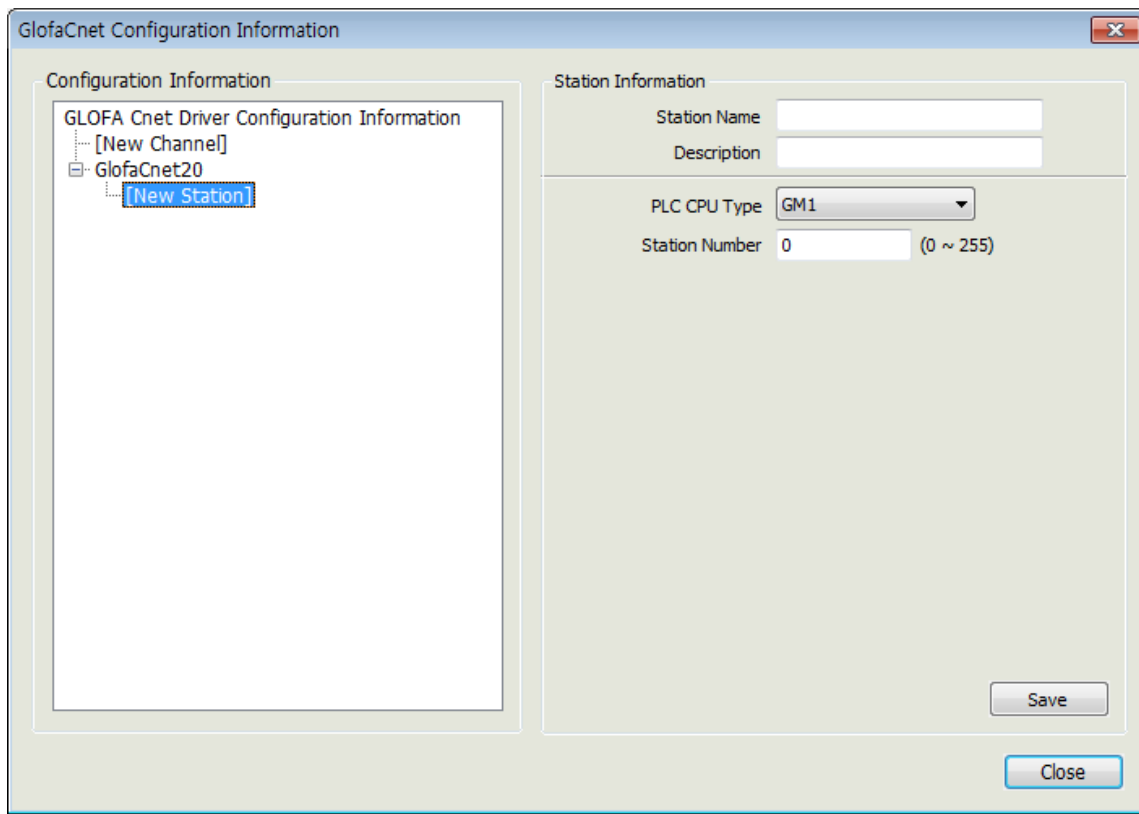
☐ Use RTS ☒ Use RIS

Delay Time (Before): 0 msec

Delay Time (After): 15 msec

Save **Close**

2) Add Station



- Select [New Station] from "Configuration Information" tree.
- Station Name: Input a station name.
- Description: Input some information on the station.
- PLC CPU Type: Select a PLC CPU type.
- Station Number: Input the prefix number of PLC Cnet Module.
- Save: If 'Save' button is pressed, Station information will be saved and the saved information will add to the left "Configuration Information" tree.

GlofaCnet Configuration Information

Configuration Information

GLOFA Cnet Driver Configuration Information

- [New Channel]
- GlofaCnet20
 - [New Station]
 - PLC01
 - [New Block]

Station Information

Station Name: PLC01

Description:

PLC CPU Type: GM1

Station Number: 0 (0 ~ 255)

Save Close

3) Add Block

GlofaCnet Configuration Information

Configuration Information

GLOFA Cnet Driver Configuration Information

- [New Channel]
- GlofaCnet20
 - [New Station]
 - PLC01
 - [New Block]

Block Information

Block Number: (0 ~ 99)

Description:

