Automation Products

Programmable Logic Controller
Human Machine Interface
Servo Drive & Motor
Planetary Gearbox



LSIS

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LS Automation Solutions

LSIS, a leader in industrial automation and power solution business in Korea since 1974, is pioneering the future of smart energy with its qualified products and technologies.

Business Overview

Through its broad business area, LS provides total solution in every aspects of industrial infrastructure and system.

Smart Power Transmission

Smart Power Distribution

Smart Industrial Automation



TOP 100
GLOBAL
INNOVATORS
Clarivate
Analytics

LSIS is one of world's most 100 innovators by Clarivate Analytics.
With its mission, Futuring Smart Energy,
LS pursues the world more smart, safe and sustainable.

Your World Class Total Solution Provider



Overseas Subsidiary Office	Chicago(USA), Dubai(UAE), Amsterdam(Netherland), Wuxi / Dalian / Hubei(China), Tokyo(Japan), Hanoi(Vietnam)
Overseas Branch Office	Moscow(Russia), Shanghai / Beijing / Guangzhou / Qingdao / Chengdu / Shenyang / Jinan(China), Tokyo(Japan), Ho Chi Minh(Vietnam), Jakarta(Indonesia), Bangkok(Thailand)
International Presence	106 Countries


Headquarters


LSIS R&D Campus


R&D Compus


Power Device R&D Center


Automaion R&D Center


Cheongju factory (Korea)


Cheonan factory (Korea)


Busan factory (Korea)


PT&T (Testing laboratory)


Shanghai R&D Center


Wuxi factory (China)


Dalian factory (China)


Hanoi factory (Vietnam)

LS Smart Industrial Automation



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



PLC & Smart I/O

XGT Series

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

XGB Series

Smart I/O

- Stand alone type
- Expandable type



HMI

XGT Panel

- iXP2 Series (Premium)
- eXP Series (Efficient)



Motion Controller

Motion Controller

- XMC-E32A (Analogue)
- XMC-E32C (Cnet)







Servo System

Xmotion (Servo Drive & Motor)

AC Servo Drives

- 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: HSS/HSR/HSW/HSD Series
- Angular Type: HAS/HAR/HAW/HAD Series

Spur Gear

- Straight Type: SSS/SSO/SSR/SSD Series
- Angular Type: SAS/SAO/SAR/SAD Series

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 2km (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 Function

- 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

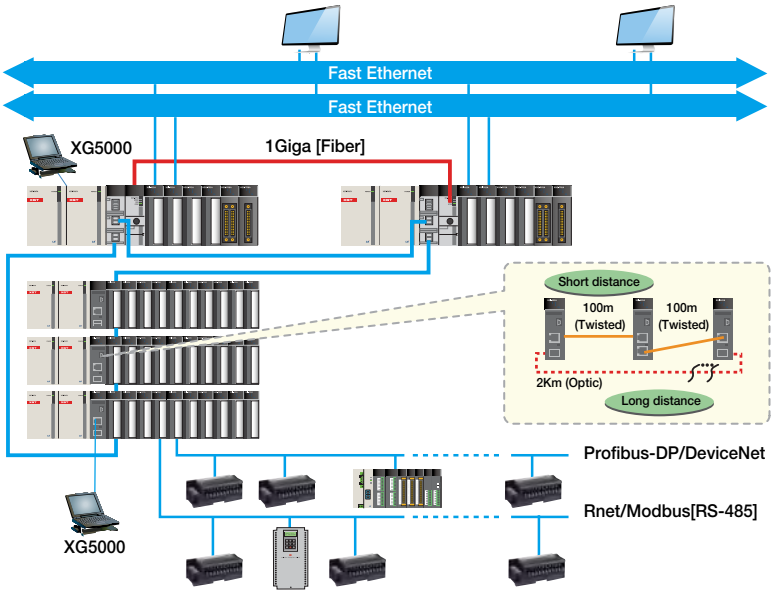
Enhanced Analog Function

- Enable to install the analog module on the expansion base (Max. 250, analog input 139)
- Insulated type and temperature module
- 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-P: Software package for positioning module
- XG-TCON: Temperature control and function of auto tuning

System Configuration Diagram





Product List

CPU Module	
Type	I/O point
XGR-CPUH/T [Twisted fair]	2port 23,808 Points
XGR-CPUH/F [Fiber optic]	

Type	I/O poina
USB-301A XGC-F501	USB downloading cable
K1C-050A	RS232C downloading cable
XGC-F201	CPU synchronization cable: 2m
XGC-F501	CPU synchronization cable: 5m

Power	
XGR-AC12	AC110V 5.5A (Main / Expansion base)
XGR-AC13	AC110V 8.5A (Expansion base)
XGR-AC22	AC220V 5.5A (Main / Expansion base)
XGR-AC23	AC220V 8.5A (Expansion base)
XGR-DC42	DC24V / 5V 7A (Main / Expansion base)

