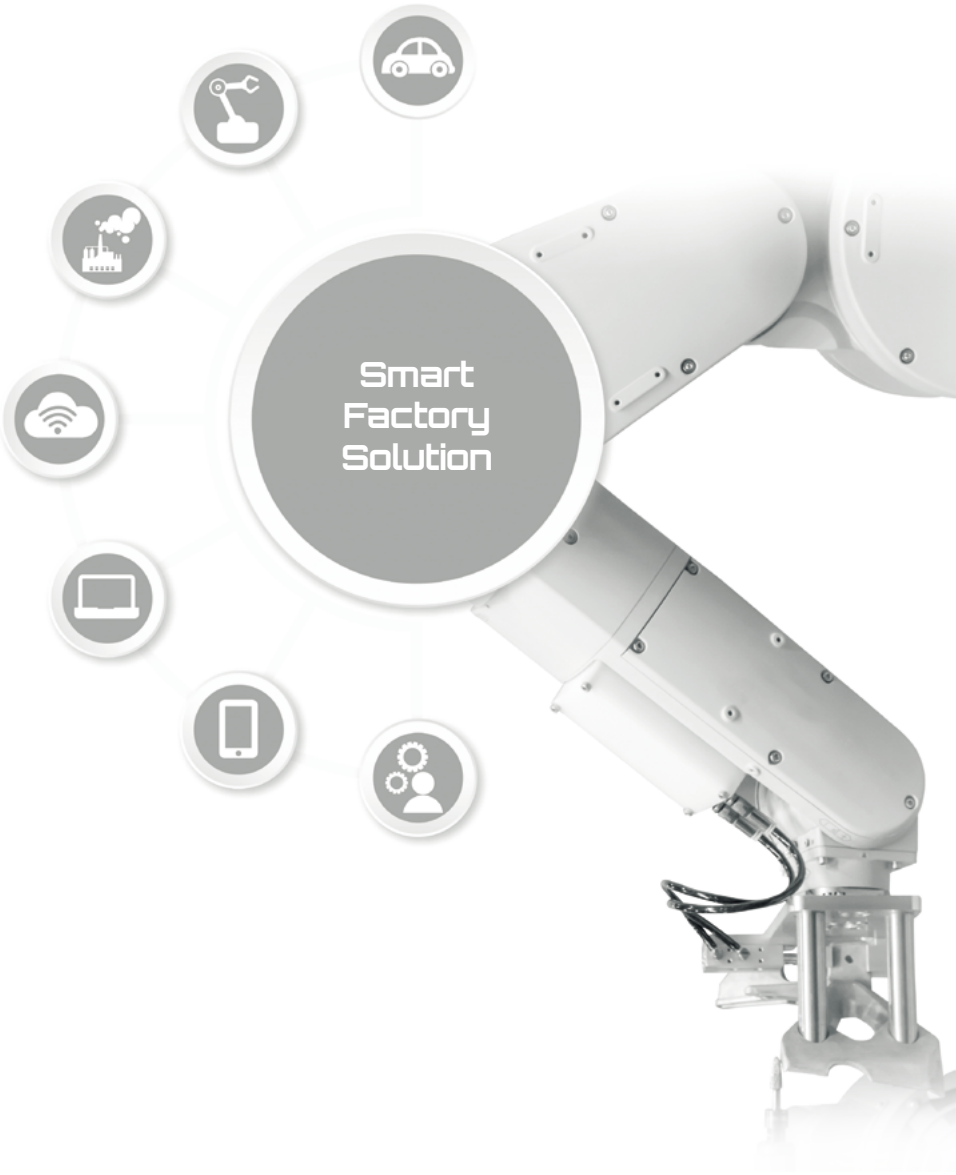


Beyond™

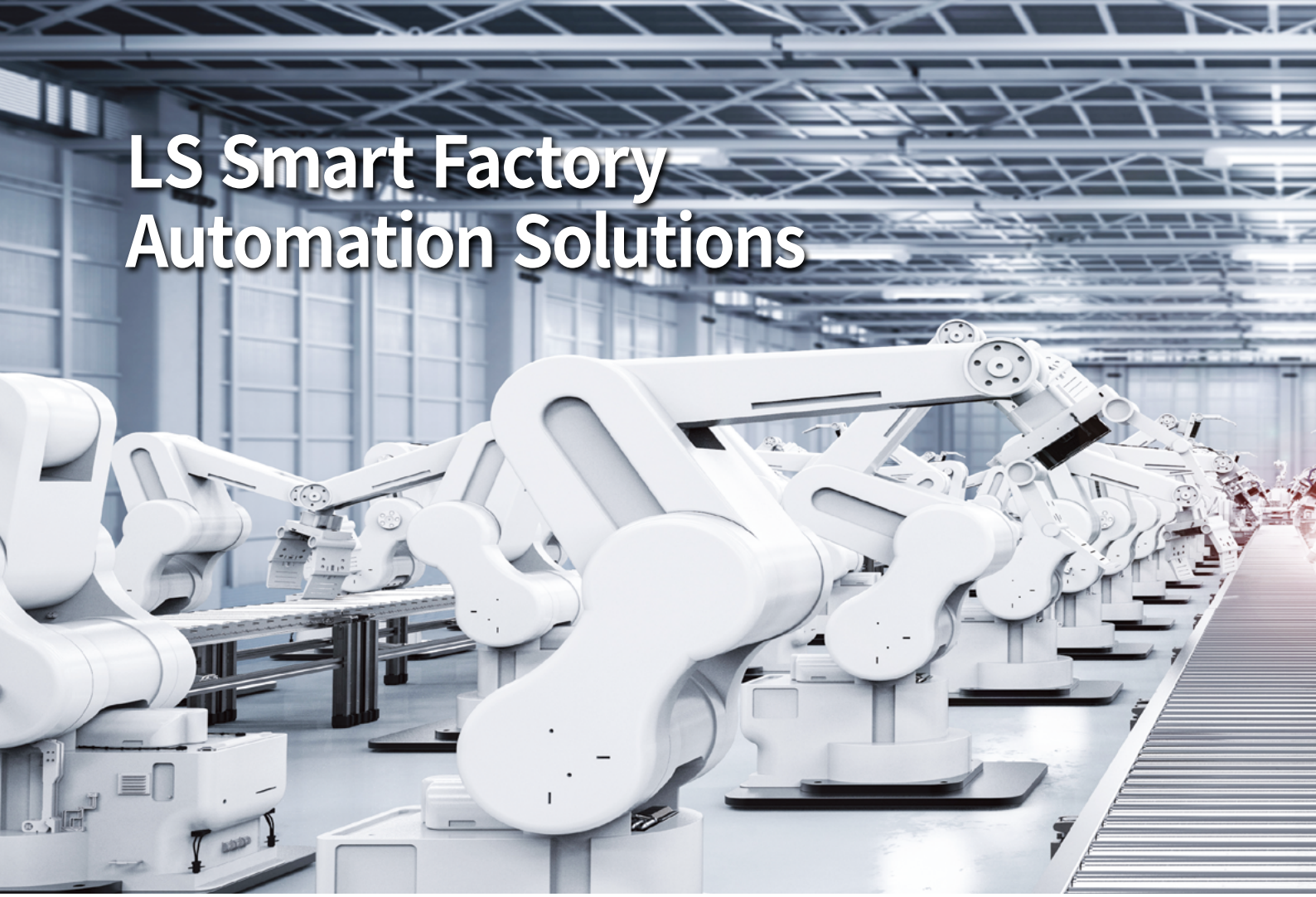
Factory Automation

PLC / HMI / Motion Controller / Servo / Gearbox



vector Energy

LS ELECTRIC



LS Smart Factory Automation Solutions

Full line up for factory automation from controller to devices for your total automation system



PLC & Smart I/O

XGT Series

- XGR (Redundancy) • XGI (IEC)
- XGK (Ladder)
- XGB

Smart I/O

- Ethernet based block/Expansion type
- Serial based block/Expansion type
- EtherCAT based / Expansion type



Motion Controller

Motion Controller

- XMC-E08/16/32A (8/16/32 axes, Analog)
- XMC-E32C (32 axes, Cnet)



HMI

XGT Panel

- iXP3 (Premium)
- LXP (Premium)
- iXP2 (Premium)
- eXP2 (Standard)
- iXP2H (Handheld)

SCADA software

- XGT InfoU (SCADA)
- XPC (Panel PC)







Servo System

Xmotion (Servo drive & Motor)

AC Servo Drives

- iX7NH Series(EtherCAT)
- L7C Series (Pulse command)
- L7P Series
  (Pulse drive with indexer mode)
- L7NH Series (EtherCAT)

DC Servo Drives

- PHOX Series (EtherCAT)

Servo Motors

- F Series (Rotary type)
- MDM Series (Direct drive type)

Integrated Servo Motors

- Pegasus series (EtherCAT)

Gearbox

Helical Gear

- Straight type : MSS / MSR / MSO
- Angular type : MAS / MAR / MAO
- Straight type : HSS / HSR / HSW / HSD
- Angular type : HAS / HAR / HAW / HAD

Spur Gear

- Straight type : SSS / SSO / SSR
- Angular type : SAS / SAO / SAR

PLC

XGR | Redundancy System PLC Based on IEC



Features

High Performance

- Processing speed : 42ns/step
- CPU synchronization via fiber optic cable
- I/O points : Max. 131,072
- Total memory : 25MB (Program 7MB, Data 2MB, Flash 16MB)
- Switching over time : min. 4.3ms/max. 22ms

Easy Expansion Installation Using Network

- Max. 31 expansion base
  - Distance : Fiber Multi type 2km, Single type 15km (Max. expansion 60km)
  - Twisted pair 100m (Max. expansion 3km)
- Program upload and download via expansion base
- No limit to install the communication master on the expansion base

Enhanced Maintenance Via System History and Network Ring Configuration

- Convenient system analysis using operation history, Error history, System history
- Ring configuration to prevent a line disconnection error
- Network monitoring, Protocol monitoring function
- Error channel monitoring via flag
- Graphic display for the system configuration
- Safe module exchange via wizard

IEC 61131-3 Standard Language

- LD, ST, SFC, IL (Read only)
- Program configuration and data type based on IEC

Variety of Communication Functions

- Easy interface using open network (Ethernet, Profibus-DP, DeviceNet, RS-232C, RS-422/485, etc.)
- Max. 24 communication module installation on the expansion base (High speed link 12, P2P 8)
- Network diagnosis via network and frame monitoring
- PLC link via dedicated communication based on Ethernet (RAPIEnet)

Variety of Input and Output Modules

- 8/16/32/64 points (8/16 points relay output)
- Input/output /Mixed module

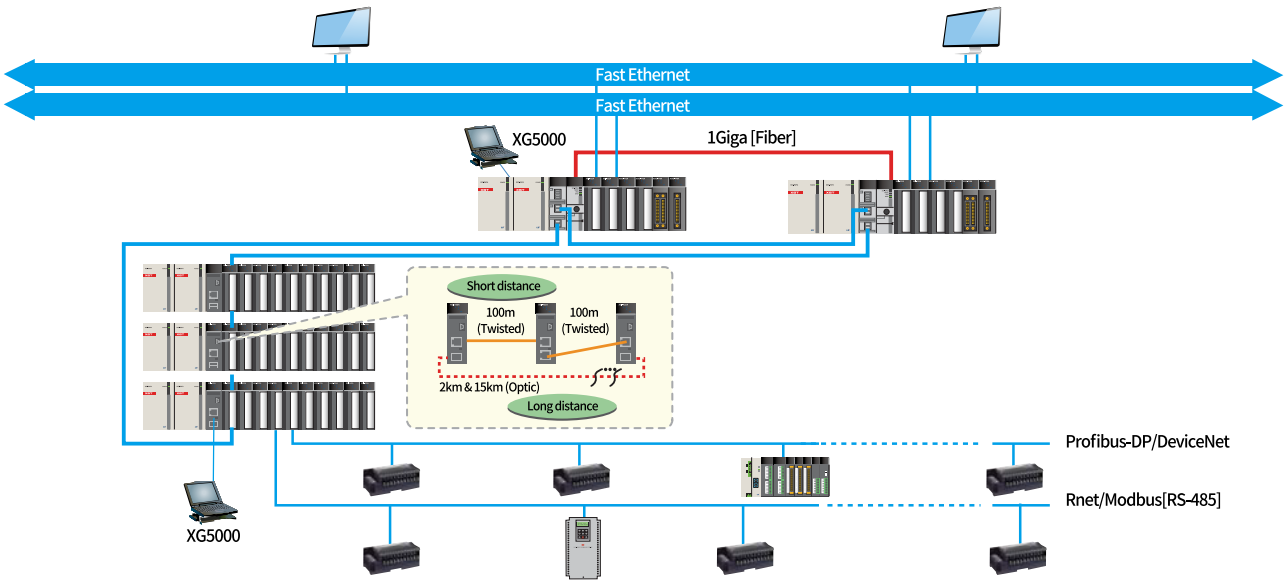
Enhanced Analog Function

- Enable to install the analog module on the expansion base (Max. 250, Analog input 139)
- Insulated type and temperature modules
- Easy to set the parameter via I/O parameter and flag
- Debugging function via special module monitoring

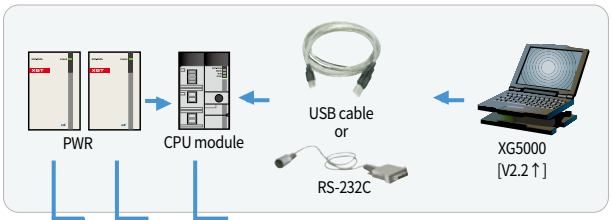
Integrated Programming & Engineering Environmen

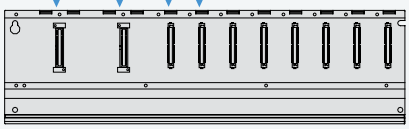
- XG5000 : Easy to program, Various monitoring functions and enhanced editing function
- XG-PD : Convenient setup for communication and network parameter
- XG-PM : Software package for positioning module
- XG-TCON : Temperature control and function of auto tuning

System Configuration Diagram

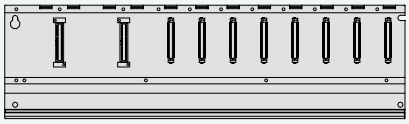


System Configuration





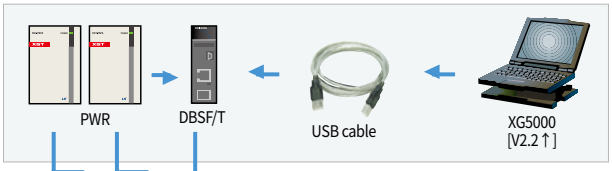
Main base [A Side] XGR-M06P / XGR-M02P

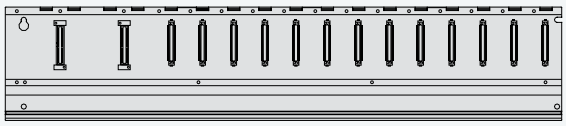


Main base [B Side] XGR-M06P / XGR-M02P

Main base

- 2 types of CPU (Fiber optic, Twisted fair)
- Power : AC110V, AC220V
- 6slot base : Enable to install 6 communication modules





Expansion base XGR-E12P / XGR-E12H

Expansion base

- Power 8.5A/AC110V, 8.5A/AC220V
- Expansion drive : Fiber optic, Twisted fair, Hybrid
- EFM* and EIM* not available with 12slot base

Item	XGR Module	
CPU	XGR-CPUH/T	Twisted pair
	XGR-CPUH/F	Fiber optic (2km)
	XGR-CPUH/S	Fiber optic (15km)
Power	XGR-AC12	110V, 5.5A (Main base)
	XGR-AC13	110V, 8.5A (Expansion base)
	XGR-AC22	220V, 5.5A (Main base)
	XGR-AC23	220V, 8.5A (Expansion base)
	XGR-DC42	DC24V/DC5V 7A, Main (Expansion base)
Base	XGR-M02P	2slot (Main base)
	XGR-M06P	6slot (Main base)
	XGR-E08P	8slot (Expansion base)
	XGR-E12P	12slot (Expansion base)
	XGR-E12H	12slot (Expansion base, Drive redundancy)
Expansion Drive	XGR-DBST	Twisted pair - Twisted
	XGR-DBSF	Pair fiber optic - Fiber optic(2km)
	XGR-DBSH	Twisted pair - Fiber optic(2km)
	XGR-DBSFS	Pair fiber optic - Fiber optic(15km)
	XGR-DBSHS	Twisted pair - Fiber optic(15km)

Item	XGR Module	
Expansion Drive Redundancy	XGR-DBDT	Twisted pair - Twisted
	XGR-DBDF	Pair fiber optic-Fiber optic(2km)
	XGR-DBDH	Twisted pair - Fiber optic(2km)
Sync & Expansion Cable	XGC-F201	2m (Fiber optic)
	XGC-F501	5m (Fiber optic)

Item	Input Module		
	AC110V	AC220V	DC24V
8 points	-	XGI-A21A, XGI-A21C	XGI-D21A
16 points	XGI-A12A	-	XGI-D22A
	-	-	XGI-D22B
32 points	-	-	XGI-D24A
	-	-	XGI-D24B
64 points	-	-	XGI-D28A
	-	-	XGI-D28B

Item	Output Module		
	Relay	Triac	Transistor
8 points	XGQ-RY1A	-	XGQ-TR1C
16 points	XGQ-RY2A	XGQ-SS2A	XGQ-TR2A
	XGQ-RY2B	-	XGQ-TR2B
32 points	-	-	XGQ-TR4A
	-	-	XGQ-TR4B
64 points	-	-	XGQ-TR8A
	-	-	XGQ-TR8B

Item	Special Module	
Analog Input	XGF-AV8A	Voltage input type, 8ch
	XGF-AC8A	Current input type, 8ch
	XGF-AD8A	Voltage/ Current input, 8ch
	XGF-AD4S	Voltage/ Current input, 4ch (Isolated)
	XGF-AD16A	Voltage/ Current input, 16ch
	XGF-AW4S	2-wire, Voltage/ Current input, 4ch (Isolated)
Analog Output	XGF-DV4A	Voltage output type, 4ch
	XGF-DC4A	Current output type, 4ch
	XGF-DV8A	Voltage output type, 8ch
	XGF-DC8A	Current output type, 8ch
	XGF-DV4S	Voltage output, 4ch (Isolated)
	XGF-DC4S	Current output, 4ch (Isolated)
	XGF-DA4S	Voltage/Current output, 4Ch (Isolated)
Analog Input/Output	XGF-AH6A	Input : 4ch, Voltage/ Current
		Output : 2ch voltage/ Current
High-Speed Counter	XGF-HO2A	Pulse (OC) input type, 2ch
	XGF-HD2A	Pulse (LD) input type, 2ch
Positioning	XGF-PO1H~PO4H	Open collector, 1~4axis
	XGF-PD1H~PD4H	Line drive, 1~4axis
Positioning (Network Type)	XGF-PN8A	LS standard EtherCAT 8 axes
	XGF-PN8B	Standard EtherCAT 8 axes
Motion Module	XGF-M32E	Standard EtherCAT 32 axes
Temperature Control	XGF-TC4S	TC input, 4Ch (Insulated)
	XGF-TC4SB	TC input, 4Ch (Insulated, High-speed/High-accuracy)
	XGF-RD4A	RTD input, 4ch
	XGF-RD4S	RTD input, 4ch (Insulated)
Temperature Controller	XGF-TC4UD	Input : 4ch. (Voltage/Current, RTD/TC)
		Output : 8ch. (TR/Current)
		Controller : 4 loops
	XGF-TC4RT	Input : 4ch.(RTD)
		Output : 4ch.(TR)
		Controller : 4 loops
Event Input	XGF-SOEA	DC24V, 32points

