The invisible hand for more convenient world
Autonics sensors & controllers

Autonics
Sensors & Controllers

Graphic Panel

GP-XBM (RS232)

Solution Guide

GP Series

Thank you very much for selecting Autonics products.

For your safety, please read the corresponding product manuals before using them

© Copyright Reserved Autonics Co., Ltd.

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.

© Copyright Reserved Autonics Co., Ltd.

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.
- This manual may not be edited or reproduced in either part or whole without written permission of Autonics.
- This manual is not provided as part of the product package. Please visit our home-page (www.autonics.com) to download a copy.
- 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.

© Copyright Reserved Autonics Co., Ltd.

Document Symbols

Symbol	Description
Note	Additional information about a particular feature.
Warning	Failure to follow instructions can result in serious injury or death.
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.

© Copyright Reserved Autonics Co., Ltd.

Document Version History

Date	Version	Author	Description
December 17th 2016	v1.0	기술지원팀 - YCG	Document creation
August 8th 2017	v2.0	기술지원팀 - GTE	Document revision and template update Add several sections
September 15th 2017	v2.0.1	기술지원팀 - GTE	Minor text updates

© Copyright Reserved Autonics Co., Ltd.

Table of Contents

Preface **3**

Document Guide **4**

Document Symbols **5**

Document Version History **6**

Table of Contents **7**

1 Solution Overview **9**

1.1 Solution description 9
1.2 Solution components and version 9
1.3 Solution architecture 10
1.4 Communication cable pin details and dimensions (Autonics model: C3M5P11-D9F0-W4*0) 10

2 GP-S070 Communication Settings **12**

2.1 GP-Editor project settings 13
2.2 GP-S070 Ethernet communication settings for GP-Editor 14
2.3 Send GP-Editor project to GP-S070 device by Ethernet 18
2.4 GP-S070 serial communication settings for XBM PLC 19

3 XBM Project Settings **22**

4 GUI Example **26**

4.1 Solution overview 26
4.1.1 GP-S070 drawing (in GP-Editor from Autonics) 26
4.1.2 PLC program (in XG 5000 from LS) 26
4.2 GP-S070 – XBM connection 26
4.3 GP Editor graphic 27
4.3.1 Numeral display 27
4.3.2 Numeral input 28
4.3.3 Touch key (Up key) 29
4.3.4 Touch key (Down key) 30
4.3.5 Lamp 31
4.3.6 Touch key (Reset key) 32
4.3.7 Graphic result 33

5 Appendix **35**

5.1 Serial communication settings 35
5.1.1 Change CH1 communication settings in GP-Editor 35
5.1.2 Change CH1/CH2 communication settings in the GP device 37

6 Troubleshooting **38**

6.1 GP-S070: language settings 38

© Copyright Reserved Autonics Co., Ltd.

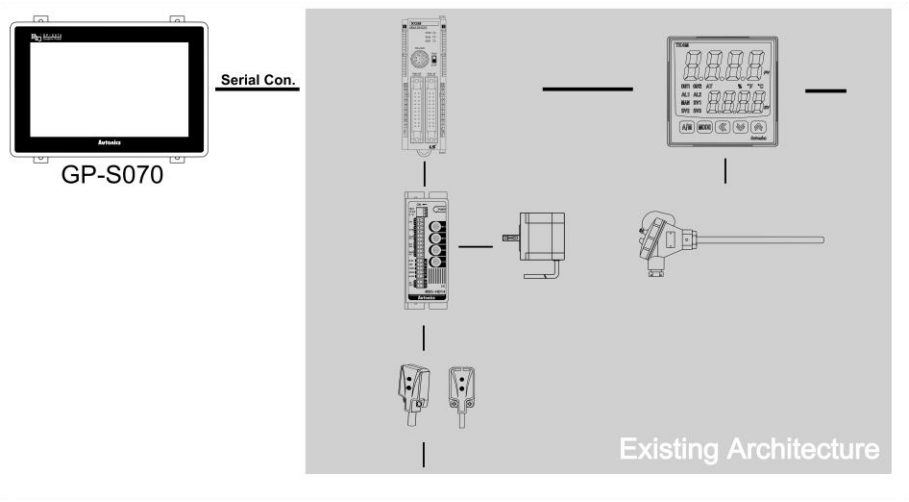
© Copyright Reserved Autonics Co., Ltd.

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-485 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 the 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.

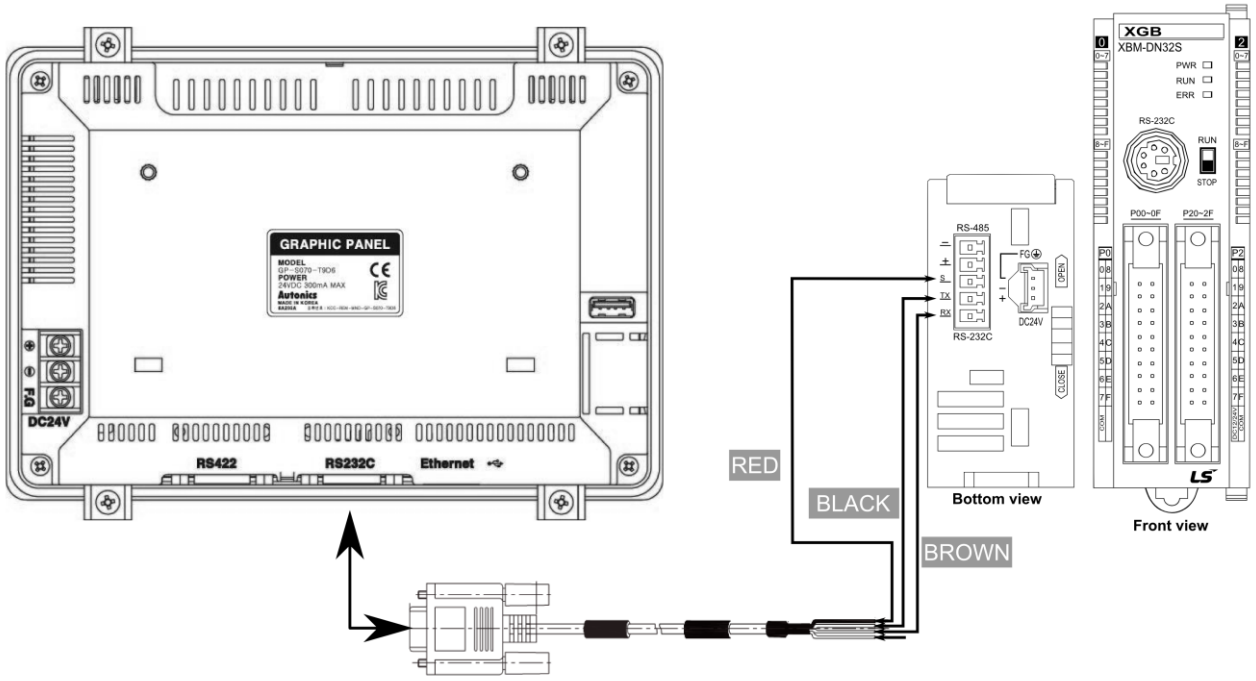
1.2 Solution components and version

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. C3M5P11-D9F0-W4*0

© Copyright Reserved Autonics Co., Ltd.

