



Intelligent XGT Panel **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)

Control & Flexibility

Touch Sensitivity Settings

Touch sensitivity settings for bare hands, gloves, etc.



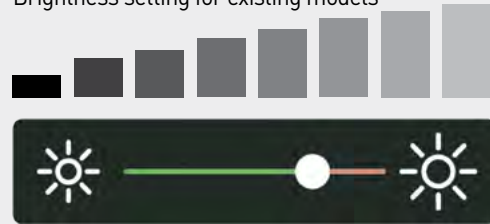
Camera & Multimedia Features

- 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



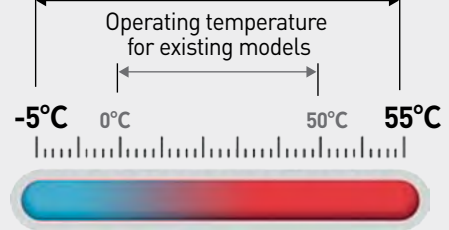
Display brightness Settings

Brightness setting for existing models



Expanded operating temperature range

Operating temperature for existing models



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.



iXP3 Series

General Standards

Item	Standard			Related Standards	
Ambient temperature	-5°C~+55°C			-	
Storage temperature	-25°C~+65°C			-	
Operating humidity	10~85%RH, non-condensing			-	
Storage humidity	10~85%RH, non-condensing			-	
Vibration resistance	Occasional vibration			Count	
	Frequency	Acceleration	Amplitude	10 times each in X, Y and Z direction	
	5≤f<8.4Hz	-	3.5mm		
	8.4≤f≤150Hz	9.8m/s ²	-		
	Continuous vibration				
	Frequency	Acceleration	Amplitude		
	5≤f<8.4Hz	-	1.75mm		
8.4≤f≤150Hz	4.9m/s ²	-			
Storage temperature	* Maximum shock acceleration: 147m/s ² (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	AC: ±1,500V, DC: ±1,000V		LS ELECTRIC	
	Electrostatic Discharge Immunity	±4 kV(contact discharge) ±6kV (contact discharge for MR) ±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	AC power	DC power supply	IEC 61131-2
Voltage		2kV(L-G) 1kV(L-L)	1kV(L-G) 0.5kV(L-L)		
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			-	

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 output		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

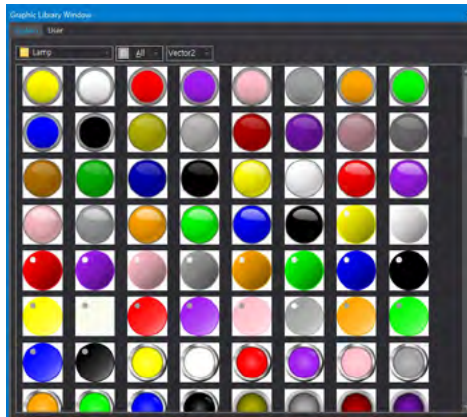
 **Visibility & Control**

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

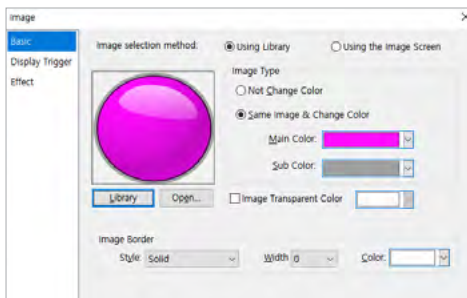
High Quality Vector Image Library



[Graphic library]



[Bitmap vs Vector]



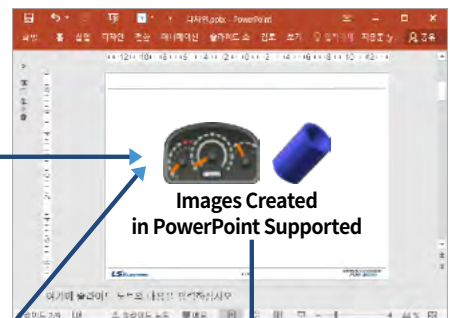
[Function provided to switch to specific color]

