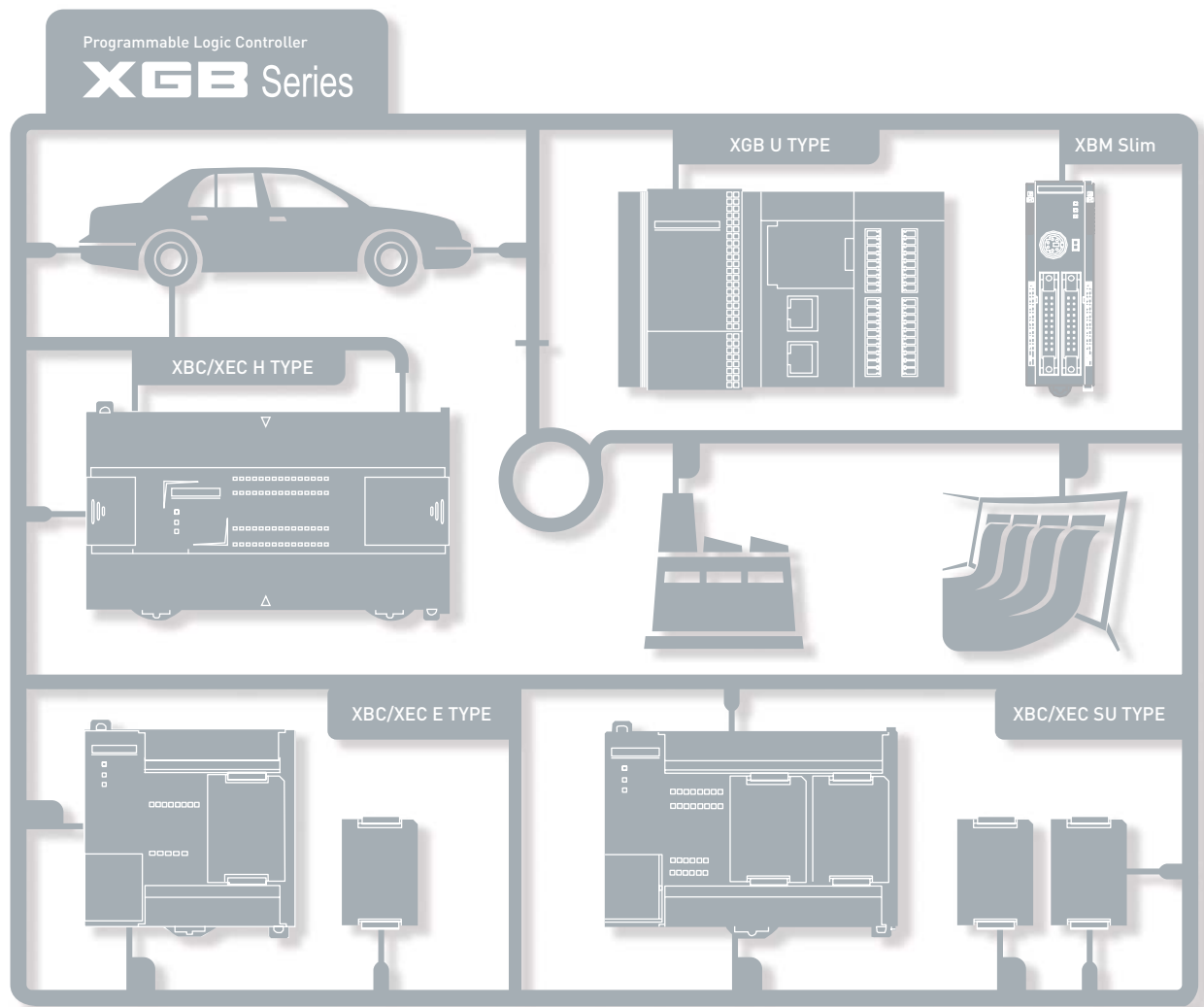




# Programmable Logic Controller **XGB Series**



EASINESS  
COMPACTNESS  
FUNCTIONALITY  
CONVENIENCE  
HIGH PERFORMANCE

Programmable Logic Controller

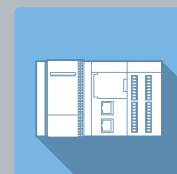
# XGB Series



## FEATURES

4 ~ 15

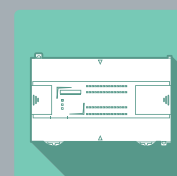
FEATURES



## XBC/SEC U

16 ~ 23

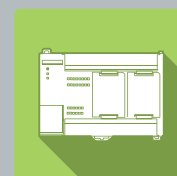
XGB U



## XBC/SEC H

24 ~ 29

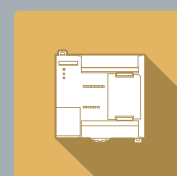
XBC/SEC H



## XBC/SEC SU

30 ~ 33

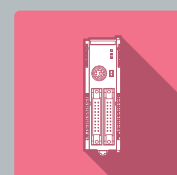
XBC/SEC SU



## XBC/SEC E

40 ~ 47

XBC/SEC E



## XBM Slim

48 ~ 55

XBM Slim



## APPLICATION

56 ~ 107

APPLICATION

# All-In-One PLC

With Next Generation Technology



# XGB

XGB is a micro PLC that offers maximum performance at minimum cost.

With its high functionality, XGB supports from simple control system to complex task.

Strengthening its communication functions, XGB offers user-oriented integrated control.

Based on its strengths, XGB can be used in many application fields.



# Series

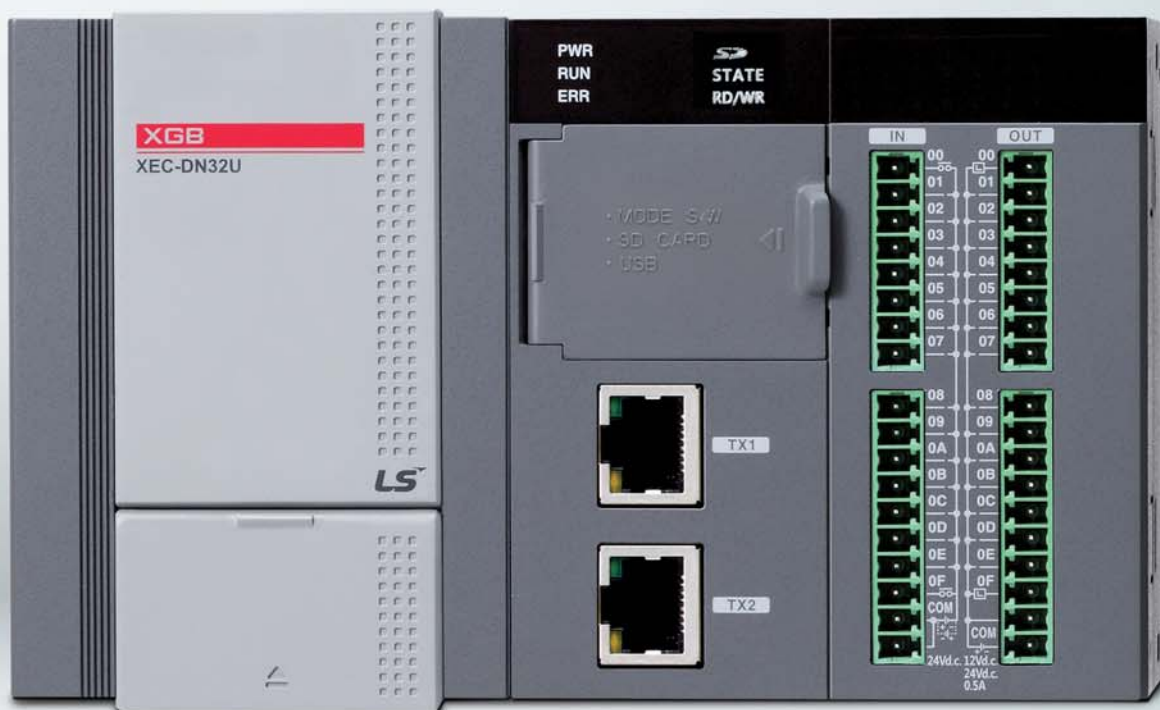
# It's Slim It's Powerful



It's Slim

Item Size(W×H×D)	XBC/XEC U Type (Standard)	XBC/XEC H Type	XBC/XEC SU Type	XBC/XEC E Type	XBM Slim Type
Size(W×H×D)	150×64×90	114×64×90	135×64×90	100×64×90	30×60×90

Expansion	Special Module	Communication Module
Size(W×H×D)	20×63×90	27×63×90



※ The actual size of the product

## It's Powerful

Ethernet  
1 Ch.  
(Dual Port)

RS-232C  
1 Ch.

RS-485  
1 Ch.

PID

Web  
Server

Data Log

USB

Pulse catch

High speed  
counter  
8 Ch.

Analog  
input/  
output 8 Ch.

Positioning  
4 axes

External  
interrupt

※ XBC/XEC U Type

What you have dreamed of, we make it happen.