Start Address: %MW

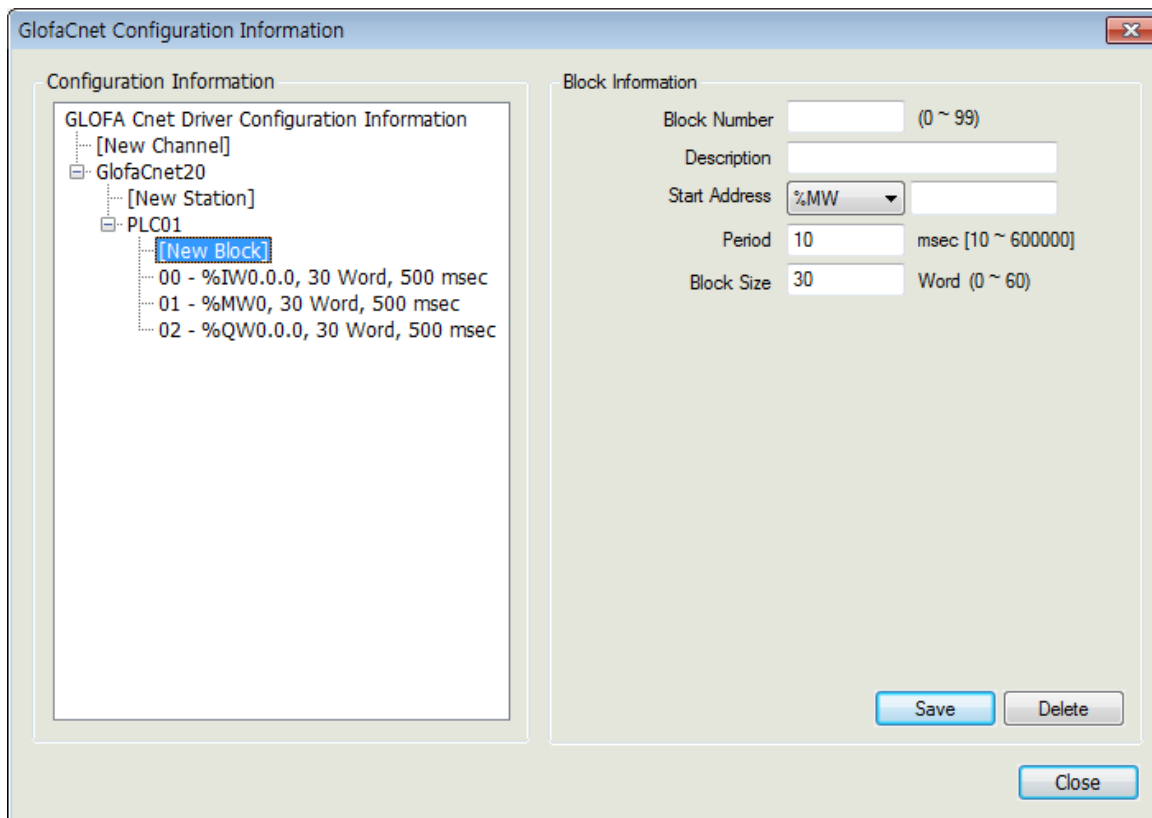
Period: 10 msec [10 ~ 600000]

Block Size: 30 Word (0 ~ 60)

Save Delete Close

- Select [New Block] from “Configuration Information” tree.

- **Block Number:** This number is a unique code of the block. The user needs to designate a different code to each block.
- **Description:** Input some information on the block.
- **Start Address:** Input the Block's Start Address. There are three kinds and each address is designated as the following ways respectively:
 - Right example: %MW0, %MW20, %IW0.0.0, %QW1.0.0
 - Wrong example: %MW0.0.0, %IW0, %QW0
- **Period:** Input an interval to collect data of the relevant block (unit: msec).
- **Block Size:** Input a block size of the relevant block (unit: Word (2 byte)).
- **Save:** If 'Save' button is pressed, Block information will be saved and the saved information will add to the left "Configuration Information" tree.
- **Delete:** If "Delete" button is pressed, the currently selected Block will be deleted.