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-CPUUN, CPUU/D, CPUU, CPUH	6,144
	XGI-CPUS	3,072
	XGI-CPUE	1,536

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

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	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	-	-
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	Input/Output Mixed Module	
	16-point DC input	16-point TR output

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)
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-P01A~P03A	Opencollector,1~3axes
	XGF-PD1A~PD3A	Line drive, 1~3axes
	XGF-P01H~P04H	Opencollector,1~4axes
	XGF-PD1H~PD4H	Linedrive,1~4axes
Positioning (Network Type)	XGF-PN8A	LS Standard EtherCAT Net. 8axes
	XGF-PN8B	Standard EtherCAT Net. 8axes
	XGF-PN4B	Standard EtherCAT Network, 4axis
Motion Modnle	XGF-M32E	Standard EtherCAT Nee. 32axes
Temperature Control	XGF-TC4S	Thermocouple input, 4Ch
	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

Communication Module		
RAPIEnet	XGL-EIMT	RAPIEnet Twisted fair 2Ch
	XGL-EIMH	RAPIEnet Fiber optic/Twisted fair 1Ch
	XGL-EIMF	RAPIEnet Fiber optic 2Ch
	XOL-ES4T	RAPIEnet Switch. 4Ports
	XOL-EIMT	RAPIEnet Twisted fair 2Ch For PC
	XOL-EIMF	RAPIEnet Fiber optic 2Ch For PC
Cnet	XGL-CH2B	RS-232C/RS-422
	XGL-C22B	RS-232C, 2Ch
	XGL-C42B	RS-422, 2Ch
Ethernet (Open)	XGL-EFMFB	Fiber optic, Master, SC type
	XGL-EFMTB	Twisted pair, Master, RJ-45
	XGL-EH5T	Fast Ethernet, Switching hub
Ethernet (Dedicated)	XGL-EDMF	Fiber optic, Master, SC type
	XGL-EDMT	Twisted pair, Master, RJ-45
EtherNet/IP	XGL-EIPT	Industrial Ethernet, 2ports
Rnet	XGL-RMEB	Rnet, Master, TP
DeviceNet	XGL-DMEB	DeviceNet, Master
Profibus-DP	XGL-PMEB	Profibus-DP, Master
	XGL-PSRA	Profibus-DP Slave, Remote interface
	XGL-PSEA	Profibus-DP Slave
Fnet	XGL-FMEA	Dedicated network

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

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-CPUHN
- 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) program 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)

Positioning Module
1~4 axes positioning for servo, step drive and motor

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





Product List

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-CPUUN, CPUU/D, CPUU, CPUH	6,144
	XGI-CPUS	3,072
	XGI-CPUE	1,536

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

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

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

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	-	-
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	Input/Output Mixed Module	
	16-point DC input	16-point TR output

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)
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-P01A~P03A	Opencollector,1~3axes
	XGF-PD1A~PD3A	Line drive, 1~3axes
	XGF-P01H~P04H	Opencollector,1~4axes
	XGF-PD1H~PD4H	Linedrive,1~4axes
Positioning (Network Type)	XGF-PN8A	LS Standard EtherCAT Net. 8axes
	XGF-PN8B	Standard EtherCAT Net. 8axes
	XGF-PN4B	Standard EtherCAT Network, 4axis
Motion Modnle	XGF-M32E	Standard EtherCAT Nee. 32axes
Temperature Control	XGF-TC4S	Thermocouple input, 4Ch
	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

Communication Module		
RAPIEnet	XGL-EIMT	RAPIEnet Twisted fair 2Ch
	XGL-EIMH	RAPIEnet Fiber optic/Twisted fair 1Ch
	XGL-EIMF	RAPIEnet Fiber optic 2Ch
	XOL-ES4T	RAPIEnet Switch. 4Ports
	XOL-EIMT	RAPIEnet Twisted fair 2Ch For PC
	XOL-EIMF	RAPIEnet Fiber optic 2Ch For PC
Cnet	XGL-CH2B	RS-232C/RS-422
	XGL-C22B	RS-232C, 2Ch
	XGL-C42B	RS-422, 2Ch
Ethernet (Open)	XGL-EFMFB	Fiber optic, Master, SC type
	XGL-EFMTB	Twisted pair, Master, RJ-45
	XGL-EH5T	Fast Ethernet, Switching hub
Ethernet (Dedicated)	XGL-EDMF	Fiber optic, Master, SC type
	XGL-EDMT	Twisted pair, Master, RJ-45
EtherNet/IP	XGL-EIPT	Industrial Ethernet, 2ports
Rnet	XGL-RMEB	Rnet, Master, TP
DeviceNet	XGL-DMEB	DeviceNet, Master
Profibus-DP	XGL-PMEB	Profibus-DP, Master
	XGL-PSRA	Profibus-DP Slave, Remote interface
	XGL-PSEA	Profibus-DP Slave
Fnet	XGL-FMEA	Dedicated network

