Windows CE based new HMI

XGT Panel XP Series

Fresh start with XP series suits your every requirement.

neXt Generation Technology

Advanced technology for the customers.

XGT Panel Series is a brand new HMI product with an intensive and advanced technology of LSIS to cope with the rapidly changing market situation. It is an innovative product having both reliability and convenience based on the Windows CE.

With the user-oriented convenience, it offers high resolution display, prompt data transmission and processing, and an user-friendly interface.

LSIS provides the Leading Solution to the automation field with the XGT Panel Series.

We are confident of our XGT Panel Series which contains high technology and our commitment to quality at the HMI market.

Superb performance, convenient functions

- High and vivid distinction with 65,536 colors.
- Various vector symbols and high quality raster symbols.
- Support diverse file types including BMP, JPG, GIF, and WMF, etc.
- Simple movie clip effects with GIF animation.
- 10/100 BASE-T Ethernet interface.
- Convenient and easy screen editing.
- Strengthened data management (Logging, Recipe, and Alarm).
- Read function of a controller's state information (Monitoring and maintenance).
- Multi-lingual display up to 4 languages and easy switching.
- Offline program simulation.
- Tag function of the HMI S/W (Easy to change the address of the graphic objects).
- USB host for the use of peripheral devices (Mouse, keyboard, printer, etc.)
- Sufficient memory space for screen saving (10MB).

XGT Panel XP Series Line Up

A new and improved Windows CE-based HMI–

38cm (15 inch) XP90-TTA

TFT color
XGA (1024×768)
65,536 colors

External Interface

- Ethernet I/F
- Serial I/F(RS-232C)
- Serial I/F(RS422/485)
- USB I/F
- CF card I/F
- Expansion port

31cm (12.1 inch) XP80-TTA

TFT color
SVGA (800×600)
65,536 colors

External Interface

- Ethernet I/F
- Serial I/F(RS-232C)
- Serial I/F(RS422/485)
- USB I/F
- CF card I/F
- Expansion port

26cm (10.4 inch) XP70-TTA

TFT color
VGA (640×480)
65,536 colors

External Interface

- Ethernet I/F
- Serial I/F(RS-232C)
- Serial I/F(RS422/485)
- USB I/F
- CF card I/F
- Expansion port

Speed

XP series has Ethernet interface for the rapid transmission of data. XP series communicates with some PLCs and transmit data promptly through the Ethernet interface.

Expression

XP series supports 65,536 full color display and its mass storage of the flash memory offers best quality.

Variety

XP series supports not only BMP, JPG graphic file types but also WMF, GIF file for making a movie clip drawing on the screen.

XGT Panel XP Series

21cm (8.4 inch) XP50-TTA/TTE

XP50-TTA TFT color / 64,536 colors
VGA (640×480)

XP50-TTE TFT color / 256 colors
VGA (640×480)

External Interface

Ethernet I/F
Serial I/F(RS-232C)
Serial I/F(RS422/485)
USB I/F
CF card I/F
Expansion port

※XP50-TTE: Serial I/F (RS-232C, RS-422/485) and USB I/F only

14cm (5.7 inch) XP30-TTA/BTA

XP30-TTA TFT color / 65,536 colors
QVGA (320×240)

XP30-BTA STN MONO (8-bit Gray)
QVGA (320×240)

External Interface

Ethernet I/F
Serial I/F(RS-232C)
Serial I/F(RS422/485)
USB I/F
CF card I/F
Expansion port

14cm (5.7 inch) XP30-TTE/BTE

XP30-TTE TFT color / 256 colors
QVGA (320×240)

XP30-BTE STN MONO Economy (8-bit Gray)
QVGA (320×240)

External Interface

USB I/F
Serial I/F(RS-232C)
Serial I/F(RS422/485)

Multi-Language

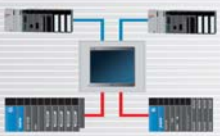
XP series can display many languages which are supported on Microsoft Windows. Real-time conversion of four languages is available during run.

Specialization

XP series strengthens advanced features such as Logging, Recipe, Alarm, Script, and Scheduler. It helps users for the liberal and practical use.

Network

XP series enables users to implement data communication with several controllers at one time. The maximum 4 PLCs are connectable to a XP machine.



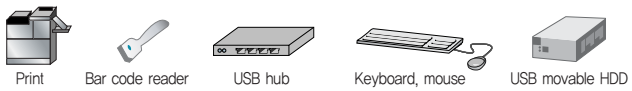
Data processing

Faster transmission of mass storage data

- XP series' transmission speed is improved with the Ethernet interface. It is faster(10 /100Mbps) than RS-232C interface (115Kbps).
- XP series includes a 10 MB memory, so it can offer advanced features such as upload/download drawing data, Logging, Alarm, and Recipe.
- XP series supports GIF, WMF file type as well as BMP, JPG, which makes it easier to draw.

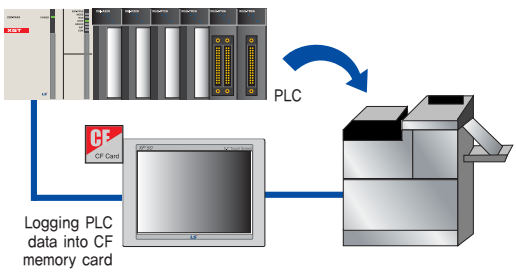
Easy accessible USB host

- 2 channels of USB interfaces are installed as a host.
- XP series is compatible to a variety of devices through the USB interface.

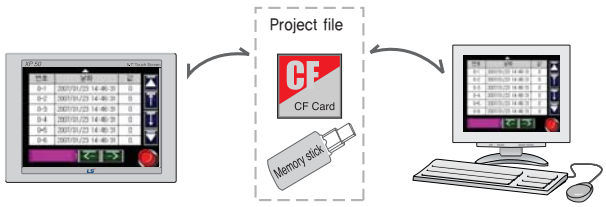


CF memory card and USB memory

- You can save the PLC data to a CF memory card or a USB memory.
- It can be converted into CSV file type.

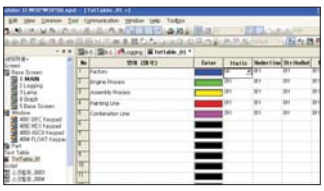


- Analog touch panel eliminates scale marks to improve the resolution as compared to the matrix touch panel. It adopts an analog resistive touch panel for the better visibility and the free disposition of objects.
- It helps free locating of the objects.

