# LSIS Automation Products

Programmable Logic Controller / Human Machine Interface / Servo Drive & Motor

LSIS Automation Products

# XGT Family

## XGT PLC High performance

### Rack type (XGR/XGK/XGI Series)

#### XGR: Redundancy system

XGR

- CPU processing speed: 42ns/step
- I/O point: max. 131,072
- Total memory: 25MB (Program 7MB, Data 2MB, Flash 16MB)
- Switching over time: min. 4.3ms/max. 22ms
- Built-in 256 PID loops control

#### XGK: Ladder programming

XGK/XGI

* Programming language selection via CPU replacement

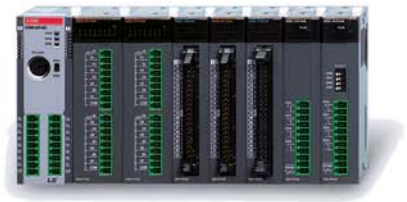
- CPU processing speed: 28ns/step
- I/O point: max. 6,144
- Various types of CPU E/S/A/H/U (16K/32K/32K/64K/128Ksteps)
- Integrated intelligent software package : XG5000
- System solution based on open network: Ethernet, Profibus, DeviceNet
- Built-in PID control

#### XGI: IEC standard programming

- CPU processing speed: 28ns/step
- I/O point: max. 6,144
- Various types of CPU S/H/U (128K/512K/1Mbytes)
- IEC 61131-3 Standard programming
  - LD (Ladder Diagram), SFC (Sequential Function Chart), ST (Structured Text)
  - User defined FB (Function Block)
- Built-in 256 PID loops control

### Block type (XGB Series)

#### XBM: Connector type



XBM

- Programming language: Ladder
- CPU processing speed: 160ns/step
- Max. 256-point I/O control
- Program capacity: 10Ksteps
- Floating-point arithmetic
- Built-in Cnet, HSC, PID, Positioning, Pulse catch, Input filter, External interrupt
- Fieldbus option: RS-232C, RS-422/485, Ethernet, Ethernet I/P, CANopen, Profibus-DP

#### XBC/XEC: Terminal block type

XBC/XEC economic type

- Supporting floating-point arithmetic
- Built-in Cnet, HSC, PID, Positioning, Pulse catch, Input filter, External interrupt
- Fieldbus Option: RS-232C, RS-422/485, Ethernet, Ethernet I/P, CANopen, Profibus-DP
- Download port: Serial, USB

**XBC/XEC**

- Economic type
  - CPU processing speed: 240ns/step
  - Max 38 I/O points
  - Program capacity: 4Ksteps
- Standard type
  - CPU processing speed: 94ns/step
  - Max. 284 I/O points
  - Program capacity: 15Ksteps/200KB(XBC/XEC)
- High performance type
  - CPU processing speed: 83ns/step
  - Max. 384 I/O points
  - Program capacity: 15Ksteps/200KB(XBC/XEC)

XBC/XEC standard type

**Option I/O**

| | | | |
|---|---|---|---|
| XBO-RTCA | RTC(Real Time Clock), Battery | XBO-AD02A | Voltage/Current, Input 2 chs |
| XBO-DC04A | DC 24V, Input 4 points | XBO-DA02A | Voltage/Current, Output 2 chs |
| XBO-TN04A | Transistor(Sink), Output 4 points | XBO-AH02A | Voltage/Current, Input 1 ch<br>Voltage/Current, Output 1 ch |
| XBO-RD02A | RTD(Resistance Temperature Detect), Input 2 chs | XBO-TC02A | TC(Thermocouple), Input 2 chs |

* High speed counter and positioning functions are built-in XBO-DC04A and XBO-TN04A, respectively with XGB standard type.

XBC/XEC high performance type

# XGT Panel Human Machine Interface

### iXP Series (iXP70/iXP80/iXP90)

- 1GHz 32bit RISC Embedded CPU
- 16,777,216 TFT color LCD
- 128MB display data and 1MB back-up memory
- Ethernet 1ch, RS-232C 2ch
- RS-422/485 1ch
- USB host 3ch and device 1ch
- CF/SD memory card interface

iXP70/iXP80/iXP90

### XP Series (XP90/XP80/XP70/XP50/XP40/XP30)

- High and vivid distinction with 65,536 colors
- 10/100BASE-T Ethernet interface
- Convenient and easy screen editing
- Strengthened data management (Logging, Recipe, and Alarm).
- Multi-lingual display: up to 8 languages
- Offline and concurrent simulation with XG5000
- USB host for peripheral devices: USB drive, mouse, keyboard, printer, etc
- Sufficient memory for screen data: 10MB

XP30/XP50/XP70/XP80/XP90

### Text type (XP10)

- Screen: 192×64 Graphic STN LCD
- Flash memory: Promgram/Parameter back up
- RS-232C/RS-485 2ch separate to use
- Power requirements-24V input or 5V direct input by LS PLC
- Various function key-ESC ALM SET ENT F1~F4 Arrow keys

XP10

# XGT InfoU SCADA Software

- Integrated development environment from the newest graphic technology
- Various graphic library and graphic script
- Active X control and VB script supported
- Industrial standard interface like OLE DB, OPC server/client
- Windows 2000, XP, Vista, 7 compatible

# Smart I/O Distributed system

### Stand alone type

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

### Expandable type

- Easy configuration of remote system using XGB expansion I/O
- Up to 8 modules expandable with Network adapter
- Max. 256 point digital I/O
- Max. 16 channel analog I/O
- Network adapter: Profibus-DP, DeviceNet, Rnet, Modbus TCP/IP, EtherNet/IP

Expandable type

Stand alone type

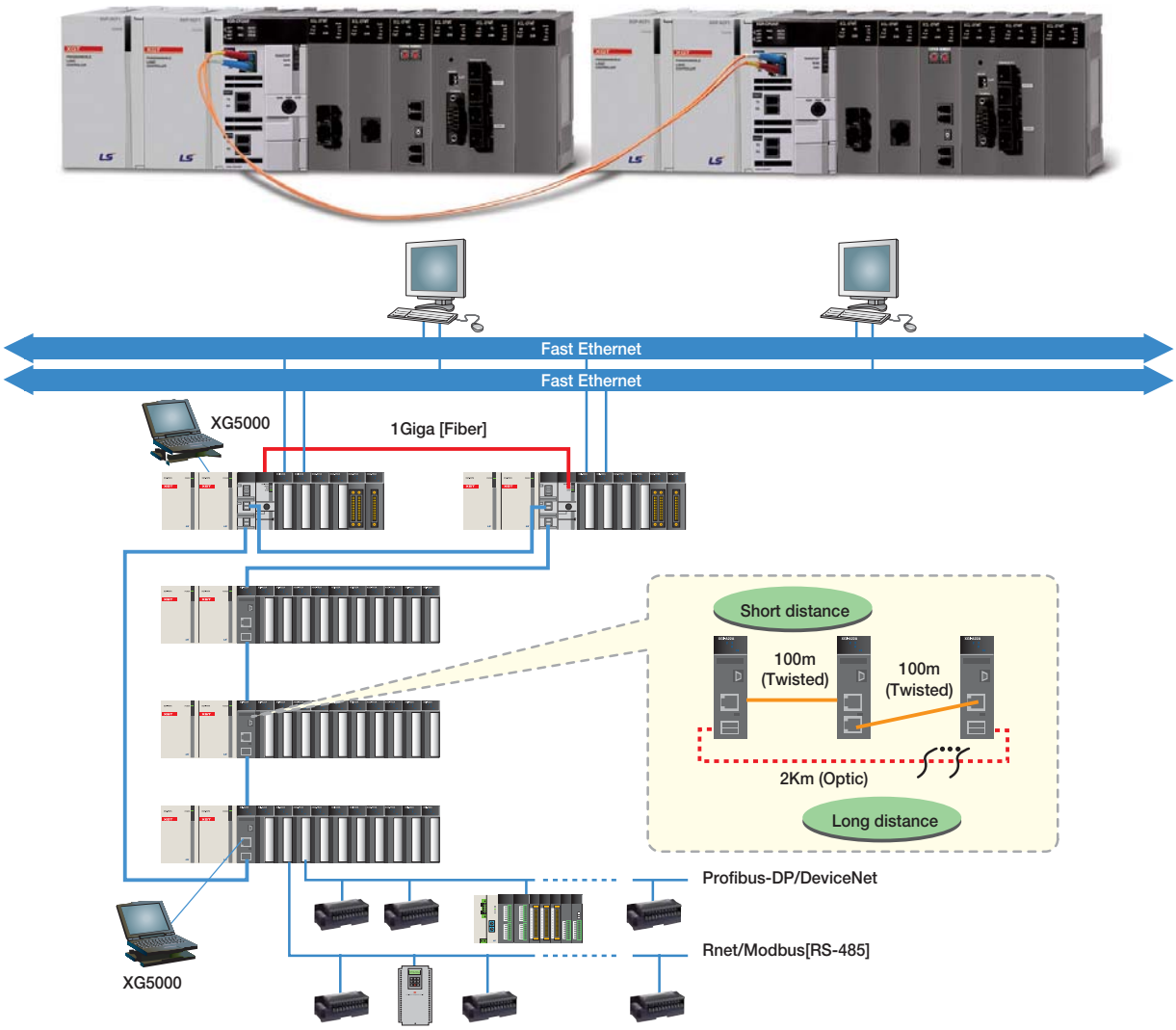
# XGT Servo XDL/XML Series

- High resolution serial type encoder (~19bit)
  - Accurate position control and improved stability at low speed
- Motion network type(EtherCAT)-XDL N Series
- 100BASE-TX(100Mbps) Ethernet based real-time communication
- Supports full-closed control (Network type)
- Serial communication (RS-422/485, Modbus)
- Supports various operation modes (CSP, CSV, CST, PP, PV, PT, HM, IP)
- Safe torque off function
- Linked with LSIS's XGT PLC

LSIS Automation Products

# XGR Series

## Redundancy system for high-speed process control based on IEC




### 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

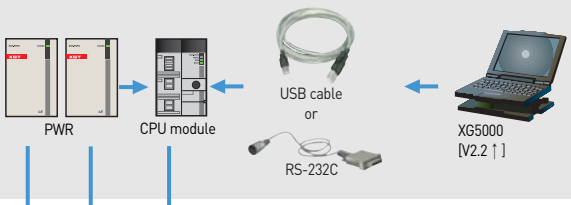
### Enhanced analog function

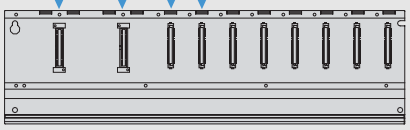
- Enable to install the analog module on the expansion base
  (Max. 250, analog input 139)
- Insulated type and temperature module
- Easy to set the parameter via I/O parameter and flag
- Debugging function via special module monitoring

### Integrated programming & engineering environment

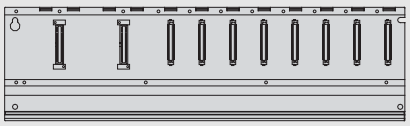
- XG5000 : Easy to program, various monitoring functions and enhanced editing function
- XG-PD : Convenient setup for communication and network parameter
- XG-PM : Software package for positioning module
- XG-PD : Temperature control and function of auto tuning