4) I/O Address

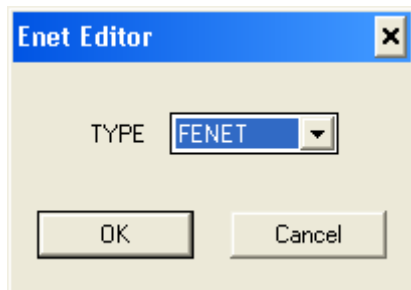
- **Type**
 - Analog : %MX0, %MB0, %MW0, %MD0, %ML0, %IW0.0.0, %QW0.0.0
 - Digital : %MB0.0, %MW0.0, %MD0.0, %ML0.0, %IX0.0.0, %QX0.0.0
- **Available devices**
 - I, M, Q

8.3.3 Link method: FEnet

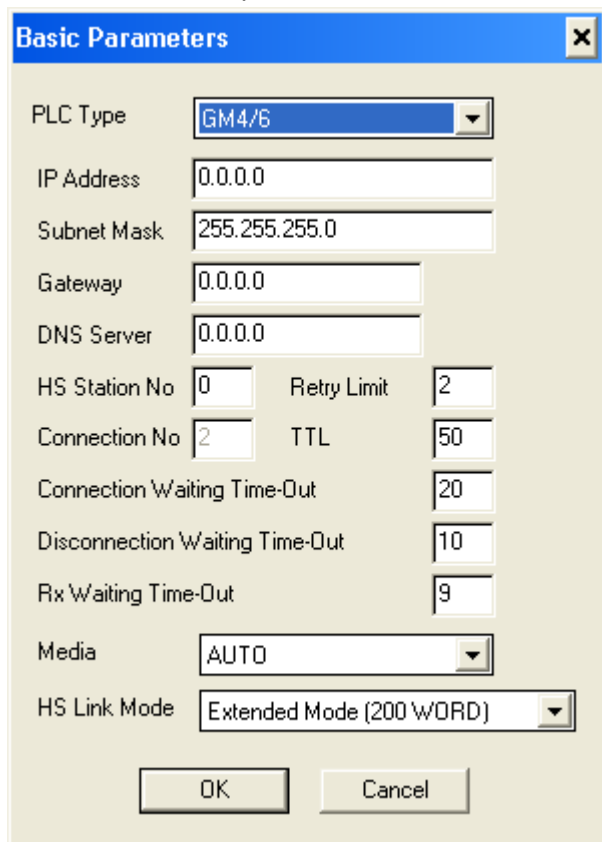
(1) PLC Setting

InfoU only supports open type FEnet. (Exclusive FEnet module not supported) Set FEnet communication parameter from high-speed Ethernet frame editor. (Refer to FEnet I/F Module instruction manual)

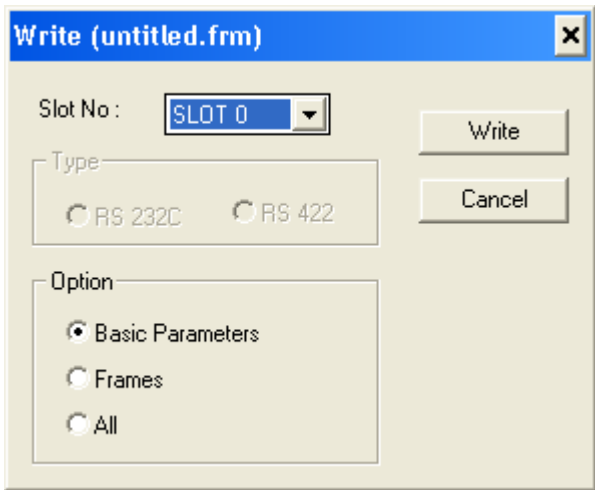
After running the software, select 'FENET' as below.



Set communication parameter such as IP address and gateway.



In order to set parameter value to the PLC, select slot number in which the Cnet module is installed as below.



When write is done and PLC is reset, setting is done.

