LS Industrial Systems Co., Ltd.

GLOFA-GM Series

CPU Direct Driver

Support version	OS	V4.0 and over
	XDesignerPlus	4.0.0.0 and over

CONTENTS

Thank you for using TOP series of M2I corporation.
Please read this manual carefully to know connection methods and procedures of "TOP to External device".

1. System configuration

System configuration of TOP and "LS Industrial System Co., Ltd. – GLOFA GM Series CPU Direct"

Series	CPU	Link I/F	Comm. Type	System setting	Cable
GMR	GMR-CPUA GMR-CPUB	CPU Direct *1)	RS-232C	3. 1 setting ex 1 (4 Page)	5.1 cable diagram 1 (8 Page)
GM1	GM1-CPUA GM1-CPUB				
GM2	GM2-CPUA GM2-CPUB				
GM3	GM3-CPUA				
GM4	GM4-CPUA GM4-CPUB GM4-CPUC				
GM6	GM6-CPUA GM6-CPUB GM6-CPUC				
GM7	G7M-D□10A G7M-D□20A G7M-D□30A G7M-D□40A G7M-D□60A				
GM7U	G7M-D□20U G7M-D□30U G7M-D□40U G7M-D□60U				

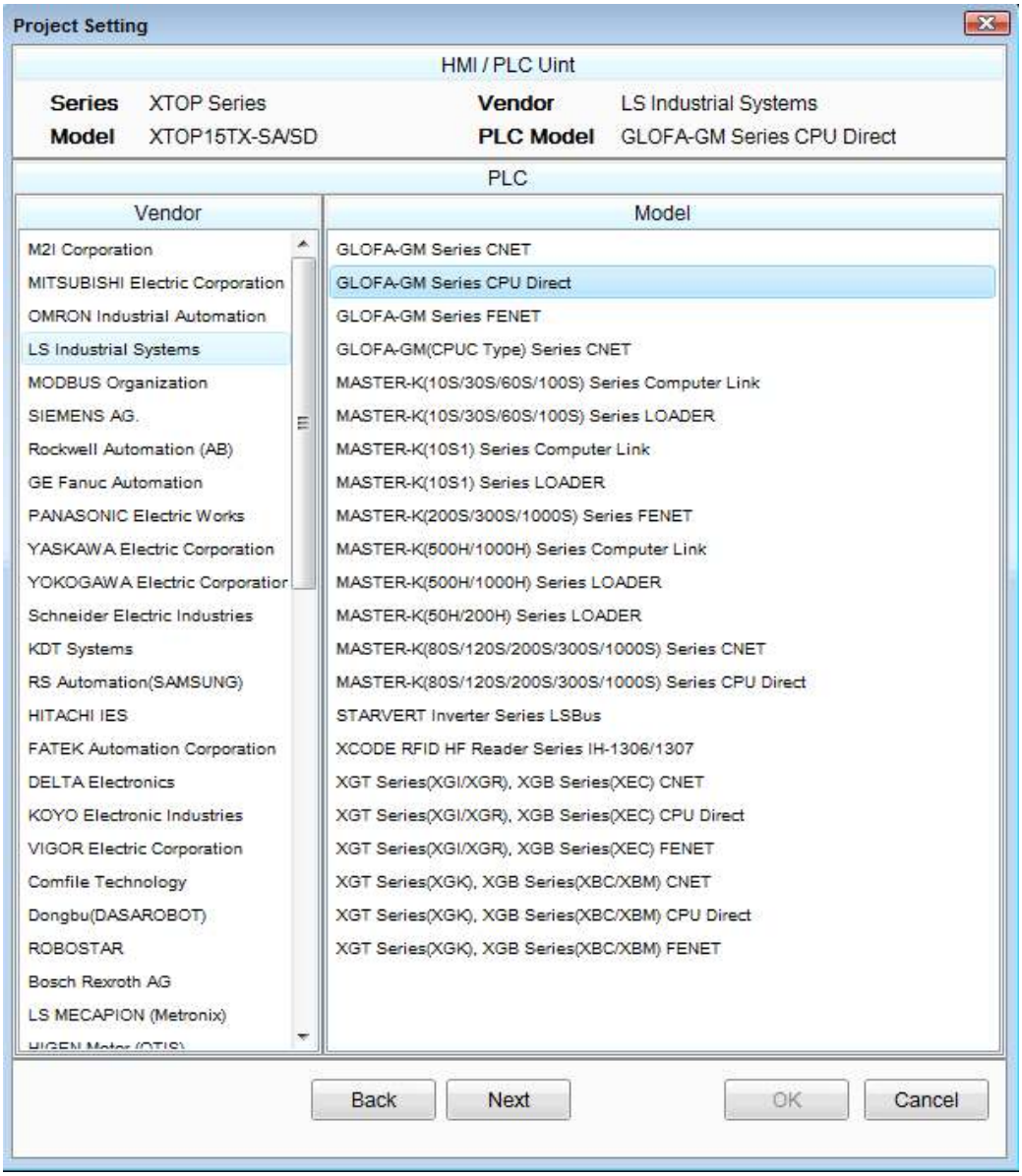
*1) loader port connecting to PC

■ Connection configuration

・1 : 1(TOP 1 unit to External device 1 unit) connection

2. Selection of TOP, External device

Select a external device which is communicated to the TOP.



Setting Items		Description
TOP	Series	Select a TOP series which is communicated with external device. Install an OS file v3.1 as diagram below before download a project file you have made. Series: XTOP / HTOP — OS Version: V4.0