**XGB U** sets new standards in **Ultimate performance** with its many innovations

**IoT** (Internet of Things) realizes smart factories

**XGB-U** is a **user-oriented** controller

## High Speed Backplane I/F Module

30 times faster than basic module

25,3  $\mu$ s/word

Basic Module

0,83  $\mu$ s/word

High Speed Backplane I/F Module

PWR  
RUN  
ERR

STATE  
RD/WR

· MODE S W  
· SD CARD  
· USB

TX1

TX2

IN

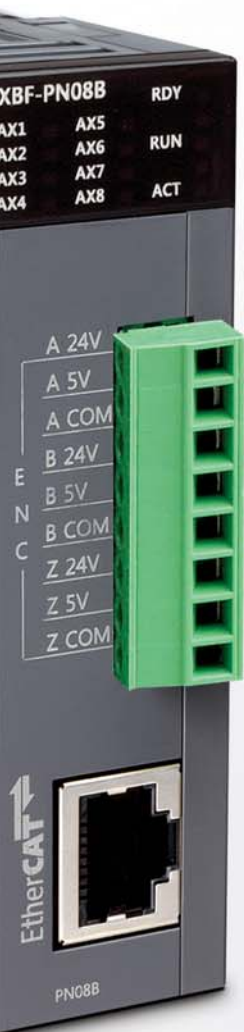
OUT

HI-SPEED  
CERTIFIED **USB**

XBF-PN  
AX1  
AX2  
AX3  
AX4

A 2  
A 5  
A C  
B 2  
B 5  
B C  
Z 2  
Z 5  
Z C

EtherCAT

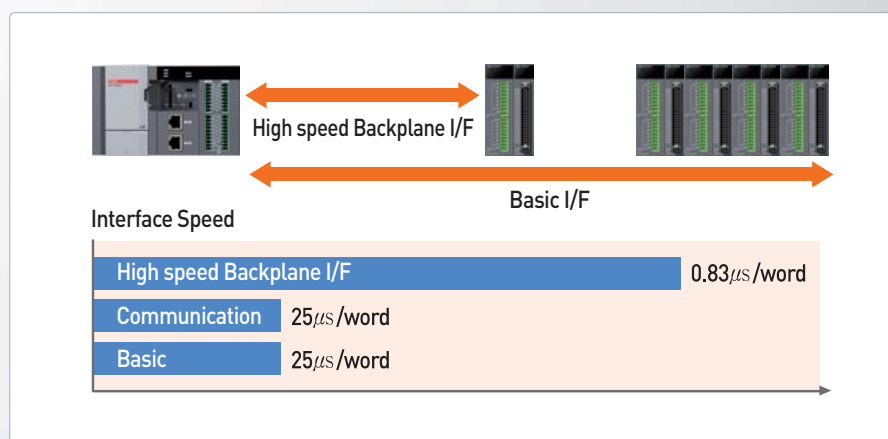


## Various Expansion

- Compatible with XGB expansion modules
- Max. 2 High speed backplane expansion modules
- Max. 10 expansion modules
- Max. 352 I/O points
- Expansion I/O module
  - DC24 input, Transistor output, Relay output
- Special module
  - Analog input, Analog output, RTD, Thermocouple, High-speed counter, Positioning (Line drive 2 axes, EtherCAT network 8 axes)
- Communication modules
  - RS-232C, RS-422/485, Ethernet, CANopen (Master/Slave), Profibus-DP (Master/Slave), DeviceNet (Slave), EtherNet/IP, RAPIEnet

## Expansion(XBC/XEC U Type)

- Max. 10 expansion modules
  - Max. 2 High speed backplane modules
  - Max. 2 Communication modules

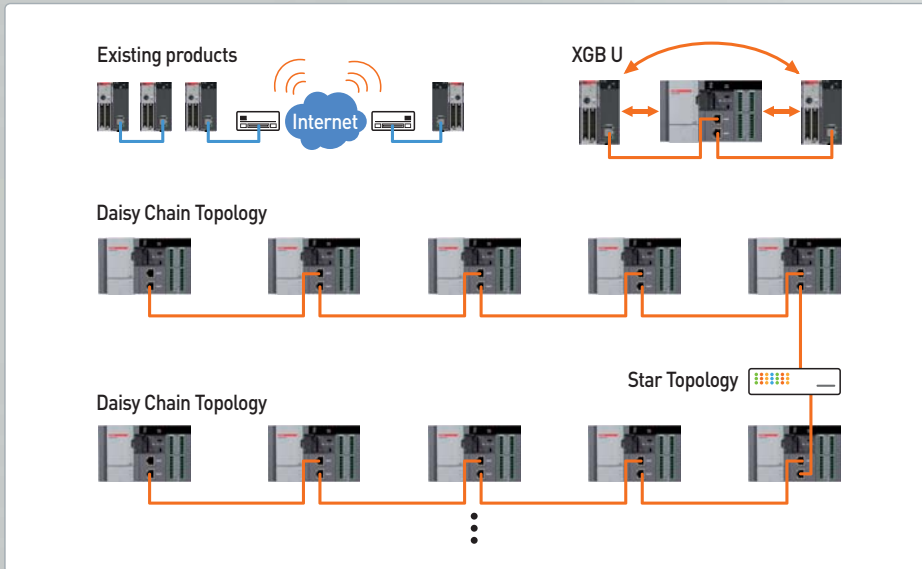


## Data Log

- Easy parameter set up for [General save], [Trigger save], [Event save] without instruction
- 16GB of operation data storable
- Additional function
  - SD memory format, FTP link, Diagnosis, Sending email attached with a data log file
  - PLC program upload/download
  - O/S update

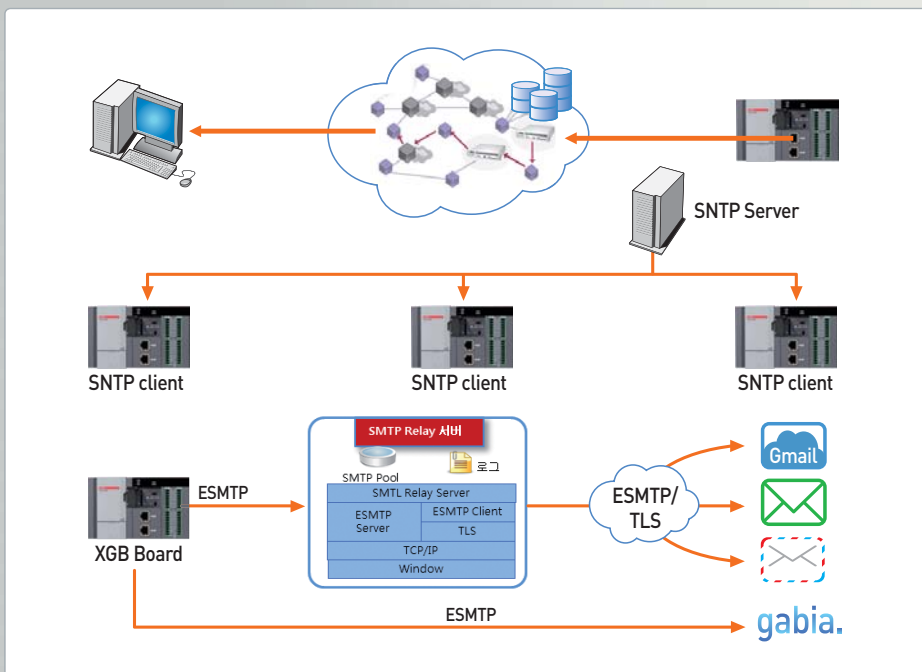
## Dual Port Ethernet(XBC/XEC U type)

- 2 ports unmanaged Ethernet switch support
- Cost saving through simple wiring
- FTP server support (Data logging)



## Web Server

- Monitoring of PLC information and data through web browser (PLC basic info., module info., diagnosis, device monitoring, flag monitoring, data log file download, O/S update, ladder program update, etc.)
- Time synchronization by setting basic parameters (SNTP: Simple Network Time Protocol)
- Email service through commercial email (SMTP: Simple Mail Transfer Protocol)



# Ultimate Performance Universal IoT User Oriented



U will experience the utmost efficiency for your applications with U's outstanding features

## Powerful built-in function

### Built-in high speed counter

Phase	XBC/XEC				XBM
	U	H	SU	E	
1 Phase	100kHz(8Ch)	100kHz(4Ch)	100kHz(2Ch)	4kHz	20kHz
	8Ch	8Ch	8Ch		4Ch
2 Phase	50kHz(4Ch)	50kHz(4Ch)	50kHz(1Ch)	2kHz	2 multiplication: 10kHz 4 multiplication: 8kHz
	4Ch	4Ch	4Ch		2Ch



### Built-in PID function

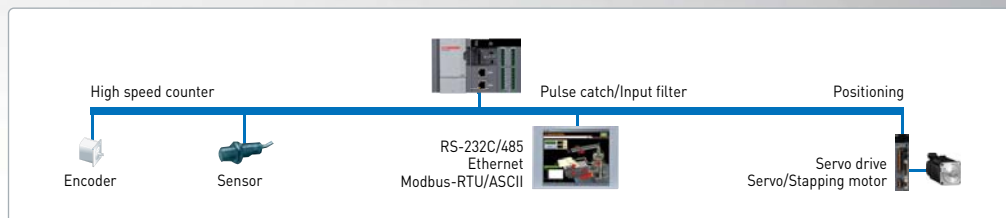
- It supports built-in PID control function up to 16 loops.
  - It provides parameter setting using XG5000, convenient loop state monitoring through trend monitor.
  - It can simply get a coefficient value by improved auto-tuning algorithm
  - Control accuracy improvement by using various additional functions such as PWM output,  $\Delta$  MV,  $\Delta$  PV, SV Ramp, etc.
  - It provides various control modes such as forward/reverse mixed operation, 2-stage SV PID control, cascade control, etc.
  - Various alarm functions such as MV high/low limit, PV high/low limit, PV variation

### Built-in analog I/O function (Available for XBC/XEC-DN32UA type only)

- Built-in analog input 4 channels (voltage/current, 14bit)
- Built-in analog output 4 channels (voltage/current 14bit)

### Built-in position control function (Available for XBC/XEC-DN32UP type only)

- Line drive output positioning function with up to 2Mpps 4-axis
- Parameter set up by XG-PM providing operation data edition, divers monitoring and diagnosis functions.