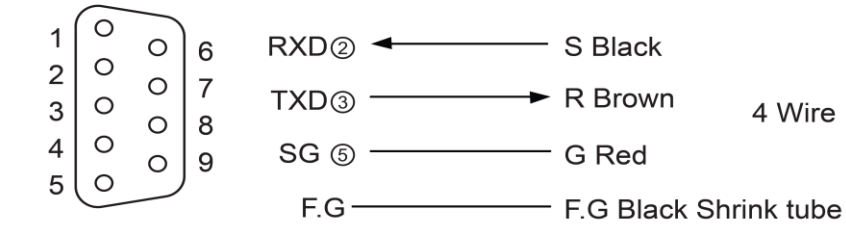
1.3 Solution architecture

GP-S070-T9D6 **XBM-DN32S(Cnet)**

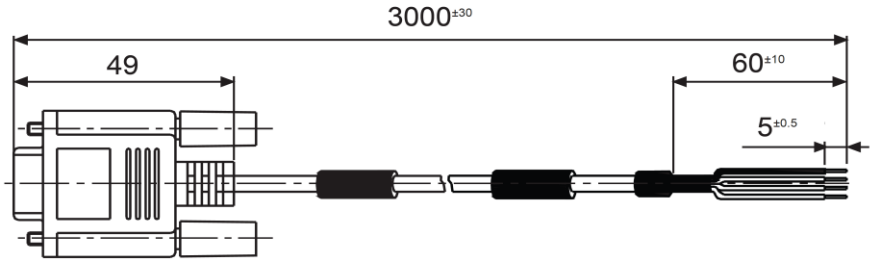


C3M5P11-D9F0-W4*0 cable

1.4 Communication cable pin details and dimensions (Autonics model: C3M5P11-D9F0-W4*0)



D-Sub 9-pin Female
<GP side>



(unit: mm)

© Copyright Reserved Autonics Co., Ltd.

© Copyright Reserved Autonics Co., Ltd.

2 GP-S070 Communication Settings

The GP device should be set to use its RS232C 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:

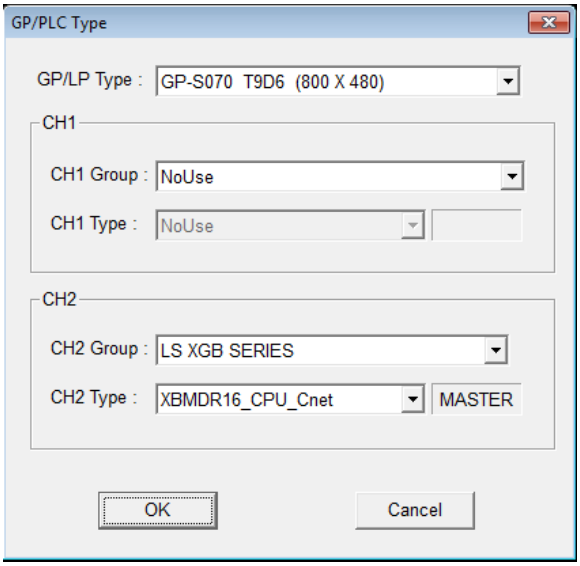
In this document, we will use an Ethernet connection to download the GP-Editor project to the GP device, please refer to the 'GP-Editor Download Manual' if you want to use another method (serial connection or USB connection).

© Copyright Reserved Autonics Co., Ltd.

2.1 GP-Editor project settings

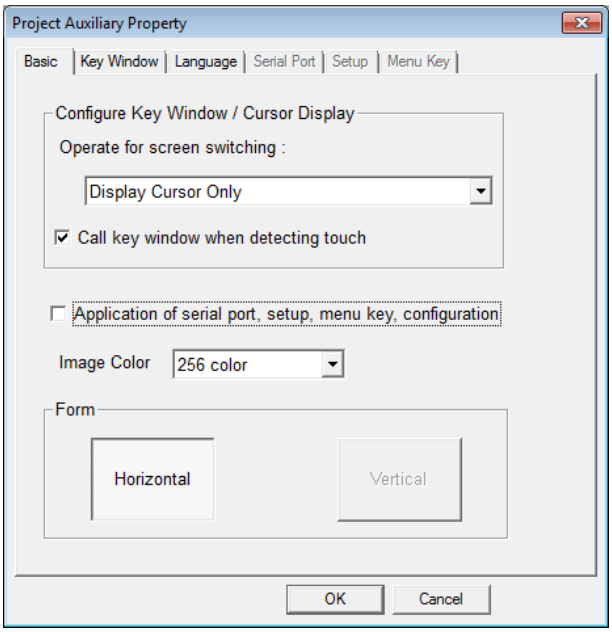
1st Run the GP Editor software and select [Project] – [New] in the menu bar. If you already build a project file, open this project by selecting [Project] – [Load] in the menu bar.

2nd In the 'GP/PLC Type' dialog box, set 'GP/LP Type', CH1/2 'Group' and 'Type' as bellow then click 'OK'.



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.



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.**

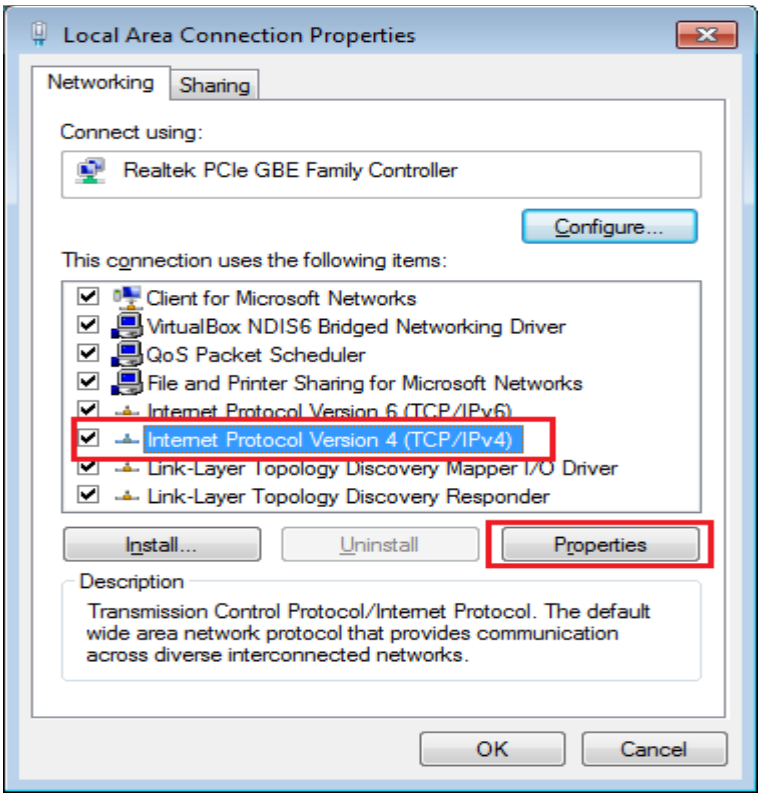
Rem: Please refer to the 'GP-Editor User Manual' document for procedures on graphics creation or to the example section of this document for a simple interface example.

© Copyright Reserved Autonics Co., Ltd.

2.2 GP-S070 Ethernet communication settings for GP-Editor

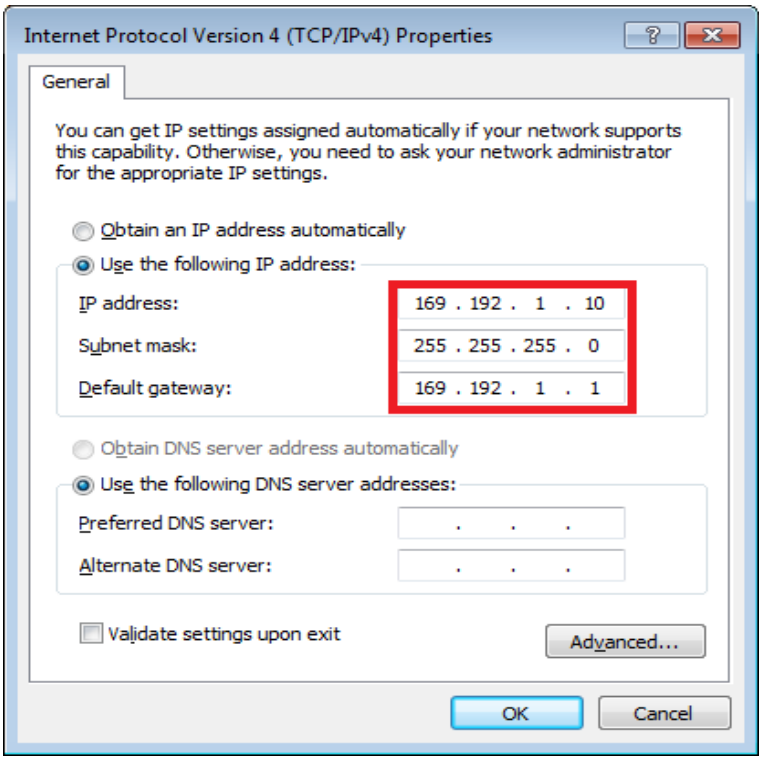
1st First check the computer IP settings:

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'.