# Product List



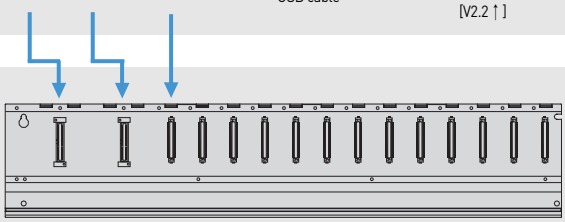
Main base [A Side] XGR-M06P / XGR-M02P



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

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

| Type | I/O point |
|---|---|
| USB-301A | 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 | |
|---|---|
| Type | I/O point |
| XGI-CPUU/XGI-CPUH | 6,144 (IEC type) |
| XGK-CPUU/CPUH | 6,144 |
| XGK-CPUA | 3,072 |
| XGK-CPUS | 3,072 |
| XGK-CPUE | 1,536 |

| Item | Type | Description |
|---|---|---|
| USB cable | USB-301A | USB downloading 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 |

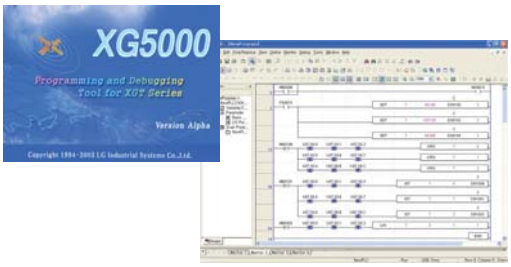
| Special module | | |
|---|---|---|
| Analog input | XGF-AV8A | Voltage input type, 8Ch |
| | XGF-AC8A | Current input type, 8Ch |
| | XGF-AD8A | Voltage/ Current input, 8Ch |
| | XGF-AD4S | Voltage/ Current input, 4Ch (Isolated) |
| | XGF-AD16A | Voltage/ Current input, 16Ch |
| | XGF-AW4S | 2-wire, 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 | Open collector, 1~3axes |
| | XGF-P01A-P03A | Line drive, 1~3axes |
| | XGF-P01H-P04H | Open collector, 1~4axes |
| | XGF-P01H-P04H | Line drive, 1~4axes |
| Positioning (Network Type) | XGF-PN8A | LS Standard EtherCAT Net. 8axes |
| | XGF-PN8B | Standard EtherCAT Net. 8axes |
| 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 |
| | XGL-ES4T | RAPIEnet Switch. 4Ports |
| | XOL-EIMT | RAPIEnet Twisted fair 2Ch For PC |
| | XOL-EIMF | RAPIEnet Fiber optic 2Ch For PC |
| Cnet | XGL-CH2A | RS-232C/RS-422 |
| | XGL-C22A | RS-232C, 2Ch |
| | XGL-C42A | RS-422, 2Ch |
| Ethernet (Open) | XGL-EFMF | Fiber optic, Master, SC type |
| | XGL-EFMT | Twisted pair, Master, RJ-45 |
| | XGL-EHST | 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-RMEA | Rnet, Master, TP |
| DeviceNet | XGL-DMEA | DeviceNet, Master |
| Profibus-DP | XGL-PMEA | Profibus-DP, Master |
| | XGL-PMEC | |
| | XGL-PSRA | Profibus-DP Slave, Remote interface |
| | XGL-PSEA | Profibus-DP Slave |
| Fnet | XGL-FMEA | Dedicated network |

LSIS Automation Products

# XGK/XGI Series

## High performance PLC



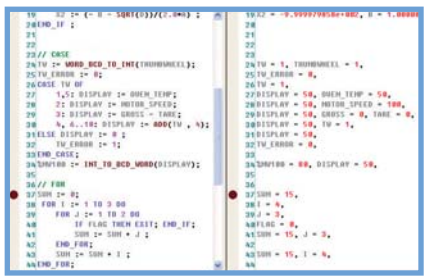

### XGK series

- Fastest CPU processing of 28ns/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

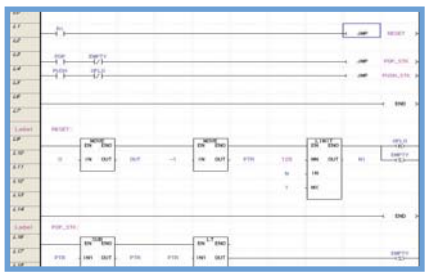
### XGI series

- Fastest CPU processing.of 28ns/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

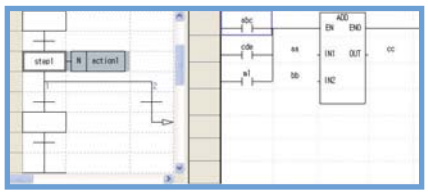
### ST



### LD



### SFC



## XGI:CPUU/D, CPUU, CPUH, CPUS, CPUS/P, CPUE

### XGK-CPUU (XGI-CPUU)

- 128Ksteps(1Mbytes) program memory
- 28ns processing speed
- 6,144 I/O points control

### XGK-CPUH (XGI-CPUH)

- 64Ksteps(512Kbytes) program memory
- 28ns processing speed
- 6,144 I/O points control

### XGK-CPUA

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

### XGK-CPUS (XGI-CPUS)

- 32Ksteps(128Kbytes) program memory
- 84ns processing speed
- 3,072 I/O points control

### XGK-CPUE

- 16Ksteps 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)

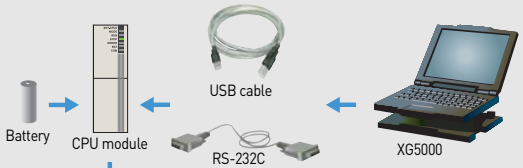
### Cnet modules

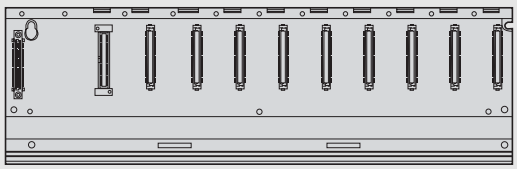
Serial communication module with RS-232C/422/485

### RAPIEnet module

Dedicated network based on Ethernet

# Product List

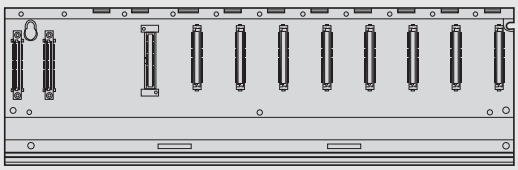


Main Base (XGB-M□□A)

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 |
| 12 slot | XGB-M12A | XGB-E12A |

Power module (XGP-□□□□)

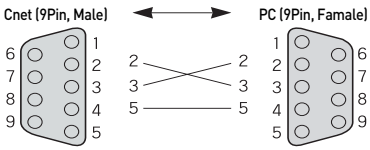
Input module (XGI-□□□□)

Output module (XGQ-□□□□)

Special module (XGF-□□□□)

Communication module (XGL-□□□□)

## XG5000 Cable (RS-232C)




| CPU module | | I/O point |
|---|---|---|
| XGK | XGK-CPUU, CPUH | 6,144 |
| | XGK-CPUA, CPUS | 3,072 |
| | XGK-CPUE | 1,536 |
| XGI | XGI-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-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 | Open collector, 1~3axes |
| | XGF-PD1A~PD3A | Line drive, 1~3axes |
| | XGF-P01H~P04H | 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 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) |
| | XGF-TC4RT | Controller: 4 loops |
| | | 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 |
| | XGL-ES4T | RAPIEnet Switch, 4Ports |
| | XOL-EIMT | RAPIEnet Twisted fair 2Ch For PC |
| | XOL-EIMF | RAPIEnet Fiber optic 2Ch For PC |
| Cnet | XGL-CH2A | RS-232C/RS-422 |
| | XGL-C22A | RS-232C, 2Ch |
| | XGL-C42A | RS-422, 2Ch |
| Ethernet (Open) | XGL-EFMF | Fiber optic, Master, SC type |
| | XGL-EFMT | Twisted pair, Master, RJ-45 |
| | XGL-EHST | Fast Ethernet, Switching hub |
| Ethernet (Dedicated) | XGL-EDMF | Fiber optic, Master, SC type |
| | XGL-EDMT | Twisted pair, Master, RJ-45 |
| Rnet | XGL-EIPT | Industrial Ethernet, 2ports |
| EtherNet/IP | XGL-RMEA | Rnet, Master, TP |
| DeviceNet | XGL-DMEA | DeviceNet, Master |
| Profibus-DP | XGL-PMEA | Profibus-DP, Master |
| | XGL-PMEC | |
| | XGL-PSRA | Profibus-DP, Slave, Remote Inter face |
| | XGL-PSEA | Profibus-DP, Slave |
| Fnet | XGL-FMEA | Dedicated network |

LSIS Automation Products

# XGB Series

## Micro PLC

**LSIS introduces its most compact and high performance PLC, XGB series. The compactness, high performance, easiness, convenience and functionality are five important characteristics of the XGB PLC.**

**Its compactness ensures that it occupies less space in the equipment and its diverse expendability guarantees flexibility for needs. And its various built-in functions enable the cost-effective PLC system. This controller is particularly suitable for performing small-to-medium performance automation tasks.**

XBM

XBC

## Features

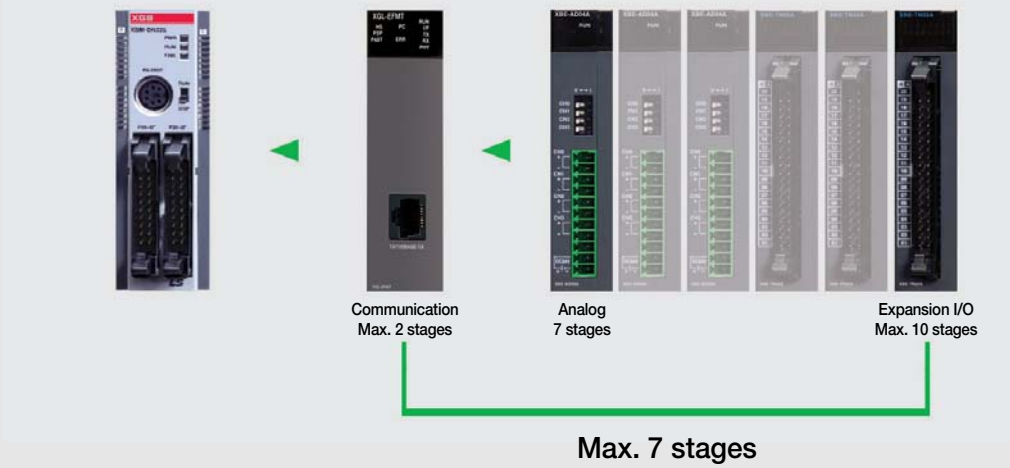
### XBC/XEC

Max. 83ns/step processing speed and floating-point arithmetic with on-board CPU


- High Performance Type - Max. 10 expansion modules and max. 384 I/O point control
- Standard Type - Max. 7 expansion modules including option modules and max. 284 I/O point control
- Economic Type - Max. 2 option modules and max. 38 I/O point control

### XBM (S-Type)

- 160ns/step processing speed and floating-point arithmetic with on-board CPU
- Max. 7 expansion modules, max. 256 I/O point control: PLC systems for small and medium scale applications
- Max. 5 channel communication with built-in functions and expansion modules