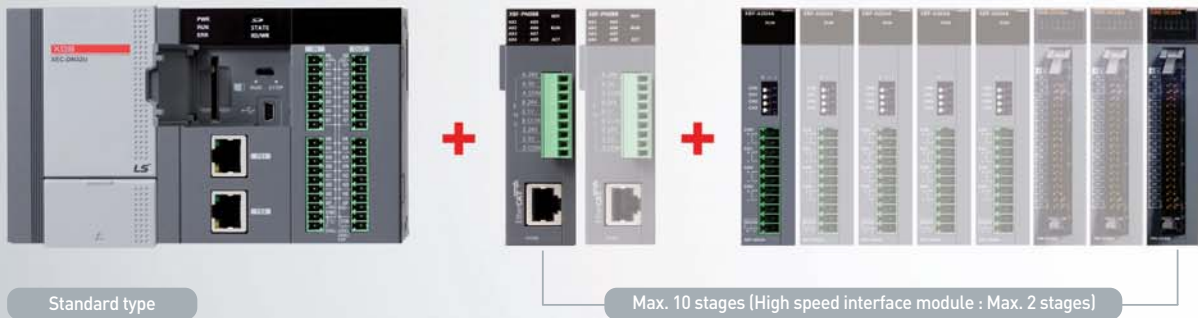


## Features

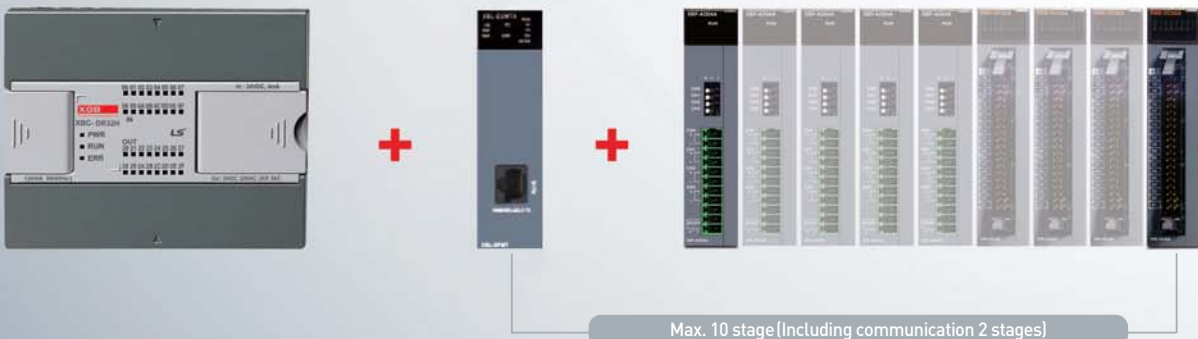
With its high-speed processing and system capability, XGB offers the utmost efficiency for your applications.



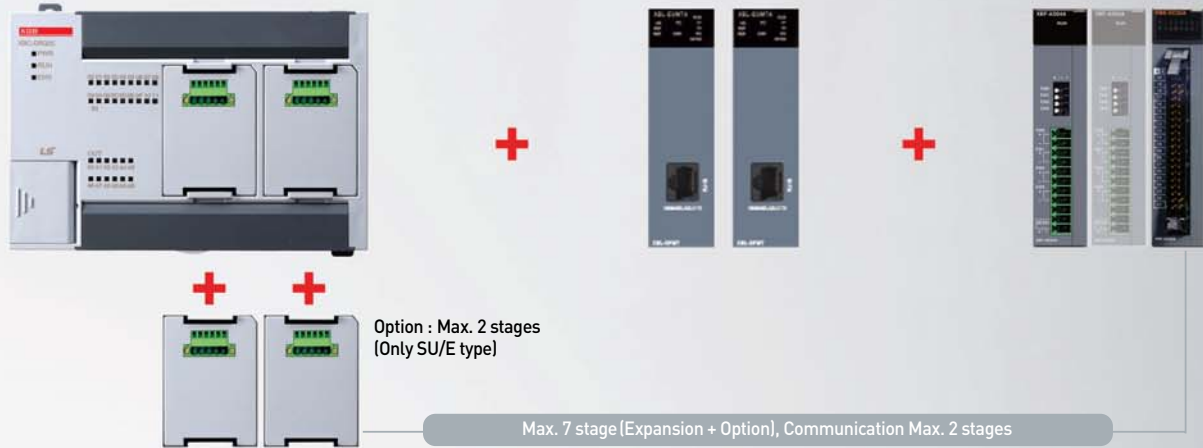
### XBC/XEC U



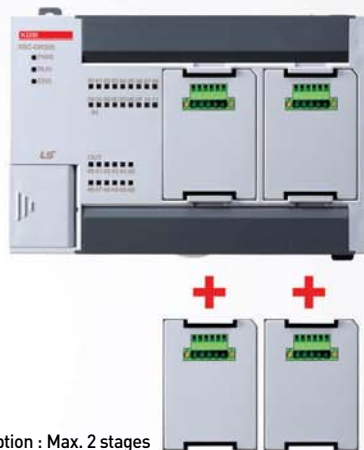
### XBC/XEC H



## XBC/XEC SU

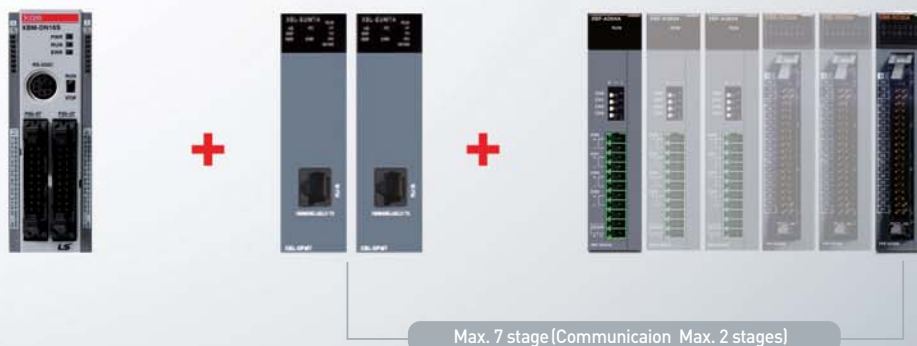


## XBC/XEC E



Option modules	
XB0-M2MB	Memory / program READ/WRITE
XB0-RTCA	RTC (Real time clock), Battery
XB0-DC04A	DC 24V, Input 4 points
XB0-TN04A	TR (Sink), Output 4 points
XB0-AD02A	Voltage/Current, Input 2ch
XB0-DA02A	Voltage/Current, Output 2ch
XB0-AH02A	Voltage/Current, Input 1ch / Voltage/Current, Output 1ch
XB0-RD01A	RTD (Resistance temperature detector), Input 1ch
XB0-TC02A	TC (Thermo couple), Input 2ch

## XBM Slim





# XGB U

Ultimate Performance  
Universal IoT  
User Oriented

## C o n t e n t s

General specifications .....	18
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Wiring .....	23





## Block type unit (U, H, SU, E)



Item	Descriptions			Standard	
Ambient temperature	0 ~ 55 °C				
Storage temperature	- 25 ~ +70 °C				
Ambient humidity	5 ~ 95%RH (Non-condensing)				
Storage humidity	5 ~ 95%RH (Non-condensing)				
Vibration resistance	Occasional vibration		10 times each direction (X, Y and Z)	IEC61131-2	
	Frequency	Acceleration			Pulse width
	10 ≤ f < 57Hz	–			0.075mm
	57 ≤ f ≤ 150Hz	9.8m/s² (1G)			–
	Continuous vibration				
	Frequency	Acceleration			Pulse width
	10 ≤ f < 57Hz	–			0.035mm
	57 ≤ f ≤ 150Hz	4.9m/s² (0.5G)			–
Shock resistance	• Peak acceleration: 147m/s² (15g) • Duration: 11ms • Pulse waveform: Half-sine, 3times each direction per each axis			IEC61131-2	
Noise resistance	Square wave impulse noise	±500 V		LSIS Standard	
	Electrostatic discharge	4kV		IEC61131-2 IEC61000-4-2	
	Radiated electromagnetic field noise	80 ~ 1000MHz, 10V/m		IEC61131-2 IEC61000-4-3	
	Fast transient/ Burst noise	Main unit	Expansion module	IEC61131-2 IEC61000-4-4	
		2kV	1kV		
Operating ambience	Free from corrosive gases and excessive dust				
Altitude	Up to 2,000m				
Pollution level <sup>*1)</sup>	Less than 2				
Cooling	Air-cooling				

<sup>\*1)</sup> Pollution level indicates the degree to which conductive material is generated in the environment where the equipment is used. Pollution level 2 is the condition that only non-conductive pollution occurred but temporary conductivity may be produced due to condensing.

# Performance specifications | Block type unit

## XBC U

### Performance specifications

Item		Specifications						Remark
		XBC-DN(P)32U	XBC-DR28U	XBC-DN(P)32UA	XBC-DR28UA	XBC-DN(P)32UP	XBC-DR28UP	
Program control method		Cyclic execution of stored program, Time-driven interrupt, Process-driven interrupt						
I/O control method		Batch processing by simultaneous scan (Refresh method), Directed by program instruction						
Program language		Ladder Diagram, Instruction List						
Number of instructions	Basic	28						
	Application	677						
Processing speed (Basic instruction)		60ns/step						
Program capacity		32Kstep						
Max. I/O points		352points	348points	352points	348points	352points	348points	Main + 10 expansions
Data area	P	P00000 ~ P2047F(32,768 point)						Input/Ouput
	M	M00000 ~ M2047F(32,768 point)						
	K	K00000 ~ K8191F(131,072 point)						
	L	L00000 ~ L4095F (65,536 point)						Link
	F	F00000 ~ F2047F (32,768 point)						Flag
	T	100ms, 10ms, 1ms: T0000 ~ T2047 (2,048 point)						Timer
	C	C000 ~ C2047 (2,048 point)						Counter
	S	S00.00 ~ S127.99						Step
	D	D00000 ~ D19999(20000word)						Data register
	U	U00.00 ~ U0B.31 (384 word)						Analog Data
	Z	Z000~Z127 (128 word)						
File register	R	N0000~N10239(10,240 word)						
		RAM area 2 block (R0 ~ R16,383)						
		FLASH area : 4 block (128Kbyte)						
Total program		256						
Initial task	Initial task	1						
	Cyclic task	Max 16						
	I/O task	Max 8						
	Internal device task	Max 16						
	High Speed Counter task	Max 8						
Operation mode		RUN, STOP, DEBUG						
Self-diagnosis function		Detects errors of scan time, memory, I/O and power supply						
Program port		USB 1 channel, Ethernet						
Retain data at power failure		Latch area setting in basic parameter						
Internal consumption current		700mA	990mA	780mA	1,040mA	1,250mA	1,550mA	
Weight		571g	630g	683g	732g	673g	722g	

\*1) Auto-MDIX (Automatic medium-dependent interface crossover) :

It is the function to automatically detect whether the cable connected to the Ethernet port is peer-to-peer(straight) or cross cable