PLC

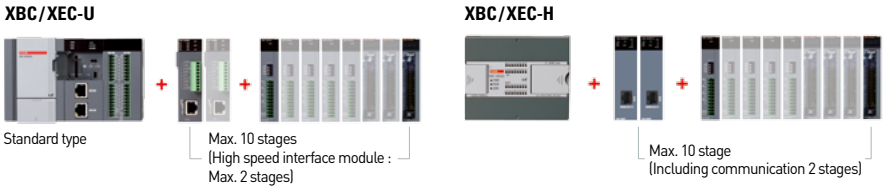
XGB Series | Compact and block type PLC



Features

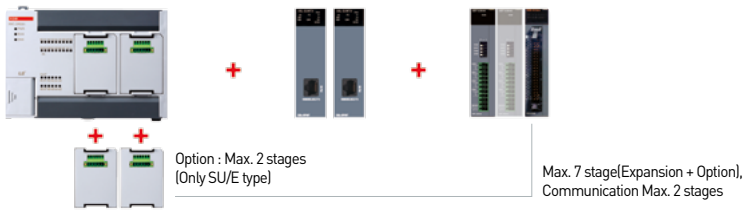
XGB-U (XBC/XEC-U)

- 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



XBC/XEC-SU

- Max. 94ns/step processing speed
- Max. 7 expansion modules
- Max. 284 I/O points
- 15Ksteps/200KB program capacity



XBC/XEC-E

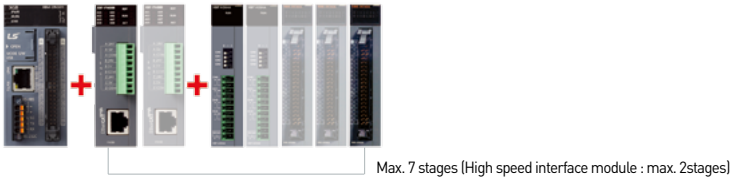
- Max. 240ns/step processing speed
- Max. 2 expansion modules
- Max. 38 I/O points
- 4Ksteps/50KB program capacity



Option modules	
XBO-M2MB	Memory / program READ/WRITE
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 H, 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)



XBM-S

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



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-DN32H	AC 100-240V, DC24 input 16 pts, relay output 16 pts
XBM/XEM-DN32H2	AC 100-240V, DC24 input 32 pts, relay output 32 pts
XBM/XEM-DN32HP	AC 100-240V, DC24 input 16 pts, Tr. output 16 pts (Sink)
XBM-DR16S	AC 100-240V, DC24 input 32 pts, Tr. output 32 pts (Sink)
XBM-DN16S	AC 100-240V, DC24 input 16 pts, Tr. output 16 pts (Source)
XBM-DN32S	AC 100-240V, DC24 input 32 pts, Tr. output 32 pts (Source)
Loader Cable	
PMC-310S	Connection cable (PC to PLC), 9pin (PC)-6pin (PLC)
USB-301A	Connection cable (PC to PLC), USB
Modular Type Unit	
XBO-M2MB	Memory

Expansion I/O Module			
Model	**Specification**	**Model**	**Specification**
XBE-AC08A	8pts AC110Vinput	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, 8pt 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-DN32H	XBM/XEM-DN32HP(H2)	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 | 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 (Sink)		Relay	DC (Sink / Source)	Transistor (Sink)
No. of Point		16	32	16	32	16	16	32
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-D22C	GRL-D24C	GRL-RY2C	GRL-D22C	GRL-D24C
	Profibus-DP	GPL-D22C	GPL-D24C	GPL-D22C	GPL-D24C	GPL-RY2C	GPL-D22C	GPL-D24C
	DeviceNet	GDL-D22C	GDL-D24C	GDL-D22C	GDL-D24C	GDL-RY2C	GDL-D22C	GDL-D24C
	Modbus	GSL-D22C	GSL-D24C	GSL-D22C	GSL-D24C	GSL-RY2C	GSL-D22C	GSL-D24C
RAPIEnet		-	GEL-D24C	-	GEL-D24C	GEL-RY2C	-	GEL-D24C

