Chapter 1 Introduction

This user's manual describes Cnet (Computer network) I/F module of GLOFA PLC network system. Cnet is GLOFA PLC network system using computer link module. Cnet has the connection function with different model to communicate with communication devices of various different type protocols such as other company's PLC and computer, etc., and the function of modem communication to control remote PLC, and it has the following characteristics.

❑ Because communication speed and communication mode (protocol, etc.) are directly controlled by user using program operative in Frame Editor of Windows environment, connection with other company's products is easy.

❑ Separate operations by channels are available through controlling each of other company's protocol for channels RS-232C and RS-422 (RS-485), and saving and using the protocol data controlled by user in internal flash memory (128kbyte) are possible.

❑ Variable reading/writing and program reading/writing are possible by using dedicated protocol.

❑ Dedicated communication function suitable to multi-drop configuration connectable up to 32 units is provided.

❑ With modem communication function built-in, remote PLC can be controlled by GMWIN connection, dedicated communication, and user defined communication.

❑ Communication port, RS-232C/RS-422 (RS-485) can be used by setting it to stand-alone or interlocking channel.

❑ Various communication speeds can be set from 300bps to 76,800bps.

❑ 1:1/1:N/N:M communication (if RS-422 channel used) is available.

❑ Communication types of full-duplex (RS-422/RS-232C) and half-duplex (RS-485) are supported.

❑ Channel RS-422 can be used as multi-drop communication channel, RS-485 by basic parameter setting.

❑ Modules can be mounted up to 8 units for GM1, GM2 and GM3, 4 units for GM4 and GM6, and 1 unit for GM7 (available only on the main base. And as linked with the basic module using an extended connector in case of GM7.)

❑ With satisfactory self-diagnosis function and Loop-Back diagnosis function, diagnosis of errors is easy to make.

❑ With private functions of other products' built-in, access is easy to such protocol as Modbus, A. B DF1. Ver.2.0

1.1 Module selection per CPU type

As 4 types of the modules are developed according to CPU types, appropriate module shall be selected for CPU type and its service. [Table1.1] describes selection guide of module per CPU type.

[Table1.1] Module selection per CPU type

CPU type	Module name	Number of channel	Configuration supported	Max. number mountable[Note2]
GLOFA-GMR[Note1]	G3L-CUEA	2	RS-422	8[Note3]
GLOFA-GM1	G3L-CUEA	2	RS-232C/RS-422	8
GLOFA-GM2	G3L-CUEA	2	RS-232C/RS-422	8
GLOFA-GM3	G3L-CUEA	2	RS-232C/RS-422	8
GLOFA-GM4	G4L-CUEA	2	RS-232C/RS-422	4
GLOFA-GM6	G6L-CUEB	1	RS-232C	4
GLOFA-GM6	G6L-CUEB	1	RS-422	4
GLOFA-GM7	G7L-CUEB	1	RS-232C	1
GLOFA-GM7	G7L-CUEC	1	RS-422	1

Remark

[Note1] RS-422 channel only is available if mounted on duplicated base.

[Note2] This module can not be mounted on an extended base but on the basic base only.

[Note3] However, it can be mounted on slots No. 0~3 of duplicated extended base (for 8 slots) with max. 8 modules.

1.2 Functions of Version 2.0

This module has been operated in various application fields at home and abroad since released along with steady increasing performance via continuous Version-Up to answer the diverse requests of customers and to reinforce the reliability. Cnet I/F module has performed functional upgrade to Ver.2.0 reflected by the diverse requests of customers on the basis of convenience, compliance and flexibility for users. Cnet I/F module Ver.2.0 has been designed so kept along with the lower versions of products for functional compliance to use the established functions as same as 100%. Thus, refer to this user's manual for only added functions.

1.2.1 Version check [Note1]

O/S versions of Cnet I/F module are classified into CPU ROM O/S Ver. and Flash Memory O/S Ver. with the differences below.