	Name	Select a TOP model which is communicated with external device.
External Device	Vendor	Select vendor of the external device which is communicated with TOP. Select ""LS INDUSTRIAL SYSTEMS CO., LTD"".
	PLC	Select a model name of the external device which is communicated with TOP. Select "GLOFA GM Series CPU Direct". Check whether the external device you want to use is connectable or not in "1. System configuration".

3. Example of system setting

Set Communication interface of TOP and external device as below.

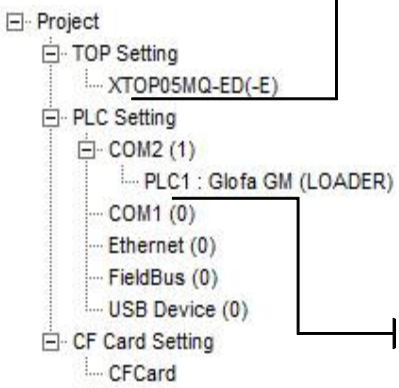
3.1 Example 1

Set your system as below.

Item		TOP	GLOFA-GM Series	Note
Serial Signal Level (port/channel)		RS-232 (COM2)	RS-232	fixation
Serial Baud rate	[BPS]	38400		fixation
Serial Data bit	[Bit]	8		fixation
Serial Stop bit	[Bit]	1		fixation
Serial Parity bit	[Bit]	NONE		fixation

(1) XDesignerPlus Setting

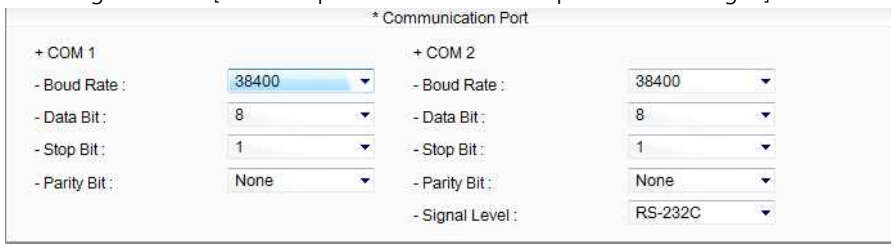
Set [Project >Project property] of XDesignerPlus as below and download it to TOP machine.



■ [Project >Project Property > Project >TOP Setting > TOP Name]

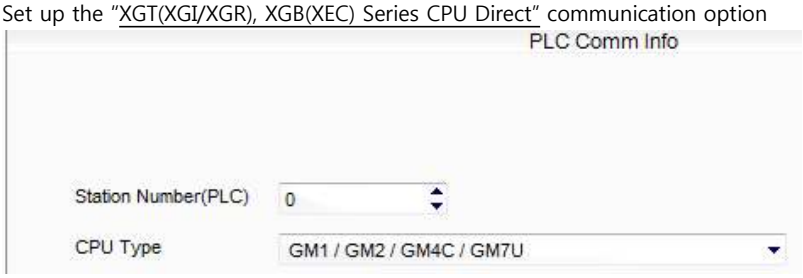
Set communication interface of TOP.