Library Linked with MS PowerPoint

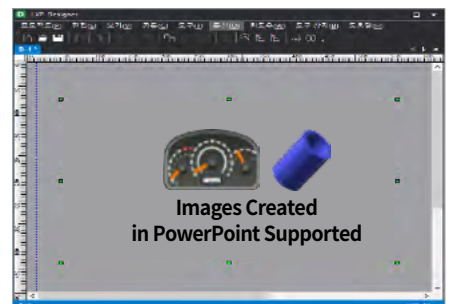
Function provided to easily use the images created in MS PowerPoint as library



[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

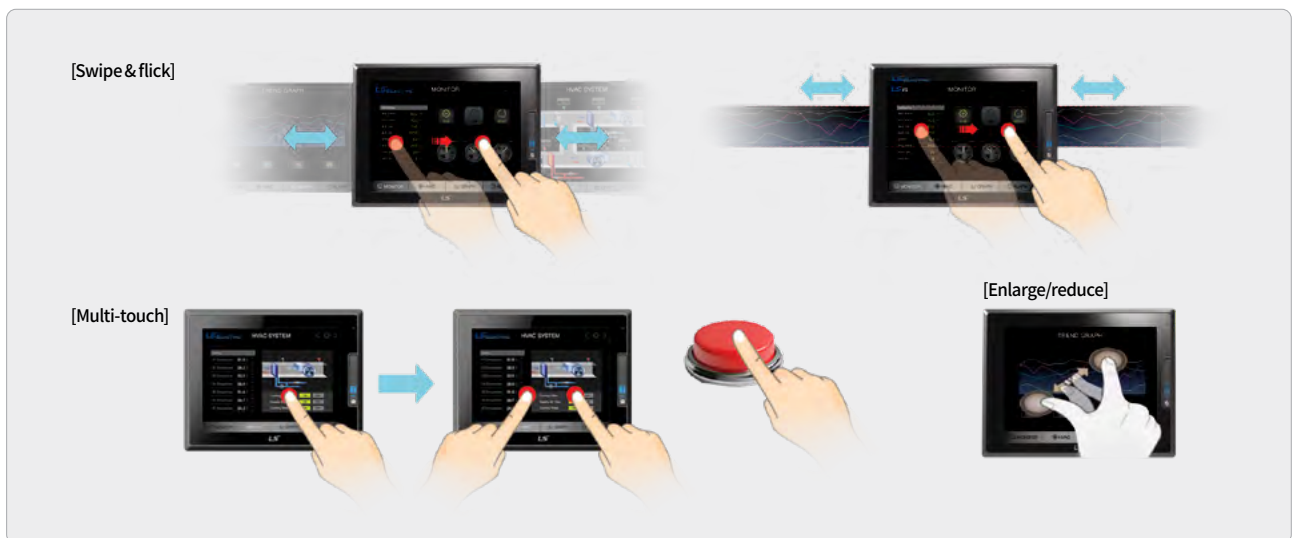
Capacitive touch screen applied in order to provide various control technologies