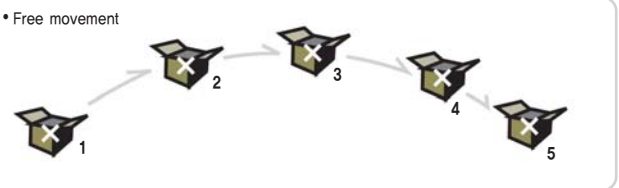


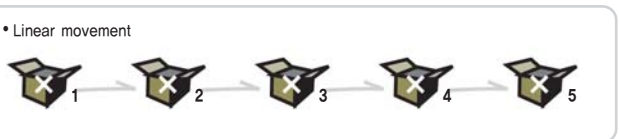
Multi-language support

- It offers a real-time conversion of four languages and various choices of language for designers.
- You can switch the languages which you want to use during the operation with the pre-recorded string table.
- It offers the MS Windows-supported languages such as Chinese(prc), Chinese(Taiwan), Danish, German, English, Finnish, French, Greek, Italian, Korean, Norwegian, Polish, Portuguese, Russian, Swedish, Spanish, Hungarian, etc.



- It displays components of fixed values or word devices on the screen. Preset- component images can be used
- It provides a free movement with a user-defined path, a linear movement, and a device movement on the X-Y coordinates.

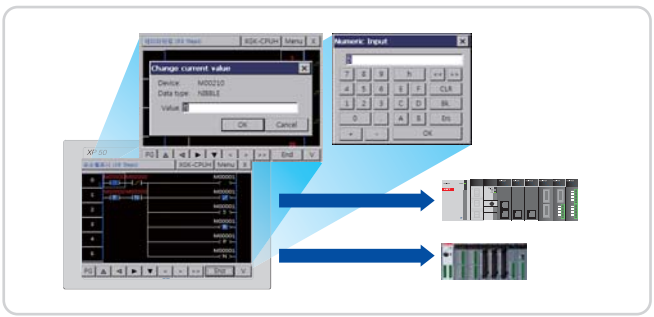




Display

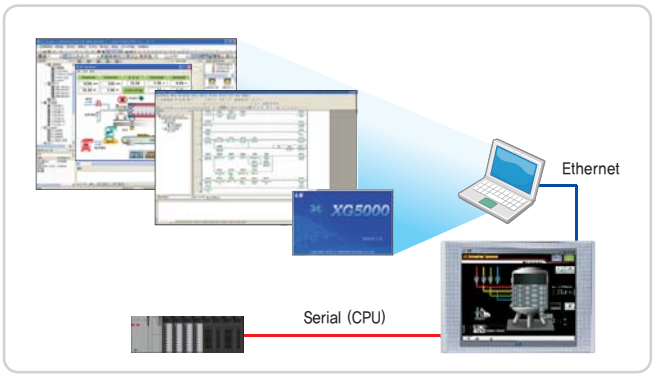
Diagnostic via program monitoring

- XP series' program monitoring function offers easy diagnostic without additional option to monitor PLC which is connected to HMI.
- The ladder program can be saved in CF card or USB memory.
- It offers several functions such as device search, subroutine search, label search and step search.



Path-through

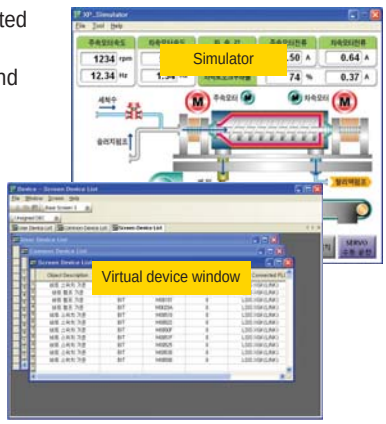
- When XGT Panel is connected to PLC via CPU port, monitoring and modification of PLC program can be done using Ethernet.
- The remote debugging can be executed.



Useful simulator function

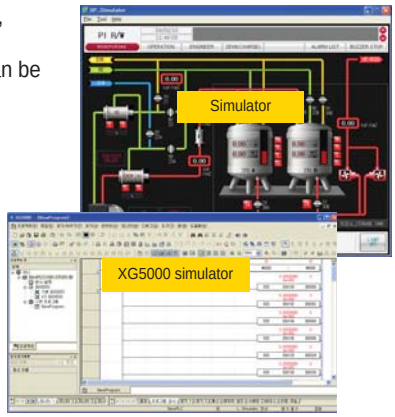
Offline simulation

- Operation can be executed without hardware.
- It supports monitoring and manipulation of device.
- Program error can be checked before sending to XGT Panel.



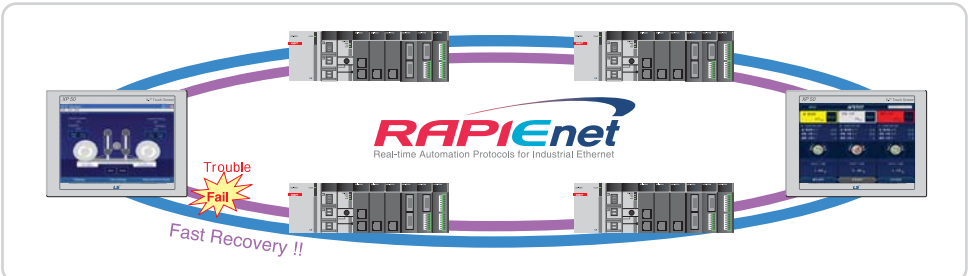
Interworking with PLC simulator

- When LS PLC software, XG5000, is executed, XGT Panel simulator can be operated with XG5000 together.



RAPIEnet optic ring (XPO-EIMT)

- XPO-EIMT communication option card enables high speed communication via RAPIEnet.
- It supports daisy chain and ring structure (Dual port).
- RAPIEnet is more reliable and convenient communication methods compared to START communication.