# Product List

## Main / Expansion modules

**Block type unit (Economic type)**

| Model | Specification |
|---|---|
| XBC/XEC-DR10E | AC 100 ~ 240V, 6 points DC input, 4 point Relay ouput |
| XBC/XEC-DR14E | AC 100 ~ 240V, 8 points DC input, 6 point Relay ouput |
| XBC/XEC-DR20E | AC 100 ~ 240V, 12 points DC input, 8 point Relay ouput |
| XBC/XEC-DR30E | AC 100 ~ 240V, 18 points DC input, 12 point Relay ouput |
| XBC/XEC-DN10E | AC 100 ~ 240V, 6 points DC input, 4 point transistor output(Sink) |
| XBC/XEC-DN14E | AC 100 ~ 240V, 8 points DC input, 6 point transistor output(Sink) |
| XBC/XEC-DN20E | AC 100 ~ 240V, 12 points DC input, 8 point transistor output(Sink) |
| XBC/XEC-DN30E | AC 100 ~ 240V, 18 points DC input, 12 point transistor output(Sink) |
| XBC/XEC-DP10E | AC 100 ~ 240V, 6 points DC input, 4 point transistor output(Source) |
| XBC/XEC-DP14E | AC 100 ~ 240V, 8 points DC input, 6 point transistor output(Source) |
| XBC/XEC-DP20E | AC 100 ~ 240V, 12 points DC input, 8 point transistor output(Source) |
| XBC/XEC-DP30E | AC 100 ~ 240V, 18 points DC input, 12 point transistor output(Source) |

**Block type unit (High performance type)**

| Model | Specification |
|---|---|
| XBC/XEC-DR32H | AC 100~240V, DC24 input 16 points, relay output 16 points |
| XBC/XEC-DR64H | AC 100~240V, DC24 input 32 points, relay output 32 points |
| XBC/XEC-DN32H | AC 100~240V, DC24 input 16 points, transistor output 16 points (Sink) |
| XBC/XEC-DN64H | AC 100~240V, DC24 input 32 points, transistor output 32 points (Sink) |
| XEC-DP32H | AC 100~240V, DC24 input 16 points, transistor output 16 points (Source) |
| XEC-DP64H | AC 100~240V, DC24 input 32 points, transistor output 32 points (Source) |
| XBC-DR32H/DC | DC 24V, DC24 input 16 points, relay output 16 points |
| XBC-DR64H/DC | DC 24V, DC24 input 32 points, relay output 32 points |
| XBC-DN32H/DC | DC 24V, DC24 input 16 points, transistor output 16 points (Sink) |
| XBC-DN64H/DC | DC 24V, DC24 input 32 points, transistor output 32 points (Sink) |
| XEC-DR32H/D1 | DC 12/24V, DC12/24 input 16 points, relay output 16 points |
| XEC-DR64H/D1 | DC 12/24V, DC12/24 input 32 points, relay output 32 points |

**Block type unit (Standard type)**

| Model | Specification |
|---|---|
| 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) |

**Modular type unit**

| Model | Specification |
|---|---|
| XBM-DR16S | DC 24V, 8-point DC 24V input, 8-point relay output |
| XBM-DN16S | DC 24V, 8-point DC 24V input, 8-point TR output |
| XBM-DN32S | DC 24V, 16-point DC 24V input, 16-point TR output |

**Loader cable**

| Model | Specification |
|---|---|
| PMC-310S | Connection cable (PC to PLC), 9pin(PC)-6pin(PLC) |
| USB-301A | Connection cable (PC to PLC), USB |

**Memory module**

| Model | Specification |
|---|---|
| XBO-M2MB | Memory |

**Expansion I/O module**

| Model | Specification |
|---|---|
| XBE-DC08A | 8-point DC 24V input |
| XBE-DC16A | 16-point DC 24V input |
| XBE-DC32A | 32-point DC 24V input |
| XBE-RY08A | 8-point relay output |
| XBE-RY16A | 16-point relay output |
| XBE-TN08A | 8-point Transistor (sink) output |
| XBE-TN16A | 16-point Transistor (sink) output |
| XBE-TN32A | 32-point Transistor (sink) output |
| XBE-TP08A | 8-point Transistor (source) output |
| XBE-TP16A | 16-point Transistor (source) output |
| XBE-TP32A | 32-point Transistor (source) output |
| XBE-DR16A | 8-point DC 24V input, 8-point relay output |

**Special module**

| Model | Specification |
|---|---|
| XBF-AD04A | 4-channel analog input (current/voltage) |
| XBF-AD04C | 4-channel analog input(current/voltage, resolution : 1/16000) |
| XBF-AH04A | 2-channel analog input (current/voltage)/2-channel analog output (current/voltage) |
| XBF-DV04A | 4-channel analog output (voltage) |
| XBF-DV04C | 4-channel analog input(voltage, resolution : 1/16000) |
| XBF-DC04A | 4-channel analog output (current) |
| XBF-DC04C | 4-channel analog input(current, resolution : 1/16000) |
| XBF-RD04A | 4-channel RTD input |
| XBF-TC04S | 4-channel Thermocouple input |
| XBF-PD02A | Line drive 2axes |
| XBF-AD08A | 8-channel analog input(Current/voltage) |
| XBF-HO02A | 2-channel High-speed counter input(Open collector) |
| XBF-HD02A | 2-channel High-speed counter input(Line drive) |

**Communication module**

| Model | Specification |
|---|---|
| XBL-C41A | Cnet (RS-422/485), 1ch |
| XBL-C21A | Cnet (RS-232C), 1ch |
| XBL-EMTA | Fast Ethernet (100Mbps), 1ch |
| XBL-EIMT | RAPIEnet, 2ch |
| XBL-EIPT | Ethernet/IP, 2ch |
| XBL-EIMF | RAPIEnet I/F, Max. 2km(Fiber 2ch.), 100Mbps |
| XBL-EIMH | RAPIEnet I/F(Twisted pair 1ch, Fiber 2 ch.), 100Mbps |
| XBL-PMEC | Profibus-DP, Master, RS-485 |
| 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**

| Model | Specification |
|---|---|
| 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 points |
| XBO-TN04A | TR (Sink), Output 4 points |
| XBO-RD01A | RTD (Resistance temperature detector), Input 1ch |

| Terminal board | Connection cable | XBM-DN16S / XBM-DN32S | XBE-DC32A | XBE-TN32A | XBE-TP32A | Cable length |
|---|---|---|---|---|---|---|
| TG7-1H40S: (Terminal board) | R40H/20HH-05S-XBM3 | ● | - | - | - | 0.5m |
| | R40H/20HH-10S-XBM3 | ● | - | - | - | 1.0m |
| TG7-1H40CA (Terminal board, common) | C40HH-05SB-XBI | - | ● | ● | ● | 0.5m |
| | C40HH-10SB-XBI | - | ● | ● | ● | 1.0m |
| | C40HH-15SB-XBI | - | ● | ● | ● | 1.5m |
| | C40HH-20SB-XBI | - | ● | ● | ● | 2.0m |
| | C40HH-30SB-XBI | - | ● | ● | ● | 3.0m |
| R32C-NS5A-40P (Relay board: sink) | C40HH-05SB-XBI | - | - | ● | - | 0.5m |
| | C40HH-10SB-XBI | - | - | ● | - | 1.0m |
| | C40HH-15SB-XBI | - | - | ● | - | 1.5m |
| | C40HH-20SB-XBI | - | - | ● | - | 2.0m |
| | C40HH-30SB-XBI | - | - | ● | - | 3.0m |
| R32C-PS5A-40P (Relay board: source) | C40HH-05PH-XBP | - | - | - | ● | 0.5m |
| | C40HH-15PH-XBP | - | - | - | ● | 1.5m |
| | C40HH-20PH-XBP | - | - | - | ● | 2.0m |

LSIS Automation Products

# GLOFA-GM Series PLC

## IEC standard language

# GM7U

## Features

**Global standard (IEC61131-3) language: IL, ID, SFC**

**Various main modules: 32 types**

- 20/30/40/60 points
- AC/DC power, DC input, Relay/Transistor output

**Various expansion modules: 24 types**

- Digital I/O 7 types, analog I/O 9 types, Communication I/F 6 types, option module 2 types

**Total I/O control: 120 points**

**Program memory capacity:**
**132Kbtye (including parameters)**

**High speed processing**

- 0.1 ~ 0.9 ㎲/Basic instruction

**Batteryless backup**

- Program backup: EEPROM
- Data backup: Supercapacitor

**Communication channel: 3 channels**

- Loader: 1 ch, Built-in RS-485: 1 ch
  Built-in RS-232C or communication I/F: 1 ch
- Various mode: Dedicated/User-defined/
  MODBUS/No protocol/LS Inverter mode

**Built-in functions**

- High speed counter function (32 bits)
  - 1 phase: 100 kHz 2 ch, 20 kHz 2 ch (4 ch in total)
  - 2 phase: 50 kHz 1 ch, 10 kHz 1 ch (2 ch in total)
- Positioning function: DRT type only
  - Control axis: 2 axes (100 kHz)
  - Position/speed/synchronous operation
- Improved PID control function
  - Relay and PRC auto-tuning
  - Forward/reverse
  - PWM output, delta MV
  - Positioning/velocity algorithm
- Pulse catch, external interrupt: 10 ㎲ 2 points, 50 ㎲ 6 points
- Input filter: 0~1000 ms

* Expansion modules for GM7U and K120S are common.

G7M-DR20U

G7M-DR30U

G7M-DR40U

G7M-DR60U

G7L-CUEC

G7E-RY08A

## Features

| Item | | GM4-CPUA/B | GM4-CPUC | GM6 | GM7U |
|---|---|---|---|---|---|
| Control method | | Cyclic execution of stored program, interrupt task execution | | | |
| I/O Updating method | | Program refresh per 1 scan | | | |
| Program languages | | IL (Instruction list)/LD (Ladder diagram)/SFC (Sequential function chart) | | | |
| Number of instructions | Operator | IL: 20, LD: 13 | | | |
| | Standard function | 194 | 194 + 'real number F' | 194 | |
| | Special function block | Special function blocks for special modules | | | |
| Configuration speed | Operator | 0.2 μs/step | 0.12 μs/step | 0.5 μs/step | 0.1 μs/step |
| | Standard function / Standard function block | 0.2 μs/step | 0.12 μs/step | 0.5 μs/step | |
| Program capacity | | 128 K | 1 M | 68 K | 132 K |
| I/O points | Using 32pt module | 1,024 | 1,792 | 384 | 20~120 |
| | Using 64pt module | 2,048 | 3,584 | - | - |
| | Network | 4,096/8,192 | 32,768 | - | - |

# GLOFA-GM6

## Features

- High performance features with compact size
- High-speed processing using dedicated CPU
- Designed by international standard language
- Designed by international standard language (IEC61131-3): IL, LD, SFC
- Max. I/O points: 384 points


# GLOFA-GM4

## Features

- Max. I/O points: GM4A/B (2,048), GM4C (3,584)
- Fast processing time with high-speed gate array
- Fit for small-and medium-sized manufacturing line network
- In case of remote system configuration, large-scale control available
- Cnet, DeviceNet, Fast Ethernet, Fnet, Profibus-DP, Rnet support
- Downsizing and high performance/function
- Special function modules
  - Analog I/O, PID, High-speed counter, Position control (APM), AT, TC, RTD, etc

LSIS Automation Products

# MASTER-K Series PLC

## K120S

### Features

**20/30/40/60-point standard main unit**

**10/14/20/30-point economic main unit**

- All the standard DRT-units have transistor output for position control (except 10-point unit)
- Max. 120 points are available connecting 3 expansion units

**High speed processing**

- Basic command: 0.1 ~ 0.9 ㎲/step, Application command: a few to several tens of ㎲/step

**Batteryless backup**

- Program backup: EEPROM backup while online editing
- Data backup: supercapacitor (over 2000 hours at normal temperature)

**Various input handling**

- Input filter: filter time can be set from 0 to 1000 ms as the unit of 8 points
- Pulse catch: 10 ㎲ (P0, P1), 50 ㎲ (P2 ~ P7)
- External interrupt: 10 ㎲ (P0, P1), 50 ㎲ (P2 ~ P7)

**High speed counter: 32-bit signed counter**

- 1 phase: 100 kHz 2 ch, 20 kHz 2 ch (4 ch in total)
- 2 phase: 50 kHz 1 ch, 10 kHz 1 ch (2 ch in total)
- Additional functions: preset function, latch counter, comparison output, RPM function

