

· Keep this manual within easy reach for quick reference.

Before using the product ...

For your safety and effective operation, please read the safety instructions thoroughly before using the product.

- Safety Instructions should always be observed in order to prevent accident or risk with the safe and proper use the product.
- ► Instructions are divided into "Warning" and "Caution", and the meaning of the terms is as follows.

Warning This symbol indicates the possibility of serious injury or death if some applicable instruction is violated.

This symbol indicates the possibility of severe or slight injury, and property damages if some applicable instruction is violated.

Moreover, even classified events under its caution category may develop into serious accidents relying on situations. Therefore we strongly advise users to observe all precautions properly just like warnings.

► The marks displayed on the product and in the user's manual have the following meanings.

. Be careful! Danger may be expected.

Be careful! Electric shock may occur.

The user's manual even after read shall be kept available and accessible to any user of the product.

Safety Instructions for Design Process

- Design the analog input / output signal or pulse input / output line at least 100mm away from high voltage line or power line so that it is not affected by noise or magnetic field change. It may cause malfunction due to noise.
- If there is a lot of vibration in the installation environment, take measures to prevent direct vibration from being applied to the PLC. It may cause electric shock, fire or malfunction.
- If metallic dust is present in the installation environment, take measures to prevent

metallic dust from entering the product. It may cause electric shock, fire or malfunction.

Safety Instructions on Installation Process

- Use PLC only in the environment specified in PLC manual or general standard of datasheet. If not, electric shock, fire, abnormal operation of the product may be caused.
- Before install or remove the module, be sure PLC power is off. If not, electric shock or damage on the product may be caused.
- Be sure that every module is securely attached after adding a module or an extension connector. If the product is installed loosely or incorrectly, abnormal operation, error or dropping may be caused. In addition, contact failures under poor cable installation will be causing malfunctions as well.
- Make sure that the I / O connector is securely fastened. It may cause wrong input or output.

Safety Instructions for Wiring Process

Warning

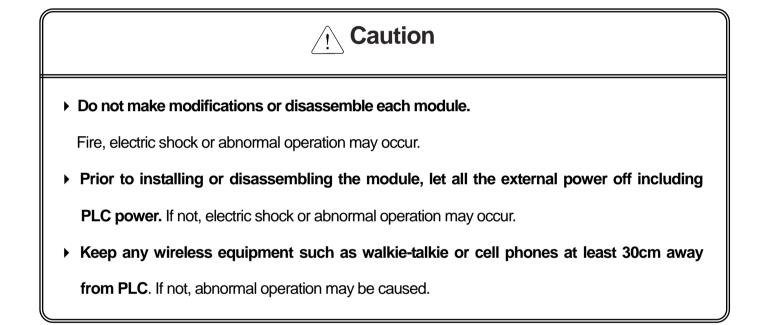
Prior to wiring works, make sure that every power is turned off. If not, electric shock or damage on the product may be caused.

- Check rated voltages and terminal arrangements in each product prior to its wiring process. Applying incorrect voltages other than rated voltages and misarrangement among terminals may cause fire or malfunctions.
- Secure terminal screws tightly applying with specified torque. If the screws get loose, short circuit, fire or abnormal operation may be caused. Securing screws too tightly will cause damages to the module or malfunctions, short circuit, and dropping.
- Be sure to earth to the ground using Class 3 wires for PE terminals which is exclusively used for PLC. If the terminals not grounded correctly, abnormal operation or electric shock may be caused.
- Don't let any foreign materials such as wiring waste inside the module while wiring, which may cause fire, damage on the product or abnormal operation.

Safety Instructions for Test-Operation and Maintenance

- Don't touch the terminal when powered. Electric shock or abnormal operation may occur.
- > Prior to cleaning or tightening the terminal screws, let all the external power off including

PLC power. If not, electric shock or abnormal operation may occur.



Safety Instructions for Waste Disposal

Caution

• Product or battery waste shall be processed as industrial waste. The waste may discharge

toxic materials or explode itself.

Revision History

٦

Version	Date	Remark	Page
V 1.0	'13.11	First Edition	-
V1.1	'15.03	XG5000 V4.0 UI Updated	Entire
V1.2	'20.06	Corporate Identity Changed (LSIS→LS ELECTRIC)	Entire

Thank you for purchasing PLC of LS ELECTRIC Co., Ltd.

Before use, make sure to carefully read and understand the User's Manual about the functions, performances, installation and programming of the product you purchased in order for correct use and importantly, let the end user and maintenance administrator to be provided with the User's Manual.

The User's Manual describes the product. If necessary, you may refer to the following description and order accordingly. In addition, you may connect our website (<u>http://www.lselectric.co.kr/</u>) and download the information as a PDF file. Relevant User's Manuals

Title	Description	No. of User's Manual		
XG5000 User's Manual	functions such as programming, printing, monitoring and debugging by			
XG5000 User's Manual	It describes how to use XG5000 software especially about online functions such as programming, printing, monitoring and debugging by using XGB(IEC)	10130000834		
XGK/XGB Series Instruction	······································			
XGI/XGR/XEC Series Instruction	It describes how to use the instructions for programming using XGB(IEC) series.	10130000833		
XGB Hardware User's Manual	It describes how to use the specification of power/input /output/expansion modules, system configuration and built-in High-speed counter for XGB basic unit.	10310000926		
XGB Hardware User's Manual (IEC)	It describes how to use the specification of power/input /output/expansion modules, system configuration and built-in High-speed counter for XGB basic unit.	10130001059		
XGB Analog User's Manual	I output/temperature input module. system configuration and built-in PID			
XGB Position User's ManualIt describes how to use built-in positioning function for XGB unit.		10310000927		

٦

◎ Table of Contents ◎

Chapter 1 Introduction

1.1 Introduction	1-1
1.2 Characteristics	1-1
1.3 Product Configuration	1-2
1.3.1 Model Name	1-2
1.3.2 Available number by CPU	1-2
1.3.3 Slave Device	1-3
1.4 Software	1-4
1.4.1 Check list for the software	1-4
1.4.2 PROFICON	1-5
1.4.3 Check the version	1-5

Chapter 2 Specifications

2.1 General Specifications	2-1
2.2 Performance Specifications	2-2
2.3 Structure & Characteristics	2-4
2.3.1 Structure of Pnet I/F module	2-4
2.4 Cable Specifications	2-5
2.4.1 Cable specifications	2-5

Chapter 3 Installation and Test Operation

3.1 Installation Environment	3-1
3.2 Cautions when Handling	3-2
3.3 Precautions for Installation	3-3
3.3.1 Installation of cable	3-3
3.4 From Setting to Operation	3-5
3.5 Installation of the product	3-6
3.5.1 Installation of XBL-PMEC	3-6
3.6 Test Operation	3-7
3.6.1 Precautions for system configuration	3-7

Chapter 4 System Configuration

4.1 System Configuration of Netwo	'k	4-	1
4.1.1 XGT Pnet + Smart I/O		4-	1

Chapter 5 PROFICON Setting

5.1 Overview	5-1
5.1.1 Main functions	5-1
5.1.2 Characteristics	5-1
5.1.3 Screen composition	5-2
5.1.4 GSD Register	5-2
5.2 Network composition through PROFICON	5-4
5.2.1 Master composition	5-4
5.2.2 Slave composition	5-6
5.2.3 Bus parameter	5-9
5.3 Download and upload Network Configuration	5-10
5.3.1 Download Network Settings	5-10
5.3.2 Upload Network Settings	5-13
5.4 Diagnosis function	5-14
5.4.1 Start / Stop Communication	5-14
5.4.2 Debug mode (Start/Stop Debug Mode, Device Diagnostics)	5-14
5.4.3 Live List	5-16
5.4.4 Automatic Network Scan	5-16
5.4.5 I/O Data Monitoring	5-20
5.4.6 Disconnection Report	5-20
5.4.7 Master information (Device Information)	5-21

Chapter 6 XG5000

6.1 Parameter Setting Process	6-1
6.2 Basic Parameter Setting	6-2
6.2.1 Execute XG5000 and Create a new Project	6-2
6.2.2 Registration of the communication module	6-3
6.3 High-speed Link Parameter Setting	6-7
6.3.1 Introduction of High-speed Link	6-7
6.3.2 High Speed Link Send/Receive Data Processing	6-8
6.3.3 High Speed Link Parameter Setting	6-9
6.4 High-speed Link Information	
6.5 Monitor of High-speed link information	6-16

Chapter 7 Program Example

7.1 Example of Communication with XBL-PMEC	7-1
7.2 PROFICON settings	
.	
7.3 XG5000 settings7	7-11

Chapter 8 Troubleshooting

8.1 Symptoms and Management by LED Status	- 8-1
8.2 System Diagnosis of PROFICON	- 8-1
8.3 System Diagnosis of XG5000	- 8-1
8.4 Diagnosis of Communication Module through XG5000	- 8-2
8.5 Troubleshooting	- 8-3
8.5.1 PROFICON, XG5000 abnormal connection	- 8-3
8.5.2 Abnormal connection with slave module	- 8-4

Appendix

A.1 Terminology	A-1
A.2 List of Flags	A-3
A.2.1 High-speed link flags	A-3
A.3 PROFICON Error code	A-5
A.4 External Dimensions	A-7

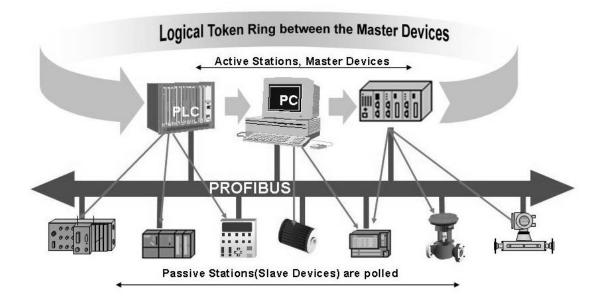
Chapter 1 Introduction

1.1 Introduction

This user's manual is to describe Profibus-DP (Decentralized Peripherals) Master I/F module (here in after referred to as **Pnet I/F module**) among communication modules of XGB PLC system.

Profibus-DP is specified in IEC Fieldbus Standard IEC 1158.

In this communication, Token Passing is used to control the communication and to configure the network easily. Pnet I/F module is a module to control the field bus with Twisted Shielded Pair Copper Cable applied.



1.2 Characteristics

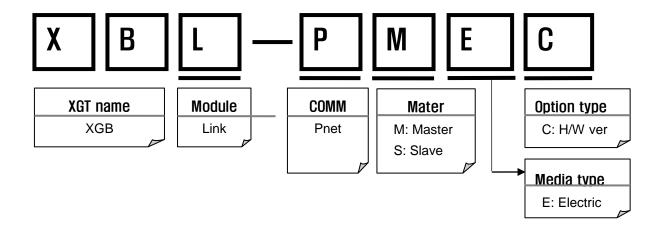
XGB Pnet I/F module has the characteristics as follows;

- Conforms to the international standard of EN 50170
- Supports Auto Baud Rate Detect
- Supports Sync/Freeze mode
- Max. input data : 244 Bytes/Slave
- Max. output data: 244 Bytes/Slave
- Communication speed : 9.6k, 19.2k, 93.7k, 187.5k, 500k, 1.5M, 3M, 6M, 12M

1.3 Product Configuration

1.3.1 Model Name

This describes on the product configuration of the XGB Pnet I/F module.



Remark

- (1) XGB Pnet supports only Profibus-DP. FMS, PA are not supported and protocol conversion is available by the coupler
- (2) Support of the DP version
 - 1) DP-V0: Periodical data exchange between the PLC and the slave device (Node diagnosis, module status, specific channel diagnosis)
 - DP-V1: Asynchronous data exchange between the PC or PLC and the slave device, integration of EDD and FDT, fail-safe communication, alarm
 - 3) DP-V2: supports broadcast, clock synchronization and time stamp, HART, upload/download, redundancy

1.3.2 Available number by CPU

You can mount up to 2 Pnet I/F module. If possible, mount the module in the basic unit for best performance of the communication module. The following table indicates the available service type by the CPU. When configuring the system, apply this considering the number of the communication module.

1.3.3 Slave Device

The Pnet I/F module can be connected with Smart I/O series and available product list is as follows.

1

ltem	Model	Product Code	Contents	PNO ID	Remark
Block type PLC	G7L-PBEA	46270031	Connected at the K120S expansion part	0x7100	
Smart I/O	GPL-D22A	47060007	DC input 16 points	0x07B1	
(Block type)	GPL-D24A	47060009	DC input 32 points	0x07B2	Fixed type, 9-
	GPL-TR2A	47060008	TR output 16 (0.1A, Sink)	0x07B4	pin
	GPL-TR4A	47060010	TR output 32 (0.1A, Sink)	0x07B5	communication
	GPL-RY2A	47060011	Relay output 16	0x07B6	connector
	GPL-DT4A	47060012	DC input 16/ TR output 16	0x07B3	
	GPL-D22C	47060046	DC input 16	0x07B1	
	GPL-D24C	47060047	DC input 32	0x07B2	Removable
	GPL-TR2C	47060048	TR output 16 (0.5A, Source)	0x07B4	type, 9-pin
	GPL-TR4C	47060049	TR output 32 (0.5A, Source)	0x07B5	communication
	GPL-RY2C	47060051	Relay output 16	0x07B6	connector
	GPL-DT4C	47060050	DC input16/ TR output 16	0x07B3	
	GPL-TR2B	47060059	TR output 16 (0.5A, Source)	0x07B4	
	GPL-TR4B	47060058	TR output 32 (0.5A, Source)	0x07B5	Eived type 0
	GPL-DT4B	47060060	DC input16/ TR output 16	0x07B3	Fixed type, 9- pin
	GPL-TR2A1	47060084	TR output 16 (0.5A, Sink)	0x07B4	communication
	GPL-TR4A1	47060076	TR output 32(0.5A, Sink)	0x07B5	connector
	GPL-DT4A1	47060078	DC input 16/ TR output 16	0x07B3	
	GPL-TR2C1	47060085	TR output 16 (0.5A, Sink)	0x07B4	
	GPL-TR4C1	47060077	TR output 32 (0.5A, Sink)	0x07B4	-
	GPL-DT4C1	47060079	DC input 16/ TR output 16	0x07B3	Removable
	GPL-AV8C	47060123	Analog voltage input, 8 channels	0x09FB	type, 9-pir communication
	GPL-AC8C	47060124	Analog current input 8 channels	0x09f8	connector
	GPL-DV4C	47060125	Analog voltage output, 8	0x09FC	-
	GPL-DC4C	47060126	Analog current output, 8	0x09FE	1
Smart I/O (Extension type)	XPL-BSSA	47060130	Expansion type Pnet I/F module	0x09F7	
Remote Module	XGL-PSRA	47200128	Pnet Remote I/F module	0x0CB1	
Communication	XGL-PSEA	47200132	Pnet Communication I/F ,module	0x0CBE	
Module	XBL-PSEA	47230156	Pnet Communication I/F ,module	0x0F24	

Remark

1) Fixed type: The product whose I/O terminal block is fixed at the module

2) Removable type: The product whose I/O terminal block can be removed

1.4 Software

ſ

This describes on the software tool for the Pnet I/F module. For programming and application, refer to the followings

1.4.1 Check list for the software

- (1) Software list
 - Programming tool : XG5000
 - Communication configuration tool : PROFICON

Item	Model	Available version	Remark
	High performance	V2.22	
XBC	Standard(USB)	V1.32	
	High performance	V1.53	
XEC	Standard	V1.11	
XBM	Modular type	V3.32	
	XG5000	V4.00	
Software	PROFICON	V2.2	

(2) Selecting the CPU (Version) to use the Pnet I/F module

Remark

(1) You can download the above software from our web site. In case Internet is available, visit the nearest distributor and get the installation CD.

Web site address: http://www.lselectric.co.kr

(2) You can program through the RS-232C port and USB of the CPU module. For the cable, refer to wiring diagram of the CPU module.

(3) In case you use the product other than available version, some function may not work properly. If possible, use the recommended version and check the compatibility.

1.4.2 PROFICON

PROFICON is software tool dedicated for Pnet I/F module. This is used for configuration, diagnostics. More detail, refer to ch6. PROFICON. The following figure is an initial screen of the PROFICON.

ar PROFICON - LS PROFIBUS DP Ma	ter Configuration Tool - Config1					
File Edit View Configuration	Communication Diagnostics Tools V	ïndow Help				
	n il e f f f l d d d	Topology selector Linear View			1 72 73 62 73 8)
Device list 👻 👎 🗙	(Config1				▼ × Project expl	
Master(3)					·	
♀ G4L-PUEC	PROFIBUS DP TOPOLOGY	DESIGN SHEET		CONFIGURATION MODE	🗏 🛛 🖓 Proj	ect 'Config1' [2013-09-
I XGL-PMEC	PROJECT NAME DATE ()	levision) VERSION	AUTHOR	DESCRIPTION		
🖵 XBL-PMEC	Config1 2013/0	9/25 20:05:43 001.000.000				
Slave(2): General	NO. OF DEVICES LEGEND 000 Master(s), 000 Slave(s)	ASTER SLAVE 🌒 OWNER	C DeACTIV.	V. 🛕 WDOG ON 🛕 WDOG OFF		
룾 SV-iS Series						
👤 GLOFA GM7						
Slave(1): Drives						
👳 SV-iS Series Slave 2.0						
Slave(1): Switching Device						
IA-824						
- Slave(24): 1/0					<	
GSD Viewer 👻 👎 🗙	002				Bus parame	
					80 2↓ □	5
General Information					General	
Model Name	003				Input Mo	
Station Type Vendor Name					Baudrate	1500 kBits/s ≡
Ident Number					Tsl (tBit)	300
GSD File Name	• • • • • • • • • • • • • • • • • • •				Tsdr	
GSD Revision 0	Output window			-	· 무 × Min (t	Bit) 11
Detail Information					Max (t	Bit) 150 👻
					1.000 Put	Will March
Des de						Mast 😭 Slave
Ready				CAP NUM SCRL	LS	Industrial Systems

[Figure 1.4.1] PROFICON initial screen

1.4.3 Check the version

Before using the Pnet I/F module, check the version of the module

(1) Check through the XG5000

This is method reading the communication module information through online connection If it is under normal interface with the CPU, you can get the information as follows.

- a) Execute the XG5000
- b) Connect to the CPU through "Connect" on the "Online" menu.
- c) In the "System Diagnosis" screen, select "Module Information" by double-clicking the communication module and pop-up window
- d) You can check version of the module.

Communication Module Information					
Item	Context				
Module kind	XBL-PMEC				
Base number	0				
Slot number	1				
Station number	0				
Hardware Error	Normal				
Hardware Version	Ver. 1.00				
OS Version	Ver. 1.00				
	Close				

[Figure 1.4.3] Checking the version of the module through the XG5000

(2) Check through the PROFICON

Γ

This is method reading the communication module information through online connection If it is under normal interface with the CPU, you can get the information as follows.

- a) Execute the PROFICON
- b) Select [Settings] on the [Communication] menu.
 More detail, refer to [Communication connection settings] on the [ch5.3.1 Download Network Settings].
- c) Select [Device Information] on the [Diagnostics] menu.
- d) You can check version of the module.

General Information		OK
Manufacturer	LS ELECTRIC	
Manufactured Date	2013-09-25	
Device Version	V001.000	
Device Number	000000A	
Serial Number	0000001	
Firmware Name	XBL-PMEC	
Firmware Type	XGT	
Firmware Version	1.00.00	
Firmware Date	2013-09-25	
Configuration Date	2013-09-25 20:03	
Configuration Block Size	32	
Configuration Done	Configued	
Master Mode	Communication Mode	
Endian Mode	Big endian	

1

[Figure 1.4.3] Checking the version of the module through the PROFICON

(3) Check through the case label of the product

The module information is attached at the external case every communication modules In case online connection is not available, take a module apart and check the label in the module case.

Chapter 2 Specifications

2.1 General Specifications

General specifications of XGT series are as specified below in Table 2.1.

No.	Item			Spe	cification		Related specifications
1	Operating temp.			0°0	ະ∼ +55 ℃		-
2	Storage temp.			-25	C ~ +70 ℃		-
3	Operating humidity			5~95%RH	, no dew allowed		-
4	Storage humidity			5~95%RH	, no dew allowed		-
				For discon	tinuous vibration		-
		Frequen	су	Acceleration	Amplitude	Number	
		5≤f< 8.4	Hz	-	3.5mm		
5	Vibration	8.4≤f≤15	0 Hz	9.8 ™s²(1G)	-		
5	immunity		For c	continuous vil	oration	Each 10 times in	IEC61131-2
		Frequen	су	Acceleration	Amplitude	X,Y,Z directions	
		5≤f< 8.4 ^H z		-	1.75mm		
		8.4≤f≤15	0 Hz	4.9 ™s [≈] (0.5G)	-		
6	Impact immunity	* Max. impa * Authorized * Pulse wav (Each 3 tir	d time: /e : Sigi	IEC61131-2			
			Square waveAC: ±1,500Vimpulse noiseDC: ±900V				LS ELECTRIC Standard
			tatic ele lischarg			e : 4kV scharging)	IEC 61131-2, IEC 61000-4-2
7	Noise immunity		n electi field no	romagnetic ise	80 ~1,000N	1Hz, 10 V/m	IEC 61131-2, IEC 61000-4-3
		Fast Transient Class Power /burst			nalog I/O ion interface	IEC 61131-2, IEC 61000-4-4	
		noise					
8	Ambient conditions	No corrosive gas or dust					
9	Operating height	2,000m or less					
10	Pollution level	2 or less					
11	Cooling type			Natura	al air cooling		

Table 2.1 General Specifications

Remark

1) IEC(International Electrotechnical Commission):

An international nongovernmental organization which promotes internationally cooperated standardization in electric/electronic fields, publishes international standards and manages applicable estimation system related with.
2) Pollution level: An index indicating pollution level of the operating environment which decides insulation performance of the devices. For instance, Pollution level 2 indicates the state generally that only non-conductive

pollution occurs. However, this state contains temporary conduction due to dew produced.

2.2 Performance Specifications

Γ

Performance specifications of Pnet I/F module are as described below.

