

Graphic Panel

GP-XBM (RS485)

Solution Guide

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Thank you very much for selecting Autonics products. For your safety, please read the corresponding product manuals before using them

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Preface

Thank you very much for selecting Autonics products.

Please familiarize yourself with the information in this manual and in the product manuals before using them.

This solution guide contains information about a specific architecture solution and does not replace any specific product documentation.

This document does not attempt to describe the entire solution architecture and configuration but only introduce some basics procedures. Customization of this solution can be made by the users in respect of safety laws and regulations.

Document Guide

- This manual provides procedure steps for a particular solution architecture. It does not offer any guarantee concerning matters beyond the scope of this manual.
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- The content of this manual may vary depending on updates of the product software and others unforeseen developments within Autonics. It is subject to change without prior notice. Upgrade notices are published through our homepage.
- We contrived to describe this manual the easiest and more accurate way. However, if there are any corrections required or questions, please notify us these remarks on our homepage.

Document Symbols

Symbol	Description		
Note	Additional information about a particular feature.		
Å Warning	Failure to follow instructions can result in serious injury or death.		
A Caution	Failure to follow instructions can lead to a minor injury or product damage.		
Ex.	An example of the concerned feature's use.		
×1	Annotation mark.		

Document Version History

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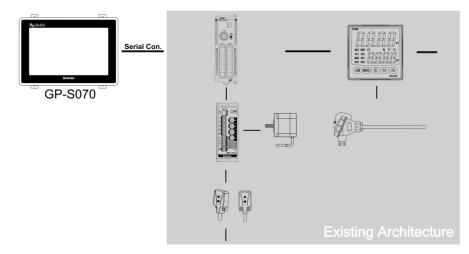
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1 Solution Overview

1.1 Solution description

Autonics GP-S070-T9D6 device from the GP/LP series is a 7.0 inch LCD color touch panel with build-in serial connection through RS-422 and RS-232C ports. It is a standalone screen with custom OS and dedicated graphic editor software to create up to 500 graphic pages.

Thanks to its characteristic, it can be added on top of any existing automation architecture with different type of serial connection and can monitor different devices parameters or statuses and key Setting Values or Present Values, facilitating the access to data that was not in the previous architecture.



This solution brings following benefits to your current installation:

- > Allows to monitor in real time PLC & devices status and feedback values
- > Allows a convenient control of the different parameters and setting values
- > Allows a fast and clear notification of the different alarms

This solution is optimized because:

- Can be simply added on top of your current installation
- > Very small dimension so can be installed close to the controlling device for or local control
- Internal graphics and control functions for standalone application without need of server or OS licensing.

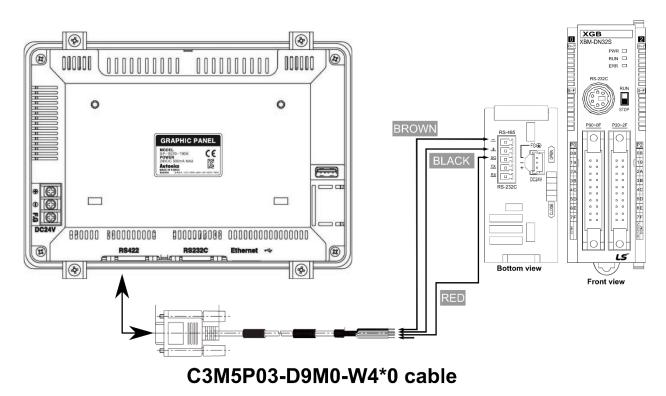
1.2 Solution components and version

Hardware / Software	Version	Note
Ms Windows	Win 7	
GP-Editor	v4.01 (build 023)	Autonics product. Release 2016.10.13
GP-S070 T9D6	Firmware v1.20	Autonics product. Release 2016.01.26
XG-5000	v4.20	LS product. Release 2017.03.24
XBM-DN32S(Cnet)		LS product
Serial Cable		Autonics ref. C3M5P03-D9M0-W4*0

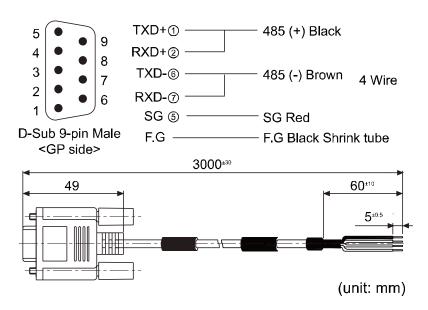
1.3 **Solution architecture**

GP-S070-T9D6





Communication cable pin details and dimensions 1.4 (Autonics model: C3M5P03-D9M0-W4*0)



2 GP-S070 Communication Settings

The GP device should be set to use its RS422 port and to control data registers of a XBM type device.