Item	Capacitive	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





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

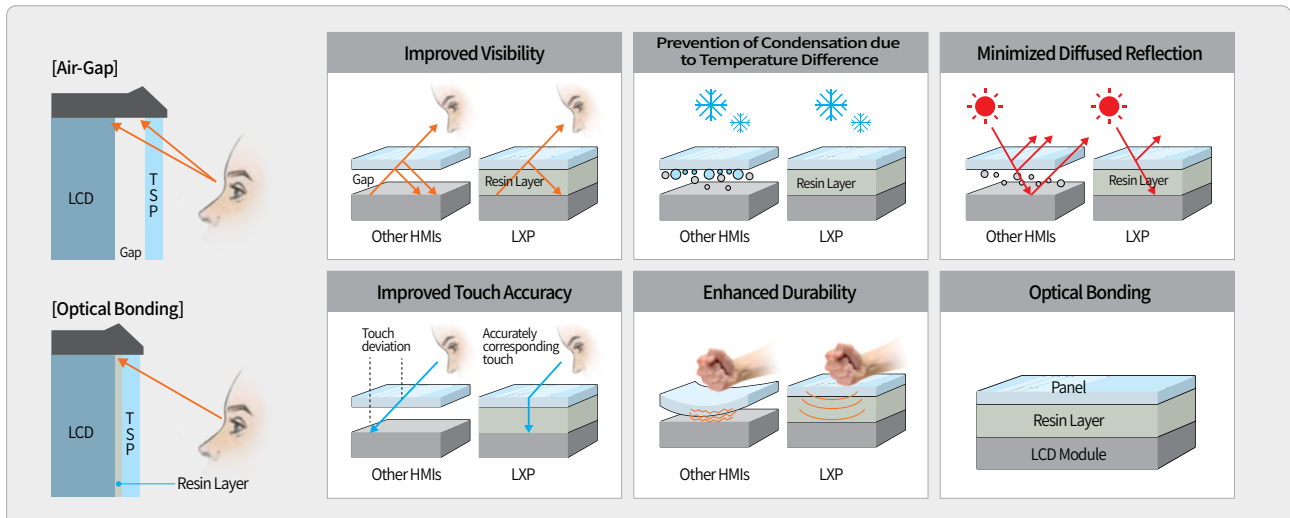
iXP3 **LXP**



Screen Display and Control without Distortion

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

LXP





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)

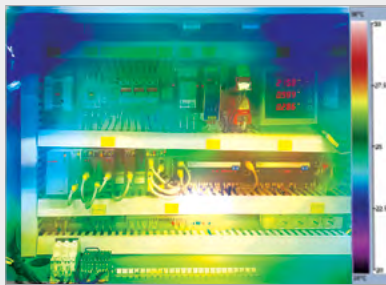
Function provided to execute real-time monitoring or logging from HMI by measuring temperature of ROI (Region of Interest) inside the control panel

Thermo-graphic Camera Operating Function

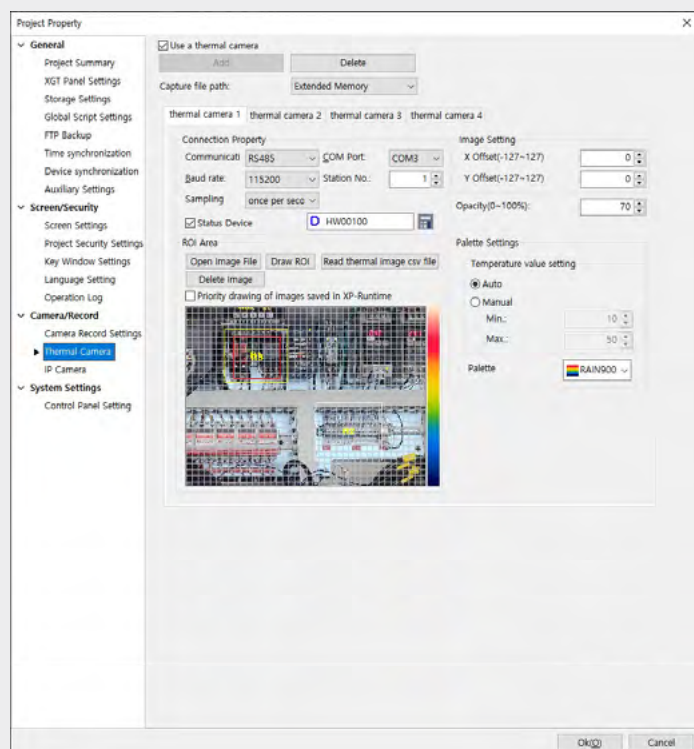
Functions to connect up to 4 thermo-graphic cameras via RS-485 communication and to create overlay display of the background image and actual temperature values by setting up to 10 ROIs (Region of Interest) per each channel