Analog I/O Specifications

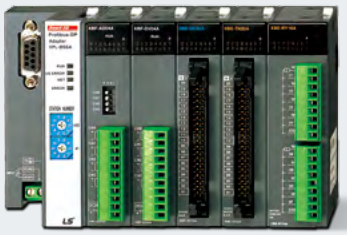
Item	GPL-AV8C / GEL-AV8C	GPL-AC8C / GEL-AC8C
Input Channels	8 channels	
Analog Input	DC1~5V,0~5V,0~10V	0~20 mA, 4~20 mA
	-10~+10 V	- 20~20 mA
Digital Output	0~4000, 0~8000, -8000~8000	0~4000, -8000~8000
Input Impedance	1MΩ	250 Ω
Max. Resolution	±15V	±30 mA
	1.25 mV	2.5 μA
Accuracy	±0.3% (full scale, 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)	
Insulation Method	Analog input/output terminal with FG → Insulation	
	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	1KΩormore(0~5Vor1~5V)	
	2 KΩor 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	RAPIEnet(RJ-45)
Protocol	LSIS dedicated protocol (Fnet for Remote)	Profibus-DP (RS-485/EN50170)	DeviceNet (CAN)	MODBUS (RS-422/485)	Fast Ethernet
Transmission Speed	1 Mbps	9.6 Kbps ~ 12 Mbps	125/250/500 Kbps	2.4 Kbps ~ 38.4 Kbps	100Mbps
Transmission Distance	750 m/segment	100m~1.2km	500/250/125 m(Thin cable: 100 m	500 m	100M
Topology	Bus token	Bus	Trunk & Drop	Bus	CRC32
Transmission	Pass & Broadcast	Token Pass & Master/ Slave (Poll)	CSMA/NBA (Poll, Cyclic, COS, Bit Strobe)	Master/Slave (Poll)	CSMA/CD
No. of Stations	32/segment (Input: 32, Output: 32)	32/segment, 99/network	64	32	64

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-H02A	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 (inputMax.256point/outputmax.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

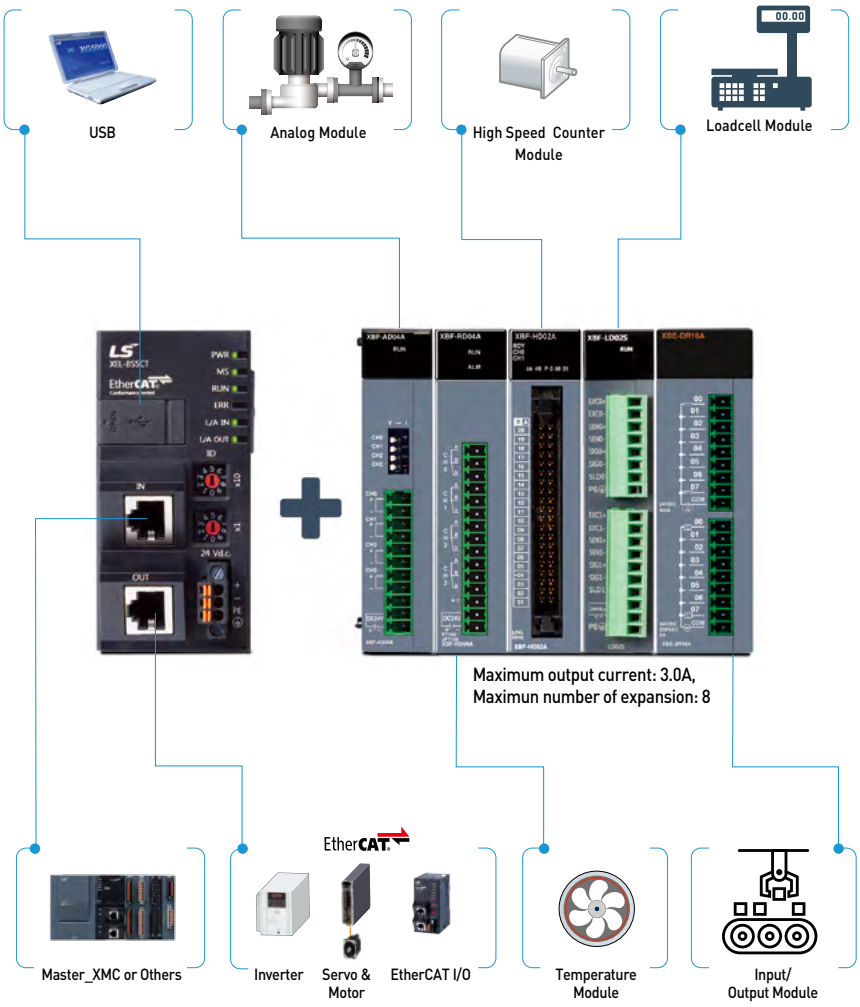
XEL-BSSCT

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



Perfomance 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			Input: Up to 256 byte, output: Up to 256 byte
	Mailbox support command			SDO requests, SDO information
	Refresh method			Free-Run, Refresh Sync mode (For LSIS 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