Item	Details				
Module Type	Mas	ster			
Network Type	Profib	us-DP			
Standard	EN50170/	DIN19245			
Interface	RS-485 ((Electric)			
Transmission Route	Bus	type			
Modulation Type	NRZ (Non Re	eturn to Zero)			
MAC	Token F	Passing			
	Distance (m)	Transmission Speed (bps)			
	1,200	9.6k/19.2k/93.7k/187.5k			
Max. Distance & Transmission Speed	400	500k			
	200	1.5M			
	100	3M/6M/12M			
Max. number of stations per network	64				
Max. number of stations per segment	32 (including master & repeater)				
Cable used	Electric-twist shi	elded pair cable			
Max. input size per slave	244 k	bytes			
Max. output size per slave	244 k	bytes			
Max. input size of master	15,616 bytes (64 stati	on * 244bytes/station)			
Max. output size of master	15,616 bytes (64 station * 244bytes/station)				
Communication Transmission cycle ^{*1}	10/20/50/100/200/500ms, 1/5/10s				
Communication Reception cycle	Main unit scan ×2 + Data reception time*2+ Communication module scan				
Communication Parameters to set	PROFICON (XBL-PMEC Dedicated Configuration Tool)				
Internal-consumed current (mA)	30	00			
Weight (g)	86 (Including c	connector 122)			

[Table 2.2.1] Performance Specifications

Remark

master mod set blocks, o HS link data blocks per o	Transmission cycle means the data cycle from main unit to communication module regardless of the cycle from master module to slave module. it is necessary to consider scan time, number of communication module, number of set blocks, communication data size per block when you set the transmission cycle. It takes 25 ^{µS} per a byte when HS link data transmits from main unit to master module. As it is based on serial communication. So, the number of blocks per cycle is limited and if the load is above it, the cycle might be delayed more than you set. Calculation formula is as below.								
pack1 ni pack2 ni + (Block packN + (Blo	 a) Add the bytes of block within 1000bytes. pack1 number of bytes = (Block1 data size+8) + (Block2 data size+8) + (Blockpack1end data size+8) pack2 number of bytes = (Block(pack1end)+1 data size+8) + (Block(pack1end)+2 data size+8) + (Block(pack2end) data size+8) packN number of bytes = (Block(packN-1)+1 data size+8) + (Block(packN-1)+2 data size+8) + (Block(packNend) data size+8) + (Block(packNend) data size+8) + (Block(packNend) data size+8) 								
time. A		culated transmissic	on time of each	re to be set bigger than whole HS link transmission pack is smaller than 10ms, transmission time of					
	links Transmission Transmission time		nsmission time +	pack2 Transmission time +					
 packN T module s c) The nun As show	scan and margin (5 nber of blocks whic ⁄n below table, in ca	packN number of ms) h can be set per H ase that the scan ti	S link cycle. me of main unit ich can be used	main unit scan time + communication s within 2ms and only one communication for HS link cycle service.					
	HS link cycle	Data size of each block	Number of blocks (Stations)						
	10 ms	244 byte	1						
	20 ms	244 byte	2						
	50 ms	244 byte	5						
	100 ms	244 byte	10						
	200 ms	244 byte	20						
	500 ms	244 byte	50						
	1s, 5s, 10s 244 byte 64								
	10 ms	4 byte	64						
Example	e) The number of bl	ocks which can be	set per HS-link	cycle					
	Example) The number of blocks which can be set per HS-link cycle It is necessary to calculate lead time of transmitting depending on the number of blocks and data size per block. Because data receiving cycle is same with 1) which take 25 ^{µS} to transmits per 1byte.								

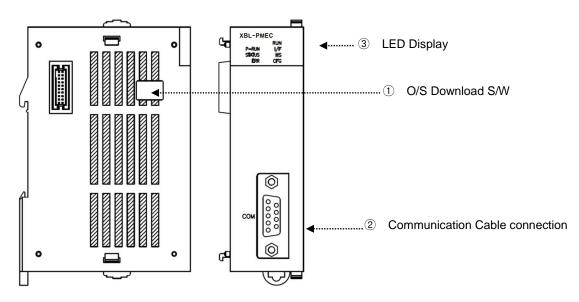
٦

2.3 Structure & Characteristics

2.3.1 Structure of Pnet I/F module

(1) Structure of XBL-PMEC

Γ



Division	Color	Action Description					
DUN	RUN Green		Normal	Initialize Completed			
RUN Gleen		Off	Error	Fatal error occurred			
I/F	Yellow	Flickering	Normal	Normal Interface status with CPU			
I/F	Tellow	Off	Error	Error in CPU interface			
		On	Normal	At HS_Link enable			
HS	Green	Flickering	Stand-by	On Downloading throgh PROFICon at HS_Link enable			
		Error	Error	Fatal error of HS_Link service occurred at HS_link enable			
		On	On communication	Executing normal access with all slave devicess			
P-RUN Green	Flickering	On communication	On CLEAR service with slave device(Input and output data is '0')				
		Off	Off communication	Communication with slave devices is stopped			
		On	Error	System error			
STATUS	Green	Flickering	Autoscan	System Autoscan mode			
		Off	Normal	Normal			
		On	Error	Bus error(Line short, Link speed unmatched and etc)			
ERR	Red	Flickering	Error	Disconnection with slave module on operating			
			Normal	Normal			
		On	Error	No Configuration for Profibus-DP Master module			
CFG	CFG Green F		Normal	Downloading or Uploading Configuration parameter to Master module			
		Off	Normal	Configuration is installed successfully			

[Table 2.3.1] LED display of XBL-PMEC

Division	Color	Action Description					
RUN	Green	On Normal I		Initialize Completed			
KUN	Gleen	Off	Error	Fatal error occurred			
I/F	Yellow	Flickering	Normal	Normal Interface status with CPU			
1/1	Tellow	Off	Error	Error in CPU interface			
		On	Normal	At HS_Link enable			
HS	Green	Flickering	Stand-by	On Downloading throgh PROFICon at HS_Link enable			
		Error	Error	Fatal error of HS_Link service occurred at HS_link enable			
		On	On communication	Executing normal access with all slave devicess			
P-RUN Green	Flickering	On communication	On CLEAR service with slave device(Input and output data is '0')				
		Off	Off communication	Communication with slave devices is stopped			
		On	Error	System error			
STATUS	Green	Flickering	Autoscan	System Autoscan mode			
		Off	Normal	Normal			
		On	Error	Bus error(Line short, Link speed unmatched and etc)			
ERR	Red	Flickering	Error	Disconnection with slave module on operating			
		Off	Normal	Normal			
		On	Error	No Configuration for Profibus-DP Master module			
CFG	Green	Flickering	Normal	Downloading or Uploading Configuration parameter to Master module			
		Off	Normal	Configuration is installed successfully			

٦

[Table 2.3.1] LED display of XBL-PMEC

2.4 Cable Specifications

Γ

2.4.1 Cable Specifications

Classification	Details	6
AWG	22	
Туре	BC-Bare Copper	
Insulation	PE-Polyethylene	
Insulated strength	0.035 (Inch)	⁴⁸
Shield	Aluminum Foil- Polyester Tape/Braid Shield	
Capacitance	8500 pF/ft	6
Characteristic impedance	150Ω	
Number of cores	2 Core	

Remark

1. Cable type

1) Tomas cable: Profibus-DP UNITRONIC-BUS L2/FIP/BUS

2) Belden cable: 3079A

Chapter 3 Installation and Test Operation

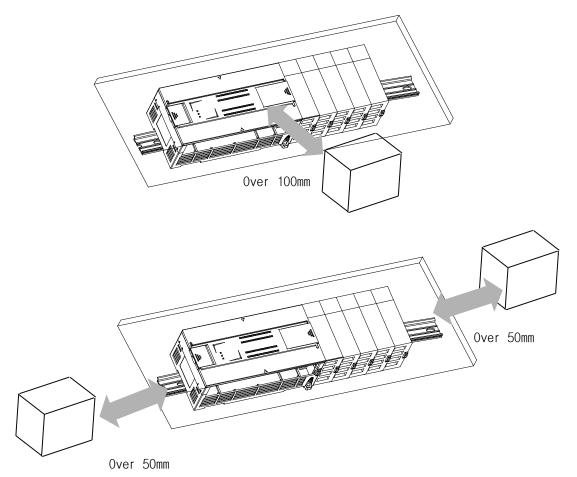
3.1 Installation Environment

This product is very reliable regardless of installation environments, but to guaranty the reliability and stability of the system, pay attention to the following items.

- 1) Environment Conditions
 - (1) Install in the control board where waterproof and dustproof are possible.
 - (2) The places where constant impacts or vibrations are imposed.
 - (3) The places where direct rays are not directly exposed.
 - $\ensuremath{\left(4\right)}$ The places where dew is not formed by the rapid change in temperature.
 - (5) The places where surrounding temperature is maintained to be at 0-55 $^\circ\!\!{\rm C}$.

2) Installation Constructions

- (1) Make sure wiring leavings are not inserted inside the PLC when you process screw holes or do wiring jobs.
- (2) Install the places where it is easy to control.
- (3) Do not install into the same panel as high press machine.
- (4) Make sure the distance to the duct and the surrounding module is maintained to be more than 50^{mm}.
- (5) Put to earth where surrounding noise environment is good.



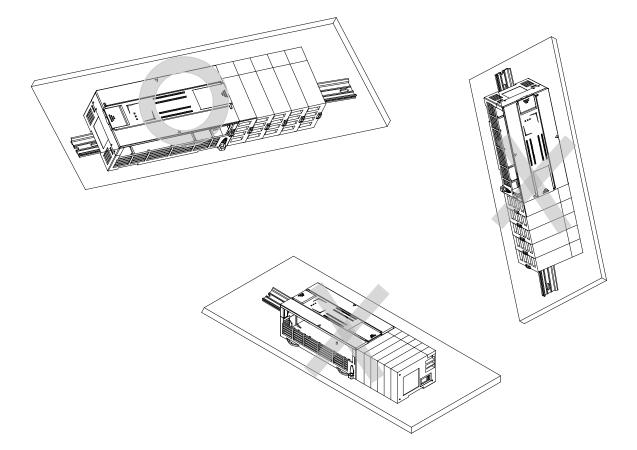
3.2 Cautions when Handling

Observe the following directions when you configure the system using Pnet I/F module.

- 1) Do not drop or impose strong impact.
- 2) Do not separate PCB from the case. It may cause malfunctions.

3) Make sure foreign objects are not put into the upper area of the module while you do wiring jobs.

- 4) If foreign objects are entered, remove them.
- 5) Do not remove the module when light is On.
- 6) Use standard cables and install within maximum distance.
- 7) Make sure communication lines are not affected by surges and inductive noises that may occur from alternating current or current parts.
- 8) In case the machinery or the substances that may generate high temperature are nearby you or when wires directly come into contact oil and other things for a long time when you do wiring jobs, it may cause a short cut, damage, or malfunctions.
- 9) When you do wirings during pipe arrangement, it is necessary to put to earth to pipes.



3.3 Precautions for Installation

During the system configuration using Pnet I / F module, please check the detail contents as below.

- 1) Check the necessary basic elements to configure the system, and then select the appropriate communication module.
- 2) Select dedicated cable of Pnet to use for Pnet communication module.
- 3) Make sure whether connectors are damaged or not when you connect between connector and module.
- 4) All of communication modules can be equipped with max 2ea regardless of module type. The below table describes how many expansion module can be attached depending on the type of main unit.

	XB	С	XEC	XBM	
Classification	High Performance	Standard	High Performance	Standard	Modular
Max expansion number	10 modules	7 modules	10 modules	7 modules	7 modules

5) After attaching the module to main unit, lock the module up and then connect the communication cable.

3.3.1 Installation of cable

Shielded Twisted Pair Cable is used as Profibus cable. The maximum transmission distance by specification, speed and type of cable is as shown below [Table 3.3.1] and [Table 3.3.2].

Characteristics	Туре А	Туре В
Impedance	135~160Ω (freq. 3~20MHz)	100~130Ω (freq. > 100kHz)
Capacity	Lower than 30 pF/m	Lower than 60 pF/m
Resistance	Lower than 110 Ω	-
Conductor Area	Larger than 0.34 mm ² (22 AWG)	Larger than 0.22 mm ² (24 AWG)

[Table 3.3.1] Specification of cable										
Baud rate (Kbit/s)	9.6	19.2	93.75	187.5	500	1500	3000	6000	12000	
Cable Type A	1200m	1200m	1200m	1000m	400m	200m	100m	100m	100m	
Cable Type B	1200m	1200m	1200m	600m	200m	70m	-	-	-	

[Table 3.3.2] Trasmission distance by Cable and Speed

Remark

- 1) It defines two type of bus cable in Profibus standards. But it is usually recommended Type A which place is newly installed. The type name of A and B ask to cable maker.
- 2) AWG(American Wire Gauge): Number system of size(a diameter) of wire

1) General safety instruction

ſ

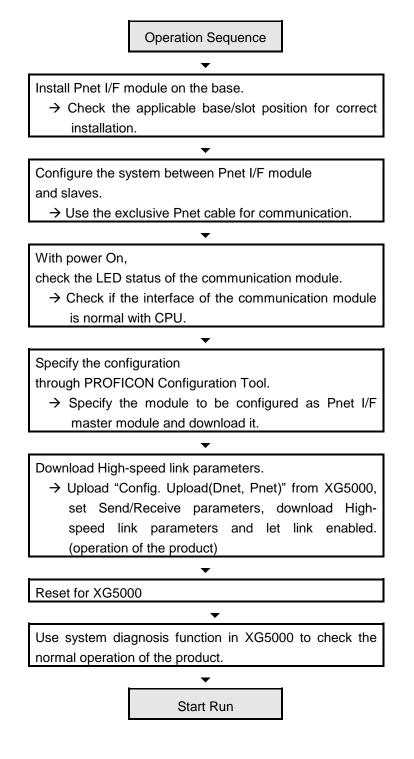
- (1) If distance between stations, it can be extended through extension of segment (Maximum 9 repeater, 10 segment). It can be connected 32 stations (repeater included) per segment and maximum 126 stations can be connected. (Repeater has no number of station) There are extension segment that has no station.
- (2) Shield of cable is grounded to housing of connector.
- (3) It has to use exclusive connector which is inductor built-in in internal.
- (4) It can not use the Spur Line.
- (5) If the gap between stations is large, a large current is able to flow on a shield. In this case, Install the cable which is set the a potential difference of ground. Special attention is required more than 1.5Mbps.
- (6) It maintains minimum distance more than 1m between station at 12Mbps.
- 2) Termination
 - (1) Each segment has to terminate the end. If segment is many, every segment have to terminate the end.
 - (2) Termination is able to On/Off by switch of exclusive connetor.

Remark

1) Maximum number of repeaters is different from each repeater module.

3.4 From Setting to Operation

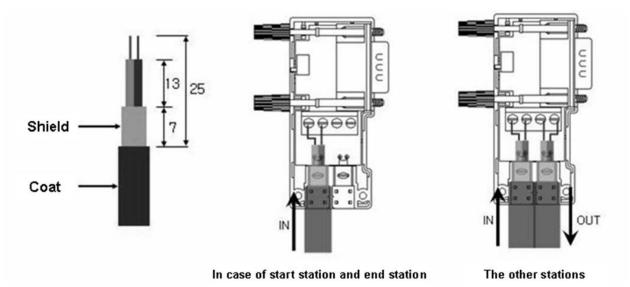
The sequence of the product from installation to operation will be described below. After the product installation is complete, install and configure the system to be operated as specified in the following sequence.



3.5 Installation of the product

ſ

3.5.1 Installation of XBL-PMEC



[Figure 3.5.1] The method of Pnet cable installation

Remark

1) Installation length of Pnet cable depends on the communication speed. (Refer to [Table 3.3.2])

- 1) How to install Pnet cable
 - (1) Use Profibus-DP cable.
 - (2) When slipping the coat of the cable, be careful not to let the shielded line escaped from PCB of the connector.
 - (3) The number of stations to be installed shall be within 32 including master and repeater for 1 segment.
 - (4) The shielded line of the cable shall be in contact with the shielded area of the connector.
 - (5) The cable is generally recommended to be installed at the end of the slave, diverged from the master.
 - (6) If the cable is used at the object car, use the extended line.
 - (7) Communication cable shall be installed at least 10cm away from the power supply cable.
 - (8) Check the cable connected with the connector if tightened well with terminal block.
 - (9) After the cable connected, measure the line resistance value on the master by means of digital multi-meter. (If terminal resistance at the both ends of the cable is On, it will be generally 110Ω + line resistance value + connector resistance value)

3.6 Test Operation

Terminal resistance switch of Pnet cable shall be On. If the switch is not On, communication errors may occur. Check LED operation status if normal with power on after communication cable is connected. If normal, download the applicable program to PLC via XG5000 so to execute the program.

3.6.1 Precautions for system configuration

- Station No. of each slave shall be surely different from each other including this module. If connected with the repeated station No., communication error may occur, leading to communication trouble. High-speed link station No. of all stations also shall be different from each other to use High-speed link service.
- 2) Use the communication cable as specified only. If not, serious error may occur to communication.
- 3) Check communication cable if disconnected or shorted prior to installation.
- 4) Tighten up communication cable connector until connected firmly. If cable connection is unstable, serious error may occur to communication.
- 5) If remote communication cable is connected, keep the cable far away from power line or inductive noise.
- 6) Since the coaxial cable is not flexible, it is to be diverged min. 30cm away from the connector in communication module. If the cable is bent at a right angle or transformed compulsorily, cable disconnection or connector damage in communication module will be caused.
- 7) If LED operation is abnormal, refer to Chapter 9 Troubleshooting to check for causes and take actions against. Contact service center if the error is as before.

Chapter 4 System Configuration

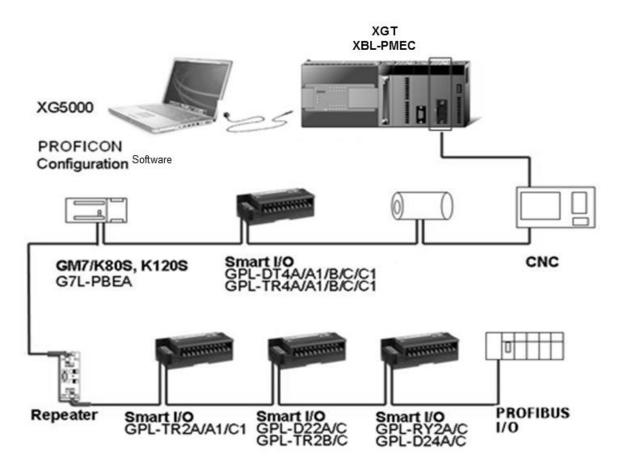
4.1 System Configuration of Network

Communication system of Pnet I/F modules is as shown below.

Master have to be set XBL-PMEC, the others have to be set slave modules.

To connect LS inverter with master module, the inverter module have to attach Pnet option module.

If it is used with another company product, GSD file provided by the maker is needed. After GSD file is copied to GSD folder of Pnet configuration software tool and then if you use Pnet configuration software tool, you can configure the slave modules in the network automatically.



[Figure 4.1] XBL-PMEC + Composite system Diagram

Chapter 5 PROFICON Setting

5.1 Overview

5.1.1 Main functions

Category	Function	Description					
Configuration	Master property	Master property, group settings					
	Slave property	slave property, module and parameter settings					
	Bus parameter	communication bus parameter settings					
	Configuration down	Network Configuration download					
	Configuration upload	Network Configuration upload					
	Start/Stop Communication	Start/Stop Profibus-DP Communication					
	Start/Stop Debug Mode, Device Diagnostics	Slave's status is continually read and shown on the topology design sheet					
	Live list	Showing normally communicating devices					
Diagnostic	Automatic network scan	Automatically scanning all of devices connected with master.					
	I/O Monitoring	Read/Write data from slaves					
	Disconnection Report	Showing the number of disconnections					
	Device information	Information of master					

5.1.2 Characteristics

- PROFICON is a configuration tool of Pnet I/F module which is global standard PROFIBUS-DP Master.
- PROFICON configures with standardized GSD file.
- PROFICON has diagnostic function.
- PROFICON has a function to upload network settings which was previously downloaded.

€ Elysion - LS PROFIBUS DP Ma	nster Configuration Tool - Config1 ion Co <u>m</u> munication <u>D</u> iagnostics	Tools Window	Pro	ject		_	Project explorer
Device List	Config 1		(topo	logy)	<u> 田 田 田 Q Q</u>		QQQ ★ ★ . × Project Explorer → # ×
- Master(2)	PROFIBUS DP TOP	OLOGY DESIGN	пссі		CONFIC	URATION MODE	Project 'Config1'
XGT Pnet (COM-C-DPM)	PROJECT NAME Config1	DATE (Revision) 2008/01/03 20:53:44	VERSION 001.000.000	AUTHOR	DESCRIPTION		11
ries iM7	NO. OF DEVICES 000 Master(s), 000 Slave(s)	LEGEND MASTER SL		(III) ACTIV.	Deactiv. 🏨 WDOG_O	N MUDOG_OFF	
rives							
s Slave 2,0 Switching							
]^ А 2А 2А							
	003						
√C √C A/B/C							Slåvennopennen v vers
3/C							General Information
С							
							Master/slave
×							
rmation	007						property windo
	◣⊸⊸⊸						
Nam	Dutput	_		_		-	🖓 🚽 Data Settings
vision 0 Information	L	Г					Parameter Dat: Module Data + Detail Information
_	•		Outp	ut windo	w		
	•	L					
							🚰 Bus 🚰 Mas 🚰 Slav
eady		5 4 41 DD			CAP NUM S		LS Industrial System
	[Figure	9.1.1] PR	OFICOR	N screer	n composit	ion	
- Device	e list:	Lis	sts the d	evices i	interpreted	bv GSD	file to drag &
					ogy of proj		
- Projec	t.				ose PROF		
							n the project
1 10,00	completer.						aster-Relevant
			ave			i oject ind	
000	viowor:						avice selected

5.1.3 Screen composition

- GSD viewer: Detailed information of GSD of the device selected from the list

- Output window: Action result of the Configuration Tool
- Master property window: Set up property of master device composed on the project window
- Slave property window: Set up property of slave device composed on the project window
 Bus parameter window: Set up communication property of PROFIBUS
 - Network composed on the project window

5.1.4 GSD Register

After installation of XG5000, the folder was made as below.

🖃 🚞 PROFICON
🚞 bmp
🛅 bnr
🚞 gsd
🫅 prj
🚞 sys
C 4 01 In stallation

[Figure 5.1.2] Installation directory structure

- bmp: Bitmap storage place for use on the GSD file
- bnr: Network Configuration binary image storage place
- gsd: GSD file storage place provided by the Profibus-DP communication module manufacturers
- prj: Network Configuration project storage place
- sys: Application configuration directory used by tool

(1) How to register GSD files

If the GSD file for the product you want to use is not registered, follow the below steps to register GSD file.

Copy the GSD file to [GSD] directory. And then copy bitmap image file used in the applicable GSD to [bmp] directory. In order to apply GSD file, restart the PROFICON program.

If the GSD file that is already registered is changed, overwrite the GSD file to the [gsd] folder. And then restart the PROFICON program after deleting the files under the [sys] folder.

Remark

- 1) PROFICON doesn't reinterpret GSD files every time for quick start. So if you changed the GSD after loading, you have to delete files in [sys] folder and then restart PROFICON.
- 2) PROFICON supports only one language for GSD files (it support one filename extension). In order to change the language, select [Tools\System Options] menu and then select Startup under [Common Settings] folder on the left side. And change the GSD Type and select the path of the file. When PROFICON is restarted, the changes are applied.

5.2 Network composition through PROFICON

5.2.1 Master composition

ſ

Master device is displayed on the top of the device list, then select XBL-PMEC as shown in the figure below.