## XEC U

### Performance specifications

Item		Specifications						Remark	
		XEC-DN(P)32U	XEC-DR28U	XEC-DN(P)32UA	XEC-DR28UA	XEC-DN(P)32UP	XEC-DR28UP		
Program control method		Cyclic execution of stored program, Time-driven interrupt, Process-driven interrupt							
I/O control method		Batch processing by simultaneous scan (Refresh method), Directed by program instruction							
Program language		Ladder Diagram, Instruction List, SFC, ST							
Number of instructions	Operator	18							
	Basic function	136 + Floating-point Arithmetic Functions							
	Basic function block	43							
	Special function block	Each special module has own special function blocks							
Processing speed (Basic instruction)		60ns/step							
Program memory		384Kbyte							
Max. I/O points		352points	348points	352points	348points	352points	348points	Main + 10 expansions	
Data area	Symbolic variable(A)	64KB (Retain setting available)							
	Input variable(I)	2KB							
	Output variable(Q)	2KB							
	Direct variable	M	32KB (Retain setting available)						
		R	32KB * 2blocks						
		W	64KB						Same area with R
	Flag variable	F	4KB						System flag
		K	16KB						Keep relay
		L	8KB						Link relay
		U	768 Byte						Analog data refresh area
N		20KB						P2P parameter	
Flash area		4blocks (128Kbyte)						Using R device	
Timer		No limit in points (Time range: 0.001~ 4,294,967.295)							
Counter		No limit in points (Counter range: 64 bit range)							
Total program		256							
Initial task	Initial task	1							
	Cyclic task	Max 16							
	Initial task	1							
	Cyclic task	Max 16							
	I/O task	Max 8							
	Internal device task	Max 16							
	High Speed Counter task	Max 8							
Operation mode		RUN, STOP, DEBUG							
Self-diagnosis function		Detects errors of scan time, memory, I/O and power supply							
Program port		USB 1 channel							
Retain data at power failure		Latch area setting in basic parameter							
Internal consumption current		700mA	990mA	780mA	1,040mA	1,250mA	1,550mA		
Weight		571g	630g	683g	732g	673g	722g		

Built-in function

Item		Specifications						Remark
		XBC/XEC-DN(P)32U	XBC/XEC-DR28U	XBC/XEC-DN(P)32UA	XBC/XEC-DR28UA	XBC/XEC-DN(P)32UP	XBC/XEC-DR28UP	
PID control		Control by instruction, auto-tuning, PWM output, Forced output, Operation scan time setting, Antiwindup, Delta MV, PV tracking, Hybrid operation, Cascade operation						
Serial	Protocol	Dedicated protocol, Modbus protocol User defined protocol , LS bus(inverter protocol)						Embedded00 P2P:01
	Channel	RS-232C 1 port and RS-485 1 port						
Ethernet	Transfer spec	Cable: 100Base-TX Speed: 100Mbps Auto-MDIX *1 IEEE 802.3						
	Topology	Line, star						
	Diagnosis	Module information, service condition						
	Protocol	XGT dedicated Modbus TCP/IP user define frame						Embedded01 P2P:02 High-speed link:01
	Service	P2P, High Speed link, Remote connection						
Datalog	Group	Max 10 group						
	Data set	32 per group						
	Extension	csv file						
	File size	Max 16Mbyte						
	SD memory type	SD,SDHC type(Recommand: SanDisk,Transcend)						
	Memory size	Max 16GB						
	File system	FAT32						
High Speed Counter	Performance	1-phase : 100KHz 8 channels 2-phase : 50KHz 4 channels						
	Counter mode	4 counter modes are supported based on input pulse and INC/DEC method <ul style="list-style-type: none"><li>1 pulse operation Mode : INC/DEC count by program</li><li>1 pulse operation Mode : INC/DEC count by phase B pulse input</li><li>2 pulse operation Mode : INC/DEC count by input pulse</li><li>2 pulse operation Mode : INC/DEC count by difference of phase</li></ul>						
	Function	<ul style="list-style-type: none"><li>Internal/external preset</li><li>Latch counter</li><li>Compare output</li><li>No. of rotation per unit time</li></ul>						

\*1) Auto-MDIX(Automatic medium-dependent interface crossover) : It is the function to automatically detect whether the cable connected to the Ethernet port is peer-to-peer(straight) or cross cable

## XEC U

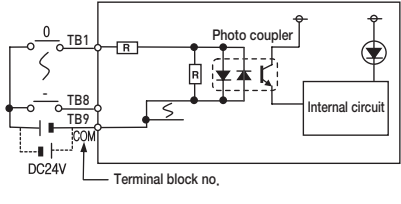
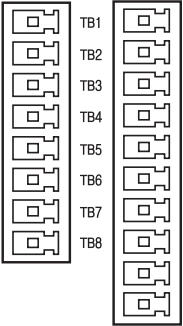
### Positioning

Item	Specifications	Remark
Basic Function	No. of control axis: 4axis Control Method:Position, Speed, Speed/Position,Feed Control Control Unit: Pulse ,mm, inch, degree Positioning Data: Each axis can have up to 400 data(Step number:1~400) Operation pattern: End, Keep, Continuous Operation method: Singular, Repeat	Available On UP type
interpolation	2/3/4 axis linear interpolation 2 axis circular interpolation 3 axis helical interpolation	
Positioning	Method: Absolute/Incremental method Address range: 2,147,483,648~2,147,483,647 Speed: Max 2Mpps(1~2,000,000pps) Acc /Dec process: Trapezoid type, S-type	
Homing method	DOG+HOME(Off), DOG+HOME(On), Upper limit + HOME,DOG, High speed, Upper/Lower limit, HOME	
Manual operation	Jog operation, MPG operation, Inching operation	
Encoder input	Line drive(RS-422A) input 1Channel(Max 200kpps)	

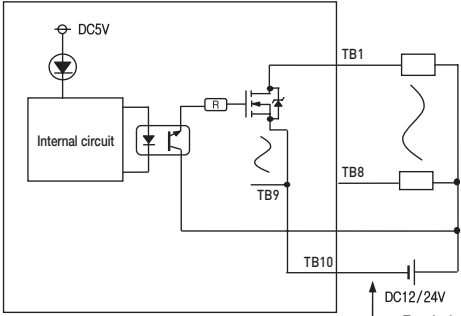
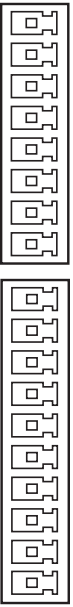
### Analog

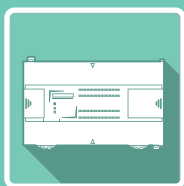
Item	Specifications	Remark
Analog input	Channels	4channels (current/voltage)
	Specification	Input Range
		Voltage: 1~5V, 0~5V, 0~10V, -10~10V, Current: 4~20mA,0~20mA
		Current input or Voltage input can be selected through the external terminal wiring setting.
		Input resistance
		1MΩ or more(voltage input), 250Ω (current input)
Analog output	Specification	Max.Resolution
		1/16000
		0.250mV(1 ~ 5V), 0.3125mV(0 ~ 5V) 0.625mV(0 ~ 10V), 1.250mV(±10V)
		1.0μA (4 ~ 20mA) 1.25μA (0 ~ 20mA)
		Accuracy
		±0.2% or less (When ambient temperature is 25℃) ±0.3% or less (When ambient temperature is 0 ~ 55℃)
Analog output	Channels	Voltage 2 channels ,Current 2 channels
	Specification	Output Range
		Voltage: 1~5V, 0~5V, 0~10V, -10~10V, Current: 4~20mA,0~20mA
		Output ranges are set in user program or I/O parameter per each channel.
		Load resistance
		1MΩ or more(voltage output), 600Ω or less(current output)
Analog output	Specification	Max.Resolution
		1/16000
		0.250mV(1 ~ 5V), 0.3125mV(0 ~ 5V) 0.625mV(0 ~ 10V), 1.250mV(±10V)
		1.0μA (4 ~ 20mA) 1.25μA (0 ~ 20mA)
		Accuracy
		±0.2% or less (When ambient temperature is 25℃) ±0.3% or less (When ambient temperature is 0 ~ 55℃)

## XBC-DN(P)32U (16 point input)

Circuit configuration		No.	Contact	No.	Contact	Type	
		TB1	0	TB1	8		TB1
		TB2	1	TB2	9		TB2
		TB3	2	TB3	A		TB3
		TB4	3	TB4	B		TB4
		TB5	4	TB5	C		TB5
		TB6	5	TB6	D		TB6
		TB7	6	TB7	E		TB7
		TB8	7	TB8	F		TB8
				TB9	COM		TB9
				TB10	COM		TB10

## XBC-DN32U Transistor output (Sink type)

Circuit configuration		No.	Contact	Type	
		TB1	0		TB1
		TB2	1		TB2
		TB3	2		TB3
		TB4	3		TB4
		TB5	4		TB5
		TB6	5		TB6
		TB7	6		TB7
		TB8	7		TB8
		TB1	8		TB1
		TB2	9		TB2
		TB3	A		TB3
		TB4	B		TB4
		TB5	C		TB5
		TB6	D		TB6
		TB7	E		TB7
		TB8	F		TB8
		TB9	DC12/24V		TB9
		TB10	COM		TB10