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

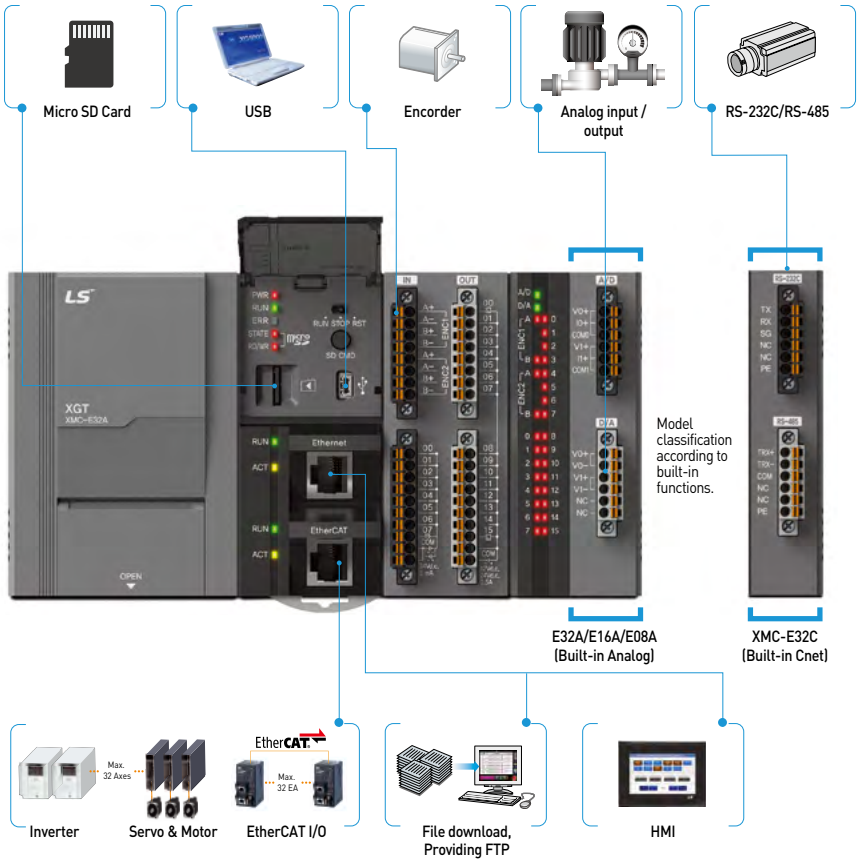
- XG5000 software for programming and monitoring
  - Sole, integrated architecture for programming, diagnosing and simulating for both motion controller and PLC
  - IEC standard Motion Function Blocks
- SD card slot (SD card not included)
  - Saving and executing programs, Data Logging

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.

General Specification

Item	Specification				Related Specifications
Ambient Temperature	0~55℃				-
Storage Temperature	-25 ~ +70℃				-
Ambient Humidity	5~95RH (Non-condensing)				-
Storage Humidity	5~95RH (Non-condensing)				-
Vibration Resistance	Ocasional vibration			-	-
	Frequency	Acceleration	Amplitude	How many times	IEC61131-2
	5≤f < 8.4Hz	-	3.5mm	10 times each directions (X, Y and Z)	
	8.4 ≤ f ≤150Hz	9.8m/s2 (1G)	-		
	For continuous vibration				
	Frequency	Acceleration	Amplitude		
	5 ≤ f <8.4Hz	-	1.75mm		
	8.4 ≤ f ≤ 150Hz	4.9m/s2 (0.5G)	-		
Shock Resistance	Peak acceleration : 147 m/s2 (15G) Duration : 11ms Half-sine, 3 times each direction per each axis				IEC61131-2
Noise Resistance	Square wave Impulse noise	AC: ±1,500 V DC: ±900 V			LSIS standard
	Electrostatic discharge	Voltage : 4kV (contact discharging)			IEC61131-2 IEC61000-4-2
	Radiated electromagnetic field noise	80~1,000㎒, 10 V/m			IEC61131-2, IEC61000-4-3
	Fast transient /bust noise	Segment	Power supply module	Digital/analog input/output communication interface	IEC61131-2 IEC61000-4-4
		Voltage	2kV	1kV	
Environment	Free from corrosive gasses and excessive dust				-
Altitude	Up to 2,000m				-
Pollution Degree	Less than equal to 2				-
Cooling	Air-cooling				-

Power Specification

Item		Specification			Remark
Input	Rated Input Voltage	AC100V~AC240V			AC110V AC240V AC240V, Phase 90 degree
	Input Frequency	50/60㎐			
	Input Current	0.7A or less			
		0.4A or less			
	Inrush Current	120Apeak or less			
	Leakage Current	3mA or less			
	Efficiency	65% or more			
	Permitted Momentary Power Failure	10ms or less			
Output	Output Voltage	Voltage	Output voltage ripple range	Current	
		+5V	4.90~5.20V	4A	
		+24V	21.1~26.9V	0.4A	
	Ripple & Noise	Voltage	10ms or	Noise	
		+5V	100mVpp or less	200mVpp or less	
		+24V	400mVpp or less		
	Protecting Overcurrent	Voltage	Current		
		+5V	4.4A or more		
		+24V	0.44A or more		

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

Graphic Type iXP2 0800 / iXP2 1000 / iXP 1200 / iXP2 1500

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	800×600		
Color Indication		24-bit color (16.7M colors)			
Backlight		LED method, automatic On / Off support			
Backlight Lifetime		50,000 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, ATEX, KCs			
Protection Standard		IP66, Conform to the UL type 4x, NEMA 4x standard			
Explosion Proof		Ex nA IIC T5 Gc, Ex tc IIIC T100°C Dc IP64			
Dimensions (mm)		240×180×60	271×212×60	313×239×60	395×294×66
Panel Cut (mm)		228.5×158.5	259.0×201.0	301.5×227.5	383.5×282.5
Power		iXP2-xxxxA:AC100/240V, iXP2-xxxxD:DC24V			
Power Consumption (W)		25	25	30	30
Weight (Kg)		1.87	2.35	3.0	4.6