Item	Communication Module	
OPC UA	XGL-EOPCT	OPC UA, Twisted fair 2Ch
RAPIEnet+ - RAPIEnet v2 - EtherNet/IP - Modbus TCP/IP - Dedicated XGT Network	XGL-EFMTB	Master/client, Twisted fair 2ch.
	XGL-EFMFB	Master/client, Fiber optic 2ch.
	XGL-EFMHB	Master/client, Twisted fair/fiber optic
	XOL-ES4T	Stand alone switch twisted pair 4ch.
	XOL-ES4H	Stand alone switch twisted 2ch. fiber 2ch.
	XGL-EH5T	Open Ethernet switching hub
Computer Link (Cnet)	XGL-CH2B	RS-232C 1ch., RS-422/485 1ch.
	XGL-C22B	RS-232C 2ch.
	XGL-C42B	RS-422/485 2ch.
DeviceNet (Dnet)	XGL-DMEB	DeviceNet, Master
	XGL-DSEB	DeviceNet, Slave
Profibus-DP (Pnet)	XGL-PMEB	Profibus-DP, Master
	XGL-PSRA	Profibus-DP Slave, Remote interface
	XGL-PSEA	Profibus-DP Slave
Rnet	XGL-RMEB	Rnet, Master, TP
	GOL-RR8T	Rnet stand alone repeater hub
Fnet	XGL-FMEA	Fnet, Master
BACnet/IP	XGL-BIPT	BACnet client/server

PLC

XGK/XGI Series | Large and Medium Scale Solution PLC



Features

XGK Series

- Fastest CPU processing of 8.5ns/step
- Up to 6,144 I/O points configurable (32,768 points controllable with remote I/O)
- Integrated intelligent software package : XG5000, XG-PD, XG-PM
- System solution based on open network : Ethernet, Profibus-DP, DeviceNet
- Special devices for easy programming
- Massive device memory
- USB I/F for programming up/download & monitoring

XGI Series

- Fastest CPU processing of 8.5ns/step
- Up to 6,144 I/O points configurable (131,072 points controllable with remote I/O)
- IEC 61131-3 standard programming
  - LD (Ladder diagram), SFC (Sequential function chart), ST (Structured text)
  - User defined FB (Function block)
- Built-in PID function (Max. 256 loop)
- USB I/F for programming up/download & monitoring

Modules

CPU Modules

High-Speed and Large Scale Control

XGI-CPUZ7/5/3
- EtherCAT Motion 16axes (CPUZ 7/5/3)
- Built-in Ethernet port
- 10/4/2MBytes program memory
- 6.5ns processing speed
- 6,144 I/O points control

XGK-CPUUN (XGI-CPUUN)
- Built-in Ethernet port
- 256K (2MB) program memory
- 8.5ns processing speed
- 6,144 I/O points control

XGK-CPUHN
- Built-in Ethernet port
- 128K (1MB) program memory
- 8.5ns processing speed
- 6,144 I/O points control

XGK-CPUSN
- Built-in Ethernet port
- 64K (512KB) program memory
- 8.5ns processing speed
- 3,072 I/O points control

XGK-CPUU (XGI-CPUU)
- 128K (1MB) program memory
- 28ns processing speed
- 6,144 I/O points control

XGK-CPUH (XGI-CPUH)
- 64K (512KB) program memory
- 28ns processing speed
- 6,144 I/O points control

XGK-CPUA
- 32K program memory
- 28ns processing speed
- 3,072 I/O points control

General Sequence Control

XGK-CPUS (XGI-CPUS)
- 32K (128KB) pprogram memory
- 84ns processing speed
- 3,072 I/O points control

XGK-CPUE (XGI-CPUE)
- 16K (64KB) program memory
- 84ns processing speed
- 1,536 I/O points control

Expansion Modules

Power Modules
With AC free voltage, 220V and DC 24 V power supply

Base Modules
With 4/6/8/12 main and expansion base

Digital Input /Output Modules
From 8 to 64 of transistor, Relay and triac switches

Analog Input /Output Modules
With 4 or 8 ch current/Voltage signals

Temperature Input Modules
With 4 ch Pt100/JPt100 resistance thermometer and thermocouple

High Speed Counter Module
For connection with incremental encoder (2 channels of open collector or line driver type)

Motion/Positioning module
EtherCAT based motion / positioning for servo and motor (1~32 axes)

Network Modules

Fast Ethernet Modules
Ethernet Network with TCP/IP protocol

Profibus-DP Modules
Profibus-DP fieldbus protocol for connection between LS PLC and different manufacturers

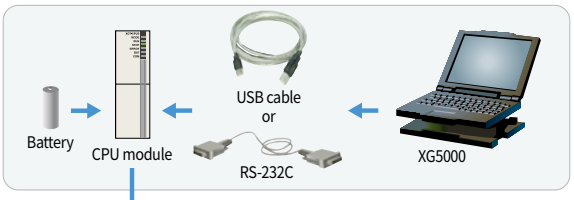
DeviceNet Modules
DeviceNet fieldbus protocol for connection between LS PLC and different manufacturers

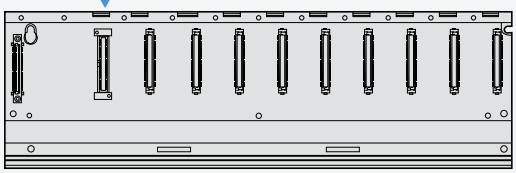
Rnet Modules
Dedicated network for remote I/O control (LS Smart I/O)

Cnet Module
Serial communication module with RS-232C/422/485

RAPIEnet Module
Dedicated network based on Ethernet

System Composition



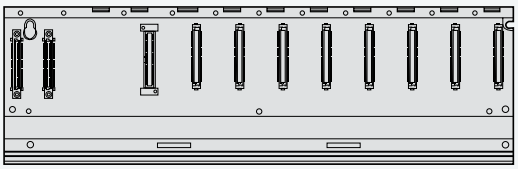


Main base (XGB-M□□A)



Expansion cable
(XGC-E□□□)

Item	Type	Description
Expansion Cable	XGC-E041	Expansion cable 0.4m
	XGC-E061	Expansion cable 0.6m
	XGC-E121	Expansion cable 1.2m
	XGC-E301	Expansion cable 3.0m
	XGC-E501	Expansion cable 5.0m
	XGC-E102	Expansion cable 10m
	XGC-E152	Expansion cable 15m
Expansion Terminator	XGT-TERA	Expansion terminator



Expansion base (XGB-E□□A)

Item	Main Base	Expansion Base
4 slot	XGB-M04A	XGB-E04A
6 slot	XGB-M06A	XGB-E06A
8 slot	XGB-M08A	XGB-E08A
10 slot	XGB-M10A	-
12 slot	XGB-M12A	XGB-E12A



Power module
(XGP- □□□)



Input module
(XGI-□□□□)



Output module
(XGQ-□□□□)

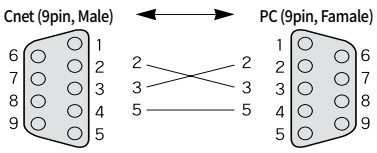


Special module
(XGF-□□□□)



Communication
module
(XGL- □□□□)

XG5000 Cable (RS-232C)



CPU Module		I/O Point
XGK	XGK-CPUH, CPUU, CPUHN, CPUUN	6,144
	XGK-CPUS, CPUA, CPUSN	3,072
	XGK-CPUE	1,536
XGI	XGI-CPUZ7/5/3, CPUUN, CPUU/D, CPUU, CPUH	6,144
	XGI-CPUS	3,072
	XGI-CPUE	1,536

CPU Connecting Cable	
USB 301A	USB downloading cable
K1C-050A	RS-232C downloading cable

Item	Type	Description
USB cable	USB-301A	USB downloading cable
RS-232C cable	KIC-050A	RS-232C downloading cable

Item	Input Module		
	AC110V	AC220V	DC24V
8 points	-	XGI-A21A	XGI-D21A
16 points	XGI-A12A	-	XGI-D22A
	-	-	XGI-D22B
32 points	-	-	XGI-D24A
	-	-	XGI-D24B
64 points	-	-	XGI-D28A
	-	-	XGI-D28B

Power Module			
AC	Free Voltage	XGP-ACF1	DC5V 3A DC24V 0.6A
		XGP-ACF2	DC5V 6A
	220V	XGP-AC23	DC5V 8.5A
DC		XGP-DC42	DC5V 6A

Item	Output Module		
	Relay	Triac	Transistor
8 points	XGQ-RY1A	-	XGQ-TR1C
16 points	XGQ-RY2A	XGQ-SS2A	XGQ-TR2A
	XGQ-RY2B	-	XGQ-TR2B
32 points	-	-	XGQ-TR4A
	-	-	XGQ-TR4B
64 points	-	-	XGQ-TR8A
	-	-	XGQ-TR8B

Item	Special Module	
Analog Input	XGF-AV8A	Voltage input type, 8ch
	XGF-AC8A	Current input type, 8ch
	XGF-AD8A	Voltage/ Current input, 8ch
	XGF-AD4S	Voltage/ Current input, 4ch (Isolated)
	XGF-AD16A	Voltage/ Current input, 16ch
	XGF-AW4S	2-Wire, Voltage/ Current input, 4ch (Isolated)
Analog Output	XGF-DV4A	Voltage output type, 4ch
	XGF-DC4A	Current output type, 4ch
	XGF-DV8A	Voltage output type, 8ch
	XGF-DC8A	Current output type, 8ch
	XGF-DV4S	Voltage output, 4ch (Isolated)
	XGF-DC4S	Current output, 4ch (Isolated)
	XGF-DA4S	Voltage/Current output, 4Ch (Isolated)
Analog Input/Output	XGF-AH6A	Input : 4ch, Voltage/ Current Output : 2ch voltage/ Current
High-Speed Counter	XGF-HO2A	Pulse (OC) input type, 2ch
	XGF-HD2A	Pulse (LD) input type, 2ch
Positioning	XGF-PO1H~PO4H	Open collector, 1~4axes
	XGF-PD1H~PD4H	Line drive, 1~4axes
Positioning (Network Type)	XGF-PN8A	LS Standard EtherCAT Net. 8axes
	XGF-PN8B	Standard EtherCAT Net. 8axes
Motion Module	XGF-M32E	Standard EtherCAT 32axes
Temperature Control	XGF-TC4S	TC input, 4Ch (Insulated)
	XGF-TC4SB	TC input, 4Ch (Insulated, High-speed/High-accuracy)
	XGF-RD4A	RTD input, 4ch
	XGF-RD4S	RTD Input, 4ch (Insulated)
Temperature Controller	XGF-TC4UD	Input : 4ch.(Voltage/Current, RTD/TC) Output : 8ch.(TR/Current) Controller : 4 loops
	XGF-TC4RT	Input : 4ch.(RTD) Output : 4Ch.(TR) Controller : 4 loops
Event Input	XGF-SOEA	DC24V, 32points
Data Log	XGF-DL16A	USB2.0,CF2001,Max16Gbyte, 32 points 1 slot(Input 22 points, Output 10 points)

Item	Communication Module	
OPC UA	XGL-EOPCT	OPC UA, Twisted fair 2Ch
RAPIEnet+ - RAPIEnet v2 - EtherNet/IP - Modbus TCP/IP - Dedicated XGT Network	XGL-EFMTB	Master/Client, Twisted fair 2ch.
	XGL-EFMFB	Master/Client, Fiber optic 2ch.
	XGL-EFMHB	Master/Client, Twisted fair/fiber optic
	XGL-DBDT	Expansion driver - Twisted pair 2ch.
	XGL-DBDF	Expansion driver - Fiber optic 2ch.
	XGL-DBDH	Expansion driver - Fiber optic / Twisted pair
	XOL-ES4T	Stand alone switch twisted pair 4ch.
	XOL-ES4H	Stand alone switch twisted 2ch. fiber 2ch.
	XGL-EH5T	Open Ethernet switching hub
Computer Link (Cnet)	XGL-CH2B	RS-232C 1ch., RS-422/485 1ch.
	XGL-C22B	RS-232C 2ch.
	XGL-C42B	RS-422/485 2ch.
DeviceNet (Dnet)	XGL-DMEB	DeviceNet, Master
	XGL-DSEB	DeviceNet, Slave
Profibus-DP (Pnet)	XGL-PMEB	Profibus-DP, Master
	XGL-PSRA	Profibus-DP Slave, Remote interface
	XGL-PSEA	Profibus-DP Slave
Rnet	XGL-RMEB	Rnet, Master, TP
	GOL-RR8T	Rnet stand alone repeater hub
Fnet	XGL-FMEA	Fnet, Master
BACnet/IP	XGL-BIPT	BACnet client/server
RAPIEnet v1	XGL-EIMT	RAPIEnet, Twisted fair 2Ch
	XGL-EIMF	RAPIEnet, Fiber optic 2Ch
	XGL-EIMH	RAPIEnet, Twisted fair, Fiber optic
EtherNet/IP	XGL-EIPT	Industrial Ethernet, Twisted fair 2Ch

PLC

XGB Series | Compact and Block Type PLC



Features

XGB-U (XBC / XEC-U)

- Max. 60ns/step processing speed
- Max. 2 high speed backplane extension modules
- Max. 10 expansion modules
- Max. 352 I/O points
- 32Ksteps/384KB program capacity
- Line-up : Standard, Built-in analog, Built-in positioning

* Built in Ethernet, SD card

XBC / XEC-U



Standard type

Max. 10 stages
(High speed interface module : Max. 2 stages)

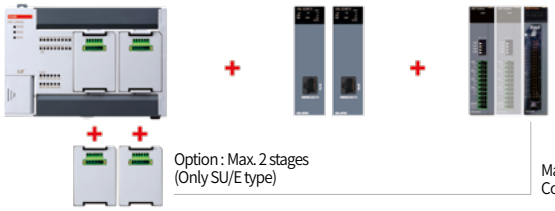
XBC / XEC-H



Max. 10 stage
(Including communication 2 stages)

XBC / XEC-SU

- Max. 60ns/step processing speed
- Max. 7 expansion modules
- Max. 284 I/O points
- 15Ksteps/250KB program capacity

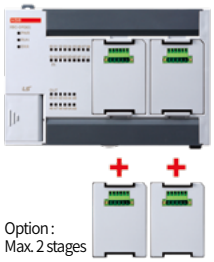


Option : Max. 2 stages
(Only SU/E type)

Max. 7 stage(Expansion + Option),
Communication Max. 2 stages

XBC / XEC-E

- Max. 240ns/step processing speed
- Max. 2 expansion modules
- Max. 38 I/O points
- 4Ksteps/50KB program capacity

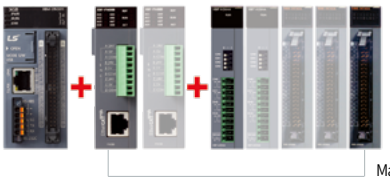


Option :
Max. 2 stages

Option Modules	
XBO-RTCA	RTC (Real time clock), Battery
XBO-DC04A	DC 24V, Input 4 points
XBO-TN04A	TR (Sink), Output 4 points
XBO-AD02A	Voltage/Current, Input 2ch
XBO-DA02A	Voltage/Current, Output 2ch
XBO-AH02A	Voltage/Current, Input 1ch / Voltage/Current, Output 1ch
XBO-RD01A	RTD (Resistance temperature detector), Input 1ch
XBO-TC02A	TC (Thermo couple), Input 2ch

XBM / XEM-H2, HP

- Max. 40ns/step instruction times
- 64Kstep built-in program memory
- Max. 256 I/O points
- Expandability : 7 cards
  (Compatible with all XGB cards)



Max. 7 stages (High speed interface module : Max. 2stages)

XBM-S

- Max. 160ns/step processing speed
- Max. 7 expansion modules
- Max. 256 I/O points
- 10Ksteps program capacity



Max. 7 stage (Communicaion Max. 2 stages)

Product List

Block Type Unit (U)	
Model	**Specification**
XBC/XEC-DN(P)32U	AC 110-220V, 16points DC24V input, 16points transistor sink(Source) type output
XBC/XEC-DR28U	AC 110-220V, 16points DC24V input, 12points relay output
XBC/XEC-DN(P)32UP	AC 110-220V, 16points DC24V input, 16points transistor sink(Source) type output, 4 axes built-in positioning
XBC/XEC-DR28UP	AC 110-220V, 16points DC24V input, 12points relay output, 4 axes built-in positioning
XBC/XEC-DN(P)32UA	AC 110-220V, DC24V input, 16points transistor sink(Source) type output, 8 channel built-in analog
XBC/XEC-DR28UA	AC 110-220V, DC24V input, 12points relay output, 8 channel built-in analog
XBC/XEC-DN(P)32U/DC	DC 24V, 16points DC24V input, 16points transistor sink(Source) type output
XBC/XEC-DR28U/DC	DC 24V, 16points DC24V input, 12points relay output
XBC/XEC-DN(P)32UP/DC	DC 24V, 16points DC24V input, 16points transistor sink(Source) type output, 4 axes built-in positioning
XBC/XEC-DR28UP/DC	DC 24V, 16points DC24V input, 12points relay output, 4 axes built-in positioning
XBC/XEC-DN(P)32UA/DC	DC 24V, DC24V input, 16points transistor sink(Source) type output, 8 channel built-in analog
XBC/XEC-DR28UA/DC	DC 24V, DC24V input, 12points relay output, 8 channel built-in analog
Block Type Unit (High Performance)	
XBC/XEC-DR32H	AC 100-240V, DC24 input 16 pts, Relay output 16 pts
XBC/XEC-DR64H	AC 100-240V, DC24 input 32 pts, Relay output 32 pts
XBC/XEC-DN32H	AC 100-240V, DC24 input 16 pts, Tr. output 16 pts (Sink)
XBC/XEC-DN64H	AC 100-240V, DC24 input 32 pts, Tr. output 32 pts (Sink)
XEC-DP32H	AC 100-240V, DC24 input 16 pts, Tr. output 16 pts (Source)
XEC-DP64H	AC 100-240V, DC24 input 32 pts, Tr. output 32 pts (Source)
XBC-DR32H/DC	DC 24V, DC24 input 16 pts, Relay output 16 pts
XBC-DR64H/DC	DC 24V, DC24 input 32 pts, Relay output 32 pts
XBC-DN32H/DC	DC 24V, DC24 input 16 pts, Tr. output 16 pts (Sink)
XBC-DN64H/DC	DC 24V, DC24 input 32 pts, Tr. output 32 pts (Sink)
XEC-DR32H/D1	DC 12/24V, DC12/24 input 16 pts, Relay output 16 pts
XEC-DR64H/D1	DC 12/24V, DC12/24 input 32 pts, Relay output 32 pts
Block Type Unit (Standard)	
XBC/XEC-DR20SU	AC 100 - 240, DC24V input 12 points, Relay output 8 points
XBC/XEC-DR30SU	AC 100 - 240, DC24V input 18 points, Relay output 12 points
XBC/XEC-DR40SU	AC 100 - 240, DC24V input 24 points, Relay output 16 points
XBC/XEC-DR60SU	AC 100 - 240, DC24V input 36 points, Relay output 24 points
XBC/XEC-DN20SU	AC 100 - 240, DC24V input 12 points, Transistor output 8 points (Sink)
XBC/XEC-DN30SU	AC 100 - 240, DC24V input 18 points, Transistor output 12 points (Sink)
XBC/XEC-DN40SU	AC 100 - 240, DC24V input 24 points, Transistor output 16 points (Sink)
XBC/XEC-DN60SU	AC 100 - 240, DC24V input 36 points, Transistor output 24 points (Sink)
XBC/XEC-DP20SU	AC 100 - 240, DC24V input 12 points, Transistor output 8 points (Source)
XBC/XEC-DP30SU	AC 100 - 240, DC24V input 18 points, Transistor output 12 points (Source)
XBC/XEC-DP40SU	AC 100 - 240, DC24V input 24 points, Transistor output 16 points (Source)
XBC/XEC-DP60SU	AC 100 - 240, DC24V input 36 points, Transistor output 24 points (Source)
Block Type Unit (Economic)	
XBC/XEC-DR10E	AC 100-240V, 6 pts DC input, 4 pts relay ouput
XBC/XEC-DR14E	AC 100-240V, 8 pts DC input, 6 pts relay ouput
XBC/XEC-DR20E	AC 100-240V, 12 pts DC input, 8 pts relay ouput
XBC/XEC-DR30E	AC 100-240V, 18 pts DC input, 12 pts relay ouput
XBC/XEC-DN10E	AC 100-240V, 6 pts DC input, 4 pts Tr. output (Sink)
XBC/XEC-DN14E	AC 100-240V, 8 pts DC input, 6 pts Tr. output (Sink)
XBC/XEC-DN20E	AC 100-240V, 12 pts DC input, 8 pts Tr. output (Sink)
XBC/XEC-DN30E	AC 100-240V, 18 pts DC input, 12 pts Tr. output (Sink)
XBC/XEC-DP10E	AC 100-240V, 6 pts DC input, 4 pts Tr. output (Source)
XBC/XEC-DP14E	AC 100-240V, 8 pts DC input, 6 pts Tr. output (Source)
XBC/XEC-DP20E	AC 100-240V, 12 pts DC input, 8 pts Tr. output (Source)
XBC/XEC-DP30E	AC 100-240V, 18 pts DC input, 12 pts Tr. output (Source)
Modular Type Unit	
XBM/XEM-DN32H2	DC24V, 16 pts DC24V input, 16 pts TR output(Sink), 2 axes built-in positioning (XPM)
XBM/XEM-DN32HP	DC24V, 16 pts DC24V input, 16 pts TR output(Sink), 6 axes built-in positioning (XPM)
XBM/XEM-DP32H2	DC24V, 16 pts DC24V input, 16 pts TR output(Source), 2 axes built-in positioning (XPM)
XBM/XEM-DP32HP	DC24V, 16 pts DC24V input, 16 pts TR output(Source), 6 axes built-in positioning (XPM)
XBM-DR16S	AC 100-240V, DC24 input 8 pts, Tr. output 8 pts (Sink)
XBM-DN16S	AC 100-240V, DC24 input 8 pts, Tr. output 8 pts (Source)
XBM-DN32S	AC 100-240V, DC24 input 16 pts, Tr. output 16 pts (Source)
Loader Cable	
PMC-310S	Connection cable (PC to PLC), 9pin (PC)-6pin (PLC)
USB-301A	Connection cable (PC to PLC), USB