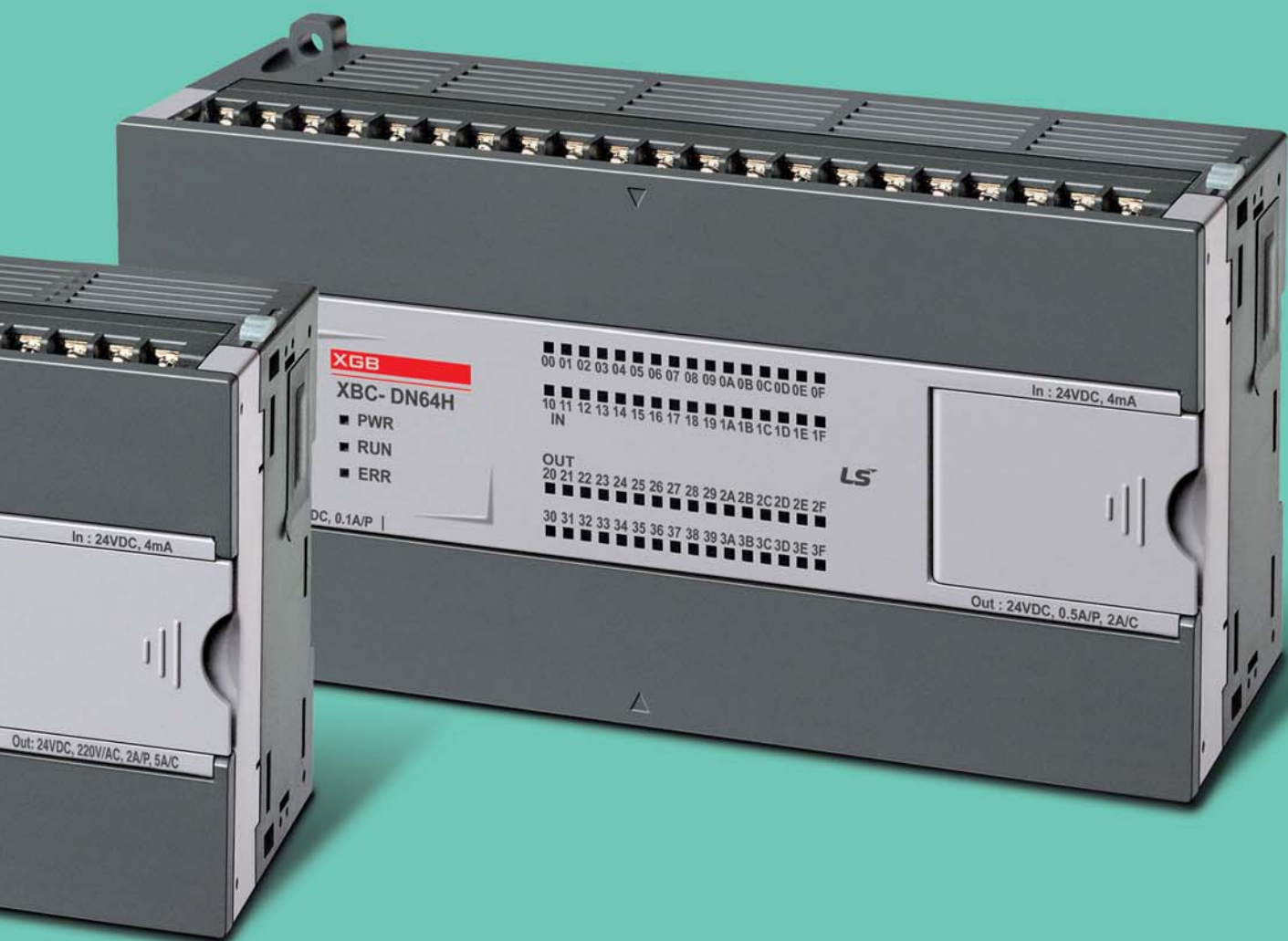
# XBC/XEC H

High Performance

## C o n t e n t s

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## High performance type

### Performance specifications

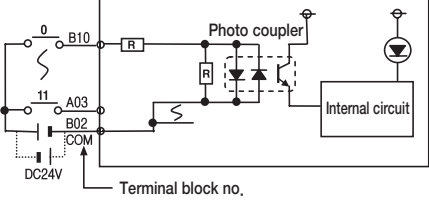
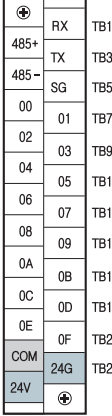
Item	XBC/XEC-DR32H XBC-DR32H/DC <sup>(*)</sup> XEC-DR32H/DI	XBC/XEC-DN32H XEC-DP32H <sup>(*)</sup> XBC-DN32H/DC	XBC/XEC-DR64H XBC-DR64H/DC <sup>(*)</sup> XEC-DR64H/DI	XBC/XEC-DN64H XEC-DP64H <sup>(*)</sup> XBC-DN64H/DC
Control method	Repetitive, cyclic, interrupt, constant scan			
I/O control method	Refresh mode (Batch processing by scan synchronization), Direct mode by instruction			
Programming language	Ladder diagram or IEC standard (LD, SFC, ST) <sup>(*)</sup>			
Processing speed	83 ns / Step			
Program capacity	15Kstep (IEC type: 200KB)			
Main unit I/O points	32 (Input:16, Output:16)	32 (Input:16, Output:16)	64 (Input: 32, Output: 32)	64 (Input: 32, Output: 32)
Max. I/O points (Main + Expansion 10 stages)	352 points		384 points	
Total program	128			
Operation mode	RUN, STOP, DEBUG			
Self diagnosis	Detects errors of scan time, memory error, I/O error, battery error, power error, etc.			
Program port	USB (Rev 1.1), RS-232C 1 channel (Loader)			
Retain data at power failure	Latch area setting at basic parameter			
Built-in functions	RS-232C / RS-485 (2 ch), Pulse catch, Input filter, External interrupt, PID control, High-speed counter, Positioning, RTC			
Data memory				
XBC		XEC (IEC type)		
P	P0000 ~ P1023F (16,384 points)	Symbolic variable	A	32KB (Max. 16KB retain setting available)
M	M0000 ~ M1023F (16,384 points)	Input variable	I	2KB (%IX 15.15.63)
K	K0000 ~ K4095F (65,536 points)	Output variable	Q	2KB (%QX 15.15.63)
L	L0000 ~ L2047F (32,768 points)	Direct variable	M	16KB (Max. 8KB retain setting available)
F	F0000 ~ F1023F (16,384 points)		R	20KB (1 block)
T	100ms, 10ms, 1ms: T0000 ~ T1023 (1,024)(Adjustable by parameter setting)		W	20KB
C	C0000 ~ C1023 (1,024)	Flag variable	F	2KB
S	S00.00 ~ S127.99		K	8KB
D	D0000 ~ D10239 (10,240 word)		L	4KB
U	U00.00 ~ U0A.31 (Analog data refresh area: 352 word)		N	10KB
Z	Z000 ~ Z127 (128 word)		U	1KB
N	N000 ~ N5119 (5,120 word)	Flash area	R	20KB (2 blocks)

<sup>\*1)</sup> XEC is IEC standard language programming.

# Wiring | XBC/XEC H input/output wiring

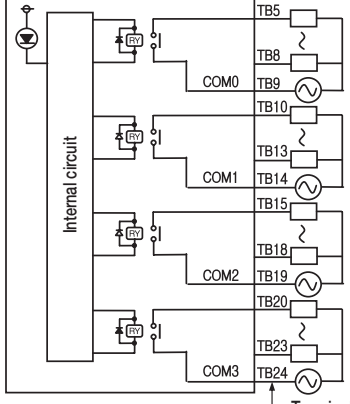
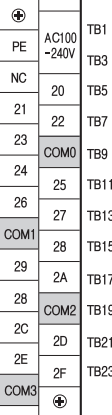
## XBC/XEC-DN(R)32H XBC/XEC-DN/DR/DP32H

Input wiring  
(sink/source type)

Circuit configuration	No.	Contact	No.	Contact	Type
	TB2	485+	TB1	RX	
	TB4	485-	TB3	TX	
	TB6	00	TB5	SG	
	TB8	02	TB7	01	
	TB10	04	TB9	03	
	TB12	06	TB11	05	
	TB14	08	TB13	07	
	TB16	0A	TB15	09	
	TB18	0C	TB17	0B	
	TB20	0E	TB19	0D	
	TB22	COM	TB21	0F	
	TB24	24V	TB23	24G	

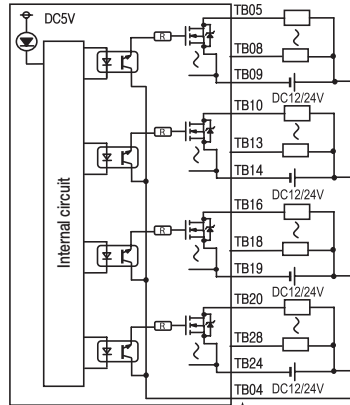
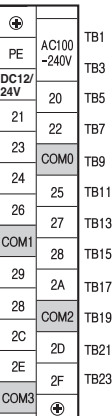
## XBC/XEC-DR32H

Relay output wiring type

Circuit configuration	No.	Contact	No.	Contact	Type
	TB2	PE	TB1	Power	
	TB4	NC	TB3	20	
	TB6	21	TB5	COM0	
	TB8	23	TB7	25	
	TB10	24	TB9	27	
	TB12	26	TB11	28	
	TB14	COM1	TB13	2A	
	TB16	28	TB15	COM2	
	TB18	2A	TB17	2D	
	TB20	2C	TB19	2F	
	TB22	2E	TB21	2G	
	TB24	COM3	TB23	2H	

## XBC/XEC-DN32H

Transistor output wiring  
(sink type)

Circuit configuration	No.	Contact	No.	Contact	Type
	TB2	PE	TB1	Power	
	TB4	DC12/24V	TB3	20	
	TB6	21	TB5	COM0	
	TB8	23	TB7	25	
	TB10	24	TB9	27	
	TB12	26	TB11	28	
	TB14	COM1	TB13	2A	
	TB16	28	TB15	COM2	
	TB18	2A	TB17	2D	
	TB20	2C	TB19	2F	
	TB22	2E	TB21	2G	
	TB24	COM3	TB23	2H	

\* XBC input : P00~P1F, XEC input : I00~I31 \* XBC output : P21~P3F, XEC output : Q00~Q31

## XEC-DP32H

Transistor output wiring  
(source type)

Circuit configuration		No.	Contact	No.	Contact	Type	
		TB2	PE	TB1	Power		
		TB4	DC12/24V	TB3			
		TB6	21	TB5	20		
		TB8	23	TB7	22		
		TB10	24	TB9	COM0		
		TB12	26	TB11	25		
		TB14	COM1	TB13	27		
		TB16	29	TB15	28		
		TB18	28	TB17	2A		
		TB20	2C	TB19	COM2		
		TB22	2E	TB21	2D		
		TB24	COM3	TB23	2F		