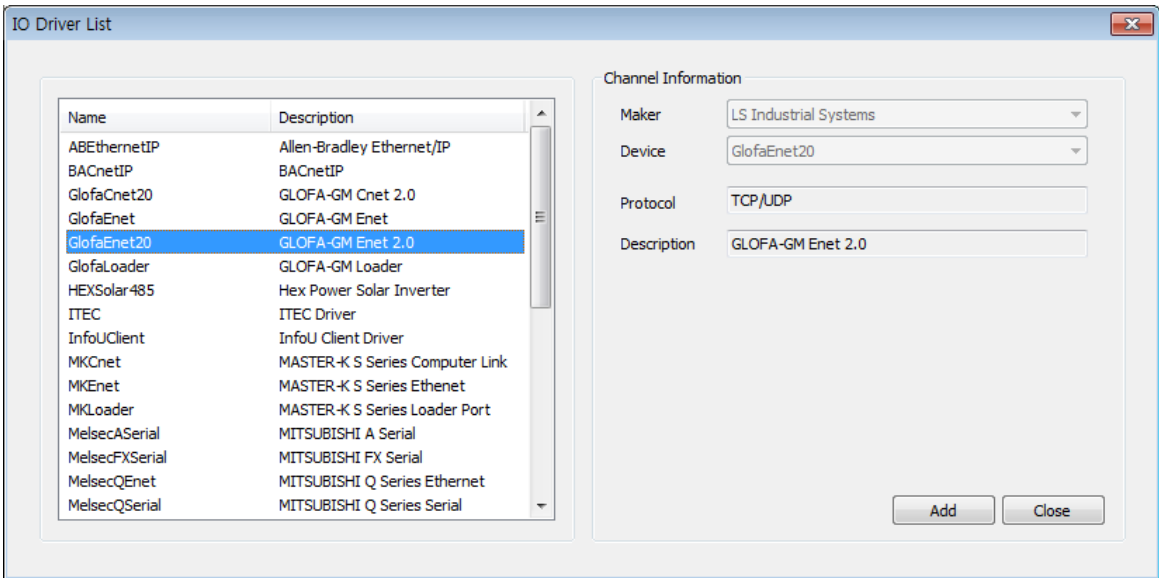
Notice

Communication state check

☞ There are RX, TX LEDs on the Cnet module. These LEDs blink rapidly when communicating normally.

(2) InfoU Setting: GlofaEnet20

1) Add Channel



Select “GlofaEnet20” from the I/O driver list and press “Add”.

GlofaEnet Configuration Information

Configuration Information

GLOFA Enet Driver Configuration Information

[New Channel]

Channel Information

Channel Name

Description

PC IP Address #1 127 . 0 . 0 . 1

PC IP Address #2 0 . 0 . 0 . 0

Timeout 2000 msec [1000 ~ 3000]

Retry 3 [1 ~ 5]

Save

Close

- Channel Name: Input a channel name.
- Description: Input some information on the channel.
- Serve IP Address #1: Input PC's IP Address.
- Server IP Address #2: If Line Redundancy will be used, input the second IP Address to be used.
- Time Out : It refers to a certain time period during which any response to the request for data is not made and after passing such a time period, the system will declare timeout to move on to the next process. The time period to be set will be a base to judge communication errors.
- Retry: Set up the number of times to retry when communication fails.
- Save: If 'Save' button is pressed, Block information will be saved and the saved information will add to the left "Configuration Information" tree.

GlofaEnet Configuration Information

Configuration Information

GLOFA Enet Driver Configuration Information

- [New Channel]
- GlofaEnet20
 - [New Station]

Channel Information

Channel Name: GlofaEnet20

Description:

PC IP Address #1: 127 . 0 . 0 . 1

PC IP Address #2: 0 . 0 . 0 . 0

Timeout: 2000 msec [1000 ~ 3000]

Retry: 3 [1 ~ 5]

Save Close

2) Add Station

GlofaEnet Configuration Information

Configuration Information

GLOFA Enet Driver Configuration Information

- [New Channel]
- GlofaEnet20
 - [New Station]

Station Information

Station Name:

Description:

