Beyond X™

XGT Panel

Human Machine Interface



vector Energy

LS ELECTRIC

XGT Panel Products Line-up

iXP3 Series

LXP Designer	15"(38Cm)	12.1"(31Cm)	10.4"(26Cm)
Standard, Linux Cyber Security, IP(USB)Thermo-graphic Camera, Serial I/F(RS422/485), Ethernet I/F, Serial I/F(RS-232C), HDMI I/F, USB I/F, SD Card I/F	**iXP3-1500A/D**  TFT Color LCD 24bit (16.7M) XGA(1024×768)	**iXP3-1200A/D**  TFT Color LCD 24bit (16.7M) XGA(1024×768)	**iXP3-1000A/D**  TFT Color LCD 24bit (16.7M) XGA(1024×768)

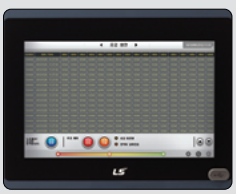
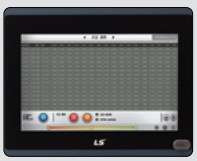
LXP Series

LXP Designer	24"(61Cm)	19"(48.3Cm)	12"(31Cm)
Premium, Linux Built-in camera, Cyber Security, IP(USB)Thermo-graphic Camera, Separable Display-Main Unit, SD Card I/F, USB I/F, Ethernet I/F, Serial I/F (RS-232C/RS422/485), HDMI I/F	**LXP-D2411/LXP-T2411**  TFT Color LCD 24bit(16.7M) FHD (1920X1080)	**LXP-D1911B/LXP-T1911**  TFT Color LCD 24bit (16.7M) SXGA(1280×1024)	**LXP-D12□□**  TFT Color LCD 24bit (16.7M) XGA(1024×768)

iXP2 Series

XP Builder	15"(38Cm)	12.1"(31Cm)	10.4"(26Cm)
Standard, WinCE Ethernet I/F, Serial I/F(RS-232C), Serial I/F(RS422/485), USB I/F, SD Card I/F, HDMI I/F	**iXP2-1500A/D**  TFT Color LCD 24bit (16.7M) XGA(1024×768)	**iXP2-1200A/D**  TFT Color LCD 24bit (16.7M) XGA(1024×768)	**iXP2-1000A/D**  TFT Color LCD 24bit (16.7M) XGA(1024×768)

eXP2 Series

XP Builder	10.2"(25.9Cm)	7"(17.7Cm)	5.6"(14.2Cm)
Entry Serial I/F(RS-232C), Serial I/F(RS422/485), Serial I/F(RS-485), USB I/F, Ethernet I/F, SD Card I/F	**eXP2-100□**  TFT 16.7M Colors WSVGA(1024 X 600)	**eXP2-070□**  TFT 65,536 Colors WVGA(800×480)	**eXP2-050□**  TFT 65,536 Colors VGA(680×480)

8.4"(21Cm)

iXP3-0800A/D



TFT Color LCD 24bit (16.7M)
SVGA(800×600)

Main unit

LXP-M□□D



8.4"(21Cm)

iXP2-0800A/D



TFT Color LCD 24bit (16.7M)
SVGA(800×600)

4.3"(10.9Cm)

eXP2-040□



TFT Color LCD 24bit (16.7M)
VGA(480×272)

XGT Panel

Human Machine Interface



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Feature 48



Intelligent XGT Panel new

iXP3 Series

Human Machine Interface

iXP3 the Core of Smart Manufacturing and Process

iXP3 provides a personalized experience with efficient and integrated services.
Robust, reliable, and flexible to meet the needs of various industrial applications.



Control & Flexibility

- High-performance processor (Quad Core 1.6GHz) and large memory (4GB)
- Adjustable touch sensitivity: bare hands, gloves, etc.
- Provides camera (IP, USB) and multimedia (HDMI) functions
- Enhanced durability and extended operating temperature (-5~55°C)
- Display brightness settings optimized for the environment

Connectivity

- Strengthening the role of Gateway suitable for IoT environment
- Maximizing user usability by incorporating Giga-bit Ethernet, USB3.0, and SDXC
- Providing network value-added services such as FTP, VPN, VNC, and DB
- Expanding PKG usability with LS automation product line

Security & Safety

- Reliable processor free from backdoor issues
- Strengthened security/ protection standards
- Provides thermal imaging camera interface for monitoring inside the panel (fire prevention, predictive maintenance)

XGT Panel iXP3 Series

Control & Flexibility

Touch Sensitivity Settings

Touch sensitivity settings for bare hands, gloves, etc.



Camera & Multimedia Features

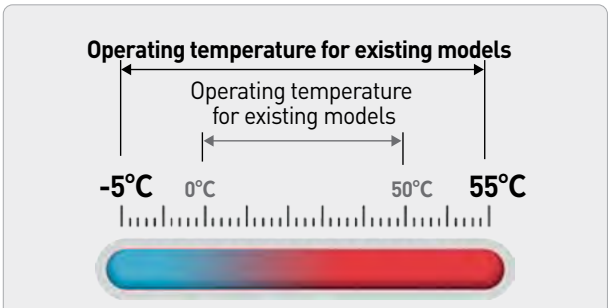
- Supports up to 8 IP cameras, up to 2 USB cameras, Video recording (black box service) 1 channel
- Event recording, recording device, status device, left-right symmetry
- Video playback: Supports MP4, AVI, WMV formats



Display brightness Settings



Expanded operating temperature range



Security & Safety

Security and Protection Standards

User Account Management

- User Account Management
- Initialization of password. Management of password expiry date and default value
- Setting password strength

User Account Management

- Protection of System Integrity
- Front cover of USB host/device port
- Monitoring and rejection of external process installation (including malware)
- Backup function for critical system file and project data
- Recovery function for OS and SW

SECURITY compliance

- IACS UR E27

Audit Log

- System modification history saved on SD Card (with timestamp)
- Security log saved for HMI function involving user account
- Circular storage and alarm function according to storage capacity limit
- User account-based access control for audit logs
- DDoS attack detection and access blocking

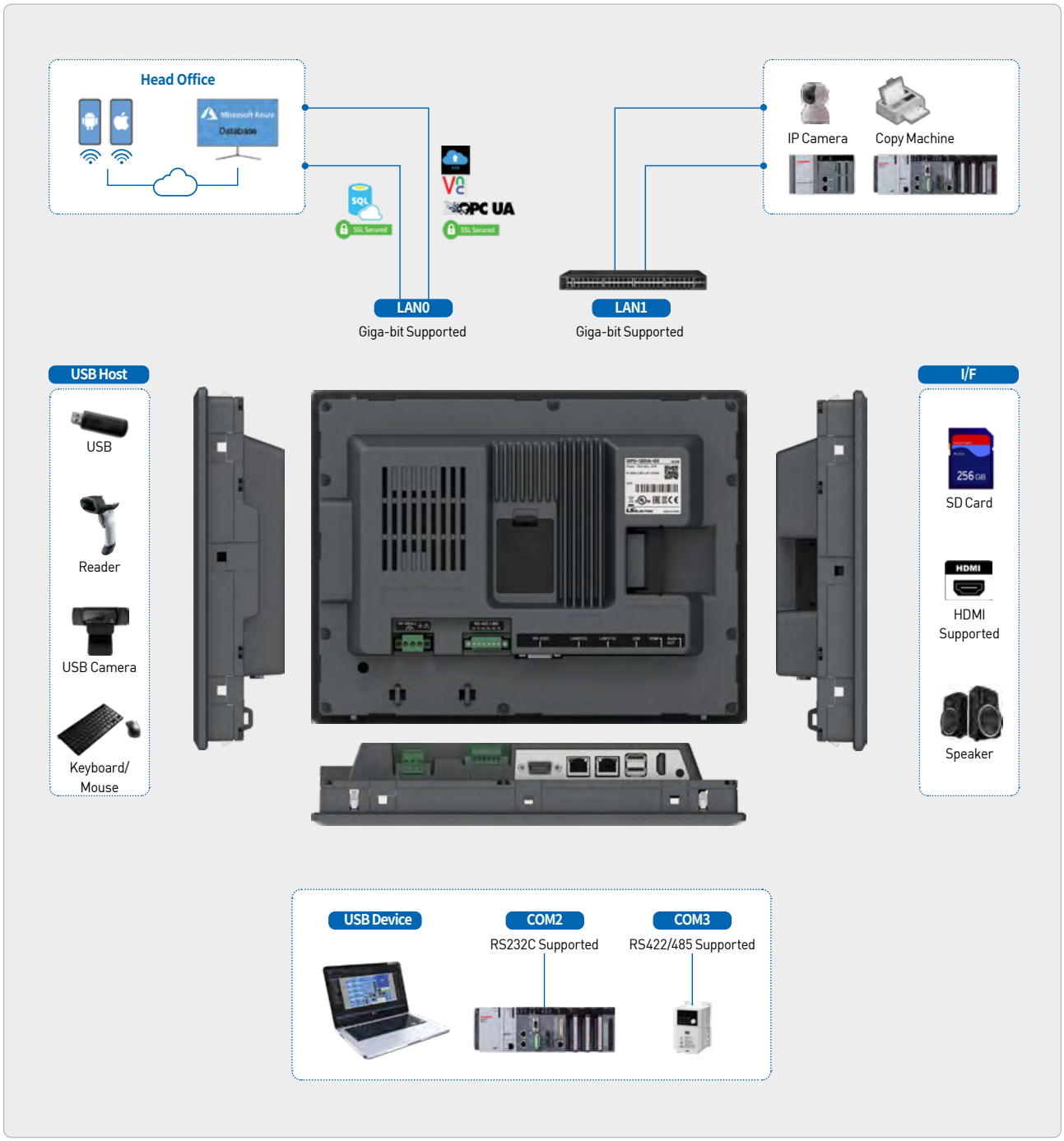
Network Security

- HTTP access denied
- Remote connection session timeout and identity integrity check
- Network payload encryption and integrity check

Connectivity

Improved User Interface

In order to maximize the usability with external devices such as controllers, the latest interface and network technologies are applied.



Log Data Backup Function

Large-capacity USB storage, SD card, and expansion memory (optional) provided to backup the log data (alarm, logging, camera video, etc.) collected from HMI.

General Standards

<table>
<tr><th>Item</th><th colspan="6">Standard</th><th>Related Standards</th></tr>
<tr><td>Ambient temperature</td><td colspan="6">-5°C~+55°C</td><td>-</td></tr>
<tr><td>Storage temperature</td><td colspan="6">-25°C~+65°C</td><td>-</td></tr>
<tr><td>Operating humidity</td><td colspan="6">10~85%RH,
non-condensing</td><td>-</td></tr>
<tr><td>Storage humidity</td><td colspan="6">10~85%RH,
non-condensing</td><td>-</td></tr>
<tr><td rowspan="9">Vibration resistance</td><td colspan="4">Occasional vibration</td><td>Count</td><td>-</td></tr>
<tr><td>Frequency</td><td colspan="2">Acceleration</td><td>Amplitude</td><td rowspan="8">10 times each in X, Y and Z direction</td><td rowspan="8">IEC 61131-2</td></tr>
<tr><td>5≤f< 8.4Hz</td><td colspan="2">-</td><td>3.5mm</td></tr>
<tr><td>8.4≤f≤150Hz</td><td colspan="2">9.8㎨</td><td>-</td></tr>
<tr><td colspan="4">Continuous vibration</td></tr>
<tr><td>Frequency</td><td colspan="2">Acceleration</td><td>Amplitude</td></tr>
<tr><td>5≤f< 8.4Hz</td><td colspan="2">-</td><td>1.75mm</td></tr>
<tr><td>8.4≤f≤150Hz</td><td colspan="2">4.9㎨</td><td>-</td></tr>
<tr><td rowspan="2">Storage temperature</td><td colspan="6">* Maximum shock acceleration: 147m/s2 (15G)
* Duration time: 11ms
* Pulse wave: half sine pulse (3 times each in X, Y and Z directions)</td><td rowspan="2">IEC 61131-2</td></tr>
<tr><td rowspan="8">Noise Immunity</td><td>Square wave Impulse noise</td><td colspan="5">AC: ±1,500V, DC: ±1,000V</td><td>LS ELECTRIC</td></tr>
<tr><td>Electrostatic Discharge Immunity</td><td colspan="5">±4 kV(contact discharge)
±6kV (contact discharge for MR)
±8 kV(air discharge)</td><td>IEC 61131-2
IEC 61000-4-2</td></tr>
<tr><td>Electromagnetic Radiated Emissions</td><td colspan="5">80 ~ 1,000 MHz, 10 V/m
1.4 ~ 6.0 GHz, 3 V/m</td><td>IEC 61131-2
IEC 61000-4-3</td></tr>
<tr><td rowspan="2">Fast Transient / Burst noise</td><td>Category</td><td colspan="2">Power module</td><td colspan="2">Communication interface</td><td rowspan="2">IEC 61131-2
IEC 61000-4-4</td></tr>
<tr><td>Voltage</td><td colspan="2">2 kV</td><td colspan="2">1kV</td></tr>
<tr><td rowspan="2">Surge</td><td>Category</td><td>AC power</td><td>DC power supply</td><td colspan="2">Communication interface</td><td rowspan="2">IEC 61131-2</td></tr>
<tr><td>Voltage</td><td>2kV(L-G)
1kV(L-L)</td><td>1kV(L-G)
0.5kV(L-L)</td><td colspan="2">1kV</td></tr>
<tr><td>Environment</td><td colspan="6">Free from corrosive gases and excessive dust</td><td>-</td></tr>
<tr><td>Operating height</td><td colspan="6">Below 2,000m (6,562ft)</td><td>-</td></tr>
<tr><td>Pollution degree</td><td colspan="6">2 or less</td><td>-</td></tr>
<tr><td>Cooling method</td><td colspan="6">Natural Air-Cooling</td><td>-</td></tr>
</table>

Function Standards

Item		iXP3-08□□A/D	iXP3-10□□A/D	iXP3-12□□A/D	iXP3-15□□A/D
Display type		TFT color LCD			
Screen size		8.4”	10.4”	12.1”	15”
Display resolution		800 x 600	1024 x 768		
Color indication		24-bit color (16.7M colors)			
Indication degree		Right and left: 80 deg. Top: 80 deg. Bottom: 60 deg.	Right: 75 deg. Top: 75 deg. Bottom: 75 deg.	Right and left: 80 deg. Top: 80 deg. Bottom: 80 deg.	
Backlight		LED method, automatic On / Off support			
Backlight lifetime		50,000 hours			
Touch panel		Capacitive Touch			
Audio otput		Magnetic Buzzer (90dB)			
Processor		1.6GHz, Quad core			
Memory	Drawing Memory	128Mbyte			
	Backup RAM	1Mbyte			
Backup data		Date / Time data, Logging / Alarm / Recipe data, Non-volatile devices			
Battery		CR2032(3.0V/210mAh, approx. 3 years/25°C)			
Video Out		1 x HDMI			
Audio Out		3.5Φ x 1, 40mW			
Ethernet		2 x 10Base-T/100Base-TX/1000Base-T			
USB host	Standard	3 x USB 2.0 (Front x 1, Rear x 2)			
	Allowable current capacity	250mA(Front) 750 mA(Back; two Port combined)			
USB device		1 x USB 2.0 (Send / Receive front, PC and project data etc.)			
RS-232C		1 x RS-232C (DSUB 9 / Male type)			
RS-422/485		1 x RS-422/485 (Terminal Block)			
Multimedia	Animation	GIF format support			
	Video play	Support MP4, AVI, WMV formats			
	Camera	IP camera(Up to 8 channels), USB(Up to 2 channels)			
	HDMI	V2.0(Replication and expansion support)			
Multi-language		Can display 12 languages simultaneously			
Animation		GIF format support			
Recipe		Support			
Data logging		Support			
Script Launcher		Support			
Standard Certification		CE, KC, UL			
Protection standard		IP66(Front)			
Dimensions (mm)		240×180×60	271×212 ×60	313 ×239 ×60	395×294×66
Panel Cut (mm)		228.5×158.5	259.0×201.0	301.5× 227.5	383.5× 282.5
Power		A(AC100~220V), D(DC19.2~28.8V)			
Power consumption (W)	MAX	15	15.5	20.5	23
	When no external power is supplied	10	10.5	15	18
Weight (Kg)		1.87	2.35	3.0	4.6



Limitless XGT Panel

new

LXP Series

Human Machine Interface

Trending and Customized Solutions

Customized Solutions provided with XP-VLink. Predictive Maintenance Accurate and Fast Screen Switching. Meet the new LXP Series of LS ELECTRIC.

Flexibility

- Adaptive to various field requirements with separable Display-Main Unit structure.
- "Display Unit Hot Swap" feature allows the display to be replaced during malfunction/ failure without turning off the power supply. (Improved maintenance)
- Compatibility of existing programs in case of product discontinuation
- Application examples/samples supported through SSQ(Solution Square)



XP-VLink(XGT Panel-View Link)

XP-VLink refers to the function that can connect LXP Display Unit and Main Unit using XP-VLink I/F cable.
For models that support XP-VLink, the display unit and main unit can be attached or separated during installation.

Connectivity

- Enhances the role of the "Gateway" suitable for IoT environment
- Optimizes user usability with Gigabit Ethernet, USB 3.0, and SDXC
- Added network features: FTP, VPN, VNC, DB
- Improved synergy with LS automation products.

Visibility & Control

- Improved IT technology to display and control the screen without distortion
- Improved control performance with reliable capacitive touch technology verified in the industrial field
- Multimedia functions such as camera (built-in, IP, USB)/HDMI available
- Expressing images without distortion by providing vector images

Security & Safety

- Improved security with Linux
- MPU without backdoor issue
- Monitoring inside the panel with thermal imaging camera interface (fire prevention, predictive maintenance)
- Enhanced gas/chemical environment responsiveness by acquiring T6 level international explosion-proof certification.
- Provides stability in N2 gas environment, which is required in semiconductor industry.

XGT Panel LXP Series

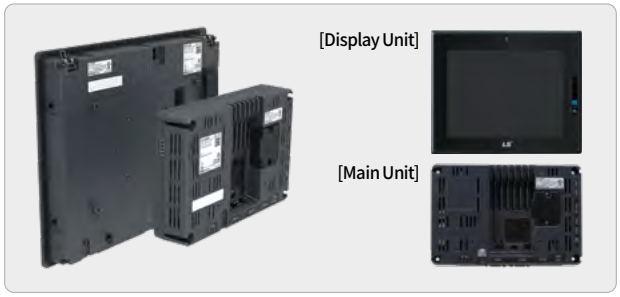
Flexibility

Separable Display-Main Unit

Can be configured as a separate product to meet various customer needs (screen size/panel cut/performance/price).