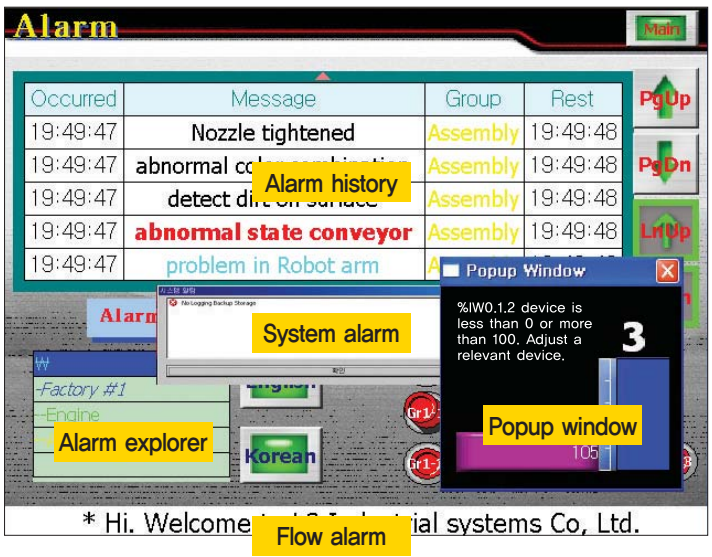
Project Printing

Prompt display

Advanced

Alarm

- History alarm
  It saves alarmed contents into a history file. You can classify the alarms in detail into the maximum 8 upper and lower class groups or alarm lists. Through the alarm explorer, you can choose some alarms to display. If you register a detailed screen to verify the alarms in detail, you can create a window which is connected to the alarms.
- Flow alarm
  It displays a current alarm on the lower position of the screen for the rapid response to users. Flowing alarm can be configured to use only with a specific condition. You can apply it to transmit company or device information.
- System alarm
  If a serious fault or a trouble of the HMI occurs, the system alarm informs users.

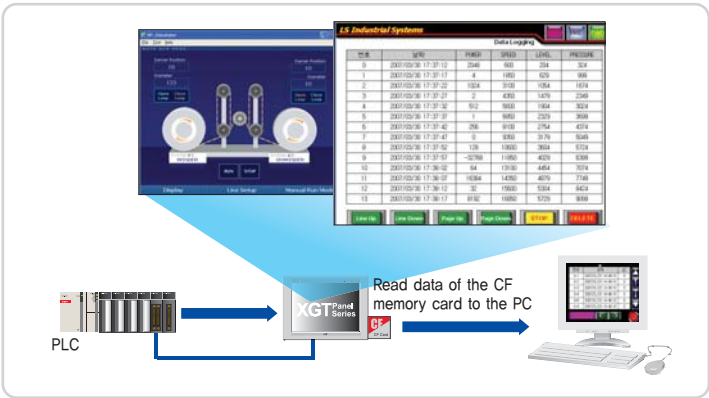


Easy management with backup files

Advanced

Logging

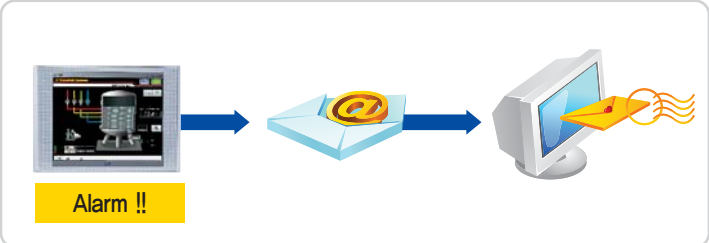
- It offers a cyclic logging operating repeatedly according to the time and a device status, and a conditional logging which works under the condition of the device.
- The max. number of 32 logging areas (condition) are available and each size of the area can be expanded up to 256Kbyte.
- It is capable of saving the maximum 32 Words (cf. 32 bits for the bit logging) by one logging.
- Logging is basically saved on the internal SRAM (256Kbyte), and you can run a back up to a CF memory, a USB memory and a movable HDD, etc.
- You can verify the logging data on the XGT Panel through the logging view object.
- Converted CSV types can be edited on Microsoft Excel.



Email service of alarm and logging data

Advanced

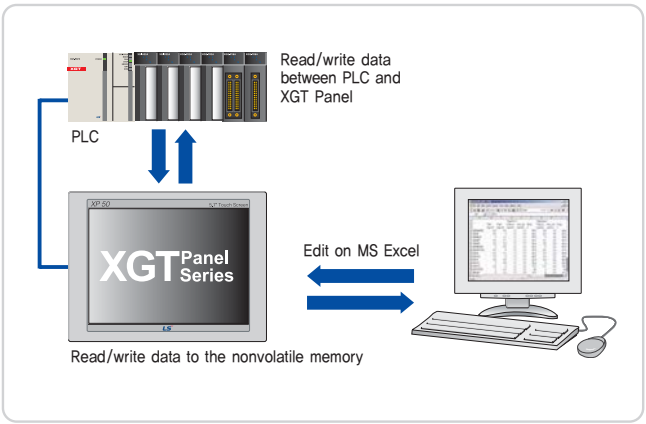
- XGT Panel offers the function of e-mail service to the registered address as a CSV file.
- It can send Logging data with the selected logging group.
- E-mail service includes the function of sending e-mails / notifications to the users when user-defined alert cases occur
- The logging and alarm file sent to PC can be open with EXCEL.



Recipe

Advanced

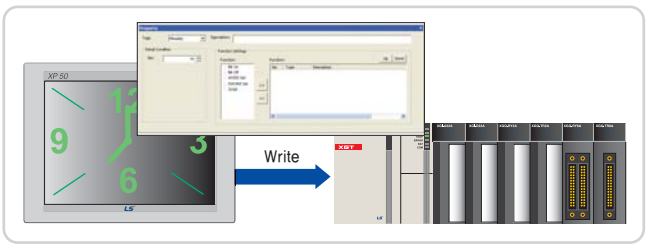
Recipes provide an easy method for operators and users to change the value of hundreds of settings in automation devices. Backup memory is installed, it makes it possible to use the recipe function to transfer setting values to other equipment. It is able to register up to 32 recipes at the XP-Builder. The maximum 100 Word/Dword devices and 16 data blocks are able to assign in each recipe. Recipe data is saved in the nonvolatile memory of the XP series. It maintains the latest data when the power is shut off. You can register and edit the recipe data through the XGT Panel or Microsoft Excel.



Scheduler

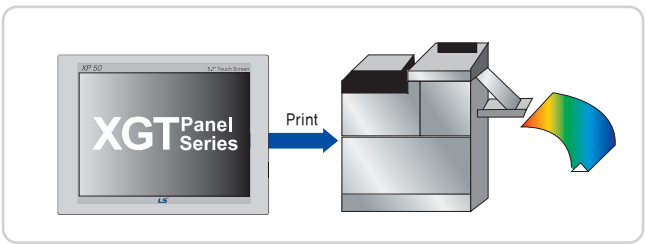
Advanced

Scheduler appoints operations and times to do the operation on the specified time. Bit On/Off, setting a Word value, and a script operation are available. Each scheduler can assign operations up to 8. Schedulers can be produced up to 32.