움 PROFICON - LS PROFIBUS DP Ma	ster Configuration Tool - Config1			2 2 1	2.000	to Section				
File Edit View Configuration	Communication Diagnostics	Tools Window Help								
		🗉 🗔 🚊 Topology selector	Linear View	- 8 8	= e ø			0. 20	B B B B I I	
Device list v A ×	Config1								Project explorer	▼
- Master(3)									-	
₽ G4L-PUEC	PROFIBUS DP TO	POLOGY DESIGN SHEE	i i			CONFIGU	JRATION MODE	E	Project 'C	Config1' [2013-09-
₽ XGL-PMEC									a principeer e	comigr (2015 05
Z XBL-PMEC	PROJECT NAME Config1	DATE (Revision) 2013/09/25 20:54:45	VERSION 001.000.000	AUTHOR		DESCRIPTION				
Slave(2): General	NO. OF DEVICES	LEGEND	001.000.000							
	000 Master(s), 000 Slave(s)	MASTER 🛛 🖉 SLAVE	N OWNER	IIII ACTIV.	C DeACT	IV. 🌲 WDOG_ON	MDOG_OFF			
GLOFA GM7										
- Slave(1): Drives	444									
SV-iS Series Slave 2.0										
 Slave(1): Switching Device 										
	001									
Slave(24): I/O +									<	1
GSD Viewer 👻 🕈 🗙	002								Bus parameter	≁ † ×
	H								🗄 🛃 🗁	
General Information									General Setting	
Model Name	003								Input Mode	Standard Valu
Station Type Vendor Name									Baudrate	1500 kBits/s ≡
Ident Number	004								Tsl (tBit)	300
GSD File Name									= Tsdr	000
GSD Revision 0									Min (tBit)	11
Detail Information	Output window							- -	Max (tBit)	150 🗸
									T . 4800	
									Bus 🚰 N	vlast 🚰 Slave
Ready						CAP NUM	SCRL		LS Indus	strial Systems

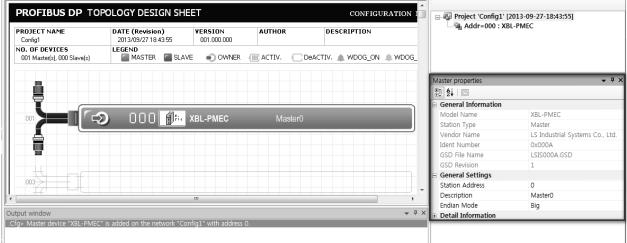
[Figure 5.2.1] XBL-PMEC selected from the list of device

If you drag & drop the selected XBL-PMEC on the topology sheet of the project window, then the master is simply composed as shown below. At this time, the composed master information is also displayed on the project explorer.

PROFICON - LS PROFIBUS DP Ma	aster Configuration Tool - Config1	1.1 Da 1	200-	1 1 Z - 1	and Same		
File Edit View Configuration	n Communication Diagnostics	Tools Window Help					
	N R R I B S S S R R	💷 🗔 🔆 Topology selecto	r Linear View	- (2 5 5 1			ð 63, 63, 63, 63, 111 🖬 📰 🖕
Device list 👻 👎 🗙	Config1						× Project explorer
- Master(3)							<u>^</u>
G4L-PUEC	PROFIBUS DP TOP	OLOGY DESIGN SHEE			CONFIGURA	TION MODE	E Project 'Config1' [2013-09-
	PROJECT NAME	DATE (Revision)	VERSION	AUTHOR	DESCRIPTION		Addr=000 : XBL-PMEC
ST XBL-PMEC	Config1	2013/09/25 20:54:45	001.000.000				
Slave(2): General	NO. OF DEVICES 001 Master(s), 000 Slave(s)	MASTER SLAVE	N OWNER	(IIII) ACTIV. C De	BACTIV. 🛕 WDOG_ON 🌲	WDOG_OFF	
SV-iS Series							
- Slave(1): Drives							
SV-iS Series Slave 2.0							
Slave(1): Switching Device							
	001) 000 👘 ×	BL-PMEC	Master0			
- Slave(24): I/O							< III >>
GSD Viewer - 4 ×							Master properties - 4 ×
E 2↓ □							
General Information							General Information
Model Name XBL-PMEC	003						Model Name XBL-PMEC
Station Type Master							Station Type Master
Vendor Name LS Industrial Syste Ident Number 0x000A							Vendor Name LS Industrial S Ident Number 0x000A
GSD File Name LSIS000A.GSD							GSD File Name LSIS000A.GSC
GSD Revision 1	1.0					• 4	GSD Revision 1
Detail Information	Output window :Cfg> Master device "XBL-PMEC"	is added on the network "Conf	in1" with address	0		~ 4	×
	torge moster dence Aber mee	is added on the network Com	igz men baaress	0.			
							Bus 😭 Mast 😭 Slave
Ready					CAP NUM SCR	L	LS Industrial Systems

[Figure 5.2.2] Compose XBL-PMEC Master by drag & drop

If you change properties like station address of the master or description, click "Master Properties" of the "Configuration" menu to activate the master property change tab as below



[Figure 5.2.3] Master property tab

5.2.2 Slave composition

ſ

The composition of slave can be done after the master is composed. The method of composition for slave is same as the master. Select the slave from the device list as shown in the figure below.

ROFICON - LS PROFIBUS DP Ma	aster Configuration Tool - Config1		- 8			
File Edit View Configuration	n Communication Diagnostics	Tools Window Help				
		🗉 🔲 🏹 Topology selecto	r Linear View			
Device list - 4 ×	Config1					▼ ×
GPL-DC4C ▲						
⊋ GPL-DV4C	PROFIBUS DP TOPC	DLOGY DESIGN SHEE	Т		CONFIGU	RATION I
GPL-D22A/C	PROJECT NAME	DATE (Revision)	VERSION	AUTHOR	DESCRIPTION	
🖵 GPL-D24A/C	Config1	2013/09/27 18:43:55	001.000.000	AUTHUR	DESCRIPTION	
GPL-DT4A/B/C	NO. OF DEVICES	LEGEND				
GPL-TR2A/B/C GPL-TR4A/B/C GPL-TR4A/B/C	001 Master(s), 000 Slave(s)	MASTER SLAVE	N OWNER	IIII ACTIV. C De.	ACTIV. 🌲 WDOG_ON	WDOG_
GPL-TN44/b/C Image: SPL-TN44/b/C Image:						
GPL-AV8C						
GPL-DV4C GPL-DV4C						
😴 GPL-DC4C 🗸) 000 <mark>()</mark> * ×	BL-PMEC	Master0		
GSD Viewer 👻 🕂 🗙						
General Information						
Model Name GPL-DT4A/B/C						
Station Type Slave Vendor Name LS Industrial Syste	003					
Ident Number 0x07B3			III I I I I I			+
GSD File Name LGIS07B3.GSD	Output window					→ ₽ ×
GSD Revision 2	:Cfg> Master device "XBL-PMEC" is	s added on the network "Conf	iq1" with address	0.	_	
Detail Information			ź			
Ready						CAP NU

[Figure 5.2.4] Select slave from the device list

Simply drag & drop the selected slave on the topology to complete the composition of slave. (See Figure 5.2.5, at this time, it is confirmed that the slave is subordinated to the relevant master through the project explorer.)

PROFICON - LS PROFIBUS DP Ma	aster Configuration Tool - Config1		14			60 an	**	
File Edit View Configuration	Communication Diagnostics	Tools Window Help						
	NABOGES	💷 🖃 🔄 Topology selec	tor Linear View	- E V 1 E		a m m m		
Device list 👻 🕂 🗙	(Config1						Project explorer	
₽ GPL-DC4C ^						A		
GPL-DV4C GPL-DV4C	PROFIBUS DP TO	OLOGY DESIGN SH	ET		CONFIGURA	TION	Project 'Config1' [2	2013-09-27-18:43:551
GPL-D22A/C GPL-D22A/C							Addr=000 : XB	
GPL-D24A/C GPL-D24A/C	PROJECT NAME Config1	DATE (Revision) 2013/09/27 18:43:55	VERSION 001.000.000	AUTHOR	DESCRIPTION		Addr=001 : 0	GPL-DT4A/B/C
GPL-DT4A/B/C	NO. OF DEVICES	LEGEND	001.000.000					
GPL-TR2A/B/C	001 Master(s), 001 Slave(s)	MASTER SLAV	/E 🔹 OWNER	(III) ACTIV. 🗌 De	ACTIV. 🛕 WDOG_ON 🌘	WDOG_		
GPL-TR4A/B/C								
GPL-RY2A/C GPL-RY2A/C								
🖵 GPL-AC8C ■							Slave properties	▼ ₽ ×
♀ GPL-AV8C							Bill 2↓ □	* † ^
GPL-DV4C GPL-DV4C						11 A 11		
GPL-DC4C GPL-DC4C	001 📥 🔰 🚅) 000 👘	XBL-PMEC	Master0			General Information	*
							Model Name	GPL-DT4A/B/C
🗩 XPL-BSSA 👻							Station Type	Slave
GSD Viewer		C 🔔 001 📟	GPL-DT4A/B/C	Slave1	In:01 Ou	t01	Vendor Name	LS Industrial Systems Co., Ltd
							Ident Number	0x07B3
							GSD File Name	LGIS07B3.GSD
General Information							GSD Revision	2
Model Name GPL-DT4A/B/C							General Settings	
Station Type Slave							Assigned Master Station Address	Addr=000 : XBL-PMEC
Vendor Name LS Industrial Syste	004							1
Ident Number 0x07B3							Description	Slave1
GSD File Name LGIS07B3.GSD							Activate Device Watchdog Control	Activate Enable
GSD Revision 2						,		Enable
Detail Information	Output window					₩ 4 ×	 Data Settings Parameter Data 	(Default)
	:Cfg> Master device "XBL-PMEC" :Cfg> Slave device "GPL-DT4A/B	is added on the network "Co	nfig1" with address	0.			Parameter Data	(Derault)
	:Cfg> Slave device "GPL-DT4A/B	/C" is added on the network '	'Config1'' with addr	ess 1.				
							🚰 Bus Parameter 🛛 😭 Ma	ster Properties 🔐 Slave Properties
Ready						CAP NU	IM SCRL	LS Industrial Systems

[Figure 5.2.5] Compose slave to master

Basically the tool allocates the station address in sequence when composing each device to the topology. Therefore, if you want to change the station address and property of the slave, then use "Slave Properties" of "Configuration" menu to change it. Followings are the items to be available for setting by using slave property tab(See Figure 5.2.6).

- Station Address: 1 ~ 123
- Description texts
- Activate Device
- Communication watchdog
- User's parameter settings
- Module settings

User's parameter and module are configured by using separate window.

SI	ave properties	🛫 I	×
			~
Ē	₫ 2↓ □		
	General Information		٠
	Model Name	GPL-DT4A/B/C	
	Station Type	Slave	
	Vendor Name	LS Industrial Systems Co., Ltd	
	Ident Number	0x07B3	
	GSD File Name	LGIS07B3.GSD	
	GSD Revision	2	Ξ
	General Settings		
	Assigned Master	Addr=000 : XBL-PMEC	
	Station Address	1	
	Description	Slave1	
	Activate Device	Activate	
	Watchdog Control	Enable	_
	Data Settings		
	Parameter Data	(Default)	÷
1			=
	Rus Daramatar I Mastar D	apartias In Slava Properties	
	Bus Parameter 🔐 Master Pr		
M	SCRL	LS Industrial Systems	

[Figure 5.2.6] slave property tab

First of all, the parameter is configured by using slave parameter settings window as shown below.

ſ

	Name 001) GP	L-DT4A/B/C			1	- c	Assigne Add:000			e		OK Canc
yte C	Ordered	View					Stru	ctured V	iew			
_		Module Information	Position	Paramet	er Value	*		Pos	ition		Parameter Va	lue
	Slot	Module Name	Byte	HexaDec	Decimal			Byte	Bit	Decimal	Description	Value Selection
1		GENERAL)	000	0	0		1	000	0	0	(Undefined)	(N/A)
2			001	0	0		2		1			
3			002	0	0		3		2			
4			003	0	0		4		3			
5			004	0	0		5		4			
6							E		5			
7							7		6			
8							8		7			
9							9	001	0	0	(Undefined)	(NZA)
10							1)	1			
11							1		2			
12							1:	2	3			
13							1:	3	4] [
14							1.	L I	5	1		
15							1!	ī	6			
16							1	5	7	1		
17							1	002	0	0	(Undefined)	(N/A)
18							1	3	1			
19							1	9	2	1		
19 20					ļ	-	1:		2	-		

[Figure 5.2.7] Slave parameter settings window

Slave module settings window is as shown below. If a slave module is an expansion adapter such as XPL-BSSA, you can add the module to the expansion adapter by double clicking the module at the above module list. If you add wrong one, double click the item to delete it.

Slave	nt Slave Name			10					Name				0	ιK
Addil	001) GF	'L-U I	4A/B	/L	<u> </u>	if Add:	UUU) Xt	SL-Pr	MEC				Car	nce
/lodul	le Sele	ction												
			N	lodule Name	In	outs	Outpu	uts			ld	entifier		
1	2 Byte	Out, 2					2 BY1		0x21 0x11					
2	2 Byte	Out, 2	Byte I	n	28	BYTE			0x21 0x11					
3														
4														
5	_													_
6														
7	-													-
9														
10														
	⊥ Data (B	uto)		Output Data (Byte)	_	In/Out	ut Dat	a (Bu	to)			Number of N	Andulas	_
npar i	Jaia (D	y.c,	_		_	iniy oʻdq	Juc Duc	4 (Dy	,				loadico	
102 / 1	Max OC	12		002 / Max 002		004 / N	1ax 004	1				001 / Max 0	01	
	Insert			General Information			Input			Output		General	Settings	
	Inseit	Slot	ldx.	Configured Module Nam	ne	Туре	Add.	Len.	Туре	Add.	Len.	Module D	escription	
1		0	1	2 Byte Out, 2 Byte In					BYTE	0	2			
		0	2	2 Byte Out, 2 Byte In		BYTE	0	2						
2								-						_
2 3														_
2 3 4														-
2 3 4 5														_
2 3 4 5 6														
2 3 4 5														
2 3 4 5 6 7														

[Figure 5.2.8] Slave module settings window

5.2.3 Bus parameter

In this chapter, we will find out how to configure the network bus parameter of these. Network bus parameter can simply change the communication speed, or adjust the timing for communication parameter precisely.

Generally, default value is used without change in the communication parameter timing. Therefore, this manual describes how to change the communication speed, and more details can be found from PROFIBUS DP specification or software manual with careful consideration.

Since master only has the authority to configure the network bus parameter, you should choose master from topology to activate the "Bus Parameters" item from the "Configuration" menu. Select the activated "Bus Parameters" item to activate the bus parameter settings tab as shown below.

Bus parameter		×
∄ 2↓ ⊨		
🗉 General Settings		
Input Mode	Standard Value	
Baudrate	1500 kBits/s	~
🖃 Detail Settings		
TsI (tBit)	300	
🖃 Tsdr		
Min (tBit)	11	
Max (tBit)	150	
Tqui (tBit)	0	
Tset (tBit)	1	
GAP Factor	10	
HSA	126	
Max Retry Limit	1	
Tid1 (tBit)	37	
Tid2 (tBit)	150	
Baudrate		
Dauurate		
😭 Bus Parameter 🛛 😭 Mast	ter Properties 🚰 Slave Propert	ties

[Figure 5.2.9] bus parameter settings tab

5.3 Download and upload Network Configuration

PROFIBUS DP Master is communicated through Network Configuration. To do so, there is a downloading function to apply the composed Network Configuration to the Master. In addition, the uploading function, which is core technology of our company, can read and restore the Network Configuration downloaded to the existing Master.

5.3.1 Download Network Settings

(1) Communication connection settings

In order to download the Network Configuration composed on the topology window to the XGB Pnet Master module, first of all, you should set up connection to XGB main unit. If you select "Settings..." item from the "Communication" menu, the window will be popped up as seen below. Here you should select "Communication with XGT" and enter the information with current XGL-PMEC module, and click "OK" button.

Communication	n Settings	5		\mathbf{x}
O Communicati RS-232C Com Port Number COM1		and the second second second	(OK Cancel
 Communicati PROFIBUS DP I Base Number 0 	Master Mod			
GT Settings				×
PROFIBUS DP Ma Base Number 0		ule Position Slot Number 1		OK Cancel

[Figure 5.3.1] Communication Settings window: Information of XBL-PMEC settings

Then, XGB connection settings window will pop up as shown below. If a user clicks "OK" button by selecting the settings connected by the user, then the connection settings will be finished.

Remark

 When the master is absent on the PROFICON screen, if you select "Communication Settings", it can't know whether GM4C master or XGT master. So after determining what kind of master you use, select "Communication Settings" and then you can see the pop up window related to the master.

Online Settings - FOR F	PROFI ?X
Connection settings	
Lype: USB	Settings
Depth: Local	Preview
General	
Timeout <u>i</u> nterval:	10 🤹 sec.
<u>R</u> etrial times:	1
Read / Write data size in PLC ru	ın mode
◯ <u>N</u> ormal ⓒ <u>M</u> aximum	
* Send maximum data size in s	top mode
ОК	Cancel

1

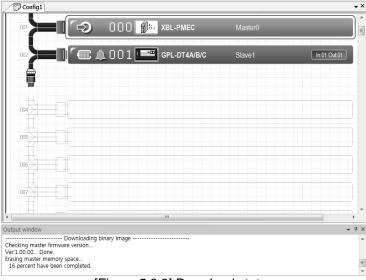
[Figure 5.3.2] Connection setting

Remark

 Once the communication settings have done, when you execute image download/upload, diagnostic function, it will communicate with recent setting values. in case that communication setting is changed, set communication again and then execute image download/upload, diagnostic function. (2) Network Configuration download

ſ

If you already composed network in the topology, select "Download Image" item from the "Communication" menu to begin downloading. The figure below shows downloading status. The status bar runs progress bar, and the output window shows the progress rate.



[Figure 5.3.3] Download status

If downloading is completed, the progress bar is full, and "Done" message will be displayed on the output window.

🗐 Config1 <xgb></xgb>					
PROFIBUS DP TOP	OLOGY DESIGN SHE	ET		CONFIGU	RATION MOD
PROJECT NAME Config1	DATE (Revision) 2013/04/23 20:20:30	VERSION 001.000.000	AUTHOR	DESCRIPTION	
NO. OF DEVICES 001 Master(s), 001 Slave(s)	LEGEND MASTER SLAVE	Nowner 🔊	C ACTIV.	Deactiv. 🌲 WDOG_ON	WDOG_OFF
) 000 👘 א	KBL-PMEC	Master)	
	: 🔔 001 💷 🤇	GPL-DT4A/B/C	Slave1	In:01	Out:01
	PROFICON			X	1
ut window		loading binary im	age to XGT based	master device is complete,	
:1,04,00, Done, sing master memory space 0 percent have been complet ting binary image transmissi 0 percent have been transmit	ed. on		확인		
U percent have been transmit ie,	ted,				
				CAP NUM SCF	

[Figure 5.3.4] Downloading completed

Remark

1) After downloading, PLC is needed to reset.

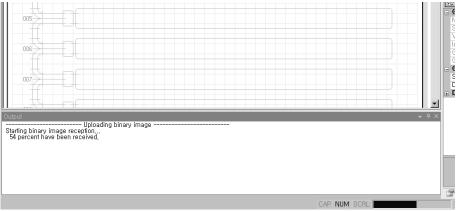
5.3.2 Upload Network Settings

(1) Communication connection settings

The method of connection settings can be referred from 5.3.1 Network Settings downloading

(2) Network Settings uploading

Conduct uploading by selecting "Upload image" from "Communication" menu. At this time, new project will be automatically generated, and uploading is proceeded.



[Figure 5.3.5] Upload status

If uploading is completed, "Done" message will be displayed on the output window. Project topology will show the Network Configuration composition uploaded from current master.

ROJECT NAME Config1 Up(1)	DATE (Revision) 2013/04/23 20:20:30	VERSION 001.000.000	AUTHOR	DESCRIPTION	
0. OF DEVICES 001 Master(s), 001 Slave(s)	LEGEND MASTER SLA			Deactiv. 🌲 WDOG_ON 🌲	WDOG_OFF
	ə 000 (]	XBL-PMEC	MasterO		
	E 🔔 001 📟	GPL-DT4A/B/C	Slave1	In:01 Out	:01
		PROFICON			×
ut window		Uploading	g binary image from 3	XGT based master device is	complete,
Up cking master firmware ver 1,04,00, Done, ing binary image receptio I percent have been recei	loading binary image rsion		(<u>확</u>	1	

[Figure 5.3.6] Uploading completed

5.4 Diagnosis function

Applied functions of PROFIBUS DP include network diagnosis function and monitoring function.

Please see software manual for details.

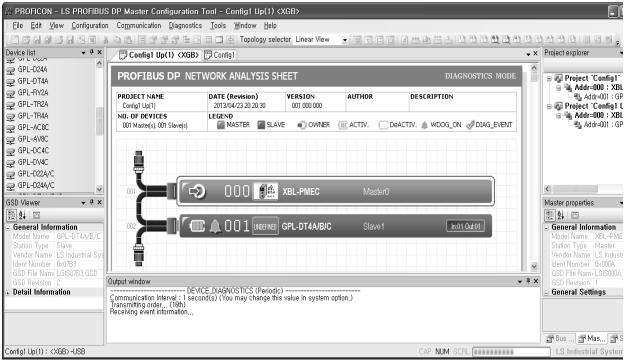
5.4.1 Start / Stop Communication

"Start Communication" and "Stop Communication" item of "Diagnostics" starts or finishes the PROFIBUS DP communication by setting up master mode as 'OPERATE or STOP mode.

5.4.2 Debug mode (Start/Stop Debug Mode, Device Diagnostics)

(1) Start Debug Mode

The "Start Debug Mode" of "Diagnostics" menu continuously monitors the status of slave in debug mode. At this time, the topology is activated, and regularly checks out the status information of slaves from master.



[Figure 5.4.1] Master debug mode

Chapter 5 PROFICON Setting

If any slave generates diagnostic information for cable cut-off, incorrect parameter or configuration, then "Diag" event is displayed at the slave on the topology as shown in the Figure 5.4.2 to inform the user.

# PROFICON - LS PROFIBUS	3 DP Master Configuration	Tool - Config1 <xgb></xgb>					
Eile Edit View Configuration	n Co <u>m</u> munication <u>D</u> iagnostics	<u>T</u> ools <u>W</u> indow <u>H</u> elp					
		🗉 🔲 🛓 Topology sele	ctor Linear View		2 👑 🛎 🚢 C. D. D. D. D.	B 3	ð 10 10 10 11 12 11 ₋
Device list 🗸 🕶 🗙	Config1 <xgb></xgb>					• ×	Project explorer
GPL-TR2A/B/C						^	
GPL-TR4A/B/C	PROFIBUS DP NET	WORK ANALYSIS SH	IEET		DIAGNOSTICS MOD		🖃 🚳 Project 'Config1'
GPL-RY2A/C	PROJECT NAME	DATE (Revision)	VERSION	AUTHOR	DESCRIPTION		Addr=000 : XBL
⊋ GPL-AC8C	Config1	2013/04/23 20:33:07	001.000.000	AOTHOR	DESCRIPTION		Mudi-001 - Ad
GPL-AV8C GPL-AV8C	NO. OF DEVICES	LEGEND					
GPL-DV4C	001 Master(s), 001 Slave(s)	MASTER SLAV	e 🔊 owner	IIII ACTIV. C D	BACTIV. 🌲 WDOG_ON 🛷 DIAG_EVENT		
GPL-DC4C GPL-DC4C GPL-DC4C							
⊋ XGL-PSRA ⊋ XPL-BSSA							
+ Slave(0): Valves							
C. Plans (0): Castrollas							
— or (o), (0, 0) 🚩) 000 🏦	XBL-PMEC				
GSD Viewer							Master properties •
<u>₽</u> 2↓ □		LA DOI AM					
General Information Model Name XGL-PSEA	002 Diag	😂 001 🔝	XGL-PSEA	Slave1	In:01 Out:01		General Information
Station Type Slave							Station Type Master
Vendor Name LS Industrial Sys							Vendor Name LS Industr
Ident Number 0x0CBE GSD File Nami LSIS0CBE.GSD						~	GSD File Nami LSIS000A
GSD Revision 4	Output window					• 4 ×	GSD Revision 1
Detail Information	DEVI Communication interval : 1 seco	CE_DIAGNOSTICS (Periodic nd(s) (You may change this) ; value in svstem (option.)			General Settings
	Transmitting order (83rd) Receiving event information						
	needing cross monitoring,						
							🚰 Bus 😭 Mas 😭 S
Ready					CAP NUM SCRL		LS Industrial System

[Figure 5.4.2] Slave diagnosis event occurs

(2) Device Diagnostics...