So we need:

- to create a GP-Editor project with XBM connection and different graphical components to interact with the XBM registers
- to set communication parameters of the GP device to allow a connection with the PC and GP-Editor
- to send the GP-Editor project to the GP device
- to check the serial communication settings of the GP connection with the XBM PLC.

Remarks:

In this document, we will use an Ethernet connection to download the GP-Editor project to the GP device, please refer to the 'GP-Editor Download Manual' if you want to use another method (serial connection or USB connection).

2.1 GP-Editor project settings

- 1st Run the GP Editor software and select [Project] [New] in the menu bar. If you already build a project file, open this project by selecting [Project] [Load] in the menu bar.
- 2nd In the 'GP/PLC Type' dialog box, set 'GP/LP Type', CH1/2 'Group' and 'Type' as bellow then click 'OK'.

GP/PLC Type	2
GP/LP Type : GP-S070 T9D6 (800 X 480) ▼	1
CH1 Group : NoUse	
CH1 Type : NoUse	
CH2	1
CH2 Group : LS XGB SERIES	
CH2 Type : XBMDR16_CPU_Cnet MASTER	
Cancel	

Item	Settings
GP / LP Type	GP-S070 T9D6
CH1 Group / Type	No Use
CH2 Group / Type	LS XGB SERIES / XBMDR16_CPU_Cnet

3rd In the 'Project Auxiliary Property' dialog box click 'OK'. The graphic editor page will be displayed.

Project Auxiliary Property	x
Basic Key Window Language Serial Port Setup Menu Key	
Configure Key Window / Cursor Display Operate for screen switching : Display Cursor Only Call key window when detecting touch Call key window when detecting touch Application of serial port, setup, menu key, configuration Image Color 256 color Form	
OK Cancel	_

4th The project has been properly initially set. Then you need to create your own graphics and set links between GUI components and the XBM PLC registers.

Rem: Please refer to the 'GP-Editor User Manual' document for procedures on graphics creation or to the example section of this document for a simple interface example.

2.2 GP-S070 Ethernet communication settings for GP-Editor

1st First check the computer IP settings:

On the PC, go to [Control Panel] – [Network and Sharing Center] – [Local Area Connection] – [Properties], click on 'Internet Protocol Version 4 (TCP/IPv4) and 'Properties'.

📮 Local Area Connection Properties 📃 💌		
Networking Sharing		
Connect using:		
Realtek PCIe GBE Family Controller		
Configure		
This connection uses the following items:		
 Client for Microsoft Networks VirtualBox NDIS6 Bridged Networking Driver QoS Packet Scheduler File and Printer Sharing for Microsoft Networks Internet Protocol Version 6 (TCP/IPv6) Internet Protocol Version 4 (TCP/IPv4) Ink-Layer Topology Discovery Mapper I/O Driver Link-Layer Topology Discovery Responder 		
<u>Install</u> <u>Uninstall</u> <u>Properties</u>		
Description Transmission Control Protocol/Internet Protocol. The default wide area network protocol that provides communication across diverse interconnected networks.		
OK Cancel		

2nd Note your IP address and default gateway to later set properly the GP address.

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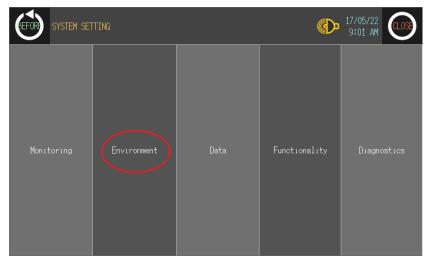
Internet Protocol Version 4 (TCP/IPv4)	Properties 🛛 🔋 💌
General	
You can get IP settings assigned autor this capability. Otherwise, you need to for the appropriate IP settings.	
Obtain an IP address automatical	ly
• Use the following IP address:	
IP address:	169 . 192 . 1 . 10
S <u>u</u> bnet mask:	255.255.255.0
Default gateway:	169.192.1.1
Obtain DNS server address autor	natically
• Use the following DNS server add	resses:
Preferred DNS server:	· · ·
<u>A</u> lternate DNS server:	· · ·
🔲 Valjdate settings upon exit	Ad <u>v</u> anced
	OK Cancel

3rd On the GP-S070 device, click on the top-left of the screen to open the 'System Setting' menu.