MASTER-K 120S

**Positioning function**

- Control axis: 2 axes (100 kHz)
- Operation mode: single, repeated, end, keep, continuous
- Additional function: return to origin, JOG operation, PWM output

**Communication function**

- Supports two built-in communication ports RS-232C and RS-485
- Supports 'No Protocol Mode' and communication monitoring

**PID control function**

- Relay and PRC auto-tuning
- PWM Output, anti-derivative kick, anti-windup, Positioning/velocity algorithm to assign

| Item | Model | Specification |
|---|---|---|
| Digital I/O | G7E-DR(08/10/20)A | G7E-DR08A: slim DC 24 V input 4/relay output 4, G7E-DR10A: DC 24 V input 6 pts/relay output 4 pts, G7E-DR20A: input 12 pts/relay output 8 pts |
| | G7E-TR10A | TR output 10 pts |
| Analog | G7E-DC08(RY08)A | G7E-DC08A: slim type (DC 24 V input 8 pts), G7E-RY08A: slim type (relay output 8 pts) |
| | G7F-ADHA(B) | G7F-ADHA: (AD: 2 chs/DA: 1 ch), G7F-ADHB: slim type (AD: 2 chs/DA: 2 chs) |
| | G7F-AD2A(B) | G7F-AD2A: (AD: 4 chs), G7F-AD2B: slim type (AD: 4 chs) |
| | G7F-DA2I | G7F-DA2I: (DA: 4 chs (current output))/G7F-DA2V: slim (DA: 4 chs (voltage output)) |
| | G7F-AT2A | 4 points (0~200), analog timer |
| | G7F-RD2A | 4 chs, slim type, RTD module |
| Cnet interface | G7L-CUEB(C) | G7L-CUEB: RS232C 1 ch, G7L-CUEC: RS422 1 ch (Modbus protocol included) |
| DeviceNet interface | G7L-DBEA | DeviceNet slave interface module |
| Profibus-DP interface | G7L-PBEA | Profibus-DP slave interface module |
| Fieldbus interface | G7L-FUEA | Fieldbus interface module: LSIS dedicated protocol |
| | G7L-RUEA | Fieldbus interface module: LSIS SMART I/O dedicated protocol |
| RTC module | G7E-RTCA | RTC module |
| Memory module | G7M-M256B | Memory module (256 K) |

## Features

| Item | | K120S | | K200S | K300S |
|---|---|---|---|---|---|
| | | Economic | Standard | | |
| Operation method | | Cyclic execution of stored program | | | |
| I/O control method | | Scan synchronized batch processing method (Refresh method) | | | |
| Program language | | Mnemonic, Ladder | | | |
| Number of instructions | Basic | 30 | | | |
| | Application | 269 | 277 | 218 | 218 |
| Max. I/O control points | | 70 | 120 | 384 (512) | 1,024 |
| Program memory capacity | | 2 K | 10 K | 7 K | 15 K |
| Processing speed (μs/Step) | | 0.4 | 0.1 | 0.5 | 0.2 |

# MASTER-K200S

## Features

- Small-and medium-scale control with 384 points
- High-speed processing: 0.5μs/step
- On-line editing
- Change I/O value by force
- Small-and medium-sized manufacture line control by network
- Various special modules: analog, HSC, positioning, etc
- Built-in flash memory
- 3 types of CPU
- System monitoring function
- Trigger function
- Network support: Cnet, Fast Ethernet, Fnet, Rnet, DeviceNet, and Profibus-DP

# MASTER-K300S

## Features

- Small-and medium-scale control with 1,024 points
- High-speed processing: 0.2 μs/step
- On-line editing
- Change I/O value by force
- Small-and medium-sized manufacture line control by network
- Downsizing and high performance
- Various special modules: analog, HSC, positioning, etc
- Network support: Cnet, Fast Ethernet, Fnet, Rnet, DeviceNet, Profibus-DP (Max. 4 modules in total)

LSIS Automation Products

# GLOFA-GM/Master-K Series PLC

## Product List

### GM7U main unit

| Type | Part Number | Specification | Power supply | Remarks |
|---|---|---|---|---|
| GM7U main | G7M-DR30U (/DC) | DC 24V Input 18 points, Relay output 12 points | AC 100~240V (DC 24V) | |
| | G7M-DR40U (/DC) | DC 24V Input 24 points, Relay output 16 points | | |
| | G7M-DR60U (/DC) | DC 24V Input 36 points, Relay output 24 points | | |
| | G7M-DRT20U (/DC) | DC 24V Input 12 points, Tr. output 4 points/Relay output 4 points | | |
| | G7M-DRT30U (/DC) | DC 24V Input 18 points, Tr. output 4 points/Relay output 8 points | | |
| | G7M-DRT40U (/DC) | DC 24V Input 24 points, Tr. output 4 points/Relay output 12 points | | |
| | G7M-DRT60U (/DC) | DC 24V Input 36 points, Tr. output 4 points/Relay output 20 points | | |
| | G7M-DT20U (N) (/DC) | DC 24V Input 12 points, NPN Tr. output 8 points | | |
| | G7M-DT30U (N) (/DC) | DC 24V Input 18 points, NPN Tr. output 12 points | | |
| | G7M-DT40U (N) (/DC) | DC 24V Input 24 points, NPN Tr. output 16 points | | |
| | G7M-DT60U (N) (/DC) | DC 24V Input 36 points, NPN Tr. output 24 points | | |
| | G7M-DT20U (P) (/DC) | DC 24V Input 12 points, PNP Tr. output 8 points | | |
| | G7M-DT30U (P) (/DC) | DC 24V Input 18 points, PNP Tr. output 12 points | | |
| | G7M-DT40U (P) (/DC) | DC 24V Input 24 points, PNP Tr. output 16 points | | |
| | G7M-DT60U (P) (/DC) | DC 24V Input 36 points, PNP Tr. output 24 points | | |

### K120S main unit

| Type | Part Number | Specification | Power supply | Remarks |
|---|---|---|---|---|
| K120S economic | K7M-DR10UE (/DC) | DC 24V Input 6 points, Relay output 4 points | AC 100~240V (DC 24V) | |
| | K7M-DR14UE (/DC) | DC 24V Input 8 points, Relay output 6 points | | |
| | K7M-DR20UE (/DC) | DC 24V Input 12 points, Relay output 8 points | | |
| | K7M-DR30UE (/DC) | DC 24V Input 18 points, Relay output 12 points | | |
| K120S standard | K7M-DR20U (/DC) | DC 24V Input 12 points, Relay output 8 points | | |
| | K7M-DR30U (/DC) | DC 24V Input 18 points, Relay output 12 points | | |
| | K7M-DR40U (/DC) | DC 24V Input 24 points, Relay output 16 points | | |
| | K7M-DR60U (/DC) | DC 24V Input 36 points, Relay output 24 points | | |
| | K7M-DRT20U (/DC) | DC 24V Input 12 points, Tr. output 4 points/Relay output 4 points | | |
| | K7M-DRT30U (/DC) | DC 24V Input 18 points, Tr. output 4 points/Relay output 8 points | | |
| | K7M-DRT40U (/DC) | DC 24V Input 24 points, Tr. output 4 points/Relay output 12 points | | |
| | K7M-DRT60U (/DC) | DC 24V Input 36 points, Tr. output 4 points/Relay output 20 points | | |
| | K7M-DT20U (/DC) | DC 24V Input 12 points, Tr. output 8 points | | |
| | K7M-DT30U (/DC) | DC 24V Input 18 points, Tr. output 12 points | | |
| | K7M-DT40U (/DC) | DC 24V Input 24 points, Tr. output 16 points | | |
| | K7M-DT60U (/DC) | DC 24V Input 36 points, Tr. output 24 points | | |

## GM7U expansion modules

| Type | | Part Number | Specification | Power supply | Remarks |
|---|---|---|---|---|---|
| Expansion module | Digital I/O | G7E-DR08A | DC 24V Input 4 points, Relay output 4 points | From main module | |
| | | G7E-DR10A | DC 24V Input 6 points, Relay output 4 points | | GM7 |
| | | G7E-DR20A | DC 24V Input 12 points, Relay output 8 points | | |
| | Input | G7E-DC08A | DC 24V Input 8 points | | |
| | Output | G7E-RY08A | Relay output 8 points | | |
| | | G7E-RY16A | Relay output 16 point | | |
| | | G7E-TR10A | Tr. output 10 points | | |
| Special module | Analog I/O | G7F-ADHA | Analog input 2chs, Analog output 1ch | DC 24V from external power supply | GM7 |
| | | G7F-ADHB | Analog input 2chs, Analog output 2chs | | |
| | | G7F-ADHC | Analog input 2chs, Analog output 1ch | | |
| | Analog Input | G7F-AD2A | Analog input 4chs | | GM7 |
| | | G7F-AD2B | Analog input 4chs | | |
| | Analog Output | G7F-DA2I | Analog current output 4chs | | |
| | | G7F-DA2V | Analog voltage output 4chs | | |
| | RTD Input | G7F-RD2A | RTD input 4chs | | |
| | Analog Timer | G7F-AT2A | Analog timer 4chs | From main module | GM7 |
| Comm. module | Cnet I/F | G7L-CUEB | RS-232C 1ch | | |
| | | G7L-CUEC | RS-422 1ch | | |
| | Fnet I/F | G7L-FUEA | Fnet (dedicated protocol) I/F master | | |
| | Rnet I/F | G7L-RUEA | Rnet (dedicated protocol for SMART I/Os) I/F master | | |
| | Pnet I/F | G7L-PBEA | Profibus-DP slave unit | | |
| | Dnet I/F | G7L-DBEA | DeviceNet slave unit | | |
| Option | RTC pack | G7E-RTCA | RTC unit | | |
| | Memory pack | G7M-M256 | Memory pack for GM7 | | GM7 only |
| | | G7M-M256B | Memory pack for GM7U | | GM7U only |

* If a part number ends with /DC, the supply power is DC24V.
* Slim type: G7E-DC08A, G7E-DR08A, G7E-RY8A, G7F-ADHB, G7F-AD2B, G7F-RD2A

## K120S expansion modules

| Type | | Part Number | Specification | Power supply | Remarks |
|---|---|---|---|---|---|
| Expansion module | Digital I/O | G7E-DR08A | DC 24V Input 4 points, Relay output 4 points | From main module | K120S only |
| | | G7E-DR10A | DC 24V Input 6 points, Relay output 4 points | | |
| | | G7E-DR20A | DC 24V Input 12 points, Relay output 8 points | | K80S CPU V1.7 ↑ |
| | Input | G7E-DC08A | DC 24V Input 8 points | | |
| | Output | G7E-RY08A | Relay output 8 points | | K120S only |
| | | G7E-RY16A | Relay output 16 point | | |
| | | G7E-TR10A | Tr. output 10 points | | K80S CPU V1.7 ↑ |
| Special module | Analog I/O | G7F-ADHA | Analog input 2chs, Analog output 1ch | DC 24V from external power supply | |
| | | G7F-ADHB | Analog input 2chs, Analog output 2chs | | K120S only |
| | | G7F-ADHC | Analog input 2chs, Analog output 1ch | | |
| | Analog Input | G7F-AD2A | Analog input 4chs | | |
| | | G7F-AD2B | Analog input 4chs | | |
| | Analog Output | G7F-DA2I | Analog current output 4chs | | |
| | | G7F-DA2V | Analog voltage output 4chs | | K120S only |
| | RTD Input | G7F-RD2A | RTD input 4chs | | |
| | Analog Timer | G7F-AT2A | Analog timer 4chs | From main module | |
| Comm. module | Cnet I/F | G7L-CUEB | RS-232C 1ch | | |
| | | G7L-CUEC | RS-422 1ch | | |
| | Fnet I/F | G7L-FUEA | Fnet (dedicated protocol) I/F master | | |
| | Rnet I/F | G7L-RUEA | Rnet (dedicated protocol for SMART I/Os) I/F master | | |
| | Pnet I/F | G7L-PBEA | Profibus-DP slave unit | | |
| | Dnet I/F | G7L-DBEA | DeviceNet slave unit | | |
| Option | RTC pack | G7E-RTCA | RTC unit | | |
| | Memory pack | G7M-M256B | Memory pack for K120S | | K120S only |