In order to verify the diagnostic information of slave, users should select the slave on the topology, and select "Device Diagnostics..." from "Diagnostics" menu to verify the diagnostic information like the Figure 7.6.3. Also, if the slave is double clicked on the topology, then the diagnostic information can be verified identically.

Current Sla dent, No, 0x0cbe	ave Device Slave Name Add:001) X0				Of	Assig Add:0	ned M: 100) XB			ie						(OK
Diagnostic	Information																
	Device Stat				Device S								vice S	itatu	s3		
	locked from anothe	er master		Slave is dea	ctivated in n	naster pa	rameter	set		Data o		N					
Paramet				Reserved						Reserv							_
	lave response									1100011							-
	pesn't support requ									Reserv							_
Slave hat Config fat	as extended diag da	ata to report an e		Reponse mo Always set		atchdog	Un			Reserv							-
	auit not ready for data e	uchanao		Static diagn					- 2								_
Station r		scriarige		Static diagn		rized				Reserv							-
					oe paramete	11260				TIESEIV	sur						-
Ident, Num	ber:0x0CBE /As:	signed Master Ai	adress : l)												 	
00+ 10+ 20+ 30+ 40+ 50+ 60+				00+ 10+ 20+ 30+ 40+ 50+ 60+						00+ 10+ 20+ 30+ 40+ 50+ 60+							
	Positio			Value			xtendeo	d Diag	nostic	Data In	erpre)		
	Data Group	Byte Bit	Binar	y Decimal		Item						Des	criptio	n			

[Figure 5.4.3] Slave diagnostic Information

(3) Stop Debug Mode

Finally, if you want to terminate the debug mode, select "Stop Debug Mode" from the "Diagnostics" menu.

5.4.3 Live List

This is the function to display the information of the network which is under normal data communication. If "Live List..." is selected from "Diagnostics," then the live list window appears as shown below.

Device A	uures	s																			OK
Address	0+										10+										
A00/655	0	1	2	3	4	5	6	- 7	8	9	0	1	2	3	4	5	6	- 7	8	9	Update
0	000	001	002	003	004	005	006	007	008	009	010	011	012	013	014	015	016	017	018	019	
20	020	021	022	023	024	025	026	027	028	029	030	031	032	033	034	035	036	037	038	039	
40	040	041	042	043	044	045	046	047	048	049	050	051	052	053	054	055	056	057	058	059	
60	060	061	062	063	064	065	066	067	068	069	070	071	072	073	074	075	076	077	078	079	
80	080	081	082	083	084	085	086	087	088	089	090	091	092	093	094	095	096	097	098	099	
100	100	101	102	103	104	105	106	107	108	109	110	111	112	113	114	115	116	117	118	119	
120	120	121	122	123	Rsv	Rsv	Rsv														

[Figure 5.4.4] Live list

If "Update" button on the right side is clicked, then the contents of the live list will be updated.

5.4.4 Automatic Network Scan

This is the function to automatically scan all slaves physically connected to master through cable. This helps to figure out the Network Configuration easily. If you select "Auto. Network Scan..." item from "Diagnostics," then the dialogue window where the master address and communication speed are configured appears as shown below.

Network Scan Settings			×
Master Parameters Detected Type XBL-PMEC	Address O	Baudrate 1500 kBits/s	OKCancel

[Figure 5.4.5] Automatic network scan communication settings

After setting up master address and communication speed, click OK button to operate the auto scan as below.



[Figure 5.4.6] Display automatic network scan operation status

Remark

1) Communication speed is shown by the speed of image downloaded. And communication speed is shown by 1.5Mbps if there is no image downloaded.

Warning message will be incurred when you change the different speed from speed as shown window.

When you change speed, some slaves couldn't be recognized. As the time of speed detection is different depending on the slave.

2) When auto scanning, reading data is starting after waiting time as below.

Communication	PROFICON
Speed	Waiting time
9.6 kbps	50s
19.2 kbps	30s
93.75 kbps	15s
187.5 kbps	15s
500 kbps	15s
1.5 Mbps	15s
3 Mbps	15s
6 Mbps	15s
12 Mbps	15s

After the automatic network scan is completed, the slave list collected by master and I/O information and GSD file information are displayed on the network scan window as below.

	0+										10+										ј Сок
Addres	3 U+ 0	1	2	3	4	5	6	7	8	9	0	1	2	3	4	5	6	7	8	9	
0	000	001	002	003	004	005	006	007	008	009	010	011	012	013	014	015	016	017	018	019	
20	020	021	022	023	024	025	026	027	028	029	030	031	032	033	034	035	036	037	038	039	
40	040	041	042	043	044	045	046	047	048	049	050	051	052	053	054	055	056	057	058	059	
60	060	061	062	063	064	065	066	067	068	069	070	071	072	073	074	075	076	077	078	079	1
80	080	081	082	083	084	085	086	087	088	089	090	091	092	093	094	095	096	097	098	099	1
100	100	101	102	103	104	105	106	107	108	109	110	111	112	113	114	115	116	117	118	119	
120	120	121	122	123	Rsv	Rsv	Rsv														
Legend	1		: Mast	er		: Slav	е	Num	: Dup.	Slv	Num	: Dup.	Mod		: Und	efined (GSD				
A	id.			ected S							d Modu				dules /			Selec		^	
۵.	ld																				1
	PN	0 ID	Mod	lel Nam	ie I	GSD Fi			lodule	ID 📗	Mo	ile IDs dule Na	ame		uts 0	utputs	Mod		Slave		
1 00	PN			lel Nam	ie I					ID 📗	Mo		ame			utputs	Mod				
1 <u>00</u> 2	PN		Mod	lel Nam	ie I	GSD Fi			lodule	ID 📗	Mo		ame		uts 0	utputs	Mod		Slave		
1 00	PN		Mod	lel Nam	ie I	GSD Fi			lodule	ID 📗	Mo		ame		uts 0	utputs	Mod		Slave		
1 00 2 3	PN		Mod	lel Nam	ie I	GSD Fi			lodule	ID 📗	Mo		ame		uts 0	utputs	Mod		Slave		
1 <u>00</u> 2 3 4	PN		Mod	lel Nam	ie I	GSD Fi			lodule	ID 📗	Mo		ame		uts 0	utputs	Mod		Slave		
1 00 2 3 4 5	PN		Mod	lel Nam	ie I	GSD Fi			lodule	ID 📗	Mo		ame		uts 0	utputs	Mod		Slave		
1 00 2 3 4 5 6 7 8	PN		Mod	lel Nam	ie I	GSD Fi			lodule	ID 📗	Mo		ame		uts 0	utputs	Mod		Slave		
1 00 2 3 4 5 6 7 8 9	PN		Mod	lel Nam	ie I	GSD Fi			lodule	ID 📗	Mo		ame		uts 0	utputs	Mod		Slave		
1 00 2 3 4 5 5 6 7 7 8 9 9 10	PN		Mod	lel Nam	ie I	GSD Fi			lodule	ID 📗	Mo		ame		uts 0	utputs	Mod		Slave		
1 00 2 3 4 5 5 6 7 8 9 10 10 11	PN		Mod	lel Nam	ie I	GSD Fi			lodule	ID 📗	Mo		ame		uts 0	utputs	Mod		Slave		
1 00 2 3 4 5 6 7 7 9 10 11 11 12	PN		Mod	lel Nam	ie I	GSD Fi			lodule	ID 📗	Mo		ame		uts 0	utputs	Mod		Slave		
1 00 2 3 4 5 5 6 7 8 9 10 10 11	PN		Mod	lel Nam	ie I	GSD Fi			lodule	ID 📗	Mo		ame		uts 0	utputs	Mod		Slave		

[Figure 5.4.7] Network scan window

This window displays information of slaves. Users check out whether this information is matched to actual slave information. If GSD file and I/O information is not matched, or there is no GSD file, then obtain formal GSD file provided by the manufacturer of the slave and compose the Network by yourself.

If the scanned contents are correct, then click OK button to check out the collected Network composition as shown below.

# PROFICON - LS PROFIBU	S DP Master Configuration	Tool - Config2 <xgb></xgb>						
File Edit View Configuration	n Communication Diagnostics	Tools Window Help						
	I D B I D B B B B B B B	🗉 📄 🍯 Topology sele	ctor Linear View	 ✓ (目) 5 (二) 			21 E2 E2 E2 E	御 嗣 。
Device list - + ×	Config2 <xgb> 💬 Co</xgb>						- × Project explorer	
GPL-TR2A/B/C	Connige (Xdb) (J Co	Inigi						
GPL-TR4A/B/C GPL-TR4A/B/C	PROFIBUS DP TOP	OLOGY DESIGN SHE	ET		CONFIGU	RATION MODE	Project	'Config1' [2013
⊋ GPL-RY2A/C			-				🗟 🖓 Áddı	=000 : XBL-PME
⇒ GPL-AC8C	PROJECT NAME Config2	DATE (Revision) 2013/04/23 20:39:10	VERSION 001.000.000	AUTHOR	DESCRIPTION			ddr=001 : XGL-PSE 'Config2' [2013-
GPL-AV8C		LEGEND	001.000.000					=000 : XBL-PME
GPL-DV4C	001 Master(s), 001 Slave(s)	MASTER SLAV	e 🔹 🐑 OWNER	III ACTIV.	Deactiv. 🌲 WDOG_ON	MUDOG_OFF		ddr=001 : XGL-PSE
g GPL-DC4C								
👳 XGL-PSRA								
👳 XPL-BSSA								
+ Slave(0): Valves								
Slave(0): Controller	001) 000 🕼		Master	ń		<	>
GSD Viewer			XDE-I MILO	Inductor	0		Bus parameter	→ ∓ ×
1 1							₽ 2 ↓ ©	
- General Information		C 🔔 001 🎒 🗖	XGL-PSEA	Slave1	In:00	Out:00	General Set	ttings 🔿
Model Name XGL-PSEA							Input Mode	Standard Valu
Station Type Slave Vendor Name LS Industrial Svs							Baudrate	1500 kBits/s
Ident Number 0x0CBE							Tsl (tBit)	300
GSD File Nami LSIS0CBE, GSD	Output window						4 × Tsdr	
GSD Revision 4	100 percent have been complet	ted.				•	Min (tBit)	11
	Loading module information into 100 percent have been comple	slave ted						100
	Checking module information co 100 percent have been comple	rrectness						
	Done,	icu,						
							💌 🔐 Bus 😭 I	Mas 😭 Slav
Config2 : <xgb>-USB</xgb>					CAP NUM SCR	L [LS Industr	ial Systems 🔡

Г

[Figure 5.4.8] Network topology collected and composed

Remark

1) The following is a description of the exception cases that there are GSDs which have same PNO ID or there is no module ID when you execute auto network scanning. a) If between the GSD file and the module are not matched, add Scanned Module. After then you can see the checked Select button. In case of below, the slave that Scanned Module is added can't be displayed properly. In order to successfully open, after copying [sys] folder under the PROFICON installation folder of the PC which is already auto scanned, overwrite the file in same location that you want to open the project. And open the project. - If you open project files that are already auto scanned in another PC. - If you upload images that are already auto scanned in another PC. - If you open it in another PC after saving auto scanned contents as a binary. b) If there are more than two slaves that have same PNO ID compared with loaded slaves, select button will be shown. If the slaves don't have same module ID or the slave is compact slave that have to be defined more than one, Discard will be shown and Select button will not be shown. If there are slaves that don't have same PNO ID compared with loaded slaves at the same time modular type which don't need module, Discard will not be shown and Select button will be shown. It's because PROFICON judges that the user intends for adding module through Configuration. - Compact slave: If Modular_Station = 0 is shown in the GSD file or there is no Modular_Station key, the module have to be defined more than one. - Modular slave: If Modular Station = 1 is shown in the GSD file. c) In case that there are more than two selectable slaves, the Select button is checked. So If you want to change slave, change the checking status and select the slave that you want. x Network Scan Detected Devices : 1 master(s) and 64 slave(s) are alive. 0K 10+ 0+ Address 0 1 2 3 4 5 6 7 8 000 001 002 003 004 005 006 007 008 9 0 Λ 5 6 8 011 012 013 014 015 016 009 017 010 018 019 0 020 021 022 023 024 025 026 027 028 20 029 030 031 032 033 034 035 036 037 038 039 **040** 041 042 043 044 045 046 047 048 049 050 **051** 052 053 054 055 056 057 058 059 40 060 061 062 063 064 065 066 067 068 069 070 072 073 074 075 076 071 077 078 079 60 083 084 085 086 087 089 090 091 092 093 094 095 096 80 080 081 082 088 097 098 099 100 101 102 103 104 105 106 107 108 109 110 111 112 113 114 115 119 100 116 117 118 120 121 122 123 Rsv Rsv Rsv 120 : Master : Slave Num : Dup.Slv Num : Dup.Mod : Undefined GSD Legend Detected Slave's I/O Module Information Detected Slave IDs Detected Module IDs Modules / Max. Select Add. Module ID PNO ID Model Name GSD File Name Module Name Inputs Outputs Module Slave 284 0x21 0x00 2 Byte Out, 0 Byte In 2 BYTE (Fixed) 0x21 0x00 2 Byte Out, 0 Byte In 285 (Fixed) 287 057 Oxffff(6) GPL-D22A GPL_D22A.GSD 0x21 0x00 0/1 (Discard) GPL-D24A GPL_D24A.GSD 0x21 0x00 0/1 288 (Discard (Discard) GPL-DT4A GPL_DT4A GSD 0x21.0x00 0/1 289 290 GPL-BY2A GPL_RY2A.GSD 0x21 0x00 2/1 291 0x21 0x00 2 Byte Out, 0 Byte In 2 BYTE (Fixed) 292 0x21 0x00 2 Byte Out, 0 Byte In (Fixed) GPL-TR2A GPL_TR2A.GSD : 0x21 0x00 2/1 1057) 293 0x21 0x00 294 2 Byte Out, 0 Byte In 2 BYTE (Fixed) 0x21 0x00 2 Byte Out, 0 Byte In 295 (Fixed) GPL-TB44 GPL_TR4A.GSD 0/1 296 0x21.0x00 (Discard) 0×09f7 XPL-BSSA XPLBSSA.GSD : 0x21 0x20 0x10 298 058 378 (Fixed) 299 0x21 Digital Output 2byte 2 BYTE (Fixed)

5.4.5 I/O Data Monitoring

This is the function to monitor I/O data of slaves. This can confirm whether the I/O of a certain slave is correct. If "I/O Monitor..." item is selected from "Diagnostics," then existing data communication is stopped, and the monitor window pops up as below. If users enter the output into the output data and click update button, then the value will be displayed through slave. And then the values entered through current slave will be monitored through the input data area. (Here the number of data available for I/O is 32 bytes respectively.)

nput ()ata -																ОК
HEX	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15]
00+	55	AA	00	00	00	00	00	00	00	00	00	00	00	00	00	00	Decimal
	00	00	- 00	00	- 00	00	- 00	00	00	00	00	00	00	00	00	00	
16+	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00]
	: Data		00	00	00	00	00	00	00	00	00	00	00	00	00	00	J Update
		00	00	00	00	00	00	00	00	00	10	11	12	13	14	15	J Update
)utput	: Data											11 00					Update

[Figure 5.4.9] I/O monitor

5.4.6 Disconnection Report

This function shows the number of frequency of connection errors for slaves under data communication. If you select "Disconnection Report..."item from "Diagnostics," then the number of errors occurred are displayed in real time as shown below.

	IC7 De	VICE A	\ddres	s —													OK
Address (000 - 015)	000	001	002	003	004	005	006	007	008	009	010	011	012	013	014	015	
Count	0	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Address (016 - 031)	016	017	018	019	020	021	022	023	024	025	026	027	028	029	030	031	
Count	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Address (032 - 047)	032	033	034	035	036	037	038	039	040	041	042	043	044	045	046	047	
Count	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Address (048 - 063)	048	049	050	051	052	053	054	055	056	057	058	059	060	061	062	063	
Count	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Address (064 - 079)	064	065	066	067	068	069	070	071	072	073	074	075	076	077	078	079	
Count	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Address (080 - 095)	080	081	082	083	084	085	086	087	088	089	090	091	092	093	094	095	
Count	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Address (096 - 111)	096	097	098	099	100	101	102	103	104	105	106	107	108	109	110	111	
Count	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Address (112 - 126)	112	113	114	115	116	117	118	119	120	121	122	123	124	125	126		
Count	0	0	Ω	0	Ω	0	Ω	0	n	0	0	0	B	B	B		

[Figure 5.4.10] Communication disconnection report

"R" means reserved station number from 124 to 126 address.

Although MAX. station number can use 127 (0~ 126) stations in the PROFIBUS standard, Pnet module is able to use 123 stations. So "R" of 124~ 126 stations are meaning the areas that are not used.

5.4.7 Master information (Device Information)

For the information of current master, select "Device Information..." item from "Diagnostics," then the contents below are displayed as shown in the figure below.

		OK
Manufacturer	LS ELECTRIC	
Manufactured Date	2013-09-25	
Device Version	V001.000	
Device Number	0000000A	
Serial Number	00000001	
Firmware Name	XBL-PMEC	
Firmware Type	XGT	
Firmware Version	1.00.00	
Firmware Date	2013-09-25	
Configuration Date	2013-09-30 18:42	
Configuration Block Size	31	
Configuration Done	Configued	
Master Mode	Communication Mode	
Endian Mode	Big endian	

[Figure 5.4.11] Master information

Chapter 6 XG5000 Setting

In order to use Pnet I/F module, set High-speed link parameters (after PROFICON Configuration is uploaded) and then download the specified parameters onto CPU for application, which is available through the XG5000.

1

6.1 XG5000 Setting Process

To do each step of process, refer to below description.

No.	Setting	g tool	Operation	Description
1		001	Network Configuration setting	Refer to Chap.5 PROFICON setting
2	PROFI		Communication Port connection	Refer to Chap.5 PROFICON setting
3	Param	heter	Network Configuration download	Refer to Chap.5 PROFICON setting
4			Execute XG5000	Execute XG5000
5			Make New project	Project → New project Set project name, Project type, CPU type
6		Basic Setting	Set XG5000 Connection	XG5000 → Online → Select the driver in connection setting
7			Connect XG5000	XG5000 → Online → Connection
8			Add Communication module	Online \rightarrow Diagnosis->Read IO information \rightarrow I/O Sync
9	XG5000		Specify HS link project	Click right button "XBL-PMEC" in the project window \rightarrow Add item \rightarrow Click "HS link"
11	Parameter		Config. Upload (Dnet, Pnet)	After double clicking "block" in the project window. Click HS link edit window. Online \rightarrow Communication module setting \rightarrow Config. Upload (Dnet, Pnet)
12		HS Link	Set HS link blocks	Click HS link edit window 1) Send: Set Read area from Main unit 2) Read: Set Save area from Main unit
13			Write HS link parameters	Online \rightarrow Write parameters
14			HS link enable	Online \rightarrow Select Link enable \rightarrow Enable proper HS link
15	XG50	000	Reset	Online → Reset

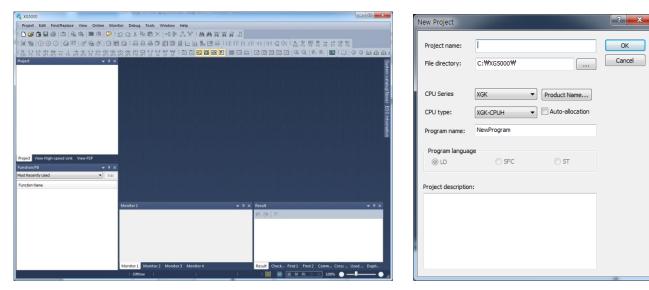
[Table 6.1.1] Process of HS parameter setting

6.2 Basic Parameter Setting

ſ

6.2.1 Execute XG5000 and Create a new project

XG5000 is executed firstly. And you can see the below the picture New project makes the method such as 'Project -> New project'



[Figure 6.2.2] Setting new project

Items	Contents	Remark
Project name	Writing the project name in the XG5000 software.	
File location	Selecting the directory to save the project.	
PLC Series	XGB	
Project comment	Writing the comment about the project.	

[Table 6.2.1] Contents of new project

ting CPU type, new p	roject scre	en of XG2000	J is shown as	Delow.	
4 PROFIBUS - XG5000					- • ×
Project Edit Find/Replace View Online Mon	itor Debug Tools Win	dow Help			
: 🗅 😂 🛱 🖶 😂 🖄 🚇 🍇 🔰 🚳 💬 :	വവു എ 🛍 🗙 -	e 🛠 🕮 🛠 i 👪 🗛 💥 💥 i	A →11		
::::::::::::::::::::::::::::::::::::::	3 Q : A A A C ()) © 0 US US US US US (1	ពិតិតិ-លុ២ 🛙 🖓 🗄	P 500 99 1→ 1 00 400 F3 F4 F5 F6 F7 F8 F9	
: R + I + 1/F +PF +NF - I → ★ () + 1/F +SF +RF Esc F3 F4 sF1 sF2 F5 F6 sF8 sF9 F9 F11 sF3 sF4) 🛛 🖬 🖄 🖉 (
Project	NewProgram ×		· · · · ·		v. 🔻
▲ - 2 PROFIBUS *					/sten
Wetwork Configuration Junpecified Network					
NewPLC [BOSO Internal Cnet]					티 බ
System Variable					V))e
NewPLC(XGB-XBCE)-Offline					one)
Variable/Comment					8
Basic Parameter					stem catalog(Wane) EDS information
					fam
▶ -(回) Internal Parameter					atio
Scan Program					
Project View High-speed Link View P2P					
Function/FB + 4 ×					
Most Recently Used					
,					
Function Name					····· •
					►
	Monitor 1		▼ ₽ × Result		→ ∓ ×
	PLC	Program Device/Variable	Value 🐵 🕒 🗙		
	< m				
	Monitor 1 Monitor 2 M	Aonitor 3 Monitor 4	Result Check Find	1 Find 2 Comm Cross U	ed Dupli
NewPLC	Offline	Row 0, Column 0		¥ 🖳 🚊 📄 100% 🔵 —	

After setting CPU type, new project screen of XG5000 is shown as below.

[Figure 6.2.3] New project screen of XG5000

6.2.2 Registration of the communication module

For the basic setting of the communication module in the XG5000, you have to register the communication module at the applicable base, slot position of Standard setting window. You can register the communication in the both ON/OFF status.