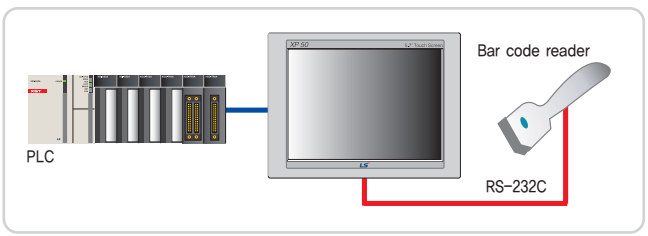
Print

You can print a screen or a history of alarm events from the HMI. It is available to connect to a printer with a USB port.



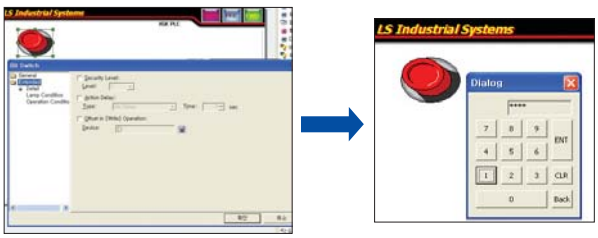
Bar code scan

ASCII data which is inputted by a bar code scanner can be saved into a user-defined PLC or an internal memory of the XGT Panel. User can set a completion bit to verify whether the XGT Panel read correct data. The bar code communication operates only with a built-in RS-232C interface of the XGT Panel.



Security

When you operate the PLC control with Objects such as switches, input and output objects, you can prescribe the security level to the authorized users only. Total 10 security levels are supported, and a low level password can access to a higher level. After an approval of the security level, the session is only maintained during a period of time.

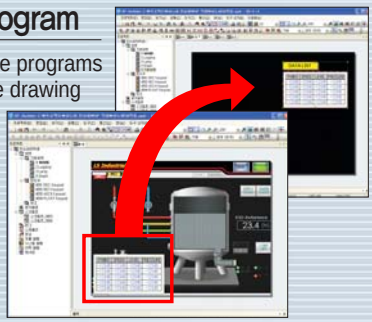


Development Tool : XP-Builder

XP-Builder Functions

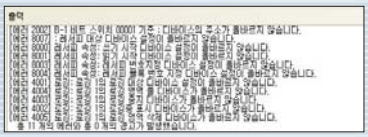
Multi-thread program

- You can run multiple programs at one time and use drawing data from another program.



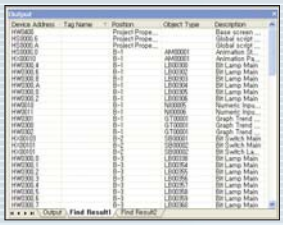
Debugging program

- You can verify some errors which happens to the data at the output window.
- Display details of the errors.



Cross reference

- Display devices and tags which are in use.



Edit program : XP-Builder

Project

- Add and edit screens and special functions of the project.

Data view

- Display the objects which is used on a current screen.
- Show the property window by double click.

Output bar

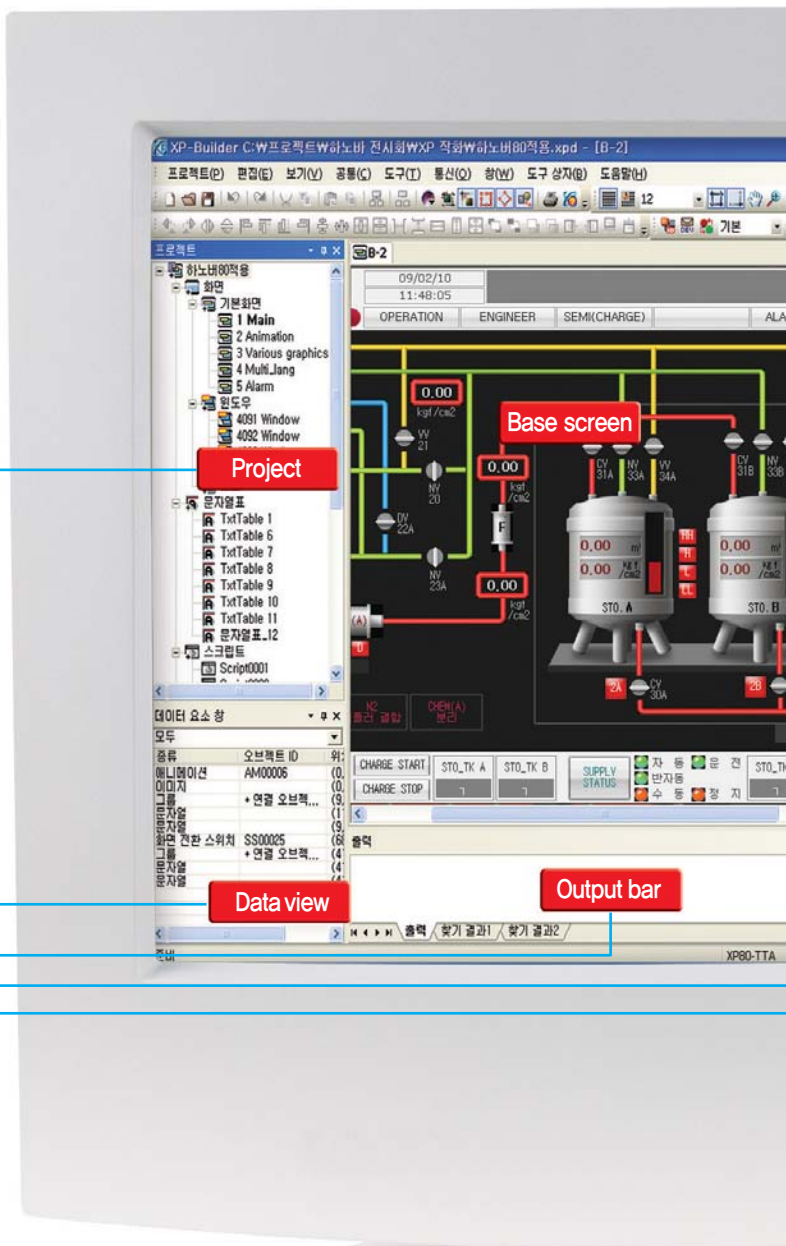
- Output errors about the data and display search results.
- Display details of errors.

Toolbox

- Draw objects and diagrams.