Expansion I / O Module			
Model	**Specification**	**Model**	**Specification**
XBE-AC08A	8 pts AC110V input	XBE-TN08A	8 pts Tr. (Sink) output
XBE-DC08A	8 pts DC 24V input	XBE-TN16A	16 pts Tr. (Sink) output
XBE-DC16A	16 pts DC 12/24V input	XBE-TN32A	32 pts Tr. (Sink) output
XBE-DC16B	16 pts DC 24V input	XBE-TP08A	8 pts Tr. (Source) output
XBE-DC32A	32 pts DC 24V input	XBE-TP16A	16 pts Tr. (Source) output
XBE-RY08A	8 pts relay output	XBE-TP32A	32 pts Tr. (Source) output
XBE-RY08B	8 pts relay output	XBE-DR16A	8 pts DC 24V input, 8pts relay output
XBE-RY16A	16 pts relay output	XBE-DN32A	16 pts DC24V input, 16 pts TR output

Special Module	
XBF-AD04A	4ch analog input (Current/Voltage)
XBF-AD04C	4ch analog input (Current/Voltage, Resolution : 1/16000)
XBF-AH04A	2ch analog input (Current/Voltage)/2ch analog output (Current/Voltage)
XBF-DV04A	4ch analog output (Voltage)
XBF-DV04C	4ch analog input (Voltage, Resolution : 1/16000)
XBF-DC04A	4ch analog output (Current)
XBF-DC04C	4ch analog input (Current, Resolution : 1/16000)
XBF-RD04A	4ch RTD input
XBF-TC04S	4ch thermocouple input
XBF-TC04TT	Temperature controller, Thermocouple
XBF-TC04RT	Temperature controller, RTD
XBF-PD02A	Line drive 2axes
XBF-PN08B	EtherCAT positioning module, 8axesa
XBF-PN04B	Standard EtherCAT network, 4axis
XBF-AD08A	8Ch analog input (Current/Voltage)
XBF-HO02A	2ch high-speed counter input (Open collector)
XBF-HD02A	2ch high-speed counter input (Line drive)
Communication Module	
XBL-C41A	Cnet (RS-422/485), 1ch
XBL-C21A	Cnet (RS-232C), 1ch
XBL-EMTA	Fast Ethernet (100Mbps), 1ch
XBL-EIPT	Ethernet/IP, 2ch
XBL-EIMT	RAPIEnet, Twisted pair 2ch, 100Mbps
XBL-EIMF	RAPIEnet I/F, Max. 2km (Fiber 2ch.), 100Mbps
XBL-EIMH	RAPIEnet I/F (Twisted pair 1ch, Fiber 1ch.), 100Mbps
XBL-PMEC	Profibus-DP, Master, RS-485
XBL-PSEA	Profibus-DP, Slave, RS-485
XBL-DSEA	DeviceNet, Slave
XBL-RMEA	Rnet, Master
XBL-CMEA	CANopen (10, 20, 50, 100, 125, 250, 500, 800, 1000Kbps, Num of PDO : 32)
XBL-CSEA	CANopen (10, 20, 50, 100, 125, 250, 500, 800, 1000Kbps, Num of PDO : 64)
Option Module	
XBO-AD02A	Voltage/Current, Input 2ch
XBO-DA02A	Voltage/Current, Output 2ch
XBO-AH02A	Voltage/Current, Input 1ch, Voltage/Current, Output 1ch
XBO-TC02A	TC (Thermo couple), Input 2ch
XBO-RTCA	RTC (Real time clock), Battery
XBO-DC04A	DC 24V, Input 4 pts
XBO-TN04A	TR (Sink), Output 4 pts
XBO-RD01A	RTD (Resistance temperature detector), Input 1ch

Connection Cable	XBF-PD02A	XBF-HO02A	XBF-HD02A	XBE-DC32A	XBE-TN32A	XBE-TP32S	XBM-DN16S	XBM-DN32S	XBM/XEM-H2,HP	XGB-UP	Cable Length
R40H/20HH-05S-XBM3							●	●			0.5m
R40H/20HH-10S-XBM3							●	●			1m
C40HH-05SB-XBI	●	●	●	●	●	●			●	●	0.5m
C40HH-10SB-XBI	●	●	●	●	●	●			●	●	1m
C40HH-15SB-XBI	●	●	●	●	●	●			●	●	1.5m
C40HH-20SB-XBI	●	●	●	●	●	●			●	●	2m
C40HH-30SB-XBI	●	●	●	●	●	●			●	●	3m
C40HH-05SB-XBE					●	●					0.5m
C40HH-10SB-XBE					●	●					1m
C40HH-15SB-XBE					●	●					1.5m
C40HH-20SB-XBE					●	●					2m
C40HH-30SB-XBE					●	●					3m
C40HH-05SB-XBE					●						0.5m
C40HH-10SB-XBE					●						1m
C40HH-15SB-XBE					●						1.5m
C40HH-20SB-XBE					●						2m
C40HH-30SB-XBE					●						3m

Smart I/O Block Type | RAPIEnet+

RAPIEnet · EtherNet/IP · Modbus TCP/IP



Special Features

- Support for modbus TCP/IP, RAPIEnet, and Ethernet/IP protocols
- connector : RJ45
- Ring, Line topology support can help you configure a network suitable for the site.
  Redundancy support when configuring ring topology
- No IP setup required, simple module setup with just a local number setting.
- Simplify parameter settings : Add modules and check boxes via auto scan possible to set parameters through (No program written)
- Fast data processing
- Reduce cable and connector costs compared to fieldbus based on serial communication
- Provides a variety of diagnostic services
  - Error indication in case of a local conflict in the network
  - Provides network-based O/S upgrades: Remote O/S download is available via master module
  - CRC error flag information can be provided to check the status of communication tracks in the network.
  - Enhanced auto-scan capability : Stations conflict indication, Providing module information
  - Provide error flag in case of communication error master ↔ Smart I/O

Specification

Contents		Description	
Transmission Specification	Transmission Speed	PORT1, 2 : 100Mbps	
	Transmission Type	Base band	
	Max Distance Between Nods	100M	
	Transmission Media	Category 5e STP (Shielded twisted-pair) cable	
	Max Protocol Size	1,500 bytes	
	Communication Access Method	CSMA/CD	
	Frame Error Checking Way	CRC32	
Max Load		Ethernet : 10,000pps, RAPIEnet : 40,000pps	
Topology		Line, Tree, Star, Ring (Available on RAPIEnet only)	
Diagnose Function		Local/IP conflict detection, Self-diagnosis service, Diagnosis by XG5000	
Station/IP Setting Method		Rotary switch, XG5000, BOOTP/DHCP	
Station/IP Setting Range		Station : Rotary switch (1 ~ 99) IP : 192.168.1.xx (xx : 100 + rotary switch 1~99)	
LED Status		STATUS, PORT1, PORT2, LACTH (Only output)	
Parameter Setting		XG5000 (Ethernet)	
Device File		EDS file (Available for EtherNet/IP only)	
Protocol		RAPIEnet, EtherNet/IP, Modbus TCP/IP, BOOTP, DHCP (RAPIEnet, EtherNet/IP enables XGL-EFMxB and smart extension)	
Input & Output Refresh Size	Max input refresh size	64 bytes	
	Max output refresh size	64 bytes	

Contents		GEL-D24C	GEL-DT4C1	GEL-TR4C1	GEL-RY2C
Digital I/O	Points	32(Input)	16/16(In/Out)	32(Output)	16(Output)
	Rated Input Current	5mA		-	-
	Rated Load Voltage	-	DC 24V		DC24V/AC220V, 2A/point, 5A/COM
	Max. Load Current	-	0.5A/point, 3A/COM		AC250V, DC110V, 1,200times/hour
	ON Voltage	DC 19V or higher		-	Min. switching load : DC 5V/1mA
	OFF Voltage	DC 6V or less		-	
	Insulation Method	Photo coupler insulation			

Contents		GEL-AV8C	GEL-AC8C	GEL-DV4C	GEL-DC4C
Analog I/O	Channels	8		4	
	Input/Output Type	Voltage	Current	Voltage	Current
	Input/Outpu Range	DC 1~5 V, 0~5 V, 0~10 V, -10~10 V	0~20 mA, 4~20 mA	DC 1~5 V, 0~5 V, 0~10 V, -10~10 V	0~20 mA, 4~20 mA
	Accuracy	0.3% (Ambient air temperature 0 ~ 55°C)			
	Max. Resolution	1/16,000			
	Max. Conversion Rate	10ms / Channels			
	Insulation Method	Insulation between input / Output terminal and PLC power (No insulation between channels)			

Smart I/O Expansion | RAPIEnet+

RAPIEnet · EtherNet/IP · Modbus TCP/IP



Special Features

- Possible for PLC system of extended smart I/O adapter XEL-BSSRx with extended digital, Analog I/O of XGB series.
  - XGB extension I/O available number : 8
- Support for modbus TCP/IP, RAPIEnet, and OtherNet/IP protocols
- Supports 1Gbps maximum media speed for electric, Optical and mixed modules
- 2 port media support for each electric, Optical and mixed module
  - Support for ring and line topology configuration via relay function without additional switches
- One line can be operated without error when extending ring structure.
- Provide service-status diagnostics

Specification

Item		XEL-BSSRT	XEL-BSSRF	XEL-BSSRH
Transmission Specifications	Transmission Speed (Mbps)	100/1000	100/1000	Electric : 100/1000 Optical : 100/1000
	Transmission Method	Base band		
	Maximum Distance Between Nodes	100m@CAT5E or higher	2km@100Mbps.MM	Electric : 100m Optica l : 2km
	Send Media	Electric : Category 5E or higher STP (Shielded twisted-pair) cable Optical : Multi mode(MMF)/Single mode(SMF) cable		
	Maximum Protocol Size	1,500 bytes		
	Communication Network Access Method	CSMA/CD		
	Frame Error Check Method	CRC32		
Max. Load		Ethernet : 10,000pps, RAPIEne : 40,000pps		
Topology		When using RAPIEnet : Lines, Ring (Using MRS if you use a different topology) When not using RAPIEnet : Line, Tree, Star etc. (with switch)		
Diagnose Function		Station number / IP collision detection function, Self-diagnosis service, Diagnosis using XG5000		
Station number / IP setting method		Rotary switch, XG5000, BOOTP/DHCP		
Station number / IP setting range		Station number : Rotary switch (1 ~ 99) IP : 192.168.1.xx (xx:100 + rotary switch 1~99)		
External Connecting Terminal		USB mini B : PADT connection RJ45, SFP : PADT connection, Data communication 3pin push in/Screw fixed type connector : Power input		
Status Indication LED		RUN, RMS, RNS, RELAY, LINK/ACT1, LINK/ACT2 6 types		
Parameter Setting		XG5000 (USB, Ethernet)		
Device File		EDS file (Only EtherNet/IP)		
Maximum Number of Modules to be Installed		8ea		
Protocol		RAPIEnet, EtherNet/IP, Modbus-TCP, BOOTP, DHCP (RAPIEnet, EtherNet / IP can be Smart extension with XGL-EFMxB)		

Available XGB I/O Module

Item		Module
Digital	Input	XBE-DC08A
		XBE-DC16A/B
		XBE-DC32A
		XBE-AC08A
	Output	XBE-TN/TP08A
		XBE-TN/TP16A
		XBE-TN/TP32A
		XBE-RY08A/B
		XBE-RY16A
	Input/Output	XBE-DR16A
		XBE-DN32A
Analog	Input	XBF-AD04A
		XBF-AD08A
		XBF-AD04C
	Output	XBF-DV04A
		XBF-DC04A
		XBF-DC04B
		XBF-DV04C
		XBF-DC04C
	Input/Output	XBF-AH04A
	RTD	XBF-RD04A
		XBF-RD01A
	TC	XBF-TC04B
		XBF-TC04S
	Load Cell	XBF-LD02S
	High-speed Counter	XBF-HO02A
		XBF-HD02A

Smart I/O Stand Alone Type



Features

- Wiring reduction and real time control of distributed I/O
- Supporting Rnet, DeviceNet, Profibus-DP, MODBUS (RS-422/485), RAPIEnet (RJ-45)
- Various I/O (DC/TR/Relay) modules with the unit of 16/32 points

Digital I/O Specifications

Item		Input		Output			Mixed Module	
		DC (Sink / Source)		Transistor (Source: C type, Sink: C1 type)		Relay	DC (Sink / Source)	Transistor (Sink)
No. of Point		16	32	16	32	16	16	16
Rated Input (Load Voltage)		DC 24 V		DC 24 V		DC 24 V/AC, 110 V/220 V	DC 24 V	
Input Current (Load Current)		7mA		0.1A / 2A, 0.5A / 3A		2A/5A	0.1A / 2A, 0.5A / 3A	
Response Time	Off ➞ On	3ms or less		3ms or less		3msorless	3ms or less	
	On ➞ Off	3ms or less		3ms or less		3msorless	3ms or less	
Common		16 points / COM		16 points / COM		16 points/COM	16 points / COM	
Current Consumption		200 mA	300 mA	200 mA	300 mA	550 mA	200 mA	300 mA
Network	Rnet	GRL-D22C	GRL-D24C	GRL-TR2C/C1	GRL-TR4C/C1	GRL-RY2C	GRL-DT4C/C1	
	Profibus-DP	GPL-D22C	GPL-D24C	GPL-TR2C/C1	GPL-TR4C/C1	GPL-RY2C	GPL-DT4C/C1	
	DeviceNet	GDL-D22C	GDL-D24C	GDL-TR2C/C1	GDL-TR4C/C1	GDL-RY2C	GDL-DT4C/C1	
	Modbus	GSL-D22C	GSL-D24C	GSL-TR2C/C1	GSL-TR4C/C1	GSL-RY2C	GSL-DT4C/C1	

Analog I/O Specifications

Item	GPL-AV8C / GEL-AV8C	GPL-AC8C / GEL-AC8C
Input Channels	8 channels	
Analog Input	DC1~5V,0~5V,0~10V	0~20 mA, 4~20 mA
	-10~+10 V	-20~20 mA
Digital Output	0~4000, 0~8000, -8000~8000	0~4000, -8000~8000
Input Impedance	1MΩ	250 Ω
Max. Resolution	±15V	±30 mA
	1.25 mV	2.5 μA
Accuracy	±0.3% (Full scale, Ta=0~55 °C)	±0.3% (Full scale, Ta=23 °C±5 °C)
	GRL-D22C	±0.4% (Full scale, Ta=0~55 °C)
Conversion Speed	10 ms or less/8 channel	
Response Period	10 ms or less/8 channels + transmission period (ms)	
	Analog input/Output terminal with FG ➞ Insulation	
Insulation Method	Analog input/output terminal with communication terminal ➞ Insulation	
	Analog input/output terminal with each channel ➞ No insulation	
External Power Supply	DC 24 V (21.6 ~ 26.4)	
External Current Consumption	DC24V : 220mA	
Weight (kg)	0.313	0.313

Item	GPL-DV4C / GEL-DV4C	GPL-DC4C / GEL-DC4C
Output Channels	4 channels	
Digital Input	0~4000, 0~8000, -8000~8000	0~8000
Analog Output	DC1~5V, 0~5V, 0~10V	0~20 mA, 4~20 mA
	-10~+10 V	
Load Impedance	1KΩ or more (0~5Vor1~5V)	
	2 KΩ or more (0~10 V or -10~10 V)	500 Ω or less
Resolution	1.25 mV	2.5 μA
Accuracy	±0.3% (Full scale, Ta=0~55 °C)	±0.3% (Full scale, Ta=23 °C±5 °C)
		±0.4% (Full scale, Ta=0~55 °C)
Conversion Speed	10 ms or less/4 channel	
Response Period	10 ms or less / 8 channels + transmission period (Ms)	
	Analog input/output terminal with FG➞insulation	
Insulation Method	Analog input/output terminal with communication terminal➞Insulation	
	Analog input/output terminal with each channel➞No insulation	
External Power Supply	DC 24 V (20.4 ~ 28.8)	
External Current Consumption	210 mA	240 mA
Weight (kg)	0.314	0.322

Communication Specifications

Item	Rnet (LS Dedicated Network)	Profibus-DP	DeviceNet	MODBUS
Protocol	LS dedicated protocol (Fnet for remote)	Profibus-DP (RS-485/EN50170)	DeviceNet (CAN)	MODBUS (RS-422/485)
Transmission Speed	1 mbps	9.6 Kbps ~ 12 Mbps	125/250/500 Kbps	2.4 Kbps ~ 38.4 Kbps
Transmission Distance	750 m/segment	100m~1.2km	500/250/125 m (Thin cable : 100 m)	500 m
Topology	Bus token	Bus	Trunk & drop	Bus
Transmission	Pass & broadcast	Token pass & master/ slave (Poll)	CSMA/NBA (Poll, Cyclic, COS, Bit strobe)	Master/Slave (Poll)
No. of Stations	32/segment (Input : 32, Output : 32)	32/segment, 99/network	64	32

Smart I/O Expandable Type





Modbus TCP, EtherNet/IP DeviceNet Profibus-DP

Features

- IEEE 802.3 standard
- Modbus TCP/IP, EtherNet/IP
- 10/100BASE-TX media
- Ethernet twisted pair 2 ports (RJ-45)
- 2 channels Ethernet MAC
- Auto-negotiation/Auto-crossover
- Various system configuration

Available Module

In/Out	Part Number	XDL-BSSA	XPL-BSSA	XEL-BSSA	XEL-BSSB	XRL-BSSA	XEL-BSSCT
DC Input	XBE-DC08A	O	O	O	O	O	O
	XBE-DC16A(B)	O	O	O	O	O	O
	XBE-DC32A	O	O	O	O	O	O
AC Input	XBE-AC08A	X	O	O	O	O	O
Relay Output	XBE-RY08A(B)	O	O	O	O	O	O
	XBE-RY16A	O	O	O	O	O	O
TR Output	XBE-TN(TP)08A	O	O	O	O	O	O
	XBE-TN(TP)16A	O	O	O	O	O	O
	XBE-TN(TP)32A	O	O	O	O	O	O
Mixed	XBE-DR16A	O	O	O	O	O	O
	XBE-DN32A	X	X	O	O	X	O
AD	XBF-AD04A	O	O	O	O	O	O
	XBF-AD08A	X	O	O	O	O	O
	XBF-AD04C	X	O	O	O	O	O
DA(I)	XBF-DC04A	O	O	O	O	O	O
	XBF-DC04C	X	O	O	O	O	O
DA(V)	XBF-DV04A	O	O	O	O	O	O
	XBF-DV04C	X	O	O	O	O	O
Mixed	XBF-AH04A	O	O	O	O	O	O
RTD	XBF-RD04A	O	O	O	O	O	O
TC	XBF-TC04S	O	O	O	O	O	O
Loadcell	XBF-LD02S	X	X	X	X	X	O
HSC	XBF-HO2A	X	X	X	X	X	O
	XBF-HD2A	X	X	X	X	X	O