PLC CPU Type: GM1

☐ Use Floating IP

☐ Line Redundancy ☐ Device Redundancy

PLC IP Address M-1: 0 . 0 . 0 . 0

PLC IP Address M-2: 0 . 0 . 0 . 0

PLC IP Address S-1: 0 . 0 . 0 . 0

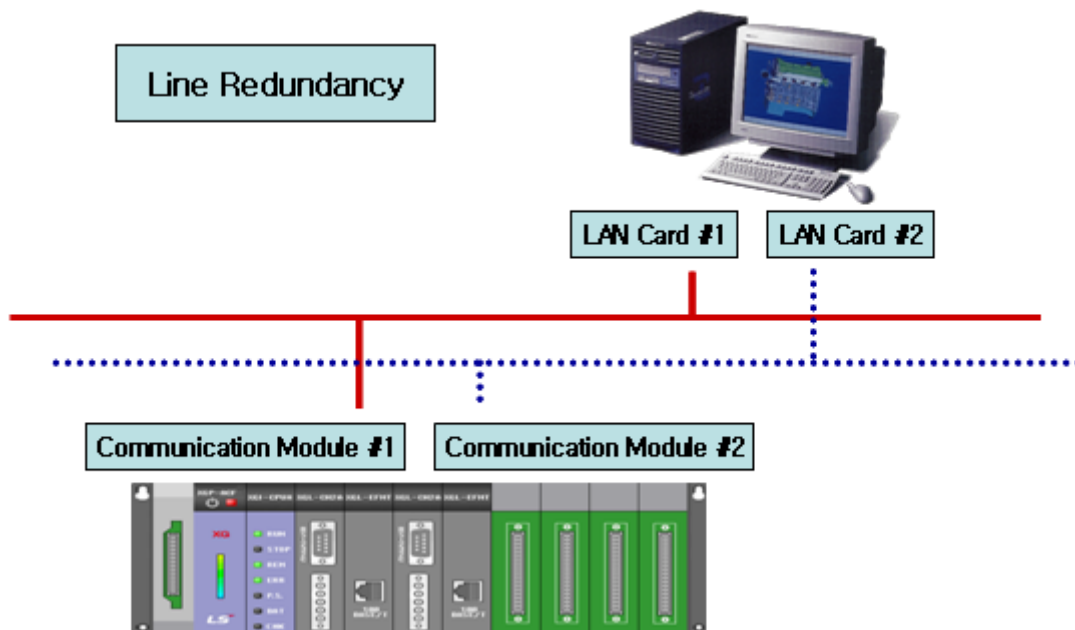
PLC IP Address S-2: 0 . 0 . 0 . 0

Communication Type: TCP

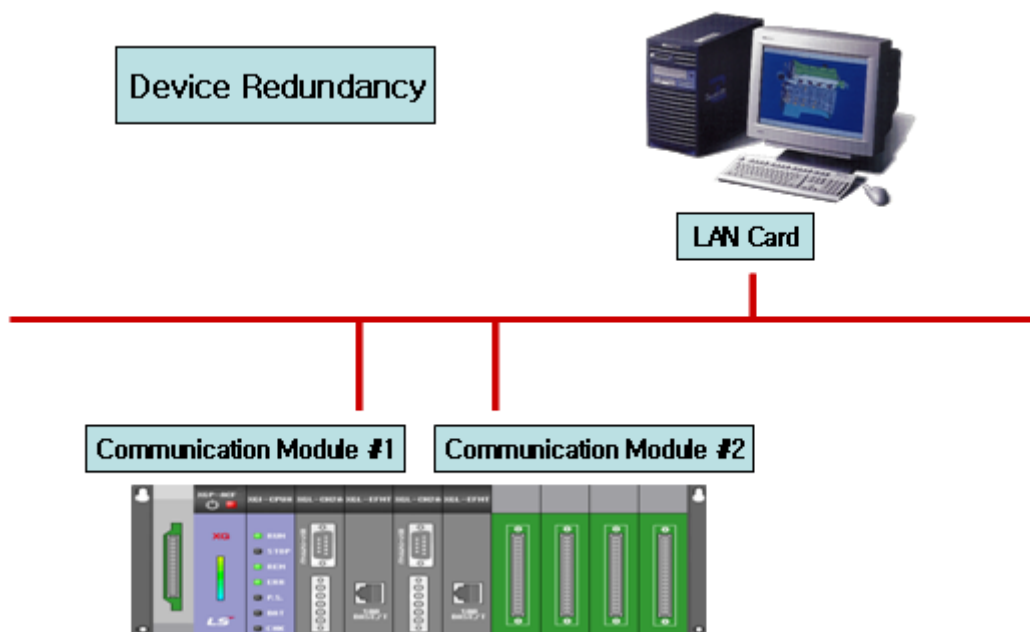
Port: 2004

Save Close

- Select [New Station] from “Configuration Information” tree.
- Station Name: Input a station name.
- Description: Input some information on the station.
- PLC CPU Type: Select a PLC CPU type.
- Line Redundancy: Check ☒ in the box to use Line Redundancy. It is used when the network is intended to be separated and communicated as seen in the figure below by installing two LAN cards on the computer and two Enet communication modules on PLC. It is a redundancy option for any failure in the network line.