1) Registration in the offline status

If you want to register the communication without connection, select applicable base and press the right button of the "Unspecified Network". And then select "Communication" on the "Add Item"

Select communication module	9	
PLC type: NewPLC Communication module Number BASE SI 1 0 0 2 0 1	Communication Module Settings etwork in use ork Type: XBL-PMEC Base: 00 Slot: 03	
Add Module Delete mod		Cancel

Select the Pnet in the Type and specify the slot number.

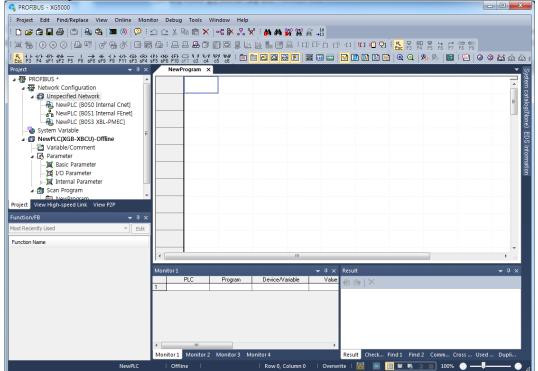
[Figure 6.2.4] Communication module setting

Iten	n	Description
	Туре	Selects Pnet I/F module
Communication	Base	Fixed "0" (In case of XGB, there is no base.)
module setting	Slot	Specifies the slot position of the module Setting range is different depending on the base type

Table 6.2.2	Registration	of the	communication	module

If you register the module at Slot 3, it becomes as follows

ſ



[Figure 6.2.5] Standard setting registration screen

- 2) Registration in the online status
 - To connect Main unit, need to set how to connect. Select [Online] → [Connection Settings]

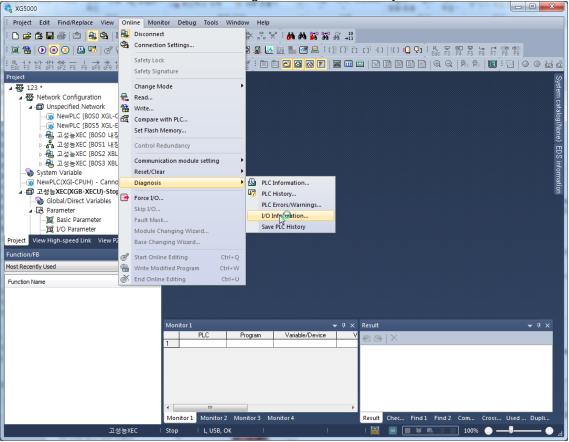
Online Settings	8 23
Connection settings	
Type: USB 🔹	Settings
Depth: Local 🔹	Preview
General	
Timeout interval:	10 🚔 sec.
Retrial times:	1
-Read / Write data size in PLC r	un mode
🔘 Normal 🛛 💿 Maximum	
* Send maximum data size in	stop mode
Connect OK	Cancel

[Figure 6.2.6] Connection setting screen

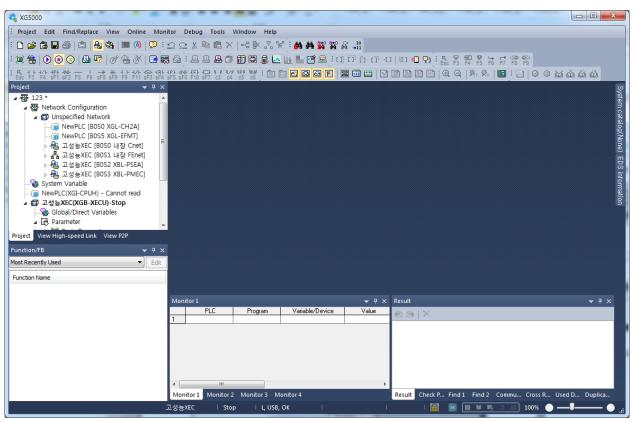
ltem		Content		
	Connection method	RS-232C, USB		
Connection		Local/Remote Connection setting		
option		Local: Direct connection between PC and Main unit		
setting	Step of connection	Remote: Indirect connection between PC and Main		
		unit through other communication module.		
	Time out	1~90 second		
General	Retry	1~9 times		

[Table 6.2.3] Contents of Connection setting window

After connection, if you select [Online] →[Diagnosis]→ [I/O information], it searches all communication modules and register them automatically



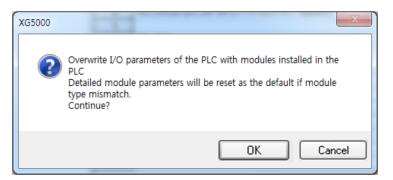
[Figure 6.2.7] Read IO Information



In case that Pnet is installed in slot 3, it is automatically registered as below.

[Figure 6.2.8] Standard setting screen

At this time, if current information is different with already registered information, the following message appears.



[Figure 6.2.9] IO change message window

6.3 High-speed Link parameter setting

6.3.1 Introduction of High-speed Link

XGT series provide 2 kinds of communication ways. Those are P2P, HS link. HS link is used for a lot of data processing at once cyclically. Pnet module provide HS link. It can update output data or input data by using cycle set between main unit and Pnet master. The parameter setting method is as shown below.

- 1) Download configuration data to Pnet module by using PROFICON.
- 2) Upload configuration data in XG5000
- 3) Set Read/Write device area in HS link block.
- 4) Download parameter to main unit in XG5000.
- 5) Enable HS link.

Data size can be set 1~ 244 bytes per station and communication cycle can be set from 20ms to 10s.

Remark

- 1) In case of Pnet HS link, 1 block means 1 slave. The blocks can be set by Max. 64 and each block can use Max. 244 bytes.
- 2) HS link communication cycle means receiving and sending cycle between main unit and Pnet master module. Communication cycle between master and slave module is set by bus parameter of PROFICON.

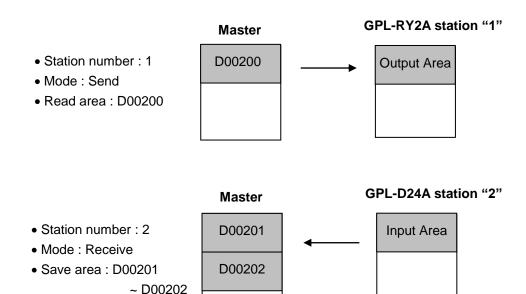
6.3.2 High-speed Link Send/Receive Data Processing

For the application example of High-speed link, the master station "0" and slave stations "1" and "2" (GPL-RY2A, GPL-D24A) are to share data with each other.

Setting is as follows;

ſ

- 1) The master station "0" transmits 2 bytes of D00200 data to the slave station "1".
- 2) 4 bytes of the data received from the station "2" are saved on D00201, D00202.



[Figure 6.3.1] Block diagram of High-speed link process

6.3.3 High Speed Link Parameter Setting

High-speed link parameter setting is set in High-speed link screen in XG5000. Communication module can be equipped with maximum 2 modules per a main unit in XGB.

1) Communication module and Communication period setting

If add the High-speed link in the screen of project, Communication module settings is opened. In this screen, communication module, communication period and output data in case of emergency can be specified.

Refer to the module to the module betwy both throws the Image: Internet to the module to th		Communication n	nodule settings	
Image:		Communication	module settings	
Module type: Number 1 Module type: <td< td=""><td></td><td>Connenterior</td><td>inodale betangb</td><td></td></td<>		Connenterior	inodale betangb	
Notified		Module type:	XBL-PMEC	T
Next • • • • • • • • • • • • • • • • • • •				
Image: Sol Vo.: User With Configuration Image: Sol Vo.: User With Configuration <td></td> <td>Base No.:</td> <td>00 👻</td> <td></td>		Base No.:	00 👻	
Image: Provide Nation Provide Natin Provide Nation Provide Nation Provide Nation	· 🖶 123 *	cl.u.v.	02 -	
Image: Next (2000 Suc, CHA) Image: Next (2000 Suc, CHA) Image: Next (2000 Suc, CHA) Image: Next (2000 Suc, CHA) Image: Next (2000 Suc, CHA) Image: Next (2000 Suc, CHA) Image: Next (2000 Suc, CHA) Image: Next (2000 Suc, CHA) Image: Next (2000 Suc, CHA) Image: Next (2000 Suc, CHA) Image: Next (2000 Suc, CHA) Image: Next (2000 Suc, CHA) Image: Next (2000 Suc, CHA) Image: Next (2000 Suc, CHA) Image: Next (2000 Suc, CHA) Image: Next (2000 Suc, CHA) Image: Next (2000 Suc, CHA) Image: Next (2000 Suc, CHA) Image: Next (2000 Suc, CHA) Image: Next (2000 Suc, CHA) Image: Next (2000 Suc, CHA) Image: Next (2000 Suc, CHA) Image: Next (2000 Suc, CHA) Image: Next (2000 Suc, CHA) Image: Next (2000 Suc, CHA) Image: Next (2000 Suc, CHA) Image: Next (2000 Suc, CHA) Image: Next (2000 Suc, CHA) Image: Next (2000 Suc, CHA) Image: Next (2000 Suc, CHA) Image: Next (2000 Suc, CHA) Image: Next (2000 Suc, CHA) Image: Next (2000 Suc, CHA) Image: Next (2000 Suc, CHA) Image: Next (2000 Suc, CHA) Image: Next (2000 Suc, CHA) Image: Next (2000 Suc, CHA) Image: Next (2000 Suc, CHA) Image: Next (2000 Su		SIOT NO.:	03 +	
h → 2 dystic tool up orni h → 2 dystic tool up	(NewPLC (8050 XGL-CH2A)		nk 03	
A _ 2 best (001 19 from) A _ 2 best		index:	L	
Were voldes Image: Construction Period type: 20 msec Image: Voldes Voldes Image: Voldes Voldes Image: Voldes Voldes Image: Voldes Voldes Image: Voldes Voldes Image: Voldes Voldes Image: Voldes Voldes Image: Voldes Voldes Image: Voldes Voldes Image: Voldes Voldes Image: Voldes Voldes Image: Voldes Voldes Image: Voldes Voldes Image: Voldes Voldes Image: Voldes Voldes Image: Voldes Voldes Image: Voldes Voldes Image: Voldes Voldes Image: Voldes Voldes Image: Voldes Voldes Image: Voldes Voldes Image: Voldes Voldes Image: Voldes Voldes Image: Voldes Voldes Image: Voldes Voldes Image: Voldes Voldes Image: Voldes Voldes Image: Voldes Voldes Image: Voldes Voldes Image: Voldes Voldes Image: Voldes Voldes Image: Voldes Voldes Image: Voldes Voldes Image: Voldes Voldes Image: Voldes Voldes Image: Voldes Voldes Image: Voldes Voldes Image: Voldes Voldes Image: Voldes Voldes Image: Voldes Voldes Image: Voldes Voldes Image: Voldes Voldes Image: Voldes Voldes Image: Voldes Voldes Image: Voldes Voldes Image: Voldes Voldes Image: Voldes Voldes Image: Voldes Voldes				
- @ arthystocol CUB-CUB-CUB - @ arthystocol trul		Communication	period settings	
A is a child over thanker i i i i i i i i i i i i i i i i i i i		Deviad horses	20	
CB Parameter Por Applicated Links Vere #20		Period type:	20 msec	
Application 1 ····································	- Real Detarmeter			
Auditor®	Project Wew High-speed Link Wew P2P	Output data set	ttings in case of emergency	
Andron Name Montor () * # X trand * # X trand * # X CPU stop: © Latch © Clear				0.1
Mondard Vacada Service Value of the New York Vacada Service of t	Most Recently Used	CPU error:	C Latch	 Clear
Models V V 2 X Instit V 2 X 1 PLC Pogen VendelsCerois Vena (E (2) X 2 X 2 X 2 X 2 X 2 X 2 X 2 X 2 X 2 X	Function Name	COllectory		() Clear
PLC Program Vandes/Cercice Value (P) (P) ×	Monitor1 v 3 x Result v 3 x	CPU stop:	O Lato	Cical
OK Cancel	e p			Cancel
Londer1 Montel 2 Montel 4 Regil Cred P., Fred T. Fr				

[Figure 6.3.1] Communication module setting

Items			Description		
		Module type	Select Pnet I/f module		
Communic		Base No.	Setting of base position installed Range of Setting: 0 ~ 7 (varying depending on the CPU module)		
module set	tings	Slot No.	Setting of slot position installed		
		5101 INO.	Range of Setting: 0 ~ 11		
			- Range of setting: 10ms, 20 ms, 50 ms, 100 ms, 200 ms, 500 ms, 1s,		
Communio	otion		5s, 10s, (default is 20 ms)		
Communic		Period type	- This applied to Send data		
period sett	ings		- But Receive data will be processed in every scan end regardless		
	[of communication period.		
Output data	CPU	Latch	Keeps its output status		
setup in	error	Clear	Clears all outputs		
case of	case of CPU Late		Keeps its output status		
emergency settings	stop	Clear	Clears all outputs		

[Table 6.3.1] Communication module setting

After communication	mc	du	le sett	ing, y	/ou ca	an see [F	igure 6.	3.2]			
🔩 123 - XG5000											x
Project Edit Find/Replace View Online Me	onitor	Debug	Tools Win	dow Help							
: D 🚅 🛱 🖬 😂 🖄 🚇 🚳 🔟 📀	D \$\$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$										
:	55 Q	: <u>_</u>	8.00			≜ំញពិកព	-ca tca 📵 🖓 🗄		00 00 F8 F9		
Esc F3 F4 sF1 sF2 F5 F6 sF8 sF9 F9 F11 sF3 sF										សំណ័ណ៍ណ៍	
Project	10000		XEC - HS Link 03				İ	i and i and i and i			· v
▲ 🐺 123 *	<u>^</u>	ndex	Master Station	station number	Mode	Read area	Variable name	Variable name comment	Sending data	Save area ^	ystern
Wetwork Configuration A - Configuration		0	No						(Byte)		nca
▷ 응, HIGHXEC [BOSO 내장 Cnet]		1								E	talo
>-K HIGHXEC [BOS1 내장 FEnet]	=	2									β()
HIGHXEC [BOS2 XBL-PSEA]		3									ne)
HIGHXEC [BOS3 XBL-PMEC]		4									catalog(None) EDS information
NewPLC [BOSO XGL-CH2A]		5									ŝ
NewPLC [BOS5 XGL-EFMT]		7									S.
		8									atio
HIGHXEC(XGB-XECU)-Offline		9									
Global/Direct Variables	- L	10									
Project View High-speed Link View P2P		11									
Function/FB	×	12									
Most Recently Used		14									
Function Name		15								-	
Function Name									•	4	
	Мо	nitor 1				√ ₽,	× Result			~ ₽ ×	
			PLC	Program	Variable/D	evice Value					
	1										12
	•						Paralla Charles	F-11 F-13 - C		hard D. Duralitar	
			Monitor 2 N	Ionitor 3 M	onitor 4			Find 1 Find 2 Comr		Ised D Duplica	
	HIGH)	œC.	Offline				1 I 🔒	📓 🗏 🕷 🔅	📃 100% 🕘 ·		a

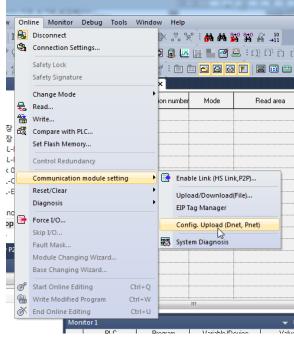
[Figure 6.3.2] Communication module setting

2) Config, Upload (Dnet, Pnet)

ſ

After communication module setting, you can use the menu of [Online] [Communication module setting] [Config. Upload (Dnet, Pnet)].

In order to upload configuration data of master, select [Online] → [Config. Upload (Dnet, Pnet)]



[Figure 6.3.2] Config. Upload (Dnet, Pnet)

The screen as below is after "Config. Upload (Dnet, Pnet)". You can use Read / save area which are blank.

	HXEC - HS Link										
Index	Master Station No	Station number	Mode	Read area	Variable name	Variable name comment	Sending data (Byte)	Save area	Variable name	Variable name comment	Receiving data (Byte)
0	0	1	Send				2				
1	0	2	Receive								4
2											
3											
4											
5											
6				•		9					
7				•							
8				Ŷ							
9				1					*****		
10											

[Figure 6.3.4] High-speed link block Setting

3) High-speed link block Setting

After uploading configuration data, input device information in the blank area.

Classification	Details						
Master Station No.	Display the N	laster station no. (0 ~ 123)					
Station No. *1	Setting range	for the slave : 1 ~ 123					
Mode *1	Ŭ	Sending : Transmit the data from master module to slave module. Receiving : Transmit the data from slave module to master module.					
Read area (Master module	XBM, XBC	Area to set the start address of device used for Sending. Setting device : P, M, K, F, T, C, U, L, D, R, ZR					
Slave module)	XEC	Area to set the start address of device used for Sending. Setting device : A, M, I, Q, R, W, F, K, L, U					
Save area (Slave module	XBM, XBC	Area to set the start address of device used for Receiving. Setting device : P, M, K, F, T, C, U, L, D, R, ZR					
→ Master module)	XEC	Area to set the start address of device used for Receiving. Setting device : A, M, I, Q, R, W, F, K, L, U					
Send data Receive data (Byte) Display input/output points of slave module by the bytes. - In case of I/O module of 8 bits or less, please set 1 byte.							

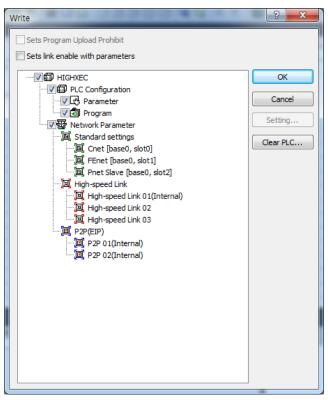
*1 : Area is not able to set

[Table 6.3.2] High-speed link block Setting

4) Write the High-speed link parameter

ſ

Click "Online" \rightarrow "Write Parameters" in XG5000, check the applicable High-speed link and then click [OK].



[Figure 6.3.5] Screen of Write the parameter

5) Enable of High-speed link

Click "Online" \rightarrow "Communication module setting " \rightarrow "Enable Link" in XG5000, check the applicable High-speed link and then click [Write]. If High-speed link is enabled, on the module's LED display High-speed LED will be On, when High-speed link starts.

٦

Enable Link(HS Link,P2P)	23
tt NewPLC High-speed Link High-speed Link 01 High-speed Link 02 P2P(EIP) P2P(EIP) 01 P2P(EIP) 02 P2P(EIP) 03	
Write Clos	e

[Figure 6.3.5] Screen of Link Enable

6.4 High-speed Link Information

With High-speed link service used to exchange data between communication modules of two or more stations, it provides a checking method of High-speed link service status for the user through High-speed link information so to confirm reliability of the data read from the destination station via the High-speed link.

In other words, the communication module synthesizes the data received up to that time at intervals of a specific time and lets the user know if High-speed link operates as in parameters specified by the user through High-speed link information where the whole information of Run-link(_HSxRLINK) and Link-trouble(_HSxLTRBL) to provide the whole information of the communication network, and the individual information of _HSxSTATE, _HSxTRX, _HSxMOD and _HSxERR to provide communication status for 64 register items in the parameters are contained.

Classification	Run-link	Link-trouble	Send/Receive status	Operation Mode	Error	High-speed link status
Information type	Whole	Whole	Individual	Individual	Individual	Individual
monnation type	information	information	information	information	information	information
Keyword name (x=High-speed link No. n= High-speed link station No.)	_HSxRLINK	_HSxLTRBL	_HSxTRX[n] (n=0.63)	_HSxMOD[n] (n=0.63)	_HSxERR[n] (n=0.63)	_HSxSTATE[n](n=0.63)
Data type	Bit	Bit	Bit-Array	Bit-Array	Bit-Array	Bit-Array
Monitor	Available	Available	Available	Available	Available	Available
Program	Available	Available	Available	Available	Available	Available

[Table 6.4.1] High-speed link information function

The user can use the information in keyword format when programming, and also monitor the High-speed link status using the monitor function of the High-speed link information. Prior to its application, the user is requested to check the reliability of the Send/Receive data through High-speed link information of Run-link and Link-trouble when operating several PLCs with High-speed link used.

[Table 6.4.1] below shows functions and definition of the High-speed link information.

×		PLC	Туре	Device	Value	Variable	Comment
	1	NewPLC	BIT	L000000	10 On	_HS1_RLINK	All stations are OK in HS link 1
	2	NewPLC	BIT	L 000001	10 Off	_HS1_LTRBL	Trouble after _HS 1 RLINK on
	3	NewPLC	BIT	L 000020	10 On	_HS1_STATE000	Total states of HS link 1-block 000
	4	NewPLC	BIT	L 000021	1 <u>0</u> On	_HS1_STATE001	Total states of HS link 1-block 001
	5	NewPLC	BIT	L 000101	10 On	_HS1_MOD001	Operation mode of HS link 1-block 001
	6	NewPLC	BIT	L000102	10 Off	_HS1_MOD002	Operation mode of HS link 1-block 002
Window	7	NewPLC	BIT	L000180	10 On	_HS1_TRX000	Normal communication with HS link 1-block 000
Win	8	NewPLC	BIT	L000181	10 On	_HS1_TRX001	Normal communication with HS link 1-block 001
oring	9	NewPLC	BIT	L000260	10 Off	_HS1_ERR000	Error mode of HS link 1-block 000
Monitoring	10	NewPLC	BIT	L 000261	<u>10</u> Off	_HS1_ERR001	Error mode of HS link 1-block 001
ble N	11]		
I1 Wonitor 1 ∧ Monitor 2 ∧ Monitor 3 ∧ Monitor 4 /							

[Figure 6.4.1] Mo	onitor window of variables
-------------------	----------------------------

1) Run-link (_HSxRLINK)

As the whole information it shows whether High-speed link is normally executed through the user defined parameters, whose contact will be kept 'On' if once 'On' until Link Enable is 'Off', and also will be 'On' under the conditions specified below.

- ① If Link Enable is 'On'.
- 2 If all the register list settings of parameters are specified normally.
- ③ If all the data applicable to the parameters register list is transmitted and received as specified in the period or

If the status of all the destination stations specified in the parameters is Run and with no error at the same time.

2) Link-trouble (_HSxLTRBL x=HS link No.(1~2))

As the whole information it shows whether High-speed link is normally executed through the user defined parameters, which will be 'On' if Run-link 'On' condition is violated when Run-link is On, and will be off if the condition is recovered.

3) Send/Receive (Tx/Rx) status (_HSxTRX[0..63] x=HS link No.(1~2))

As individual information it shows the operation status of High-speed link parameters on the register list up to 64 registered items'Send/Receive information. If the Send/Receive operation of the registered items is agreeable to the Send/Receive period, the applicable bit will be On, and if not, it will be Off.

4) Operation mode (_HSxMODE[0..63] x=HS link No.(1~2))

As individual information it shows the operation status of High-speed link parameters on the register list up to 64 registered items' operation mode information just like the max. register number. If the station specified in the register item is in Run mode, the applicable bit will be On, and if in Stop/Pause/Debug mode, it will be Off.

5) Error (_HSxERR[0..63] x=HS link No.(1~2))

As individual information it shows the operation status of High-speed link parameters on the register list up to 64 registered items' error information just like the max. register number. The error displays the general status of the PLC which fails to execute the user program. If the destination station PLC is normal, it will be Off, and if abnormal, it will be On.