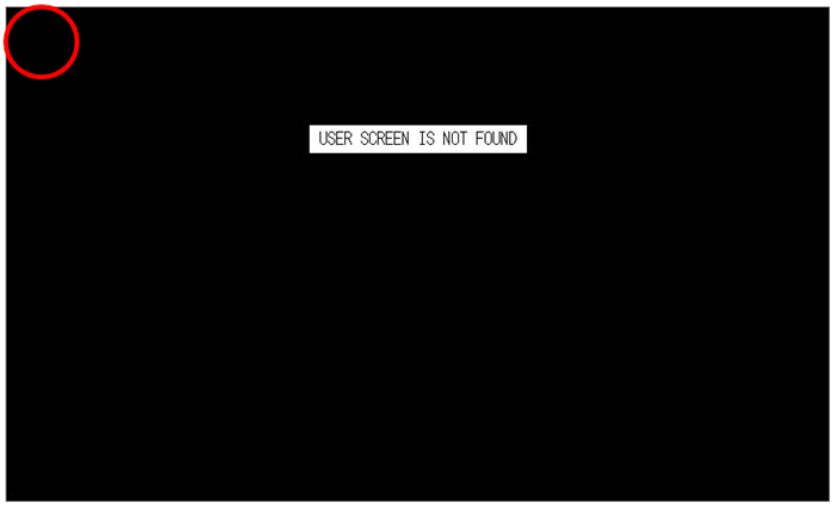


2nd Note your IP address and default gateway to later set properly the GP address.

© Copyright Reserved Autonics Co., Ltd.

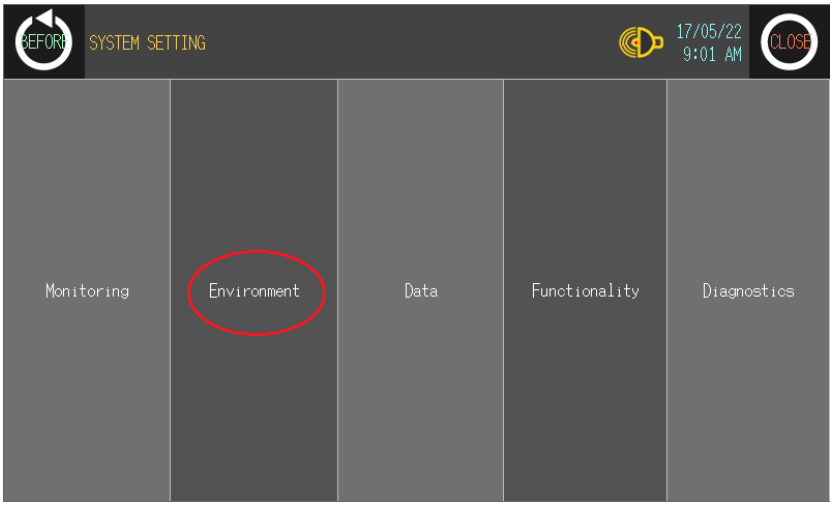


3rd On the GP-S070 device, click on the top-left of the screen to open the ‘System Setting’ menu.

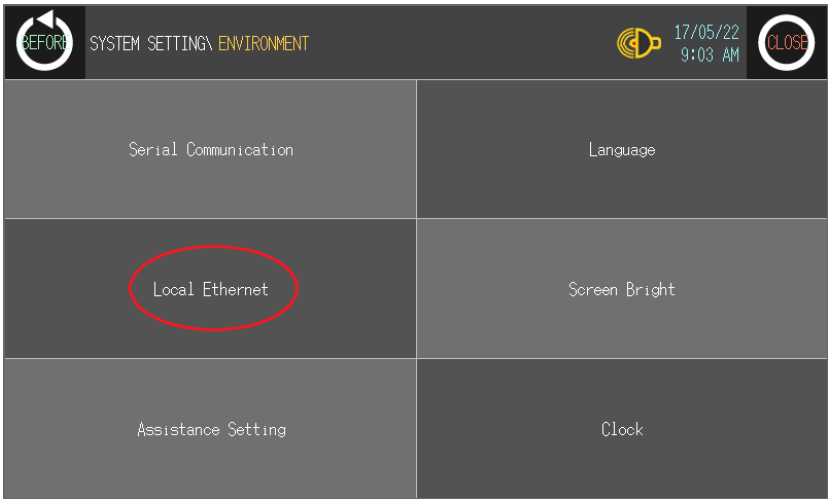


Rem: if the ‘System Setting’ menu does not appear, the default menu shorcut has been changed. Try to click on the other corner of the touch panel or refer to the ‘GP-S070 - User Manual’.

4th Select ‘Environment’.

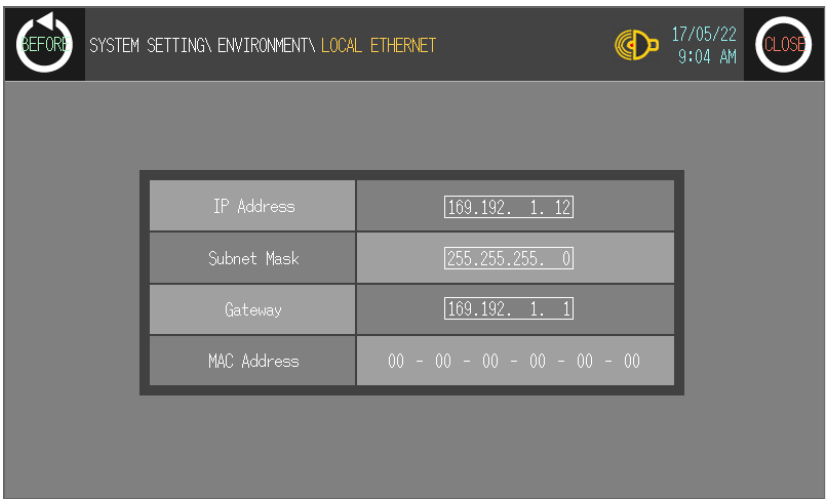


5th Select ‘Local Ethernet’.



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



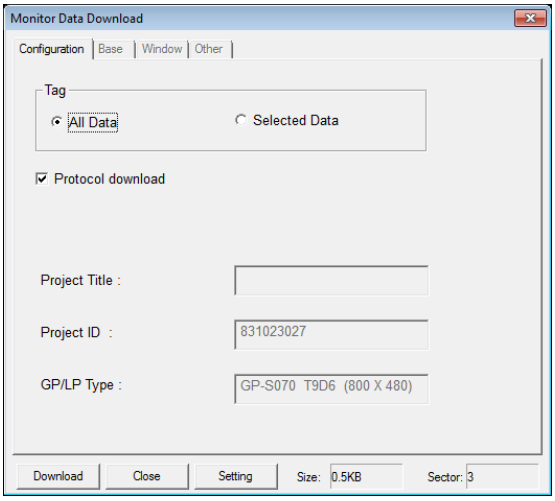
© Copyright Reserved Autonics Co., Ltd.

7th Click on ‘CLOSE’ to validate the changes.