[Example of operation displaying]



[Setting of thermo-graphic camera]





iXP3 & LXP Feature

Flexibility

Easy Maintenance

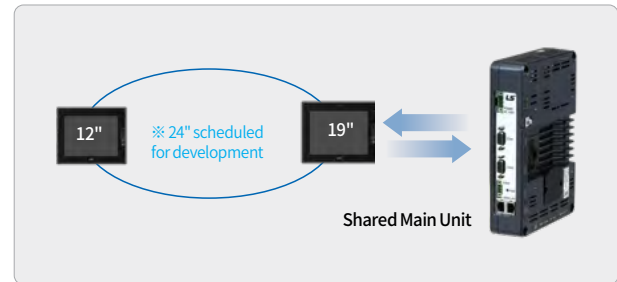
In order to solve the maintenance inconvenience, which is often considered as a disadvantage of the integrated HMI, the following ideas of improved maintenance is reflected.

Display Hot Swap

Able to replace the Display Unit while maintaining the power supply

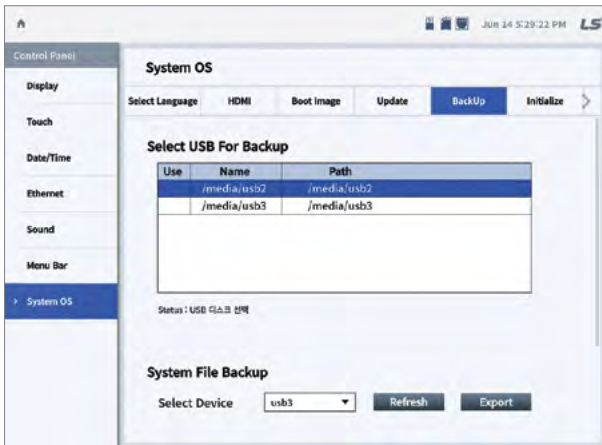


A timely response to component discontinuation.



One-Stop Diagnosis

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



[System Log Backup]

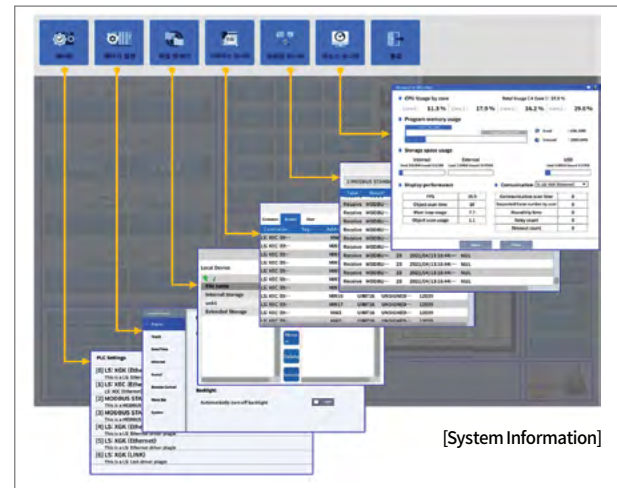


[Function Diagnosis]



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

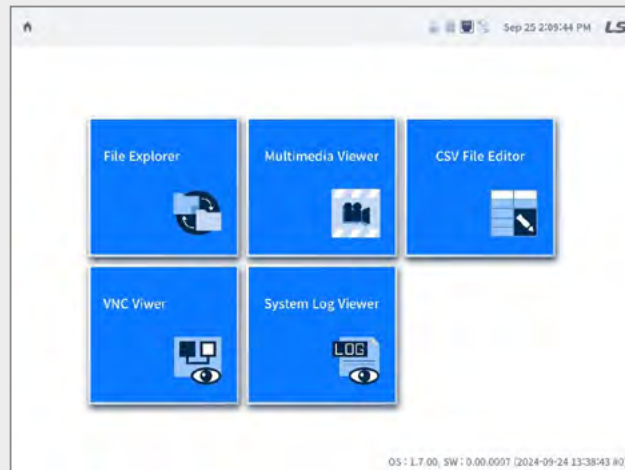
If there is an error during OS and Runtime Loading, the automatic recovery mode is executed.