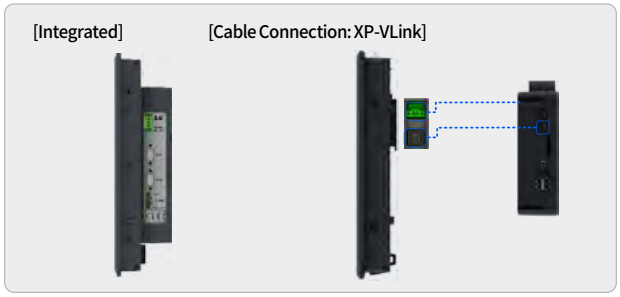
Product Configuration

By default, 12.1" TFT LCD + Display Unit with capacitive touch panel and Main Unit with the latest 1.6GHz Quad Core-based MPU is provided.



Installation Flexibility

Integrated/cable connection structures are provided to allow the user to select based on the installation environment



※ XP-VLink: Cable connection interface between Display-Main Unit

XP-VLink Examples

In addition to basic integrated structure, LS Electric's dedicated XP-VLink interface is provided for installation flexibility.

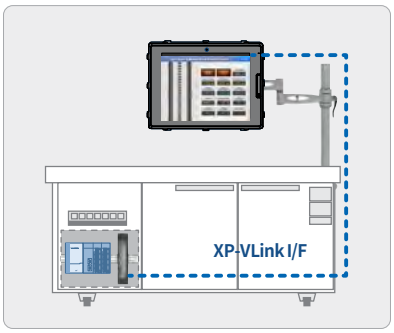
Basic Panel Installation

The Display Unit is installed on the panel, and the Main Unit is installed on the DIN-Rail.



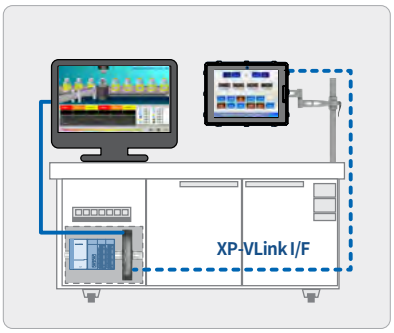
VESA Installation

The Display Unit is mounted on the VESA hole, and the Main Unit is installed on DIN-Rail.



Monitor Expansion

Connection to the expansion monitor can be established via the HDMI port in the Main Unit.



Security & Safety

Explosion Proof Certifications

Globally recognized explosion proof certifications to use LXP safely and stably under harsh environmental conditions with gas or chemicalto use LXP safely and stably under harsh environmental conditions with gas or chemical

Explosion Proof Certifications

IECEx(International), ATEX(European), CCC(Chinese), KCs (Korean) (Standard: Ex nA nC IIC T6 Gc, Ex tc IIC T85 Dc IP66)

※ Compared to competitors, nC(Sparking Equipment), IP66 and dust environment certification added

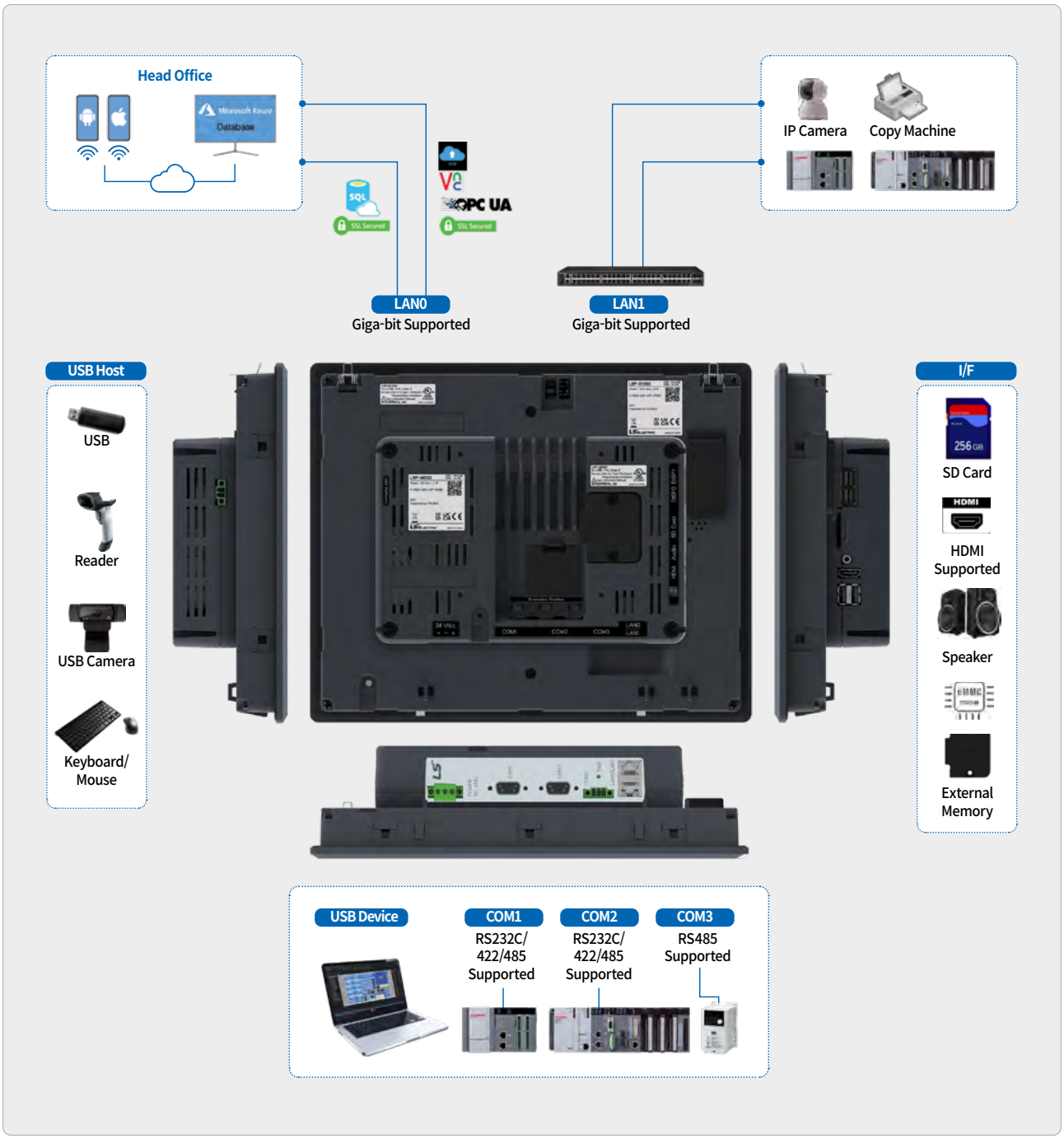
Prevention of N2 Gas Infall

LXP designed to prevent degradation of product performance due to possible N2 gas infall from working process

Connectivity

Improved User Interface

In order to maximize the usability with external devices such as controllers, the latest interface and network technologies are applied.



Log Data Backup Function

Large-capacity USB storage, SD card, and expansion memory (optional) provided to backup the log data (alarm, logging, camera video, etc.) collected from HMI.

Product Name Rule

Name Rule and Model Names

Display Unit

LXP – D 12 0 0 0 – EX

①	②	③	④	⑤	⑥	⑦

① Series Type
LXP series

② Type	
D	Display unit
M	Main unit

③ Screen Size	
08	8"
10	10"
12	12"
15	15"

④ Camera Option	
0	Support
1	Not supported

⑤ XP-VLink Support	
0	Support
1	Not supported

⑥ Hardware Version	
1	Support
B	Version B (Integrated Type Only)

⑦ Reserved	
blank	-
EXP	Export product
MR	Ship certification
EX	Explosion proof product
G3	Coated product

Main Unit

LXP – M 0 0 D – EX

①	②	③	④	⑤	⑥

① Series Type
LXP series

② Type	
D	Display unit
M	Main unit
O	Option unit

③ Runtime Option	
0	Runtime installed
1	Runtime not installed
2	Reserved

④ XP-VLink	
0	Support
1	Not supported

⑤ Power	
D	DC 24V

⑥ Reserved	
blank	-
EXP	Export product
MR	Ship certification
EX	Explosion proof product
G3	Coated product

Extended Memory Option

LXP – O M 64G

①	②	③	④

① Series Type
LXP series

② Type	
O	Option unit

③ Option Type	
M	Extended memory

④ Memory Capacity	
64G	64GB

Name Rule and Model Names

XP-VLink Cable option

LXP – 0 C 0 03M

① ② ③ ④ ⑤

① Series Type
LXP series

② Type	
O	Option unit

③ Option Type	
C	Extended cable

④ Cable Type	
0	Large size

⑤ Cable Length	
03M	3m
05M	5m

Thermal Imaging Camera Option Module

LXP – 0 T 3224 0

① ② ③ ④ ⑤

① Series Type
LXP series

② Option Type	
O	Option unit

③ Camera Type	
T	Thermal camera

④ Image	
3224	32*24

⑤ I/F Method	
0	RS-485

Product Configuration Example

Display Unit and Main Unit can be configured depending on the application

Type	Model Name	Function	
		Camera	XP-VLink
Display	LXP-D1200	O	O
	LXP-D1201	O	X
	LXP-D1210	X	O
	LXP-D1211	X	X
	LXP-D1911B	X	X
	LXP-T1911	X	X
	LXP-D2411	X	X
	LXP-T2411	X	X
Main	LXP-M00D	-	O
	LXP-M01D	-	X

Security & Safety

General Standards

Item	standard				Related Standards
Ambient temperature	-10°C~+50°C				-
Storage temperature	-20°C~+60°C				-
Operating humidity	10~85%RH, non-condensing				-
Storage humidity	10~85%RH, non-condensing				-
Vibration resistance	LED method, automatic On/Off support			Count	-
	frequency	acceleration	Amplitude	10 times each in X, Y and Z direction	IEC 61131-2
	5≤f< 8.4Hz	-	3.5mm		
	8.4≤f≤150Hz	9.8㎨	-		
	Continuous vibration				
	frequency	acceleration	Amplitude		
	5≤f< 8.4Hz	-	1.75mm		
	8.4≤f≤150Hz	4.9㎨	-		
Shock endurance	*Maximum shock acceleration: 147m/s2 (15G) *Duration time: 11ms *Pulse wave: half sine pulse (3 times each in X, Y and Z directions)				IEC 61131-2
Noise Immunity	Square wave Impulse noise	DC: ±1,000V (Except LXP-D/T1911)			LS ELECTRIC
	Electrostatic Discharge Immunity	±4 kV(contact discharge), ±8 kV(air discharge)			IEC 61131-2 IEC 61000-4-2
	Electromagnetic Radiated Emissions	80 ~ 1,000 MHz, 10 V/m 1.4 ~ 6.0 GHz, 3 V/m			IEC 61131-2 IEC 61000-4-3
	Fast Transient / Burst noise	Category	Power module	Communication interface	IEC 61131-2 IEC 61000-4-4
		Voltage	2 kV	1kV	
	Surge	Category	Power module	Communication interface	IEC 61131-2
		Voltage	0.5kV	1kV	
Environment	Free from corrosive gases and excessive dust				-
Operating height	Below 2,000m(6,562ft)				-
Pollution degree	2 or less				-
Cooling method	Natural Air-Cooling				-

Normal Type Display unit

Note1) LXP-D1911B is powered from LXP Main Unit
Note2) The panel installation is installed according to the panel cut size for each display, and the VESA mount is installed on a monitor arm that meets the VESA hole standard.

Item		LXP-D1200	LXP-D1201	LXP-D1210	LXP-D1211	LXP-D1911B	LXP-T1911	LXP-D2411	LXP-T2411
Display	Display type	TFT color LCD							
	Color indication	24bit(16.7M)							
	Screen size	12.1"				19"		24"	
	Display resolution	1024×768				1280×1024		920X1080	
	Backlight	LED method, automatic On/Off support							
	Backlight lifetime	50,000 hour						100,000hour	
Touch	Touch panel	Capacitive touch							
	Operation mode	Bare hands, Glove, Waterproof							
	Sensitivity adjustment	10 steps adjustable for each mode							
	Function	Multi-touch, Zoom in/out, change screen							
Built-in camera	Resolution	720p, 30fps				-			
	Support	○	○	-	-	-	-	-	-
XP-VLink		○	-	○	-	-	-	-	-
Buzzer		90dB, 16 steps adjustable					Unsupported		
USB	Device	USB 2.0, 1 channel				Unsupported	USB Type-B, 1 channel (Touch I/F)		
	Host	USB 2.0, 1channel, 500mA/channel				Unsupported			
Certification	Standard	CE, KC, UL, IP66				CE, KC, IP54			
Construction	Dimensions (mm)	320×261×44				431.5 x 364.5 x 48		579.4 X347 X46.5	579.4 X347 X48.0
	Panel Cut (mm)	306×247				383.5×282.5		552 x 319	550 x 317
	Weight (Kg)	3.0kg				4.5kg		5kg	
Power	Power (V)	15.5Vdc				12V Note1)		12Vdc	
	Power (V)	9W		8W		20W		28W	
Display Installation		Panel Installation/VESA Mount Note2)				Panel Installation	VESA Mount	Panel Installation	VESA Mount
Main Unit Combination	LXP-M00D	○	-	○	-	○	○	○	○
	LXP-M01D	-	○	-	○	-	-	-	-

Normal Type Main Unit

Item		LXP-M00D	LXP-M01D
Processor		1.6GHz, Quad core	
Memory	Drawing memory	128Mbyte	
	Operation RAM	4GByte	
	Backup RAM	1Mbyte	
XP-VLink		○	-
RTC		Support, Battery CR2032(about 3years/25°C)	
Interface	HDMI	V2.0, 1 channel	
	Audio out	3.5Φ, 40mW, 1 channel	
	Extended Interface	Support, 64GB extended memory	
Storage	SD	Max. 256GB(SDXC, SDHC)	
	USB host	USB 3.0, 2 channel	
Communication	LAN0	10Base-T/100Base-TX/1000Base-T Auto MDIX / RJ-45	
	LAN1		
	COM1	RS-232C, RS-422/485, Isolated Baud rate: 9,600~115,200(Max. 5kbps) / 9pin D-sub(Female)	
	COM2	RS-232C, RS-422/485, 5Vdc/250mA Power out Baud rate: 9,600~115,200(Max. 5kbps) / 9pin D-sub(Female)	
	COM3	RS-485 Baud rate: 9,600~115,200(Max. 5kbps) / 3pin Open connector	
Certification	Standard certification	CE, KC, UL, IP20	
Structure	Dimension (mm)	220 x 147 x 51.3	
	Weight (Kg)	1.4kg	
Power	Power (V)	24Vdc	
	Power consumption (W)	7W	

Special Type(Explosion-proof product)

Display Unit

Item		LXP-D1200	LXP-D1201	LXP-D1210	LXP-D1211
Display	Display type	TFT color LCD			
	Color indication	32bit color(16.7M)			
	Screen size	12.1”			
	Display resolution	1024x 768			
	Backlight	LED method, automatic On/Off support			
	Backlight lifetime	50,000 hour			
Touch	Touch panel	Capacitive touch			
	Operation mode	Bare hands, Glove, Waterproof			
	Sensitivity adjustment	10 steps adjustable for each mode			
	Function	Multi-touch, Zoom in/out, change screen			
Built-in camera	Resolution	720p, 30fps			
	Support	○	○	-	-
XP-VLink		○	-	○	-
Buzzer		90dB, 9 steps adjustable			
USB	Device	USB 2.0, 1 channel			
	Host	USB 2.0, 1 channel			
Certification	Standard	CE, KC, UL, IP, IECEx, ATEX, CCC, KCs			
	Protection standard	Ex nA nC IIC T6 Gc, Ex tc IIIC T85°C Dc IP 66			
Structure	Dimension (mm)	320 x 261 x 44			
	Panel cut (mm)	306 x 247			
	Weight (Kg)	3.0Kg			
Power	Power (V)	15.5Vdc			
	Power consumption (W)	9W		8W	
Specific conditions of use		1. The equipment presents a potential electrostatic hazard. Clean only with a damp cloth. 2. The equipment must be installed in accordance with EN 60079-14. 3. Do not connect or separate plugs and sockets while an explosive atmosphere is present 4. Avoid direct sunlight. 5. The USB hosts only must be used for maintenance function. 6. The equipment can be installed in an EX p purged enclosure which provides at least IP4X ingress protection rating. 7. The equipment shall be installed in an enclosure IP6X for marked tc and IP54 for marked nA. 8. The equipment shall only be used in an area of not more than pollution degree 2, as defined in IEC 60664-1. 9. Plugs and sockets shall not be separated while an explosive atmosphere may be present. 10. The equipment presents a potential electrostatic hazard. The user shall therefore Tensure that the equipment is not installed in a location where it may be subjected to external conditions which might cause a build-up of electrostatic charges. 11. The equipment shall be used always in a vertical position. 12. The equipment shall be supplied by an appropriately rated transient protective device that is set to a level not exceeding 140% of the peak rated voltage. 13. The equipment shall be installed so as to be protected from mechanical impact.			