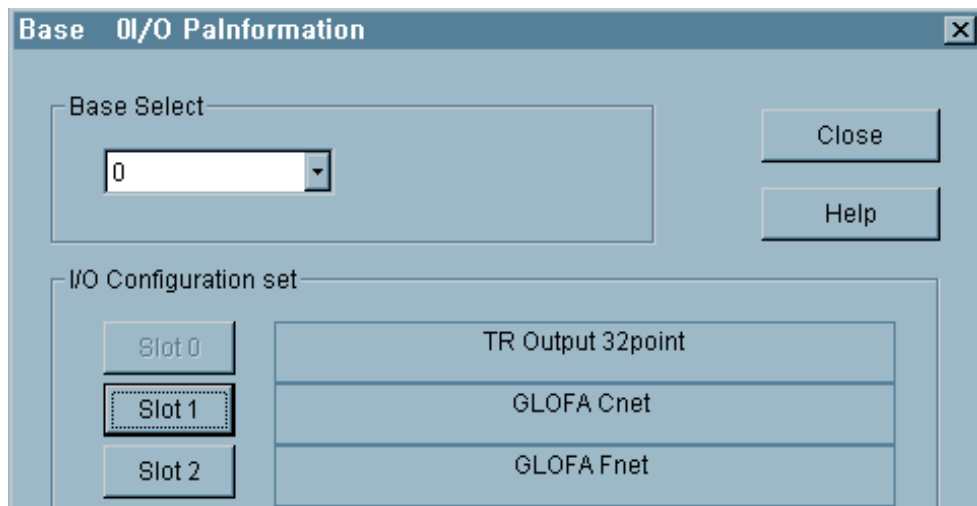| O/S Type	Class	Ver.2.0	Ver.1.7 or less[Note2]
CPU O/S	Function	Initial running and flash memory managing	Performs all module functions
	Saving location	CPU ROM	CPU ROM
	Ver. check	Using GMWIN's I/O information function	
	Ver. Up	CPU ROM change	CPU ROM change
FLASH O/S Ver.2.0	Function	Execution of all other functions than initial running	N/A
	Saving location	Flash memory	N/A
	Ver. check	Using Frame Editor	N/A
	Ver. Up	Using Frame Editor, upgrade by S/W	N/A

Remark

[Note1] Cnet I/F module versions are classified as based on CPU O/S Ver. Namely, functions for Ver. 2.0 or later mean that CPU O/S is of Ver.2.0 or later.

[Note2] Since modules of Ver.1.7 or less have CPU O/S only, O/S upgrade via flash memory is unavailable.
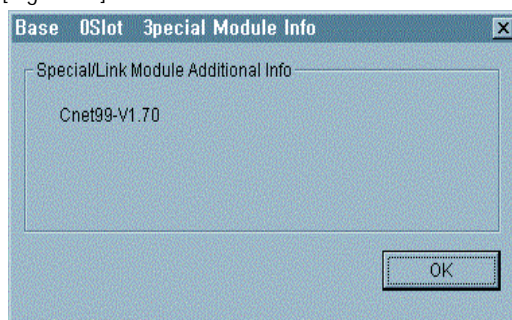
1) CPU O/S Ver. check

Cnet Ver.2.0 performs the most basic functions for initial running and flash memory operation and Ver.1.7 or less performs all functions of Cnet. CPU O/S can be upgraded only by CPU change of Cnet I/F module. Versions of Cnet I/F modules are classified on the basis of CPU O/S with the following procedure for version check.

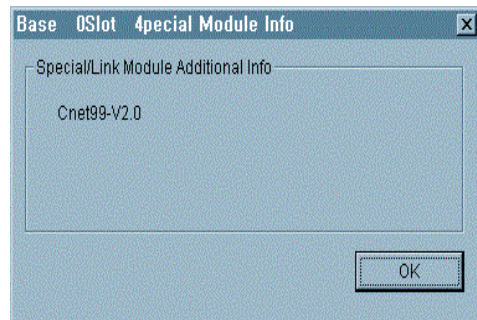A) If [I/O info …] selected after GMWIN [Online] connection, I/O information dialog box is displayed as below.

B) If applicable base is selected from I/O information dialog box, slot number in bold is displayed as a menu available to select for communication module and special module. Click equivalent slot number to 'GLOFA Cnet' to display the dialog box as in [Figure 1.1]. The succeeding figure to V in Vx.x indicates the version.

[Figure1.1] CPU O/S Ver. information

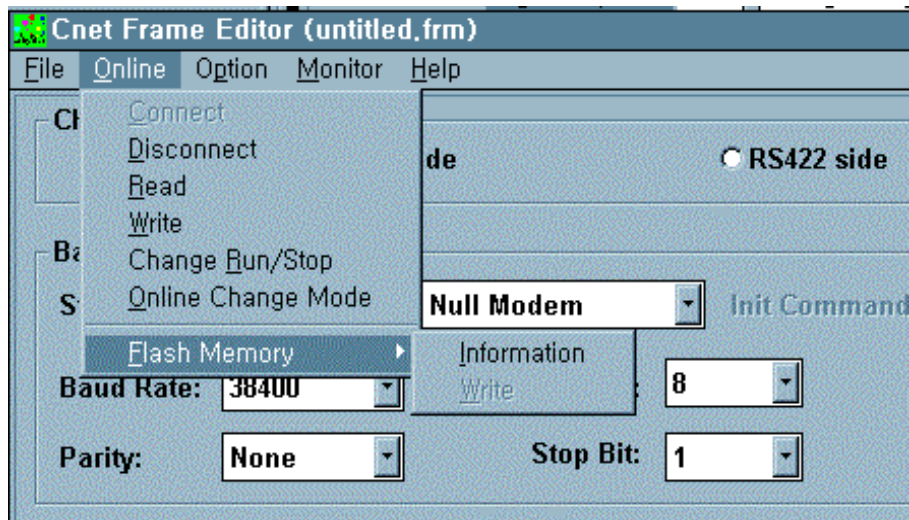
(a) Version information of Ver.1.7
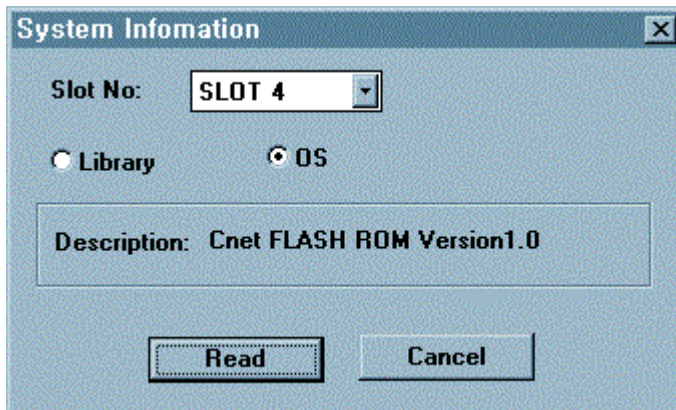