HMI

eXP Series



Features

- TFT LCD-applied wide type
- LED Backlight adopted for enhanced contrast ratio and low-power
- PLC Ladder monitoring function: Only XGK/XBC supports*
- Web Server* / Data Server* / Path-Through Function*
- Remote Viewer Function*
- Screen editor : XP-Builder

* Functions that support only the TTA model

Graphic Type eXP20/eXP30/eXP40/eXP60

Item		eXP20-TTA/DC, CERTI	eXP30-TTA(B)/DC	eXP30-TTE/DC	eXP40-TTE/DC	eXP40-TTA(B)/DC	eXP40-TTA/DC, CERTI	eXP60-TTA(B)/DC	eXP60-TTA/DC, CERTI
Display Type		TFT color LCD							
Screen Size		10.9cm(4.3inch)	14.2cm(5.6inch)		17.8cm(7inch)			25.9cm(10.2inch)	
Display Resolution		480×272 pixel	640×480 pixel		800×600 pixel(WVGA)				
Color Indication		24-bit Color(16.7M)	16-bit Color(65,536 Color)		24-bit Color(16.7M)			16-bit Color(65,536)	
Indication Degree		Left/Right:60 deg, Upper:40 deg, Lower:60 deg.						Left / Right:55 deg, Upper:35 deg, Lower:55 deg	
Backlight		LED Type (Supports backlight auto-off function)							
Backlight Duration		30,000 hours	20,000 hours						
Touch Panel		4-Wire Resistive, analog							
Audio Output		Magnetic buzzer (85dB)							
Process		i.MX283(454MHz)							
Memory	Flash	128MB(Screen 64MB)							
	Operating RAM	128MB							
	Backup RAM	128KB							
Backup Data		Date/Hour data, Logging/Alarm/Recipe data and nonvolatile device Approx.							
Battery Duration		3 years (Operating ambient temperature of 50)							
RTC		Time error Approx. 3 sec/1day(Operating ambient temperature of 25)							
Ethernet		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 and USB memory driver is available)							
USB Device		-	1 channel, USB 2.0 Device (for download and upload project)						
RS-485, RS-232C		1channel, RS-232C (DSUB 9/Male Type)			2channels, RS-485, RS-232C (DSUB 9/Male Type)				
RS-422/485		1channel, RS-422/485 (DSUB 9/Male Type)			1channel, 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, ULType 4X, KC	CE, UL(cUL), KC				CE, ULType 4X, KC	CE, UL(cUL), KC	CE, ULType 4X, KC
Protection Standard		IP66	IP65				IP66	IP65	IP66
Dimension (mm)		128×102×32	300×200×68		208.0×154.0×44.4			276.0×218.0×44.4	
Panel Cut (mm)		119×93	156.0×123.5		192.0×138.0			260.0×202.0	
Rated Voltage		DC24V							
Power Consumption (W)		4.6W	7.2W		6.5W			10W	
Weight(Kg)		0.3	0.42	0.39	0.62	0.63		1.08	

Servo System Seies

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

L7NH Series



Real-time Control Through EtherCAT

- High speed, Real-time capability and Synchronization mechanism
- Improved EtherCAT communication speed (min. 250us, DC support)
- Supporting CoE, EoE and FoE
- 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
- Improved communication speed by applying 16bit-bus
  - Improved Chip communication speed
  - Improved EtherCAT communication speed
- Supporting CoE, EoE and FoE
- Improved Speed Response(1kHz) Frequency

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

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)

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.
Note2) If you apply nonstandard Encoder, Please contact our office.
Note3) Refer to brake operating voltage

Shape of Shaft End
- N : Straight
- K : One side Round key (Standard)

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

Servo

Drive

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 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.									

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-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 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.					

Servo
Drive

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 gas or liquid, and electrically conductive dust.									

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[%]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) 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.					

Servo
Drive

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.			

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.				