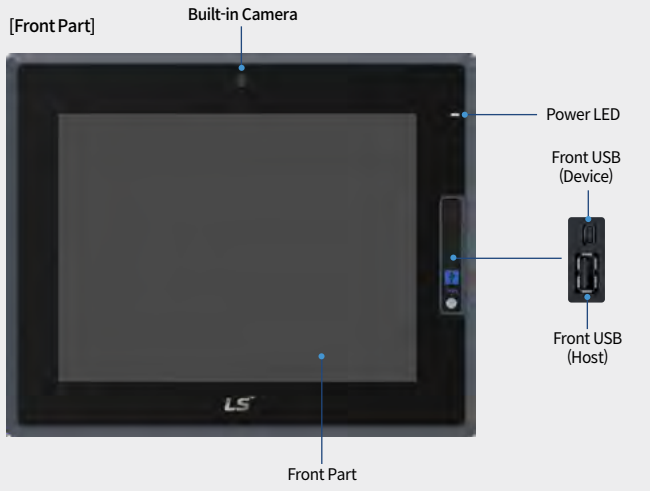
Special Type(Explosion-proof product) Main Unit

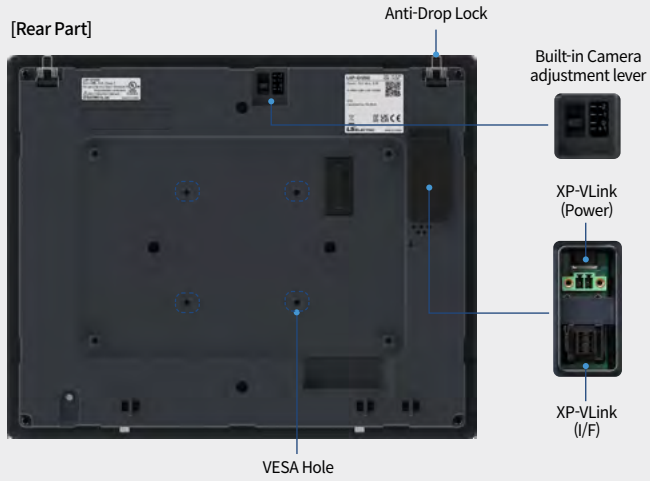
Item		LXP-M00D	LXP-M01D
Processor		1.6GHz, Quad core	
Memory	Drawing memory	128Mbyte	
	Operation RAM	4GByte	
	Backup RAM	1Mbyte	
XP-VLink		○	-
RTC		Support, Battery CR2032(about 3years/25°C)	
Interface	HDMI	V2.0, 1 channel	
	Audio out	3.5Φ, 40mW, 1 channel	
	Extended interface	Support, 64GB extended memory	
Storage	SD	Max. 256GB(SDXC, SDHC)	
	USB host	USB 3.0, 2 channel	
Communication	LAN0	10Base-T/100Base-TX/1000Base-T Auto MDIX RJ-45	
	LAN1		
	COM1	RS-232C, RS-422/485, Isolated Baud rate: 9,600~115,200(Max. 5kbps) 9pin D-sub(Female)	
	COM2	RS-232C, RS-422/485, 5Vdc/250mA Power out Baud rate: 9,600~115,200(Max. 5kbps) 9pin D-sub(Female)	
	COM3	RS-485 Baud rate: 9,600~115,200(Max. 5kbps) 3pin Open connector	
Certification	Standard certification	CE, KC, UL, IP, IECEx, ATEX, CCC, KCs	
	Protection standard	Ex nA nC IIC T6 Gc, Ex tc IIIC T85°C Dc IP 66	
Structure	Dimension (mm)	220 x 147 x 51.3	
	Weight (Kg)	1.4kg	
Power	Power (V)	24Vdc	
	Power consumption (W)	7W	

Product Configuration

Display Unit Shape and Name

LXP-D12□□





User Interface Features

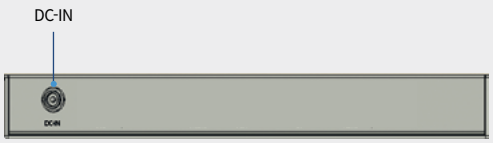
Improved performance of each interface

Item	iXP2	iXP3	LXP
USB	USB 2.0, 250mA	USB 2.0 (Front x 1:250mA, Back x 2 : 750mA)	USB 3.0, 500mA
HDMI	HDMI V1.4	HDMI V2.0	HDMI V2.0
SD Card	32GB	256GB	256GB
Extended memory	Not supported	Not supported	64GB
Ethernet	100M 1 channel, Giga-Bit 1 channel	Giga-Bit 2 channel	Giga-Bit 2 channel
Serial	2 channel	2 channel	3 channel

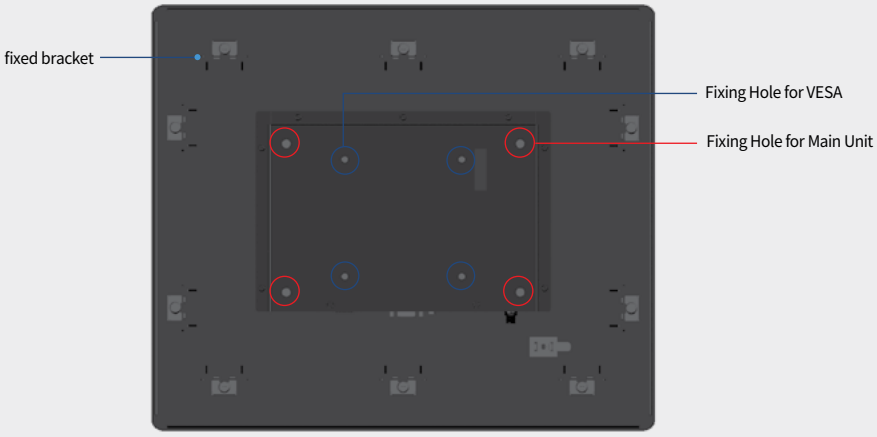
LXP-D1911B

[Front Part]





[Rear Part]



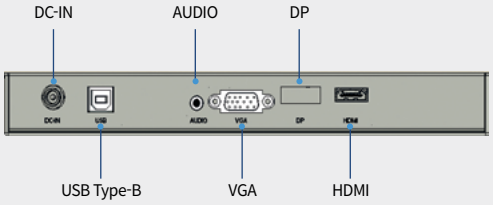
Product Configuration

Display Unit Shape and Name

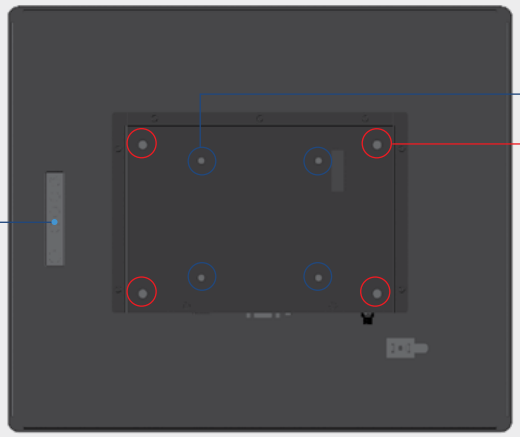
LXP-T1911

[Front Part]





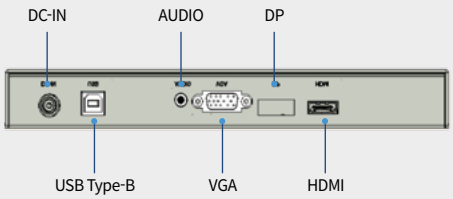
[Rear Part]



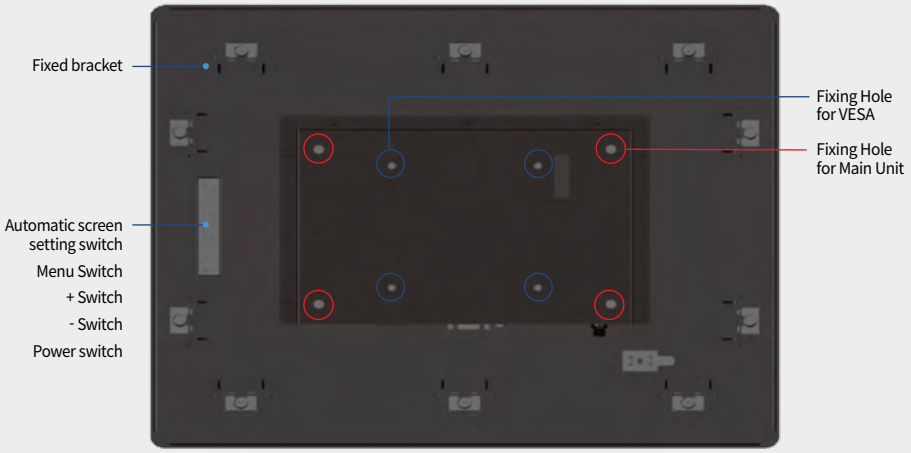
LXP-D2411

[Front Part]





[Rear Part]



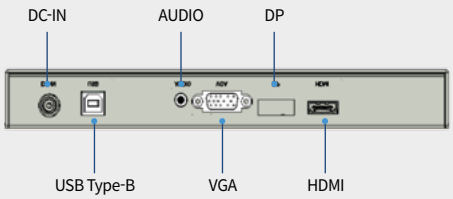
Product Configuration

Display Unit Shape and Name

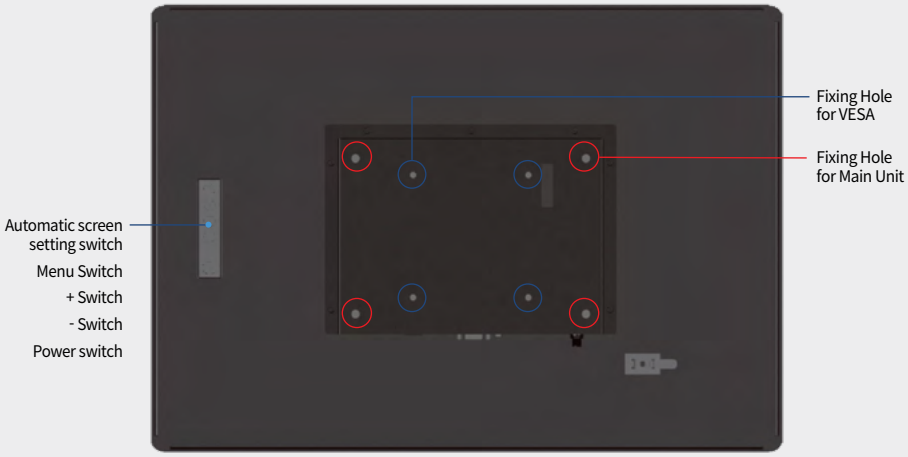
LXP-T2411

[Front Part]



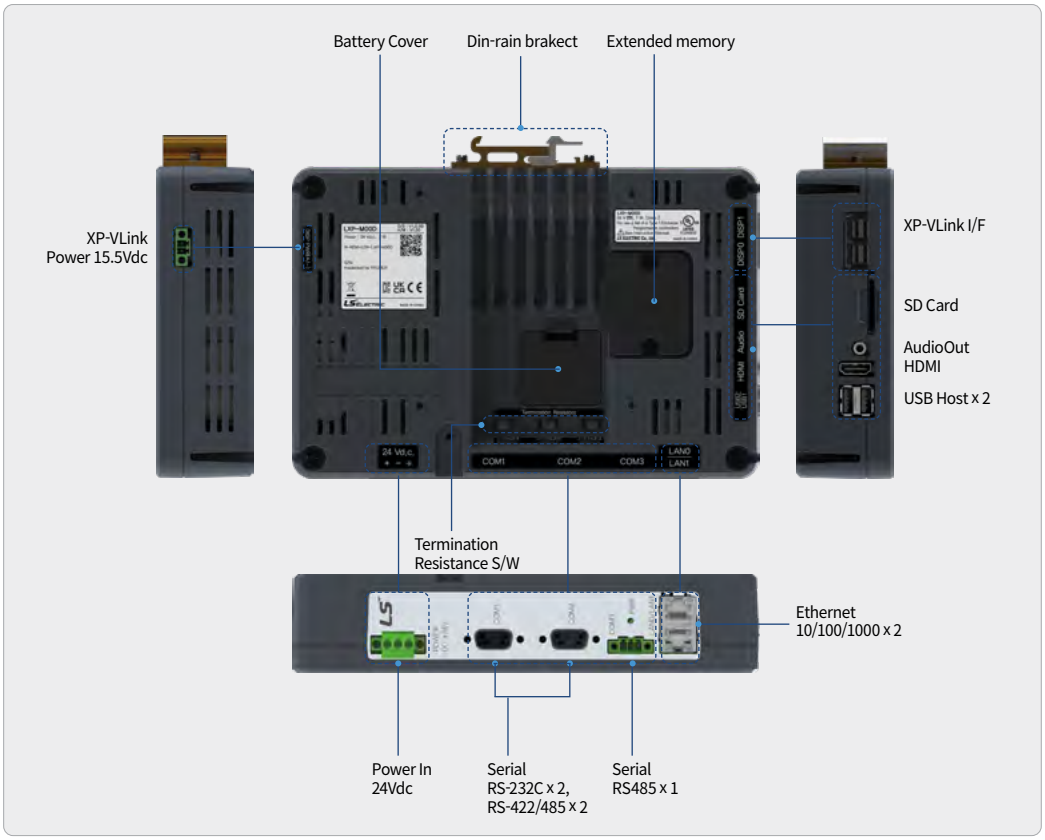


[Rear Part]



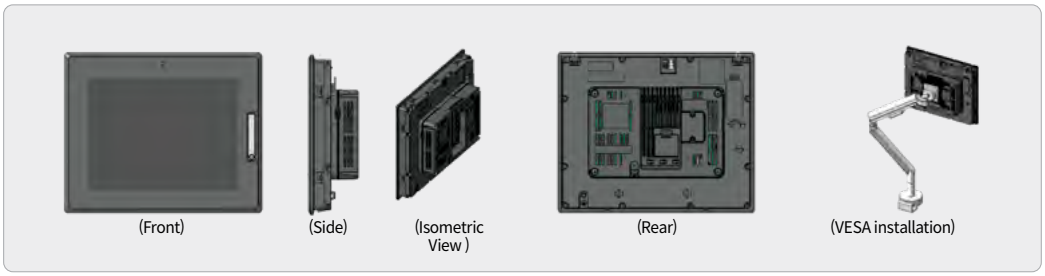
Main Unit Shape and Name

LXP-M□□D

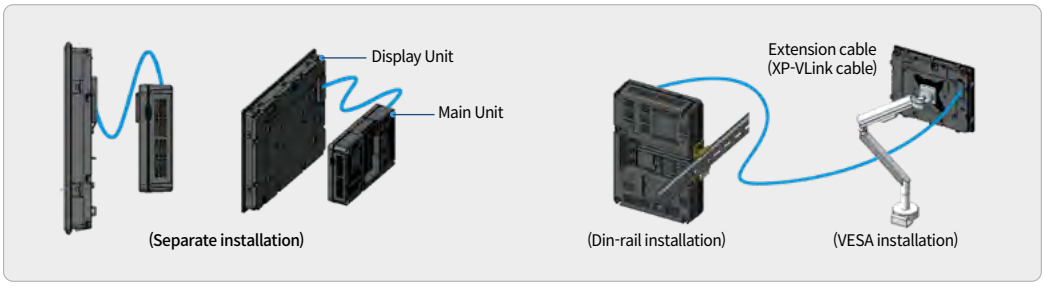


Combined/Extension Installation

Combined Installation



Extension Installation



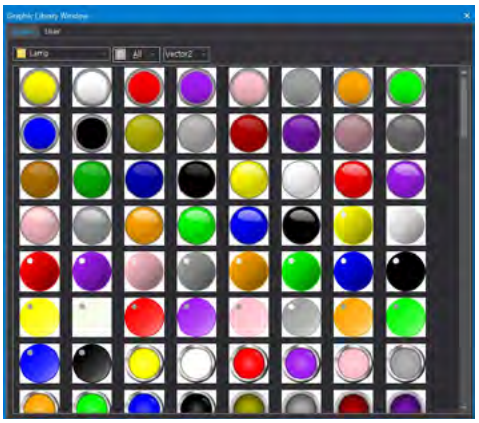
Visibility & Control

iXP3 LXP

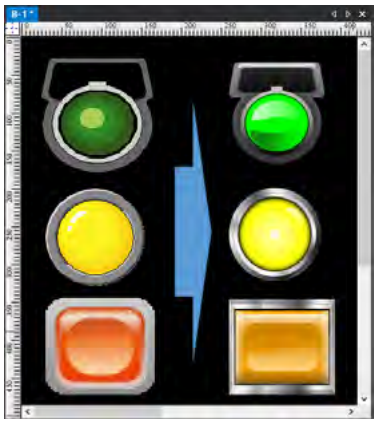
Vector Image with No Distortion

Unlike BMP format, which creates distortions when enlarging or reducing, visibility and engineering time is improved by applying high quality vector image

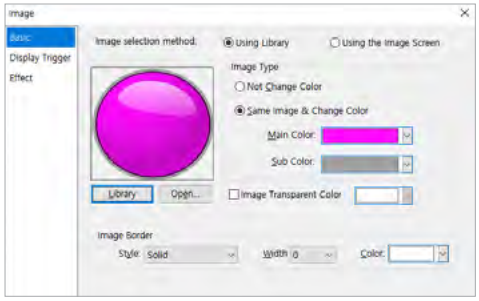
High Quality Vector Image Library



[Graphic library]



[Bitmap vs Vector]



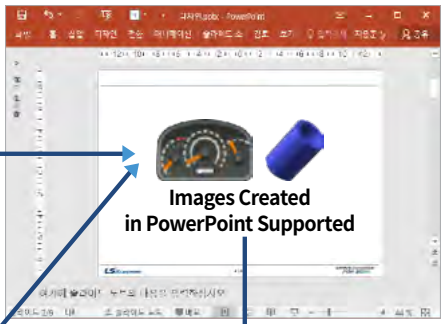
[Function provided to switch to specific color]

Library Linked with MS PowerPoint

Function provided to easily use the images created in MS PowerPoint as library

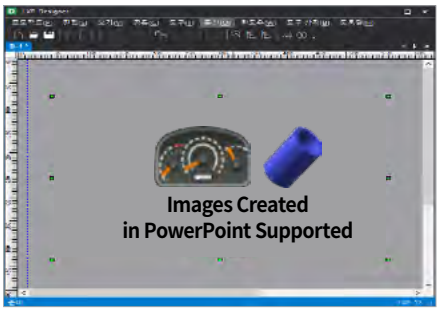


[Library Store App.]



[Power Point]





iXP3 LXP

Capacitive Touch Screen Technology Applied

Capacitive touch screen proved from performance and quality standpoints also provides touch solutions such as multi-touch and gesture functions.