\bigcirc						
	USER	SCREEN	IS NOT	FOUND		

Rem: if the 'System Setting' menu does not appear, the default menu shorcut has been changed. Try to click on the other corner of the touch panel or refer to the 'GP-S070 - User Manual'.

4th Select 'Environment'.



5th Select 'Local Ethernet'.

SYSTEM SETTING LENVIRONMENT	(LOS) 17/05/22 9:03 AM
Serial Communication	Language
Local Ethernet	Screen Bright
Assistance Setting	Clock

6th Set the Ethernet settings as below:

Items	Settings	Comment
IP Address	169.192.1.12	With last digit unique number on the network
Station	255.255.255.0	Same that the PC
Device	169.192.1.1	Same that the PC

GEFOR SYSTEM	SETTING\ ENVIRONMENT\ LOCA	L ETHERNET	(C) 17/09	5/22 A AM
	IP Address	169.192. 1. 12		
	Subnet Mask	255.255.255.0		
	Gateway	<u>169.192. 1. 1</u>		
	MAC Address	00 - 00 - 00 - 00 - 00 -	- 00	

7th Click on 'CLOSE' to validate the changes.

2.3 Send GP-Editor project to GP-S070 device by Ethernet

1st In GP-Editor, select the [Communication] – [Download] menu, and click on 'Setting'.

Monitor Data Download		×
Configuration Base Window Other	1	_
Tag • All Data	C Selected Data	
Protocol download		
Project Title :		
Project ID :	831023027	
GP/LP Type :	GP-S070 T9D6 (800 X 480)	
Download Close Si	etting Size: 0.5KB Sector: 3	

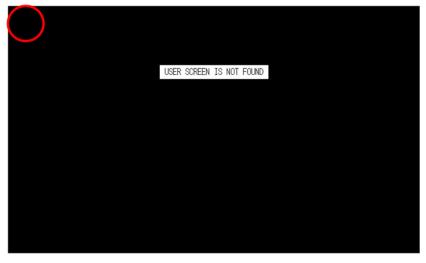
2nd In the 'Option' window, select 'Ethernet' and write the GP IP address in the 'Target IP' or automatically look for your device by selecting the good 'LANCard IP', clicking on the 'Refresh' button and selecting the device that appears int the result table.

Option				×
File Browse	Communication			
C	Serial	 Ethernet 	O USB	
	Tankin		4 45	_
	Target IP :	169 . 192 .	1 . 15	
	LANCard IP : 169	.192.1.10	•	·
		IP ADDRESS		
-				
	< [,	
		Refresh		1
_				
			ОК	Cancel

- 3rd Click on 'OK' to validate the connection method and to go back to the download page. Then click on 'Download' and 'Yes' to start loading the project in the GP device.
- 4th The project has been loaded in the GP device.

2.4 **GP-S070** serial communication settings for XBM PLC

1st Click on the top-left of the GP-S070 to open the 'System Setting' menu.



Rem: if the 'System Setting' menu does not appear, the default menu shorcut has been changed. Try to click on the other corner of the touch panel or refer to the 'GP-S070 - User Manual'.

2nd Select 'Environment'.

SYSTEM SET	TING		Þ	17/05/22 9:01 AM
Monitoring	Environment	Data	Functionality	Diagnostics

3rd Click on 'Serial Communication'.

SYSTEM SETTING ENVIRONMENT	17/05/22 9:03 AM
Serial Communication	Language
Local Ethernet	Screen Bright
Assistance Setting	Clock

4th In the 'Serial' page, set the port parameters as below by clicking on the different values.