DeviceNet Specification

Item		Specification		
Communication Interface		Poll, Bit-strobe, COS/cyclic		
		Group 2 only slave		
		Auto baud rate		
Master/Slave		Slave		
Max. Station		64 (Including master)		
Max. No. of Extension I/O Equipment		8		
Max. Digital I/O Point		512 point (Input max 256 point/output max 256 point)		
Max. No. of Analog I/O Channel		Input 16 channels (Output 16 channels)		
Cable		125kbps	250kbps	500kbps
Communication Speed & Distance	Speed	500m	250m	100m
	Distance	DC 24V		
Input Power	Rated Input Voltage	19.2V ~ 28.8V (Available to operate in 11V)		
	Power Range	5V(±20%) /1.5A		
	Output Voltage/Current	Speed (Kbps)		
	Insulation	Distance (m)		
BasicSpecification	Weight (g)	100		

Modbus TCP, EtherNet / IP Specification

Item		Specification
Communication Speed		10/100mbps
Transmission Path Method		Base band
Standard Functions		IEEE 802.3
Flow Control		HALF/FULL
Modulation Type		NRZI
Max. Distance Between Nodes		100m
Max. Protocol Size		Data 1500byte
Communication Zone Access Method		CSMA/CD
Check Method for Frame Error		CRC32
Connector Connection		RJ-45(2Port)
IP Setting		S/W setting
Topology		Bus, Star
Protocol		MODBUS/TCP, EtherNet/IP
Max. Digital I/O Point		512 (Input 256, Output 256)
Max. Digital I/O Connection Number		8
Max. Analog I/O Connection Number		8
Expansion Analog Module Occupation Number		8byte
Power	Rated Input Voltage/Current	DC 24V/0.7A
	Power Range	DC 19.2V ~ 28.8V
	Output Voltage/Current	5V (±20%)/1.5A
	Insulation	Non-insulation
Weight(g)		100

Profibus-DP Specification

Item		Specification				
Standard		EN50170 / DIN 19245				
Interface		RS-485				
Medium Access		Polling				
Topology		Bus				
Encoding Method		NRZ				
Communication Interface		Sink mode, Freeze mode				
		Auto baud rate				
Master/Slave		Slave				
Cable		Shielded twisted pair				
Communication Speed and Distance	Speed (Kbps)	9.6	19.2	93.75	187.5	500
	Distance (m)	1200	1200	1200	1000	400
	Speed (Kbps)	1500	3000	6000	12000	-
	Distance (m)	200	100	100	100	-
Max. Node		100 station (Setting range: 0 ~ 99)				
Max. Modular Type I/O Equipment No.		8				
Max. Digital I/O Point		512point (Input Max.256point/output max.256point)				
Max. Analog I/O Channel No.		32 channels (Input Max. 16 channels/output Max. 16 channels) (Analog module occupy Digital 64 point)				
Input Power	Rated Input Voltage/Current	DC 24V/ 0.55A				
	Power Range	DC19.2 ~ 28.8V				
	Output Voltage/Current	5V (±20%) / 1.5A				
	Insulation	Non-insulation, Communication part insulation				
Weight (g)		100				

EtherCAT Smart I/O

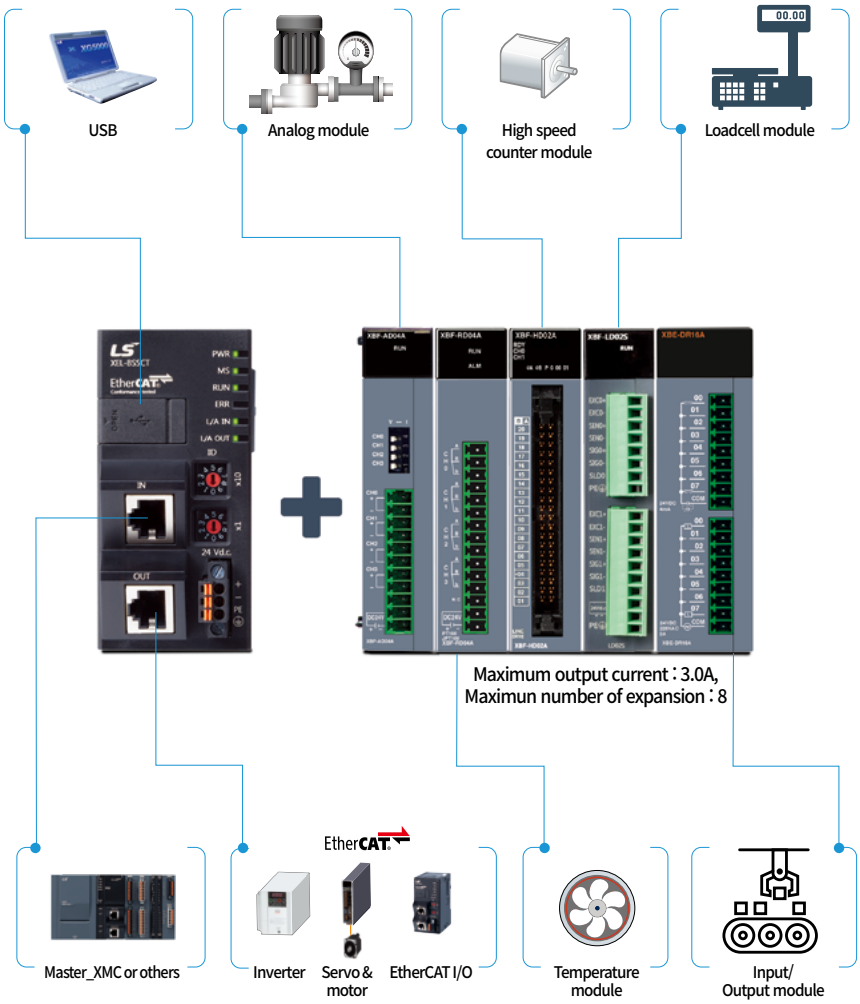
XEL-BSSCT

EtherCAT-Based connectivity



System Configuration

Connectivity with EtherCAT master (XMC-E32A/16A/08A/E32C) offers a total motion solution with devices such as sensors and analog modules



Performance Specification

Classification	Item			Specification
Performance Specification of Adapter	Maximum Number of Expansion			8
	Operation Mode			RUN, STOP (The test operation through the XG5000 is only available in STOP mode.)
	Refresh Time			DC sync0 time x refresh time (0 ~ 100)
	Standard Input Filter			1, 3, 5, 10, 20, 70, 100ms
	Self-Diagnosis Function			Indication of a current error and warning
	EEPROM		Self-Recovery Function	Enable/disable automatic recovery
			EEPROM Size	4 KB
	Memory	System Flag Area	F	2 KB
		Extension Module Mapping area	I	2 KB
			Q	2 KB
			U	1 KB
	External Connection Terminal		Programming Port	USB 1 channel
			Communication Port	RJ45 2 ports (Response to shield)
			Power Port	3-Pin push-in/screw fixing type connector
	Status Indicator LED			6 types including PWR, MS, RUN, ERR, IN and OUT
Communication Specification of EtherCAT	Maximum Number of Expansion Modules to be Mounted			8 modules
	Communication Protocol			EtherCAT
	Data Transfer Speed			100mbps
	Physical Layer			100BASE-TX (IEEE 802.3)
	Topology			Conforms to the specification of EtherCAT master.
	Transmission Media			STP (Shielded twisted-pair) Cable with category 5 or higher
	Transmission Distance			100m or less between the nodes
	Size of PDO Data for Transmission and Reception			Input : Up to 1,024 byte, Output : Up to 1,024 byte
	Size of Mailbox Data			Inpu : Up to 256 byte, Output : Up to 256 byte
	Mailbox Support Command			SDO requests, SDO information
	Refresh Method			Free-run, Refresh sync mode (For LS ELECTRIC Co., Ltd. only)
	Node Address Setting Method			Rotary switch, Master, PADT
	Node Address Setting Range			Explicit ID(1 ~ 99)
				Alias address(1 ~ 65535)
				Applies the EEPROM value set by the master when setting PADT 0

Power Specification

Item		Specification	Condition
Input	Rated Input Voltage	DC24V	
	Input Voltage Range	DC20.4 ~ 28.8V (-15%, + 20%)	Within -15% and +20% of the rated input
	Input Current	Less than 1.3A (Typ.1A)	Input +DC28.8V, Maximum load
	Inrush Current	50A peak or less	Input +DC28.8V, Maximum load
	Efficiency	80 % or more	Input +DC28.8V, Maximum load
	Permitted Instantaneous Interruption	Within 10 ms	Input +DC28.8V, Maximum load
Output	Rated Output Voltage	DC5V (±2%)	
	Output Current	3.0A	
Indication of Voltage Status		LED on when the output voltage is normal	
Cable Specification		22 ~ 20 AWG (0.3 ~ 0.5mm2)	

Motion Controller

XMC-E32A/E16A/E08A/E32C

EtherCAT-Based motion control system ensures efficient system environment



Features

Professional

- CAM control :
  Up to 32 CAM profiles
  (32,768 points/32 CAM profiles)
- Supports G-code
- Robot control :
  Delta3, Delta3R,
  Linear delta and Etc.

Productivity

- High-speed program processing :
  6.25ns (Basic command)
- EtherCAT-based high speed
  cycle times : 0.5/1/2/4ms
  (Same as main task's cycle time)
- Built-in digital and analog IO

Convenience

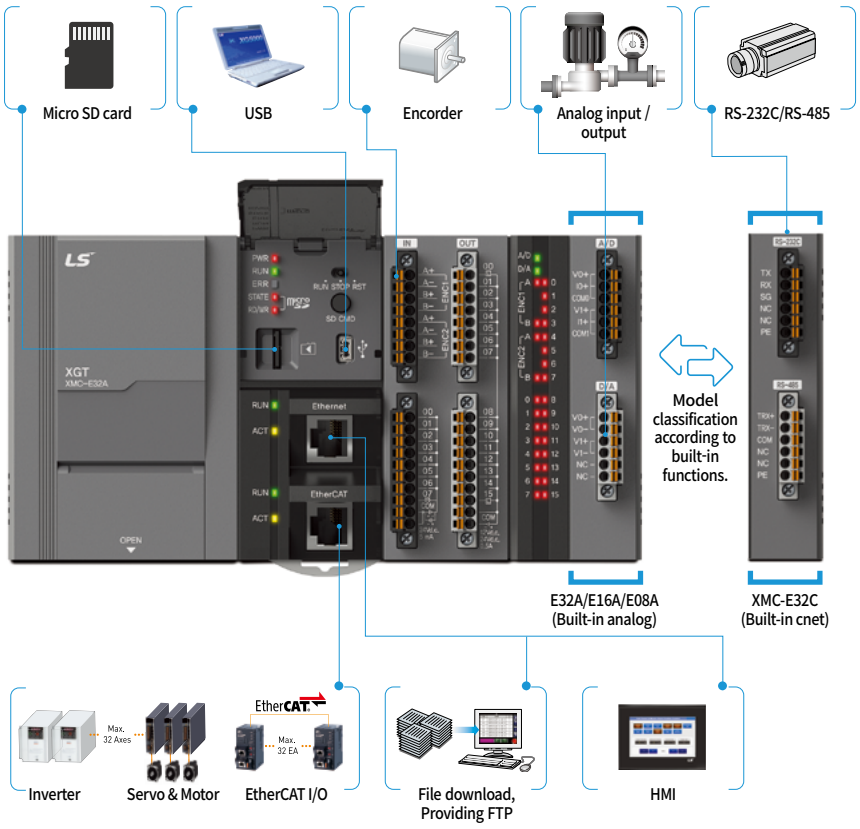
- XG5000 software for programming and monitoring
  - Sole, Integrated architecture for programming, Diagnosing and simulating for both motion controller and PLC
  - IEC standard motion function blocks
- SD card slot (SD card not included)
  - Saving and executing programs, Data logging

Efficiency

- Integration with a variety of EtherCAT devices
  - Servo drive (Up to 32 axes), Remote I/O (Up to 32 I/Os), AC drives, Robots and Etc.
- Various built-in functions
  - 8 digital inputs / 16 digital outputs, Encoder inputs (2 ch), Ethernet analog input (2 ch)/ Output (2 ch)_E32A, RS-232C/ RS-485_E32C

System Configuration

Motion controller delivers an optimized solution to a system that has a need for motion control. With 8 digital inputs / 16 outputs, 2 analog inputs / Output (XMC-E32A/ E16A/E08A only), 2 encoder inputs, RS-232C/RS-485(XMC-E32C only), and EtherCAT devices (Servo drive, INV, EtherCAT I/O, Robot), all can be connected rapidly and easily.



* Refer to page 8 (Performance specification) for supported axis information.

Power Specification

Item			Specification
Operation method			Main task/Periodic task: Fixed cyclic operation, repetitive operation. v, Initial task: Only once at the time of entering the RUN
Control period			Main task cyclic time: 0.5ms, 1ms, 2ms, 4ms Periodic task cyclic time: Multiple setting of main task
I/O Control method			Synchronized update with main task cycle (Refresh method)
Program language			Ladder Diagram (Function block), Structured Text, G-Code
Number of instruction	Operator		18
	Basic function		202
	Basic function block		174
	Special function block		97
Processing speed	Basic		6.25ns or more (General point/coil)
	Move		5ns or more (Word type)
	Arithmetic		30ns or more (Word type)
Program	number		Max. 256
	Capacity		10MB (Motion program), 10MB (NC program)
Data area	Symbolic variable (A)		4.096KB (Retain setting available up to 2,048KB)
	Input variable (I)		16KB
	Output variable (Q)		16KB
	Direct variable (M)		2,048KB (Retain setting available up to 1,024KB)
	Flag variable	F	128KB
		K	18KB
		U	1KB
		L	22KB Note1)
		N	49KB Note1)
Timer			No limit in number of I/O points, Time range: 0.001~4,294,967,295sec (1,193hour)
Counter			No limit in number of I/O points, Counter range: 64 bit range
Program			Initial program, Main task program, Periodic task program, NC program
Operation mode			RUN, STOP
Restart mode			Cold, Warm
Self-diagnosis function			Task cycle error, Task time occupancy rate exceed, memory abnormal, power abnormal, etc.
Back-up method			Retain area setting in basic parameter or retain variable setting.
Number of control axis Note2)	XMC-E32A, E32C		32 axes (Real/Virtual axis), 4axes (Virtual axis), 64 slaves (Max 32 slaves in case of 32 axes (Servo, INV) control)
	XMC-E16A		16 axes (Real/Virtual axis), 2axes (Virtual axis), 32 slaves (Max 16 slaves in case of 16 axes(Servo, INV) control)
	XMC-E08A		8 axes (Real/Virtual axis), 1axis (Virtual axis), 16 slaves (Max 8 slaves in case of 8 axes(Servo, INV) control)
CAM operation	XMC-E32A, E32C		32 profiles/32,768 points
	XMC-E16A		16 profiles/16,384 points
	XMC-E08A		8 profiles/8,192 points
Communication			EtherCAT (CoE: CANopen over EtherCAT, FoE: File Access over EtherCAT)
Communication/Control period			0.5ms, 1ms, 2ms, 4ms (Same with main task period)
Servo drive			EtherCAT servo drive which supports CoE
Control unit			Pulse, mm, inch, degree
Control method			Position, Velocity, Torque (Servo drive support), Synchronous, Interpolation
Range of position / Velocity			±LREAL, 0
Torque unit			Rated torque % designation
Acc./Dec. profile			Trapezoidal, S-curve(Regarding Jerk value set by function block)
Rage of Acc/Dec			±LREAL, 0
Manual operation			JOG operation
Absolute system			Available (When using absolute encoder type servo drive)
Encoder input	Channel		2 channels
	Max.input		500kpps
	Input method		Line drive input (RS-422A IEC specification), Available open collector output type encoder
	Input type		CW/CCW, Pulse/Dir, Phase A/B
Input / Output	Digital input / Output		8 point / 16 points (Tr. output)
	Analog input / Output Note1)		Channels: 2ch In, 2ch Out, Input/Output voltage range: -10~10V / 0~10V / 1~5V / 0~5V Input current range : 4~20mA / 0~20mA, Max, resolution : 14bit (1/16000), Accuracy: 0.2% (25°C), 0.3% (0~55°C) Conversion speed: 0.5ms / channel, Absolute maximum input: Voltage 15 VDC, Current 30mADC
Coordinate systems	Applicable robot		Cartesian, Delta
	Settings		XG5000
	Control language		Function block
SD Memory	Type		Micro SD/SDHC
	File system		FAT32
	Capacity		Max. 32GB installation (Memory over 8GB can use only 8GB of overall area)
	Service		Program back-up/Restoration, Booting operation , Data log
Embedded ethernet	Communication speed		Auto/10Mbps/100Mbps
	Communication port		1 port
	Communication distance		Max. distance between nodes: 100m
	Service		Loader service (XG5000) , XGT Protocol (LS protocol), Modbus TCP FTP Server: Able to read/Write SD Memory files from other devices , SNTP Client: Network time synchronization with server
Embedded cnet Note2)	Communication port		Ch 1: RS-232C, Ch 2: RS-485
	Service		XGT Protocol, Modbus Protocol, User-defined Protocol, LS Bus (LS AC drive) Protocol
USB	Performance		USB 2.0, 1 port
	Service		Loader service (XG5000)
Error indication			Indicated by LED
Weight			790g

Note1) Analog Input/Output are supported by XMC-E32A/E16A/E08A
Note2) Built-in Cnet communication is supported by XMC-E32C

HMI

iXP3 Series



Features

- High-performance processor (Quad Core 1.6GHz)
- Provides camera (IP, USB) and multimedia (HDMI) functions
- Adjustable touch sensitivity: bare hands, gloves, etc.
- Multi-touch and gesture functions based on a capacitive touch screen
- Vector Image with No Distortion
- Providing network value-added services such as FTP, VPN, VNC, and DB
- Compliance with IACS UR E27 security standards

Specification

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

LXP Series



Features

- Flexible installation options enabled by a separable display structure
- Supports display unit hot swap
- Improved visibility with large 19” and 24” displays
- Acquired T6-grade international explosion-proof certification
- Provides stability in N2 gas environment, which is required in semiconductor industry
- Multi-touch and gesture functions based on a capacitive touch screen
- Vector Image with No Distortion
- Providing network value-added services such as FTP, VPN, VNC, and DB

Specifications

Normal Type Display unit

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, UL, IP54		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	-	○	-	○	-	-	-	-

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.

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	
	LAN1	Auto MDIX / RJ-45	
	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	

HMI

iXP2 Series



Features

- 1 GHz dual core CPU
- 1 GB display data and 1 MB back-up memory
- Aluminum frame & Reinforced glass
- Ethernet 2 ch, RS-232C 1ch, RS422/485 1ch.
- HDMI/audio output/USB host/device
- Multi touch & screen gesture (Swipe, Flick)
- Dual monitor clone / Extended mode
- IP66 (NEMA 4X) rating

Specification

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	1024×768		
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 × HDMI			
Ethernet		1 × 10Base-T / 100Base-TX, 1 × 10Base-T / 100Base-TX / 1000Base-T			
USB Host		3×USB2.0 (Front×1, Rear×2)			
USB Device		1 × USB 2.0 (Send / Receive front, PC and project Data Etc.)			
RS-232C		1 × RS-232C (DSUB 9 / Male type)			
RS-422/485		1 × 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, KCs, ATEX(Separate product explosion proof: iXP2-xxxxA/D-EX)			
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

eXP2 Series



Features

Fully compatible with eXP

- Panel cut, interface, design, and drawing file are 100% compatible.

Superior Performance

- ARM Cortex A8 800MHz, eMMC 4G, DDR3

Enhanced product reliability

- LCD Backlight lifespan extended
- Non Battery Type NVRAM

Variety of interfaces and functions

- Various communication drivers and Micro SD I/F available

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)

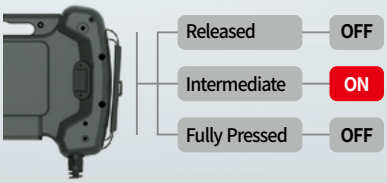
Note 1): IP66 for UL Type 4X models.