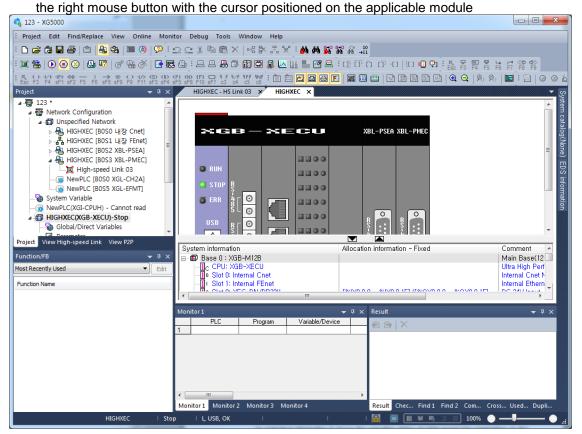
6) High-speed link status (_HSxSTATE[0..63] x=HS link No.(1~2))

As individual information it shows the operation status of High-speed link parameters on the register list up to 64 registered items' High-speed link status just like the max. register number, which synthesizes the information of the individual items to display the general information of the registered items. In other words, if the applicable list's Send/Receive status is normal with the operation mode of Run and with no error, it will be On, and if the conditions above are violated, it will be Off.

6.5 Monitor of High-speed link information

High-speed link information can be checked through the variable monitor on the monitor menu after XG5000 is Online connected, or through the XG5000 diagnosis service.

- 1) High-speed link monitor from the XG5000 diagnosis services
 - (1) Select XG5000's "Online" \rightarrow " Communication module setting" \rightarrow "System Diagnosis." \rightarrow Click



[Figure 6.5.1] System Diagnosis

Item	Details
Communication module information	Displays the information of communication module
High Speed Link	Displays the information of high speed link
Auto scan	Displays the information of the slave configuration

[Table 6.5.1] System diagnosis

(2) Module Information

ommunication Module Inform	ation 2 X				
Displays the general information of communication module.					
List	Context				
Module kind XBL-PMEC					
Base Number 0 Slot Number 3					
Hardware Error	Normal				
Hardware Version Ver. 1.00					
0/S Version	Ver. 1.00				

1

[Figure 6.5.2] Communication module information

Classification	Details
Module type.	XBL-PMEA
Base Number.	Displays the base number (0)
Slot Number	Displays the slot no.(1~10), depending on main unit type
Master Station no.	Displays the master station number
Hardware status	Displays the hardware status
Hardware version	Displays the hardware version
Software version	Displays the software version

[Table 6.5.4] Communication module information

(3) High Speed Link

Standa	rd information			Total HS link information			
Base N	ło.: 0	Network Speed:	1.5 Mbps	The serv	vice is not set.		
Slot No	o.: 3	Master	0	(Run link	:: 0, Link trouble: 0)		
dividua	l HS link information	:					
Index	Master Station No	Station number	Module type	Transmission	Transmission Consistency Over	Reception	Reception Consistency Ove
0	0	1	Output Type Input type	2Byte	ByteOrWord	4Byte	ByteOrWord
•							

[Figure 6.5.3] High Speed Link

Item		Details			
	Base no.	Displays the base no.(0)			
Basic information	Slot no.	Displays the slot no.(1~10)			
	Communication	Displays the communication speed by bps unit			
Information	speed	(9,600 bps ~ 12Mbps)			
	Master station no.	Displays the master station no.(0~123)			
Total	Run Link	Displays the flag of Run Link			
information of high speed link	Link trouble	Displays the flag of Link Trouble			
	Master station no.	Displays the master station no.(0~123)			
	Station no.	Displays the slave station no.(0~123)			
	Module type	Displays the Transmission or Reception type			
	Transmission	Master module \rightarrow Slave module			
	Transmission Consistency Over	ByteOrWord: Consistency supports for a node Whole Length: Consistency supports for whole blocks.			
	Reception	Slave module → Master module			
	Reception	ByteOrWord: Consistency supports for a node			
O an anata	Consistency Over	Whole Length: Consistency supports for whole blocks.			
Separate information	Total size	Displays the size of Transmission/Reception byte			
of high speed	Mode	Displays the mode of Profibus-DP communication mode (Run, Stop)			
link	Status of Transmission or Reception	Displays the information of Transmission/Reception between master and slave (Normal, Error)			
	Status of high	Displays the information of high speed link between master and			
	speed link	slave (Normal, Error)			
	Error	 Displays the error information between master and slave (Normal, Error) There are 2cases of errors as below a) In case that slaves doesn't exist on the network, after slaves is configured in PROFICON. b) In case that slaves exist on the network, after slaves is not configured in PROFICON. 			

Г

[Table 6.5.3] High Speed Link

(4) Autoscan

Autoscan		$\mathbf{ imes}$
Standard information	Additional information	Status information
Base Number: 0	Master st: 0	Module Status: OPERATE
Slot Number: 0	Speed: 1.5 Mbps	HS link status: HS_IDLE
4 6 GPL-TR2A/B/C GPL-D2	7 2A/C XPL-BSSA	
		1 1
		Multiple Reading Refresh Close

٦

[Figure 6.5.4] Autoscan

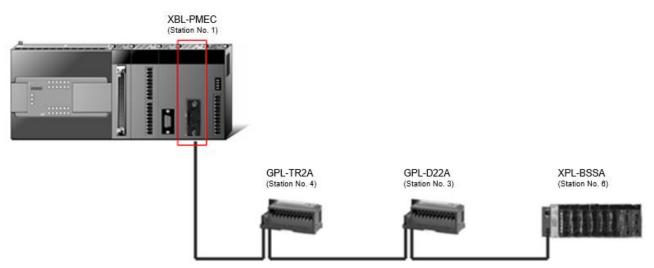
Item		Details	
Basic	Base no.	Displays the base no.(0)	
information	Slot no.	Displays the slot no.(1~10), depending on main unit	
Added	Master station no.	Displays the master station no.(0~123)	
information	Communication speed	Displays the communication speed by bps unit (9,600 bps ~ 12Mbps)	
Status	Status of communication module	Displays the status of communication module	
information	Status of high speed link	Displays the status of high speed link	

[Table 6.5.4] Autoscan

Chapter 7 Program Example

7.1 Example of communication with XBL-PMEC

This example shows a program that is installed on No. 0 slot of XGT No. 0 base, sending and receiving data to Smart I/O module(Station Number 3 and 4) and Extended Smart I/O Pnet(Station 6).



[Figure 7.1.1] I/O Structure and Sending/Receiving Data

	Slave		Master			
Station No.	Module name		Mode	Read Area	Save Area	Size (byte)
4	GPL	-TR2A	Sending	M0000(2byte)	-	2
3	GPL-D22A		Receiving	-	M0200(2byte)	2
	XBE-TN32A XBE-DC32A XBF-AD04A XBF-AD04A XBF-DV04A XBF-DC04A XBF-RD04A XBF-RD04A XBE-RY16A	Sending	M0000(4byte)	-		
		XBE-DC32A	Receiving	-	M0311(4byte)	-
		XBF-AD04A	Receiving	-	M0313(8byte)	
6		XBF-DV04A	Sending	M0302(8byte)	-	Sending(22byte)/ Receiving(20byte)
		XBF-DC04A	Sending	M0306(8byte)	-	
		Receiving	-	M0317(8byte)		
		XBE-RY16A	Sending	M0310(2byte)	-	

[Table 7.1.1] High-Speed Link Sending/Receiving Map

In the table above, XBC-H type main unit sends 2 byte data in M0000 area to GPL-TR2A and 22 byte data in M0300~0310 area to XPL-BSSA and saves 2 byte (16 points) input data of GPL-D22A in M0200 area of XBC-H type main unit and 20 byte input data of XPL-BSSA in M0311~3020 area of XBC-H type main unit.

7.2 PROFICON settings

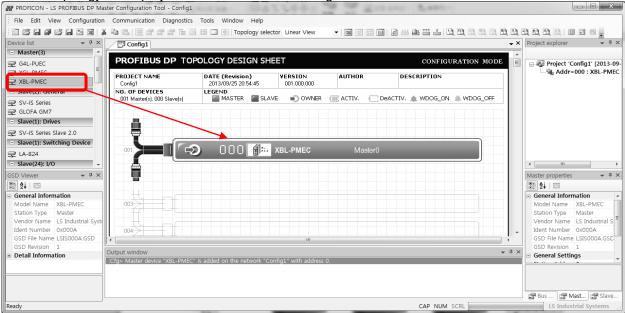
To exchange data between the systems as in [Figure 7.1.1], it is convenient for the user to write high-speed link sending/receiving map. In addition, it is necessary to write high-speed link parameters after setting Network Configuration through PROFICON and download to PLC in order to send/receive data as in [Table 7.1.1].

Once PROFICON is executed, a new project window becomes active as follows:

PROFICON - LS PROFIBUS DP Ma	aster Configuration Tool - Config1				Ward and the					
File Edit View Configuration	n Communication Diagnostics	Tools Window Help								
		🗉 🗔 🔄 Topology selecto	r Linear View	▼ (目 ??)		H D. H.	9, 19, 19, 19,	?), T),	8 8 8 1	121
Device list 👻 👎 🗙	Config1							🕶 🗙 🛛 Pr	oject explorer	→ ∓ ×
- Master(3)								*		
€ G4L-PUEC	PROFIBUS DP TO	POLOGY DESIGN SHE	ΞT		C	ONFIGURATI	ON MODE	8	Project 'C	Config1' [2013-09-
🖵 XGL-PMEC	PROJECT NAME	DATE (Revision)	VERSION	AUTHOR	DESCRIP	TION				
I SBL-PMEC	Config1	2013/09/25 20:54:45	001.000.000	AOTHOR	DESCRIP	110N				
Slave(2): General	NO. OF DEVICES	LEGEND								
	000 Master(s), 000 Slave(s)	MASTER SLAVE	N OWNER	IIII ACTIV.	C Deactiv. 🌲 WE	DOG_ON 🔍 WI	DOG_OFF			
🖵 GLOFA GM7										
Slave(1): Drives	+++									
⊋ SV-iS Series Slave 2.0										
Slave(1): Switching Device										
모 LA-824	001									
- Slave(24): I/O -								4		- F
GSD Viewer	002							BI	us parameter	▼ ₽ ×
									2↓ □	
General Information									General Setti	nas 🄺
Model Name	003								Input Mode	Standard Valu
Station Type									Baudrate	1500 kBits/s _≡
Vendor Name									Detail Setting	
Ident Number	004								Tsl (tBit)	300
GSD File Name GSD Revision 0	•)	•	Tsdr Min (tBit)	11
Detail Information	Output window						•	Ψ×		150
									# 1.4800	*
								1,4	Bus MR N	/last 😭 Slave
Ready					CA	P NUM SCRL				strial Systems
(neady						TON SCRE	_	-	co muus	and systems

[Figure 7.2.1] Initial Execution Screen: New Project Window

For network configuration, the master module (XBL-PMEC) should be composed first. Select XBL-PMEC from the device list window on the left and drag and drop on the topology in the project window as seen in the figure below.



[Figure 7.2.2] Insert Master module

Now the user should compose slave module. It can be either to set it up manually, or search slave module existing in current network automatically and set it up.

However, at this time, the GSD file of slave module to be composed should be in the GSD directory (See [Figure 7.2.3]) of PROFICON installation directory. The GSD file is provided by the company manufacturing such slave module.



[Figure 7.2.3] Directory of PROFICON Installation

(1) Setting manually

As in setting the Master module, drag a selected slave from the device list on the left and drop it on the topology.

PROFICON - LS PROFIBUS DP Ma	aster Configuration Tool - Config1	18		- 22 44	+9	
File Edit View Configuration	n Communication Diagnostics	Tools Window Help				
	N D D B F F F B	🗉 📄 🄄 Topology selector Linear View				
Device list 👻 🕂 🗙	Config1			. ×	Project explorer	~ ₽ ×
GPL-DC4C ^				•		
GPL-DV4C GPL-DV4C	PROFIBUS DP TOP	DLOGY DESIGN SHEET		CONFIGURATION	Project 'Config1' [2	2013-09-27-18:43:55]
GPL-D22A/C GPL-D22A/C					Addr=000 : XB	
GPL-D24A/C GPL-D24A/C	PROJECT NAME Config1	DATE (Revision) VERSION 2013/09/27 18:43:55 001.000.000	AUTHOR DES	CRIPTION	Addr=001 :	GPL-DT4A/B/C
GPL-DT4A/B/C	NO. OF DEVICES	LEGEND				
GPL-TR2A/B/C	001 Master(s), 001 Slave(s)	MASTER SLAVE OWNE	R (III: ACTIV. C DeACTIV.	WDOG_ON MWDOG_		
GPL-TR4A/B/C						
GPL-RY2A/C GPL-RY2A/C						
GPL-AC8C					Slave properties	▼ # ×
GPL-AV8C GPL-AV8C						* † ^
₽ GPL-DV4C						
♀ GPL-DC4C	00 🛁 🗌 🖘) 000 🗍 🔐 XBL-PMEC	Master0		General Information	
👤 XGL-PSRA					Model Name	GPL-DT4A/B/C
👤 XPL-BSSA 👻					Station Type	Slave
GSD Viewer → # ×		: 🔔 🛛 🖓 1 📟 gpl-dt4a/b	C Slave1	In:01 Out:01	Vendor Name	LS Industrial Systems Co., Ltd
		-			Ident Number GSD File Name	0x07B3 LGIS07B3.GSD
					GSD File Name GSD Revision	2
General Information					General Settings	2 8
Model Name GPL-DT4A/B/C					Assigned Master	Addr=000 : XBL-PMEC
Station Type Slave					Station Address	1
Vendor Name LS Industrial Syste	004				Description	Slave1
Ident Number 0x07B3 GSD File Name LGIS07B3.GSD					Activate Device	Activate
GSD Revision 2		· · · · · · · · · · · · · · · · · · ·			Watchdog Control	Enable
Detail Information					 Data Settings 	LINDIC
Detail Information	Output window			₩ ₽ ×	Parameter Data	(Default)
	:Cfg> Master device "XBL-PMEC" i	s added on the network "Config1" with addre " is added on the network "Config1" with ad	ess 0.			(origan)
	.crg> slave device GPL=D14A/B/C	. Is added on the network Connig1. with ad	UIC55 1.			
						ster Properties Slave Properties
Ready				CAP NU	JM SCRL	LS Industrial Systems

[Figure 7.2.4] Add Slave Module (Manual Setting)

Change the station number of the slave module in the Slave Properties window on the left bottom as seen in [Figure 7.2.5]. To activate this window, select a Slave from the topology.

SI	ave properties	▼ ₽	×
•	₽ ₽↓		
	General Information		*
	Model Name	GPL-DT4A/B/C	
	Station Type	Slave	
	Vendor Name	LS Industrial Systems Co., Ltd	
	Ident Number	0x07B3	
	GSD File Name	LGIS07B3.GSD	
	GSD Revision	2	=
ſ	General Settings		
	Assigned Master	Addr=000 : XBL-PMEC	
I	Station Address	1	
	Description	Slave1	
	Activate Device	Activate	
	Watchdog Control	Enable	μ
Ξ	Data Settings		
	Parameter Data	(Default)	Ŧ
	🖥 Bus Parameter 😭 Master Pi	roperties 😭 Slave Properties	
М	SCRL	LS Industrial Systems	at

Γ

[Figure 7.2.5] Change Slave Properties

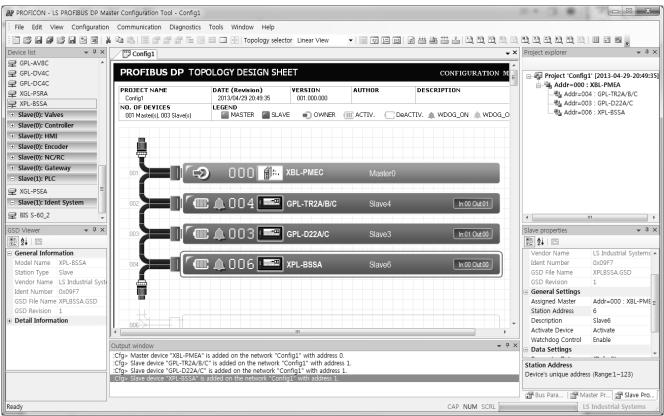
If station number and description properties are changed, the changed number and properties are immediately reflected on the project window as seen in the figure below.

PROFICON - LS PROFIBUS DP M	aster Configuration Tool - Config1	Seen Seen	sound Mar	fer many	a words				
File Edit View Configuration	n Communication Diagnostics	Tools Window Help							
	X D B B B B B B B B B B B B B B B B B B	💷 🗔 🗿 Topology select	or Linear View	▼ (8 \$ \$		6 III 🕹 🖂 🗄		9. 79. 69. 69. 69. 69	
Device list 👻 🖣 🗙	Config1						. ×		₩ ₽ ×
Slave(1): Switching Device							*		
₽ LA-824	PROFIBUS DP TO	POLOGY DESIGN SHE	EI			CONFIGURA	TION MO		nfig1' [2013-10-01-0!
Slave(24): I/O	PROJECT NAME	DATE (Revision)	VERSION	AUTHOR	DESC	RIPTION			00 : XBL-PMEC =004 : GPL-TR2A/B/C
🖵 1734-APB	Config1	2013/10/01 09:40:24	001.000.000					Audi	=004 . GPL-1K2A/B/C
₽ T1H-PBC E	NO. OF DEVICES 001 Master(s), 001 Slave(s)	MASTER SLAV	OWNER	(ACTIV. (WDOG_ON	WDOG OFF		
GPL-D22A GPL-D24A									
₽ GPL-RY2A									
₽ GPL-TR2A									
GPL-TR4A		000 👔 🖬		Maste	0				
gpl-AC8C		y uuu 💵 .	XBL-PIMEC	Maste	eru				
I GPL-AV8C									
🖵 GPL-DC4C 👻		C 🏔 004 💷 ·	GPL-TR2A/B/C	Slave	•1	In:00 Out	01	۰ III	+
GSD Viewer 👻 👎 🗙								Slave properties	→ ╄ ×
								2+ C	
General Information								Vendor Name	LS Industrial Syst 🔺
Model Name GPL-TR2A/B/C								Ident Number	0x07B4
Station Type Slave								GSD File Name	LGIS07B4.GSD
Vendor Name LS Industrial Syste Ident Number 0x0784	004							GSD Revision	2
GSD File Name LGIS07B4.GSD									Addr=000 : XBL-
GSD Revision 2								Station Address	
Detail Information							▼ ₽ ×	Description	Slave1
	Output window :Cfg> Master device "XBL-PMEC"	is added on the network "Cor	fig1" with address (`			▼ + ×	Activate Device	Activate 🕌
	:Cfg> Slave device "GPL-TR2A/B	C" is added on the network "C	onfig1" with address	s 1.				Station Address	- Cashla
									dress (Range:1~123)
								🔐 Bus Pa 😭 N	1aster 😭 Slave P
Ready					c	CAP NUM SCRL		LS Inc	dustrial Systems

[Figure 7.2.6] Topology after properties are changed

Set remaining GPL-D22A through the process described above.

However, for XPL-BSSA as extended slaves, it is necessary to add module data. Set XPL-BSSA on the topology first through the process above as in the following figure



[Figure 7.2.7] Add Extended XPL-BSSA

Press module data in the Slave Properties window to make the slave module setting window appear. Set modules in sequence through this setting window (See [Figure 7.2.8])

Slot	Module	Туре	I Len.	O Len.	Content
1	Digital Output	QB	-	4	Digital output 4byte(XBE-TN32A)
2	Digital Input	IB	4	-	Digital input 4byte(XBE-DC32A)
3	Analog Input	IB	8	-	Analogue input 8byte(XBF-AD04A)
4	Analog Output	QB	-	8	Analogue output 8byte(XBF-DV04A)
5	Analog Output	QB	-	8	Analogue output 8byte(XBF-DC04A)
6	Analog Input	IB	8	-	Analogue input 8byte(XBF-RD04A)
7	Digital Output	QB	-	2	Digital output 2byte(XBE-RY16A)

Double click a module from Module Selection to insert it to the setting table below. Repeat this process until all of the wanted modules are inserted to the table. To delete a module from the table, double click the module to be deleted.

lave	nt Slav Name 306) XF				Assi • Of Add:			r Name MEC				OK Cance
4odul	le Sele	otion			,							Cance
nouu		cuon		odule Name	Inputs	Outpu	rto.			ld	lentifier	
1	Digital	Input 1		Iodule Manle	1 BYTE	outpu		0x10		10	ier kiner	-
2	Digital				2 BYTE			0x10				
3	Digital				4 BYTE			0x13				-
4	Digital					1 BY1		0x20				
5	Digital					2 BY1		0x21				
6	Digital					4 BY1		0x23				
7	Analog					8 BY1	TE I	0x27				
8	Analoo				8 BYTE			0x17				
9							_					
10												
nnut I	Data (E	lute`		Output Data (Byte)	In/Out	nut Dat	a (Bu	ite)			Number of Modules	
iput i	bata (E	, y (0)		odipar bala (byle)		pat bat	a (by					_
120 / 1	Max 03	32		022 / Max 032	042 / N	4ax 06	4				007 / Max 008	
	Insert			General Information		Input			Output		General Settings	
	Insert	Slot	ldx.	Configured Module Name	Туре	Add.	Len	. Туре	Add.	Len.	Module Descriptio	n
1		0	1	Digital Output 4byte				BYTE	2	4		
2		1	1	Digital Input 4byte	BYTE	2	4					
3		2	1	Analog Input 4Channel	BYTE	6	8					
4		3	1	Analog Output 4Channel				BYTE	6	8		
5		4	1	Analog Output 4Channel				BYTE	14	8		
6		5	1	Analog Input 4Channel	BYTE	14	8					
7		6		Digital Output 2byte				BYTE	22	2		
8	>											
9												
10												

Г

[Figure 7.2.8] Slave Module Setting

Setting a network is completed (See [Figure 7.2.9]). Now, a bus parameter needs to be set.