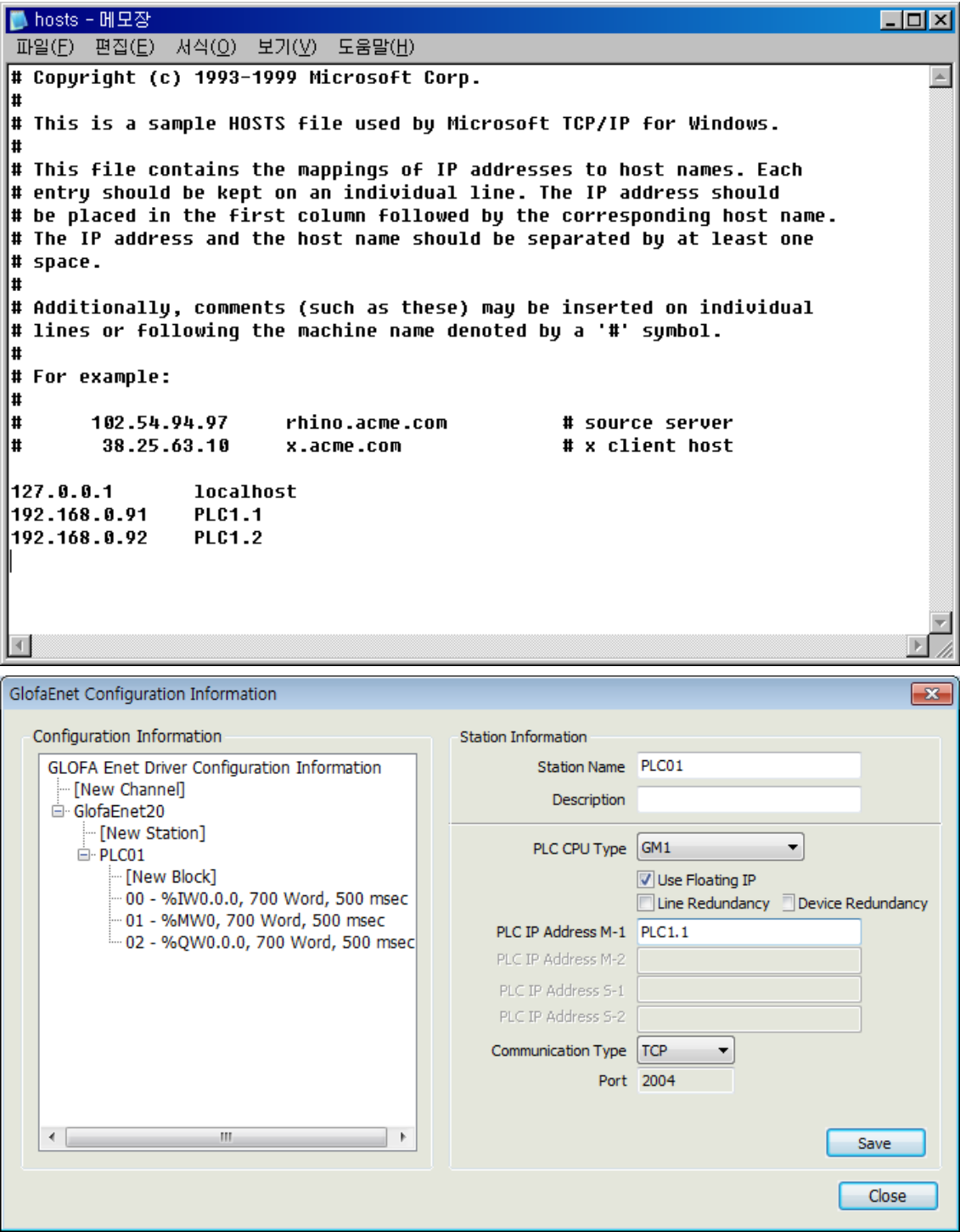


- **Device Redundancy:** Check ☒ in the box to use Device Redundancy. It is used when the communication module is separated as seen in the figure below by installing one LAN card on the computer and two Enet communication modules on PLC. It is a redundancy option for any failure in the PLC communication module.