New Handheld HMI

iXP2H Series



3 - Position Enable Switch



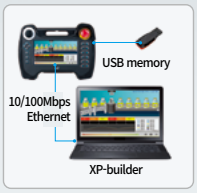
Clear Visibility

- Excellent visibility with high definition and wide screen view
- 1024 X 600 resolution
- 16M color



Project Transfer

- Easy pproject creation by XP-builder
- Convenient downloading/Uploading of project files via USB port and ethernet (Multi-language supported)



Specification

Model		iXP2H-0702D Series	iXP2H-0704D Series
Display Type		TFT color LCD	
Screen Size		7”	
Resolution		1024 x 600 pixels	
Color Indication		24-bit color (16.7M colors)	
Backlight		LED method, Automatic On/Off support	
Backlight Lifetime		50,000 hours	
Touch Panel		Resistive overlay (Pressure type)	
Audio		Magnetic buzzer (12Ø 85 dB)	
Processor		ARM cortex-A9 800 MHz, Single core	
Memory	Flash	8 GB (Small memory : 128 MB)	
	Operating RAM	1 GB	
	Backup RAM	1 MB	
Backup Type		Date/Time data, Logging, Alarm, Recipe data, Non-volatile device	
Battery		CR1220 (3.0V/210 mAh, Around 3 years/25°C)	
Ethernet		1 x 10Base-T/100Base-TX	
USB Host		1 x USB 2.0 (Below x 1)	
RS-232C		1 x RS-232C (Terminal block)	-
RS-485		-	1 x RS-485 (Terminal block)
Multiple Languages		Simultaneous display of 12 languages	
Animation		GIF format support	
Recipe		Supported	
Data Logging		Supported	
Script Launcher		Supported	
Standard Certification		CE, KC	
Protection Standard		IP42 (Front)	
Dimensions (mm)		195×270×72 (Excluding cables)	
Power		DC 24 V ±5%	
Power Consumption (W)		12	
Weight (Kg)		1.0 (Excluding cables)	

Product list

Model	Features
iXP2H-0702D05	RS-232C, Ethernet, 5m cable
iXP2H-0702D10	RS-232C, Ethernet, 10m cable
iXP2H-0704D05	RS-485, Ethernet, 5m cable

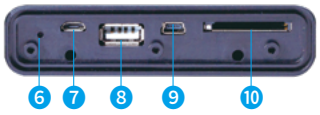
Model	Features
iXP2H-0704D10	RS-485, Ethernet, 10m cable
iXP2O-JB0D	Handy junction box (Conversion adapter)

System configuration and features

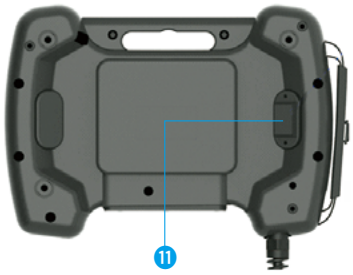
Front



Device Detail



Rear



1 TFT-LCD
1024 x 600 TFT LCD, 16.7M color display resistive overlay

2 Emergency stop switch
Immediately stops the control device or turns off the power as a safety feature

3 Left keypad
Direction key F1, F2, F3: User defined RBG LED: User defined

4 Right keypad
User defined
* Generally used as shortcut key of each axis of robot.

5 Extension device
Slot of the USB extension device
- When shipped, it is fastened with a separate cover.
- When used, the cover can be removed with a phillips head (+) screwdriver for use.

6 Reset switch
Switch for resetting the system

7 Debug port
A debugging port for developers

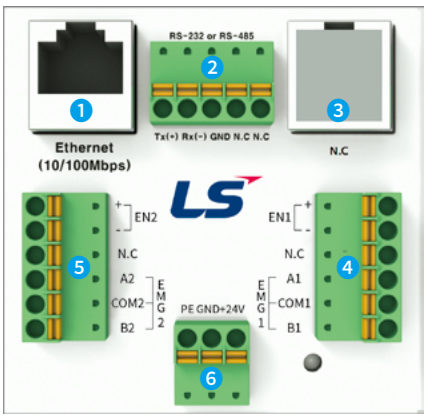
8 USB host
Connect to USB memory : Backup and send logging, Recipe, Alarm, and project data.
Connect to user interface : Use the mouse and keyboard.

9 USB device(Option)
USB device port (Unsupported)

10 SD - Card
Software update SD memory (Store data)

11 Enable Switch
Released : Disable
Intermediate : Enable
Fully Pressed : Disable

Junction Box



1 Ethernet Port
Ethernet : 10Base-T/100Base-TX/1000Base-T
- Connector for Ethernet connection

2 Serial terminal block
RS-485/232C communication connector
- 0702D(for RS-232 model): Tx, Rx, GND
- 0704D(for RS-485 model): TRx+, TRx-

3 N.C Not used

4 Switch 1 terminal block
Signal that is controlled from the front side switch of the product.
- Enable, Emergency (A contact, B contact) switch

5 Switch 2 terminal block
Signal that is controlled from the front side switch of the product.
- Enable, Emergency (A contact, B contact) switch

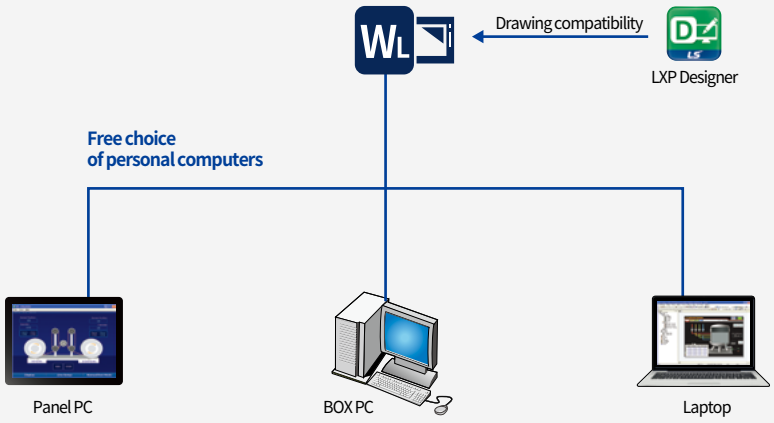
6 Power terminal block
DC 24 V input terminal block

PC-based S/W HMI

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.

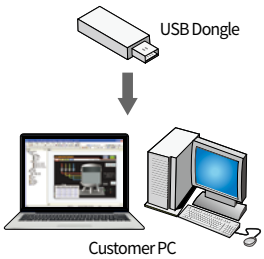
wLXP

- 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 up to 2 USB cameras
- Supports data backup via FTP server

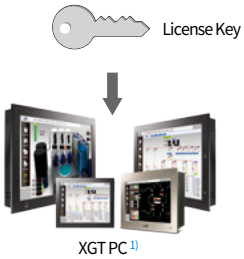


Purchase method

Case 1)
Installation type for customer's PC



Case 2)
XGT PC integrated type

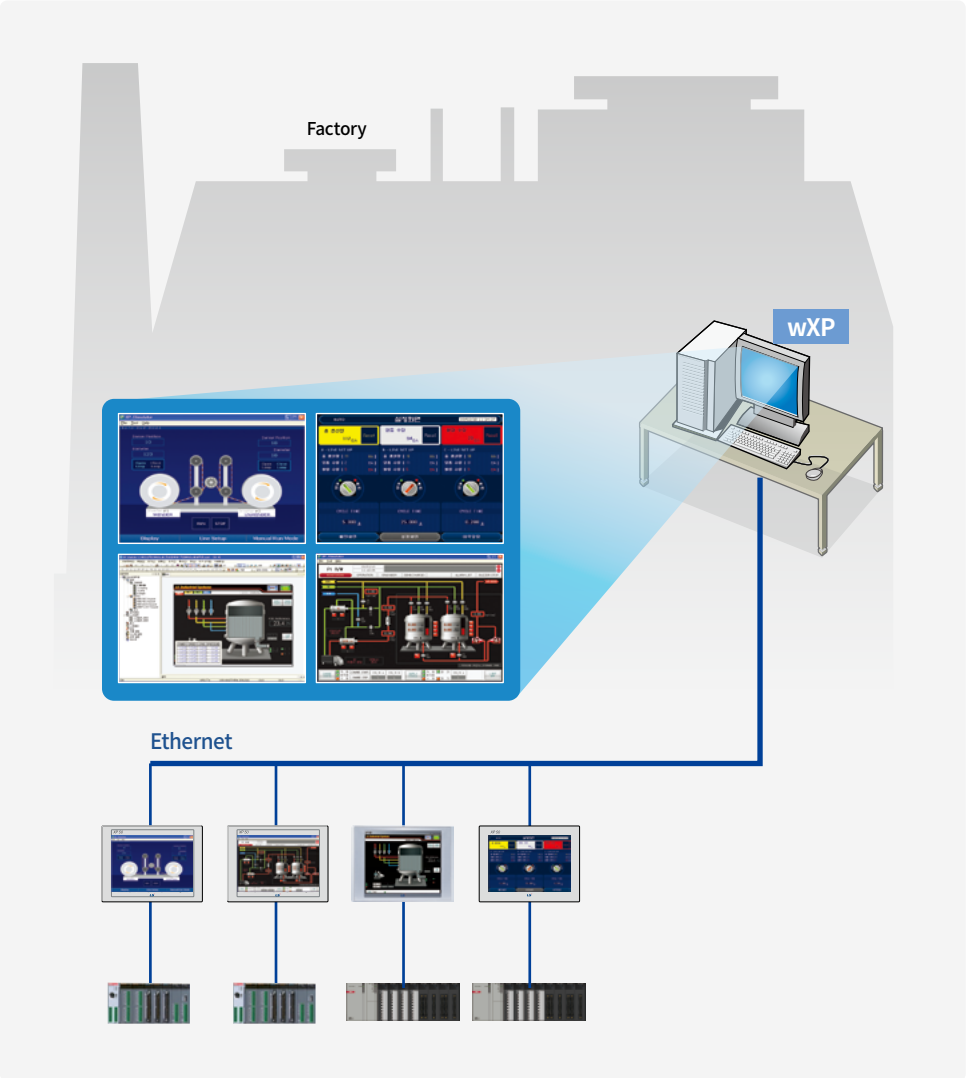


USB Dongle Type	PPC-Integrated Type
wLXP	XPC-wLXP

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



HMI

SCADA Software XGT InfoU

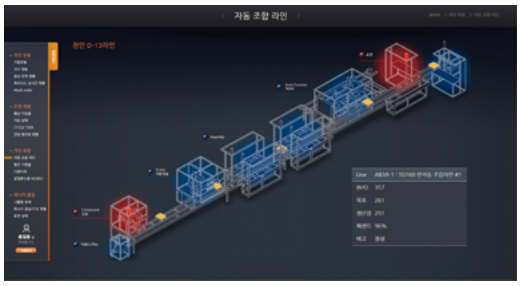
The new web plant feature is available in XGT infoU.
Mobile with web-based surveillance software,
It's easy to use with a tablet.



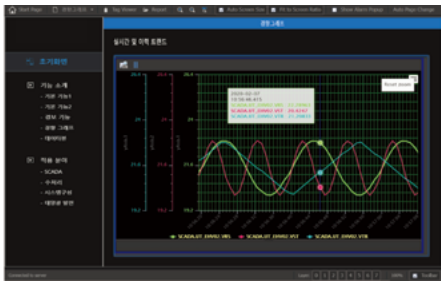
Special Features

- Open architecture with high scalability and compatibility HMI/SCADA operating system
- Simple user interface and application of advanced graphics technology
- Redundant servers, Multi-client support
- Web client, Android app support
- Support for various DBs and various industrial protocols
- User-centric, Convenient report creation
- XGT infoU web plant
  - HTML5 based monitoring software features
  - Graphic surveillance control, Alarm, Trend
  - Supports a variety of graphics formats, Including BMP, JPG, GIF, SVG, PNG, etc.
  - Support for dynamic characteristics, Event scripts, and smart symbols

Web Plant Use Cases



Monitoring and control of the automatic assembly line of LS cheonan plant



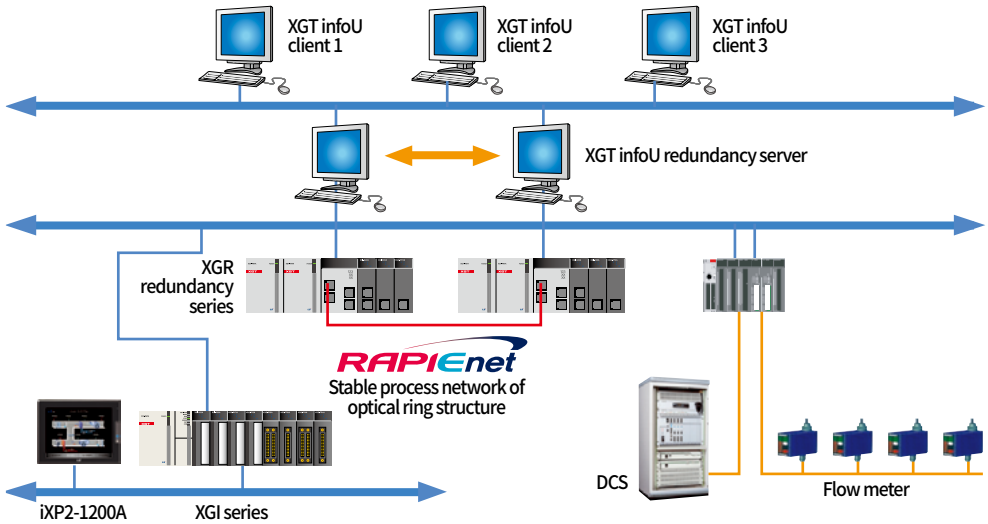
Real-time history and trend alarm functions

System Configuration

Surveillance System
Monitor Field Data
Collected by Server

Server
Control Processes and
Monitor Field Data Collection

Field Control Panel
Monitor and Control
On-Site Devices



- On-site devices scattered in remote areas can be collected through efficient communication and various alarm information can be managed.
- On-site trip data can be synchronized using SOE module and the exact cause of accident can be analyzed.
- DataBase connectivity and task capabilities allow tagging and output to general-purpose dataBase such as MS SQL and oracle. Efficient data sharing with MES or ERP systems

XGT InfoU Model List

Model	Version	Description
InfoU-RC-75/150/500/1K/2K/MAX	Developer & Runtime version	InfoU Development version, 75/150/500/1000/2000/MAX TAG
InfoU-RT-75/150/500/1K/2K/MAX	Runtime version	InfoU Running version, 75/150/500/1000/2000/MAX TAG
InfoU-OP-WEBMAX/150/500/1K/2K	Web browser version	WEB version, MAX USER, MAX TAG/150/500/1000/2000

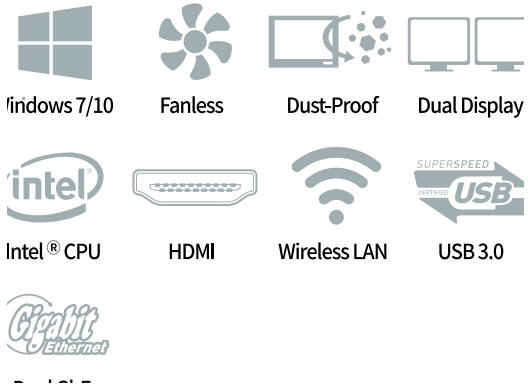
XPC

Panel PC, XPC Series with latest specs quad core CPU

NTP-KF Series

Panel PC with latest intel core CPU

- Intel 6th generation core i3/i5/i7 CPU
- Built-in SSD 128GB, 4GB RAM For maximum performance
- Low-power, Eco-friendly products by minimizing energy consumption
- Fanless structural design enables low heat/noise
- Easy wiring via the wireless connection (Optional)
- A broad lineup of 12" to 19"





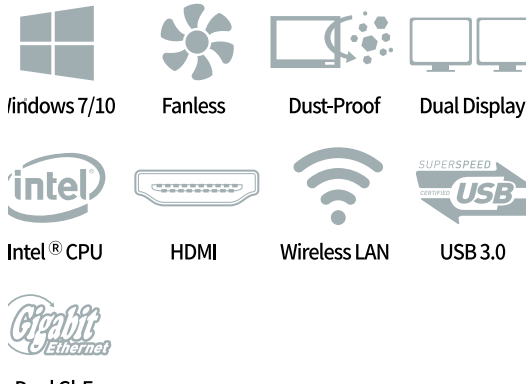
XPC-KF Model List

Model	Description
XPC-NTP12KF	12", Intel 6th core i3/i5/i7 CPU, 4G RAM, SSD 128G
XPC-NTP15KF	15", Intel 6th core i3/i5/i7 CPU, 4G RAM, SSD 128G
XPC-NTP17KF	17", Intel 6th core i3/i5/i7 CPU, 4G RAM, SSD 128G
XPC-NTP19KF	19", Intel 6th core i3/i5/i7 CPU, 4G RAM, SSD 128G

NTP-BF Series

Panel PC with latest intel core CPU

- Latest intel 2.0GHz quad core CPU
- Built-in SSD 128GB, 4GB RAM for maximum performance
- Low-power, Eco-friendly products by minimizing energy consumption
- Fanless structural design enables low heat/noise
- Easy wiring via the wireless connection (Optional)
- 6 broad lineups from 7" to 19"





XPC-BF Model List

Model	Description
XPC-NTP07BF	7", Intel baytrail-D quad core, 4G RAM, SSD 128G
XPC-NTP10BF	10", Intel baytrail-D quad core, 4G RAM, SSD 128G
XPC-NTP12BF	10", Intel baytrail-D quad core, 4G RAM, SSD 128G
XPC-NTP15BF	15", Intel baytrail-D quad core, 4G RAM, SSD 128G
XPC-NTP17BF	17", Intel baytrail-D quad core, 4G RAM, SSD 128G
XPC-NTP19BF	19", Intel baytrail-D quad core, 4G RAM, SSD 128G

Servo System

Xmotion

User-oriented Xmotion servo system completes your optimal solution. its high-performance vector, precision and speed control are user-friendly and cost effective.