Servo

Drive Combination Table

L7NHA Serial Type

Rated Speed (rpm)	Maximum Speed(rpm)	Flange Size	Applicable Motor	Applicable Drive	StandardEncoderType	Encoder Cable		Power Cable		
					Serial Type	Serial	Abs	For power	Power+Brake	Brake
3,000	5,000	□40	FALR5A	L7NHA001U	* 18Bit Serial Absolute	APCS-E□□□ES	APCS-E□□□ES1	APCS-P□□□LS	-	APCS-B□□□QS
		□40	FAL01A	L7NHA001U						
		□40	FAL015A	L7NHA004U						
		□60	FBL01A	L7NHA001U	* 19Bit Serial Absolute					
		□60	FBL02A	L7NHA002U						
		□60	FBL04A	L7NHA004U						
		□80	FCL04A	L7NHA004U						
		□80	FCL06A	L7NHA008U						
		□80	FCL08A	L7NHA008U						
		□80	FCL10A	L7NHA010U						
		□60	FB01A	L7NHA001U				APCS-P□□□FS		
		□60	FB02A	L7NHA002U						
		□60	FB04A	L7NHA004U						
		□80	FC04A	L7NHA004U						
		□80	FC06A	L7NHA008U						
		□80	FC08A	L7NHA008U						
		□80	FC10A	L7NHA010U						
		□130	FE09A	L7NHA010U		APCS-E□□□DS	APCS-E□□□DS1	APCS-P□□□HS	APCS-P□□□NB	-
		□130	FE15A	L7NHA020U						
		□130	FE22A	L7NHA020U						
		□130	FE30A	L7NHA035U						
		□180	FF30A	L7NHA035U				APCS-P□□□IS	APCS-P□□□PB	
		□180	FF50A	L7NHA050U				APCS-P□□□JS	APCS-P□□□LB	
2,000	3,000	□80	FCL03D	L7NHA004U		APCS-E□□□ES	APCS-E□□□ES1	APCS-P□□□LS	-	APCS-B□□□QS
		□80	FCL05D	L7NHA008U						
		□80	FCL06D	L7NHA008U						
		□80	FCL07D	L7NHA008U						
		□80	FC03D	L7NHA004U						
		□80	FC05D	L7NHA008U						
		□80	FC06D	L7NHA008U				APCS-P□□□FS		
		□80	FC07D	L7NHA008U						
		□130	FE06D	L7NHA008U		APCS-E□□□DS	APCS-E□□□DS1	APCS-P□□□HS	APCS-P□□□NB	-
		□130	FE11D	L7NHA010U						
		□130	FE16D	L7NHA020U						
		□130	FE22D	L7NHA020U				APCS-PP□□□IS	APCS-P□□□PB	
		□180	FF22D	L7NHA020U						
		□180	FF35D	L7NHA035U				APCS-P□□□JS	APCS-P□□□LB	
		□180	FF55D	L7NHA050U						
	2,500	□180	FF75D	L7NHA075U						
	3,000	□220	FG22D	L7NHA020U				APCS-P□□□IS	-	APCS-P□□□SB
		□220	FG35D	L7NHA035U						
		□220	FG55D	L7NHA050U				APCS-P□□□JS		
	2,500	□220	FG75D	L7NHA075U						
		□220	FG110D	L7NHA150U				APCS-P□□□VS		
1,500	3,000	□130	FE05G	L7NHA008U		APCS-E□□□DS	APCS-E□□□DS1	APCS-P□□□HS	APCS-P□□□NB	-
		□130	FE09G	L7NHA010U						
		□130	FE13G	L7NHA020U						
		□130	FE17G	L7NHA020U						
		□180	FF20G	L7NHA020U				APCS-P□□□IS	APCS-P□□□PB	
	2,700	□180	FF30G	L7NHA035U						
	3,000	□180	FF44G	L7NHA050U				APCS-P□□□JS	APCS-P□□□LB	
	2,500	□180	FF60G	L7NHA075U						
	2,000	□180	FF75G	L7NHA075U				APCS-P□□□MS		
	3,000	□220	FG20G	L7NHA020U				APCS-P□□□IS	-	APCS-P□□□SB
	2,700	□220	FG30G	L7NHA035U						
	3,000	□220	FG44G	L7NHA050U				APCS-P□□□JS		
	2,500	□220	FG60G	L7NHA075U						
		□220	FG85G	L7NHA150U				APCS-P□□□VS		
		□220	FG110G	L7NHA150U						
		□220	FG150G	L7NHA150U				APCS-P□□□OS		
1,000	2,000	□130	FE03M	L7NHA004U				APCS-P□□□HS	APCS-P□□□NB	-
		□130	FE06M	L7NHA008U						
		□130	FE09M	L7NHA010U						
		□130	FE12M	L7NHA020U						
		□180	FF12M	L7NHA020U				APCS-P□□□IS	APCS-P□□□PB	
		□180	FF20M	L7NHA020U						
	1,700	□180	FF30M	L7NHA035U				APCS-P□□□JS	APCS-P□□□LB	
	2,000	□180	FF44M	L7NHA050U						
		□220	FG12M	L7NHA020U				APCS-P□□□IS	-	APCS-P□□□SB
		□220	FG20M	L7NHA020U						
	1,700	□220	FG30M	L7NHA035U						
	2,000	□220	FG44M	L7NHA050U				APCS-P□□□JS		APCS-P□□□SB
		□220	FG60M	L7NHA075U				APCS-P□□□MS		