Capacitive Touch vs. Resistive Touch

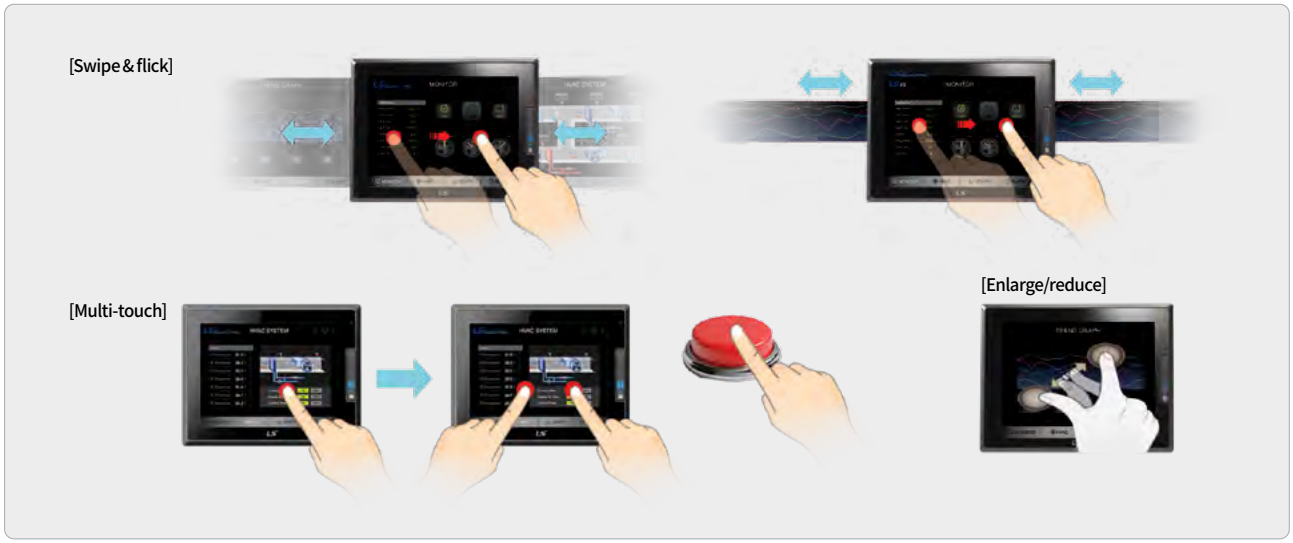
Capacitive touch screen applied in order to provide various control technologies

Item	Capactive	Resistive
Penetration Ratio	90% or above	80% or below
Multi-touch Function	Supported	2 point touch supported (in case of multi-resistive)
Gesture Function	Enlarge/reduce, swipe, flick	Not supported
Touch Accuracy	No calibration needed	Calibration needed periodically Lower accuracy in case of touch on corners
Touch Screen Lifespan	Long-lasting	100,000 touches

※ Various setting modes provided for different types of gloves

Multi-touch & gesture functions

Easier control/monitoring with the same touch type provided in mobile phones or tablet PC

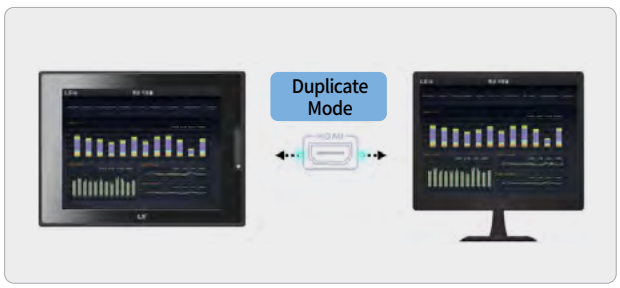


iXP3 LXP

Dual Monitor Function

Function to run and control HMI in 2 different screens with HDMI output function

Duplicate Mode



Extend Mode

Function provided to run two HMI screens by creating another screen in addition to the originally operating HMI



XGT Panel iXP3 & LXP Feature

Visibility & Control

Strong Multimedia Function

Functions provided to record work history with embedded high-resolution camera or to monitor work environment with IP camera interface based on USB/Ethernet

Embedded Camera

Back up of work history into storing device or server using black box function

LXP

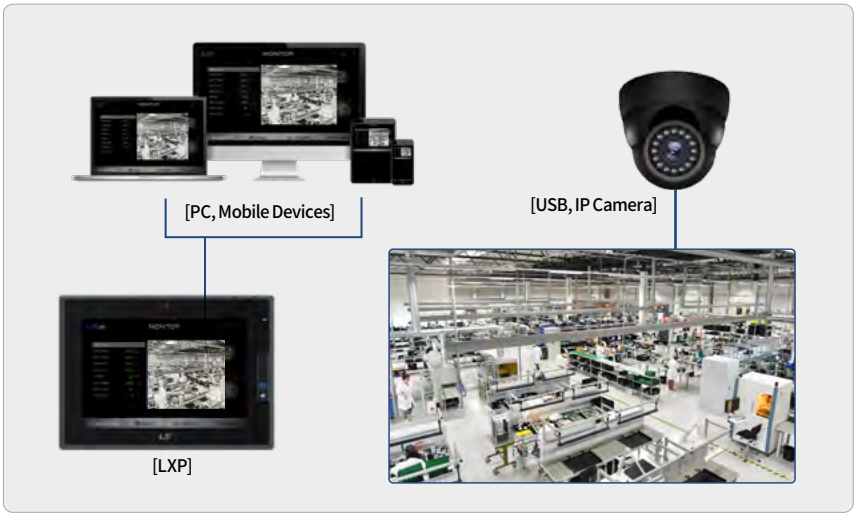
Item	LXP	Other HMIs
Resolution	Max. 1280X720(HD) Recommended 640X480(SD)	640 X 480 (SD)
Storing	HD, 15FPS	SD, 10FPS
Angle Adjustment	4 levels	4 levels
Functions	Live View, Black Box, Snap Shot, Web Stream supported	Live View, Black Box, Snap Shot, Record

※ Enhancement to support up to 30FPS to be planned

IP Camera & Video Play

Function provided to monitor the field or security facility with camera interface and to observe them remotely via VNC

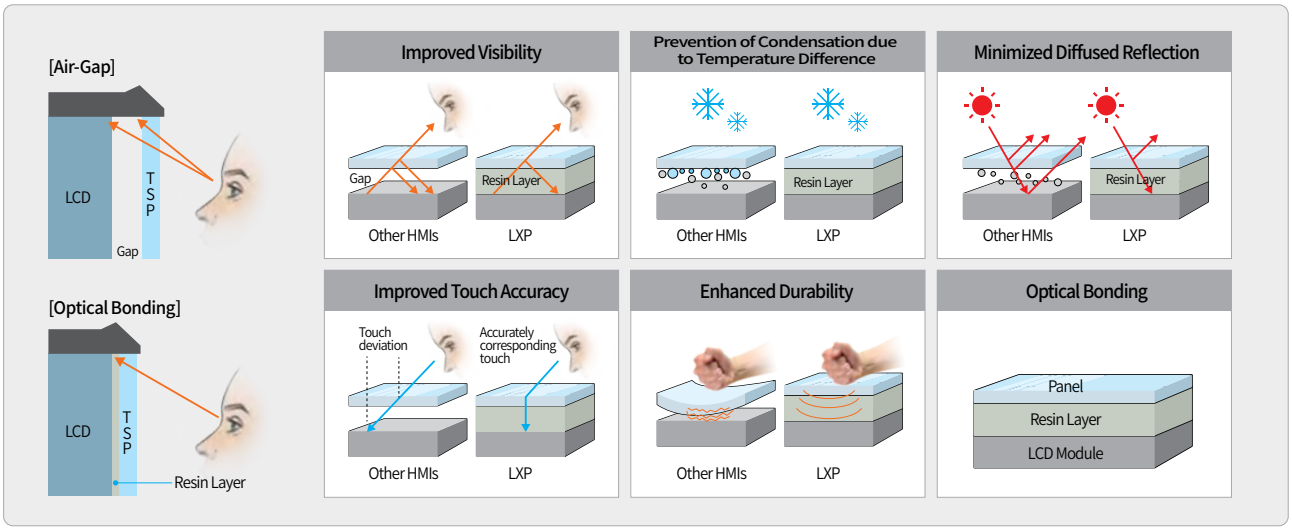
iXP3 LXP



Screen Display and Control without Distortion

With optical bonding technology, clearer screen display is provided with various viewing angles.

LXP



Safety

iXP3 LXP

Thermo-graphic Camera Interface

Thermo-graphic camera option provided to meet customer needs for observing inner part of control panels to react to fires

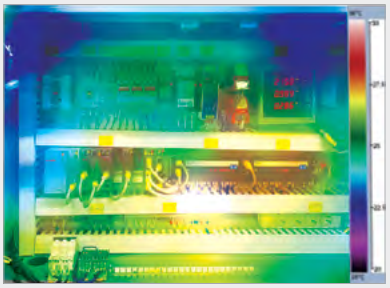
Thermo-graphic Camera System (Optional)

Function provided to execute real-time monitoring or logging from HMI by measuring temperature of ROI (Region of Interest) inside the control panel

Thermo-graphic Camera Operating Function

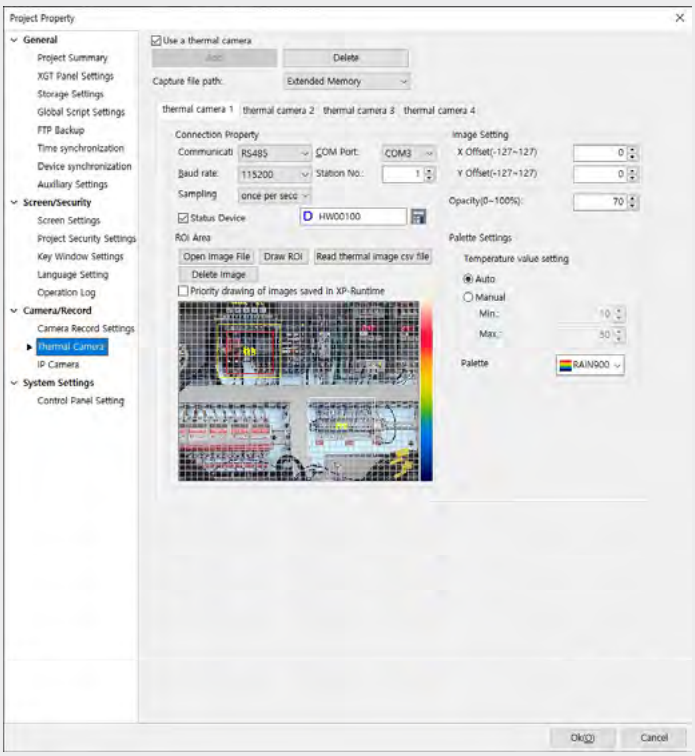
Functions to connect up to 4 thermo-graphic cameras via RS-485 communication and to create overlay display of the background image and actual temperature values by setting up to 10 ROIs (Region of Interest) per each channel

[Example of operation displaying]





[Setting of thermo-graphic camera]



Flexibility

Easy Maintenance

In order to solve the maintenance inconvenience, which is often considered as a disadvantage of the integrated HMI, the following ideas of improved maintenance is reflected.

Display Hot Swap

Able to replace the Display Unit while maintaining the power supply

LXP

One-Stop Diagnosis

iXP3 LXP

When a quality problem occurs at the site, logs are collected to quickly analyze the issues.



[System Log Backup]

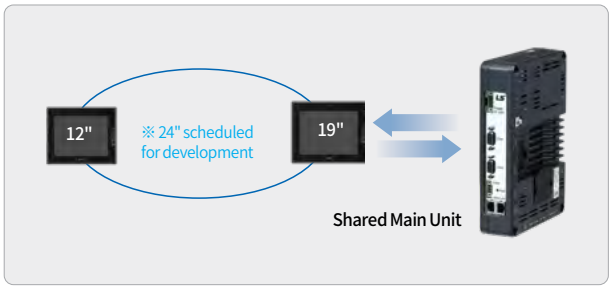


[Function Diagnosis]



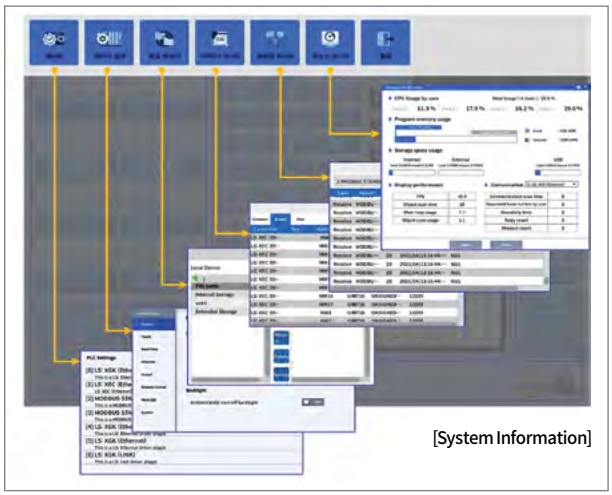
A timely response to component discontinuation.

LXP



Enhanced System Monitoring Function

Function provided for real time system monitoring and file explorer during HMI in operation



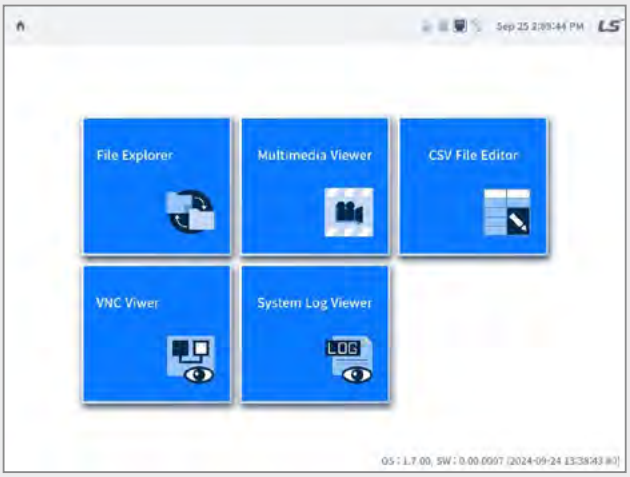
[System Information]

System Backup and Automatic Recovery

If there is an error during OS and Runtime Loading, the automatic recovery mode is executed.
After configuring the system with the project file saved on an external device, run the recovery to the last backed up version in Runtime, so that the system can be applied quickly and stably.

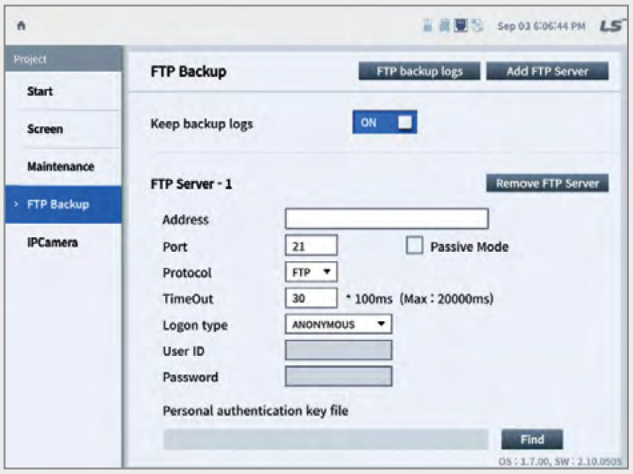
Utility function

Provides a file explorer, multimedia and CSV editor, and VNC viewer.
VNC Viewer allows XGT Panel to operate as a VNC Client and displays the screen of the device set on the VNC Server by connecting to Ethernet.



FTP Backup

Provides a feature to automatically upload backup files created in XP-Rumtime to a remote FTP backup server.



Remote Support

Provides a feature to remotely access the product via VNC Server and VPN

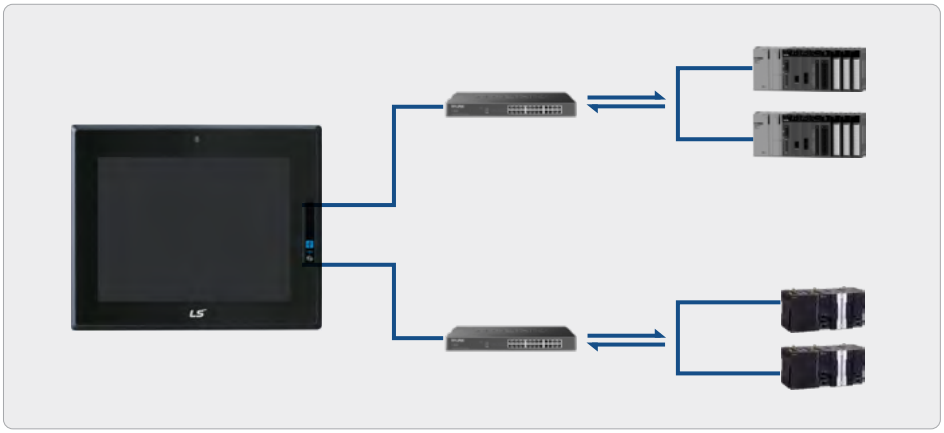


Connectivity iXP3 LXP

Gateway role enhancement

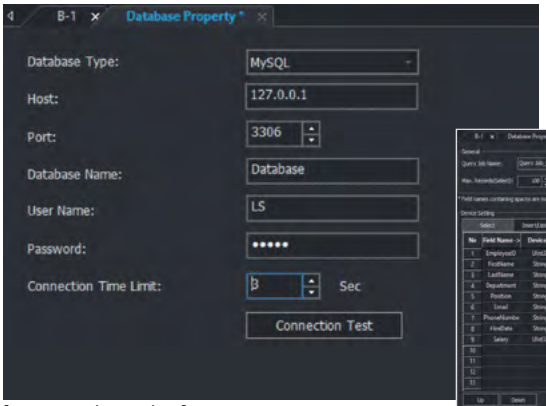
utility function

Provides a file explorer, multimedia and CSV editor, and VNC viewer. VNC Viewer allows XGT Panel to operate as a VNC Client and displays the screen of the device set on the VNC Server by connecting to Ethernet.

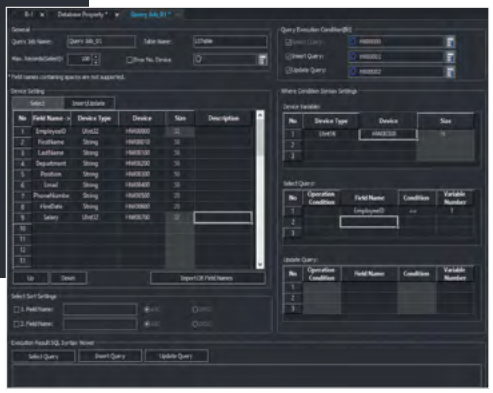


Database Connection

GUI-based MS-SQL, MySQL, MariaDB connection and easy SQL query setup



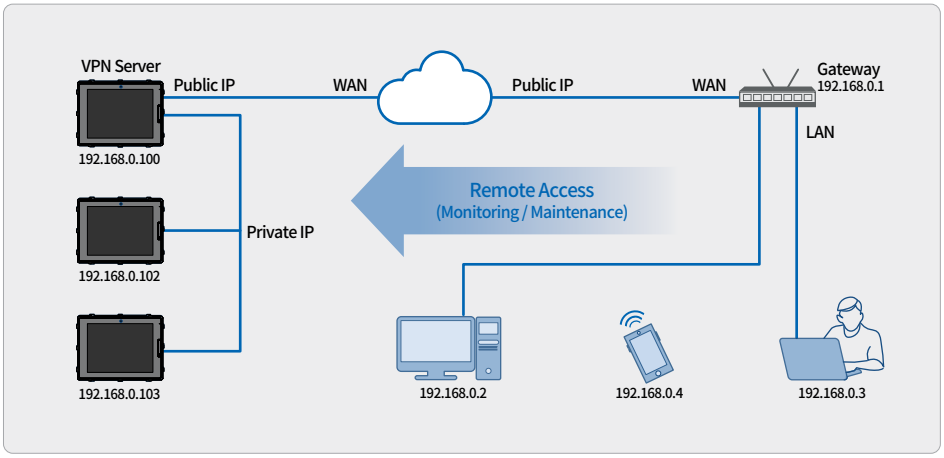
[DB connection settings]



[SQL query settings]

VPN Server

Provides a platform for monitoring and maintenance through remote access in a WAN environment by providing VPN server functions



Drawing software iXP3 LXP

LXP Designer Compatible

Design tool for iXP3 and LXP series with improved UI/UX and advanced features.

UX/UI Improvements

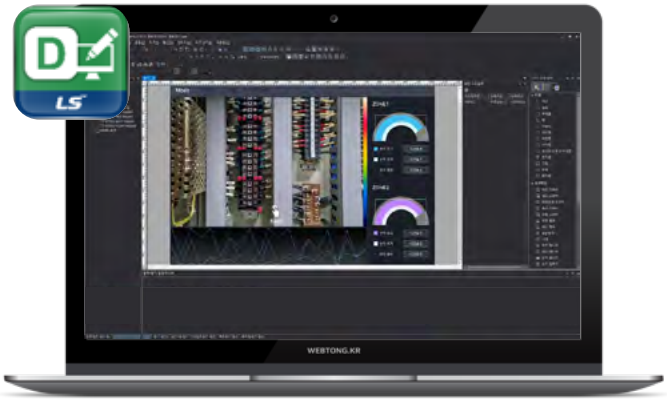
Project read/write, import runtime feature. memory usage feature improved.