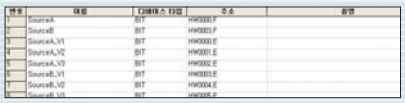
Library

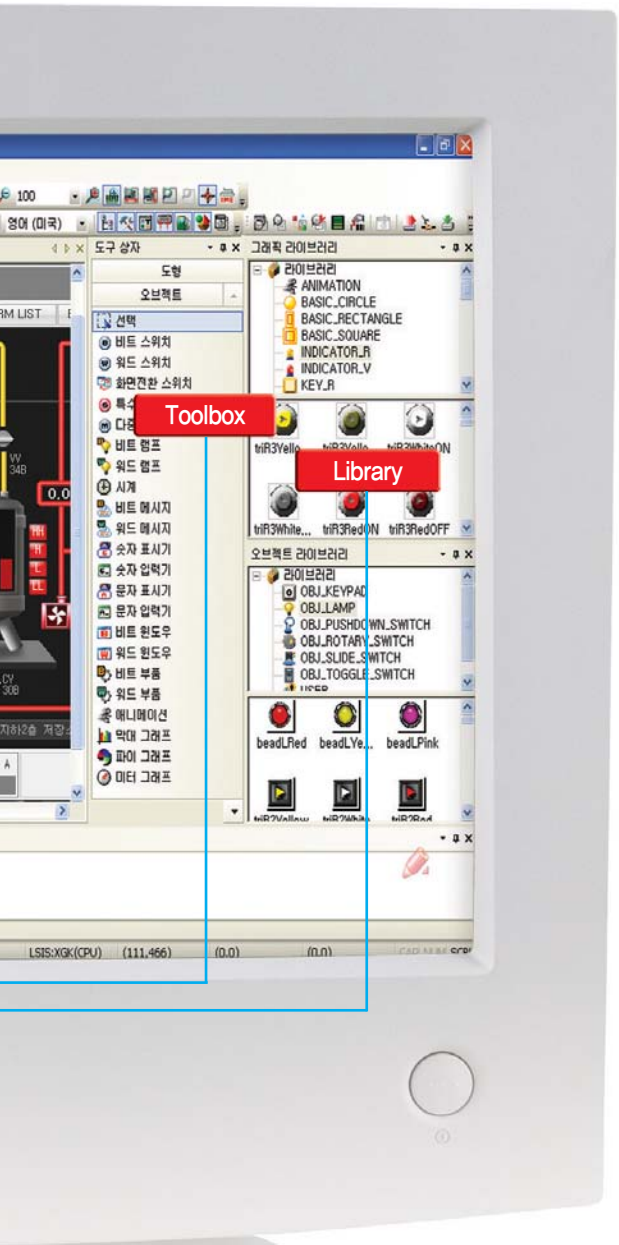
- Categorized libraries are displayed and the preview is supported.
- Easy register and deletion of the user library.
- Drag & Drop operation.



Tag

- User can rename a device address to use it as an object.
- If you assign a tag to the set up device of an object, you can change the addresses of devices at a time.
- It is available to register up to 10,000.





Simulation

Off-line program simulation

- You can confirm the drawing data on a PC without a XGT Panel.
- Device monitoring and operation can be checked on a PC.
- The simulator supports same operations as a XGT Panel.
- Data errors and normal operations could be checked before XP-Builder transmits the drawing data to the HMI.

Arial : ABCDEFGHIJKLMNOPQRSTUVWXYZ
Book : ABCDEFGHIJKLMNOPQRSTUVWXYZ
Impact : ABCDEFGHIJKLMNOPQRSTUVWXYZ
Helvetica : ABCDEFGHIJKLMNOPQRSTUVWXYZ
Tahoma : ABCDEFGHIJKLMNOPQRSTUVWXYZ
Time : ABCDEFGHIJKLMNOPQRSTUVWXYZ
Verdana : ABCDEFGHIJKLMNOPQRSTUVWXYZ

가나다라마바사아자차카타파하
가나다라마바사아자차카타파하
가나다라마바사아자차카타파하
가나다라마바사아자차카타파하

GIF animation

- You can use GIF animation to take effects according to the state of specified bit. You can make and add a movie clip of the actual spot to inform users accurately. (A movie clip file can be produced using a commercial GIF animator program.)

Script

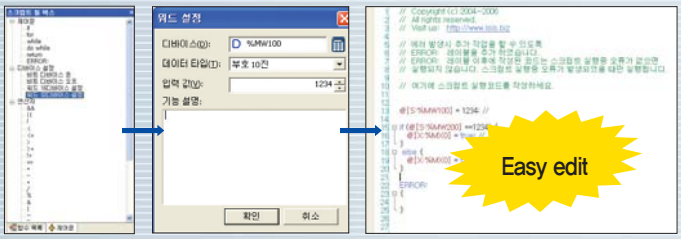
Flexible script language

- Script language can supplement the offered object function to draw the data.
- Script language is a structured language such as C programming language for the convenience of users.
- Script language with complex arithmetic operations and various functions can reduce a load of external controllers.
- Grammar inspection can validate the script languages.

Various script use

- XP-Builder has various script usages such as global script, object script, etc.
- Global script operates with On/Off signal of an assigned device. It is able to run a script operation by periods using a special device.
- The object script is available to do a target device operation of the object.
- Script can be operated at the moment when a screen is opened(or closed).

Useful script toolbox and error inspection.