* If a part number ends with /DC, the supply power is DC24V.
* Slim type: G7E-DC08A, G7E-DR08A, G7E-RY8A, G7F-ADHB, G7F-AD2B, G7F-RD2A

LSIS Automation Products

# GLOFA-GM/Master-K Series PLC

## Product List

### GM6/K200S

| Type | | Part Number | Specification | Remarks |
|---|---|---|---|---|
| CPU | | GM6-CPUA | Max. I/O: 384 points, Program memory: 68K, Built-in function: RS-232 | |
| | | GM6-CPUB | Max. I/O: 384 points, Program memory: 68K, Built-in function: RS-422, PID, RTC | |
| | | GM6-CPUC | Max. I/O: 384 points, Program memory: 68K, Built-in function: RS-232C, PID, RTC, HSC (50kpps) | |
| | | K3P-07AS | Max. I/O: 384 points, Program memory: 7K, Built-in function: RS-232 | Program memory: 7k steps |
| | | K3P-07BS | Max. I/O: 384 points, Program memory: 7K, Built-in function: RS-422, PID, RTC | |
| | | K3P-07CS | Max. I/O: 384 points, Program memory: 7K, Built-in function: RS-232C, PID, RTC, HSC (50kpps) | |
| Power module | | GM6-PAFA | AC input (Free), output: DC 5V 2A, DC 24V 0.3A | |
| | | GM6-PAFB | AC input (Free), output: DC 5V 2A, DC 15V 0.5A, DC -15V 0.2A, when analog module used | Analog |
| | | GM6-PAFC | AC input (Free), output: DC 5V 3.5A, DC 24V 0.3A for 12-slot base board | |
| | | GM6-PA2A | AC 220V Only, output: DC 5V 6A | |
| | | GM6-PDFA | DC 12/24V input, output: DC 5V 2A | |
| | | GM6-PDFB | DC 12/24V input, output: DC 5V 3A, DC 15V 0.5A, DC -15V 0.2A, when analog module usedAnalog | |
| Base | | GM6-B04M | 4-slot base board | Not expansible |
| | | GM6-B06M | 6-slot base board | |
| | | GM6-B08M | 8-slot base board | |
| | | GM6-B12M | 12-slot base board, Comm I/F module installation: slot 0~7 | |
| DC input module | | G6I-D21A | DC 12/24V input 8 points, Current Sink/Source type | |
| | | G6I-D22A | DC 12/24V input 16 points, Current Sink/Source type | |
| | | G6I-D22B | DC 24V input 16 points, Current Source type | |
| | | G6I-D24A | DC 12/24V input 32 points, Current Sink/Source type | |
| | | G6I-D24B | DC 24V input 32 points, Current Source type | |
| AC input module | | G6I-A11A | AC 110V input 8 points | |
| | | G6I-A21A | AC 220V input 8 points | |
| Relay output module | | G6Q-RY1A | Relay output 8 points, DC 12/24V, AC 220V, 2A | AC, DC |
| | | G6Q-RY2A | Relay output 16 points, DC 12/24V, AC 220V, 2A | |
| | | G6Q-RY2B | Relay output 16 points, DC 12/24V, AC 220V, 2A, Surge absorber | |
| Transistor output module | | G6Q-TR2A | Tr. (NPN) output 16 points, DC 12/24V, 0.5A | DC |
| | | G6Q-TR2B | Tr. (PNP) output 16 points, DC 12/24V, 0.5A | |
| | | G6Q-TR4A | Tr. (NPN) output 32 points, DC 12/24V, 0.1A | |
| | | G6Q-TR4B | Tr. (PNP) output 32 points, DC 12/24V, 0.1A | |
| Triac output module | | G6Q-SS1A | DC 12/24V input 8 points, AC 100~240V, 0.6A | AC |
| I/O hybrid module | | G6H-DR2A | DC 12/24V input 8 points, Relay output 8 points | |
| Special module | A/D module | G6F-AD2A | V/I input: 4 chs, DC 1~5V, 0~10V, -10~10V, 4~20mA | GM6-PAFB/PDFB |
| | D/A module | G6F-DA2V | V output: 4 chs, DC -10~10V | |
| | | G6F-DA2I | I output: 4 chs, DC 4~20mA | |
| | HSC module | G6F-HD1C | 2 chs, 500kpps, Counting range: -2,147,483,648~2,147,483,647, Line drive type | |
| | | G6F-HO1C | 2 chs, 200kpps, Counting range: -2,147,483,648~2,147,483,647, Open collector type | |
| | Positioning module | G6F-PPxO | X=1, 2, 3: axis, Pulse output, 200kpps, Open collector type | GLOFA CPU V2.0 |
| | | G6F-PPxD | X=1, 2, 3: axis, Pulse output, 1M, Line drive type | MASTER-K CPU V2.3 |
| | Thermocouple input module | G6F-TC2A | Input: 4 chs (Thermocouple: K, J, E, T, B, R, S) | GM6-PAFB/PDFB |
| Comm. module | Fast Enet I/F module (Open type) | G6L-EUTB | 10/100BASE-TX, UTP | GLOFA CPU V2.1 |
| | | G6L-EUFB | 100BASE-FX, Fiber optic | MASTER-K CPU V2.4 |
| | Fnet I/F module | G6L-FUEA | Fnet master module (Shielded twisted pair cable, 1Mbps) | |
| | Fnet remote I/F module | G6L-RBEA | Fnet remote module (Shielded twisted pair cable, 1Mbps) | |
| | Dnet I/F module | G6L-DUEA | DeviceNet master module (500kbps MAX.) | |
| | Pnet I/F module | G6L-PUEA | Profibus-DP master module (1K) | |
| | | G6L-PUEB | Profibus-DP master module (7K) | |
| | Rnet I/F module | G6L-RUEA | Rnet master module | |
| | Cnet I/F module | G6L-CUEB | RS-232C | |
| | | G6L-CUEC | RS-422/485 | |
| | Dummy module | GM6-DMMA | Dummy module for empty I/O slot | |

## GM4/K300S

| Type | | Part Number | Specification | Remarks |
|---|---|---|---|---|
| CPU | | GM4-CPUA | Max. I/O: 2,048 points, Program memory: 128K, Data memory: 52K | |
| | | GM4-CPUB | Max. I/O: 2,048 points, Program memory: 128K, Data memory: 50K | |
| | | GM4-CPUC | Max. I/O: 2,048 points, Program memory: 1M, Data memory: 428K | |
| | | K4P-15AS | Max. I/O: 1,024 points, Program memory: 15K steps | |
| Main base | | GM4-B04M | 4-slot main base board | |
| | | GM4-B06M | 6-slot main base board | |
| | | GM4-B08M | 8-slot main base board | |
| | | GM4-B12M | 12-slot main base board | Not expandable |
| Main base (High Functional) | | GM4-B4EH | 4-slot main base board (High Functional) | |
| | | GM4-B6EH | 6-slot main base board (High Functional) | |
| | | GM4-B8EH | 8-slot main base board (High Functional) | |
| Expansion base | | GM4-B04E | 4-slot expansion base board | |
| | | GM4-B06E | 6-slot expansion base board | |
| | | GM4-B08E | 8-slot expansion base board | |
| Expansion base (High Functional) | | GM4-B4EH | 4-slot expansion base board (High Functional) | |
| | | GM4-B6EH | 6-slot expansion base board (High Functional) | |
| | | GM4-B8EH | 8-slot expansion base board (High Functional) | |
| Expansion cable | | G4C-E041 | Length: 0.4m | |
| | | G4C-E121 | Length: 1.2m | |
| | | G4C-E301 | Length: 3.0m | |
| Expansion cable (High Functional) | | G4C-E051 | Length: 0.6m | |
| | | G4C-E601 | Length: 6m | |
| | | G4C-E102 | Length: 10m | |
| | | G4C-E152 | Length: 15m | |
| Power module | | GM4-PA1A | AC 110V input, DC 5V: 4A, DC 24V: 0.7A | |
| | | GM4-PA2A | AC 220V input, DC 5V: 4A, DC 24V: 0.7A | |
| | | GM4-PA1B | AC 110V input, DC 5V: 3A, DC 24V: 0.5A | |
| | | GM4-PA2B | AC 220V input, DC 5V: 3A, DC 24V: 0.5A | |
| | | GM4-PA2C | AC 220V input, DC 5V: 8A | |
| | | GM4-PD3A | DC 24V input, DC 5V: 4A | |
| DC input module | | G4I-D22A | 16 points DC 12/24V input (Current Sink/Source type) | |
| | | G4I-D22B | 16 points DC 12/24V input (Current Source type) | |
| | | G4I-D22C | 16 points DC 24V input (Current Sink/Source type) | |
| | | G4I-D24A | 32 points DC 12/24 input (Current Sink/Source type) | |
| | | G4I-D24B | 32 points DC 12/24 input (Current Source type) | |
| | | G4I-D24C | 32 points DC 24 input (Current Sink/Source type) | |
| | | G4I-D28A | 64 points DC 12/24 input (Current Sink/Source type) | |
| AC input module | | G4I-A12A | 16 points AC 110V input | |
| | | G4I-A22A | 16 points AC 220V input | |
| Relay output module | | G4Q-RY2A | 16 points Relay output (2A) | AC, DC |
| Transistor output module | | G4Q-TR2A | 16 points Tr. (NPN) output (0.5A) (Sink type) | DC |
| | | G4Q-TR2B | 16 points Tr. (PNP) output (0.5A) (Source type) | |
| | | G4Q-TR4A | 32 points Tr. (NPN) output (0.1A) (Sink type) | |
| | | G4Q-TR4B | 32 points Tr. (PNP) output (0.1A) (Source type) | |
| | | G4Q-TR8A | 64 points Tr. (NPN) output (0.1A) (Sink type) | |
| Triac output module | | G4Q-SS2A | 16 points Triac output (1.0A) | AC |
| | | G4Q-SS2B | 16 points Triac output (0.6A) | |
| I/O hybrid module | | G4H-DR2A | 8 points DC 12/24V input, 8 points relay output | |
| | | G4H-DT2A | 8 points DC 12/24V input, 8 points Tr. output | |
| Special module | A/D module | G4F-AD2A | V/I input: 4 chs (DC -5~5V/-10~10V/DC -20~20mA) | |
| | | G4F-AD3A | V/I input: 8 chs (DC 1~5V/0~10V/DC 4~20mA) | |
| | D/A module | G4F-DA1A | V/I output: 2 chs (DC -10~10V, DC 4~20mA) | |
| | | G4F-DA3V | V output: 8 chs (DC -10~10V) | |
| | | G4F-DA3I | I output: 8 chs (DC 4~20mA) | |
| | | G4F-DA2V | V output: 4 chs (DC-10~10V) | |
| | | G4F-DA2I | I output: 4 chs (4~20mA) | |