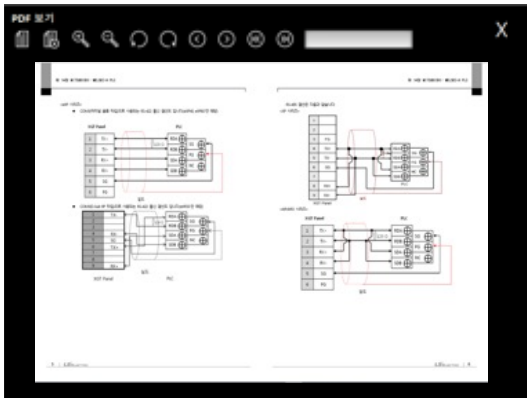
Advanced Features

Animation editor, Multimedia Object

Convenient Features

Provides calculating function for numeric display, linked Azure/AWS cloud service and utlize OPC-UA server.







XGT Panel



XGT Panel
iXP2 Series

intelligent XGT Panel

High performance, user friendly and robust choice for your system, iXP2

Durability

- Slim and durable design with aluminum frame and a reinforced glass
- IP66 Certification with enhanced waterproofing and protection against dust.

Flexibility

- Dual Monitor function clone/extended mode
- Multi-touch settings for malfunction prevention.



Connectivity

- Various external interfaces to provide IoT solutions
- Ethernet 2ch., HDMI/Audio output, USB host/device, multimedia (video)

Convenience

- Compatible with IXP panel cut for replacement
- Depending on touch sensitivity, It can be set up to be used with bare hands or gloves

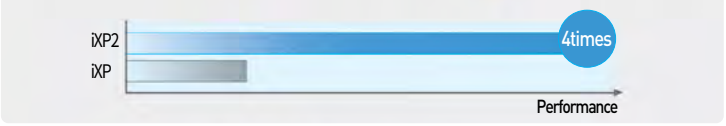
Responsive touch screen

- Touch sensitivity is improved by applying responsive touch screen.
- Use touch screen either with bare hands or with gloves.
- Various types of touch setting function can be used according to user's work environment



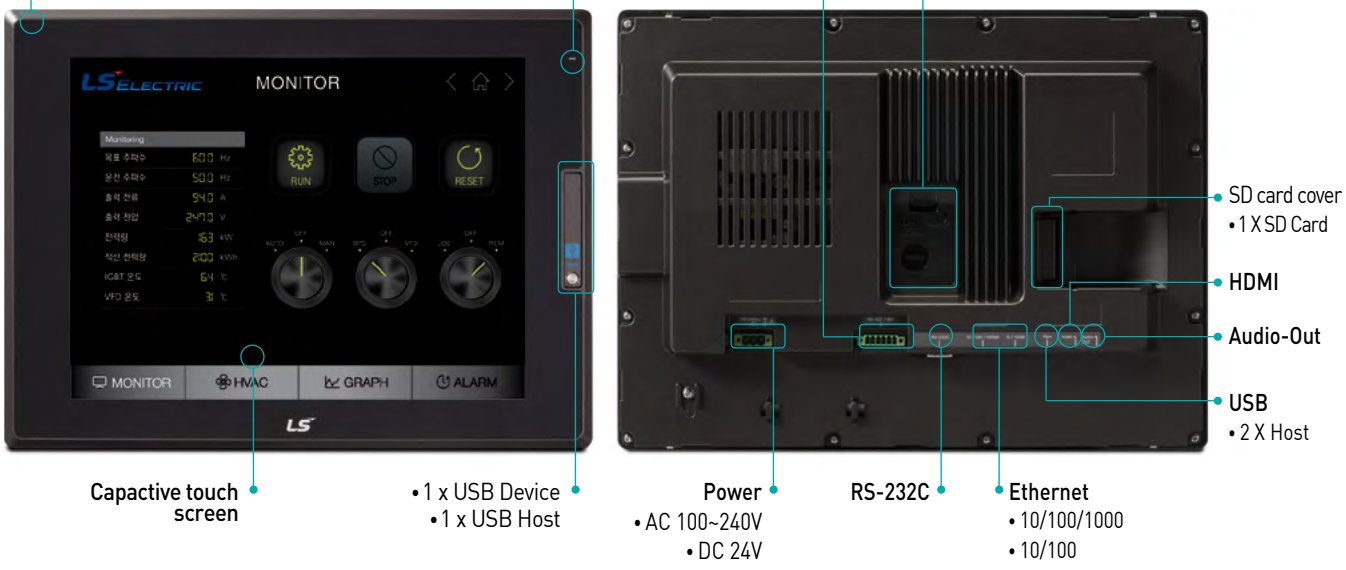
Dual-Core CPU offers high-speed communication and processing

High luminance/resolution LCD with an LED backlight and support for 16M colors, which makes clear and distinct color representation possible.



XGT Panel iXP2 Series

High functioning, user friendly and robust choice for your system



Multiple interface methods to cope with the Internet of Things

Ethernet 2ch., HDMI / Audio output, USB host/device, multimedia (video)



Multi-touch and gesture-control screens

Multi-touch maximizes operating stability and safety.
Use gesture-control to view logging trend graphs and to change screens.



Robust IP66 aluminum frame

Reinforced protection against water and dust. Conforms to NEMA 4X standard.



Screen gesture

Flick to change screens.
No extra switching button is needed to change screens.

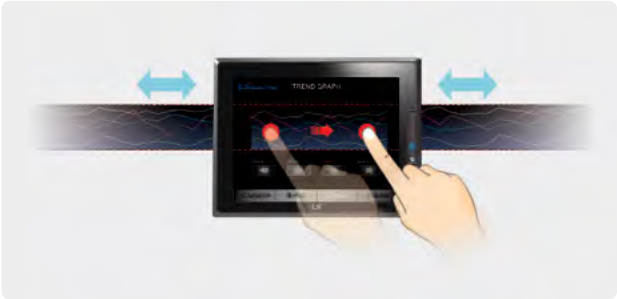


Object gesture

Select the object you want and then swipe and flick it.

Object list

• Logging trend graph • View logging history • View history alarms



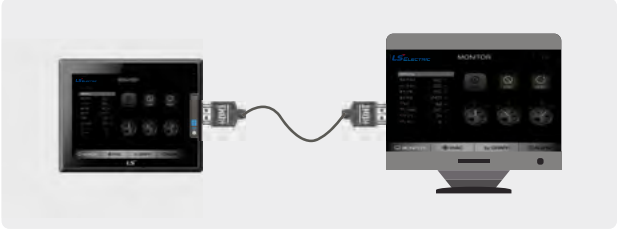
Multi-touch

Use multi-touch to protect your system from undesired errors.



Dual monitor mode and extension mode

Increase your convenience by duplicating or extending your screens.



Products

General Information

Item	Description				Standard
Ambient temperature	0°C~+50°C				
Storage temperature	-20°C~+60°C				
Ambient humidity	10~85%RH, without dew condensation				
Storage humidity	10~85%RH, without dew condensation				
Vibration resistance	Occasional Vibration			Counts	
	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㎨	-		
Shock resistance	Maximum shock acceleration: 147㎨(15g) Authorization time: 11ms Pulse waveform: Half-sine wave pulse (3 times each of X,Y and Z)				IEC 61131-2
Noise resistance	Square wave impulse noise	DC: ±1,200V AC: ±1,600V			LS ELECTRIC Standards
	Electrostatic discharge	±4kV (Contact discharge)			IEC 61131-2, IEC 61000-4-2
	Radiated electromagnetic field noise	80 ~ 100MHz, 10V/m			IEC 61131-2, IEC 61000-4-3
	Fast transient/Burst noise	Power module: 2.4 kV, Communication interface: 1.2kV			IEC 61131-2, IEC 61000-4-4
Operating ambience	Free from corrosive gas and excessive dust				
Altitude	2,000m (6,562ft) or below				
Pollution degree	2 or under				
Cooling method	Natural air-cooling				

Specifications

Item		iXP2-0800A/D	iXP2-1000A/D	iXP2-1200A/D	iXP2-1500A/D
Display type		TFT color LCD			
Screen size		8.4″	10.4″	12.1″	15″
Display resolution		800×600	1,024×768		
Color indication		24-bit color (16.7M colors)			
Backlight		LED method, automatic On / Off support			
Backlight lifetime		40,000 hour			
Touch panel		Capacitive touch			
Audio output		Magnetic buzzer (85dB)			
Processor		1GHz, Dual core			
Memory	Flash	1GB			
	Operating RAM	1GB			
	Backup RAM	1 Mbyte			
Backup data		Date / Time data, Logging / Alarm / Recipe data, Non-volatile devices			
Battery		CR2032(3.0V/210mAh, About 3years/25°C)			
Video output		1 X HDMI			
Ethernet		1 X 10Base-T / 100Base-TX, 1 X 10Base-T / 100Base-TX / 1000Base-T			
USB host		3 X USB 2.0 (Front X 1, Rear X 2)			
USB device		1 X USB 2.0 (Send / Receive front, PC and project data etc.)			
RS-232C		1 X RS-232C (DSUB 9 / Male type)			
RS-422/485		1 X RS-422/485 (Terminal block)			
Multi-language		Can display 12 languages simultaneously			
Animation		GIF format support			
Recipe		Support			
Data logging		Support			
Script launcher		Support			
Standard certification		CE, KC, UL, IECEx, ATEX, KCs			
Protection standard		IP66, Conform to the UL type 4x, NEMA 4x standard			
Explosion proof		Ex nA IIC T5 Gc, Ex tc IIIC T100°C Dc IP64			
Dimensions (mm)		240×180×60	271×212×60	313×239×60	395×294×66
Panel cut (mm)		228.5×158.5	259.0×201.0	301.5×227.5	383.5×282.5
Power		iXP2-xxxxA : AC100 / 240V, iXP2-xxxxD : DC24V			
Power consumption (W)		25	25	30	30
Weight (Kg)		1.87	2.35	3.0	4.6

XGT Panel



XGT Panel

eXP2 Series

Human Machine Interface

Full Compatibility and Improved Performance Enjoy the Satisfying Experience with eXP2!

User-oriented interface, strong performance, smooth and quick screen transitions as well as fast response time. Meet eXP2 Series, featuring a true connection between the user and the equipment.



Superior Performance

- ARM Cortex A8 800MHz platform, eMMC 4G, DDR3 / Windows Embedded Compact 7.0 applied
- Improved project downloading speed by 2X, screen switching speed by 4X, booting time by 1.2X, and graphic rendering by 2X compared to eXP.

Performance Comparisons (eXP → eXP2)

Project Downloading	Screen Change	Booting	Graphic Rendering
x2	x4	x1.2	x2
50sec → 28sec	680ms → 184ms	25sec → 22sec	50fps → 98fps

※ May vary depending on operating conditions

Enhanced Product Reliability

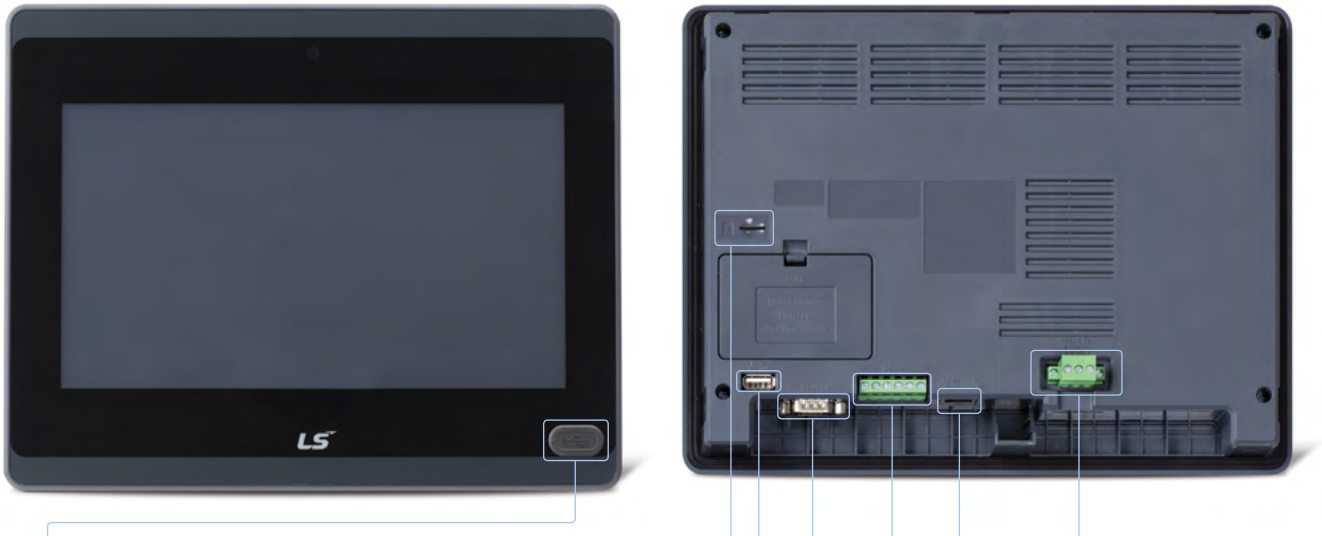
- LCD Backlight Lifespan(7": 20,000 Hrs → 50,000 Hrs, 10.1": 20,000 Hrs → 30,000 Hrs)
- Non Battery Type NVRAM (Logging, alarm, and protection of internally retained device data)

Variety of Interfaces and Functions

- Consistent update of communication drivers. 105 communication drivers (54 companies including LS ELECTRIC) are available currently.
- Various functions including Portrait Mode, PDF Viewer, FTP Client, and VNC Viewer are available.

XGT Panel eXP2 Series

Features



USB Device
- Logging/Recipe/Screen data backup
- Download/Upload project
- Upload project file
- XGT Panel update

USB Host
- USB memory connection: logging/recipe/screen data backup
- Project data transfer/backup
- User interface connection: mouse/keyboard
- Printer connection

RS-232C/485 Connector

Ethernet Terminal

RS-422/ 485 Connector

Micro SD Card(Option)

Power Terminal
- Power input (24VDC)

Portrait Mode



- Vertical mounting is available
- Setting in XP-Builder: [COMMON]-[Project Property Setting]

Item	eXP	eXP2
Vertical Mode	eXP20 Only	O
PDF Viewer	X	O
FTP Client	X	O
VNC Client	X	O

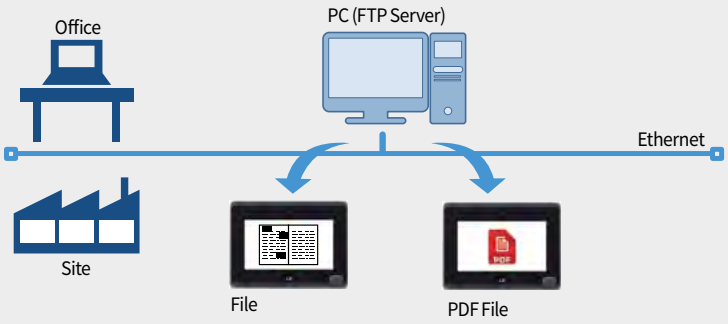
PDF Viewer



- PDF files can be displayed on XGT Panel.
- In the event of an alarm, the content of the alarm's trouble shooting can be checked on site as a PDF file.
- PDF files on an FTP server can be displayed using a PDF viewer object.

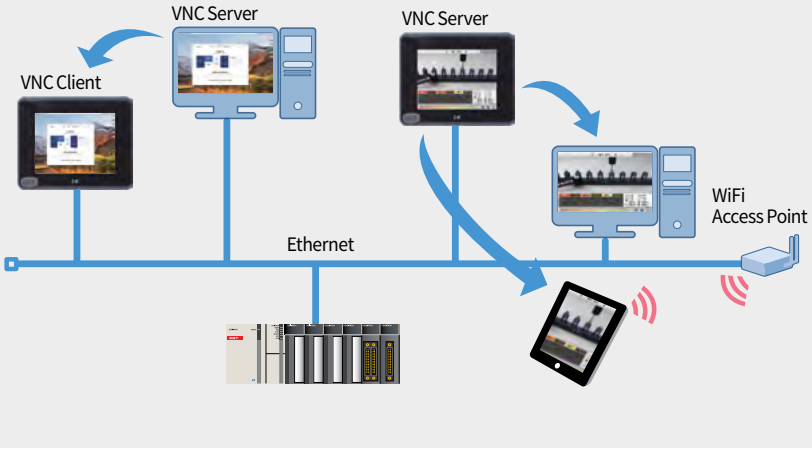
FTP Client

- FTP client is an object that can connect to the FTP server, display the list of files and directories on the FTP server, and download the selected file.
- PDF files on an FTP server can be displayed using a PDF viewer object.



VNC Viewer

- Remotely monitoring PC or HMI using VNC Viewer is available
  - Download VNC server to HMI using XP-Manager.
  - Install a universal VNC server on your PC.(Ultra VNC, Real VNC, etc.)
- Add 'VNC Viewer' object to the project screen.