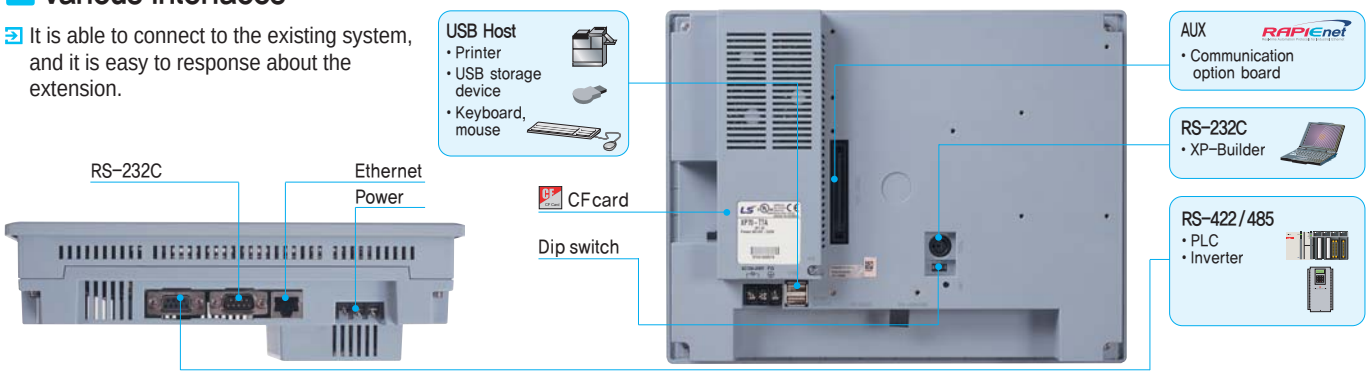


Interface and system organization

XGT Panel provides reliable quality and responsible technology

Various interfaces

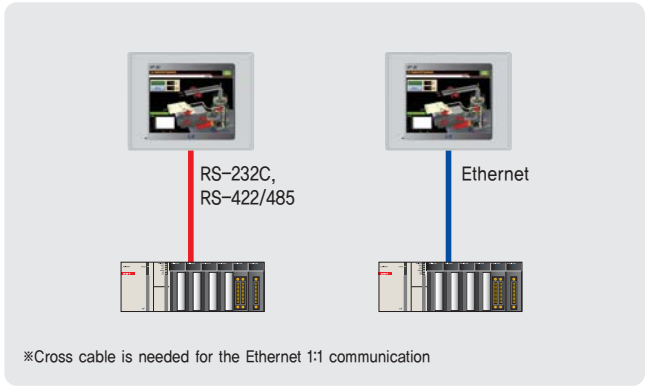
It is able to connect to the existing system, and it is easy to response about the extension.



System organization

1 : 1 Serial / Ethernet communication

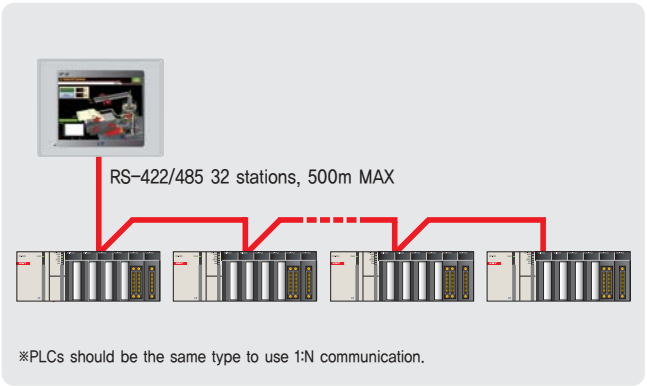
One PLC to one XGT Panel



※Cross cable is needed for the Ethernet 1:1 communication

1 : N Serial communication

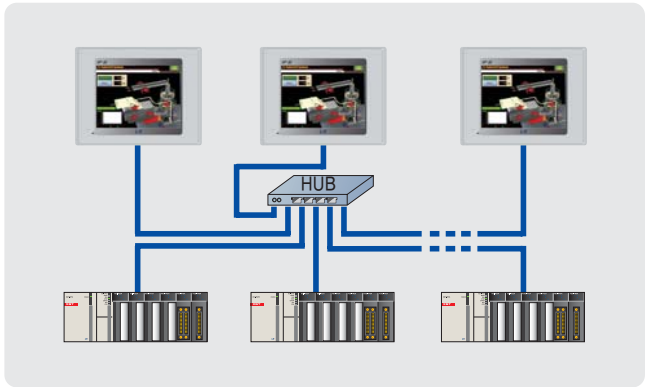
Multiple PLCs to one XGT Panel



※PLCs should be the same type to use 1:N communication.

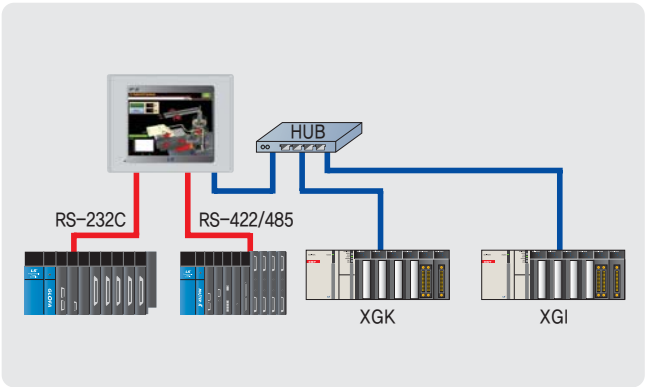
N : M (Ethernet communication)

Multiple PLCs to multiple XGT Panels



Simultaneous communication with 4 controllers

4 kinds of PLCs to one XGT Panel



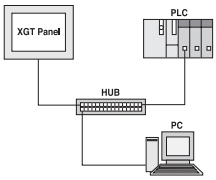
Cable

The technology began to offer better operating environment

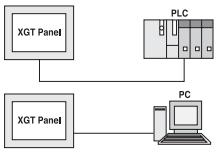
Cable standards and wiring method

Ethernet cable standards and wiring

Item	Description
Cable standard	• Type: UTP / FTP / STP cable • Standard: CAT.5 / Enhanced CAT.5 / CAT.6
Direct cable	Communicate with a PC or a PLC/Controller through a hub.
Cross cable	Connect with a PC or a PLC/Controller directly (1:1 connection).



1	wh/or	wh/or	1
2	or	or	2
3	wh/grn	wh/grn	3
4	blu	blu	4
5	wh/blu	wh/blu	5
6	grn	grn	6
7	wh/brn	wh/brn	7
8	brn	brn	8



1	wh/or	wh/grn	1
2	or	grn	2
3	wh/grn	wh/or	3
4	blu	blu	4
5	wh/blu	wh/blu	5
6	grn	or	6
7	wh/brn	wh/brn	7
8	brn	brn	8

NOTE

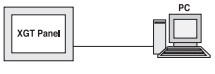
1) Ethernet setting
- Ethernet setting is on the XGT Panel.
- Communication parameters with a PLC/controller are set up on the XP-Builder.

2) 1:1 connection
- Under the conditions that is impossible to use a LAN, a one-to-one connection with a cross cable is suited to send/receive a project data.

3) Making a cable
- If a Lock part of the Ethernet jack is damaged, it cannot be fixed to a RJ45 connector (Ethernet connector). It occurs a contact badness.
- A Plug Cover is recommended.