REPROFICON - LS PROFIBUS DP Ma	aster Configuration Tool - Config1					
File Edit View Configuration	n Communication Diagnostics	Tools Window Help				
		📰 🛄 🏝 Topology selector Linear View			88888	
Device list 👻 🕂 🗙	Config1			• ×	Project explorer	* # ×
GPL-AV8C ▲						
GPL-DV4C GPL-DV4C	PROFIBUS DP TOP	OLOGY DESIGN SHEET		CONFIGURATION M	Project 'Config	1' [2013-04-29-20:49:35]
GPL-DC4C GPL-DC4C	PROJECT NAME	DATE (Revision) VERSION	AUTHOR D	ESCRIPTION	Addr=000	
SGL-PSRA	Config1	2013/04/29 20:49:35 001.000.000	AUTION	LICKIPTION		04 : GPL-TR2A/B/C
XPL-BSSA Slave(0): Valves	NO. OF DEVICES	LEGEND				03 : GPL-D22A/C 06 : XPL-BSSA
+ Slave(0): Valves + Slave(0): Controller	001 Master(s), 003 Slave(s)	MASTER SLAVE 🔊 OWNE	R IIII ACTIV. C DEACTIV	. 🔔 WDOG_ON 🌲 WDOG_O		
Slave(0): Controller Slave(0): HMI						
Slave(0): Encoder						
Slave(0): NC/RC						
+ Slave(0): Gateway						
- Slave(1): PLC) 000 🗍 🔤 XBL-PMEC	Master0			
Slave(1): Ident System		🕻 🔔 🛛 🖓 🔚 📟 gpl-tr2a/b	C Slave4	In:00 Out:01		
₽ BIS S-60_2 +					•	4 III
GSD Viewer 👻 म 🗙		C 🔔 0 0 3 📟 gpl-d22A/C	Slave3	In:01 Out:00	Slave properties	₩ ₽ ×
2↓ □			Slaves		₽ 2↓ □	
General Information					GSD Revision	1 ^
Model Name XPL-BSSA	004	🕻 🔔 🛛 🖸 6 📟 xpl-bssa 👘	Slave6	In:03 Out:04	General Settings	
Station Type Slave					Assigned Master Station Address	Addr=000 : XBL-PME
Vendor Name LS Industrial Syste Ident Number 0x09F7					Description	5 Slave6
GSD File Name XPLBSSA.GSD					Activate Device	Activate
GSD Revision 1					Watchdog Control	Enable
Detail Information					Data Settings	E
	•			•	Parameter Data	(Default)
	Output window			→ Ͳ ×	Module Data + Detail Information	(Checked)
	:Cfg> Master device "XBL-PMEA"	is added on the network "Config1" with addr	ess O.			-
	:Cfg> Slave device "GPL-TR2A/B/ :Cfg> Slave device "GPL-D22A/C	C" is added on the network "Config1" with ac ' is added on the network "Config1" with add	dress 1. ress 1.		Station Address	
		added on the network "Config1" with addres			Device's unique addres	is (Kange:1~123)
					Bus Para	aster Pr 🔐 Slave Pro
Ready				CAP NUM SCRL		S Industrial Systems

[Figure 7.2.9] Screen of Network Setting Completion

Bus parameters are to communicate with the Master and represent communication speed and communication timing parameters. To set, select the Master from the topology and then, select "Bus Parameters" item from the "Configuration" menu to activate the "Bus Parameter" tap on the left bottom.

At this time, it is possible to set communication speed (Baudrate) of the Master module. Our Slave module Smart I/O series have a function to adjust the speed of slave to be equal with that of the Master module automatically (For other companies' Slave modules, refer to their user's manuals).

Bus parameters	▼ ╄ ×
∄ 2↓ 🗈	
🗏 General Sett	ings
Input Mode	Standard Value
Baudrate	1500 kBits/s 🗸 🗸
Detail Setting	gs
TsI (tBit)	300
🗕 Tsdr	
Min (tBit)	11
Max (tBit)	150
Tqui (tBit)	0
Tset (tBit)	1
GAP Factor	10
HSA	126
Max Retry Lim	
Tid1 (tBit)	37
Tid2 (tBit)	150
Baudrate	
😭 Bus 😭 M	1as 🍙 Slav

[Figure 7.2.10] Select a communication speed of the Master module

If the process above is completed, it can be declared that setting all of the networks is completed.

To download the Network Configuration to Pnet I/F module, select "Settings..." from the "Communication" menu and set access. After assigning a number to the slot in which the current Pnet I/F module is installed, set access as in [Figure 7.2.12].

XGT Settings		x
PROFIBUS DP Master I Base Number 0	Module Position Slot Number 4	OK Cancel

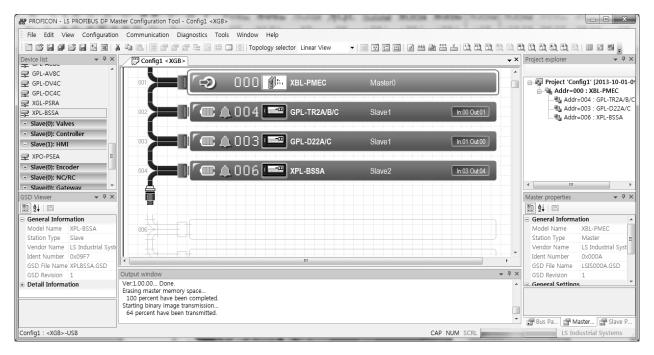
[Figure7.2.11] Communication Settings Window for XGT: Set to install Pnet I/F module

Online Settings - FOR PROFIBUS	DP ? X
Connection settings	
Type: USB	<u>S</u> ettings
<u>D</u> epth: Local ▼	<u>P</u> review
General	
Timeout <u>i</u> nterval:	5 🚔 sec.
<u>R</u> etrial times:	1
Read / Write data size in PLC rur	n mode
🔘 <u>N</u> ormal 💿 <u>M</u> aximum	
* Send maximum data size in st	op mode
ОК	Cancel

[Figure7.2.12] Setting Window to access to XGT CPU module

Once communication is connected, select 'Download Image' from the 'Communication' menu to download.

As seen in [Figure 7.2.13], the Progress Bar shows download progress and setting Pnet I/F module network are completed once download ends. Before closing this tool, save the current network project to recover the project later.



[Figure 7.2.13] Download Process

(2) Setting automatically

After setting and saving the Master module, set access according to the methods. After that, execute "Auto. Network Scan..." in the "Diagnostics" menu to make the following screen appeared. Input the Master's address and its communication speed and press the 'OK' button. Then, the module begins to scan networks.

Network Scan Settings			×
Master Parameters Detected Type XBL-PMEC	Address 0	Baudrate 1500 kBits∕s ▼	OK Cancel

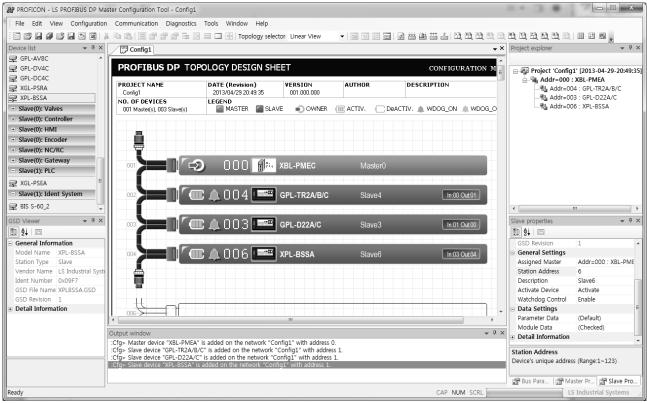
[Figure 7.2.14] Setting of Automatic Network Scan

Through the process above, PROFICON refers to GSD file of the Slave module on the current network and the data size of the relevant module and the address of the sending/receiving data supported by the module are automatically set. Then, the scanned results are shown as in [Figure 7.1.16].

_			0.0	mast	01(3) 0	110 5	slave	(37 are	anvo														0K
Add	iress)+ N	1	2	3	4	5	6	7	0	9	10+ 0	1	2	3		5	0	7	0	9		
	0 [000	001	2	3	4	005	006	007	8 008	9	010	011	2	013	4	015	6 016	017	8 018	9 019		
		020	021	002	023	024	025	026	027	000	029	030	031	032	033	034	035	036	037	038	039		
		040	041	042	043	044	045	046	047	048	049	050	051	052	053	054	055	056	057	058	059		
6	50	060	061	062	063	064	065	066	067	068	069	070	071	072	073	074	075	076	077	078	079		
8	30	080	081	082	083	084	085	086	087	088	089	090	091	092	093	094	095	096	097	098	099		
1		100	101	102	103	104	105	106	107	108	109	110	111	112	113	114	115	116	117	118	119		
1	20	120	121	122	123	124	125	126															
Leo	end			: Mas	er		: Slav	e	Num	: Dup	.Slv	Num	: Dup	Mod		: Und	defined (GSD					
	6.44			Det	ected S	lave II	Ds)etecti	ed Modu	ule ID s		Mo	dules .	/ Max.		Sele	ct	^]	
			~ " ~) Modu																			
	Add			Det	ected S	lave II	Ds)etecti	ed Modu	ule ID s		Mo	dules .	/ Max.		Sele	ct	^]	
	Add.	PNO		Mod	lel Nam	e	GSD Fi			/lodule	ID		ule IDs odule N			uts (Dutputs	Mod		Slave			
1	Add. 003	PN0 0x0			lel Nam	e			: 0)	/lodule (00 0x1	ID 1	Mo	odule N	ame			Dutputs		lule				
2				Mod	lel Nam	e	GSD Fi		: 0) 0x1	4odule (00 0x1 (00 0x1)	ID 1	Mo O Byte	odule N Out, 2	lame Byte In	Inp	uts (171	Dutputs	(Fixe	ed)	Slave			
2 3	003	0x0	7Ь1	Moo GPL-D	iel Nam 22A/C	e L	GSD Fi .GIS07E	31.GSD	: Ox Oxi Oxi	4odule (00 0x1 (00 0x1) (00 0x1)	ID 1 1	Mo	odule N Out, 2	lame Byte In	Inp	uts (1 / ' 'TE	Dutputs 1		ed)	Slave (Fixed)		
2 3 5			7Ь1	Moo GPL-D	lel Nam	e L	GSD Fi	31.GSD	: 0) 0x1 0x1 : 0)	4odule (00 0x1 00 0x1 00 0x1 (00 0x1) (21 0x0	ID 1 1 1	Mo O Byte O Byte	odule N Out, 2 Out, 2	lame Byte In Byte In	Inp	uts (17 /TE 17	Dutputs 1 1	(Fixe	ed) ed)	Slave)		
2 3 5 6	003	0x0	7Ь1	Moo GPL-D	iel Nam 22A/C	e L	GSD Fi .GIS07E	31.GSD	: 0x 0xl 0xl 0xl : 0x	4odule (00 0x1 00 0x1 (00 0x1 (00 0x1) (21 0x0 (21 0x0)	ID 1 1 1 1 0 0	Mc O Byte O Byte 2 Byte	odule N Out, 2 Out, 2 Out, 0	lame Byte In Byte In Byte In	Inp	uts (17 /TE 17	Dutputs 1	(Fixe (Fixe	ed) ed) ed)	Slave (Fixed)		
2 3 5 6 7	003	0x0	7Ь1 7Ь4	Moo GPL-D GPL-T	iel Nam 22A/C R2A/B.	e L /CL	GSD Fi .GIS076 .GIS076	31.GSD 34.GSD	: 0x 0xl 0xl : 0x 0x: 0x	4 odule (00 0x1) 00 0x1) 00 0x1) (21 0x0) 21 0x0) 21 0x0)	ID 1 1 1 0 0)	Mo O Byte O Byte 2 Byte 2 Byte	odule N Out, 2 Out, 2 Out, 0 Out, 0	lame Byte In Byte In Byte In Byte In	Inp	uts (17 17 17 2	Dutputs 1 1 2 BYTE	(Fixe	ed) ed) ed)	Slave (Fixed (Fixed)		
2 3 5 6 7 9	003	0x0	7Ь1 7Ь4	Moo GPL-D	iel Nam 22A/C R2A/B.	e L /CL	GSD Fi .GIS07E	31.GSD 34.GSD	: 0x 0xl 0xl 0x 0x 0x 0x	4odule 400 0x1 00 0x1 00 0x1 421 0x0 21 0x0 21 0x0 421 0x1	ID 1 1 1 0 0)	Mc O Byte O Byte 2 Byte 2 Byte 3 Ox23 C	odule N Out, 2 Out, 2 Out, 0 Out, 0)x23 0x	lame Byte In Byte In Byte In Byte In 20	Inp	uts (17 17 17 2 67	Dutputs 1 1 2 BYTE 8	(Fixe (Fixe (Fixe	ed) ed) ed) ed) ed)	Slave (Fixed)		
2 3 5 6 7 9 10	003	0x0	7Ь1 7Ь4	Moo GPL-D GPL-T	iel Nam 22A/C R2A/B.	e L /CL	GSD Fi .GIS076 .GIS076	31.GSD 34.GSD	: 0> 0xl 0xl 0xl 0xl 0xl 0xl 0xl 0xl	4odule x00 0x1 00 0x1 x00 0x1 x21 0x0 21 0x0 21 0x0 x21 0x1 x21 0x1 x21 0x1	ID 1 1 1 0 0)	Mc O Byte O Byte 2 Byte 2 Byte Ox23 C Digital	odule N Out, 2 Out, 2 Out, 0 Out, 0 Out, 0 X23 Ox	lame Byte In Byte In Byte In 20 2byte	2 Bh	uts (17 /TE 17 2 67 2	Dutputs 1 1 2 BYTE	(Fixe (Fixe (Fixe (Fixe	ed) ed) ed) ed) ed) ed)	Slave (Fixed (Fixed)		
2 3 5 6 7 9 10	003	0x0	7Ь1 7Ь4	Moo GPL-D GPL-T	iel Nam 22A/C R2A/B.	e L /CL	GSD Fi .GIS076 .GIS076	31.GSD 34.GSD	: 0x 0xl 0xl 0x 0x 0x 0x	4odule 400 0x1 00 0x1 421 0x0 21 0x0 21 0x0 421 0x1 421 0x1	ID 1 1 1 0 0)	Mc 0 Byte 0 Byte 2 Byte 2 Byte 0x23 0 Digital Digital	Out, 2 Out, 2 Out, 0 Out, 0 Out, 0 X23 0x Output Input 4	lame Byte In Byte In Byte In 20 2byte byte	Inp	uts (1 / ' 'TE 1 / ' 2 6 / ' 2 'TE	Dutputs 1 1 2 BYTE 8	(Fixe (Fixe (Fixe	ed) ed) ed) ed) ed) ed) ed) ed)	Slave (Fixed (Fixed)		
2 3 5 6 7 9 10 11 12	003	0x0	7Ь1 7Ь4	Moo GPL-D GPL-T	iel Nam 22A/C R2A/B.	e L /CL	GSD Fi .GIS076 .GIS076	31.GSD 34.GSD	: 0x 0xl 0xl 0xl 0x 0x 0x 0x 0x 0x	4odule 400 0x1 00 0x1 421 0x0 21 0x0 21 0x0 421 0x1 21 0x1 13 13	ID 1 1 1 0 0)	Mc O Byte O Byte 2 Byte 2 Byte Ox23 C Digital	Out, 2 Out, 2 Out, 2 Out, 0 Out, 0 Out, 0 Dx23 0x Output Input 4 Input 4	lame Byte In Byte In Byte In 20 2byte byte	2 B)	uts (1/ 1/ 1/ 2 1/ 2 6/ 2 7 1 E 7 TE	Dutputs 1 1 2 BYTE 8	(Fixe (Fixe (Fixe (Fixe (Fixe	ule	Slave (Fixed (Fixed)		
2 3 5 6 7 9 10 11 12 13 14	003	0x0	7Ь1 7Ь4	Moo GPL-D GPL-T	iel Nam 22A/C R2A/B.	e L /CL	GSD Fi .GIS076 .GIS076	31.GSD 34.GSD	: 0x 0xl 0xl 0xl 0x 0x 0x 0x 0x 0x 0x 0x	4odule 400 0x1 00 0x1 421 0x0 421 0x0 421 0x0 421 0x1 13 13 23 23	ID 1 1 1 0 0)	Mo 0 Byte 0 Byte 2 Byte 2 Byte 0x23 0 Digital Digital Digital Digital	odule N Out, 2 Out, 2 Out, 0 Out, 0)x23 0x Output Input 4 Input 4 Output Output	ame Byte In Byte In Byte In 20 2byte byte byte 4byte 4byte	2 B)	uts (1/ 1/ 2 1/ 2 6/ 2 7 TE 7 TE 4 4	Dutputs 1 1 2 BYTE 8 2 BYTE 8 8 2 BYTE 1 BYTE	(Fixe (Fixe (Fixe (Fixe (Fixe (Fixe	ule	Slave (Fixed (Fixed)		
2 3 5 6 7 9 10	003	0x0	7Ь1 7Ь4	Moo GPL-D GPL-T	iel Nam 22A/C R2A/B.	e L /CL	GSD Fi .GIS076 .GIS076	31.GSD 34.GSD	: 0x 0xl 0xl 0xl 0x 0x 0x 0x 0x 0x	4odule 400 0x1 00 0x1 421 0x0 21 0x0 21 0x0 421 0x1 421 0x1	ID 1 1 1 0 0)	Mc 0 Byte 0 Byte 2 Byte 2 Byte 0x23 0 Digital Digital	Out, 2 Out, 2 Out, 0 Out, 0 Out, 0 Output Input 4	lame Byte In Byte In Byte In 20 2byte byte	2 B)	uts (1 / ' 'TE 1 / ' 2 6 / ' 2 'TE	Dutputs 1 1 2 BYTE 8	(Fixe (Fixe (Fixe (Fixe (Fixe	ed) ed) ed) ed) ed) ed) ed) ed)	Slave (Fixed (Fixed)		
2 3 5 6 7 9 10	003	0x0	7Ь1 7Ь4	Moo GPL-D GPL-T	iel Nam 22A/C R2A/B.	e L /CL	GSD Fi .GIS076 .GIS076	31.GSD 34.GSD	: 0> 0xl 0xl 0xl 0x 0x 0x 0x 0x 0x 0x	4odule 400 0x1 00 0x1 421 0x0 421 0x0 421 0x0 421 0x1 13 13 23 23	ID 1 1 1 0 0)	Mo 0 Byte 0 Byte 2 Byte 2 Byte 0 x23 0 Digital 1 Digital 1 Digital	odule N Out, 2 Out, 2 Out, 0 Out, 0)x23 0x Output Input 4 Input 4 Output Output	ame Byte In Byte In Byte In 20 2byte byte byte 4byte 4byte	2 B)	uts (1/ 1/ 2 1/ 2 6/ 2 7 TE 7 TE 4 4	Dutputs 1 1 2 BYTE 8 2 BYTE 1 BYTE	(Fixe (Fixe (Fixe (Fixe (Fixe (Fixe (Fixe	ed) ed) ed) ed) ed) ed) ed) ed) ed) ed)	Slave (Fixed (Fixed)		

[Figure 7.2.15] Results of Automatic Network Scan

At this time, pressing the "OK' button will prompt setting network topology automatically as seen in [Figure 7.2.16].



[Figure 7.2.16] Screen that has been set through Automatic Network Scan

To change Slave Properties, click a module from the topology and change them through the Slave Properties Window on the left bottom.

7.3 XG5000 settings

This part describes how to assign the internal memory by XG5000..

Click 'File' ->'New File' and select project name and PLC series in the New Project window.

New Project			S X
Project name: File directory:	 C:₩xG5000₩		OK Cancel
CPU Series	XGB	Product Name	
CPU type:	XGB-XBCU	Auto-allocation	
Program name:	NewProgram		
Program languag			
() LD	SFC	🔘 ST	
Project description			
		,	

[Figure 7.3.1] New project

Select the 'Online' to connect with CPU and Online menu 'Read IO information' is brought I/O information of each slot installed.

🍕 123 - XG5000					- C - X
Project Edit Find/Replace View	On	ine Monitor Debug Tools Window	v He	elp	
				. 🗶 i 🗛 🙀 💱 🕯	
: 📖 🏪 🕑 💽 🙁 🛄 🕫 🖉 🤅	3	Connection Settings	1 🔍	👑 Lis 🖿 💇 🕮	ំពោកកក្រ មេ 🛛 🖓 ត្រូង 🛱 🛱 🛱 🛱
: F%, +1 F +1/F +PF +NF 1 → # + ESC F3 F4 sF1 sF2 F5 F6 sF8 sF9 F		Safety Lock			E 🖩 🏛 🗳 🗹 🗇 🗅 🗠 🖉 🤤 🔍 🔍
Project		Safety Signature		HIGHXEC ×	· · · · · · · · · · · · · · · · · · ·
₄ -∰ 123 *		Change Mode			
	묷	Read			XOL-PSEA XOL-PHEC
	鵨	Write			
▷ -提 HIGHXEC [BOSO 내장 ▷ -提 HIGHXEC [BOS1 내장	C C	Compare with PLC			XBL-PSEA XBL-PMEC
HIGHXEC (BOSI CH3		Set Flash Memory			=
A B HIGHXEC (BOS3 XBL-		Control Redundancy		0000	
🗐 High-speed Link 0					
NewPLC [BOSO XGL-C		Communication module setting		1100	
		Reset/Clear			
- 🛞 System Variable			_	PLC Information	
NewPLC(XGI-CPUH) - Canno MIGHXEC(XGB-XECU)-Stop	•	Force I/O	u 🖓	PLC History	
Global/Direct Variables	-	Skip I/O		PLC Errors/Warnings	
- Id Decemptor		Fault Mask		I/O Information	
Project View High-speed Link View P2		Module Changing Wizard		Save PLC History	ocation information - Fixed Comment
Function/FB		Base Changing Wizard			Main Base(12
Most Recently Used			U		Ultra High Perf
	đ		Inet		Internal Cnet M Internal Ethern
	*	tritte mounted frogram Current	Enet		Terrivo o a erivo o ita regiono a eriovo o italia de orivitaria.
	ð	End Online Editing Ctrl+U		m	•
		Monitor 1			च म × Result च र म ×
		PLC Pro	ogram	Variable/Device	ce 🖉 🛞 🖄 🗙
		1			
		Monitor 1 Monitor 2 Moni		Manifest	Partill Char Find 1 Find 2 Care Care Hand Durli
			ttor 3	Monitor 4	Result Chec Find 1 Find 2 Com Cross Used Dupli
HIGHXEC		Stop I, USB, OK	T	1	

[Figure 7.3.2] After reading I/O information, add Pnet module

Select High-speed link tab in lower end tab of left frame, Double click High-speed link 1. It can available to set the module type, base (no.) number, slot (no.) number and communication cycle.