	PROTOCOL	PORT	
CH1	No Use	RS-232C	SET
CH2	XBMDR16_CPU Cnet V 1.5M	RS-422	SET

And GP Station address: 0

(EFOR	SYSTEM SETT	ING\ ENVIRONMENT\ SERIAL	¢.	▶ 17/05/22 9:05 AM	
		PROTOCOL	PORT		
	CH1	No Use		SET	
	CH2	XBMDR16_CPU_Cnet V1.5M	RS-422	SET	
	GP STATION :				

5th Change the communication settings by clicking the 'SET' button and setting parameters as below. Then click on 'CLOSE'.

ltem	Setting	Note
Baud rate	Multiple choice	User setting
Data length	8-bit	User setting
Parity bit	None	User setting
Stop bit	1-bit	User setting
Flow control	XON/XOFF	Any value

SYSTEM SETTING	NENVIRONMENTN SERIALN SERIAL S	PECIFICATION	(COS) 17/05/22 9:07 AM
	CH2		
	BAUD RATE	19200	
	DATA LENGTH		
	PARITY	NONE	
	STOP	1	
	FLOW CONTROL	X0N/X0FF	

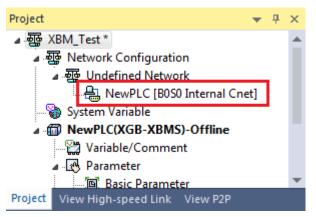
6th The GP-S070 is ready to be connected to the XBM PLC by its RS422 communication port.

3 XBM Project Settings

1st Run XG5000 and select [Project] – [New Project] in the menu bar. Enter project name and select CPU type 'XGB'-'XGB-XBMS' in the 'New Project' dialog box. Click 'OK'.

New Project			? <mark>×</mark>
P <u>r</u> oject name: File <u>d</u> irectory:	XBM_Test C:\XG5000\XBM_Test		OK Cancel
CPU S <u>e</u> ries	XGB 👻	Product Name	
<u>C</u> PU type:	XGB-XBMS 👻		
Programming Format:	XGK Programming	-	
Program name:	NewProgram		
Program Language:	LD	T	
Project description:			

2nd In the project tree, under [Network Configuration] – [Unspecified Network], double-click on the 'NewPLC [B0S0 Internal Cnet]' device.



ltem		Setting	Note
	Communication type	RS-485	Fixed
Standard	Communication speed	Same that GP setting	User setting
settings Channel 2	Terminating resistances	Disable	Fixed
	Station No.	Multiple choice	User setting, should be unique on the network
Operation mode	Channel 2	XGT server	Mandatory

3rd In 'Standard Settings - Cnet' dialog box appears. Set 'Standard Settings' tab as below.

Connection Settings	Channel 1	Channel 2	
Гуре:	RS232C 🔻	RS485 👻	
Speed:	9600 🔻	19200 🔻	
Terminating Resisters:	Disable 🔹	Disable 👻	
Station No.:	0	1	
Channel 1: XGT service Channel 2: XGT service XGT service Channel 2:		Modbus Settings	

4th In 'Advanced Settings' tab set as below, then click 'OK'.

ltem		Channel 2
	Data bit	8
Advanced settings	Stop bit	1
	Parity bit	NONE

andard Settings Ad	vanced Setting	s	
Connection Settings	Channel	1	Channel 2
Data Bit:	8	•	8 👻
Stop Bit:	1	•	1 -
Parity Bit:	NONE	•	
Parity Receiving	Disable	-	Disable 🔻
Modem Type:	Null Modem	-	Null Modem 👻
Modem Initialization:			
Time Settings			
Response Waiting Time: (0-50)(*100ms)	1		1
Delay Time Setting: (0-255)(*10ms)	0		0
Delay Time Between Character: (0-255)(*10ms)	1		1

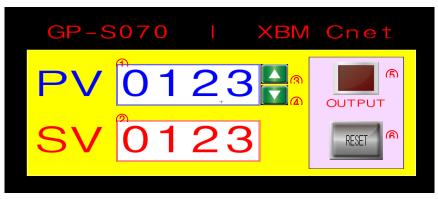
5th The project has been properly set. Then you need to create your own PLC program and download the complete project to the XBM device by selecting [Online] – [Write], then clicking 'OK'.

Rem: Please refer to the XG5000 documentation for procedures on Ladder program creation and other method to write project to a XBM device.