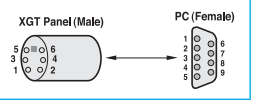
Tool cable standards and wiring

Item	Description
Cable standard	• Name: PMC-310S (Download cable) • Length: A soft tube type 1m
Structure and wiring	Direct connection to a PC



1	
2	RD
3	SG
4	
5	
6	SD

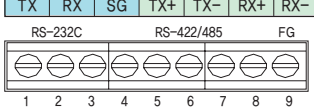
CD	1
RD	2
SD	3
	4
SG	5
DSR	6
RTS	7
CTS	8
	9



XP30-BTE connector pin assignment

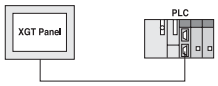
Item	Description
Wiring	

1	2	3	4	5	6	7	8	9
TX	RX	SG	TX+	TX−	RX+	RX−	SG	FG

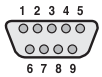


RS-232C cable standards and wiring

Item	Description
Cable standard	• (UL) Style 2464 AWG24 cable is recommended. • Max cable length is 15m. • Shielded cables are recommended.
Structure and wiring	Connect to PLC or Controller (1:1). • Connector pin of the XGT Panel • D-Sub 9P, Male connector



1	
2	RD
3	SD
4	
5	SG
6	
7	
8	
9	



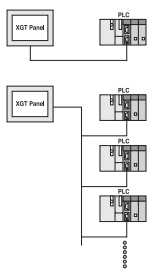
NOTE

1) Communication setting
- Communication parameters with a PLC/controller are set up on the XP-Builder.
- Refer to the communication user manual about the communication wiring with a PLC / controller.
- XGT Panel does not support a flow control.

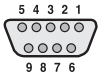
2) Making a cable
- Under the conditions that is impossible to use a LAN, a one-to-one connection with a cross cable is suited to send / receive a project data.
- Make a cable meet PLC / controller's standard requirements.

RS-422/485 cable standards and wiring

Item	Description
Cable standard	• (UL) Style 2464 AWG22 cable is recommended. • Max cable length is 500m. • Shielded cables are recommended.
Structure and wiring	Connect to PLC or Controller (1:1). • Connector pin of the XGT Panel • D-Sub 9P, Female connector



1	
2	
3	SG
4	TX+
5	TX-
6	SG
7	
8	RX+
9	RX-

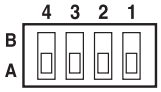


NOTE

1) Communication setting
- Communication parameters with a PLC/controller are set up on the XP-Builder.
- Refer to the communication user manual about the communication wiring with a PLC / controller.
- Set up a terminal resistance using a dip switch.

2) Making a cable
- A cable should be produced as a male type because the XGT Panel's connector is a female type.
- Connect the 4th(TX+) to the 8th(RX+) and the 5th(TX-) to the 9th(RX-) to make a RS-485 cable.

DIP switch

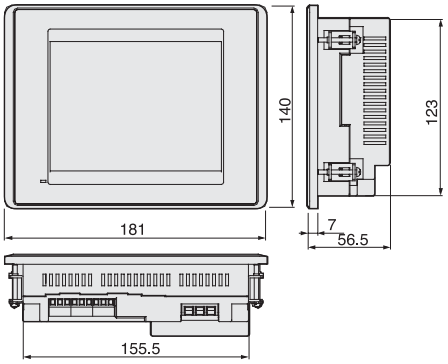


Description of the switch		
1	No use	
2	A	Normal operation (Default)
	B	Update Windows CE
3	A	Watchdog On (Default)
	B	Watchdog Off
4	A	RS-422/485 terminal resistance (120Ω)
	B	No RS-422/485 terminal resistance