- From right window [HMI Setup > check Use HMI Setup > Device Manager]



■ External Device Settings

Set up the "XGT(XGI/XGR), XGB(XEC) Series CPU Direct" communication option



-PLC Address : External Device setting number

-CPU Type : Set the CPY type

(2) External device setup

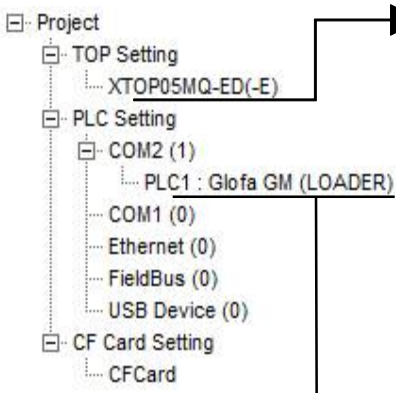
CPU Direct port communication interface of GLOFA GM Series is fixed.

4. Communication setting

Communication setup can be set on XDesignerPlus or TOP Main Menu. The setting should be the same with the external device.

4.1 XDesignerPlus setting

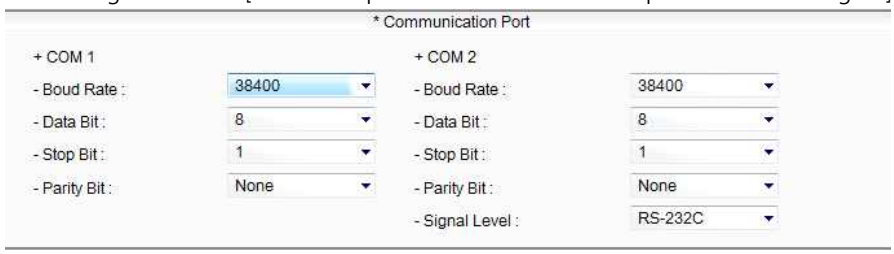
Select [Project >Project property] of XDesignerPlus as below.



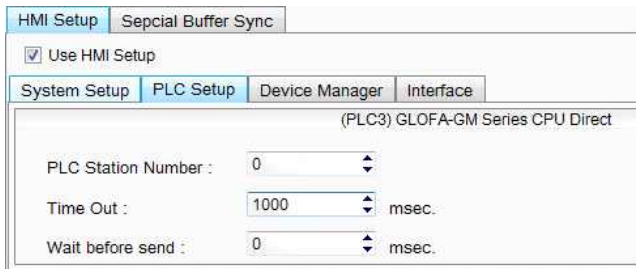
■ [Project > Project property > project > TOP Setting > TOP's Name]

Set communication interface of TOP.

- From right window [HMI Setup > check Use HMI Setup > Device Manager]

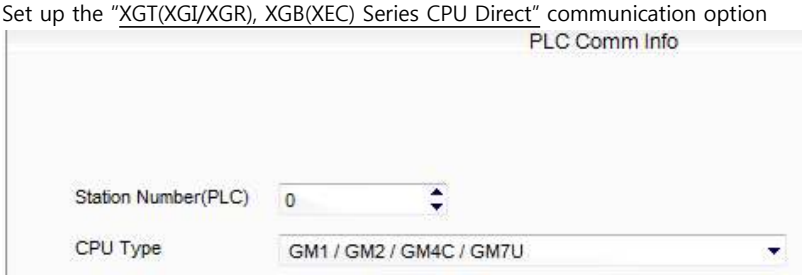


- From right window [HMI Setup > check Use HMI Setup > PLC Setting]



■ External Device Settings

Set up the "XGT(XGI/XGR), XGB(XEC) Series CPU Direct" communication option

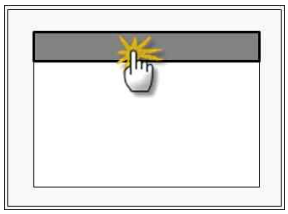


■ 통신 인터페이스 설정

Item	Description
Serial Signal Level	Setup signal level(RS-232C/422/485) of PLC connected with COM2/1 port. (COM1 only RS-232C)
Serial Baud Rate	Setup [communications Baud rate] of PLC connected with COM2/1 port.
Serial Data Bit	Setup [Data Bit] of PLC connected with COM2/1 port.
Serial Stop Bit	Setup [Stop Bit] of PLC connected with COM2/1 port.
Serial Parity Bit	Setup [Parity Bit] of PLC connected with COM2/1 port.
Time Out [x100 mSec]	Setup [Time Out] of PLC connected with COM2/1 port. (Timeout: waiting time for answer of PLC)
Send Wait [x10 mSec]	Setup [Send Wait] of PLC connected with COM2/1 port. (Send Wait: communicate after waiting setting time when touch screen requires communications.)
Station Num. in Diag.[0~31]	Setup [Station Num.(0~31)] using "4.3 Communication Diagnosis"