LSIS Automation Products

# GLOFA-GM/Master-K Series PLC

## Product List

### GM4/K300S

| Type | | Part Number | Specification | Remarks |
|---|---|---|---|---|
| Special module | HSC module | G4F-HSCA | 1 ch, 50kHz, Counting range: 0~16,777,215 | |
| | | G4F-HD1C | 2 chs, 500kpps, Counting range: -2,147,483,648~+2.147,483,647, Line drive type | |
| | | G4F-HO1C | 2 chs, 200kpps, Counting range: -2,147,483,648~+2.147,483,647, Open collector type | |
| | Positioning module | G4F-PPxO | X=1, 2, 3: axis, Pulse output, 200kpps, Open Collector Type | CPU V3.2 ↑ |
| | | G4F-PPxD | X=1, 2, 3: axis, Pulse output, 1Mbps, Line Drive Type | |
| | Thermocouple input module | G4F-TC2A | Input: 4 chs (Thermocouple: K, J, E, T, B, R, S) | |
| | RTD input | G4F-RD2A | Input: 4 chs | |
| | PID control module | G4F-PIDB | Max. 16-loop control (Autotuning), 16-point digital output | |
| Comm. module | Fast Enet I/F module (Open type) | G4L-EUTB | 10/100BASE-TX, UTP | GLOFA CPU V2.7 ↑ MASTER-K CPU V2.4 ↑ |
| | | G4L-EUFB | 100BASE-FX, Fiber optic | |
| | | G4L-EU5B | 10BASE-5, AUI | |
| | Fnet I/F module | G4L-FUEA | Fnet master module (Shielded twisted pair cable), 1Mbps | |
| | | G4L-FUOA | Fnet master module (Optic cable) | |
| | Fnet remote I/F module | G4L-RBEA | Fnet remote module (Shielded twisted pair cable), 1Mbps | |
| | Dnet I/F module | G4L-DUEA | DeviceNet master module (500kbps MAX.) | |
| | Pnet I/F module | G4L-PUEA | Profibus-DP master module (1Kbyte) | |
| | | G4L-PUEB | Profibus-DP master module (7Kbyte) | |
| | Rnet I/F module | G4L-RUEA | Rnet master module | |
| | Cnet I/F module | G4L-CUEA | RS-232C/RS-422: 1ch each, Stand alone/Interlocking mode | |
| Dummy module | | GM4-DMMA | Dummy module for empty I/O slot | |
| Memory module | | G4M-M032 | Capacity: 128K (32k steps) | |
| USB cable | | USB-301A | Downloading cable for USB port of GM4-CPUC | GM4-CPUC |

* In GM4-CPUC, you are supposed to use high-functional base (main/expansion) and high functional cable when you want to make more than 3-stage expansion.

# 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)
- 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 | 16 |
| Rated input (Load voltage) | | DC 24 V | | DC 24 V | | DC 24 V/AC 110 V/220 V | DC 24 V | DC 24 V |
| Input current (Load current) | | 7 mA | | 0.1 A/2 A, 0.5 A/3 A | | 2 A/5 A | 7 mA 0.1 A/2 A, 0.5 A/3 A | |
| Response time | Off→On | 3 ms or less | | 3 ms or less | | 3 ms or less | 3 ms or less | 3 ms or less |
| | On→Off | 3 ms or less | | 3 ms or less | | 3 ms or less | 3 ms or less | 3 ms or less |
| Common | | 16 points/COM | | 16 points/COM | | 16 points/COM | 16 points/COM | 16 points/COM |
| Current consumption | | 200 mA | 300 mA | 280 mA | 380 mA | 550 mA | 350 mA | |
| Network | Rnet | GRL-D22C | GRL-D24C | GRL-TR2C1 | GRL-TR4C1 | GRL-RY2C | GRL-DT4C1 | |
| | Profibus-DP | GPL-D22C | GPL-D24C | GPL-TR2C/TR2C1 | GPL-TR4C/TR4C1 | GPL-RY2C | GPL-DT4C/DT4C1 | |
| | DeviceNet | GDL-D22C | GDL-D24C | GDL-TR2C/TR2C1 | GDL-TR4C/TR4C1 | GDL-RY2C | GDL-DT4C/DT4C1 | |
| | Modbus | GSL-D22C | GSL-D24C | GSL-TR2C1 | GSL-TR4C1 | GSL-RY2C | GSL-DT4C1 | |

Note1) C Source, Rated current: 0.5A, terminal separated type
C1 Sink, Rated current: 0.5A terminal separated type

### Analog I/O specifications

| Item | GPL-AV8C | GPL-AC8C | Item | GPL-DV4C | GPL-DC4C |
|---|---|---|---|---|---|
| Input channels | 8 channels | | Output channels | 4 channels | |
| Analog input | DC 1~5 V, 0~5 V, 0~10 V, -10~+10 V | 0~20 mA, 4~20 mA, - 20~20 mA | Digital input | 0~4000, 0~8000, -8000~8000 | 0~8000 |
| | | | Analog output | DC 1~5 V, 0~5 V, 0~10 V, -10~+10 V | 0~20 mA, 4~20 mA |
| Digital output | 0~4000, 0~8000, -8000~8000 | 0~4000, -8000~8000 | | | |
| Input impedance | 1 MΩ | 250 Ω | Load impedance | 1 KΩ or more (0~5 V or 1~5 V) | |
| Max. resolution | ±15 V | ±30 mA | | 2 KΩ or more (0~10 V or -10~10 V) | 500 Ω or less |
| | 1.25 mV | 2.5 ㎂ | Resolution | 1.25 mV | 2.5 ㎂ |
| Accuracy | ±0.3% (full scale, Ta=0~55 °C) | ±0.3% (full scale, Ta=23 °C±5 °C) | 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) | | | ±0.4% (full scale, Ta=0~55 °C) |
| Conversion speed | 10 ms or less/8 channel | | Conversion speed | 10 ms or less/4 channel | |
| Response period | 10 ms or less/8 channels + Transmission period (ms) | | Response period | 10 ms or less/8 channels + Transmission period (ms) | |
| | Analog input/output terminal with FG→Insulation | | | Analog input/output terminal with FG→Insulation | |
| Insulation method | Analog input/output terminal with Communication terminal→Insulation | | Insulation method | Analog input/output terminal with Communication terminal→Insulation | |
| | Analog input/output terminal with each channel→No insulation | | | Analog input/output terminal with each channel→No insulation | |
| External power supply | DC 24 V (21.6 ~ 26.4) | | External power supply | DC 24 V (20.4 ~ 28.8) | |
| External current consumption | DC 24 V : 220 mA | | External current consumption | 210 mA | 240 mA |
| Weight (kg) | 0.313 | 0.313 | Weight (kg) | 0.314 | 0.322 |

### Communication specifications

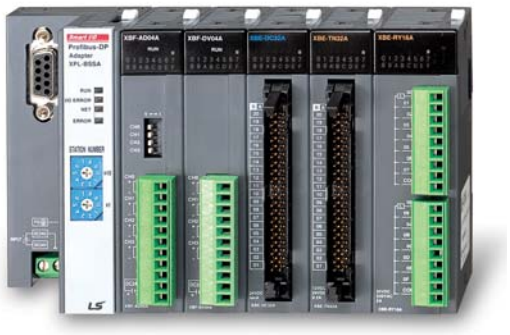
| Item | Rnet (LS dedicated network) | Profibus-DP | DeviceNet | MODBUS |
|---|---|---|---|---|
| Protocol | LSIS dedicated protocol (Fnet for Remote) | Profibus-DP (RS-485/EN50170) | DeviceNet (CAN) | MODBUS (RS-422/485) |
| Transmission speed | 1 Mbps | 9.6 Kbps ~ 12 Mbps | 125/250/500 Kbps | 2.4 Kbps ~ 38.4 Kbps |
| Transmission distance | 750 m/segment | 100 m ~ 1.2 km | 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 |
| Link capacity | 2,048 points/master (64 stations ×32 points) | 7 Kbyte/master | 2,048 points/master | 64 points/station |

Note1) Smart I/O supports Poll type currently, but is supposed to support Cyclic, COS and Strobe later on.

LSIS Automation Products

# SMART I/O

## Expandable type



Modbus TCP, EtherNet/IP

DeviceNet

Profibus-DP

## Features

- Easy configuration of remote system using XGB expansion I/O
- Up to 8 modules expandable with Network adapter
- Max. 256-point digital I/O
- Max. 16-channel analog I/O
- Network adapter: Profibus-DP, DeviceNet, Rnet, Modbus TCP, EtherNet/IP

## DeviceNet specification

| Item | | Specification | | |
|---|---|---|---|---|
| Communication Mode | | Poll, Bit-strobe, COS, Cyclic | | |
| Topology | | Bus, Trunk and Drop | | |
| Master/Slave | | Slave | | |
| Baud rate/ | kbps | 125 | 250 | 500 |
| Distance | m | 500 | 250 | 100 |
| Max. Node Number (MAC ID) | | 64 (0~63) | | |
| Number of Expansion I/O Slots | | 8 | | |
| I/O Data Size | | 64bytes (Input: 32bytes/Output: 32bytes) | | |
| Max. Analog Channels | | 32chs (Input: 16chs/Output: 16chs) | | |
| Power | Input | 19.2V ~ 28.8V | | |
| | Output | 5V(±20%)/1.5A | | |
| Weight | | 100g | | |

* When I/O module is installed, check the current consumption (Max. Current: 1.5A)

## Modbus TCP, EtherNet/IP Specification

| Item | | Specification |
|---|---|---|
| International standard | | IEEE 802.3 |
| Protocol | | Modbus TCP, EtherNet/IP |
| Topology | | Line(Daisy-Chain), Star |
| Max. Protocol size | | 1500bytes |
| Flow control | | Full duplex, Half duplex |
| Baud rate | | 10/100Mbps |
| Max. Distance between node | | 100m |
| Communication port | | RJ-45 (2Ports, Switch Built-in) |
| IP Setting | | Software setting |
| Number of Expansion I/O Slots | | 8 |
| I/O Data size | | 64bytes (Input: 32bytes/Output: 32bytes) |
| Max. Analog channels | | 32chs (Input: 16chs/Output: 16chs) |
| Power | Input | 19.2V ~ 28.8V |
| | Output | 5V(±20%)/1.5A |
| Weight | | 100g |

* When I/O module is installed, check the current consumption (Max. Current: 1.5A)

## Profibus-DP Specification

| Item | | Specification | | | | |
|---|---|---|---|---|---|---|
| Media Access | | Poll | | | | |
| Topology | | Bus | | | | |
| Master/Slave | | Slave | | | | |
| Baud rate/ Distance | kbps | 9.6 | 19.2 | 93.75 | 187.5 | 500 |
| | m | 1200 | 1200 | 1200 | 1000 | 400 |
| | kbps | 1500 | 3000 | 6000 | 12000 | - |
| | m | 200 | 100 | 100 | 100 | - |
| Max. Node Number | | 100 (0~99) | | | | |
| Number of Expansion I/O Slots | | 8 | | | | |
| I/O Data Size | | 64bytes (Input: 32bytes/Output: 32bytes) | | | | |
| Max. Analog Channels | | 32chs (Input: 16chs/Output: 16chs) | | | | |
| Power | Input | 19.2V ~ 28.8V | | | | |
| | Output | 5V(±20%)/1.5A | | | | |
| Weight | | 100g | | | | |

* When I/O module is installed, check the current consumption (Max. Current: 1.5A)