Servo Drive

iX7M Series



One Servo Drive Controls Up To Four Axes
- High space efficiency and low price
- Three platforms (2-, 3- and 4-axis) provided
- Applicable to various areas, such as robot, CNC machining, 3D printing and automotive manufacturing

Minimized Installation Space, Maximized User Convenience
- Up to 40% reduced space compared to single-axis configuration
- Minimized cable wiring reduces installation space

Precision, High Response Control Solution
- EtherCAT-based communication supports up to 125μs communication cycle

iX7NH Series



Compact & Convenience
- Optimized installation space by highly efficient heat dissipation - 100W ~ 1kW Drive
- Minimized drive depth for 100W and 200W drive by development and application of mini heatsink - 172.5mm → 145.2mm ; volume reduced by 16%

More Variety of Supported Encoders & Functionalities
- BiSS, Quadrature, Tamagawa, Panasonic, EnDat 2.2, SSI, Nikon and Sinusoidal (Optional)
- Temperature monitoring by encoders supported
- Capable of saving up to 4 maximum channels such as alarm code & alarm occurrence time/date
- Enhanced USB OTG(On-The-Go) function: Parameter, alarm history back-up, firmware update

Faster Communication Provided in More Diverse Methods
- Fieldbus: EtherCAT & Modbus TCP
- Min. Communication cycle time : 0.125ms
- Built-in web server function

L7NH Series



Real-time control through EtherCAT
- High speed, Real-time capability and synchronization mechanism
- Supporting CoE, EoE and FoE
- Improved EtherCAT communication speed (Min. 250us, DC support)
- Improved speed response(1kHz) frequency

Support various motor and encoder drive
- Supporting rotary, DD and motor drive (Supporting3rd party motor)
- Quadrature, BiSS-C, Tamagawa serial abs, EnDat 2.2, Resolver

Improved control performance
- Improved control bandwidth
- Vibration control by real-time FET
- Providing 4-step notch-filter
- Real-time gain tuning function

L7P Series



Providing program function built-in single axis position determination module

- Supporting position control mode by pulse input
- Possible to use without upper controller
- Position control mode
- Modbus RTU protocol (RS-422)

Support various motor and encoder drive

- Supporting rotary, DD and motor drive (Supporting3rd party motor)
- Quadrature, BiSS-C, Tamagawa serial abs, EnDat 2.2, resolver

Improved control performance

- Improved control bandwidth
- Vibration control by real-time FET
- Providing 4-step notch-filter
- Real-time gain tuning function

L7NHF Series



Real-time control through EtherCAT

- High speed, Real-time capability and synchronization mechanism
- Supporting CoE, EoE and FoE
- Improved speed response (1kHz) frequency
- Improved communication speed by applying 16bit-bus
  - Improved chip communication speed
  - Improved EtherCAT communication speed

Fully-closed loop control

- Switch among semi-closed loop control, Fully-closed loop control and dual feedback control
- Fully-closed loop control provides quick response with internal and external encoder position values
- Fully-closed loop control ensures high-precision control during machine operation

L7C Series



Control power/main power unification

- Unification of power for integrated control board and power board
- 0.1~1kW drive line-up for single phase AC220V support

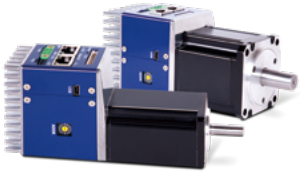
Optimal system implementation with competitive cost ratio

- Unification of power for integrated control board and power board

Maintain and improve L7S specification

- Compatibility with existing L7S I/O pin map
- Maintain current control cycle (10kHz), Speed/position control cycle (5kHz)
- Added operation mode (Indexing mode) and improved memory (1MB)

PEGA Series



Enhanced efficiency integrated servo system

- Cost effective from installation by integrated system of motor, encoder cable and drive
- Maximization for useful space when installed at limited and small space
- High effectiveness for application of multi axis because there is no limitation for space of installation

Real-time control through EtherCAT

- High speed, Real-time capability and synchronization mechanism
- Improved EtherCAT communication speed
- Supporting CoE, EoE and FoE

Servo System

Xmotion

Servo Drive

PHOX Series



Real-time control through EtherCAT

- High speed, Real-time capability and synchronization mechanism
- Improved communication speed by applying 16Bit-bus
  - Improved chip communication speed
  - Improved EtherCAT communication speed
- Supports CoE, EoE and FoE
- Improved speed response (1kHz) frequency

Variable switching frequency

- 16 / 32 / 48kHz

Progamming function including single axis position module

- Positioning control mode with pulse inputs
- Supports the indexing mode
- Provides position control through I/O or HMI without the position control module

Servo Motor

F Series

Flat type rotating servo motor



APM	–	F	BL	P	04	A	M	K	1

Model Name

- APM : Servo motor (Made in korea)
- APMC : Servo motor (Made in China)

Motor Shaft

- F : Flat shaft

Flange Size

- AL : 40 Flange
- BL : 60 Flange
- CL : 80 Flange
- E : 130 Flange
- F : 180 Flange
- G : 220 Flange

Input Power Supply

- None : 200VAC
- P : 400VAC

Motor Capacity

- R5 : 50[W]
- 01 : 100[W]
- 015 : 150[W]
- 02 : 200[W]
- 03 : 300[W]
- 04 : 400[W]
- 07 : 650[W]
- 08 : 750[W]
- 10 : 1.0[kW]
- 20 : 2.0[kW]
- 35 : 3.5[kW]
- 50 : 5.0[kW]
- 75 : 7.5[kW]
- 110 : 11[kW]
- 150 : 15[kW]

Rated Speed

- A : 3000[rpm]
- D : 2000[rpm]
- G : 1500[rpm]
- M : 1000[rpm]

Encoder Type

- M : 19bit s-turn abs (16bit turn abs)
- M8 : 18bit s-turn abs [FAL type] (16bit m-turn abs)
- Y : 17bit s-turn abs (magnetic)

Shape of Shaft End

- N : Straight
- K : One side round key (standard)

Oil Seal, Brake Type

- None : None
- 1 : Oil seal attached
- 2 : Brake attached
- 3 : Oil seal, Brake attached

Note 1) In case of 40, 60, 80 flange product, you can apply 200V drive only.

Note 2) If you apply nonstandard encoder, please contact our office.

Note 3) Refer to brake operating voltage

MDM Series

Direct-drive motor



MDM	–	D	D	None	34	D	NO	H	–	I

Motor Type
D : DD MOTOR

Input Power Supply
None : 220VAC

Rated Speed
A : 300rpm
D : 200rpm
G : 150rpm
M : 100rpm
S : 50rpm

Shape of Shaft End
H : Hollow type

External Diameter
B : 135mm
C : 175mm
D : 230mm
E : 290mm
F : 360mm
G : 380mm

Rated Troque
03 : 3Nm output
06 : 6Nm output
09 : 9Nm output
...
60 : 60Nm output
...
A6 : 160Nm output
C3 : 330Nm output

Encoder Type

	135	175	230	290	360	Remark
NO	20Bit					Single turn abs, Biss communication

MDM Flange type Series

Direct-drive motor flange type

Resolution 16,777,216 [Pulse/rev] (24Bit, single turn)

※ Standard product: Resolution 1,048,576 [Pulse/rev] (20Bit, single turn)

Compact size DD Motor

• 30% smaller size than standard product



MDM	–	DF	B	None	03	D	N4	H

Motor Type
DF : DD MOTOR Flange Type

Input Power Supply
None : 220VAC

Rated Speed
D : 200rpm

Shape of Shaft End
H : Hollow type

External Diameter
B : 135mm
C : 175mm
D : 230mm

Rated Troque
03 : 3Nm output
06 : 6Nm output
12 : 12Nm output

Encoder Type

	135mm	175mm	230mm	Remark
N4	24Bit			Single turn abs, Biss communication

Servo

Drive

iX7NHA Drive

Item \ Part Number		iX7NHA001U	iX7NHA002U	iX7NHA004U	iX7NHA008U	iX7NHA010U	iX7NHA020U	iX7NHA035U
Input Power	Main Power	1-Phase AC100 ~ 120[V], 1-Phase AC200 ~ 240[V], 3-Phase AC200 ~ 240[V], (-15 ~ +10[%]), 50 ~ 60[Hz]			1-Phase AC200 ~ 240[V], 3-Phase AC200 ~ 240[V], (-15 ~ +10[%]), 50 ~ 60[Hz]	3-Phase AC200 ~ 240[V], (-15 ~ +10[%]), 50 ~ 60[Hz]		
	Control Power	1-Phase AC100 ~ 120[V] 1-Phase AC200 ~ 240[V] (-15 ~ +10[10%]), 50 ~ 60[Hz]			1-Phase AC200 ~ 240[V] (-15 ~ +10[10%]), 50 ~ 60[Hz]			
Rated Current [A]		1.4	1.7	3.0	5.2	6.75	13.5	16.0
Peak Current [A]		4.9	5.95	10.5	18.2	20.25	40.5	48.0
Encoder Type		Quadrature (Incremental) , BiSS-B, BiSS-C(Absolute, Incremental) Tamagawa Serial(Absolute, Incremental), EnDat 2.2, Sinusoidal, Analog Hall, SSI, Nikon, Panasonic						
Control Performance	Speed Control Range	Max. 1 : 5000						
	Speed Variation Ratio	±0.01[%] or less (Load variation 0~100[%]), ±0.1[%] or less (temperature: 25±10[°C])						
	Torque Control Repetition Accuracy	±1[%] or less						
EtherCAT Specification	Communication Standard	FoE (Firmware download) EoE (Parameter setting by UDP, Tuning, Secondary function, Parameter copy) CoE (IEC 61158 Type12, IEC 61800-7 CiA 402 Drive profile)						
	Physical Layer	100BASE-TX(IEEE802.3)						
	Connector	RJ45 x 2						
	Communication Distance	Distance between nodes 100[m] or less						
	DC (Distributed Clock)	Synchronization by DC(Distributed Clock) mode. Minimum DC cycle: 125[us]						
	LED Display	Link Act IN, Link Act OUT, RUN, ERR						
	CiA 402 Drive Profile	Profile Position Mode, Profile Velocity Mode, Profile Torque Mode, Cyclic Synchronous Position Mode Cyclic Synchronous Velocity Mode, Cyclic Synchronous Torque Mode, Homing Mode						
Digital Input, Digital Output	Digital Input	Input Voltage range: DC 12[V] ~ DC 24[V] / Total 6 input channels (allocable) Inputs of total 15 functions are selectively allocable (*POT, *NOT, *HOME, *STOP, *PCON, *GAIN2, P_CL, N_CL, PROBE1, PROBE2, EMG, A_RST, SV_ON, LVSF1, LVSF2) Note) *: Fundamentally allocated signals						
	Digital Output	Service rating: DC 24[V] ±10%, 120[mA] total 3 channels (allocable) Total 11 outputs are selectively allocable (*BRAKE, *ALARM, *READY, ZSPD, INPOS, TLMT, VLMT, INPOS2, INSPD, WARN, TGON) Note)* Automatically allocated signals						
Encoder Decimation Output		Differential Line Driver 3 channels AO, /AO, BO, /BO, ZO, /ZO up to 6.5 [Mpps] on 4x interpolation						
Analog Input & Output	Analog Input	Input voltage range: -10 ~ +10[V], Function: analog torque limit (1 channel, unallocable)						
	Analog Output	Total 2 channels (Allocable): able to selectively allocate total 25 types of output						
Safety Function		2 Input Channels(STO1 and STO2), 1 Output Channel(EDM)						
USB Communication	Function	Firmware download, tuning, test drive, monitoring, parameter duplication						
	Communication Standard	Complies with USB 2.0 Full Speed and OTG 2.0 standards						
	Accessible Device	PC or USB Storage device						
Embedded Function	Dynamic Braking	Standard built-in brake (Activated when the servo alarm goes off or when the servo is off).						
	Regenerative Braking	Built-in by default (100W & 200W excluded)						
	Display Function	7-segment display (5 digits)						
	Self-setting Function	Drive node address setting is possible using rotary switch						
	Additional Function	Gain tuning, alarm history, jog operation, home searching						
	Protection Function	Overcurrent, overload, overheat, overvoltage, insufficient voltage, overspeed, abnormal state of encoder, position following error, current detecting error						
Operation Environment	Operating Temperature / Storage Temperature	0 ~ +50[°C] / -20 ~ +65[°C]						
	Operating Humidity / Storage Humidity	Under 80[%]RH / Under 90[%]RH (noncondensing)						
	Environment	Keep indoors. Avoid corrosive / flammable gas or liquid.						

L7NHA Drive

Item \ Type Name		L7NHA001U	L7NHA002U	L7NHA004U	L7NHA008U	L7NHA010U	L7NHA020U	L7NHA035U	L7NHA050U	L7NHA075U	L7NHA150U
Input Power	Main Power Supply	3 phase AC200 ~ 230[V](-15 ~ +10[%]), 50 ~ 60[Hz]									
	Control Power Supply	Single phase AC200 ~ 230[V](-15 ~ +10[%]), 50 ~ 60[Hz]									
Rated Current[A]		1.4	1.7	3.0	5.2	6.75	13.5	16.7	32	39.4	76
Peak Current[A]		4.2	5.1	9.0	15.6	20.25	40.5	50.1	90.88	98.5	190
Encoder Type		Quadrature (Incremental) BiSS-B, BiSS-C (Absolute, Incremental) Tamagawa serial (Absolute, Incremental) EnDat 2.2 Sinusoidal Analog hall									
Control Performance	Speed Control Range	Maximum 1: 5000									
	Frequency Response	Maximum 1[kHz] or above (When the 19-bit serial encoder is applied)									
	Speed Variation Ratio	±0.01[%] or lower (When the load changes between 0 and 100%) ±0.1[%] or less (Temperature of 25°C[±10]									
	Torque Control Repetition Accuracy	Within ±1%									
EtherCAT Communication Specifications	Communication Standard	FoE (Firmware download) EoE (Parameter setting by UDP, Tuning, Secondary function, Parameter copy) CoE (IEC 61158 type12, IEC 61800-7 CIA 402 drive profile)									
	Physical Layer	100BASE-TX (IEEE802.3)									
	Connector	RJ45x2									
	Communication Distance	Within connection between nodes 100[m]									
	DC(Distributed Clock)	By DC mode synchronism. Minimum DC cycle : 250[us]									
	LED Display	LinkAct IN, LinkAct OUT, RUN, ERR									
	Cia402 Drive Profile	Profile position mode Profile velocity mode Profile torque mode Cyclic synchronous position mode Cyclic synchronous velocity mode Cyclic synchronous torque mode Homing mode									
Digital Input / Output	Digital Input	Input voltage range : DC 12[V] ~ DC 24[V] Total 8 input channels (Allocable) Above 12 functions can be used selectively for assignment. (*POT, *NOT, *HOME, *STOP, *PCON, *GAIN2, *P_CL, *N_CL, PROBE1, PROBE2, EMG, A_RST)									
	Digital Output	Service rating : DC 24[V] ±10%, 120[ ] Total 4 input channels (Allocable) Above 11 functions can be used selectively for assignment. (*BRAKE±, *ALARM±, *READY±, *ZSPD±, INPOS±, TLMT±, VLMT±, INSPD±, WARN±, TGON±, INPOS±)									
Safety Function		2 input channels (STO1, STO2), 1 output channels (EDM±)									
USB Communication	Function	Firmware download, Parameter setting, Tuning, Secondary function, Parameter copy									
	Communication Standard	USB 2.0 Full speed (Applies standard)									
	Connect	PC or USB storing medium									
Internal Function	Dynamic Braking	Standard built-in brake (Activated when the servo alarm goes off or when the servo is off)									
	Regenerative Braking	Default muilt-in(Excluding 15kW), External installation possible									
	Display Function	7 segments (5DIGIT)									
	Self-setting Function	The [MODE] key changes the content displayed in 7 segments									
	Additional Function	Auto gain tuning function									
	Protection Function	Overcurrent, Overload, Overvoltage, Insufficient voltage, Main power input problem, Control power input problem, Overspeed, Motor cable, Overheat(Power module overheat, Abnormal drive operation's temp), Encoder problem, Over-regenerative, Sensor problem, Communication problem									
Operation Environment	Operating Temperature / Storage Temperature	0 ~ 50[°C] / -20 ~ 70[°C]									
	Operating Humidity / Storage Humidity	Below 80[%]RH / Below 90[%]RH (Avoid dew-condensation)									
	Environment	Indoor, Avoid corrosive, Inflammable gas or liquid, and electrically conductive dust.									

Servo

Drive

L7NHB Drive

Item		Type Name: L7NHB010U	L7NHB020U	L7NHB035U	L7NHB050U	L7NHB075U	L7NHB150U
Input Power	Main Power Supply	3 phase AC380 ~480[V](-15 ~ +10[%]), 50 ~ 60[Hz]					
	Control Power Supply	Single phase AC380 ~ 480[V](-15 ~ +10[%]), 50 ~ 60[Hz]					
Rated Current[A]		3.7	8	10.1	17.5	22.8	39
Peak Current[A]		11.1	24	30.3	47.25	57	97.5
Encoder Type		Quadrature (Incremental) BiSS-B, BiSS-C (Absolute, Incremental) Tamagawa serial (Absolute, Incremental) EnDat 2.2 Sinusoidal Analog hall					
Control Performance	Speed Control Range	Maximum 1 : 5000					
	Frequency Response	Maximum 1[kHz] or above (When the 19-bait serial encoder is applied)					
	Speed Variation Ratio	±0.01[%] or lower (When the load changes between 0 and 100%) ±0.1[%] or less(Temperature of 25°C[±10]					
	Torque Control Repetition Accuracy	Within ±1%					
EtherCAT Communication Specifications	Communication Standard	FoE (Firmware download) EoE (Parameter setting by UDP, Tuning, Secondary function, Parameter copy) CoE (IEC 61158 type12, IEC 61800-7 CIA 402 drive profile)					
	Physical Layer	100BASE-TX(IEEE802.3)					
	Connector	RJ45x2					
	Communication distance	Within connection between nodes 100[m]					
	DC(Distributed Clock)	By DC mode synchronism. Minimum DC cycle : 250[us]					
	LED Display	LinkAct iN, LinkAct OUT, RUN, ERR					
	Cia402 Drive Profile	Profile position mode Profile velocity mode Profile torque mode Cyclic synchronous position mode Cyclic synchronous velocity mode Cyclic synchronous torque mode Homing mode					
Digital Input / Output	Digital Input	Input voltage range : DC 12[V] ~ DC 24[V] Total 8 input channels (Allocable) Above 12 functions can be used selectively for assignment. (*POT, *NOT, *HOME, *STOP, *PCON, *GAIN2, *P_CL, *N_CL, PROBE1, PROBE2, EMG, A_RST)					
	Digital Output	Service rating: DC 24[V] ±10%, 120[ ] Total 4 input channels (Allocable) Above 11 functions can be used selectively for assignment. (*BRAKE±, *ALARM±, *READY±, *ZSPD±, INPOS±, TLMT±, VLMT±, INSPD±, WARN±, TGON±, INPOS±)					
Safety Function		2 input channels (STO1, STO2), 1 output channels (EDM±)					
USB Communication	Function	Firmware download, Parameter setting, Tuning, Secondary function, Parameter copy					
	Communication Standard	USB 2.0 full speed (Applies standard)					
	Connect	PC or USB storing medium					
Internal Function	Dynamic Braking	Standard built-in brake (Activated when the servo alarm goes off or when the servo is off).					
	Regenerative Braking	Default built-in (Excluding 15kW), External installation possible					
	Display Function	7 segments (5DIGIT)					
	Self-setting Function	The [MODE] key changes the content displayed in 7 segments					
	Additional Function	Auto gain tuning function					
	Protection Function	Overcurrent, Overload, Overvoltage, Insufficient voltage, Main power input problem, Control power input problem, Overspeed, Motor cable, Overheat (Power module overheat, Abnormal drive operation's temp), Encoder problem, Over-regenerative, Sensor problem, Communication problem					
Operation Environment	Operating Temperature / Storage Temperature	0 ~ 50[°C] / -20 ~ 70[°C]					
	Operating Humidity / Storage Humidity	Below 80[%]RH / Below 90[%]RH (Avoid dew-condensation)					
	Environment	Indoor, Avoid corrosive, Inflammable gas or liquid, and electrically conductive dust.					

L7PA Drive

Item		Type Name	L7PA001U	L7PA002U	L7PA004U	L7PA008U	L7PA010U	L7PA020U	L7PA035U	L7PA050U	L7PA075U	L7PA150U
Input Power	Main Power Supply		3 Phase AC200 ~ 230[V](-15 ~ +10[%]), 50 ~ 60[Hz]									
	Control Power Supply		Single phase AC200 ~ 230[V](-15 ~ +10[%]), 50 ~ 60[Hz]									
Rated Current[A]			1.4	1.7	3.0	5.2	6.75	13.5	16.7	32	39.4	76
Peak Current[A]			4.2	5.1	9.0	15.6	20.25	40.5	50.1	90.88	98.5	190
Encoder Type			Quadrature (Incremental) BiSS-B, BiSS-C (Absolute, Incremental) Tamagawa serial (Absolute, Incremental) EnDat 2.2 Sinusoidal analog hall									
Control Performance	Speed Control Range		Maximum 1 : 5000									
	Frequency Response		Maximum 1 [kHz] or above (When using 19bit serial encoder)									
	Speed Variation Ratio		±0.01 [%] or lower [When load changes between 0 and 100%] ±0.1[%]orlower[Temperature25 ±10°C]									
	Accel/Decel Time		Straight or s-curve acceleration/Deceleration (0~10,000[ms], 0~1,000[ms] unit configurable)									
	Input Frequency		1[Mpps], Line drive / 200[kpps], Open collector									
	Input Pulse Type		Symbol + Pulse series, CW+CCW, A/B phase									
RS422 Communication Specifications	Communication Specifications		ANSI/TIA/EIA-422 standard specifications									
	Communication Protocol		MODBUS-RTU									
	Connector		RJ45x2									
	Synchro Method		Asynchronous									
	Transmission Speed		9600 /19200/38400/57600 [bps] Can be configured at [0x3002]									
	Transmission Distance		Maximum 200 [m]									
	Power Consumption		100 [㎃]									
	Terminating Resistance		Dip S/W(On/Off), Built-in 120Ω									
Input / Output Signal	Digital Input		Input voltage range : DC 12[V] ~ DC 24[V] Total 16 input channel (Allocatable) 32 function inputs can be selectively allocated (*SV_ON, *POT, *NOT, *A-RST, *START, *STOP, *REGT, *EMG, *HOME, *HSTART, *ISEL0, *ISEL1, *ISEL2, *ISEL3, *ISEL4, *ISEL5, PCON, GAIN2, P_CL, N_CL, MODE, PAUSE, ABSRQ, JSTART, JDIR, PCLR, AOVR, SPD1/LVSF1, SPD2/LVSF2, SPD3, PROBE1, PROBE2)									
	Digital Output		Use rating: DC 24[V] ±10%, 120[mA] total 8 input channel (Allocatable) 19 function inputs can be selectively allocated (*ALARM±, *READY±, *BRAKE±, *INPOS1±, *ORG±, *EOS±, *TGON±, *TLMT±, VLMT±, INSPD±,ZSPD±, WARN±, INPOS2±, IOUT0±, IOUT1±, IOUT2±, IOUT3±, IOUT4±, IOUT5±)									
Analog Input / Output	Analog Input		Total 2 channels Analog speed override input (-10[V) ~ +10[V)) Analog torque command input (-10[V) ~ +10[V))									
	Analog Output		Total 2 channels 15 function inputs can be selectively allocated									
USB Communication	Protection		Firmware download, Parameter setting, Tuning, Auxiliary function, Parameter copy									
	Communication Specifications		Complies with USB 2.0 full speed specifications									
	Connection Device		PC or USB storage media									
Built-in Functions	Dynamic Braking		Standard built-in (Activated by servo alarm or servo OFF)									
	Regenerative Braking		Default built-in (Excluding 15kW), External installation possible									
	Display		7 segment (5 DIGIT)									
	Setting Function		Drive node address can be set using rotary switch									
	Additional Function		Gain tuning, Alarm history, JOG operation, Origin search									
	Protective Function		Excessive current, Overload, Excessive current limit, Overheating, Excessive voltage, Low voltage, Excessive, Zspeed, Encoder fail, Position following Fail, Current sensing fail									
Operation Environment	Operating Temperature / Storage Temperature		0 ~ 50[°C] / -20 ~ 70[°C]									
	Operating Humidity / Storage Humidity		Below80[%]RH / Below 90[%]RH(Avoid dew-condensation)									
	Environment		Indoor, Avoid corrosive, Inflammable cas or liquid, and electrically conductive dust.									