(b) Version information of Ver. 2.0

2) FLASH O/S Ver. check

For Cnet I/F module Ver. 2.0 or later, all functions to embody Cnet functions are saved in flash memory, and version check and upgrade are available through Frame Editor. Flash O/S version can be checked by Frame Editor if CPU O/S is of Ver. 2.0 or later.

A) Select flash memory information with Frame Editor after Online connection.

B) Select slot number and O/S on which Cnet I/F module is mounted from the system information screen, and click reading button to display the system information screen as below for version check of FLASH ROM.

1.2.2 Added functions introduction of Version2.0

[Table1.2] shows configuration of main functions of Ver.2.0.

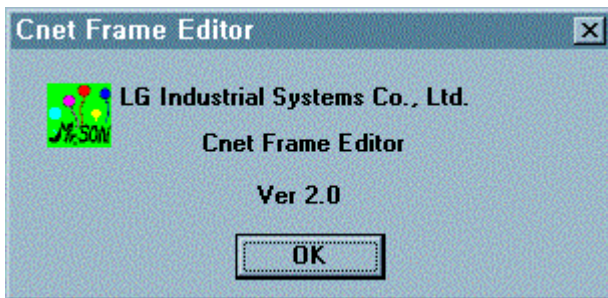[Table1.2] Configuration of main functions added to Ver.2.0.

Items	Comparison between contents		Remark
	Ver.1.0 ~ 1.7	Ver.2.0 or later	
On-line Mode change	● Operating mode of module is set via H/W using switch. ● Mode change during operation is unavailable. ● No mode change function in Frame Editor	● Mode change during operation is available with On-line mode added to module. ● Mode change with Frame Editor ● Operating mode change is available by remote control via RS-232C channel.	Mode is changeable by remote control (only for RS-232C channel).
Master functions of dedicated communication	● Communication between Cnet I/F modules is inconvenient as provided only with dedicated communication slave function. ● Frame definition and GMWIN program need to be composed in user defined mode.	● Communication between Cnet I/F modules is easy with master function added to dedicated mode. ● Communication between Cnet I/F modules is available using dedicated 'Function Block' without frame definition.	Slave operation is same as established dedicated mode operation (lower Ver. of Cnet I/F module can be used).
other company's communication driver built-in	● No communication driver of main other company's protocol ● Protocol is defined and composed by user with Frame Editor in user defined mode.	● A.B DF1 server protocol driver built-in ● Modbus *ASCII*/RTU server protocol driver built-in	Service is available by downloading communication library in frame editor.
Support of HEX input for constant edit	● Only *ASCII* data can be input. ● Specified as ARRAY if HEX input.	● HEX can be set in constant area. ● Trans. data is transmitted in not *ASCII* but HEX.	Zero(00) code can't be input.
Flash memory operation	● CPU change is required as Cnet O/S uses internal ROM of built-in CPU for Ver.-Up.	● Flash memory is used by O/S. ● Other company's dedicated protocol can be used as downloaded to flash memory.	Ver.-Up easy and additional functions of other company's driver under consideration

1.2.3 Established functions

Ver. 2.0 has been designed in 100% of compliance with the established versions and hardware configuration is the same as the former versions of products as upgraded via software Ver.-Up without hardware change. Accordingly, mounting and communicating connection with PLC CPU, user defined communication, dedicated communication, GMWIN connection, modem communication function, etc. are available as same as in the established functions.

1.2.4 Frame Editor Version 2.0

To make additional configuration of Cnet Ver. 2.0 available, Frame Editor also shall be of Ver. 2.0. Since Frame Editor Ver. 2.0 has been designed to keep compliance with the established program, the service for the former versions of modules is allowed. However, the added functions in this user's manual are available only for Cnet Ver. 2.0. Select Help in the upper menu of Frame Editor to check the version. The screen below shows Frame Editor information of Ver. 2.0.

1.2.5 Added function of Version2.0

This user's manual describes the additional functions via module Ver.-Up and the established functions of Cnet functions together. The additional functions provided only in Cnet Ver. 2.0 are so displayed as with Ver.2.0, and the functions displayed with the mark above are available not in the former versions but only in Ver. 2.0.