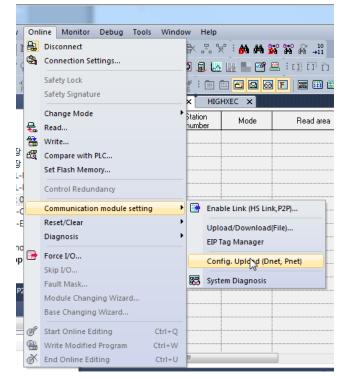
🔩 123 - XG5000					-	-	c		Communication			
Project Edit Find/Replace View Online Mo	nitor Del	bug Tools W	indow Help						Communicatio	n module	settings	
0 🖉 🖨 🖶 😂 🖆 🔒 🕲 🖉	20	x 🖻 🖻 🗙	~8 (K . 7, %	🗄 🗛 🐴	¥ ¥ A →11							
: 🔍 🔠 💽 💽 🙁 🗳 🐨 🖉 🖉 🖼	🐯 🕼 i J	🔒 🕫	D 🖾 🔍 🛄	Lin 🐂 🕑 -	🛎 ោកកក	-03 103 🖸 🖓 1	R, P 201 P 1+ 14 18 Esc F3 F4 F5 F6 F7 F8	900 F9	Communicati	on module	settings	
: F_ 1 E 1/2 1PE 1NE - 1 → ± 1) + (2) (8) (8) Esc F3 F4 sF1 sF2 F5 F6 sF8 sF9 F9 F11 sF3 sF4	+ (P) +ND +	F2 - 9 8 9 9/8 10 sF7 c3 c4	CS CS	D 🖸 🖸 🖗	F 🖀 🖽 🖽		🔍 🔾 🤋 🖗 🔚 🗉	à © © E	Module typ		-PMEC 👻	
Project 🗸 🕈 🗙	К Н	GHXEC - HS Link	03 × HIG	HXEC ×				<u>₹ 9</u>	Module typ	NDL-	THEC T	
▲ 🐺 123 *	Inde	K Master Station	Station number	Mode	Read area	Variable name	Variable name comment	Sendin:	Base No.:	00	-	
Wetwork Configuration Jon Unspecified Network	0	0	1	Send								
→ HIGHXEC [BOSO LH St Cnet]	1	0	2	Receive				2 catalog(Non	Slot No.:	03	-	
▶ 📲 HIGHXEC (BOS1 내장 FEnet)	2				1			Š.				
HIGHXEC (BOS2 XBL-PSEA) HIGHXEC (BOS3 XBL-PMEC)	3								High-speed	llink 03 -	HIGHXEC [B0S3 XBL-PME	C] 🔻
High-speed Link 03	4							8	index:			
- (NewPLC [B0S0 XGL-CH2A]	6	-						ŝ				
NewPLC [BOS5 XGL-EFMT]	7	-						§	Communicati	on period s	ettinas	
	8							atio				
A I HIGHXEC(XGB-XECU)-Stop	9								Period type	20 m		
Global/Direct Variables	10	_							Period type	20 110	sec +	
Project View High-speed Link View P2P	11											
Function/FB 🗸 🕂 🛪									- Output data	cottines in	case of emergency	
Most Recently Used	14									securiys in	case of emergency	
Function Name	15								CPU error:		Catch	Oclear
Punction Name	16								crocitor.			
	1.5.1								CPU stop:		C Latch	Oclear
	Monito	PLC	Program	Variable/D	♥ Ø × Resul			▼ 9 ×				
	1	FLU	Fillyian	Valiable/D	evice 🖉 🖄	• ×						
	Monito	r1 Monitor 2	Monitor 3 M	onitor 4	Resu	Chec Find 1 Fir	nd 2 Com Cross Used	Dupli			OK	Cancel
HIGHXEC St	top	L, USB, OK			т т 🔛	🗮 🔳 ¥ 🖷 🗆	= 100% 🔵 —	•				
									C			192

Г

[Figure 7.3.3] Screen of communication module setting

Select the Pnet for module type, position of current master communication module is set the base number and slot number. Communication cycle is set free from 10ms to 10s, It will be a data transmission cycle between CPU module of PLC and Master communication module. In emergency, output setting is set suitable to user's environment. Click 'OK' and then 'Block' is created below 'High-speed link 1', Double click it.

After block is created, click the index of block information frame (right frame). Click [Online] – [Config. Upload (Dnet, Pnet) and it brought the setting information in PROFICON.



[Figure 7.3.4] Config.Upload(Dnet, Pnet) menu

	belov IXEC - HS Link	03 X HIGI	HXEC ×								
Index	Master Station No	Station number	Mode	Read area	Variable name	Variable name comment	Sending data (Byte)	Save area	Variable name	Variable name comment	Receiving data (Byte)
0	0	3	Receive								2
1	0	4	Send				2				
2	0	6	Send/Receive				22	······			20
3											
4				*				*			
5				•		9		\$			
6				¢				¢			
7											

Γ

After PROFICON setting file is uploaded, setting information is displayed in block window as shown

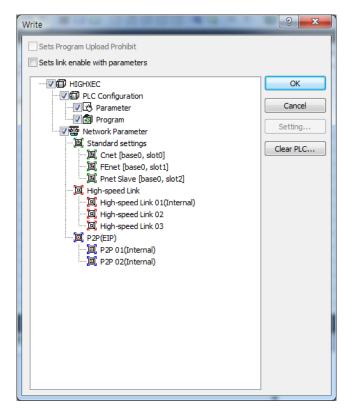
Double click the applicable index to set the address. Set M0200 for station3, M0000 for station 4 and M0300 for area to read, M0311 for area to save of station 6.

[Figure 7.3.5] High-speed lin	k block setting
---------------	------------------	-----------------

	[Figure 7.3.5] High-speed link block setting										
	HIGHXEC + HS Link 03 X HIGHXEC X										
Index	Master Station No	Station number	Mode	Read area	Variable name	Variable name comment	Sending data (Byte)	Save area	Variable name	Variable name comment	Receiving data (Byte)
0	0	3	Receive					%MW200			2
1	0	4	Send	%MW0			2				
2	0	6	Send/Receive	%MW300			22	%MW311			20
3											
4											
5											
6								¢			
7											

[Figure 7.3.5] Finished screen

After finish the setting, setting information is downloaded in PLC. Select [Online] - [Write parameter] (standard settings, High-speed link, P2P). Here, Check High-speed link to download and click 'OK'.



[Table 7.3.6] Write parameter (Standard settings, High-speed link, P2P)

After Write is finished, the operation is by applicable high-speed link enabled. Select the [Online] – [Enable Link] (High-speed, P2P). And Link Enable window is displayed as shown below. Select the applicable High-speed link number and then select 'Write' to set.

Γ

[Figure 7.3.7] Link Enable (High-speed link, P2P)

If you use others products to slave module, Setting of using that product's GSD file is same as above in order.

Chapter 8 Troubleshooting

This chapter is to describe various errors that may occur in system operation, their causes and actions to take against. If any error occurs on Pnet I/F module, its related details can be checked through the procedures below. Surely follow the troubleshooting procedures in the sequence as specified to check for abnormal module state. And any discretionary repair or disassembly is not allowed.

8.1 Symptoms and Management by LED Status

It can know the simple symptoms by LED status and it can manage. (When High-speed link is enabled).

RUN	I/F	HS	P-RUN	STAT	ERR	CFG	Symptoms	Management
On	Flicker	Off	On	Off	Off	Off	High-speed link disabled	-
On	Flicker	On	On	Off	Flicker	Off	Abnormal connection status of a slave	Check the connection of slave Check the setting of slave
On	Flicker	On	On	Off	On	Off	Bus error	Check the cable short Check the module with different speed Check the operation device value bigger than HAS ^{*1}
On	Flicker	Flicker	-	-	Off	Flicke r	SyCon (PROFICON) setting changes during High Speed Link operation	Check the connection of slave Check the setting of slave
-	-	-	-	On	-	-	Error in OS	Request A/S
Off	Off	Off	-	-	-		Error	Request A/S

(1) XBL-PMEC

*1) HAS: Highest Station Address

[Table8.1.1] Symptoms related communication module (When High-speed link is enabled)

8.2 System Diagnosis of PROFICON

System Diagnosis of PROFICON refers to 5.4 Diagnosis function

8.3 System Diagnosis of XG5000

System Diagnosis of XG5000 refers to 6.5 Monitor of High-speed link information

8.4 Diagnosis of Communication Module by using XG5000

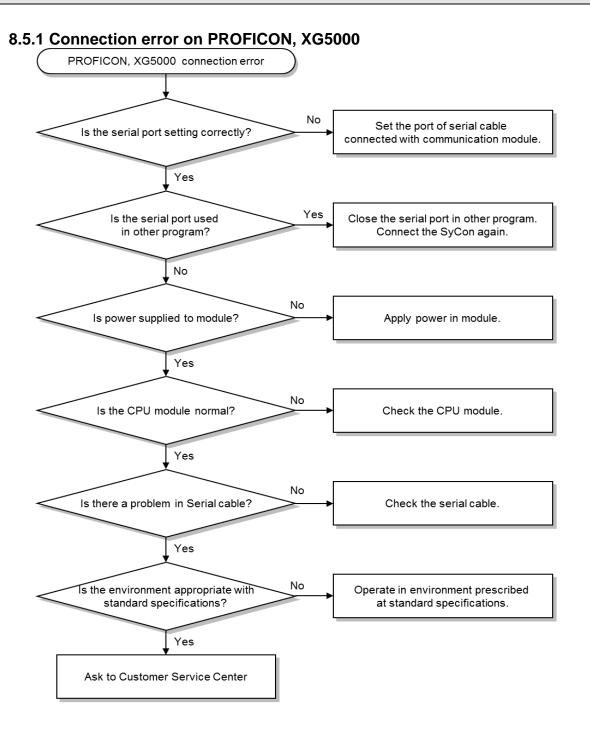
Γ

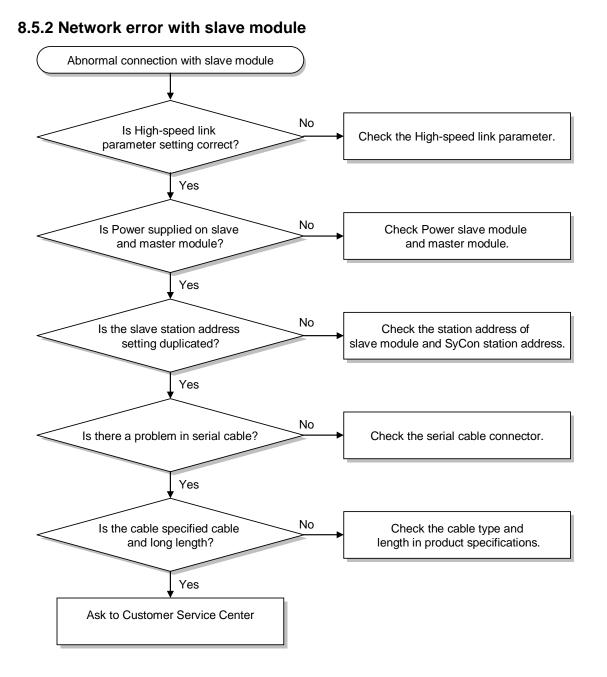
XG5000 connection program can be used to monitor the communication module simply. Connect with CPU port and then select [On-Line] -> [PLC History] -> [PLC Error/Warning] in XG5000.

PLC	C history - NewPLC								
	Error Log	r Log Mode Change Log System Log Shut Down Log							
	Index	Code	Date	Time	Contents	•			
	 12 13 14 15 16 17 18 	31 31 31 31 31 31 34 31	1984-01-01 1984-01-01 1984-01-01 1984-01-01 1984-01-01 1984-01-01 1984-01-01	00:00:00,000 00:00:00,000 00:00:00,000 00:00:00,000 00:00:00,000 00:00:00,000 00:00:00,000	Module detach error, Base 0, Slot 1 Module detach error, Base 0, Slot 1 Module detach error, Base 0, Slot 1 Module detach error, Base 0, Slot 2 Module detach error, Base 0, Slot 1 Special/Communication module interfa Module detach error, Base 0, Slot 1	ce em =			
	<								
	Details/Remedy								
					Update	Clear			
Ľ				Clear all logs	Read All Save	Close			

[Fig 8.4.1] PLC history details monitor

8.5 Troubleshooting





Appendix

A.1 Terminology

1) Profibus-FMS (Fieldbus Message Specification)

Solution generally used to provide communication functions in the cell level, with services available to transmit the program file to operate the field device and its related data file, to operate the program by remote control through the network and to manage various events which may occur during operation of the controlled and automatized system.

2) Profibus-DP (Decentralized Peripherals)

Used to send real-time data fast between field devices. It is an example of the communication system applied as of HS digital communication type substituted for existing 24V and 4~20Ma of analog sign like the communication between field devices such as various sensors and actuators installed on PLC and the field.

3) Profibus-PA (Process Automation)

Specially made for process automation with safety device built-in, which can connect sensor and actuator with a single bus line common-used. And it provides power and data communication function on the bus by means of 2-wire technology in compliance with the international standard of IEC 1158-2.

4) SyCon

Application program of Profibus Network Configuration Tool used to specify the configuration though SyCon and download the information onto the applicable module if LSIS master module (XGL-PMEA) is applied.

5) PROFICON

Application program of Profibus Network Configuration Tool used to specify the configuration though PROFICON and download the information onto the applicable module if LSIS master module (XGL-PMEC) is applied.

6) GSD file

As the data sheet of electronic devices, it contains such information as maker, device name, status of released hardware and software, Send rate available, master related standards (max. slaves which can be connected with, upload/download option, etc.) and slave related standards (number and type of I/O channels, diagnosis test specification and available module information modular equipment is provided for).

7) Broadcast communication

Used to send the message whose operation station is not recognized to all the stations (Master, Slaves).

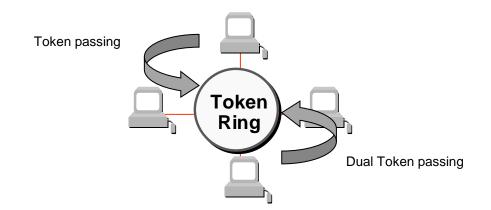
8) Multicast communication

Used to send the message whose operation station is not recognized to the station group whose operation station is previously specified.

9) Token Ring

Γ

As one of the node connection methods on the network, it is a local communication network using a token to access to communication network with physical ring structure. If the transmission node obtains a token and its control, it transfers the message packet. Actually realized examples are IEEE 802.5, ProNet-1080 and FDDI. The term of Token Ring is occasionally used in substitute for IEEE 802.5.



A.2 List of Flags

A.2.1 High-speed link flags

Device		Variables	Turne	Function	
K type.	IEC tpe	Variables	Туре	Function	Description
L00000	%LX0	_HS1_RLINK	Bit	HS link parameter No.1's all stations normally operated	 Displays all stations normally operated as specified in HS link parameter, which will be On if 1.there is no error with all stations specified in parameter in RUN mode 2.All data block is in normal communication as specified in parameter. 3.The parameter specified in each station itself is in normal communication. Run_link will be kept On if once On until stopped by link disenable.
L00001	%LX1	_HS1_LTRBL	Bit	After _HS1RLINK is ON, abnormal status displayed	 This flag will be On if the station specified in parameter and the data block's communication status are as described below withHSmRLINK flag On,. 1. When the station specified in parameter is not in RUN mode, 2. When the station specified in parameter is in error, 3. When data block's communication status specified in parameter is unstable, The link trouble will be On if one of those conditions 1,2 and 3 above occurs. And if such a condition is back to normal, it will be Off.
L00020 ~ L0005F	%LX32~ %LX95	_HS1_STATE[k] (k=000~063)	Bit Array	HS link parameter No.1, Block No.k's general status displayed	Displays the general status of the communication information for the specified parameter's respective data blocks. HS1STATE[k]=HS1MOD[k]&_HS1TRX[k]&(~_ HSmERR[k])
L00060 ~ L0009F	%LX96~ %LX159	_HS1_MOD[k] (k=000~063)	Bit Array	HS link parameter No.1, Block No.k station's Run operation mode	Displays the operation mode of the station specified in parameter's data block k.
L00100 ~ L0013F	%LX160~ %LX223	_HS1_TRX[k] (k=000~063)	Bit Array	Normal communication displayed with HS link parameter No.1, Block No.k station	Displays the communication status of parame ter's data block k to check if normal as specified.
L00140 ~ L0017F	%LX224~ %LX287	_HS1_ERR[k] (k=000~063)	Bit Array	HS link parameter No.1, Block No.k station's Run error mode	Displays the communication status of parame ter's data block k to check for any error.
L00180 ~ L0021F	%LX288~ %LX351	_HS1_SETBLO CK[k] (k=000~063)	Bit Array	HS link parameter No.1, Block No.k setting displayed	Displays the setting status of parameter's data block k.

٦

Notes			
HS link No.		vice	Remarks
	K type	IEC type	Keinurko
			Compared with HS link of 1 in [Table 1], other HS link station number's
1	L00000~	%LX0~%L	flag address will be simply calculated as follows;
	L0021F	X351	
			* Calculation formula:
			K type = L00000 + 260 x (HS link No. – 1)
2	L00260~	%LX416~	IEC type = %LX0 + 416 x (HS link No 1)
2	L0045F	%LX767	

Г

A.3 PROFICON Error code

When the error codes exist in the output window After "Check your communication data" message was shown. The meaning of this error code is as below.

٦

Function	Error type	Code	Description
Common	ERROR_UNKNO WN_AREA	52	If you don't have command types.
	ERROR_INVALI DCOMMAND	19	If it is different between command area code and Image download.
Image download	ERROR_ NOTALLOWEDA CCESS	4	If it is different between command type and Image download.
uowiiioau	ERROR_INVALI D_BLOCKNO	8	If block ID which want to download is different from block ID+1.
	ERROR_INVALI D_LENGTH	9	The frame length is smaller than 4bytes or bigger than 244bytes.
	ERROR_NOMAT CH_COMMAND TYPE	59	If the number of block ID of upload is bigger than the number of block ID of downloaded image when the command of quitting image upload is arrived.
	ERROR_NOTCO NFIGURED	2	If there is no downloaded valid image.
Image	ERROR_INVALI DAREADCODE	19	If it is different between area code of command and image upload.
upload	ERROR_NOTAL LOWEDACCESS	4	If it is different between command type and image upload.
	ERROR_INVALI D_BLOCKNO	8	If block ID which want to upload is different from block ID+1
	ERROR_INVALI DSEQNO	44	The the number of block ID which want to upload is bigger than the number of block ID of downloaded image.
Communic ation Start/Stop	MISC_NOTSUP PORTED_COM MAND	3	If you try to ask area code which is not supported.
Debug	ERROR_SLAVE _ADDR	161	If the slave station number is bigger than 123.
mode	CON_NA	17	If there is no slave or diagnostics information which is available.
Live list	LIVELIST_PARA M_ERROR	2	If the master station number is bigger than 123.
	LIVELIST_COLLI SION_ERROR	4	If the master station number is same with slave station number.

Function	Error type	Code	Description
Request execution of auto network scan	MISC_NOTSUPPORTED_ COMMAND	3	If you try to ask area code which is not supported.
	MISC_INVALID_MASTER ADDR	1	If you try to ask area code which is not supported.
	MISC_NOTSUPPORTED_ BAUDRATE	2	If the communication speed is not supported - XBL-PMEC provides communication speed as below. (9.6 k, 19.2 k, 93.75 k, 187.5 k, 500 k, 1.5 M, 3 M, 6 M, 12 M)
Request execution result of auto network scan	LIVELIST_NOTREADY	1	If reading slave list is asked in PROFICON before being finished of autoscan.
	LIVELIST_PARAM_ERRO R	2	If the master station is bigger than 123 or the error of Initialization of parameter is happened when reading the result of autoscan,
	LIVELIST_COLLISION_ER ROR	4	If the master station number is same with slave station number.
	ERROR_SLAVE_ADDR	161	If the slave station number is bigger than 123.
	CON_NA	17	If reading information is asked before completing autoscan data.

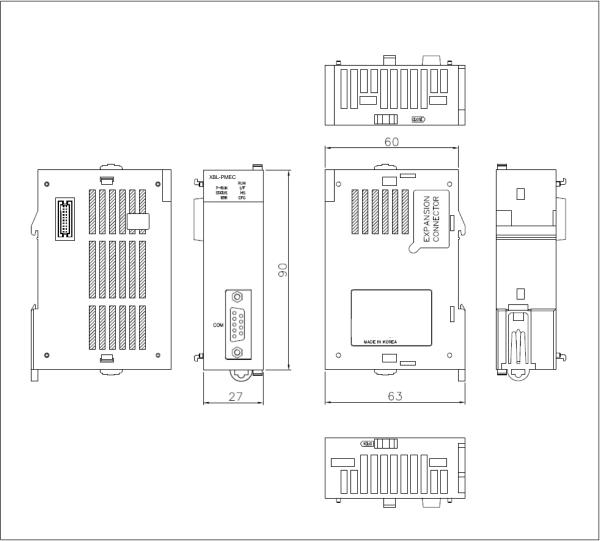
Remark

Г

It is demanded to wait for certain time to get the result of auto network scan after auto network scan is asked. Waiting time refer to 5.4.4 auto network scan.

A.4 External Dimensions

• XBL-PMEC



٦

Unit : mm

Warranty

1. Warranty Period

The product you purchased will be guaranteed for 18 months from the date of manufacturing.

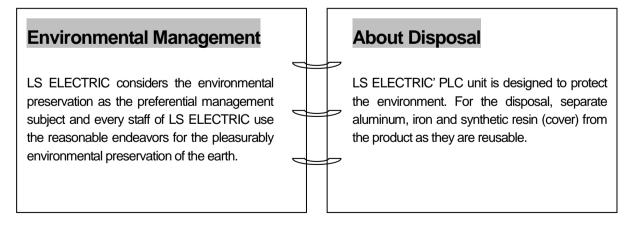
2. Scope of Warranty

Any trouble or defect occurring for the above-mentioned period will be partially replaced or repaired. However, please note the following cases will be excluded from the scope of warranty.

- (1) Any trouble attributable to unreasonable condition, environment or handling otherwise specified in the manual,
- (2) Any trouble attributable to others' products,
- (3) If the product is modified or repaired in any other place not designated by the company,
- (4) Due to unintended purposes
- (5) Owing to the reasons unexpected at the level of the contemporary science and technology when delivered.
- (6) Not attributable to the company; for instance, natural disasters or fire
- 3. Since the above warranty is limited to PLC unit only, make sure to use the product considering the safety for system configuration or applications.

Environmental Policy

LS ELECTRIC Co., Ltd supports and observes the environmental policy as below.





www.lselectric.co.kr

LS ELECTRIC Co., Ltd.

Headquarter

LS-ro 127(Hogye-dong) Dongan-gu, Anyang-si, Gyeonggi-Do, 14119, Korea

Seoul Office

LS Yongsan Tower, 92, Hangang-daero, Yongsan-gu, Seoul, 04386, Korea

Tel: 82-2-2034-4033, 4888, 4703 Fax: 82-2-2034-4588 E-mail: automation@lselectric.co.kr

Factory

56, Samseong 4-gil, Mokcheon-eup, Dongnam-gu, Cheonan-si, Chungcheongnam-do, 31226, Korea

Overseas Subsidiaries

- LS ELECTRIC Japan Co., Ltd. (Tokyo, Japan) Tel: 81-3-6268-8241 E-Mail: jschuna@lselectric.biz
- LS ELECTRIC (Dalian) Co., Ltd. (Dalian, China) Tel: 86-411-8730-6495 E-Mail: jiheo@lselectric.com.cn
- LS ELECTRIC (Wuxi) Co., Ltd. (Wuxi, China)
 Tel: 86-510-6851-6666 E-Mail: sblee@lselectric.co.kr
- LS ELECTRIC Shanghai Office (China) Tel: 86-21-5237-9977 E-Mail: tsjun@lselectric.com.cn
- LS ELECTRIC Vietnam Co., Ltd. Tel: 84-93-631-4099 E-Mail: jhchoi4@lselectric.biz (Hanoi) Tel: 84-28-3823-7890 E-Mail: sjbaik@lselectric.biz (Hochiminh)
- LS ELECTRIC Middle East FZE (Dubai, U.A.E.) Tel: 971-4-886-5360 E-Mail: salesme@lselectric.biz
- LS ELECTRIC Europe B.V. (Hoofddorf, Netherlands) Tel: 31-20-654-1424 E-Mail: europartner@lselectric.biz
- LS ELECTRIC America Inc. (Chicago, USA) Tel: 1-800-891-2941 E-Mail: sales.us@lselectricamerica.com

LSELECTRIC Ustomer Center - Quick Responsive Service, Excellent technical support TEL. 82-1644-5481 | www.lselectric.co.kr

Specifications in this instruction manual are subject to change without notice due to continuous products development and improvement.