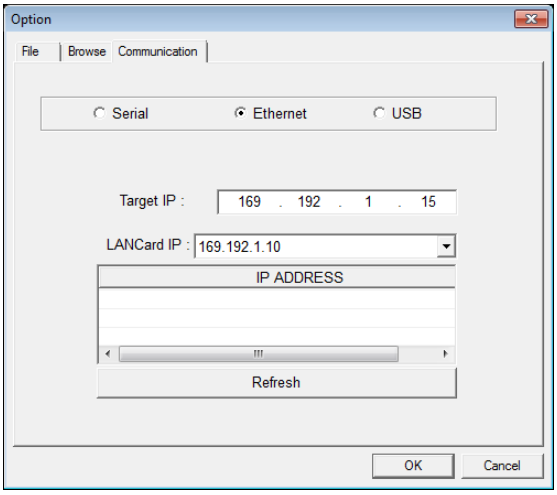
© Copyright Reserved Autonics Co., Ltd.

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’.



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 in the result table.



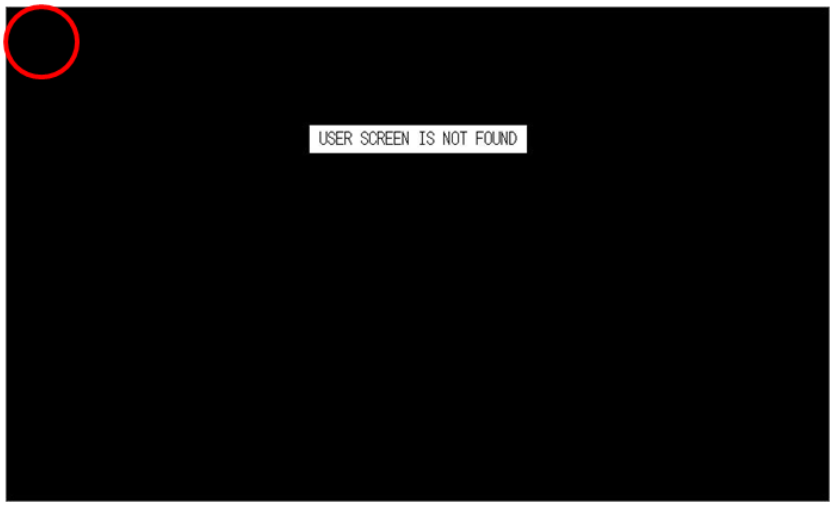
3rd Click on ‘OK’ to validate the connection method and to go back to the download page. Then click on ‘Download’ and ‘Yes’ to start loading the project in the GP device.

4th **The project has been loaded in the GP device.**

© Copyright Reserved Autonics Co., Ltd.

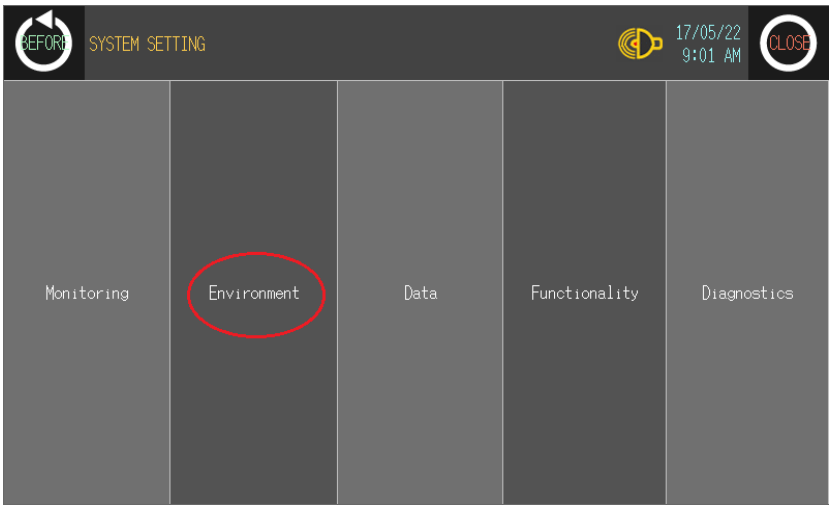
2.4 GP-S070 serial communication settings for XBM PLC

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

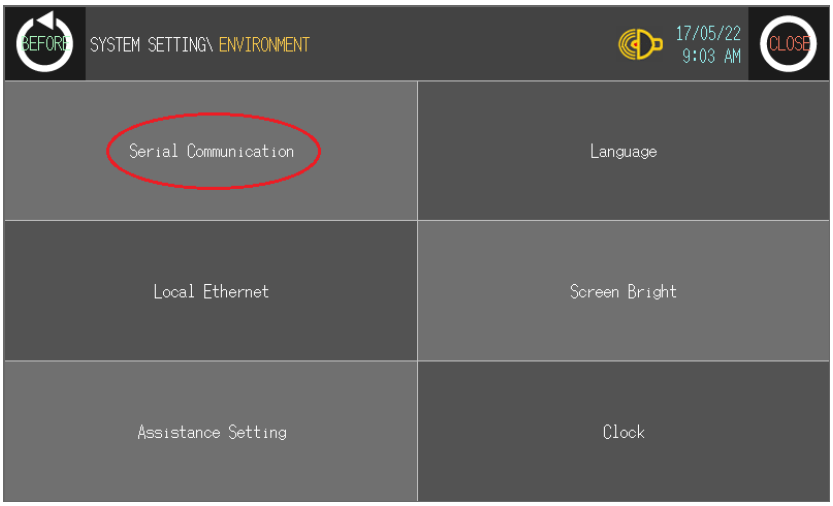


Rem: if the ‘System Setting’ menu does not appear, the default menu shorcut has been changed. Try to click on the other corner of the touch panel or refer to the ‘GP-S070 - User Manual’.

2nd Select ‘Environment’.



3rd Click on ‘Serial Communication’.

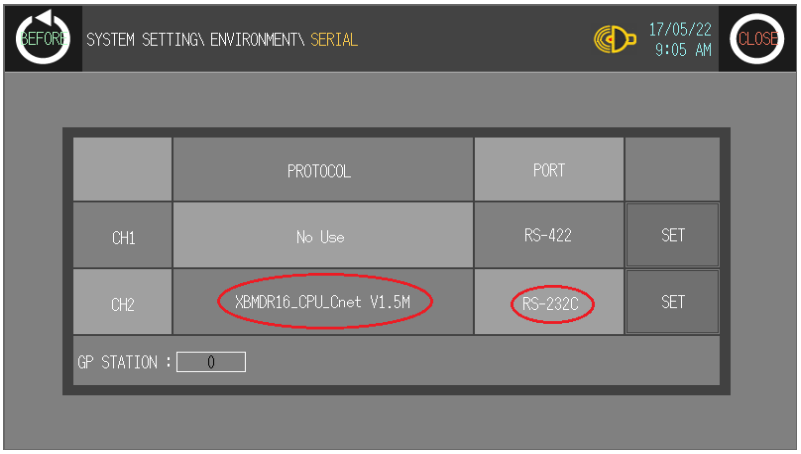


© Copyright Reserved Autonics Co., Ltd.