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.



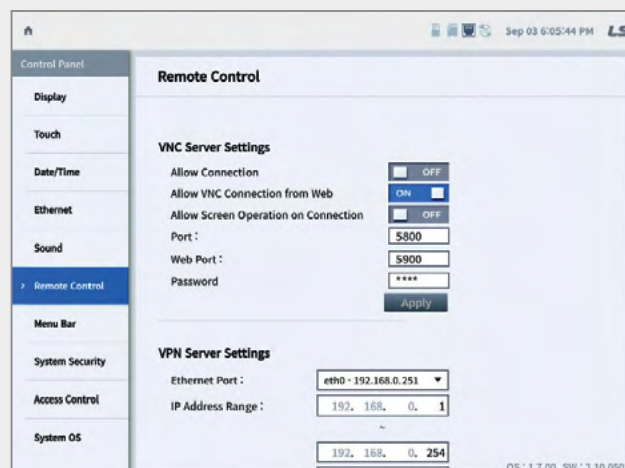
FTP Backup

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



Remote Support

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





iXP3 & LXP Feature

Connectivity

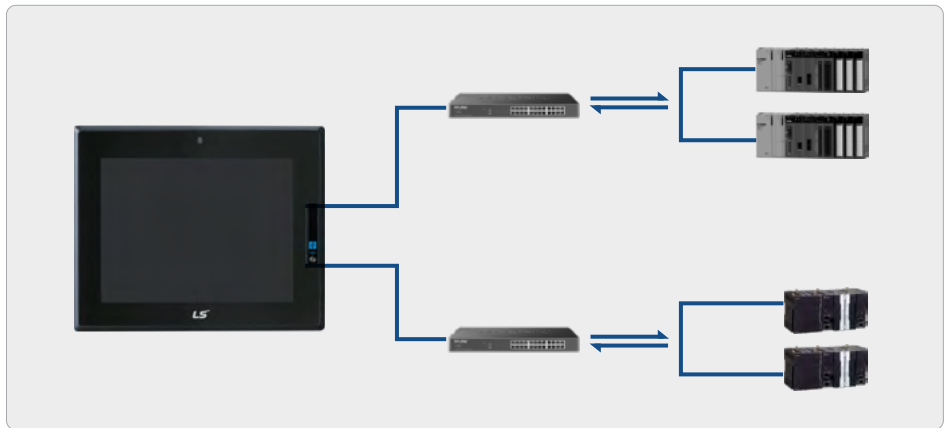
iXP3

LXP

Gateway role enhancement

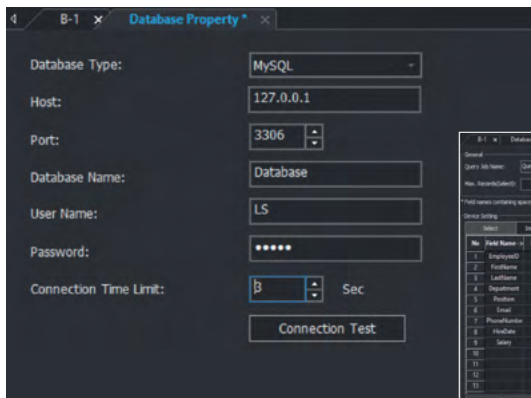
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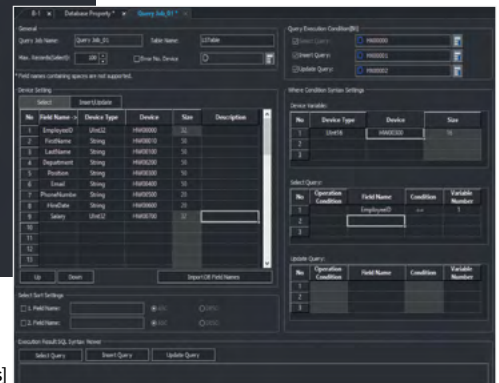