## XBC-DN(R)64H

## XEC-DN/DR/DP64H

Input wiring  
(sink/source type)

Circuit configuration		No.	Contact	No.	Contact	Type	
		TB2	485+	TB1	RX		
		TB4	485-	TB3	TX		
		TB6	00	TB5	SG		
		TB8	02	TB7	01		
		TB10	04	TB9	03		
		TB12	06	TB11	05		
		TB14	08	TB13	07		
		TB16	0A	TB15	09		
		TB18	00	TB17	0B		
		TB20	0E	TB19	0D		
		TB22	COM0	TB21	0F		
		TB24	10	TB23	MC		
		TB26	12	TB25	11		
		TB28	14	TB27	13		
		TB30	16	TB29	15		
		TB32	18	TB31	17		
		TB34	1A	TB33	19		
		TB36	1C	TB35	1B		
		TB38	1E	TB37	1D		
		TB40	COM1	TB39	1F		
		TB42	24V	TB41	24G		

## XBC-DR60H

## XEC-DR64H

Relay output wiring

Circuit configuration		No.	Contact	No.	Contact	Type	
		TB2	PE	TB1	Power		
		TB4	NC	TB3			
		TB6	21	TB5	20		
		TB8	23	TB7	22		
		TB10	24	TB9	COM0		
		TB12	26	TB11	25		
		TB14	COM1	TB13	27		
		TB16	29	TB15	28		
		TB18	2B	TB17	2A		
		TB20	2C	TB19	COM2		
		TB22	2E	TB21	2D		
		TB24	COM2	TB23	2F		
		TB26	31	TB25	30		
		TB28	33	TB27	32		
		TB30	35	TB29	34		
		TB32	37	TB31	36		
		TB34	38	TB33	COM4		
		TB36	3A	TB35	39		
		TB38	3C	TB37	38		
		TB40	3E	TB39	3D		
		TB42	COM5	TB41	3F		

\* XBC input : P00~P1F, XEC input : I00~I31 \* XBC output : P21~P3F, XEC output : Q00~Q31

**XBC-DP64H**

 Transistor output wiring  
(sink type)

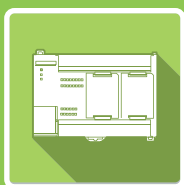
Circuit configuration	No.	Contact	No.	Contact	Type																																																																		
	TB2	PE	TB1	Power	<table><tr><td>⊕</td><td>AC100</td><td>TB1</td></tr><tr><td>⊖</td><td>~240V</td><td>TB3</td></tr><tr><td>01</td><td>00</td><td>TB5</td></tr><tr><td>03</td><td>02</td><td>TB7</td></tr><tr><td>04</td><td>COM0</td><td>TB9</td></tr><tr><td>06</td><td>05</td><td>TB11</td></tr><tr><td>07</td><td>07</td><td>TB13</td></tr><tr><td>09</td><td>08</td><td>TB15</td></tr><tr><td>11</td><td>10</td><td>TB17</td></tr><tr><td>13</td><td>COM2</td><td>TB19</td></tr><tr><td>14</td><td>13</td><td>TB21</td></tr><tr><td>15</td><td>15</td><td>TB23</td></tr><tr><td>16</td><td>16</td><td>TB25</td></tr><tr><td>17</td><td>18</td><td>TB27</td></tr><tr><td>19</td><td>20</td><td>TB29</td></tr><tr><td>21</td><td>22</td><td>TB31</td></tr><tr><td>23</td><td>COM4</td><td>TB33</td></tr><tr><td>24</td><td>25</td><td>TB35</td></tr><tr><td>26</td><td>27</td><td>TB37</td></tr><tr><td>28</td><td>29</td><td>TB39</td></tr><tr><td>30</td><td>31</td><td>TB41</td></tr><tr><td>⊕</td><td></td><td></td></tr></table>	⊕	AC100	TB1	⊖	~240V	TB3	01	00	TB5	03	02	TB7	04	COM0	TB9	06	05	TB11	07	07	TB13	09	08	TB15	11	10	TB17	13	COM2	TB19	14	13	TB21	15	15	TB23	16	16	TB25	17	18	TB27	19	20	TB29	21	22	TB31	23	COM4	TB33	24	25	TB35	26	27	TB37	28	29	TB39	30	31	TB41	⊕		
	⊕	AC100	TB1																																																																				
	⊖	~240V	TB3																																																																				
	01	00	TB5																																																																				
	03	02	TB7																																																																				
	04	COM0	TB9																																																																				
	06	05	TB11																																																																				
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23	COM4	TB33																																																																					
24	25	TB35																																																																					
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28	29	TB39																																																																					
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TB4	DC12/24V	TB3																																																																					
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TB18	2B	TB17	2A																																																																				
TB20	2C	TB19	COM2																																																																				
TB22	2E	TB21	2D																																																																				
TB24	COM2	TB23	2F																																																																				
TB26	31	TB25	30																																																																				
TB28	33	TB27	32																																																																				
TB30	35	TB29	34																																																																				
TB32	37	TB31	36																																																																				
TB34	38	TB33	COM4																																																																				
TB36	3A	TB35	39																																																																				
TB38	3C	TB37	38																																																																				
TB40	3E	TB39	3D																																																																				
TB42	COM5	TB41	3F																																																																				

**XBC-DP64H**

 Transistor output wiring  
(source type)

Circuit configuration	No.	Contact	No.	Contact	Type

\* XBC input : P00~P1F, XEC input : I00~I31      \* XBC output : P21~P3F, XEC output : Q00~Q31



# XBC/XEC SU

Standard

## C o n t e n t s

Performance specifications .....32

Wiring .....33





## Standard type

### Performance specifications

Item	XBC/XEC-DN20SU	XBC/XEC-DN30SU	XBC/XEC-DN40SU	XBC/XEC-DN60SU	
	XBC/XEC-DR20SU	XBC/XEC-DR30SU	XBC/XEC-DR40SU	XBC/XEC-DR60SU	
	XBC/XEC-DP20SU	XBC/XEC-DP30SU	XBC/XEC-DP40SU	XBC/XEC-DP60SU	
Control method	Repetitive, cyclic, interrupt, constant scan				
I/O control method	Refresh mode (Batch processing by scan synchronization), Direct mode by instruction				
Programming language	Ladder diagram, Instruction List				
Processing speed	94 ns / Step				
Program capacity	15Kstep / 200KB				
Main unit I/O points	20 (Input:12, Output:8)	30 (Input:18, Output:12)	40 (Input:24, Output:16)	60 (Input:36, Output:24)	
Max. I/O points (Main + Expansion 7 stages)	244 points	254 points	264 points	284 points	
Total program	128				
Operation mode	RUN, STOP, DEBUG				
Self diagnosis	Detects errors of scan time, memory error, I/O error, battery error, power error, etc.				
Program port	RS-232C 1 channel (Loader), USB 1 channel (U-type model)				
Retain data at power failure	Latch area setting at basic parameter				
Built-in functions	RS-232C / RS-485(2 ch), Pulse catch, Input filter, External interrupt, PID control, High-speed counter, Positioning				
Data memory					
XBC			XEC		
Data area	P	P0000 ~ P1023F (16,384 points)	Symbolic variable	A	16KB (Max. 16KB retain setting available)
	M	M0000 ~ M1023F (16,384 points)			
	K	K0000 ~ K4095F (65,536 points)	Input variable	I	2KB (%IX 15.15.63)
	L	L0000 ~ L2047F (32,768 points)	Output variable	Q	2KB (%QX 15.15.63)
	F	F0000 ~ F1023F (16,384 points)	Direct variable	M	8KB (Max. retain setting available)
	T	100ms, 10ms, 1ms: T0000 ~ T1023 (1,024) (Adjustable by parameter setting)			
	C	C0000 ~ C1023 (1,024)			
	S	S00.00 ~ S127.99			
	D	D0000 ~ D10239 (10,240 word)	Flag variable	W	20KB
	U	U00.00 ~ U0A.31 (Analog data refresh area: 352 word)			
	Z	Z000 ~ Z127 (128 word)			
	R	N0000 ~ N10236 (10,240 word)			
			Flash area	20KB (2 block)	

\*Some products are due in market soon.

# Wiring | XBC/XEC SU input/output wiring

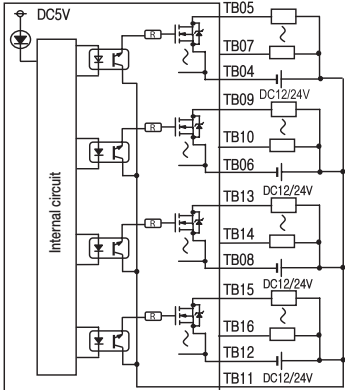
XBC/XEC-DR20SU  
XBC/XEC-DN20SU  
XBC/XEC-DP20SU  
Input wiring  
(sink/source type)

Circuit configuration	No.	Contact	No.	Contact	Type																																							
<p>Terminal block no.</p>	TB2	485+	TB1	RX	<table><tr><td>⊕</td><td>RX</td><td>TB1</td></tr><tr><td>485+</td><td>TX</td><td>TB3</td></tr><tr><td>485-</td><td>SG</td><td>TB5</td></tr><tr><td>00</td><td>01</td><td>TB7</td></tr><tr><td>02</td><td>03</td><td>TB9</td></tr><tr><td>04</td><td>05</td><td>TB11</td></tr><tr><td>06</td><td>07</td><td>TB13</td></tr><tr><td>08</td><td>09</td><td>TB15</td></tr><tr><td>0A</td><td>0B</td><td>TB17</td></tr><tr><td>NC</td><td>NC</td><td>TB19</td></tr><tr><td>NC</td><td>NC</td><td>TB21</td></tr><tr><td>NC</td><td>NC</td><td>TB23</td></tr><tr><td>COM</td><td>⊕</td><td></td></tr></table>	⊕	RX	TB1	485+	TX	TB3	485-	SG	TB5	00	01	TB7	02	03	TB9	04	05	TB11	06	07	TB13	08	09	TB15	0A	0B	TB17	NC	NC	TB19	NC	NC	TB21	NC	NC	TB23	COM	⊕	
	⊕	RX	TB1																																									
	485+	TX	TB3																																									
	485-	SG	TB5																																									
	00	01	TB7																																									
	02	03	TB9																																									
	04	05	TB11																																									
	06	07	TB13																																									
	08	09	TB15																																									
	0A	0B	TB17																																									
	NC	NC	TB19																																									
	NC	NC	TB21																																									
NC	NC	TB23																																										
COM	⊕																																											
TB4	485-	TB3	TX																																									
TB6	00	TB5	SG																																									
TB8	02	TB7	01																																									
TB10	04	TB9	03																																									
TB12	06	TB11	05																																									
TB14	08	TB13	07																																									
TB16	0A	TB15	09																																									
TB18	NC	TB17	0B																																									
TB20	NC	TB19	NC																																									
TB22	NC	TB21	NC																																									
TB24	COM	TB23	NC																																									