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

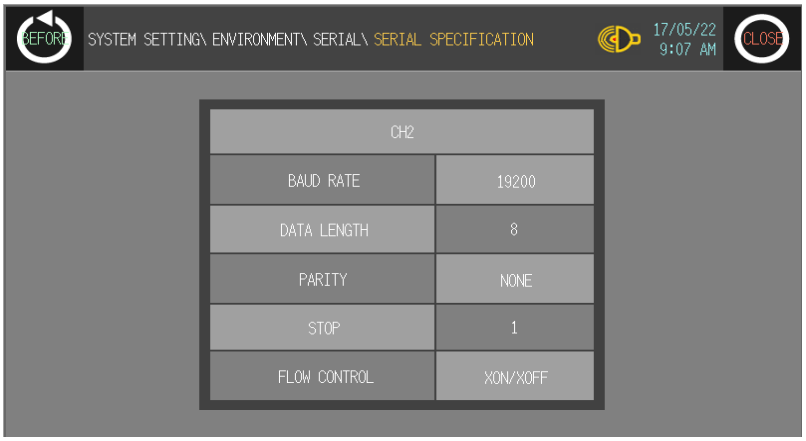
	PROTOCOL	PORT	
CH1	No Use	RS-422	SET
CH2	XBMDR16_CPU Cnet V 1.5M	RS-232C	SET

And GP Station address: 0



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

Item	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



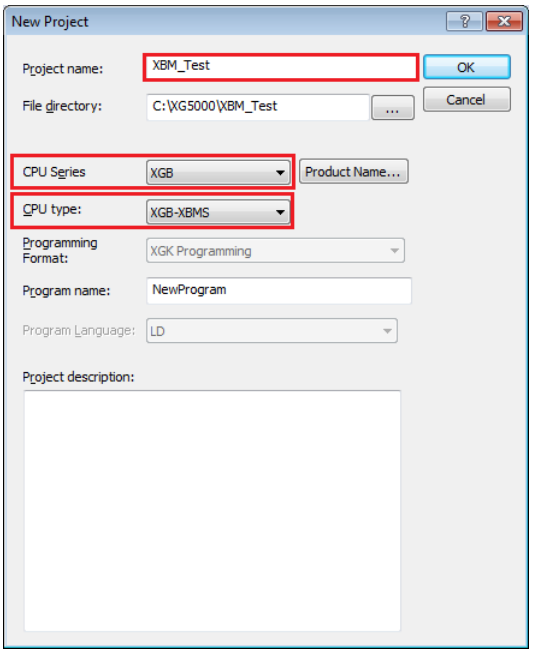
6th **The GP-S070 is ready to be connected to the XBM PLC by its RS232C communication port.**

© Copyright Reserved Autonics Co., Ltd.

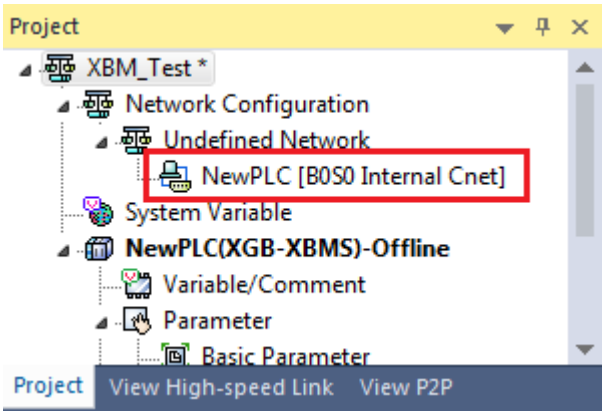
© Copyright Reserved Autonics Co., Ltd.

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'.



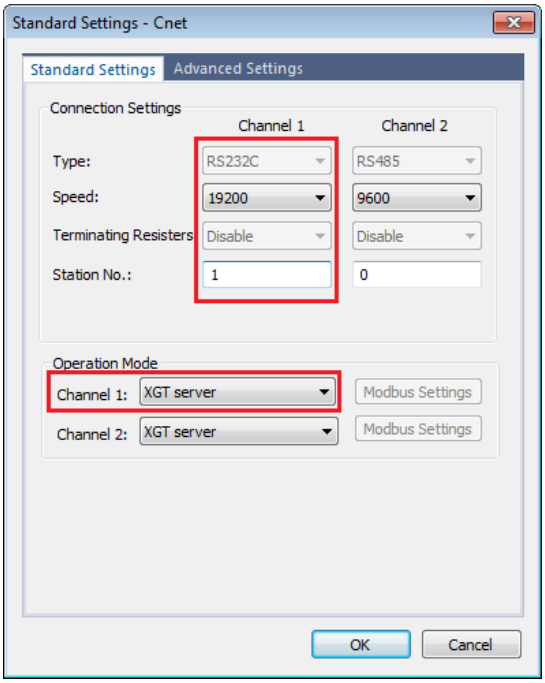
2nd In the project tree, under [Network Configuration] – [Unspecified Network], double-click on the 'NewPLC [B0S0 Internal Cnet]' device.



© Copyright Reserved Autonics Co., Ltd.

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

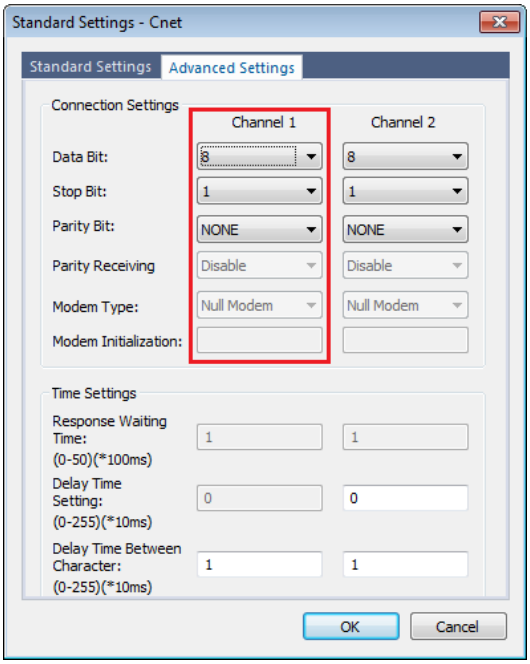
Item		Setting	Note
Standard settings Channel 1	Communication type	RS232C	Fixed
	Communication speed	Same that GP setting	User setting
	Terminating resistances	Disable	Fixed
	Station No.	Multiple choice	User setting, should be unique on the network
Operation mode	Channel 1	XGT server	Mandatory



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

Item		Channel 1
Advanced settings	Data bit	8
	Stop bit	1
	Parity bit	NONE

© Copyright Reserved Autonics Co., Ltd.



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.

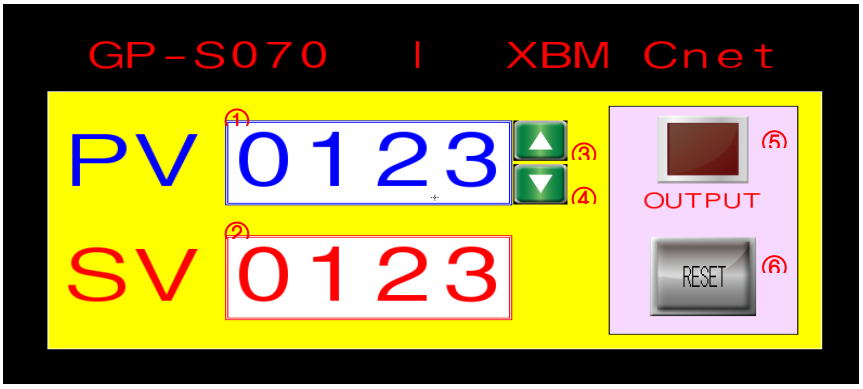
© Copyright Reserved Autonics Co., Ltd.

© Copyright Reserved Autonics Co., Ltd.