XGT Panel eXP2 Series

Features

Specifications

Item		eXP2-04□*0D	eXP2-05□*0D	eXP2-05□*2D	eXP2-07□*0D	eXP2-07□*1D	eXP2-07□*2D	eXP2-10□*0D	eXP2-10□*1D
Display Type		TFT Color LCD							
Screen Size		10.9cm (4.3")	14.2cm (5.6")		17.8cm (7")			25.9cm (10.1")	
Display Resolution		480 x 272	640 x 480		800 x 480			1024 x 600	
Color Indication		24Bit Color (16.7M)	18Bit Color (262,144)		24Bit Color (16.7M)			24Bit Color (16.7M)	
Indication Degree		Left/Right: 60 deg. Upper: 40 deg. Lower: 50 deg	Left/Right: 60 deg. Upper: 40 deg. Lower: 60 deg.		Left/Right: 70 deg. Upper: 50 deg. Lower: 70 deg.			Left/Right: 70 deg. Upper: 50 deg. Lower: 70 deg.	
Backlight		LED Type (Supports Backlight Auto-off Function)							
Backlight Duration		50,000 Hours	20,000 Hours		50,000 Hours			30,000 Hours	
Touch Panel		4-Wire Resistive, Analog							
Audio Output		Magnetic Buzzer (85dB)							
Process		800MHz	800MHz		800MHz			800MHz	
Memory	Drawing Memory	64MB	64MB		64MB			64MB	
	Operating RAM	512MB	512MB		512MB			512MB	
	Operating RAM	128KB	128KB		128KB			128KB	
Backup Data		Date/Hour Data, Logging/Alarm/Recipe Data and Nonvolatile Device							
Battery Life		Approx. 3 years (Operating Ambient Temperature of 50°C)							
Ethernet		1 Channel, IEEE802.1a, 10Base-T/100Base-TX		-	1 Channel, IEEE802.1a, 10Base-T/100Base-TX		-	1 Channel, IEEE802.1a, 10Base-T/100Base-TX	
USB Host		1 Channel, USB 2.0 Host (Mouse, keyboard, printer, USB flash drive, etc.)							
USB Device		-	1 Channel, USB 2.0 Device (for Download and Upload Project)					1 Channel, USB 2.0 Device (for Download and Upload Project File)	
Micro SD Card		-	-		-	1 Channel SDHC Class10	-	-	1 Channel SDHC Class10
RS-485, RS-232C		1 Channel, RS-232C (DSUB 9/Male Type)			2 Channels, RS-485, RS-232C (DSUB 9/Male Type)				
RS-422/485		1 Channel, RS-422/485 (DSUB 9/Male Type)			1 Channel, RS-422/485 Mode (Terminal Type)				
Multi-language		Up to 12 Language Simultaneously							
Animation		GIF Format is Available							
Recipe		Available							
Data Logging		Available							
Script Executor		Available							
Certifications		CE, UL(cUL), UL Type 4X, KC		CE, UL(cUL), KC	CE, UL(cUL), UL Type 4X, KC		CE, UL(cUL), KC	CE, UL(cUL), UL Type 4X, KC	
Protection Standard		IP65 Note 1)	IP65 Note 1)		IP65 Note 1)			IP65 Note 1)	
Dimension (mm)		128 x 102 x 32.5	165 x 132.5 x 36.1		208 x 154 x 44.4			276 x 218 x 35.1	
Panel Cut (mm)		119 x 93	156 x 123.5		192 x 138			260 x 202	
Rated Voltage		DC24V	DC24V		DC24V			DC24V	
Power Consumption (W)		4	5.5	5.5	6			6	
Weight (kg)		0.27	0.43	0.43	0.59	0.59	0.58	1.0	1.0

□*:0 (WinCE 7.0 Core), 1 (WinCE 7.0 Pro)
Note 1): IP66 for UL Type 4X models.

Memo

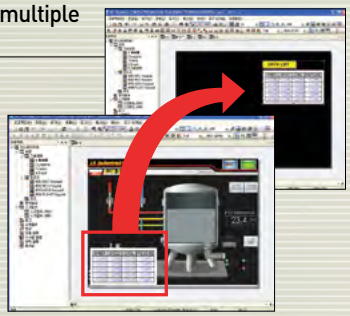
XP-Builder eXP2 iXP2

XGT Panel offers easy and user-friendly multi-interface.

XP-Builder Functions

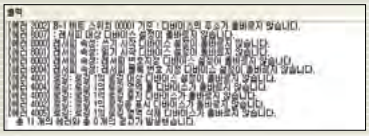
Implementation of multiple programs

In order to use the previously created drawing data for a new drawing, more than 2 XP-Builder programs are executed simultaneously.



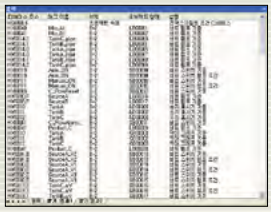
Function to check data

- To check for any error on the data created, and errors can be corrected by clicking on them.
- The specific description of error created is displayed.



Cross-reference function of devices

Devices used for drawing data and tags are displayed.



Animation function

- When GIF format is used, animation effects can be realized depending on the state of given bit.
- When a video clip on given site is created into GIF to be added to a drawing screen, more accurate information can be delivered to users. (Video clip files can be created using the commercial software for GIF creation)



Drawing Editor: XP-Builder

Project Window

Add, delete and edit project property, logging, recipe and alarm conveniently.

Data Element Window

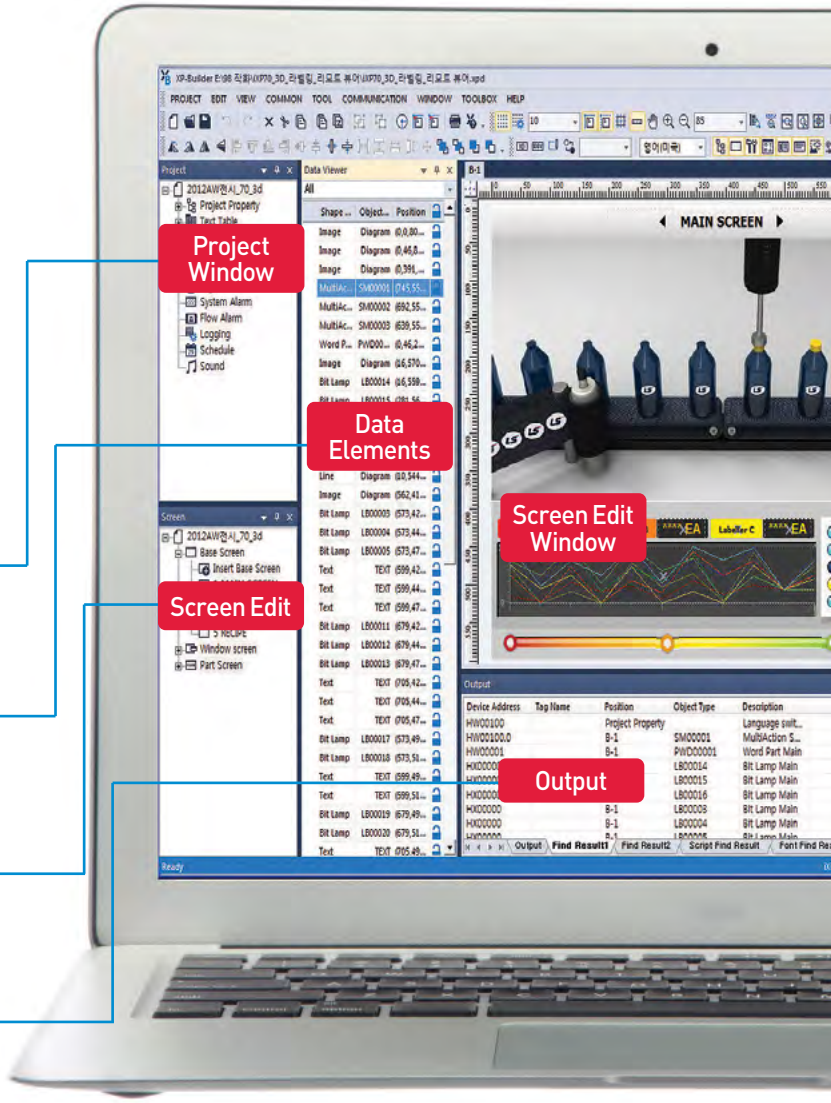
- Displays the objects on a screen currently shown.
- When double-clicked, a window on setting the properties appears.

Screen Window

Add, delete and edit basic screens, window screens and part screens easily

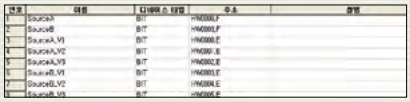
Output Window

- Displays the error checked on drawing data and the search results.
- It displays the specific description of the errors created.



Tag function

- Users can set device address by desired name, which can be used in an object.
- When a set device is tagged to an object, addresses can be changed, collectively
- Up to 10,000 tags can be registered.



Various fonts with convenient setting options

- Windows fonts used in a PC can be transmitted to HMI for use.
- When using Windows fonts, font attributes (Italic, bold and underline) can be used as well.
- Various font sizes including True Type are supported.
- Supports the Unicode, characters of other countries such as the standard font and high-quality fonts are beautifully displayed.
- Sophisticated and elegant text can be used to create a screen using various fonts.

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

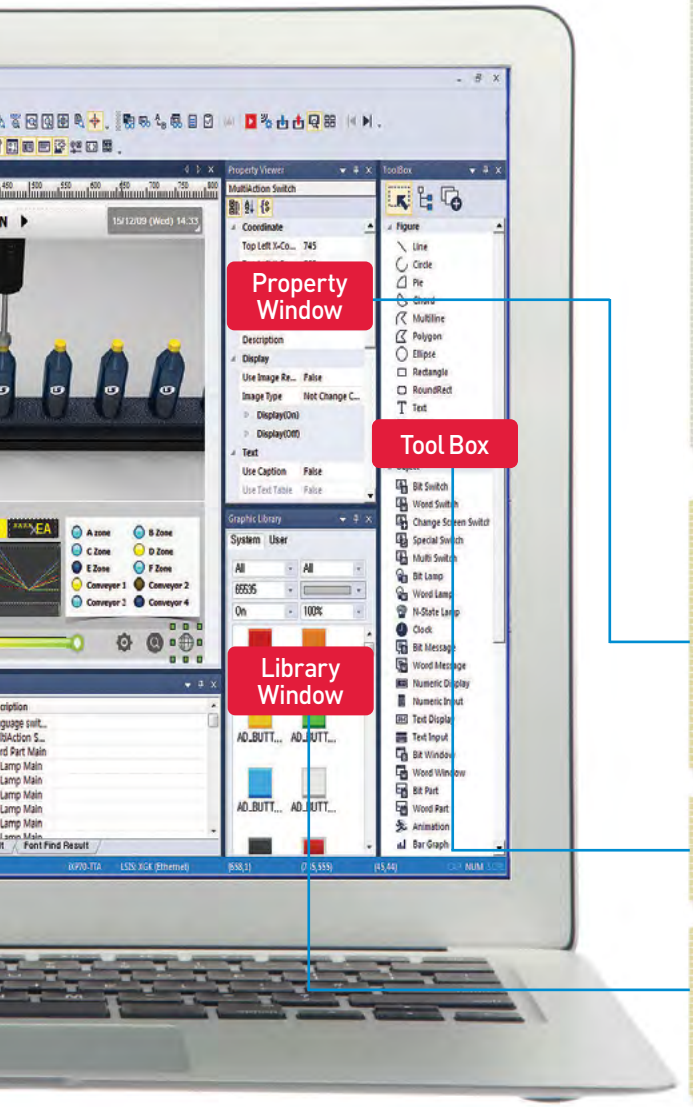
가나다라마바사아자차카타파하
가나다라마바사아자차카타파하
가나다라마바사아자차카타파하
가나다라마바사아자차카타파하

User-oriented screen UI

Providing a flexible script language

- Provides a screen UI that can be easily used considering user's experiences.
- Divided into categories so that a graphic library can be easily searched.
- Various graphic libraries are offered for enhanced usability.





Property Window

This function enables users to change properties of numerous objects at once, so that users do not have to open each object like a button or a lamp for modification.

- Numerous objects on the screen can be selected at once to replace the pictures, enhancing users' convenience.
- When modifying several objects, only the objects with the same function should be selected.
- Users can correct both pictures and properties.

Tool Box

Used to select an object or draw a shape.

Library Window

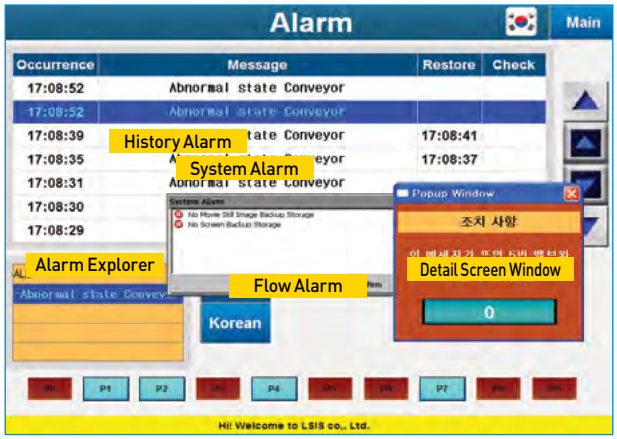
- Library is divided by category for easier use, and preview is used for drawing.
- Convenient for users to register and delete the Library.
- Drag & Drop is used for a screen insertion.

XGT Panel Feature

Advanced Functions eXP2 iXP2

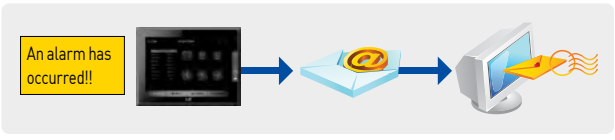
Alarm Function

- **History Alarm**
  The history of alarms can be saved in the device to check the description of occurrence.
  The alarm can be categorized into up to 8 upper and 8 lower class groups or an alarm list, and an alarm explorer can display only the group alarms the user may desire. When a screen on description to check the details of alarms generated is registered, the detailed screen window linked to the alarm will appear.
  (It can be used to check the measures or detailed description when an alarm is generated.)
- **Flow Alarm**
  The alarm generated is displayed on the upper/mid/lower section for users to promptly take actions.
  Flow alarm can be set to be operable at a specific screen, so it can be used to deliver the information on equipments and company.
- **System Alarm**
  When a serious fault or a trouble of HMI occurs, the system alarm informs the users, which is a critical function.



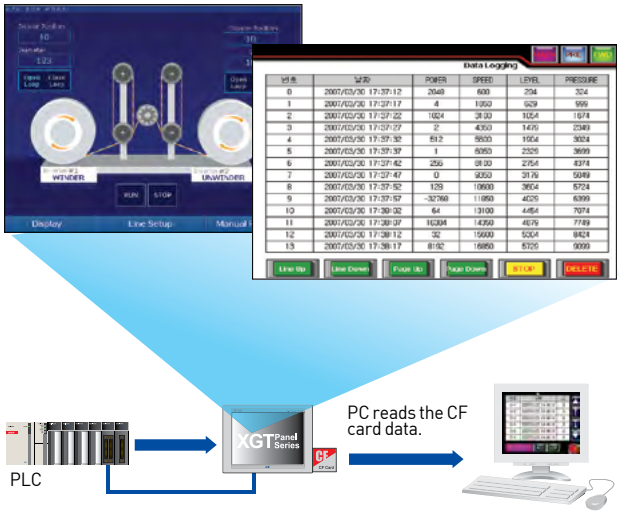
E-mail Function

- It offers a function to send backup files (.csv) using the E-mail address registered upon backup of the logging and alarm data in XGT Panel.
- The E-mail function for logging can only send the backup files of the group desired for each logging group.
- The E-mail function for history alarm includes a function to send to the E-mail only on the alarm messages to the designated receivers when the user-assigned alarm is generated or recovered.
- The logging and alarm backup files sent can be easily analyzed in PC using a program like EXCEL.



Logging Function

- It offers a cyclic logging that is repeated depending on the time and device state and a conditional logging which works under the device conditions.
- Up to 32 logging areas (conditions) can be provided, and the maximum size of an area can be set up to 512Kbyte, 100DWord.
- Up to 512Kbyte, 100DWord (64Bit upon bit logging) per logging can be saved.
- Basically, logging is saved in the built-in SRAM(512Kbyte, 100DWord), and the backup of logging is available using the CF card, SD card, USB memory stick or USB external hard disk.
- Logging data can be viewed in XGT Panel using a logging view object, and they can be converted into a CSV format to be easily edited using a PC via software such as EXCEL.



Encryption of Logging/Alarm Backup Files

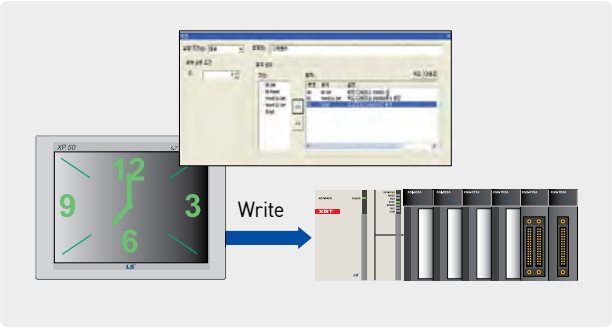
- The backup file format can be archived as binary files to prevent the data from being damaged or manipulated.
- The encrypted files can be converted into CSV files using a CSV file converter offered from XP-Builder.

Able to View PDF

- Viewing PDF file XGT Panel
- Saving trouble shooting instructions for failures (alarm) in PDF format so that users could see in the field
- No number limit of PDF files as PDF files are saved in external memories
- This function is available only in iXP2/iXP series HMIs, not in XP series HMIs

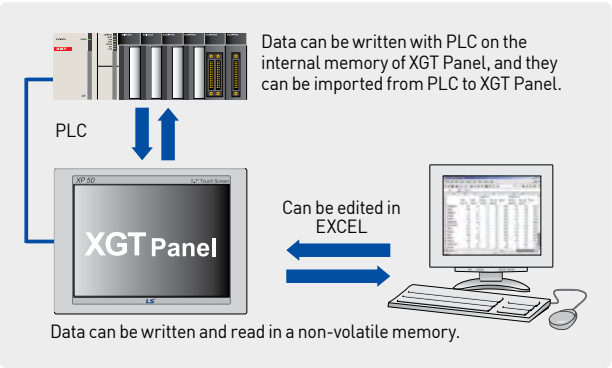
Scheduler

- Scheduler assigns an operation to be executed on a set time.
- Available functions include Bit ON/OFF, setting Word values and a script operation. Each scheduler can assign up to 8 operations.
- Up to 32 schedulers can be set.



Recipe

- After the data to be written on PLC are created, the data values created on a PLC device continuously connected to a specific device can be written.
- It can read a lot of device values from the PLC continuously connected to a specific device.
- Basic recipe can register up to 10000 Word/DWord devices and 255 table blocks.
- Recipe data are saved in a non-volatile memory of XGT Panel. Thus, when the power is out, the data saved at the last minute are kept.
- Recipe data can be registered and edited using a XGT Panel or an EXCEL program.



Script

Providing a flexible script language

- It is difficult to perform drawing using only the provided object functions, and it can be supplemented using a script.
- A structured language similar to the C language is used for user's convenience.
- The script using complicated arithmetic operations and various functions is executed to greatly reduce the load upon external controllers.
- A validity check of the grammar on the created scripts is available.

Various uses of scripts

- A wide range of scripts including global scripts, screen scripts and object scripts can be used depending on the usage.
- A global script operates according to ON/OFF of the device assigned, regardless of the screen operation, and a special device can be used for scripts in a regular basis.
- An object script can perform operational management of the object devices.
- A script can run when a screen opens or closes.

Mounting Flexibility

- All iXP2/iXP series models and eXP20 can be mounted in portrait or landscape mode as per user's needs and preference.
- Configurable in project property menu.