# iXP Series

## Human Machine Interface

### Graphic type iXP70/iXP80/iXP90

- 1GHz 32bit RISC Embedded CPU
- 16,777,216 TFT color LCD
- 128MB display data and 1MB back-up memory
- Ethernet 1ch, RS-232C 2ch, RS-422/485 1ch
- USB host 3ch and device 1ch
- CF and SD memory card interface
- PLC ladder monitoring(XGK/XBC PLC only)
- Web Server/Data Server
- Path through
- XP-Remote : Remote controlling and monitoring

| Item | | iXP70-TTA | iXP80-TTA | iXP90-TTA |
|---|---|---|---|---|
| Display type | | TFT LCD | | |
| Screen size | | 26.4cm (10.4 ") | 30.7cm (12.1 ") | 38.1cm (15 ") |
| Display Resolution | | 800 × 600(SVGA) | 800 × 600(SVGA) | 1,024 × 768(XGA) |
| Color indication | | 16bit/24bit Color (default 16bit) | | |
| Indication degree | | Left/Right: 80 deg. Upper: 60 deg. Lower: 80 deg. | | |
| Backlight | | LED | | |
| Backlight duration | | Approx. 60,000h | | |
| Brightness | | 700 cd/m² | 550 cd/m² | 800 cd/m² |
| Touch panel | | 4-Line type, analog | | |
| Sound Output | | Magnetic buzzer (85dB) | | |
| Process | | ARM Cortex-A8 Core (32bit RISC), 1GHz | | |
| Audio input | | - | 1channel, audio input | |
| Audio Output | | 1Channel, stereo audio output | | |
| Video input | | - | 1 channel(camera video input) | |
| Video output | | - | D-SUB, 1 channel(monitor) | |
| Memory | Flash | 1GB (display 128MB) | | |
| | Operating RAM | 512MB | | |
| | Backup RAM | 1MB | | |
| Backup data | | Date/Hour data, Logging/Alarm/Recipe data and nonvolatile device | | |
| Battery duration | | Approx. 3 years (Operating ambient temperature of 25℃) | | |
| USB Host | | 3 Channels, USB 2.0 host (mouse, keyboard and USB memory driver is available) | | |
| | | 1Channel, USB 2.0 slave (for download and upload project file) | | |
| RS-232C | | 1 Channel | | |
| RS-422/485 | | 1 Channel,RS-422/485 mode | | |
| Ethernet | | 1 Channel, IEEE802.1a, 10Base-T/100Base-TX | | |
| CF Card | | 1 Slot (Compact Flash) | | |
| SD Card | | 1 Slot (SDHC) | | |
| Human sensor | | Detection range: side 1~1.5m, front 40~50cm | | |
| | | Angle: high/low 100°, left/right 140° (detecting 5~20 micron infrared light) | | |
| Audio output | | LINE-OUT 1channel | | |
| Expansion module | | For communication and I/O option module (available later) | | |
| VM I/F | | 4 channels video input (available later) | | |
| Certifications | | CE, UL(cUL), KC | | |
| IP Protection | | IP65 | | |
| Dimension(mm) | | 270.5 × 212.5 × 57.0 | 313.0 × 239.0 × 57.0 | 395.0 × 294.0 × 60.0 |
| Panel cut(mm) | | 259.0 × 201.0 | 301.5 × 227.5 | 383.5 × 282.5 |
| Power | | AC100~240V, DC12/24V | | |
| Power consumption(W) | | 42 | 42 | 42 |
| weight(kg) | | 2.2 | 2.4 | 3.9 |

LSIS Automation Products

# XP Series

## Human Machine Interface

## Graphic type XP30/XP50/XP70/XP80/XP90

- High and vivid distinction with 65,536 colors
- High quality raster and vector symbols
- Various BMP JPG GIF graphic file support: BMP, JPG, GIF, WMF, etc
- Simple animation effects: animated GIF
- 10/100BASE-T Ethernet interface
- Convenient and easy screen editing
- Strengthened data management: Logging, Recipe, and Alarm
- Read function of a controller's state information: Monitoring and maintenance
- Multi-lingual display: up to 8 languages
- Offline and concurrent simulation with XG5000
- Easy to change the address of the graphic objects: Tag function with XP-Builder
- USB host for peripheral devices: USB Drive, Mouse, keyboard, printer, etc
- Sufficient memory for screen data: 10MB

| Item | | | XP30-BTE/DC | XP30-BTA/DC | XP30-TTE/DC | XP30-TTA/DC | XP50-TTE/DC | XP50-TTA/DC | XP70-TTA/AC XP70-TTA/DC | XP80-TTA/AC XP80-TTA/DC | XP90-TTA/AC |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Mono | | Color | | | | | | |
| Display description | | | Mono Blue LCD | | TFT Color LCD | | | | | | |
| Display Size (inch) | | | 14cm (5.7″) | | | | 21cm (8.4″) | 21cm (8.4″) | 26cm (10.4″) | 31cm (12.1″) | 38cm (15″) |
| Resolution | | | 320 × 240 | | | | 640 × 480 | | | 800 × 600 | 1024 × 768 |
| Color | | | 8-bit Gray Scale | | 256 color | 65,536 color | 256 color | 65,536 color | | | |
| Backlight | | | LED | | | CCFL (whole LCD), auto On/Off | CCFL (Replaceable LCD), Auto on/off | | | | |
| | | | 50,000Hours | | | 60,000Hours | 50,000Hours | | | | |
| Contrast | | | Adjustable | | Fixed | | | | | | |
| Luminance | | | 230cd/m² | | 210cd/m² | 400cd/m² | 200cd/m² | 480cd/m² | 430cd/m² | 400cd/m² | 450cd/m² |
| Viewing angle | Up/Down(Degree) | | 20/40 | | 80/80 | 70/50 | 20/20 | 50/60 | 45/65 | 45/75 | 50/60 |
| | Left/Right(Degree) | | 45/45 | | 80/80 | 70/70 | 45/45 | 65/65 | 65/65 | 65/65 | 75/75 |
| Touch panel | | | 4-wire system analog | | | | | 8-wire system analog | | | |
| Movement LED | | | Green : Run (Monitoring, download drawing data) Red : Error (Communication error, drawing data error) | | | | | | | | |
| Memory | Display data | | 4MB | 10MB | 4MB | 10MB | 4MB | 10MB | | | 20MB |
| | Backup data | | 128kB | 512kB | 128kB | 512KB (Logging, alarm data saving) | 128kB | 512KB (Logging, alarm data saving) | | | |
| Ethernet | | | - | 1ch, IEEE802.3, 10/100Base-T | - | 1ch, IEEE802.3, 10/100Base-T | - | 1ch, IEEE802.3, 10/100Base-T | | | |
| USB interface | | | USB Host × 1 | USB Host × 2 | USB Host × 1 | USB Host × 2 | USB Host × 1 | USB Host × 2 | | | |
| Serial | RS-232C | | 2ch (1 port for PC Communication) | | | | | | | | |
| | RS-422/485 | | 1ch, 422/485 optional mode | | | | | | | | |
| CF memory card interface | | | - | CF card (TYPE-I) × 1 | - | CF card (TYPE-I) × 1 | - | CF card (TYPE-I) × 1 | | | |
| AUX interface | | | - | Optional | - | Optional | - | Optional | | | |
| Certification | | | CE, UL, KCC | | | | | | | | |
| Protection | | | IP65F (Front Water Proof Structure) | | | | | | | | |
| Size (W × H × D)mm | | | 181 × 140 × 56.5 | 181 × 140 × 66.5 | 181 × 140 × 56.5 | 181 × 140 × 66.5 | 240 × 174 × 63 | 240 × 174 × 73 | 317 × 243 × 73 | | 395 × 249 × 73 |
| Panel Cut (W × H)mm | | | 155.5 × 123 | | | | 228 × 158 | | 294 × 227 | | 383 × 282 |
| Weight (kg) | | | 0.62 | 0.75 | 0.62 | 0.75 | 1.2 | 1.4 | 2.2 | 2.4 | 3.9 |
| Power | Rated voltage | | DC 24V | | | | | | AC100~220V, DC24V | | AC100 ~ 220V |
| | Permitted voltage | AC | - | | | | | | MIN 85 VAC, MAX 264 VAC | | |
| | | DC | MIN 19.2 VDC, MAX 28.8 VDC | | | | | | | | - |
| | Watt | AC | - | | | | | | 37 | 40 | 46 |
| | | DC | 5 | 8.5 | 5 | 8.5 | 13 | 20 | 27 | 30 | - |

# XP40

## Human Machine Interface

### XP40 (7" Wide Type)

- 7" (17.7cm)
- 256/65,536 TFT color LCD 4MB/10MB display data memory
- 128KB/512KB back-up memory Ethernet 1ch, RS-232C 2ch, RS-422/485 1ch
- USB 2.0 Host 1ch
- PLC ladder monitoring(XGK/XBC PLC only)
- Web Server/Data Server*
- Path through*
- XP-Remote : Remote controlling and monitoring*

* XP40-TTA/DC only


| Item | | XP40-TTE/DC | XP40-TTA/DC |
|---|---|---|---|
| Display type | | TFT LCD | |
| Screen size | | 7" (17.7cm) | |
| Display resolution | | 800 x 480 pixel | |
| Display color | | 256 Colors | 65,536 Colors |
| Display angle | | Left/Right: 65 deg. | |
| | | Upper: 50 deg. | |
| | | Lower: 60 deg. | |
| Backlight | | LED (Replaceable) | |
| Backlight life | | Above 30,000 hours | |
| Contrast | | Adjust through touch/parameter | |
| Brightness | | 280cd/㎡ | |
| Touch panel | | Analog | |
| Sound | | Magnetic buzzer | |
| Process | | ARM920T (32bit RISC), 200Hz | |
| Graphic accelerator | | Hardware Accelerator | |
| Memory | Flash | 16MB | 32MB |
| | Operating RAM | 32MB | 64MB |
| | Backup RAM | 128KB | 512KB |
| Backup type | | Date/Hour data and Logging/Alarm/Recipe data, Nonvolatile Device | |
| Battery duration | | Approximately 3 years (When operating at 25℃) | |
| USB host | | 1 channel, USB 2.0 (printer, USB memory stick driver is available) | |
| RS-232C | | Terminal Block | |
| RS-422/485 | | | |
| Ethernet | | 1 channel, IEEE802.3, 10Base-T / 100Base-TX | |
| Multilingual language | | Up to 8 language simultaneously | |
| Animation | | GIF format is available. | |
| Recipe | | Available | |
| Data logging | | Available | |
| Script executor | | Available | |
| Standard certification | | CE, UL(cUL), KC | |
| Degree of protection | | IP65 | |

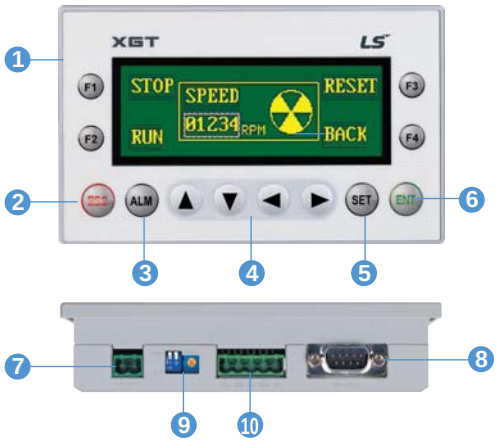
LSIS Automation Products

# XP Series

## Human Machine Interface

### Text type XP10

- Screen: 192 × 64 Graphic STN LCD
- System RAM: 1000 words
- Flash memory: Program/Parameter back up
- Communication: Half-duplex comm.
  - Baud rate: 1200~115200 bps
  - Master/slave setting available
  - RS-232C/RS-485 2 ch separate to use
- Power reguirements - 24 V input or 5 V direct input by LS PLC
- Various function key - ESC, ALM, SET, ENT, F1~F4, Arrow keys
- Panel Editor - Easy programming and H/W setting


1. Key to control PLC device and screen
2. ESC key
3. Alarm history
4. Data input and Screen change
5. PLC data setting
6. Enter key
7. DC24V input terminal
8. RS-232C port to download a project
9. Brightness adjustment
10. RS-422 port

| Item | | Specifications | |
|---|---|---|---|
| | | XP10BKA/DC | XP10BKB/DC |
| Input voltage | 5VDC | DC 4.9 ~ 5.1 (RS-232C port) | |
| | 24VDC | DC 21.6 ~ 26.4 (DC Input connector) | |
| | Consumption current | Less than 200mA | |
| Display | | LED back-light (192 x 64 Dots) | |
| Communication interface | | RS-232C, RS-422/485 | |
| Flash memory | | 256K bytes | |
| Language | | Default: English, Can be switched to Korean/Chinese/Russian | |
| RTC | | None | Supports |
| Download specification | | 115,200bps | |
| Keys | | 12 Keys (F1~F4, ESC, ALM, ▲, ▼, ◀, ▶, SET, ENT) | |

# XGT Servo

## XDL/XML Series

### Inetllingent Control

**The interface of the convenient and user oriented function**

Enhanced user friendly function through Serial communication (RS-422), Parameter transmission using PC loader, etc.