4.2 TOP main menu setup item

- When a buzzer is on during the power reset, touch 1 spot at the upper LCD to move to "TOP Management Main" display.
- Set up driver interface at TOP according to below **Step1 → Step2**.
  (Press "TOP COM 2/1 setup" in **Step 1** to change setup at **Step 2**.)



Step 1. [PLC setup] - Setup driver interface.

PLC setup	
PLC Address : 00 Timeout : 1000 [mSec] Delay time of transmission : 0 [mSec] TOP COM 2/1 : RS – 232C , 38400 , 8 , 1 , NONE TOP COM 2/1 setup communication test	Communication Interface Settings

Step 1–Reference.

Details	Contents
PLC address [0~65535]	Address of other device. Select between [0 - 65535].
Timeout [x1 mSec]	Set up TOP's response waiting time from external device at [0 – 5000] x 1 mSec.
Delay time of transmission [x1 mSec]	Set up TOP's waiting time between response receiving – next command request transmission from external device at [0 – 5000] x 1 mSec.
TOP COM 2/1	TOP's Interface setup to external device.

Step 2. [PLC setup] >[TOP COM2/COM1 setup] – Setup relevant port's serial parameter.

Port Settings	
* Serial communication + COM-1 Port - Baud rate : 38400 [BPS] - Data bit : 8 [BIT] - Stop bit : 1 [BIT] - Parity bit : NONE [BIT] - Signal level : RS – 232C	COM 1 Port Communication Interface Settings
+ COM-2 Port - Baud rate : 38400 [BPS] - Data bit : 8 [BIT] - Stop bit : 1 [BIT] - Parity bit : NONE [BIT] - Signal level : RS – 232C	COM-2 Port Communication Interface Settings

Step 2–Reference.

Details	Contents
Baud rate	External device – select serial communication speed between TOPs.
Data bit	External device – select serial communication data bit between TOPs.
Stop bit	External device – select serial communication stop bit between TOPs.
Parity bit	External device – select serial communication parity bit check method between TOPs.
Signal level	External device – select serial communication method between TOPs.

4.3 Communication Diagnosis

■ TOP - Confirming interface setting condition between external devices

- Move to Menu by clicking the top side of LCD screen as resetting the power of TOP.
- Confirms if Port [COM 2 or COM 1] setting that is willing to use in [Communication Settings] matches with the setting of external devices.

■ Port Communication Issue Diagnosis

- PLC Setup > TOP [COM 2 or COM 1] click "Communication Diagnosis" button.
- Diagnosis dialog box will pop up on the screen, you can judge by following information that are shown on box no. 3 section.

OK!	**Communication setting succeeded**
Time Out Error!	Communication setting error - Error in the setting situation of Cable and TOP / External device **(reference : Communication Diagnosis sheet)**

■ Communication Diagnosis Sheet

- Please refer to the information below if you have a problem between external devices and communication connection.

Designer Version		O.S Version				
Details	Contents				Confirm	
System configuration	Name of CPU				OK	NG
	Name of confront port that is communicating				OK	NG
	System Connection Method	1:1	1:N	N:1	OK	NG
Connection Cable	Name of Cable				OK	NG
PLC setup	Setup address				OK	NG
	Serial baud rate	[BPS]			OK	NG
	Serial data bit	[BIT]			OK	NG
	Serial Stop bit	[BIT]			OK	NG
	Serial parity bit	[BIT]			OK	NG
	Assigned Address Limit				OK	NG
TOP setup	Setup port	COM 1	COM 2		OK	NG
	Name of Driver				OK	NG
	Confront Address	Project Property Setup			OK	NG
		Diagnosing Communication			OK	NG
	Serial baud rate	[BPS]			OK	NG
	Serial data bit	[BIT]			OK	NG
	Serial Stop bit	[BIT]			OK	NG
	Serial parity bit	[BIT]			OK	NG

5. Cable diagram

This Chapter introduces cable wiring guidance for communication between TOP and PLC concerned. (The cable diagrams in this section may differ from the recommendations of "LS Industrial Systems Co., Ltd.")