Operation Logging

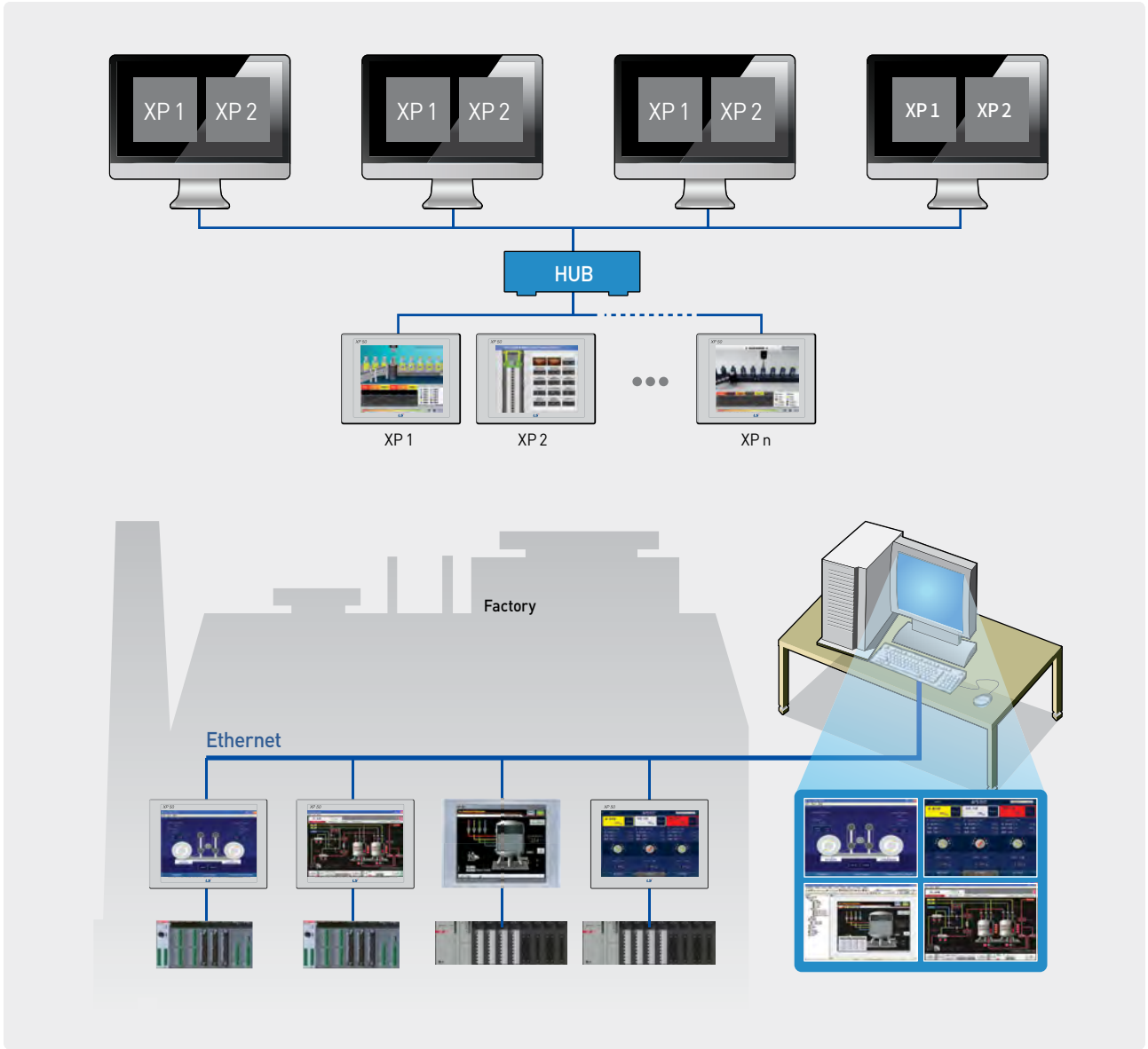
- TTA models of XP Series and all iXP2/iXP models can save logs of your operation in touch screen.
- Use saved logs to check system's operation or errors.

External Monitoring Function eXP2 iXP2

※ Only the Ethernet-support models can use the function.

XP-Remote

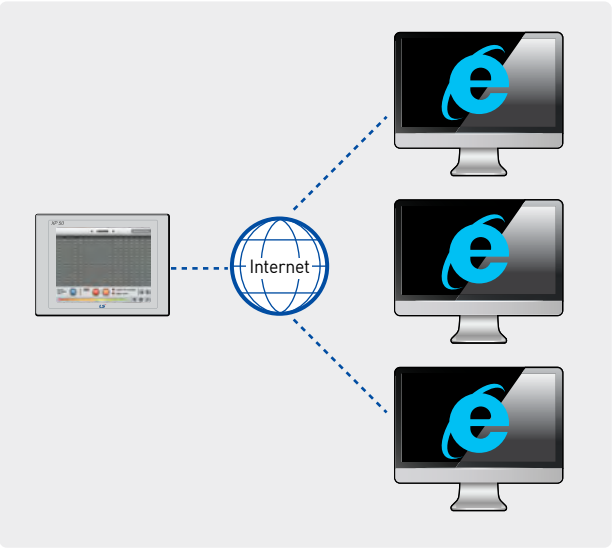
- An XGT Panel screen can be monitored and controlled remotely with a PC.
- Up to 4 PCs can remote-access to a single XGT Panel. (Only one PC can access XP-VNC.)
- Remote PC control of XGT Panels can be authorized or restricted (When not authorized, it is impossible to control with the Remote PC).
- There is a synchronization mode and a non-synchronization mode, which allows users to monitor the XGT Panel and the Remote PC screen under the same or different conditions.



Web Server

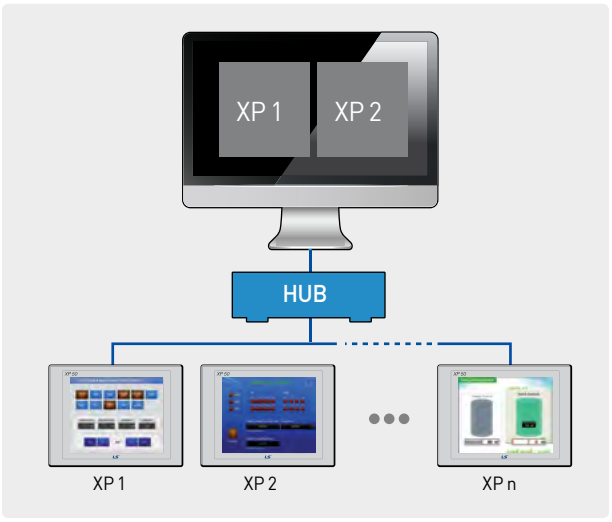
- The screen currently viewed on a XGT Panel can be viewed on a web browser via Internet.
- It is accessible in any place where Internet is connected.
- It can be connected to multiple Internet Explorers. (Impossible to access the XP screen at the same time)
- It is possible to upload the logging and alarm backup files as csv files in the XGT Panel.
- It is possible to restrict access of specific users or groups.

※ The functions described above are available when a Web Server Program is installed to the XGT Panel using XP-Manager.



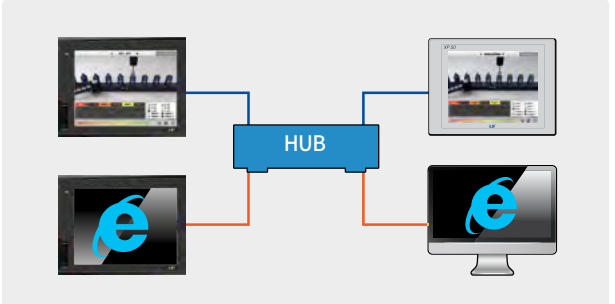
XP-VNC

- The screen currently shown in the XGT Panel can be viewed from the user's PC.
- Several XGT Panels can be monitored and controlled with one PC.
- After inserting the IP of XGT Panel to be accessed from XP-VNC (S/W for PC), the current screen of the XGT Panel can be monitored and controlled.
- It is possible to restrict PC control when the XGT Panel is under operation on site (VNC interlock device provided).



VNC Client

- All iXP2/iXP series models can be shown screen of another PC or HMI in your HMI.
  - To view another PC's screen, install universal VNC server (Ultra VNC, Real VNC and so on).
  - To view another HMI's screen, download VNC server to your HMI using XP-Manager.
- Add "VNC Viewer" object in your HMI project.

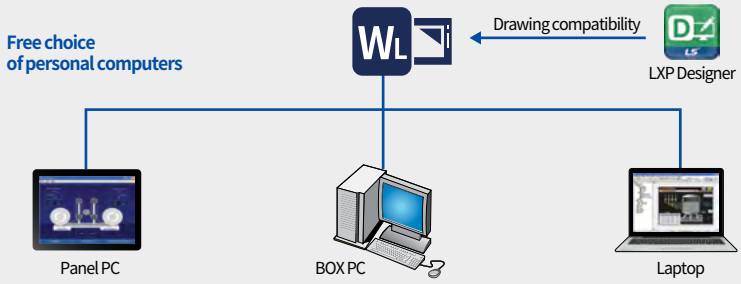


PC-based S/W HMI

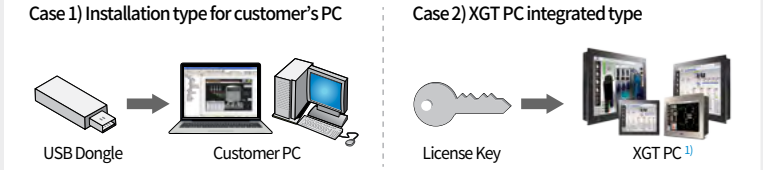
wLXP

- Full compatibility with XGT Panel features and drawing files (LXP, iXP3, mPC)
- PC-based XGT Panel solution
- High Quality Vector Image Library
- Animation editor
- Supports data backup via FTP server

Note:
The software solution requires license registration. As the license is tied to your PC, please back up and transfer it before formatting or replacing the PC to reuse it on a new device.



Purchase method

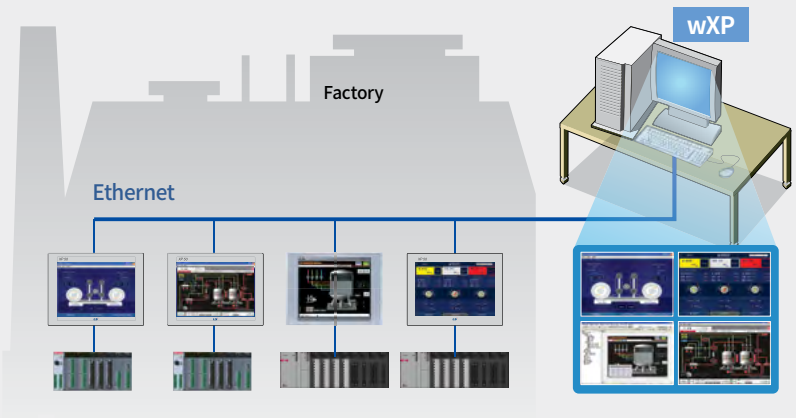


USB Dongle Type	PPC-Integrated Type
wLXP	XPC-wLXP

1) When purchased with LS Electric XGT PC,
SW installation and license key authentication are included in the delivery.

wXP

- PC solution for XGT Panel, an HMI device
- Function to remotely monitor and control the operation status of field PLC through the screen on the PC
- Monitor and control equipment of global local factories through Ethernet from the headquarters PC
- Compatibility with XGT Panel functions and all drawing files (Monitoring and control on existing XGT Panel operate the same way on the PC without changing the drawing)
- Simultaneous support for multiple languages (12 languages)
- Users can arbitrarily specify the screen resolution



Thermal Imaging Camera (Option)

LXP-OT32240

- 32×24 Low-pixel thermal imaging camera
- Multiple units can be installed due to low unit price
- Easy to install in narrow spaces
- Small product capable of monitoring ignition of specific target in close range
- RS-485 communication supported
- Temperature analysis and alarm function supported
- Video blending function supported (manual blending function)



performance Specification

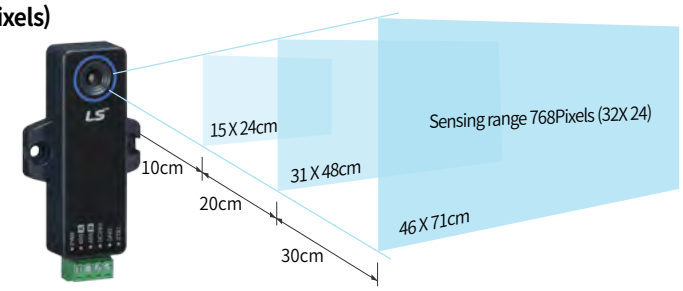
Item	Details
Image Pixel	32 X 24 (768 Pixel)
Target Temperature	-40°C ~ 300°C
Spectral Range	8~13㎛
NETD	<100mK / 0.1°C
Accuracy	±2% (0~60°C : ±1°C)
Field of View	110°x75°
Power	DC24V
Operating Temperature	-40°C ~ 85°C
Interface	Serial(RS-485)
Size(WxHxD)	71 x 25 x 13mm

Specification Range

Item	Range
Storage Temperature	-65 to 150°C
Operating temperatures	-40 to 85°C
VCC Supply Voltage	-0.5 to +6.00V
DC Input Voltage –DP and DM	-0.5 to +3.8V
DC Output Current – Outputs	24mA
Power Dissipation (VCC = 5.25V)	500mW

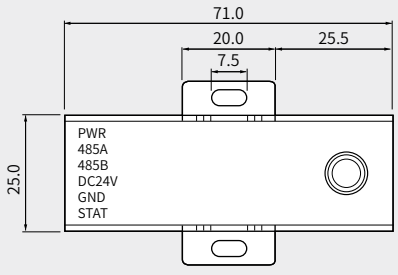
Sensing range by distance (768Pixels)

Target size measured by distance (cm)		
Distance	Horizontal axis	Vertical axis
10cm	24	15
20cm	48	31
30cm	71	46



LXP-OT32240

Dimension

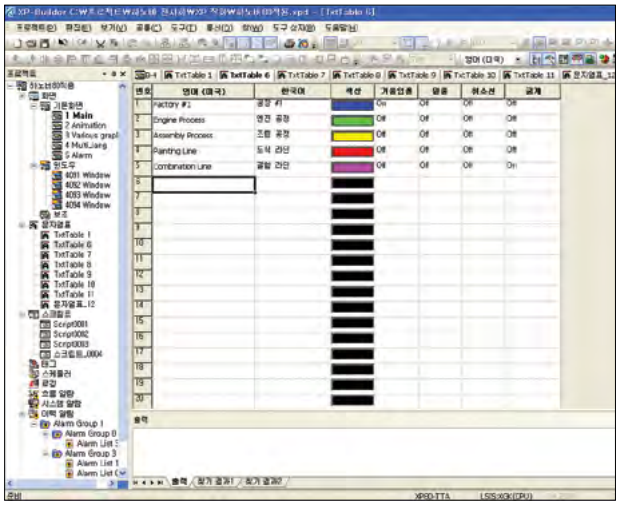


Software Related Functions

Multi-lingual support & conversion to respond to the global enterprise environments

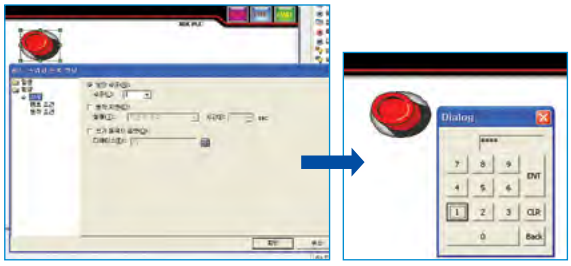
- In response to enterprise environment of global era, up to 12 languages can be simultaneously converted and users can select a language depending on his/her nationality.
- When desired character string is registered in a table, a language can be converted into a device value and switched upon operation.
- The languages supported include Korean, English, Chinese (PRC/Taiwan), Japanese, French, Turkish, Iranian (Persian), German, Greek, Russian, Italian, Norwegian, Polish, Portuguese and Spanish, all of which are supported in Windows.





Strict control management using security setting

- Upon PLC control using objects like a switch or an input method editor, only the authorized users can perform controls depending on the set security level.
- It supports 10 security levels in total, and the password of a sub-level can be accessed using the password of a main level.
- When the security level is authorized, a session is disconnected after a certain period of time, asking for the password again.



Free and easy moving of parts

- The fixed values and the parts related to the word device are selected/ switched to be displayed on a screen, and the images registered as the given parts can be used.
- A mouse is used to set the movement points for free moves, linear moves, and moves based on the XY coordinates, which can be chosen by users.

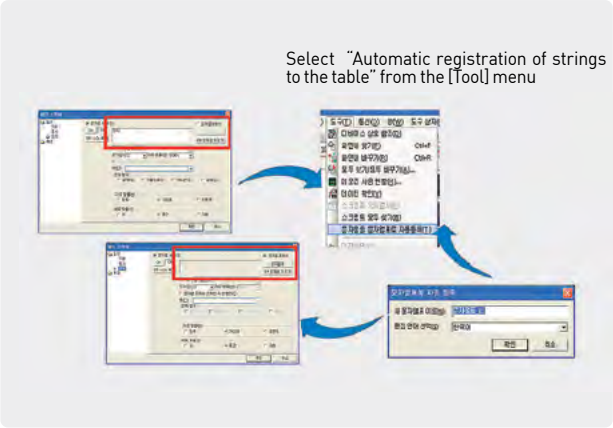




Automatic registration of a character string table

This function enables the character string input by users in the objects to be automatically registered.

- When the file created using a single language is to be changed to a character string table for the purpose of multi-lingual support, it can be automatically registered to the character string table without inconvenience of users.
- All the static strings used in objects can be registered in the character string table.
- Up to 10,001 character strings can be added to a character string table, and the name of a new character string table and the editing languages can be set and registered by users.