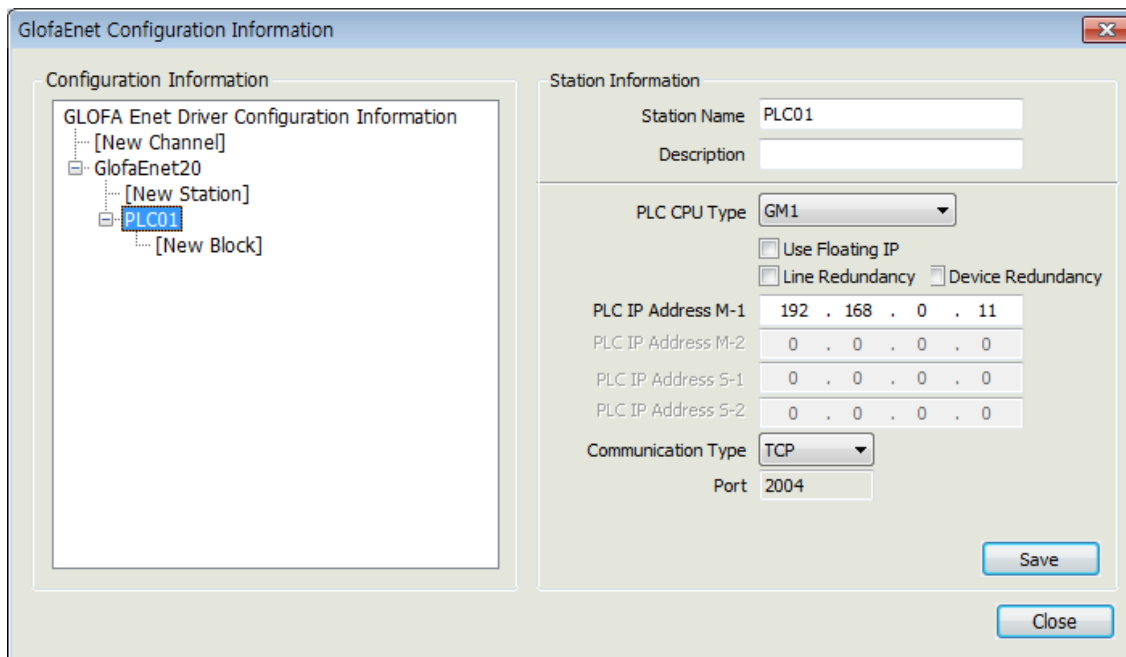


- **PLC IP Address #1-1:** Input PLC's IP Address.
- **PLC IP Address #1-2:** Input PLC's IP Address. Input the address when using Device Redundancy.
- **PLC IP Address #2-1:** Input PLC's IP Address. Input the address when using Device Redundancy.
- **PLC IP Address #2-2:** Input PLC's IP Address. Input the address when using Line Redundancy along with Device Redundancy.
- **Communication Type:** Select either TCP or UDP.
- **Port:** The port number is automatically inputted according to the selected communication type.

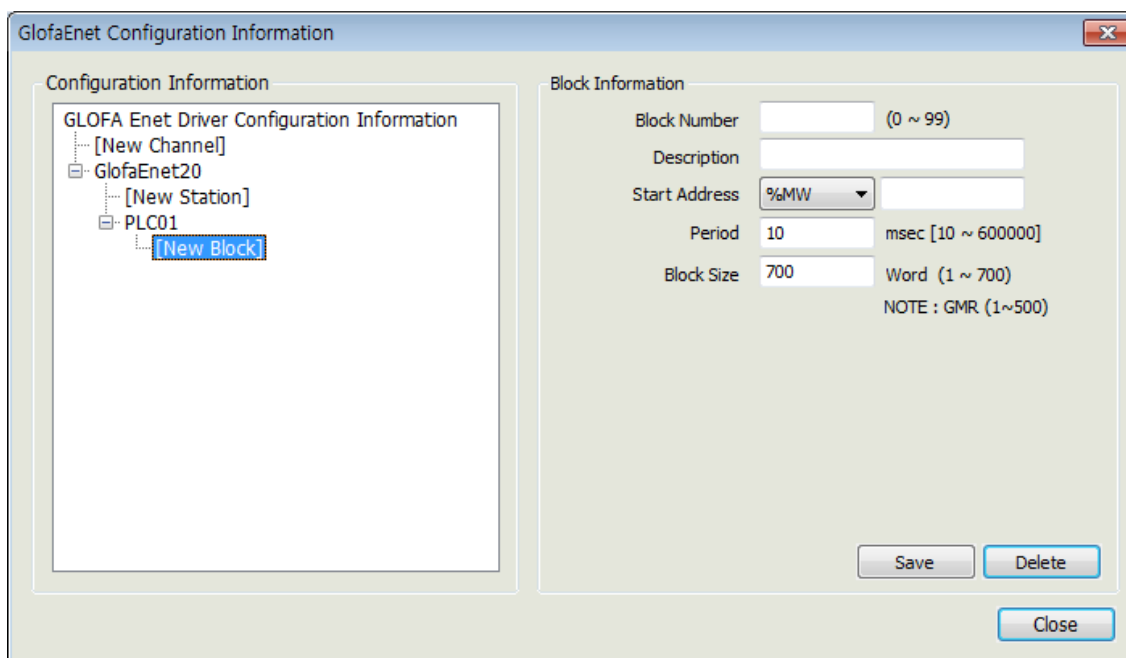
- Flexible IP Support: Check the following if the user wants to use a flexible IP. A flexible IP uses hosts files to communicate and they are located in C:\WINDOWS\system32\drivers\etc. Once they are saved as follow, set up a flexible IP according to the inst



- Save: If 'Save' button is pressed, Station information will be saved and the saved information will add to the left "Configuration Information" tree.