Database Connection

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



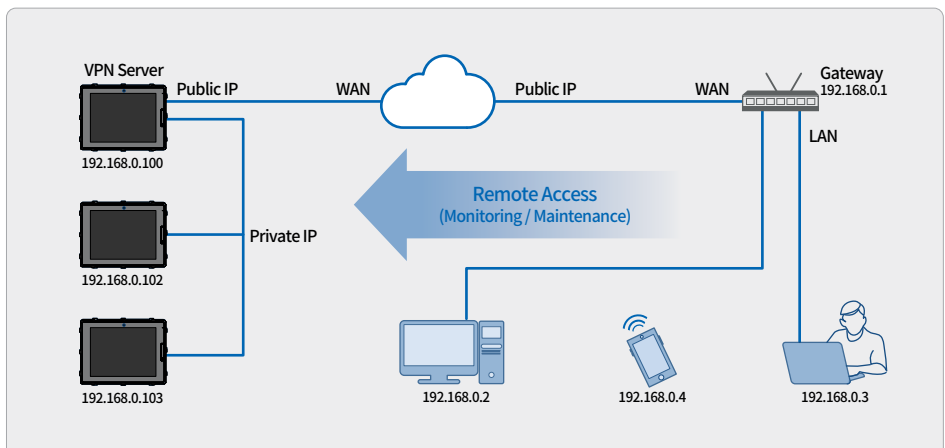
[DB connection settings]



[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

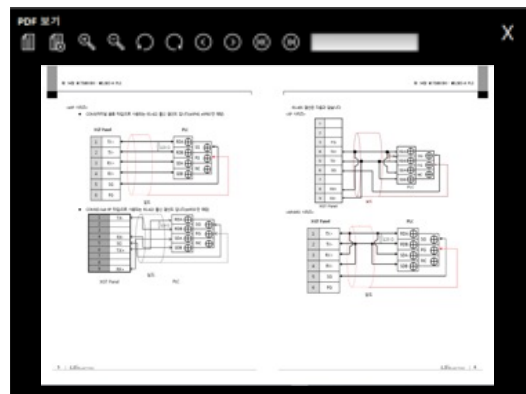
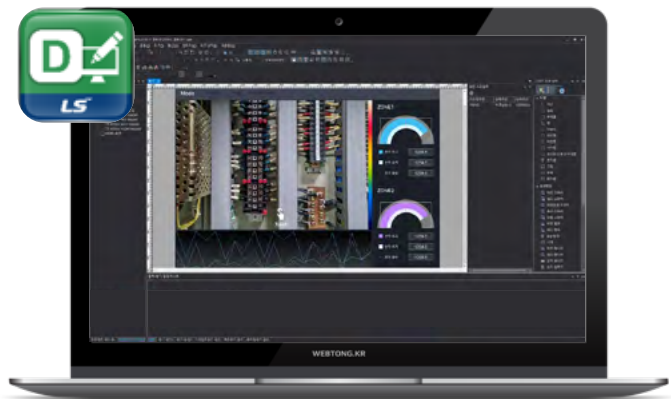
Project read/write, import runtime feature. memory usage feature improved.

Advanced Features

Animation editor, Multimedia Object

Convenient Features

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



일련 번호	제시명	주소	범위	설정값
0626 15-4407	ALARM0	0000		1
0626 15-4407	ALARM0	X000		1
0626 15-4406	ALARM0	X000 0626 15-4406		1
0626 15-4404	ALARM0	0000		1
0626 15-4403	ALARM0	X000 0626 15-4403		1