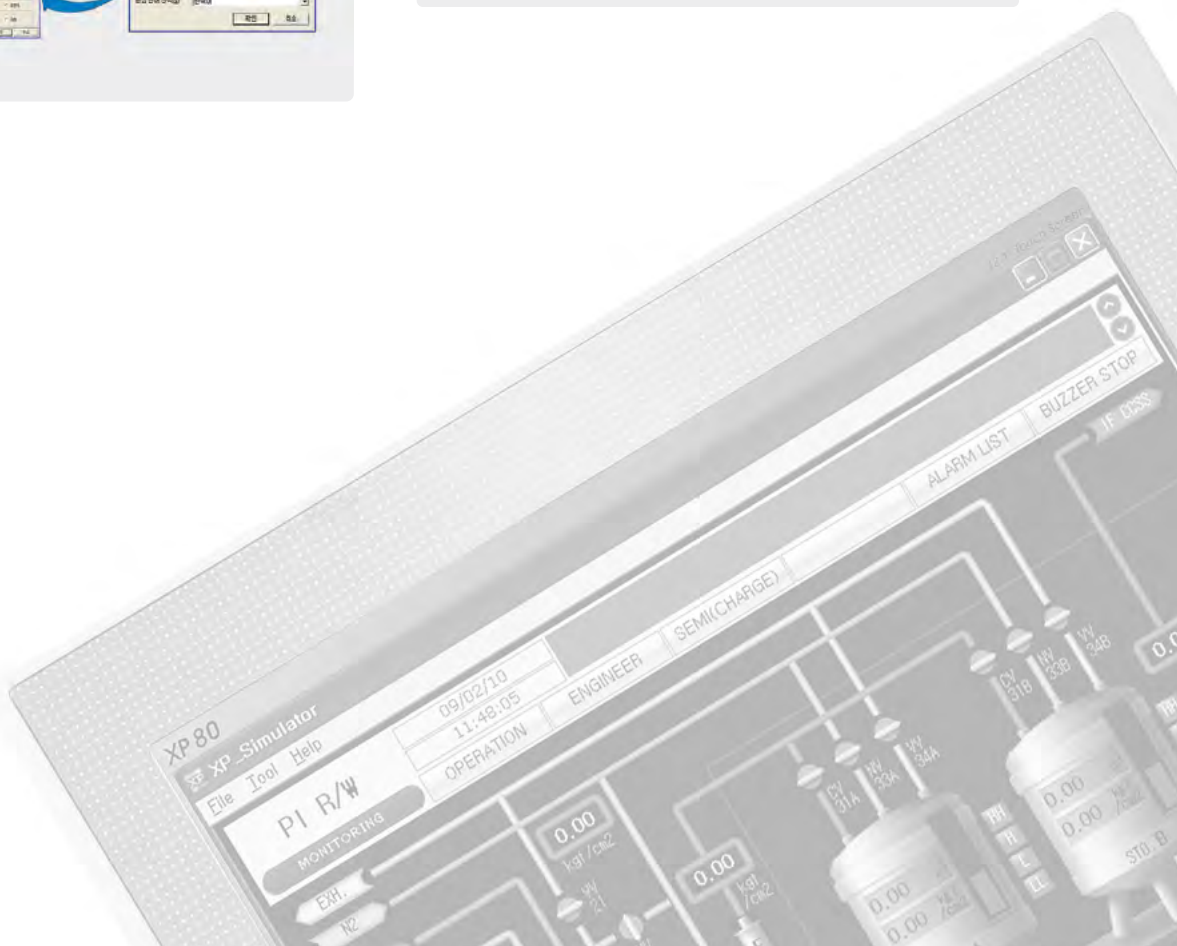


Memo pad function

Function to create or save a short message by selecting various pen thicknesses and colors on XGT Panel.

- It is useful in exchanging messages between operators working in turns.
- The user chooses the thickness and color of the pen and writes on a screen in order to input the message.
- Such memo can be saved in a CF card or a USB memory, and the data are archived even when the power is turned off.
- Users touch the screen and drag to create a memo.
- When creating a memo, users can UNDO/REDO the memo, the thickness/color of a pen can be changed, and a specific memo or all memos can be deleted.





Link with Controllers

Convenient Simulator

Offline simulation

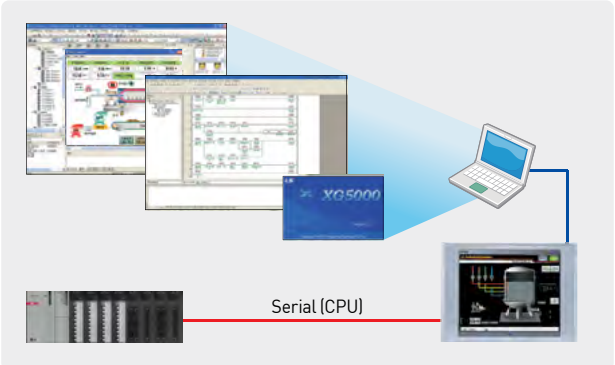
- Without XGT Panel, the drawing data can be directly viewed from PC.
- Devices can be monitored using a PC, and values can be directly input to check operations.
- A simulator is used to check the operations just like the XGT Panel. Before transmitting the drawing data to HMI, data errors and abnormal operations can be checked.



Path-through(XP-VSP)

When XGT Panel is connected to PLC with serial, PLC ladder program can be modified using the internal Ethernet.

- Users no longer have to change the cable for PLC program modification, or to go to the PLC for changes.
- A program can be modified even when a control panel is far away.

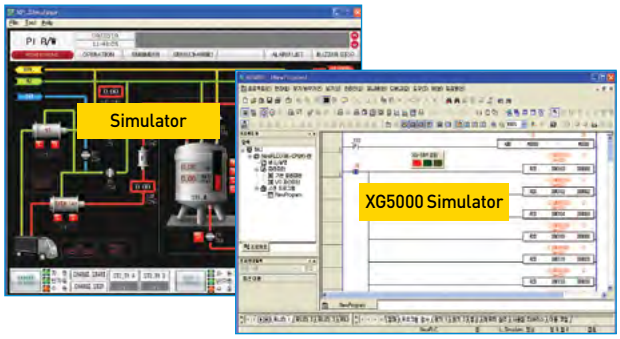


Note) XP-VSP user manual reference

Manufacturers	Supported Drives
LS ELECTRIC	ALL LS ELECTRIC PLC CPU
	XGI/K Series Link(Only Remote-1 Connection)
Omron Corporation	CS/CJ Host Link Serial
YASKAWA	MEMOBUS RTU Master

Able to Link with PLC Simulator

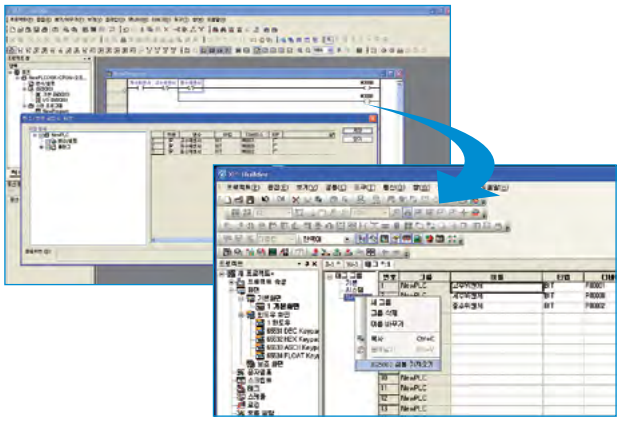
- Controlling and monitoring testing in PC linking XP-Builder (XP-Simulator) and PLC simulator
- Linking with LS ELECTRIC PLC simulator and XG5000 simulator
- Linking with SIEMENS PLC simulator and S7-PLCSIM (S7-PLCSIM v5.4 or above)
- Linking with Rockwell Automation PLC simulator and RSLogix Emulate 5000 Controller (v21.00.00 or above)
- Linking with Mitsubishi PLC simulator and GX Simulator (GX Simulator v7.30 or above)



Using XGT PLC for batch-registration of devices (tag function)

The variable names used in the PLC program that is created using XG5000 are automatically registered in XP-Builder, so that they can be used in drawings.

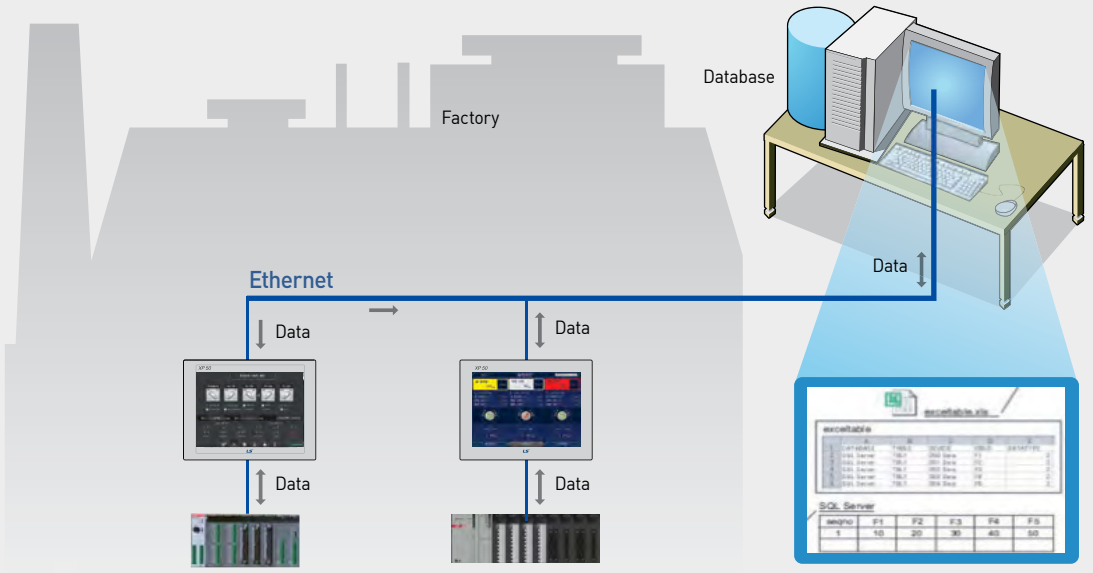
- [Save as a Variable/Description File] of XG5000 is used to first save the variable names used as CSV files.
- Using [Import XG5000 Symbols] from the [Tag] item of XP-Builder, an automatic registration via tags is possible (Array variables supported).
- Without changing the memory address, the variables used in the PLC program can be used.



XP-Server Function

The data required from the production site's XGT Panel can be directly collected or saved in a PC.
It has several roles including a mutual data exchange between several XGT Panels, or sending an E-mail or connecting to a Database.

- It connects to the Database via PC to save, inquire and manage the XGT Panel data.
- When a trigger condition is generated, users will be informed via data E-mail of PC.
- When a trigger condition is generated, it imports or writes the screen capture, logging, alarm and recipe data of a specific XGT Panel.
- It is possible to collect various information including production outputs and causes of errors and failures from the XGT Panel to the DB server



List of Communication Drivers

Manufacturer	Driver name
LS ELECTRIC	GM CPU
	GM Cnet
	GM Enet
	MK CPU
	MK Cnet
	MK Enet
	XGK CPU
	XGK Cnet
	XGK Enet
	XGK CPU Enet
	XGK EtherNet/IP
	XGB CPU
	XGB Cnet
	XGB Enet
	XGB EtherNet/IP
	XGB Cnet - VCB Trip
	XGI/XGR CPU
	XGI/XGR Cnet
	XGI/XGR Enet
	XGI/XGR CPU Enet
	XGI/XGR EtherNet/IP
	XEC CPU
	XEC Cnet
	XEC Enet
	XEC EtherNet/IP
	XMC Enet
	Inverter (LS INV 485)
	Inverter (MODBUS)
	User Defined Protocol
	User Defined Protocol (Slave)
	XGT Servo
LS Mecapion	VS/VP Servo Drive
	MXQ Series
BACnet	BACnet IP Master
BYD Auto	BYD Auto dedicated
CAN in Automation	CANopen Slave
Control Techniques	CT Modbus RTU
DAEWON GSI	DAEWON GSI dedicated controller
Dasarobot	iM-SIGMA series
Delta Electronics	DVP Series
Digital Electoronics(Pro-face)	Memory Link
Fuji Electric Systems	MICREX-SX Series SIO
	MICREX-SX Ethernet
GE Intelligent Platforms	SNP
	SNP-X
HANYOUNG NUX	Temperature Controller
HIGEN Motors	Servo
Hitachi	H Series Ethernet
	H Series Link
HYUNDAI Elevator	SKY-RAV(Ethernet)
	SKY-RAV(Link)

Manufacturer	Driver name
KDT Systems	CIMON Serial Link
	BP Series Loader
	CP Series Loader
	XP Series Loader
KEYENCE	KV-700/1000/3000/5000/5500 Serial
	KV-700/1000/3000/5000/5500 Ethernet
KOYO Electronic	DirectNet
KTURBO	Turbo Blower
Lenze Automation	Lecom A/B
Mitsubishi Electric	MELSEC A-CPU
	MELSEC A-Link
	MELSEC FX-CPU
	MELSEC FX-Ethernet
	MELSEC FX-Link
	MELSEC Q-CPU
	MELSEC QnA-Link
	MELSEC QnA-Ethernet
	MELSEC QnU CPU Ethernet
	MELSEC iQ-R Ethernet
	MELSEC iQ-F Ethernet
	MELSEC iQ-F Link
	MELSERVO-J2
	MELSERVO-J3
OMRON	CS/CJ Series Ethernet
	CS/CJ Host Link
	C Series Host Link
	CS1 EtherNet/IP
	CJ2 EtherNet/IP
Panasonic	FP Series
	MINAS Servo
Parker	Hi-Drive
PROFIBUS International	PROFIBUS DP Slave
Rockwell Automation	Compact/ControlLogix EtherNet/IP
	MicroLogix EtherNet/IP
	SLC500 Series DF1
	Compact/ControlLogix DF1
	MicroLogix DF1
	Micro800 Series (DF1)
RS Automation	EtherNet/IP Micro800 Series
	N/NX-CCU
Schneider Electric	NX-CCU+
	MODBUS RTU Master
	MODBUS RTU Slave
	MODBUS TCP Master
	MODBUS TCP Slave
	MODBUS ASCII Master
	MODBUS ASCII Slave
SEW EURODRIVE	MOVIDRIVE Serial
Siemens AG	S7 3964(R)/RK512
	S7 MPI(Adapter)
	S7 PPI

Manufacturer	Driver name
Siemens AG	S7 3964(R)/RK512
	S7 MPI(Adapter)
	S7 PPI
	LOGO Ethernet
	S7 1200/1500 Ethernet
	S7 300/400 Ethernet
Sprint Electric	DC Motor Drive Ethernet
YASKAWA Electric	MEMOBUS RTU Master
	MP Series Ethernet (Extension)
	YASKAWA: High-Speed Ethernet Server
YOKOKAWA Electric	FA-M3 Series
	FA-M3 Series-Ethernet
Beckhoff	ADS Ethernet
TSSI	VERID+ FingerPrint Reader
FATEC Automation Corporation	FATEK: FB Series Serial
	FATEK: FB Series Ethernet
TemcoLine	Thermometer Controller
Autonics	Thermometer Controller (TK Series)
Yudian	AIBus Protocol
RKC	CB Series Temperature Controller
	FB Series Temperature Controller
Azbil	Temperature Controller
Kolver	EDU 2AE/TOP/TA/MITO
Atlas Copco.	MT Focus400
Sick AG	Sick AG: Flexi Soft
IAI	IAI: X-SEL Controller Serial
	IAI: ROBO Cylinder Controller Serial
FANUC	FANUC : Series 0i
Ingenia	Ingenia: EMCL Serial
AERZEN TURBO	AERZEN TURBO: Aerzen-Turbo 1(IG3)
	AERZEN TURBO: Aerzen-Turbo 2(IG5)
Kawasaki Heavy Industries	KAWASAKI: UNIVERSAL CONTROLLER(ETHERNET)
OPC	OPC UA Client

System Block Diagram

1 : 1 Serial/Ethernet Communication

One controller to one XGT Panel

※ In case of the 1:1 Ethernet communication, a cross cable should be used.



N : 1 Serial Communication

One controller to multiple XGT Panels (serial)

※ Up to 16 XGT Panels can be connected, but the speed for screen refreshing varies according to the number of panels.

※ Connection available only to specific controllers (limited to PLCs)

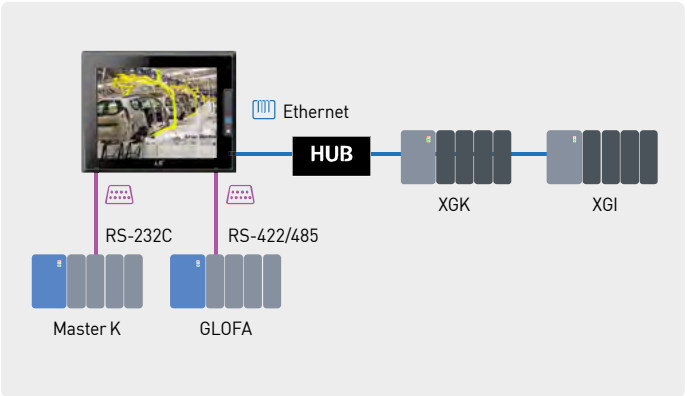


Simultaneous Connection with Multiple Controllers

4 kinds of controllers to one XGT Panel

※ Without the RS-422/485 and RS-232C, up to 4 controllers can be connected using only Ethernet.

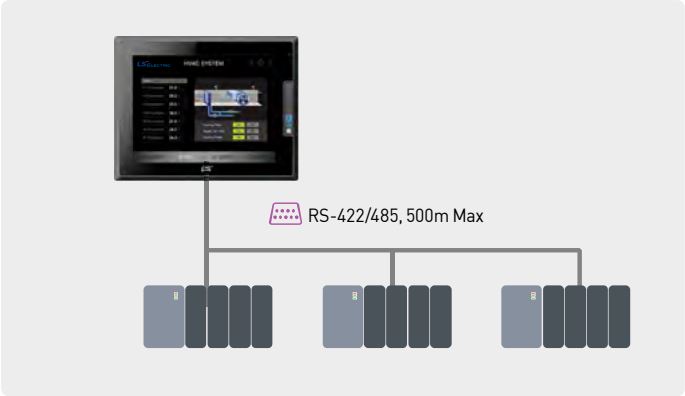
※ When it comes to iXP2/iXP, up to 16 controllers can be connected.



1 : N Serial Communication (Multi Drop)

Multiple controllers to one XGT Panel

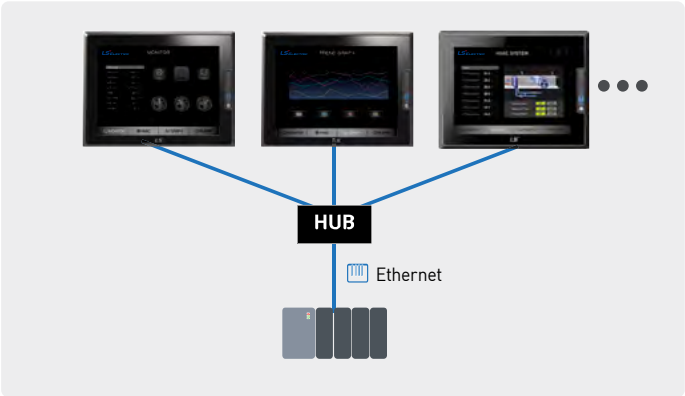
※ When 1:N communication is applied, the same types of controllers should be used.



N:1 Ethernet Communication

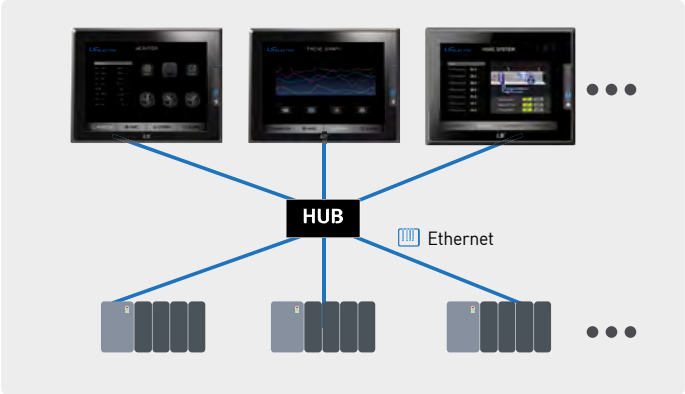
One controller to multiple XGT Panels (Ethernet)

※ According to the controller type, the number of XGT Panels connected may vary.



N:M Ethernet Communication

Multiple controllers to multiple XGT Panels



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