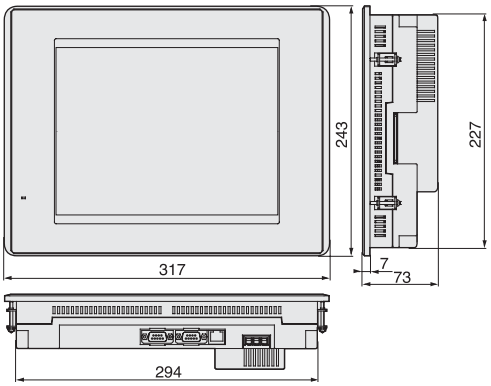
Dimension

Unit : mm

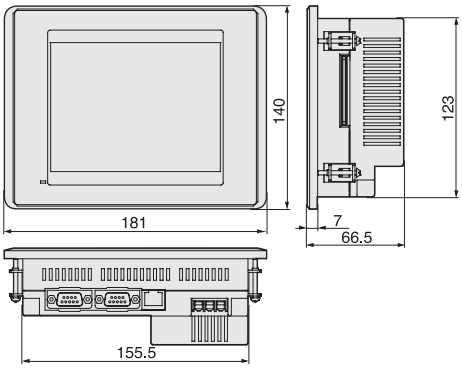
XP30-BTE / TTE



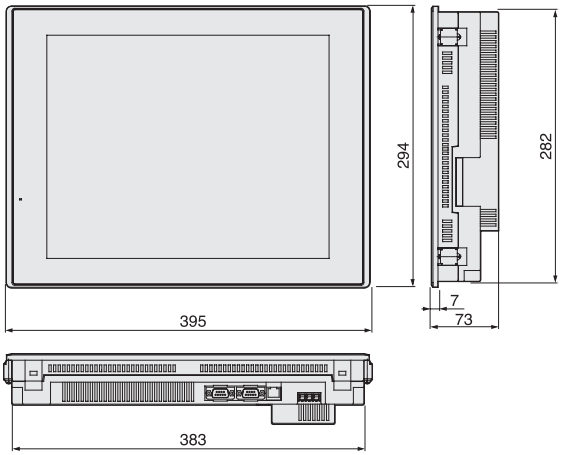
XP70-TTA / XP80-TTA



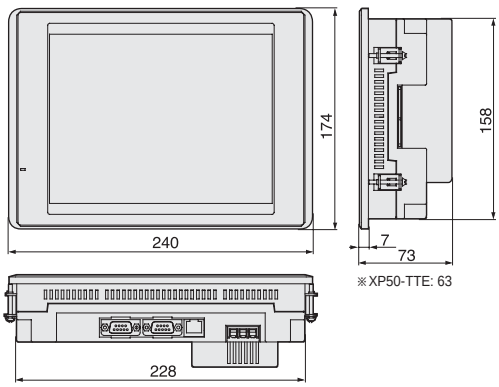
XP30-BTA / TTA



XP90-TTA



XP50-TTA / TTE



General information

No.	Item	Description				Standard
1	Ambient temperature	0℃ ~ +50℃				
2	Storage temperature	-20℃ ~ +60℃				
3	Ambient humidity	10~85%RH, without dew condensation				
4	Storage humidity	10~85%RH, without dew condensation				
5	Vibration resistance	Occasional vibration			–	
		Frequency	Acceleration	Amplitude	10 times each direction (X, Y, and Z)	IEC 61131-2
		5 ≤ f < 9Hz	-	3.5mm		
		9 ≤ f ≤ 150Hz	9.8㎨	-		
		Continuous vibration				
		Frequency	Acceleration	Amplitude		
		5 ≤ f < 9Hz	-	1.75mm		
		9 ≤ f ≤ 150Hz	4.9㎨	-		
6	Shock resistance	* Maximum shock acceleration : 147㎨ (15g) * Authorization time : 11㎳ * Pulse waveform : Half-sine wave (3 times each of X, Y, and Z)				IEC 61131-2
7	Noise resistance	Square wave impulse noise	AC : ±1,500V DC : ±1,000V			LSIS Standards
		Electrostatic discharge	Voltage : 6kV (Contact discharge)			IEC 61131-2, IEC 61000-4-2
		Radiated electromagnetic field noise	27 ~ 500MHz, 10V/m			IEC 61131-3, IEC 61000-4-3
		Fast transient / Burst noise	Power module / Digital IO, Analog IO, Communication interface		2kV / 1kV	IEC 61131-2, IEC 61000-4-4
8	Operating ambience	Free from corrosive gases and excessive dust				
9	Altitude	Up to 2,000m(6,562ft)				
10	Pollution degree	Less than equal to 2				
11	Cooling method	Air-cooling				

Specification

Item			XP30-BTE/DC	XP30-BTA/DC	XP30-TTE/DC	XP30-TTA/DC	XP50-TTE/DC	XP50-TTA/DC	XP70-TTA/AC XP70-TTA/DC	XP80-TTA/AC XP80-TTA/DC	XP90-TTA/AC
			Mono		Color						
Display description			Mono Blue LCD		TFT Color LCD						
Display Size (inch)			14cm (5.7")				21cm (8.4")		26cm (10.4")	31cm (12.1")	38cm (15")
Resolution			320×240				640×480			800×600	1024×768
Color			8-bit Gray Scale		256 Color	65,536 Color	256 Color	65,536 Color			
Backlight			LED			CCFL (whole LCD), auto On/ Off	CCFL(Replaceable, LCD) auto on/off				
			50,000Hours			60,000Hours	50,000Hours				
Contrast			Adjustable		Fixed						
Luminance			230cd/㎡		210cd/㎡	400cd/㎡	200cd/㎡	480cd/㎡	430cd/㎡	400cd/㎡	450cd/㎡
Viewing angle	Up/Down(Degree)		20/40		80/80	70/50	20/20	50/60	45/65	45/75	50/60
	Left/Right(Degree)		45/45		80/80	70/70	45/45	65/65	65/65	65/65	75/75
Touch panel			4-Wire System Analog					8-Wire System Analog			
movement LED			Green : Run (Monitoring, download drawing data) Red : Error (Communication error, drawing data error)								
Memory	Display data		4MB	10MB	4MB	10MB	4MB	10MB			20MB
	Backup data		128KB	512KB	128KB	512KB (logging, alarm, data saving)	128KB	512KB (logging, alarm, data saving)			
Ethernet			–	1ch, IEEE802.3, 10/100Base-T	–	1ch, IEEE802.3, 10/100Base-T	–	1ch, IEEE802.3, 10/100Base-T			
USB Interface			USB Host X 1	USB Host X 2	USB Host X 1	USB Host X 2	USB Host X 1	USB Host X 2			
Serial	RS-232C		2ch (1 port for PC Communication)								
	RS-422/485		1ch, 422/485 optional mode								
CF memory card interface			–	CFcard (TYPE-I) X 1	–	CFcard (TYPE-I) X 1	–	CFcard (TYPE-I) X 1			
AUX interface			–	optional	–	optional	–	optional			
Certification			CE, UL, KCC								
Protection			IP65 (Front Water Proof Structure)								
Size (W×H×D)mm			181 x 140 x 56.5	181 x 140 x 66.5	181 x 140 x 56.5	181 x 140 x 66.5	240 x 174 x 63	240 x 174 x 73	317 x 243 x 73		395 x 294 x 73
Panel Cut (W×H)mm			155.5 x 123				228 x 158		294 x 227		383 x 282
Weight (kg)			0.62	0.75	0.62	0.75	1.2	1.4	2.2	2.4	3.9
Power	Rated voltage		DC 24V						AC100~220V, DC 24V		AC100~220V
	Permitted voltage	AC	–						MIN 85 VAC, MAX 264 VAC		
		DC	MIN 19.2 VDC, MAX 28.8 VDC								–
	Watt (W)	AC	–						37	40	46
		DC	5	8.5	5	8.5	13	20	27	30	–

Controller with connectivity

Maker	LSIS				MODICON	Mitsubishi			OMRON		OEMax	ROCKWELL		KDT	DasaRobot	Matsushita	SIEMENS		PARKER	BYD AUTO	PROFACE	LS MECAPION	YASKAWA
Model	GLOFA-GM MASTER-K series	XGR/XGK/ XGI/XGB series	LSBUS [Drive]	MODBUS [Drive]	MODBUS	MELSEC Q	MELSEC AnN, AnS	MELSEC FX	CS/CJ Series	CQM1H	NX-CCU+	SLC500	Micro/ CAMPACT/ CONTROL LOGIX	CIMON	iM-SIGMA	FP Series	S7-200	S7-300	Hi-Drive	Dedicated controller	Memory Link	VS/VP Drive	MEM OBUS
CPU Port	●	●	–	–	–	● (Except QnU)	–	●	–	–	–	●(DF1)	●(DF1)	–	–	–	●(PPI)	●(MPI)	–	–	–	–	●
Link	●	●	●	●	●	●	●	●	●	●	●	–	–	●	●	●	–	●	●	●	●	●	●
Link [1:N]	●	●	●	●	●	●	●	●	●	●	●	–	–	●	●	●	–	●	●	–	–	–	●
Ethernet	●	●	–	–	●	–	–	–	●	–	–	–	Ethernet/IP	–	–	–	–	–	–	–	–	–	–