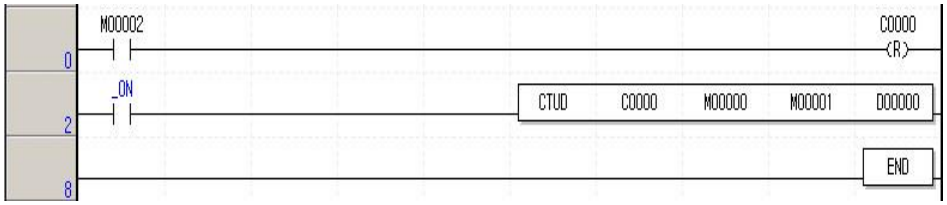
4 GUI Example

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)



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-S070			XBM	
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)	M0	—
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

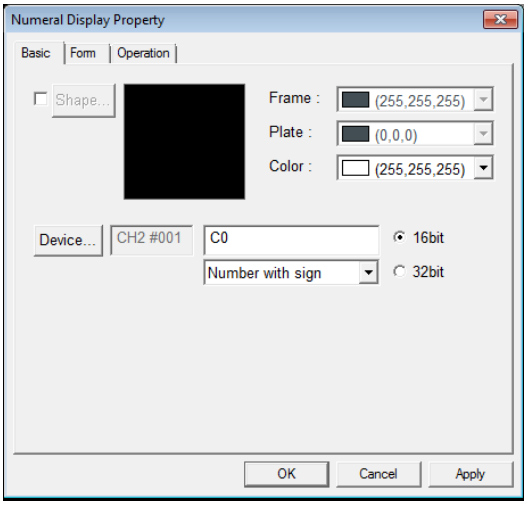
© Copyright Reserved Autonics Co., Ltd.

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.

Items	Settings
Channel	[CH2]XBMDR16_CPU_Cnet
Station	XBM communication address
Device	C0



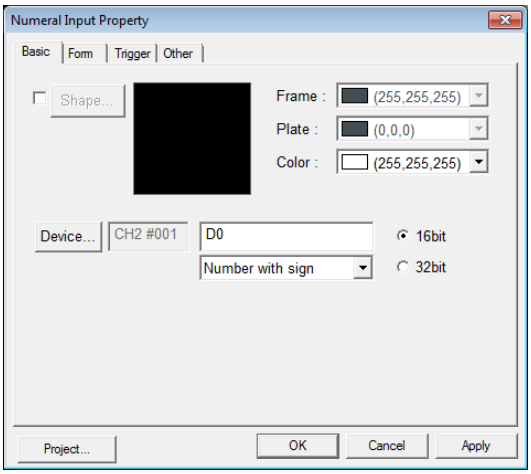
2nd Click ‘OK’ then move/resize the component as desired.

© Copyright Reserved Autonics Co., Ltd.

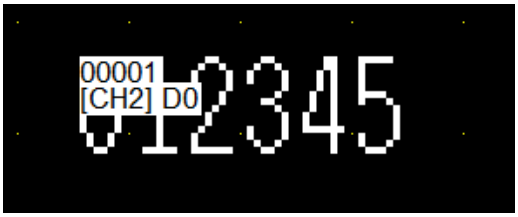
4.3.2 Numeral input

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



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

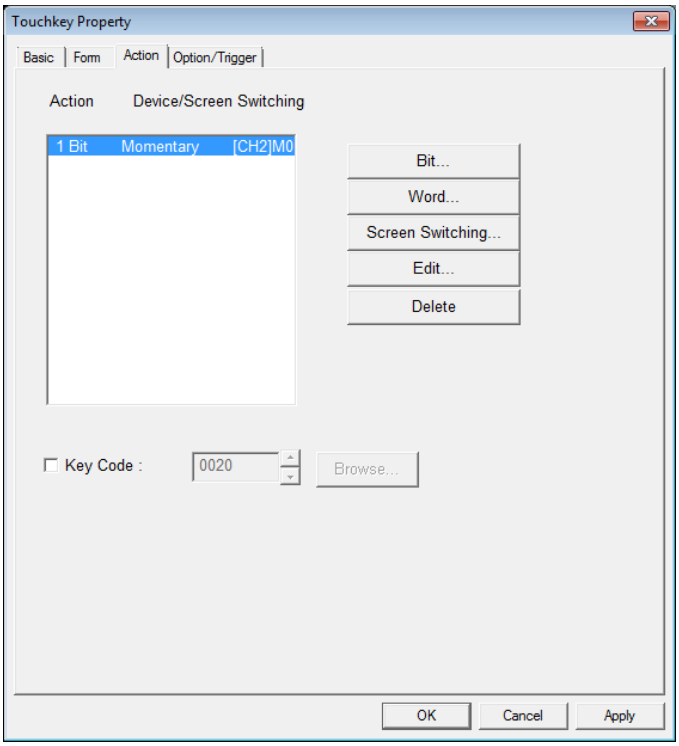


© Copyright Reserved Autonics Co., Ltd.

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	M0
Action	Momentary



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’.

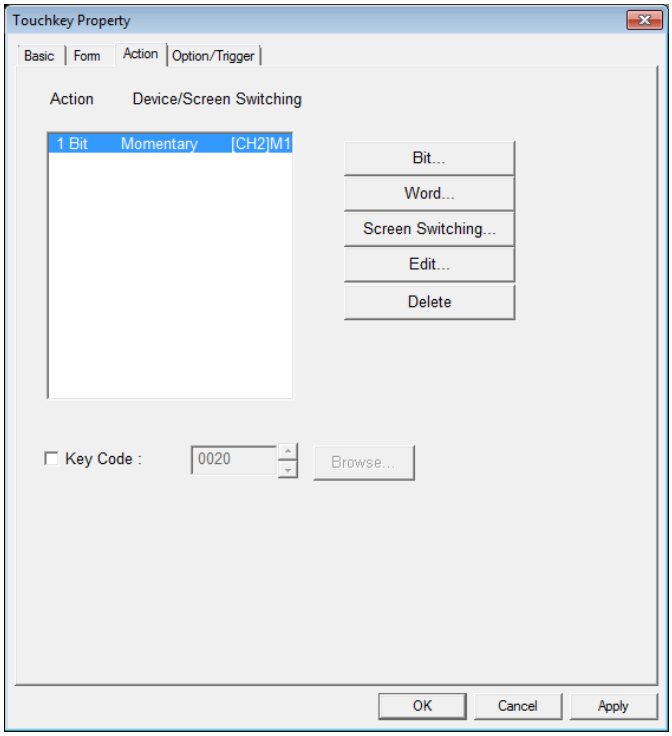
3rd Click ‘OK’, then move/resize the component as desired.

© Copyright Reserved Autonics Co., Ltd.

4.3.4 Touch key (Down key)

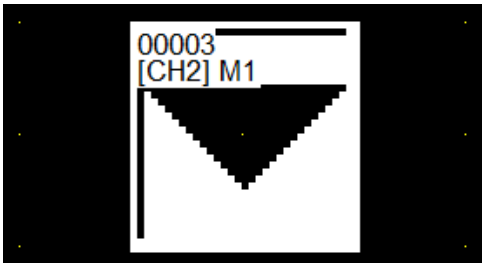
1st Select [Draw] – [Touch Key] – [Action] – [Bit] in the menu bar. Click 'Device' then set the device parameters as below.

Items	Settings
Channel	[CH2]XBMDR16_CPU_Cnet
Station	XBM communication address
Device	M1
Action	Momentary



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.

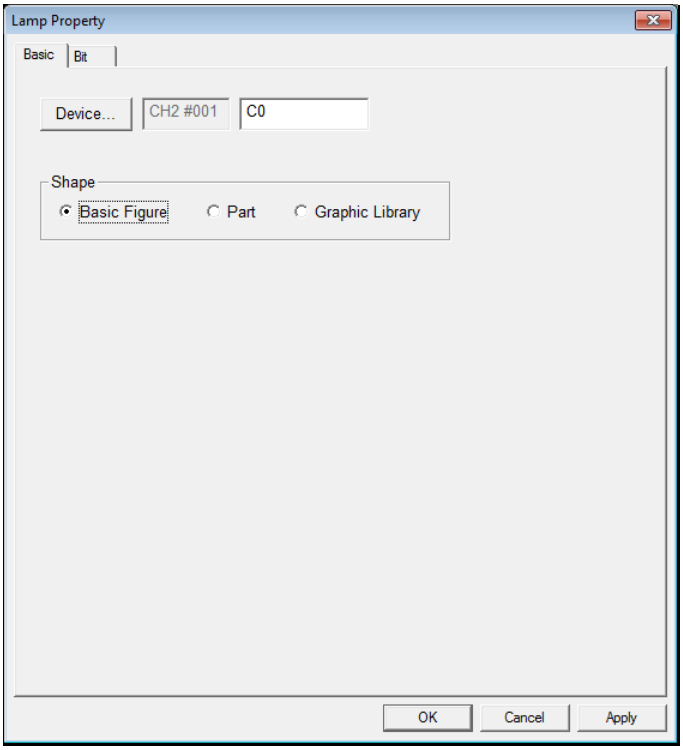


© Copyright Reserved Autonics Co., Ltd.