5.1 Cable Diagram Table 1

■ 1 : 1 Connection

(A) XTOP COM 2 port(9pin)

XTOP COM2			Cable Wiring	PLC		
Pin Assignment *1	Signal	Pin No.		Pin No.	Signal	Pin Assignment *1
	CD	1		1	CD	
	RD	2		2	RD	
1 5 6 9 Front View of D-SUB 9 Pin (male, convex)	SD	3		3	SD	1 5 6 9 Front View of D-SUB 9Pin (male, convex)
	DTR	4		4	DTR	
	SG	5		5	SG	
	DSR	6		6	DSR	
	RTS	7		7	RTS	
	CTS	8		8	CTS	
		9		9		

*1) Pin assignment of the cable connector is seen on the face of Front View.

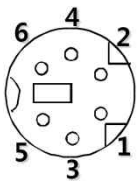
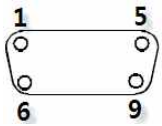
(B) XTOP COM 2 port(15pin)

XTOP COM2			**Cable Wiring**	**PLC**		
Pin Assignment *1	Signal	Pin No.		Pin No.	Signal	Pin Assignment *1
	CD	1		1	CD	
	RD	2		2	RD	
1 8 9 15 Front View of D-SUB 15 Pin (male, convex)						1 5 6 9 Front View of D-SUB 9Pin (male, convex)
	SD	3		3	SD	
	DTR	4		4	DTR	
	SG	5		5	SG	

	DSR	6		6	DSR	
	RTS	7		7	RTS	
	CTS	8		8	CTS	
		9		9		

*1) Pin assignment of the cable connector is seen on the face of Front View.

(C) XTOP/ATOP COM 1 port(6pin)

XTOP/ATOP COM 1 port			Cable Wiring	PLC		
Pin Assignment *1	Signal	Pin No.		Pin No.	Signal	Pin Assignment *1
 Front View of D-SUB 6 Pin (male, convex)		1		1	CD	 Front View of D-SUB 9Pin (male, convex)
	RD	2		2	RD	
	SG	3		3	SD	
		4		4	DTR	
		5		5	SG	
	SD	6		6	DSR	
				7	RTS	
				8	CTS	
				9		

*1) Pin assignment of the cable connector is seen on the face of Front View.

6. Available Address

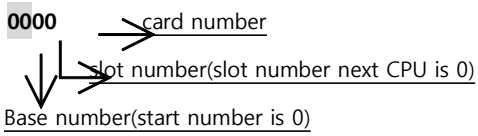
The available address of device are as below.

Device(address) range might be different according to series/type of CPU. TOP Series are capable of supporting maximum address range which is available in external Device.

Be careful get out of address range.

model	WORD	Address range
GM1	%I(input)	%IW00.0.0 ~ %IW63.7.3
	%Q(output)	%QW00.0.0 ~ %QW63.7.3
	%M(inner memory)	%MW00000 ~ %MW65535
GM2	%I(input)	%IW00.0.0 ~ %IW31.7.3
	%Q(output)	%QW00.0.0 ~ %QW31.7.3
	%M(inner memory)	%MW00000 ~ %MW65535
GM3, GM4	%I(input)	%IW00.0.0 ~ %IW07.7.3
	%Q(output)	%QW00.0.0 ~ %QW07.7.3
	%M(inner memory)	%MW00000 ~ %MW32767
GM6, GM7	%I(input)	%IW00.0.0 ~ %IW07.7.3
	%Q(output)	%QW00.0.0 ~ %QW07.7.3
	%M(inner memory)	%MW00000 ~ %MW16383

* Setting method of Input and Output(IW / QW) address



※ card number explanation - Card number of 16 point card is 0. If it is 32 point card, card number of 0~15 bit is 0, card number of 16~31 bit is 1. If it is 64 point card, card number of 0~15 bit is 0, card number of 16~31 bit is 1, card number of 32~47 bit is 2, card number of 48~63 bit is 3.