Servo

Drive

L7PB Drive

Item \ Type Name		L7PB010U	L7PB020U	L7PB035U	L7PB050U	L7PB075U	L7PB150U
Input Power	Main Power Supply	3 phase AC380 ~480[V](-15 ~ +10[%]), 50 ~ 60[Hz]					
	Control Power Supply	Single phase AC380 ~ 480[V](-15 ~ +10[%]), 50 ~ 60[Hz]					
Rated Current[A]		3.7	8	10.1	17.5	22.8	39
Peak Current[A]		11.1	24	30.3	47.25	57	97.5
Encoder Type		Universal encoder feedback quadrature (Incremental) BiSS-B, BiSS-C (Absolute, Incremental) Tamagawa serial (Absolute, Incremental) EnDat 2.2 sinusoidal analog hall					
Control Performance	Speed Control Range	Maximum 1: 5000					
	Frequency Response	Maximum 1 [kHz] or above (When using 19bit serial encoder)					
	Speed Variation Ratio	±0.01 [%] or lower [When load changes between 0 and 100%] ±0.1[%] or lower [Temperature25 ±10°C]					
	Accel/Decel Time	Straight or s-curve acceleration/Deceleration (0~10,000[ms], 0~1,000[ms] unit configurable)					
	Input Frequency	1[Mpps], Line drive / 200[kpps], Open collector					
	Input Pulse Type	Symbol + pulse series, CW+CCW, A/B phase					
RS422 Communication Specifications	Communication Specifications	ANSI/TIA/EIA-422 standard specifications					
	Communication Protocol	MODBUS-RTU					
	Connector	RJ45x2					
	Synchro Method	Asynchronous					
	Transmission Speed	9600 /19200/38400/57600 [bps] Can be configured at [0x3002]					
	Transmission Distance	Maximum 200 [m]					
	Power Consumption	100[㎃]					
	Terminating Resistance	Dip S/W(On/Off), Built-in 120Ω					
Input / Output Signal	Digital Input	Input voltage rang e: DC 12[V] ~ DC 24[V] total 16 input channel (Allocatable) 30 function inputs can be selectively allocated (*SV_ON, *POT, *NOT, *A-RST, *START, *STOP, *REGT, *EMG, *HOME ,*HSTART, *ISEL0, *ISEL1, *ISEL2, *ISEL3, *ISEL4, *ISEL5, PCON, GAIN2, P_CL, N_CL, PAUSE ,ABSRQ, JSTART, JDIR, PCLR, SPD1/LVSF1, SPD2/LVSF2, SPD3, AOVR, MODE,)					
	Digital Output	Use rating : DC 24[V] ±10%, 120[mA] total 8 input channel (Allocatable) 19 function inputs can be selectively allocated (*ALARM±, *READY±, *BRAKE±, *INPOS1±, *ORG±, *EOS±, *TGON±, *TLMT±, VLMT±, INSPD±, ZSPD±, WARN±, INPOS2±, IOUT0±, IOUT1±, IOUT2± IOUT3±, IOUT4±, IOUT5±)					
Analog Input / Output	Analog Input	Total 2 channels Analog speed override input (-10[V) ~ +10[V)) Analog torque command input (-10[V) ~ +10[V))					
	Analog Output	Total 2 channels 15 function inputs can be selectively allocated					
USB Communication	Protection	Firmware download, Parameter setting, Tuning, Auxiliary function, Parameter copy					
	Communication Specifications	Complies with USB 2.0 full speed specifications					
	Connection Device	PC or USB storage media					
Built-in Functions	Dynamic Braking	Standard built-in(Activated by servo alarm or servo OFF)					
	Regenerative Braking	Default built-in (Excluding 15kW), External installation possible					
	Display	7 segment (5 DIGIT)					
	Setting Function	Drive node address can be set using rotary switch					
	Additional Function	Gain tuning, Alarm history, JOG operation, Origin search					
	Protective Function	Excessive current, Overload, Excessive current Limit, Overheating, Excessive voltage, Low voltage, Excessive speed, Encoder fail, Position following fail, Current sensing fail					
Operation Environment	Operating Temperature / Storage Temperature	0 ~ 50[°C] / -20 ~ 70[°C]					
	Operating Humidity / Storage Humidity	Below80[%]RH / Below 90[%]RH (Avoid dew-condensation)					
	Environment	Indoor, Avoid corrosive, Inflammable gas or liquid, and electrically conductive dust.					

L7NHFA Drive

Item \ Type Name		L7NHFA010U	L7NHFA020U	L7NHFA035U	L7NHFA150U
Input Power	Main Power Supply	3 phase AC200 ~ 230[V](-15 ~ +10[%]), 50 ~ 60[Hz]			
	Control Power Supply	Single phase AC200 ~ 230[V](-15 ~ +10[%]), 50 ~ 60[Hz]			
Rated Current[A]		6.75	16.7	32	39.4
Peak Current[A]		20.25	50.1	90.88	98.5
1st Encoder Encoder A		Quadrature (Incremental) BiSS-B, BiSS-C (Absolute, Incremental) Tamagawa serial (Absolute, Incremental) EnDat 2.2, Sinusoidal, Analog hall			
2nd Encoder Encoder B		Quadrature (Incremental), SSI sinusoidal, Analog hall (Analog to BiSS converter)			
Control Performance	Speed Control Range	Maximum 1: 5000			
	Frequency Response	Maximum 1[kHz] or above (When the 19-bit serial encoder is applied)			
	Speed Variation Ratio	±0.01[%] or lower (When the load changes between 0 and 100%) ±0.1[%] or less (Temperature of 25°C[±10]			
	Torque Control Repetition Accuracy	Within ±1%			
	Input Frequency	4[Mpps], Lind drive			
	Input Pulse Method	Symbol+pulse series, CW+CCW, PhaseA/B			
EtherCAT Communication Specifications	Communication Standard	FoE (Firmware download) EoE (Parameter setting by UDP, Tuning, Secondary function, Parameter copy) CoE (IEC 61158 type12, IEC 61800-7 CIA 402 drive profile)			
	Physical Layer	100BASE-TX (IEEE802.3)			
	Connector	RJ45x2			
	Communication Distance	Within connection between nodes 100[m]			
	DC(Distributed Clock)	By DC mode synchronism. Minimum DC cycle : 250[us]			
	LED Display	LinkAct iN, LinkAct OUT, RUN, ERR			
	Cia402 Drive Profile	Profile position mode, Profile velocity mode. Profile torque mode, Cyclic synchronous position mode Cyclic synchronous velocity mode, Cyclic synchronous torque mode, Homing mode			
Digital Input / Output	Digital Input	Input voltage range : DC12[V] ~ DC 24[V] Total 6 input channels (Allocable) Above 15 functions can be used selectively for assignment. (*POT, *NOT, *HOME, *STOP, *PCON, *GAIN2, *P_CL, *N_CL, PROBE1, PROBE2, EMG, A_RST, SV_ON, LVSF, LVSF2) * Default signal			
	Digital Output	Total 3 input channels (Allocable) Total 11 output can be used selectively for assignment. (*BRAKE±, *ALARM±, *READY±, *ZSPD±, INPOS±, TLMT±, VLMT±, INSPD±, WARN±, TGON±, INPOS2±) * Default signal			
	Analog Output	Total 2 channels (Allocable) Total 25 output can be used selectively for assignment.			
Safety Function		2 input channels (STO1, STO2)			
USB Communication	Function	Firmware download, Parameter setting, Tuning, Auxiliary function, Parameter copy			
	Communication Specifications	USB 2.0 full speed (Applies standard)			
	Connect	PC or USB storage media			
Internal Function	Dynamic Braking	Standard built-in brake (Activated when the servo alarm goes off or when the servo is off).			
	Regenerative Braking	Default built-in(Excluding 15kW), External installation possible			
	Display Function	7 segments (5DIGIT)			
	Self-setting Function	The [MODE] key changes the content displayed in 7 segments			
	Additional Function	Auto gain tuning function			
	Protection Function	Overcurrent, Overload, Overvoltage, Insufficient voltage, Overspeed, Overheat (Power module overheat, Abnormal drive operation's temp), Encoder problem, Position tracking, Problem, Current sensing problem			
Operation Environment	Operating Temperature / Storage Temperature	0 ~ 50[°C] / -20 ~ 70[°C]			
	Operating Humidity / Storage Humidity	Below 80[%]RH / Below 90[%]RH (Avoid dew-condensation)			
	Environment	Indoor, Avoid corrosive, Inflammable gas or liquid, and electrically conductive dust.			

Servo

Drive

L7C Drive

Item \ Type Name		L7CA001U	L7CA002U	L7CA004U	L7CA008U	L7CA010U
Input power		Single phase AC200 ~ 230[V] (-15~+10%), 50~60[Hz]				
Rated Current[A]		1.4	1.7	3.0	5.2	6.75
Peak Current[A]		4.2	5.1	9.0	15.6	20.25
Encoder Type		Quadrature (Incremental), Biss-B, Biss-C (Absolute, Incremental)				
Control Performance	Speed Control Range	Maximum 1:5000				
	Frequency Response	Maximum 1[KHz] or above (When using 19bit serial encoder)				
	Speed Variation Ratio	±0.01 [%] or lower [When load changes between 0 and 100%] ±0.1[%] or lower [Temperature 25 ±10°C]				
	Accel/Decel Time	Straight or s-curve acceleration/Deceleration (0-10,000[ms], Possible to be set by one[ms] unit)				
	Input Frequency	1[Mpps], Line driver / 200[kpps], Open collector				
	Input Pulse Type	Symbol + pulse series, CW+CCW, A/B phase				
RS-422	Specification	ANSI/TIA/EIA-422 standard specifications				
	Protocol	MODBUS-RTU				
	Synchro Method	Asynchronous				
	Power Consumption	100[mA]				
	Transmission Speed	9,600/19,200/38,400/57,600bps				
	Distance	Maximum 200[m]				
	Terminating Resistance	Connecting the outside connector (CN1 7pin, 28pin connection), Built-in 120Ω				
EtherCAT Communication Specifications	Digital Input	Input voltage range : DC12V ~ DC24V Total 10 input channels (Allocable) Total 34 function's input can be used selectively for assignment. (*SV_ON, *SPD/LVSF1, *SPD2/LVSF2, *SPD3, *A-RST, *JDIR, *POT, *NOT, *EMG, *STOP, START, REGT, HOME, HSTART, ISEL0, ISEL1, ISEL2, ISEL3, ISEL4, ISEL5, PCON, GAIN2, P_CL, N_CL, MODE, PAUSE, ABSRQ, JSTART, PCLR, AOVR, INHIBIT, EGEAR1, EGEAR2, ABS_RESET) * Basic allocation signal				
	Digital Output	Service rating : DC24V ±10%, 120mA 5 of 8 input channels are allocable, 3 channels are fixed with AL00, AL01, AL02 Total 19 function's input can be used selectively for assignment. (*ALARM, *READY, *ZSPD, *BREAK, *INPOS1, ORG, EOS, TGON, TLMT, VLMT, INSPD, WARN, INPOS2, IOUT0, IOUT1, IOUT2, IOUT3, IOUT4, IOUT5) * Basic allocation signal				
Analog Output		2 channel Analog speed input (Command/Overide) ±10V Analog torque input (Command/Limit) ±10V				
USB Communication	Function	PC				
	Communication Standard	USB 2.0 full speed (Applies standard)				
	Connect	PC, USB 2.0 full speed (Applies standard)				
Internal Function	Dynamic Braking	Standard built-in brake (Activated when the servo alarm goes off or when the servo is off)				
	Regenerative Braking	Both default built-in and external installation possible				
	Display Function	7 segments (5DIGIT)				
	Self-setting Function	Gain tuning, Alarm history, JOG operation, Origin search				
	Protection Function	Excessive current/Voltage/Overload/Overheating/Speed, Excessive current limit, Low voltage, Encoder/Position following/Current sensing fail				
Operation Environment	Operating Temperature / Storage Temperature	0~50°C / -20 ~ 65°C				
	Operating Humidity / Storage Humidity	Below80[%]RH / Below 90[%]RH(Avoid dew-condensation)				
	Environment	Indoor, Avoid corrosive, Inflammable gas or liquid, and electrically conductive dust.				

Drive Combination Table

iX7NHA

Rated Speed (rpm)	Maximum Speed (rpm)	Flange	Motor	iX7 Drive	Encoder Cable		iX7 Power Cable	iX7 Power + Brake	Brake
					Serial	Absolute			
3,000	5,000	□40	FALR5A	iX7NHA001U	APCS-E□□□ES-□	APCS-E□□□ES-□1	APCS-P□□□LSX	-	APCS-B□□□QS-□
		□40	FAL01A	iX7NHA001U					
		□40	FAL015A	iX7NHA004U					
		□60	FBL01A	iX7NHA001U					
		□60	FBL02A	iX7NHA002U					
		□60	FBL04A	iX7NHA004U					
		□80	FCL04A	iX7NHA004U					
		□80	FCL06A	iX7NHA008U					
		□80	FCL08A	iX7NHA008U					
		□80	FCL10A	iX7NHA010U					
		□130	FE09A	iX7NHA010U	APCS-E□□□□DS	APCS-E□□□□DS1	APCS-P□□HSX1	APCS-P□□NBX1	-
		□130	FE15A	iX7NHA020U					
		□130	FE22A	iX7NHA020U			APCS-P□□HSX	APCS-P□□NBX	
		□130	FE30A	iX7NHA035U					
2,000	3,000	□130	FE06D	iX7NHA008U	APCS-E□□□□DS	APCS-E□□□□DS1	APCS-P□□HSX1	APCS-P□□NBX1	-
		□130	FE11D	iX7NHA010U					
		□130	FE16D	iX7NHA020U			APCS-P□□HSX	APCS-P□□NBX	
		□130	FE22D	iX7NHA020U					
1,500	3,000	□130	FE05G	iX7NHA008U			APCS-P□□HSX1	APCS-P□□NBX1	-
		□130	FE09G	iX7NHA010U					
		□130	FE13G	iX7NHA020U			APCS-P□□HSX	APCS-P□□NBX	
		□130	FE17G	iX7NHA020U					
1,000	2,000	□130	FE03M	iX7NHA004U			APCS-P□□HSX1	APCS-P□□NBX1	-
		□130	FE06M	iX7NHA008U					
		□130	FE09M	iX7NHA010U					
		□130	FE12M	iX7NHA020U			APCS-P□□HSX	APCS-P□□NBX	

Servo

Drive Combination Table

iX7NHA DD Motor

Rated Speed (rpm)	Maximum Speed (rpm)	External Diameter Of Motor(Φ)	Motor	Drive	Encoder Cable		iX7 Power Cable	iX7 Power + Brake Cable	Brake
					Serial	Absolute			
200	500	135Φ	DB03D	iX7NHA001U	APCS-E□□□ZS	-	APCS-P□□□YSX	-	-
			DB06D	iX7NHA002U					
			DB09D	iX7NHA004U					
		175Φ	DC06D	iX7NHA002U					
			DC12D	iX7NHA004U					
	400		DC18D	iX7NHA008U					
	500	230Φ	DD12D	iX7NHA004U					
	400		DD22D	iX7NHA008U					
			DD34D	iX7NHA010U					
	300	290Φ	DE40D	iX7NHA010U					
			DE60D	iX7NHA020U					
150	250	360Φ	DFA1G	iX7NHA020U			APCS-P□□□ZSX		
			DFA6G	iX7NHA035U					
50	100	380Φ	DGC3S	iX7NHA020U					
200	500	135Φ	DFB03D	iX7NHA001U	APCS-E□□□ZS1	-	APCS-P□□□YSX1	-	-
		175Φ	DFC06D	iX7NHA002U					
		230Φ	DFD12D	iX7NHA004U					