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



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’.

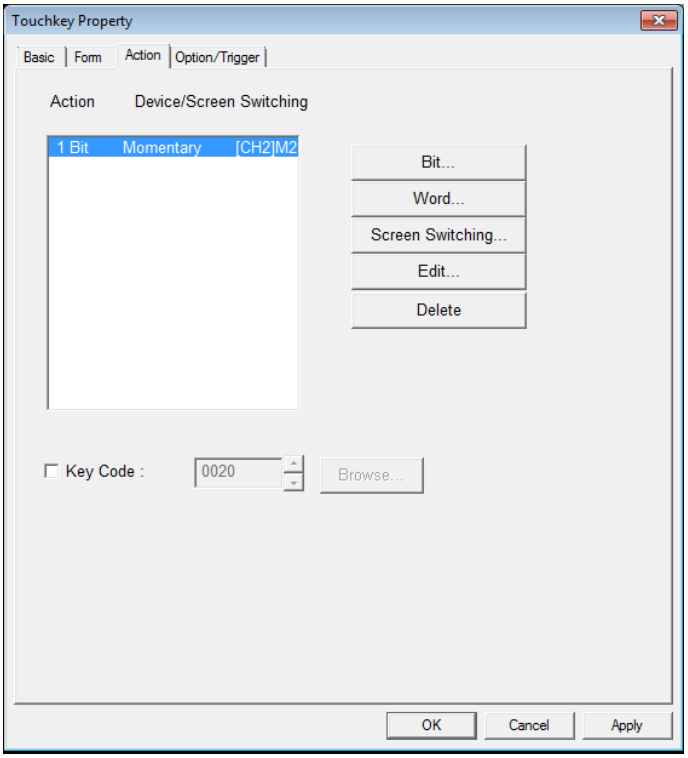
3rd Click ‘OK’, then move/resize the component as desired.

© Copyright Reserved Autonics Co., Ltd.

4.3.6 Touch key (Reset key)

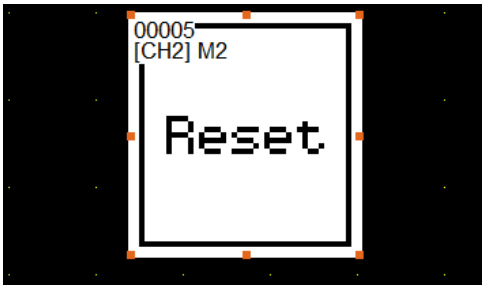
1st Select [Draw] – [Touch Key] – [Action] – [Bit] in the menu bar. Click 'Device' then set the device parameters as below.

Items	Settings
Channel	[CH2]XBMDR16_CPU_Cnet
Station	XBM communication address
Device	M2
Action	Momentary



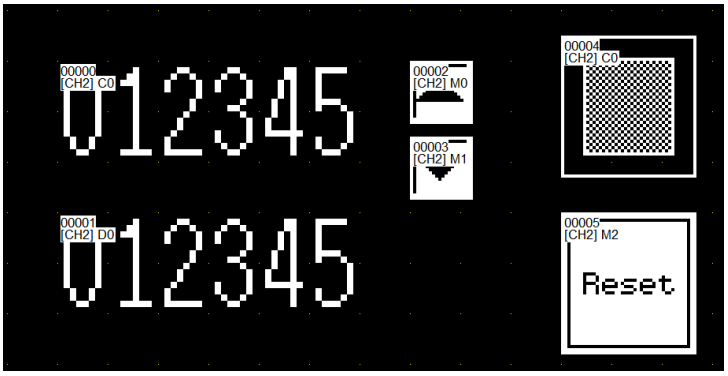
2nd Click on the 'Form' tab, then on 'Shape…'. Select for example the image '2 SW-003' then click 'OK'. A Text can also be added by clicking on 'Text…'.

3rd Click 'OK', then move/resize the component as desired.



© Copyright Reserved Autonics Co., Ltd.

4.3.7 Graphic result



© Copyright Reserved Autonics Co., Ltd.

5 Appendix

5.1 Serial communication settings

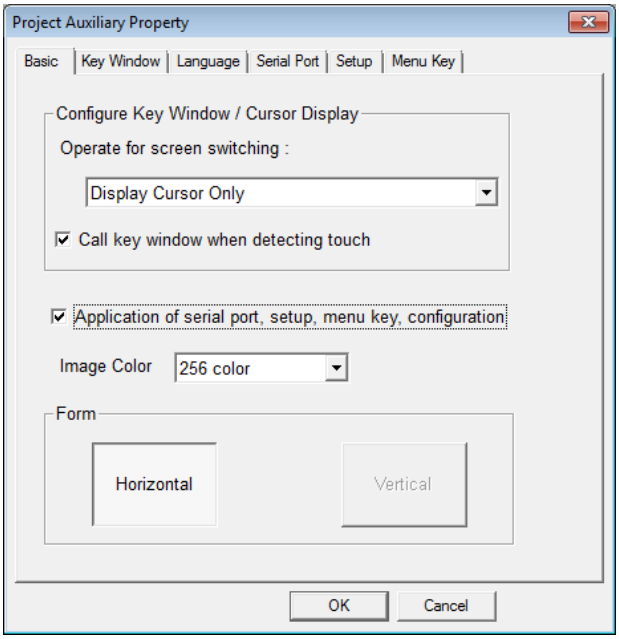
The serial communication parameters can be set in GP-Editor or directly on the GP device.

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

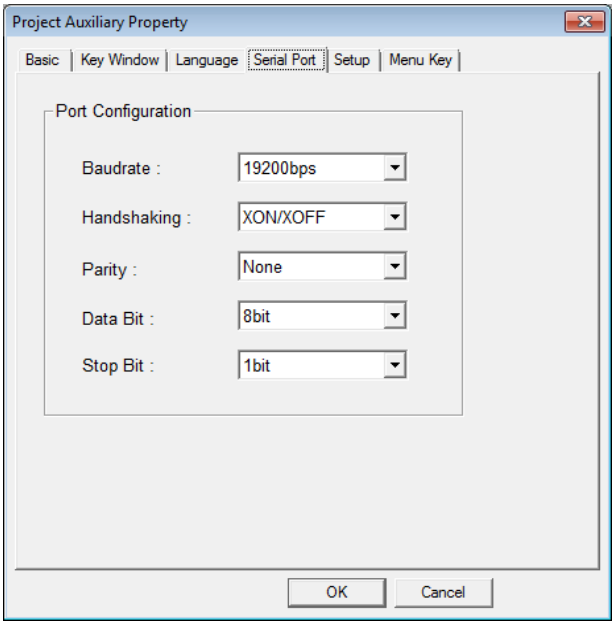
Item	Setting in GP Editor	Setting in GP-S070 device
CH1 comm. setting	Available	Available
CH2 comm. setting	Unavailable	Available