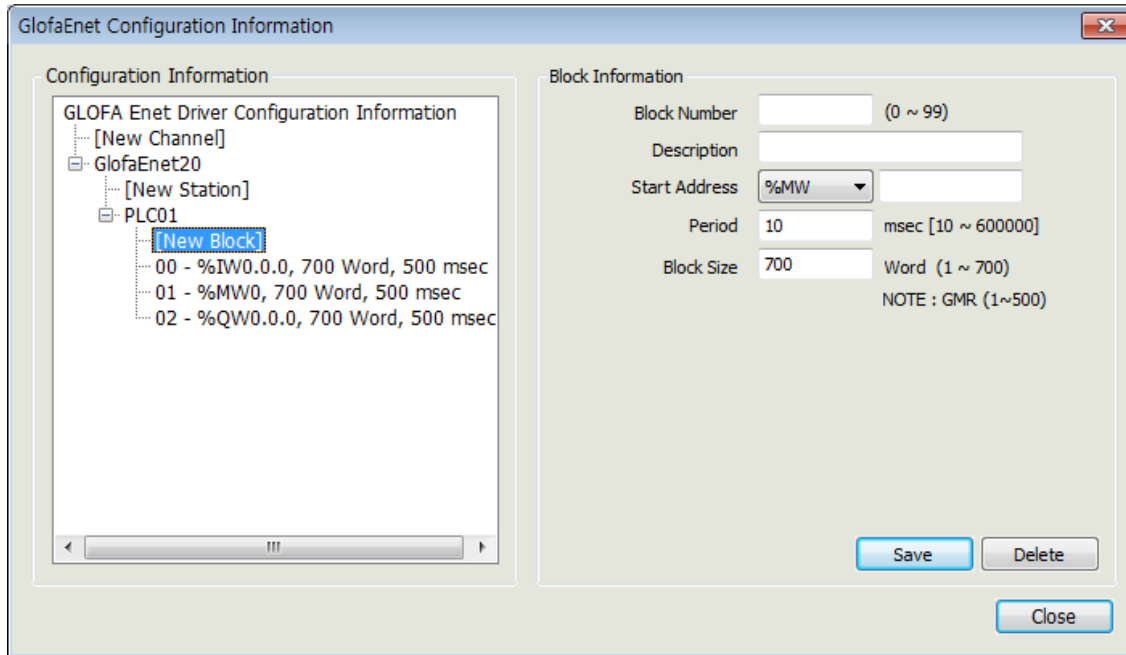


3) Add Block



- Select [New Block] from “Configuration Information” tree.
- Block Number: This number is a unique code of the block. The user needs to designate a different code to each block.
- Description: Input some information on the block.
- Start Address: Input the Block’s Start Address. There are three kinds and each address is designated as the following ways respectively:
 - Right example: %MW0, %MW20, %IW0.0.0, %QW1.0.0
 - Wrong example: %MW0.0.0, %IW0, %QW0
- Period: Input an interval to collect data of the relevant block (unit: msec).

- Block Size: Input a block size of the relevant block (unit: Word (2 byte)).
- Save: If 'Save' button is pressed, Block information will be saved and the saved information will add to the left "Configuration Information" tree.
- Delete: If "Delete" button is pressed, the currently selected Block will be deleted.



4) I/O Address

- Type
 - Analog: %MX0, %MB0, %MW0, %MD0, %ML0, %IW0.0.0, %QW0.0.0
 - Digital: %MB0.0, %MW0.0, %MD0.0, %ML0.0, %IX0.0.0, %QX0.0.0
- Available devices
 - I, M, Q

8.4 Available Device

Available devices of the InfoU are as follows.

Device Type	Size	Bit Contact point	Word Data	Remarks
%IX	32768 point	%IX0.0.0 ~ %IX63.7.63	WORD N/A	
%QX	32768 point	%QX0.0.0 ~ %QX63.7.63	WORD N/A	
%MX	959984 point	%MX00000 ~ %MX95983	WORD N/A	
%IW	2047 word	Contact point N/A	%IW0.0.0 ~ %IW63.7.3	
%QW	2047 word	Contact point N/A	%QW0.0.0 ~ %QW63.7.3	
%MW	59999 word	%MW00000.0 ~ %MW59999.15	%MW0000 ~ %MW59999	

Notice

- Please make sure to use the device within the range.
- Device range may differ according to the CPU module. Refer to each CPU module's instruction manual.