L7NHA

Rated Speed (rpm)	Maximum Speed (rpm)	Flange	Motor	Drive	Encoder Cable		Power	Power + Brake	Brake
					Serial	Absolute			
3,000	5,000	□40	FALR5A	L7NHA001U	APCS-E□□□ES-□	APCS-E□□□ES-□1	APCS-P□□□LS-□	-	APCS-B□□□QS-□
		□40	FAL01A	L7NHA001U					
		□40	FAL015A	L7NHA004U					
		□60	FBL01A	L7NHA001U					
		□60	FBL02A	L7NHA002U					
		□60	FBL04A	L7NHA004U					
		□80	FCL04A	L7NHA004U					
		□80	FCL06A	L7NHA008U					
		□80	FCL08A	L7NHA008U					
		□80	FCL10A	L7NHA010U					
		□130	FE09A	L7NHA010U	APCS-E□□□□DS	APCS-E□□□□DS1	APCS-P□□□HS1	APCS-P□□□NB1	-
		□130	FE15A	L7NHA020U					
		□130	FE22A	L7NHA020U			APCS-P□□□HS	APCS-P□□□NB	
		□130	FE30A	L7NHA035U					
		□180	FF30A	L7NHA035U			APCS-P□□□IS	APCS-P□□□PB	
		□180	FF50A	L7NHA050U			APCS-P□□□JS	APCS-P□□□LB	
2,000		□80	FCL03D	L7NHA004U	APCS-E□□□ES-□	APCS-E□□□ES-□1	APCS-P□□□LS-□	-	APCS-B□□□QS-□
		□80	FCL05D	L7NHA008U					
		□80	FCL06D	L7NHA008U					
		□80	FCL07D	L7NHA008U					
	3,000	□130	FE06D	L7NHA008U	APCS-E□□□□DS	APCS-E□□□□DS1	APCS-P□□□HS1	APCS-P□□□NB1	-
		□130	FE11D	L7NHA010U					
		□130	FE16D	L7NHA020U			APCS-P□□□HS	APCS-P□□□NB	
		□130	FE22D	L7NHA020U					
		□180	FF22D	L7NHA020U			APCS-P□□□IS1	APCS-P□□□PB1	
		□180	FF35D	L7NHA035U			APCS-P□□□IS	APCS-P□□□PB	
		□180	FF55D	L7NHA050U			APCS-P□□□JS	APCS-P□□□LB	
	2,500	□180	FF75D	L7NHA075U			APCS-P□□□JS2	APCS-P□□□LB2	
	3,000	□220	FG22D	L7NHA020U			APCS-P□□□IS1	-	APCS-P□□□SB
		□220	FG35D	L7NHA035U			APCS-P□□□IS		
		□220	FG55D	L7NHA050U			APCS-P□□□JS		
	2,500	□220	FG75D	L7NHA075U			APCS-P□□□JS2		
		□220	FG110D	L7NHA150U			APCS-P□□□OS		
1,500	3,000	□130	FE05G	L7NHA008U			APCS-P□□□HS1	APCS-P□□□NB1	-
		□130	FE09G	L7NHA010U					
		□130	FE13G	L7NHA020U			APCS-P□□□HS	APCS-P□□□NB	
		□130	FE17G	L7NHA020U					
		□180	FF20G	L7NHA020U			APCS-P□□□IS1	APCS-P□□□PB1	
	2,700	□180	FF30G	L7NHA035U			APCS-P□□□IS	APCS-P□□□PB	
	3,000	□180	FF44G	L7NHA050U			APCS-P□□□JS	APCS-P□□□LB	
	2,500	□180	FF60G	L7NHA075U			APCS-P□□□JS2	APCS-P□□□LB2	
	2,000	□180	FF75G	L7NHA075U			APCS-P□□□MS	-	
	3,000	□220	FG20G	L7NHA020U			APCS-P□□□IS1		APCS-P□□□SB
	2,700	□220	FG30G	L7NHA035U			APCS-P□□□IS		
	3,000	□220	FG44G	L7NHA050U			APCS-P□□□JS		
	2,500	□220	FG60G	L7NHA075U			APCS-P□□□JS2		
		□220	FG85G	L7NHA150U			APCS-P□□□OS		
		□220	FG110G	L7NHA150U					
		□220	FG150G	L7NHA150U			APCS-P□□□VS		
1,000	2,000	□130	FE03M	L7NHA004U			APCS-P□□□HS1	APCS-P□□□NB1	-
		□130	FE06M	L7NHA008U					
		□130	FE09M	L7NHA010U					
		□130	FE12M	L7NHA020U			APCS-P□□□HS	APCS-P□□□NB	
		□180	FF12M	L7NHA020U			APCS-P□□□IS1	APCS-P□□□PB1	
		□180	FF20M	L7NHA020U			APCS-P□□□IS	APCS-P□□□PB	
	1,700	□180	FF30M	L7NHA035U					
	2,000	□180	FF44M	L7NHA050U			APCS-P□□□JS	APCS-P□□□LB	
		□220	FG12M	L7NHA020U			APCS-P□□□IS1	-	APCS-P□□□SB
		□220	FG20M	L7NHA020U			APCS-P□□□IS		
	1,700	□220	FG30M	L7NHA035U					
	2,000	□220	FG44M	L7NHA050U			APCS-P□□□JS		
			FG60M	L7NHA075U			APCS-P□□□MS		

Servo

Drive Combination Table

L7NHA DD Motor

Rated Speed (rpm)	Maximum Speed (rpm)	External Diameter Of Motor(Φ)	Motor	Drive	Encoder Cable		Power	Power + Brake	Brake
					Serial	Absolute			
200	500	135Φ	DB03D	L7NHA001U	APCS-E□□□ZS	-	APCS-PN□□□YS	-	-
			DB06D	L7NHA002U					
			DB09D	L7NHA004U					
		175Φ	DC06D	L7NHA002U					
			DC12D	L7NHA004U					
	400		DC18D	L7NHA008U					
	500	230Φ	DD12D	L7NHA004U					
	400		DD22D	L7NHA008U					
			DD34D	L7NHA010U					
	300	290Φ	DE40D	L7NHA010U					
			DE60D	L7NHA020U					
150	250	360Φ	DFA1G	L7NHA020U			APCS-PN□□□ZS		
			DFA6G	L7NHA035U					
50	100	380Φ	DGC3S	L7NHA020U					
200	500	135Φ	DFB03D	L7NHA001U	APCS-E□□□ZS1	-	APCS-PN□□□YS1	-	-
		175Φ	DFC06D	L7NHA002U					
		230Φ	DFD12D	L7NHA004U					

L7NHB

Rated Speed (rpm)	Maximum Speed (rpm)	Flange	Motor	Drive	Encoder Cable		Power	Power + Brake	Brake
					Serial	Absolute			
3,000	5,000	□130	FEP09A	L7NHB010U	APCS-E□□□DS	APCS-E□□□DS1	APCS-P□□□HS1	APCS-P□□□NB1	-
		□130	FEP15A	L7NHB020U					
		□130	FEP22A	L7NHB035U					
		□130	FEP30A	L7NHB035U					
		□180	FFP30A	L7NHB035U			APCS-P□□□IS1	APCS-P□□□PB1	
		□180	FFP50A	L7NHB050U			APCS-P□□□JS1	APCS-P□□□LB1	
2,000	3,000	□130	FEP06D	L7NHB010U			APCS-P□□□HS1	APCS-P□□□NB1	
		□130	FEP11D	L7NHB010U					
		□130	FEP16D	L7NHB020U					
		□130	FEP22D	L7NHB020U					
		□180	FFP22D	L7NHB020U			APCS-P□□□IS1	APCS-P□□□PB1	
		□180	FFP35D	L7NHB035U					
		□180	FFP55D	L7NHB050U			APCS-P□□□JS1	APCS-P□□□LB1	
	2,500	□180	FFP75D	L7NHB075U					
	3,000	□220	FGP22D	L7NHB020U			APCS-P□□□IS1	-	APCS-P□□□SB
	2,700	□220	FGP35D	L7NHB035U					
	3,000	□220	FGP55D	L7NHB050U			APCS-P□□□JS1		
	2,500	□220	FGP75D	L7NHB075U					
		□220	FGP110D	L7NHB150U			APCS-P□□□MS1		
1,500	3,000	□130	FEP05G	L7NHB010U			APCS-P□□□HS1	APCS-P□□□NB1	-
		□130	FEP09G	L7NHB010U					
		□130	FEP13G	L7NHB020U					
		□130	FEP17G	L7NHB020U					
		□180	FFP20G	L7NHB020U			APCS-P□□□IS1	APCS-P□□□PB1	
	2,700	□180	FFP30G	L7NHB035U					
	3,000	□180	FFP44G	L7NHB050U			APCS-P□□□JS1	APCS-P□□□LB1	
	2,500	□180	FFP60G	L7NHB075U					
	2,200	□180	FFP75G	L7NHB075U			APCS-P□□□MS1	-	APCS-P□□□SB
	3,000	□220	FGP20G	L7NHB020U			APCS-P□□□IS1		
	2,700	□220	FGP30G	L7NHB035U					
	3,000	□220	FGP44G	L7NHB050U			APCS-P□□□JS1		
	2,500	□220	FGP60G	L7NHB075U					
		□220	FGP85G	L7NHB150U			APCS-P□□□MS1		
	2,000	□220	FGP110G	L7NHB150U					
		□220	FGP150G	L7NHB150U			APCS-P□□□MS		
1,000	2,000	□130	FEP03M	L7NHB010U			APCS-P□□□HS1	APCS-P□□□NB1	-
		□130	FEP06M	L7NHB010U					
		□130	FEP09M	L7NHB010U					
		□130	FEP12M	L7NHB020U					
		□180	FFP12M	L7NHB020U			APCS-P□□□IS1	APCS-P□□□PB1	
		□180	FFP20M	L7NHB020U					
	1,700	□180	FFP30M	L7NHB035U					
	2,000	□180	FFP44M	L7NHB050U			APCS-P□□□JS1	APCS-P□□□LB1	
		□220	FGP12M	L7NHB020U			APCS-P□□□IS1	-	APCS-P□□□SB
		□220	FGP20M	L7NHB020U					
		□220	FGP30M	L7NHB050U					
		□220	FGP44M	L7NHB050U			APCS-P□□□JS1		
		□220	FGP60M	L7NHB150U			APCS-P□□□MS1		

Servo

Drive Combination Table

L7CA

Rated Speed (rpm)	Maximum Speed (rpm)	Flange	Motor	Drive	Encoder Cable		Power	Power + Brake	Brake
					Serial	Absolute			
3,000	5,000	□40	FALR5A	L7CA001U	APCS-E □□□ES	APCS-E □□□ES1	APCS-P□□□LSC	-	APCS-B□□□QS
		□40	FAL01A	L7CA001U					
		□40	FAL015A	L7CA002U					
		□60	FBL01A	L7CA001U					
		□60	FBL02A	L7CA002U					
		□60	FBL04A	L7CA004U					
		□80	FCL04A	L7CA004U					
		□80	FCL06A	L7CA008U					
		□80	FCL08A	L7CA008U					
		□80	FCL10A	L7CA010U					
2,000	2,500	□80	FCL03D	L7CA004U					
		□80	FCL05D	L7CA008U					
		□80	FCL06D	L7CA008U					
		□80	FCL07D	L7CA008U					

Gearbox

Precision Planetary Gearbox



LS planetary gearbox is a device that transfers increased torque to the Application by decreasing motor speed.

LS thrives to provide total solution in the industrial automation market by having a wide range of products with high performance and promised quality, including motion controllers to servo drives, motor.

Special Features

High Performance by LS Strict Quality Process

- Low noise level
- Best-in-class backlash
- High output torque
- High efficiency

Easy Installation with Various Motors and Manufacturing by Korea Technology.

- Competitive price
- Short delivery

Variable Gear Ratios

- Straight type : 3 : 1 ~ 100 : 1
- Angle type : 3 : 1 ~ 200 : 1

Application

- Packaging machines
- Semiconductor machines
- Logistics machines
- FPD/LCD machines

Gear Series

Spur Gear Series

- SSS Series
- SSO Series
- SSR Series
- SAS Series
- SAO Series
- SAR Series



Helical Gear Series

- MSS Series
- MSR Series
- MSO Series
- MAS Series
- MAR Series
- MAO Series

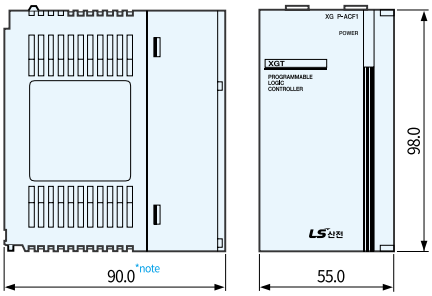
- HSS Series
- HSR Series
- HSW Series
- HSD Series
- HAS Series
- HAR Series
- HAW Series
- HAD Series



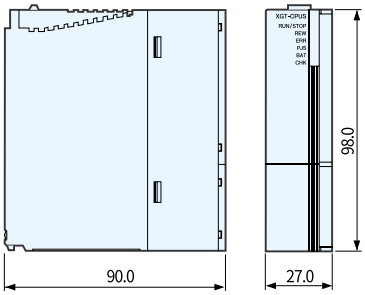
Dimension

XGK/XGI/XGR

Power



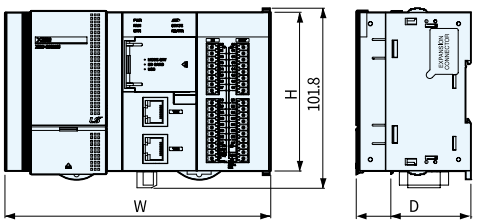
CPU, I/O



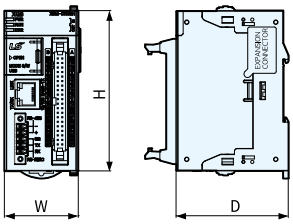
*note) XGP-AC23:110.0

XGB

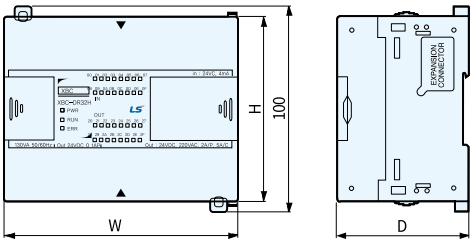
XBC/XEC DN32U



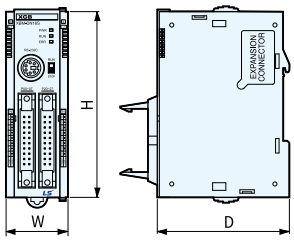
XBM H2, HP



XBC/XEC DR32H



XBM DN16S

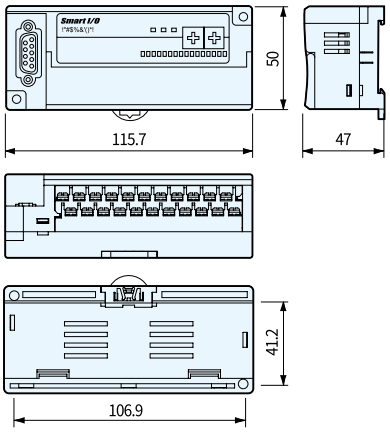


Item	Type	Model	W	H	D
CPU	XBC/XEC “U”	DN, DR 32U	150	90	64
		DN, DR 32UP	185		
		DN, DR 32UA	185		
	XBC/XEC “H”	DR(N/P)32H	114		
		DR(N/P)64H	180	90(100)	64
	XBC/XEC “SU”	DR, DN, DP 20/30SU	135		
		DR, DN, DP 40SU	161		
		DR, DN, DP 60SU	210		
	XBC/XEC “E”	DR, DN, DP 10/14E	100		
		DR, DN, DP 20/30E	135		
	XBM/XEM H2, HP	DN/DP32H2, DN/DP32HP	41.5	90	
	XBM(Slim)	DR16S, DN16S, DN32S	30	90 (100)	
I/O	Expansion I/O	DC32A	20	90	63
		TN32A			
		TP32A			
		DC08A			
		DC16A(B)			
	Special module	TN08A			
		TN(P) 16A			
		Special module			
	Relay I/O	DR16A / RY16A / RY08A (B)	27	90	63
	Network module	EIPT / EIMT/F/H / EMTA C41A,C21A,CMEA,CSEA,PMEC			

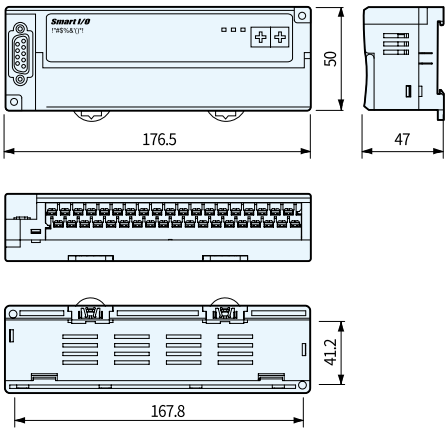
Dimension

Smart I/O

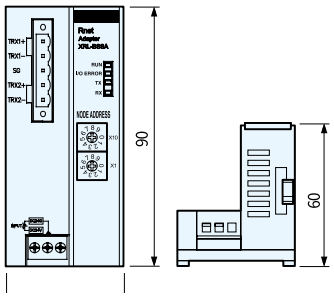
Input 16pt, output TR



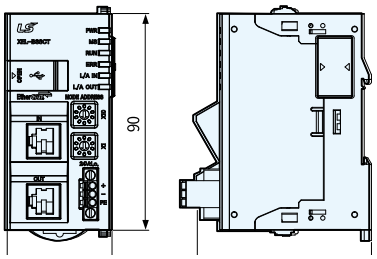
Input 32pt, TR output, Relay output 16pt, analog input / output



XRL-BSSA

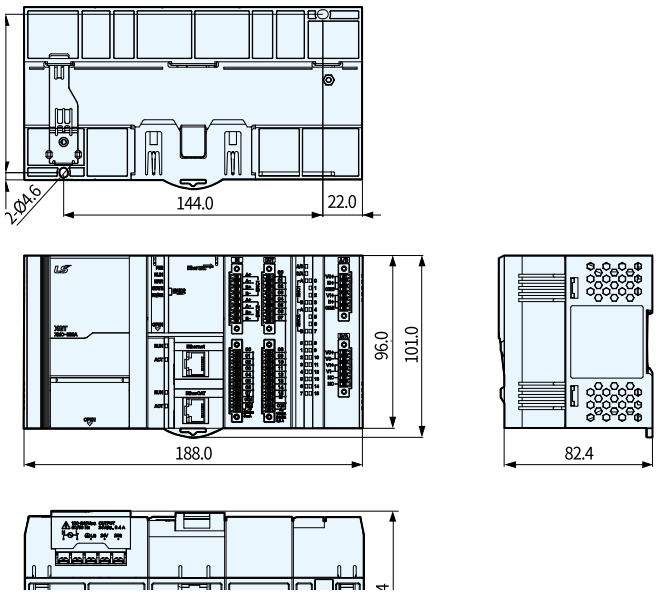


XEL-BSSCT



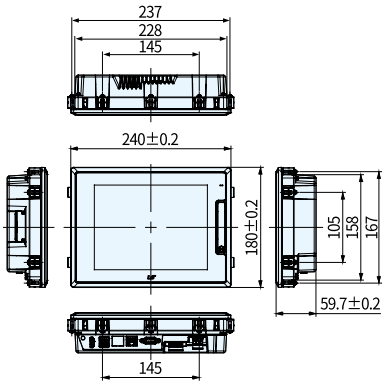
XMC

XMC-E32A/E16A/E08A/E32C

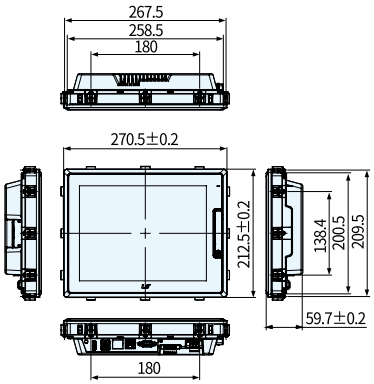


XGT Panel

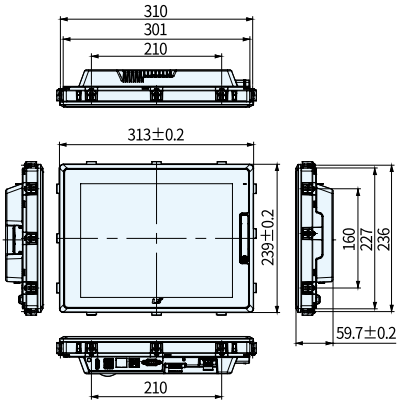
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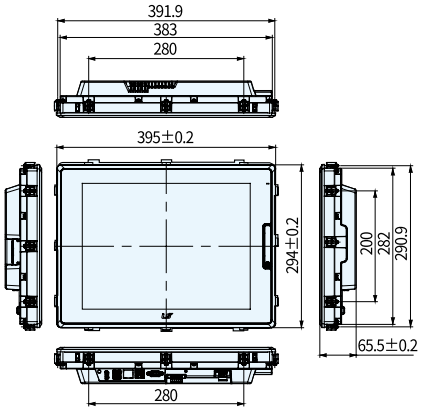
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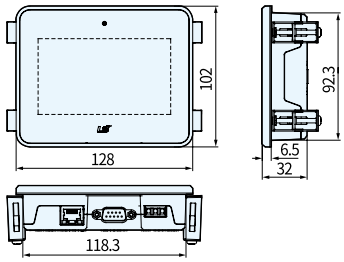
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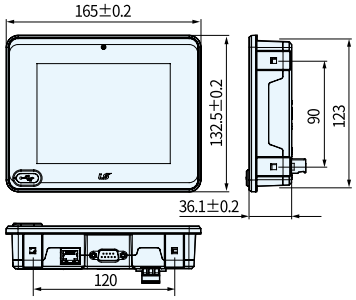
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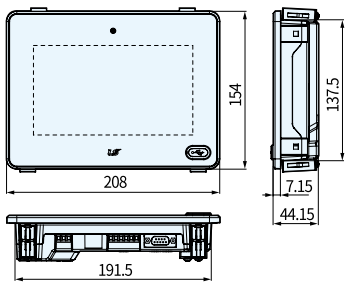
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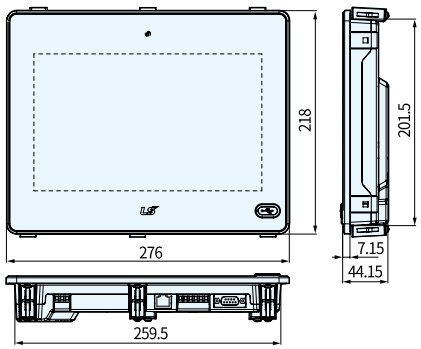
eXP30-TTA



eXP40-TTA



eXP60-TTA



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