XBC/XEC-DR20SU  
Relay output wiring

Circuit configuration	No.	Contact	No.	Contact	Type																																							
<p>Terminal block no.</p>	TB2	PE	TB1	AC100	<table><tr><td>⊕</td><td>AC100-240V</td><td>TB1</td></tr><tr><td>PE</td><td>-240V</td><td>TB3</td></tr><tr><td>COM0</td><td>40</td><td>TB5</td></tr><tr><td>COM1</td><td>41</td><td>TB7</td></tr><tr><td>COM2</td><td>42</td><td>TB9</td></tr><tr><td>43</td><td>NC</td><td>TB11</td></tr><tr><td>COM3</td><td>44</td><td>TB13</td></tr><tr><td>45</td><td>46</td><td>TB15</td></tr><tr><td>47</td><td>NC</td><td>TB17</td></tr><tr><td>NC</td><td>NC</td><td>TB19</td></tr><tr><td>NC</td><td>NC</td><td>TB21</td></tr><tr><td>NC</td><td>24V</td><td>TB23</td></tr><tr><td>24G</td><td>⊕</td><td></td></tr></table>	⊕	AC100-240V	TB1	PE	-240V	TB3	COM0	40	TB5	COM1	41	TB7	COM2	42	TB9	43	NC	TB11	COM3	44	TB13	45	46	TB15	47	NC	TB17	NC	NC	TB19	NC	NC	TB21	NC	24V	TB23	24G	⊕	
	⊕	AC100-240V	TB1																																									
	PE	-240V	TB3																																									
	COM0	40	TB5																																									
	COM1	41	TB7																																									
	COM2	42	TB9																																									
	43	NC	TB11																																									
	COM3	44	TB13																																									
	45	46	TB15																																									
	47	NC	TB17																																									
	NC	NC	TB19																																									
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NC	24V	TB23																																										
24G	⊕																																											
TB4	COM0	TB3	-240V																																									
TB6	COM1	TB5	40																																									
TB8	COM2	TB7	41																																									
TB10	43	TB9	42																																									
TB12	COM3	TB11	NC																																									
TB14	45	TB13	44																																									
TB16	47	TB15	46																																									
TB18	NC	TB17	NC																																									
TB20	NC	TB19	NC																																									
TB22	NC	TB21	NC																																									
TB24	24G	TB23	24V																																									

XBC/XEC-DN20SU  
Transistor output wiring  
(sink type)

Circuit configuration	No.	Contact	No.	Contact	Type																																							
	TB2	PE	TB1	AC100	<table><tr><td>⊕</td><td>AC100-240V</td><td>TB1</td></tr><tr><td>PE</td><td>-240V</td><td>TB3</td></tr><tr><td>COM0</td><td>40</td><td>TB5</td></tr><tr><td>COM1</td><td>41</td><td>TB7</td></tr><tr><td>COM2</td><td>42</td><td>TB9</td></tr><tr><td>43</td><td>P</td><td>TB11</td></tr><tr><td>COM3</td><td>44</td><td>TB13</td></tr><tr><td>45</td><td>46</td><td>TB15</td></tr><tr><td>47</td><td>NC</td><td>TB17</td></tr><tr><td>NC</td><td>NC</td><td>TB19</td></tr><tr><td>NC</td><td>NC</td><td>TB21</td></tr><tr><td>NC</td><td>24V</td><td>TB23</td></tr><tr><td>24G</td><td>⊕</td><td></td></tr></table>	⊕	AC100-240V	TB1	PE	-240V	TB3	COM0	40	TB5	COM1	41	TB7	COM2	42	TB9	43	P	TB11	COM3	44	TB13	45	46	TB15	47	NC	TB17	NC	NC	TB19	NC	NC	TB21	NC	24V	TB23	24G	⊕	
	⊕	AC100-240V	TB1																																									
	PE	-240V	TB3																																									
	COM0	40	TB5																																									
	COM1	41	TB7																																									
	COM2	42	TB9																																									
	43	P	TB11																																									
	COM3	44	TB13																																									
	45	46	TB15																																									
	47	NC	TB17																																									
	NC	NC	TB19																																									
	NC	NC	TB21																																									
NC	24V	TB23																																										
24G	⊕																																											
TB4	COM0	TB3	-240V																																									
TB6	COM1	TB5	40																																									
TB8	COM2	TB7	41																																									
TB10	43	TB9	42																																									
TB12	COM3	TB11	P																																									
TB14	45	TB13	44																																									
TB16	47	TB15	46																																									
TB18	NC	TB17	NC																																									
TB20	NC	TB19	NC																																									
TB22	NC	TB21	NC																																									
TB24	24G	TB23	24V																																									

\* XBC input : P00~P23, XEC input : I00~I35      \* XBC output : P40~P57, XEC output : Q00~Q23

## XBC/XEC-DP32H

Transistor output wiring  
(source type)

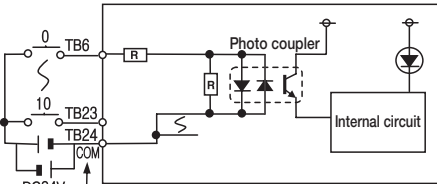
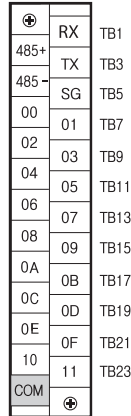
Circuit configuration		No.	Contact	No.	Contact	Type		
<p>Internal circuit</p> <p>Terminal block no.</p>		TB2	PE	TB1	AC100		TB1	
		TB4	COM0	TB3	-240V		TB3	
		TB6	COM1	TB5	Q00		TB5	
		TB8	COM2	TB7	Q01		TB7	
		TB10	Q03	TB9	Q02		TB9	
		TB12	COM3	TB11	N		TB11	
		TB14	Q05	TB13	Q04		TB13	
		TB16	Q07	TB15	Q06		TB15	
		TB18	NC	TB17	NC		TB17	
		TB20	NC	TB19	NC		TB19	
		TB22	NC	TB21	NC		TB21	
		TB24	24G	TB23	24V		TB23	

## XBC/XEC-DR30SU

## XBC/XEC-DN30SU

## XBC/XEC-DP30SU

Input wiring  
(sink/source type)

Circuit configuration		No.	Contact	No.	Contact	Type			
 <p>Terminal block no.</p>		TB2	485+	TB1	RX				
		TB4	485-	TB3	TX				
		TB6	00	TB5	SG				
		TB8	02	TB7	01				
		TB10	04	TB9	03				
		TB12	06	TB11	05				
		TB14	08	TB13	07				
		TB16	0A	TB15	09				
		TB18	0C	TB17	0B				
		TB20	0E	TB19	0D				
		TB22	10	TB21	0F				
		TB24	COM	TB23	11				

## XBC/XEC-DR30SU

Relay output wiring

Circuit configuration		No.	Contact	No.	Contact	Type					
<p>Internal circuit</p> <p>Terminal block no.</p>		TB2	PE	TB1	AC100						
		TB4	COM0	TB3	-240V			TB2	PE	TB3	
		TB6	COM1	TB5	40			TB4	COM0	TB5	
		TB8	COM2	TB7	41			TB6	COM1	TB7	
		TB10	43	TB9	42			TB8	COM2	TB9	
		TB12	COM3	TB11	NC			TB10	43	TB11	
		TB14	45	TB13	44			TB12	COM3	TB13	
		TB16	47	TB15	46			TB14	45	TB15	
		TB18	COM4	TB17	NC			TB16	47	TB17	
		TB20	49	TB19	48			TB18	COM4	TB19	
		TB22	4B	TB21	4A			TB20	49	TB21	
		TB24	24G	TB23	24V			TB22	4B	TB23	
								TB24	24G		

\* XBC input : P00~P23, XEC input : I00~I35 \* XBC output : P40~P57, XEC output : Q00~Q23

**XBC/XEC-DN30SU**

 Transistor output wiring  
(sink type)

Circuit configuration	No.	Contact	No.	Contact	Type
	TB2	PE	TB1	AC100	
	TB4	COM0	TB3	-240V	
	TB6	COM1	TB5	40	
	TB8	COM2	TB7	41	
	TB10	43	TB9	42	
	TB12	COM3	TB11	P	
	TB14	45	TB13	44	
	TB16	47	TB15	46	
	TB18	COM4	TB17	NC	
	TB20	49	TB19	48	
	TB22	4B	TB21	4A	
	TB24	24G	TB23	24V	

**XBC/XEC-DP30SU**

 Transistor output wiring  
(source type)

Circuit configuration	No.	Contact	No.	Contact	Type
	TB2	PE	TB1	AC100	
	TB4	COM0	TB3	-240V	
	TB6	COM1	TB5	Q00	
	TB8	COM2	TB7	Q01	
	TB10	Q03	TB9	Q02	
	TB12	COM3	TB11	N	
	TB14	Q05	TB13	Q04	
	TB16	Q07	TB15	Q06	
	TB18	COM4	TB17	NC	
	TB20	Q09	TB19	Q08	
	TB22	Q11	TB21	Q10	
	TB24	24G	TB23	24V	