4 GUI Example

4.1 Solution overview

4.1.1 GP-S070 drawing (in GP-Editor from Autonics)



4.1.2 PLC program (in XG 5000 from LS)

					(R)
_ON 2	CTUD	C0000	M00000	M00001	D00000
					END

Rem: We will not describe how to create a Ladder program under XG 5000 in this document. Please refer to the XG 5000 documentation for more information.

4.2 GP-S070 – XBM connection

GP-SC	GP-S070			ХВМ	
Item	Tag Property	Usage	Bit	Word	
1	Numeral display Counter present value			C0	
2	Numeral input Counter set value		_	D0	
3	Touch key (momentary)	Input (Up)	MO	_	
4	Touch key (momentary)	Input (Down)	M1	_	
5	Lamp	Counter output	C0	_	
6	Touch key (momentary)	Reset	M2	_	

In this example, we will set the communication address:

- of the XBM device to 1

- of the GP-S070 device to 0

4.3 **GP Editor graphic**

4.3.1 Numeral display

1st Select [Draw] – [Numeral Display] in the menu bar. Click 'Device' then set the device parameters as below.

Sottings		
Settings		
[CH2]XBMDR16_CPU_Cnet		
XBM communication address		
CO		
Frame : (255,255,255) • Plate : (0,0,0) • Color : (255,255,255) • 2 #001 C0 • 1 C0 • 16bit Number with sign • • 32bit		

2nd Click 'OK' then move/resize the component as desired.



4.3.2 Numeral input

1st Select [Draw] – [Numeral Input] in the menu bar. Click 'Device' then set the device parameters as below.

Items	Settings		
Channel	[CH2]XBMDR16_CPU_Cnet		
Station	XBM communication address		
Device	D0		
Numeral Input Propert			
Device	Plate : (0,0,0) Color : (255,255) #001 D0 (° 16bit Number with sign C 32bit		
Project	OK Cancel Apply		

2nd Click 'OK' then move/resize the component as desired.

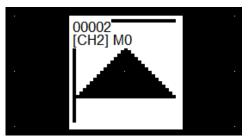


4.3.3 Touch key (Up key)

1st Select [Draw] – [Touch Key] – [Action] – [Bit] in the menu bar. Click 'Device' and set the device parameters as below. Then click 'OK'.

Items	Settings			
Channel	[CH2]XBMDR16_CPU_Cnet			
Station	XBM communication address			
Device	MO			
Action	Momentary			
Action D	ion Option/Trigger			
	Screen Switching			
	Edit			
	Delete			
☐ Key Code :				
	OK Cancel Apply			

- 2nd Click on the 'Form' tab, then on 'Shape...'. The graphic of the button can be selected in the image library, select for example the image '7 SW-013' then click 'OK'.
- 3rd Click 'OK', then move/resize the component as desired.

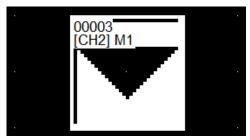


4.3.4 Touch key (Down key)

1st Select [Draw] – [Touch Key] – [Action] – [Bit] in the menu bar. Click 'Device' then set the device parameters as below.

Items	Settings		
Channel	[CH2]XBMDR16_CPU_Cnet		
Station	XBM communication address		
Device	M1		
Action	Momentary		
Action [tion Option/Trigger) Device/Screen Switching mentary (CH2)[M1 Bit Word Screen Switching Edit Delete : 0020 * Browse		
	OK Cancel App	y	

- 2nd Click on the 'Form' tab, then on 'Shape...'. Select for example the image '8 SW-015' then click 'OK'.
- 3rd Click 'OK', then move/resize the component as desired.

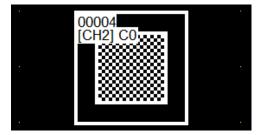


4.3.5 Lamp

1st Select [Draw] – [Lamp] in the menu bar. Click 'Device' then set the device parameters as below.

Items	Settings
Channel	[CH2]XBMDR16_CPU_Cnet
Station	XBM communication address
Device	C0
Lamp Property Basic Bt Device C Shape © Basic Figur	H2 #001 C0
	OK Cancel Apply

- 2nd Click on the 'Bit' tab, then on 'Shape...'. The graphic of the lamp can be selected in the image library, select for example the image '7 LP-013' then click 'OK'.
- 3rd Click 'OK', then move/resize the component as desired.