5.1.1 Change CH1 communication settings in GP-Editor

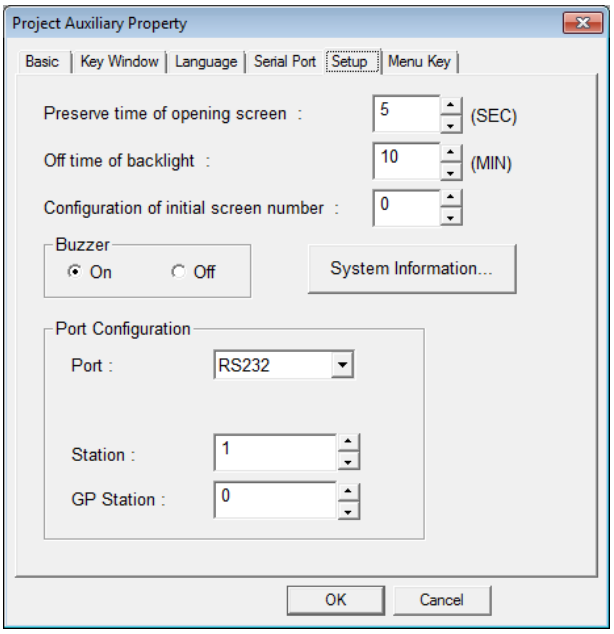
1st Select [Common] - [Auxiliary Configuration] - [Project] in the menu bar. Check the 'Applicaion of serial port, setup, menu key, configuration' if it is not already done.



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.



© Copyright Reserved Autonics Co., Ltd.

5.1.2 Change CH1/CH2 communication settings in the GP device

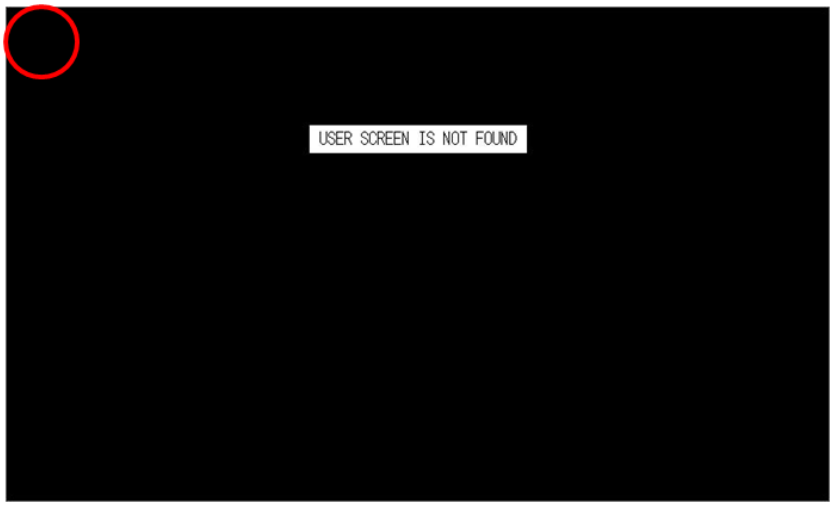
Please refer to the '2.4 GP-S070 communication settings' procedure.

© Copyright Reserved Autonics Co., Ltd.

6 Troubleshooting

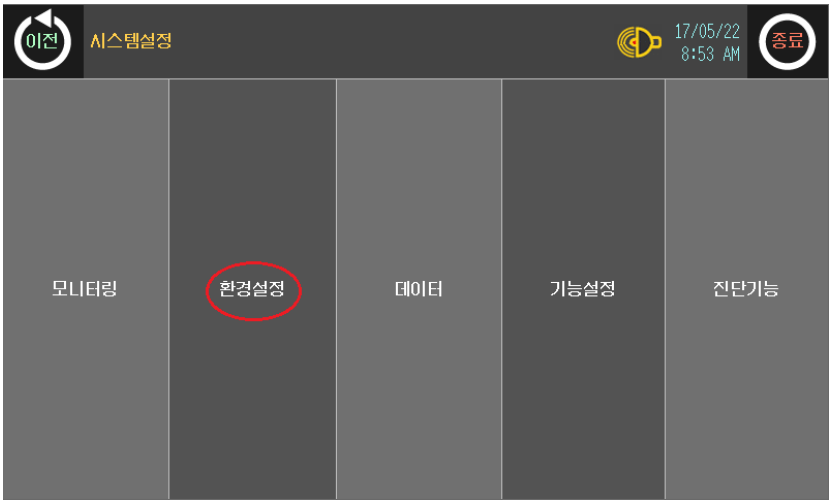
6.1 GP-S070: language settings

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'.



3rd Click on '언어설정'.

© Copyright Reserved Autonics Co., Ltd.

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

© Copyright Reserved Autonics Co., Ltd.

Autonics
Sensors & Controllers

www.autonics.com

Distributor

■ **Major Products**

·Photoelectric Sensors·Fiber Optic Sensors·Door Sensors·Door Side Sensors·Area Sensors
·Proximity Sensors·Pressure Sensors·Connectors/Sockets·Rotary Encoders·Panel Meters
·Counters·Timers·Temperature Controllers·SSRs/Power Controllers·Sensor Controllers
·Graphic/Logic Panels·Temperature/Humidity Transducers·Switching Mode Power Supplies
·Stepper Motors/Drivers/Motion Controllers·I/O Terminal Blocks & Cables·Display Units
·Control Switches/Lamps/Buzzers·Field Network Devices·Tachometer/Pulse(Rate) Meters
·Laser Marking System(Fiber, CO_2, Nd:YAG)·Laser Welding/Cutting System

■ Any proposal for a product improvement and development: Product@autonics.com

■ **Corporate Headquarters**
18 Bansong-ro, 513 Beon-gil, Haeundae-gu, Busan, South Korea 48002
■ **Overseas Business Headquarters**
#402-303, Bucheon Techno Park, 655, Pyeongcheon-ro, Wonmi-gu, Bucheon, Gyeonggi-do, South Korea 14502
Tel: 82-32-610-2730 / Fax: 82-32-329-0728 / E-mail: sales@autonics.com
■ **Brazil – Autonics do Brasil Comercial Importadora Exportadora Ltda**
Tel: 55-11-2307-8480 / Fax: 55-11-2309-7784 / E-mail: comercial@autonics.com.br
■ **China – Autonics electronic(Jiaxing) Corporation**
Tel: 86-21-5422-5969 / Fax: 86-21-5422-5961 / E-mail: china@autonics.com
■ **India – Autonics Automation India Private Limited**
Tel: 91-22-2781-4305 / Fax: 91-22-2781-4518 / E-mail: india@autonics.com
■ **Indonesia – PT. Autonics Indonesia**
Tel: 62-21-8088-8814/5 / Fax: 62-21-8088-4442(4440) / E-mail: indonesia@autonics.com
■ **Japan – Autonics Japan Corporation**
Tel: 81-3-3950-3111 / Fax: 81-3-3950-3191 / E-mail: ja@autonics.com
■ **Malaysia – Mal-Autonics Sensor Sdn. Bhd.**
Tel: 60-3-7805-7190 / Fax: 60-3-7805-7193 / E-mail: malaysia@autonics.com
■ **Mexico – Autonics Mexico S.A. DE C.V**
Tel: 52-55-5207-0019 / Fax: 52-55-1663-0712 / E-mail: ventas@autonics.com
■ **Russia – Autonics Corp. Russia Representative Office**
Tel/Fax: 7-495-660-10-88 / E-mail: russia@autonics.com
■ **Turkey – Autonics Otomasyon Ticaret Ltd. Sti.**
Tel: 90-216-365-9117/3/4 / Fax: 90-216-365-9112 / E-mail: infotr@autonics.com
■ **USA – Autonics USA, Inc.**
Tel: 1-847-680-8160 / Fax: 1-847-680-8155 / E-mail: sales@autonicsusa.net
■ **Vietnam – Cong Ty Tnhh Autonics Vina**
Tel: 84-8-3771-2662 / Fax: 84-8-3771-2663 / E-mail: vietnam@autonics.com

Dimensions or specifications on this manual are subject to change and some models may be discontinued without notice.