### High Performance

**High Resolution Serial type Encoder (16Bit~21Bit)**

- Accurate Position Control and Improved Stability at Low Speed

**Stable Low Speed Operation with Accurate Speed Check**

- Stable Measurement at Low Speed

**Absolute Encoder (Multi-turn)**

- Origin Function is not needed

**Improved Speed Response Frequency**

- About 1kHz
- Reduced Positioning Time

### Convenience

**Motion Network Type(EtherCAT) - XDL N Series**

**High Performance**

- High speed, Real-time capability and Synchronization mechanism

**Open Network**

- Over 1600 worldwide members

**Cost Effective**

- Standard Ethernet Cabling + Connectors, Less implementation efforts for master and slave

**Easy to Use**

- Versatile topology and Diagnostics

**XDL Drive with Built-in EtherCAT Interface**

- 100BASE-TX(100Mbps) Ethernet based real-time communication
- Support CiA402(IEC61800-7) drive profile
- Interoperability
- Precise synchronization mechanism (1us)
- Max. 100m between nodes
- Freely settable process data length and mapping
- Four status indication LEDs (L/A0, L/A1, RUN, ERR)
- Standard RJ45 connector and cabling(CAT5)
- Have intrinsic functions of XDL S series (same size)
- Support various homing modes
- Support Full-Closed control (Being developed)

**Support various operation modes**

- CSP, CSV, CST, PP, PV, PT, HM, IP

**Safe Torque Off function**

- Forced torque off by HWBB signals without intervention of $\mu$P and FPGA(ASIC), International standard(IEC61508)

**Versatile I/O assignment by parameters**

- 6 inputs, 4 outputs

**High speed position capture function**

- Touch probe function(PROBE1, PROBE2)

**Provide specialized commissioning tools by LSIS's XGT PLC**

- Tune inertia ratio, velocity/position gains, gain conversion configuration

**Have conformity of EtherCAT device**

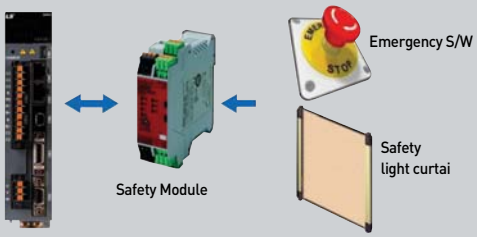
- In-house test using CTT(Conformance Test Tool)

**Support scaling objects for position, velocity and acceleration**

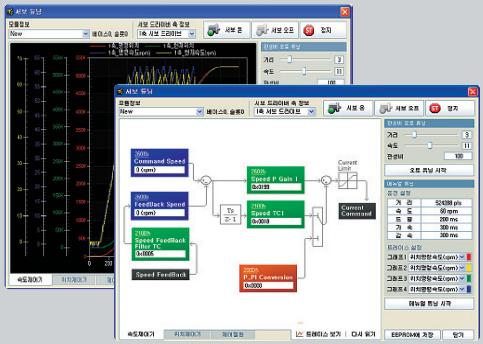
- Numerator and denominator

**Provide Gain Tuning Tools and Commissioning Packages**

- Automatic inertia tuning and PI gains
- Gain conversion setting
- Manual fine gain tuning tool
- Object save and initialization function
- Alarm history function(recently issued 20 alarm codes)


LSIS XGT PLC + PN8B



LSIS Automation Products

# Servo Drive

## Product Features

## Standard Type

| Item \ Model | | | XDL-L7SA001□ | XDL-L7SA002□ | XDL-L7SA004□ | XDL-L7SA008□ | XDL-L7SA010□ | XDL-L7SA020□ | XDL-L7SA035□ | XDL-L7SA050□ |
|---|---|---|---|---|---|---|---|---|---|---|
| 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 |
| Peak Current[A] | | | 4.2 | 5.1 | 9.0 | 15.6 | 20.25 | 40.5 | 50.1 | 96 |
| Encoder Type | | | Quad. Type Incremental Line Driver Max 10000[P/R] Serial Type 19Bit | | | | | | | |
| Performance | Speed Control | Speed Control Position | Max. 1 : 5000 | | | | | | | |
| | | Frequency Response | Max. 1[kHz] or above (When using 19bit Serial Encoder) | | | | | | | |
| | | Analog Speed Command | DC-10[V]~+10[V] (Reverse rotation in case of - voltage) | | | | | | | |
| | | Accel/Decel Time | Linear or S-Shape Accel/Decel. (0~10,000[ms], Setting 1[ms] is possible) | | | | | | | |
| | | Speed Variation Ratio | ±0.01[%] or less [at Load variation 0 ~ 100%], ±0.1[%] or less [at Temp. 25±10°C] | | | | | | | |
| | Position Control | Input Frequency | 1[Mpps], Line Driver / 200[kpps], Open Collector | | | | | | | |
| | | Input Pulse Type | +Pulse, CW+CCW, A/B Phase | | | | | | | |
| | | Electric Gear Ratio | Setting and selecting 4 digital electric gear ratio, Precise adjustment is possible | | | | | | | |
| | Torque Control | Analog Torque Command | DC -10 ~ +10[V] (Reverse rotation in case of - voltage) | | | | | | | |
| | | Speed Limit | DC 0 ~ +10[V], within ±1[%] of internal speed command | | | | | | | |
| | | Repeatability | ±1[%] or less | | | | | | | |
| Input/Output Signal | Analog Input | Input Range | DC -10 ~ +10[V] | | | | | | | |
| | | Resolution | 12[bit] | | | | | | | |
| | Digital Input | | Total 10 Input Channels (assignment available)<br>SVON, SPD1, SPD2, SPD3, ALMRST, DIR, CCWLIM, CWLIM, EMG, STOP, EGEAR1, EGEAR2, PCON, GAIN2, P_CLR, T_LMT, MODE, ABS_RQ, ZCLAMP<br>Above 19 functions can be inputted selectively for assignment<br>Signal can be set as positive logic or negative logic | | | | | | | |
| | Digital Output | | Total 5 Channels (assignment available), 3 Channels (set as alarm code)<br>ALARM, READY, ZSPD, BRAKE, INPOS, TLMT, VLMT, INSPD, WARN Above<br>9 outputs can be inputted selectively for assignment<br>Signal can be set as positive logic or negative logic | | | | | | | |
| Comm-unication | RS-422 | | PC Software and RS422 Server are available | | | | | | | |
| | USB | | Status monitoring, JOG operation, parameter upload/download are available with PC Software | | | | | | | |
| Encoder | | | Compatible with Serial BiSS encoder, Quadrature encoder | | | | | | | |
| Encoder Output Type | | | Random pre-scale output by FPGA (Max. 6.4Mpps) | | | | | | | |
| Built-in Function | Dynamic Braking | | Built-in type (operates when Servo alarm or Servo off) | | | | | | | |
| | Regenerative Braking | | Built-in type, and also external connection is available | | | | | | | |
| | Display | | 7 segments (5DIGIT) | | | | | | | |
| | Setting Function | | Loader ([SET], [MODE], [UP], [DOWN] key) | | | | | | | |
| | Additional Function | | Automatic gain tuning function, Z-phase detection, manual JOG operation, program JOG operation, analog-input auto Calibration function | | | | | | | |
| | Protective Function | | Overcurrent, overload, overvoltage, insufficient voltage, main power input problem, contorl 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 | Temperature | | 0 ~ 50[°C] | | | | | | | |
| | Humidity | | Below 90[%]RH (avoid dew-condensation) | | | | | | | |
| | Ambient Environment | | Indoor, avoid corrosive, inflammable gas or liquid and electrically conductive dust. | | | | | | | |

## Network Type

| Item \ Model | | XDL-L7NA001B | XDL-L7NA002B | XDL-L7NA004B | XDL-L7NA008B | XDL-L7NA010B | XDL-L7NA020B | XDL-L7NA035B |
|---|---|---|---|---|---|---|---|---|
| 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 |
| Peak Current[A] | | 4.2 | 5.1 | 9.0 | 15.6 | 20.25 | 40.5 | 50.1 |
| Encoder Type | | Serial 17Bit / 19Bit / 21Bit | | | | | | |
| Performance | Speed Control Position | Max. 1 : 5000 | | | | | | |
| | Frequency Response | Max. 1[kHz] or above (When using 19bit Serial Encoder) | | | | | | |
| | Analog Speed Command | ±0.01[%] or lower(When the load changes between 0 and 100%), ±0.1[%] or less(Temperature of 25_[±10] | | | | | | |
| | Torque Control Repetition Accuracy | Within ±1% | | | | | | |
| Supported Drive Modes (CiA402) | | Profile Position Mode<br>Profile Velocity Mode<br>Profile Torque Mode<br>Interpolated Position Mode<br>Cyclic Synchronous Position Mode<br>Cyclic Synchronous Velocity Mode<br>Cyclic Synchronous Torque Mode<br>Homing Mode | | | | | | |
| Input/Output Signal | Digital Input | Total 6 Input Channels (assignment available) PCON, GAIN2, ALMRST, HOME, P-OT, N-OT<br>Above 6 functions can be inputted selectively for assignment<br>Signal can be set as positive logic or negative logic | | | | | | |
| | Touch Probe Digital Input | 2 input channels Providing rising and falling edge detection functions for each channel. | | | | | | |
| | Digital Output | Total 4 Channels (assignment available) ALARM, READY, ZSPD, BRAKE, INPOS, INSPD, WARN<br>7 outputs can be inputted selectively for assignment<br>Signal can be set as positive logic or negative logic | | | | | | |
| Communication | USB | Program download is available with USB Communication. | | | | | | |
| Built-in Function | Dynamic Braking | Built-in type(operates when Servo alarm or Servo off) | | | | | | |
| | Regenerative Braking | Built-in type, and also external connection is available | | | | | | |
| | Display | 7 segments(5DIGIT) | | | | | | |
| | Setting Function | The [MODE] key changes the content displayed in 7 segments. | | | | | | |
| | Additional Function | Auto gain tuning function | | | | | | |
| | Protective Function | Overcurrent, overload, overvoltage, insufficient voltage, main power input problem, contorl 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 | Temperature | 0 ~ 50[°C] | | | | | | |
| | Humidity | Below 90[%]RH (avoid dew-condensation) | | | | | | |
| | Ambient Environment | Indoor, avoid corrosive, inflammable gas or liquid and electrically conductive dust. | | | | | | |

*Green Innovators of Innovation*

**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.

# LS IS Co., Ltd.




## HEAD OFFICE

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