4.3.6 Touch key (Reset key)

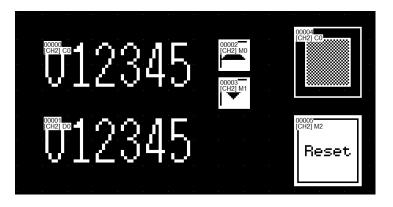
1st Select [Draw] – [Touch Key] – [Action] – [Bit] in the menu bar. Click 'Device' then set the device parameters as below.

Items	Settings		
Channel	[CH2]XBMDR16_CPU_Cnet		
Station	XBM communication address		
Device	M2		
Action	Momentary		
Action De			
	OK Cancel Apply		

- 2nd Click on the 'Form' tab, then on 'Shape...'. Select for example the image '2 SW-003' then click 'OK'. A Text can also be added by clicking on 'Text...'.
- 3rd Click 'OK', then move/resize the component as desired.

 (00005 CH2] M2			•
	Res	et	-	

4.3.7 Graphic result



5 Appendix

5.1 Serial communication settings

The serial communication parameters can be set in GP-Editor or directly on the GP device.

The following table shows which port can be set by using the 2 differents methods.

ltem	Setting in GP Editor	Setting in GP-S070 device
CH1 comm. setting	Available	Available
CH2 comm. setting	Unavailable	Available

5.1.1 Change CH1 communication settings in GP-Editor

1st Select [Common] - [Auxiliary Configuration] - [Project] in the menu bar. Check the 'Application of serial port, setup, menu key, configuration' if it is not already done.

Project Auxiliary Property					
Basic Key Window Language Serial Port Setup Menu Key					
Configure Key Window / Cursor Display Operate for screen switching : Display Cursor Only Call key window when detecting touch Call key window when detecting touch					
OK Cancel					

Project Auxiliary Property			<u></u>
Basic Key Window Langu	age Serial Port Set	up Menu Key	
Port Configuration —			
Baudrate :	19200bps	•	
Handshaking :	XON/XOFF	•	
Parity :	None	•	
Data Bit :	8bit	•	
Stop Bit :	1bit	•	
	ОК	Cancel	

2nd In the [Serial Port] tab, set CH1 port configuration.

3rd In the [Setup] tab, select CH1 port type and set station numbers. The other available port will be allocated to the CH2 port.

Project Auxiliary Property				
Basic Key Window Language Serial Port Se	tup Menu Key			
Preserve time of opening screen :	5 • (SEC)			
Off time of backlight :	10 • (MIN)			
Configuration of initial screen number :	0 •			
Buzzer				
© On ⊂ Off Sy	stem Information			
Port Configuration Port : RS232]			
Station :	<u>}</u>			
GP Station : 0				
OK Cancel				

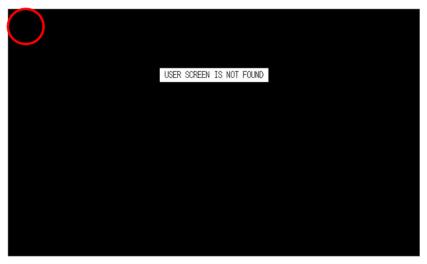
5.1.2 Change CH1/CH2 communication settings in the GP device

Please refer to the '2.4 GP-S070 communication settings' procedure.

6 Troubleshooting

6.1 **GP-S070:** language settings

1st Click on the top-left of the GP-S070 to open the '시스템설정' menu.



Rem: if the 'System Setting' menu does not appear, the default menu shorcut has been changed. Try to click on the other corners of the touch panel or refer to the 'GP-S070 - User Manual'.

2nd Select '환경설정'.

(이전) AI스템설정	1			17/05/22 8:53 AM
모니터링	환경설정	eioi e i	기능설정	진단기능

3rd Click on '언어설정'.

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4th Click on 'ENGLISH' then validate the change by click '이전'.

이전 시스템설정	환경설정\ 언어설정	(17/05/22 8:55 AM
~ 사용	자 언어	시스템 언어
사용자 언어	Korean	
국가별 문자폰트	JINDODUM	KOREAN ENGLISH
영문 폰트	DODUM	
벡터 폰트	DODUM	



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