L7NHB Serial Type

Rated Speed (rpm)	Maximum Speed(rpm)	Flange Size	Applicable Motor	Applicable Drive	StandardEncoderType	Encoder Cable		Power Cable		
					Serial Type	Serial	Abs	For power	Power+Brake	Brake
3,000	5,000	□130	FEP09A	L7NHB010U	* 19Bit Serial Absolute	APCS-E□□□DS	APCS-E□□□DS1	APCF-P□□□HS	APCF-P□□□NB	-
		□130	FEP15A	L7NHB020U						
		□130	FEP22A	L7NHB035U						
		□130	FEP30A	L7NHB035U						
		□180	FFP30A	L7NHB035U				APCF-P□□□IS	APCF-P□□□PB	
		□180	FFP50A	L7NHB050U				APCF-P□□□JS	APCF-P□□□LB	
2,000	3,000	□130	FEP06D	L7NHB010U				APCF-P□□□HS	APCF-P□□□NB	
		□130	FEP11D	L7NHB010U						
		□130	FEP16D	L7NHB020U						
		□130	FEP22D	L7NHB020U						
		□180	FFP22D	L7NHB020U				APCF-P□□□IS	APCF-P□□□PB	
		□180	FFP35D	L7NHB035U						
		□180	FFP55D	L7NHB050U				APCF-P□□□JS	APCF-P□□□LB	
	2,500	□180	FFP75D	L7NHB075U						
	3,000	□220	FGP22D	L7NHB020U				APCF-P□□□IS	-	APCF-P□□□SB
	2,700	□220	FGP35D	L7NHB035U						
	3,000	□220	FGP55D	L7NHB050U				APCF-P□□□JS		
	2,500	□220	FGP75D	L7NHB075U						
		□220	FGP110D	L7NHB150U				APCF-P□□□MS		
1,500	3,000	□130	FEP05G	L7NHB010U				APCF-P□□□HS	APCF-P□□□NB	-
		□130	FEP09G	L7NHB010U						
		□130	FEP13G	L7NHB020U						
		□130	FEP17G	L7NHB020U						
		□180	FFP20G	L7NHB020U						
	2,700	□180	FFP30G	L7NHB035U				APCF-P□□□IS	APCF-P□□□PB	
	3,000	□180	FFP44G	L7NHB050U				APCF-P□□□JS	APCF-P□□□LB	
	2,500	□180	FFP60G	L7NHB075U						
	2,200	□180	FFP75G	L7NHB075U				APCF-P□□□MS		
	3,000	□220	FGP20G	L7NHB020U				APCF-P□□□IS	-	APCF-P□□□SB
	2,700	□220	FGP30G	L7NHB035U						
	3,000	□220	FGP44G	L7NHB050U				APCF-P□□□JS		
	2,500	□220	FGP60G	L7NHB075U						
		□220	FGP85G	L7NHB150U						
	2,000	□220	FGP110G	L7NHB150U				APCF-P□□□MS		
		□220	FGP150G	L7NHB150U						
1,000	2,000	□130	FEP03M	L7NHB010U				APCF-P□□□HS	APCF-P□□□NB	-
		□130	FEP06M	L7NHB010U						
		□130	FEP09M	L7NHB010U						
		□130	FEP12M	L7NHB020U						
		□180	FFP12M	L7NHB020U				APCF-P□□□IS	APCF-P□□□PB	
		□180	FFP20M	L7NHB020U						
	1,700	□180	FFP30M	L7NHB035U				APCF-P□□□JS	APCF-P□□□LB	
	2,000	□180	FFP44M	L7NHB050U						
		□220	FGP12M	L7NHB020U				APCF-P□□□IS	-	APCF-P□□□SB
		□220	FGP20M	L7NHB020U						
		□220	FGP30M	L7NHB050U				APCF-P□□□JS		
		□220	FGP44M	L7NHB050U						
		□220	FGP60M	L7NHB150U				APCF-P□□□MS		

L7CA Serial Type

Rated Speed (rpm)	Maximum Speed(rpm)	Flange Size	Applicable Motor	Applicable Drive	StandardEncoderType	Encoder Cable		Power Cable		
					Serial Type	Serial	Abs	For power	Power+Brake	Brake
3,000	5,000	□40	FALR5A	L7CA001U	* 17Bit Serial Absolute	APCS-E□□□ES	APCS-E□□□ES1	APCS-P□□□SC	-	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						

Gear Series

Precision Planetary Gearbox



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

High Performance by LSIS's Strict Quality Process

- Low noise level
- High output torque
- Best-in-class backlash
- 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
- Logistics machines
- Semiconductor machines
- FPD/LCD machines

Spur Gear Series

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



Helical Gear Series

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



Memo

FUTURING SMART ENERGY

We open up a brighter future through
efficient and convenient energy solutions.

Safety Instructions

- For your safety, please read user's manual thoroughly before operating.
- Contact the nearest authorized service facility for examination, repair, or adjustment.
- Please contact qualified service technician when you need maintenance.
  Do not disassemble or repair by yourself!
- Any maintenance and inspection shall be performed by the personnel having expertise concerned.

- According to The WEEE Directive, please do not discard the device with your household waste.

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