**XBC/XEC-DR40SU**
**XBC/XEC-DN40SU**
**XBC/XEC-DP40SU**

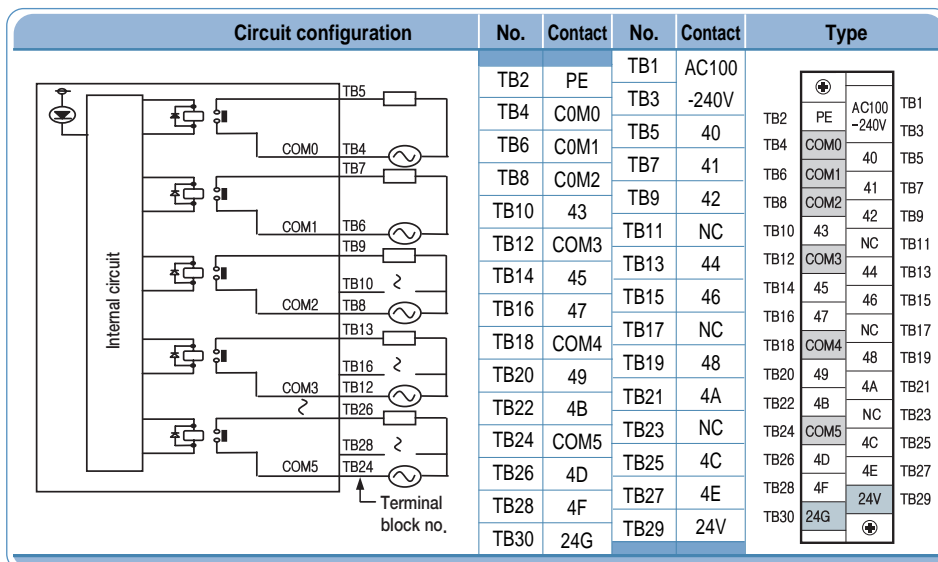
 DC24 Input wiring  
(sink/source type)

Circuit configuration	No.	Contact	No.	Contact	Type
	TB2	485+	TB1	RX	
	TB4	485-	TB3	TX	
	TB6	00	TB5	SG	
	TB8	02	TB7	01	
	TB10	04	TB9	03	
	TB12	06	TB11	05	
	TB14	08	TB13	07	
	TB16	0A	TB15	09	
	TB18	0C	TB17	0B	
	TB20	0E	TB19	0D	
	TB22	10	TB21	0F	
	TB24	12	TB23	11	
	TB26	14	TB25	13	
	TB28	16	TB27	15	
	TB30	COM	TB29	17	

\* XBC input : P00~P23, XEC input : I00~I35 \* XBC output : P40~P57, XEC output : Q00~Q23

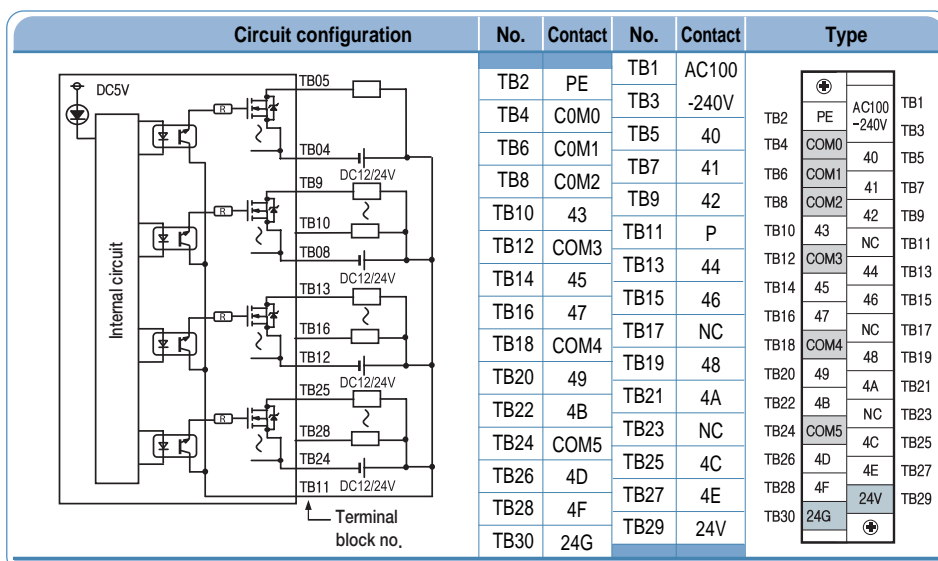
## XBC/XEC-DR40SU

## Relay output wiring



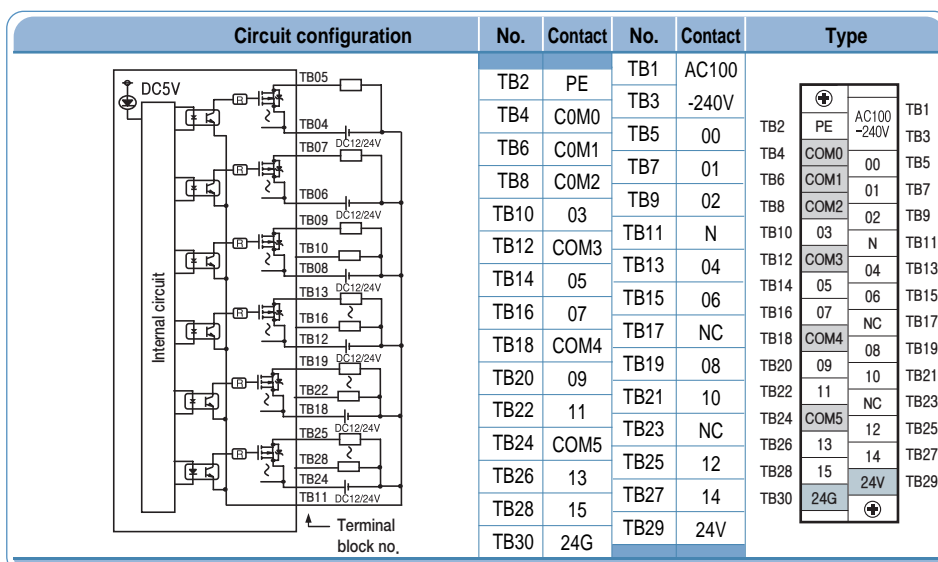
## XBC/XEC-DN40SU

### Transistor output wiring (sink type)



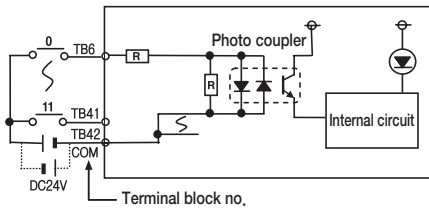
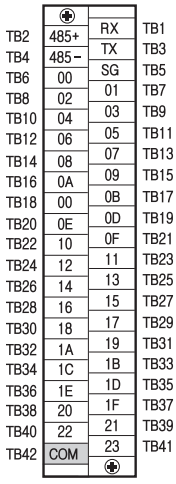
## XBC/XEC-DP40SU

### Transistor output wiring (source type)

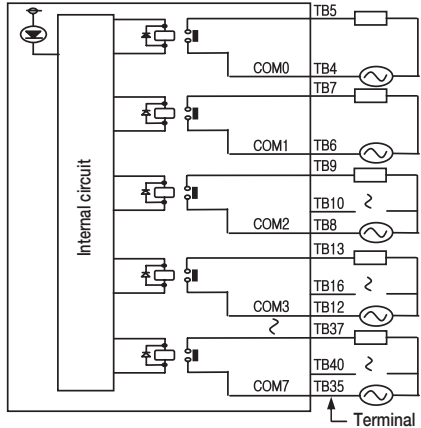
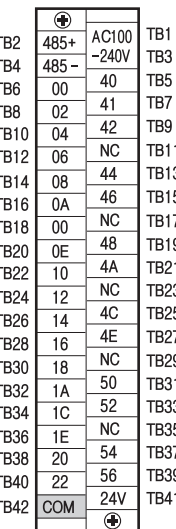


\* XBC input : P00~P23, XEC input : I00~I35      \* XBC output : P40~P57, XEC output : Q00~Q23

**XBC/XEC-DR60SU**  
**XBC/XEC-DN60SU**  
**XBC/XEC-DP60SU**  
 Input wiring  
 (sink/source type)

Circuit configuration	No.	Contact	No.	Contact	Type
 <p>Terminal block no.</p>	TB2	485+	TB1	RX	
	TB4	485-	TB3	TX	
	TB6	00	TB5	SG	
	TB8	02	TB7	01	
	TB10	04	TB9	03	
	TB12	06	TB11	05	
	TB14	08	TB13	07	
	TB16	0A	TB15	09	
	TB18	0C	TB17	0B	
	TB20	0E	TB19	0D	
	TB22	10	TB21	0F	
	TB24	12	TB23	11	
	TB26	14	TB25	13	
	TB28	16	TB27	15	
	TB30	18	TB29	17	
	TB32	1A	TB31	19	
	TB34	1C	TB33	1B	
	TB36	1E	TB35	1D	
	TB38	20	TB37	1F	
	TB40	22	TB39	21	
	TB42	COM	TB41	23	

**XBC/XEC-DR60SU**  
 Relay output wiring

Circuit configuration	No.	Contact	No.	Contact	Type
 <p>Terminal block no.</p>	TB2	PE	TB1	AC100	
	TB4	COM0	TB3	-240V	
	TB6	COM1	TB5	40	
	TB8	COM2	TB7	41	
	TB10	43	TB9	42	
	TB12	COM3	TB11	NC	
	TB14	45	TB13	44	
	TB16	47	TB15	46	
	TB18	COM4	TB17	NC	
	TB20	49	TB19	48	
	TB22	4B	TB21	4A	
	TB24	COM5	TB23	NC	
	TB26	4D	TB25	4C	
	TB28	4F	TB27	4E	
	TB30	COM6	TB29	NC	
	TB32	51	TB31	50	
	TB34	53	TB33	52	
	TB36	COM7	TB35	NC	
	TB38	55	TB37	54	
	TB40	57	TB39	56	
	TB42	24G	TB41	24V	

\* XBC input : P00~P23, XEC input : I00~I35      \* XBC output : P40~P57, XEC output : Q00~Q23

## XBC/XEC-DN60SU

Transistor output wiring  
(sink type)

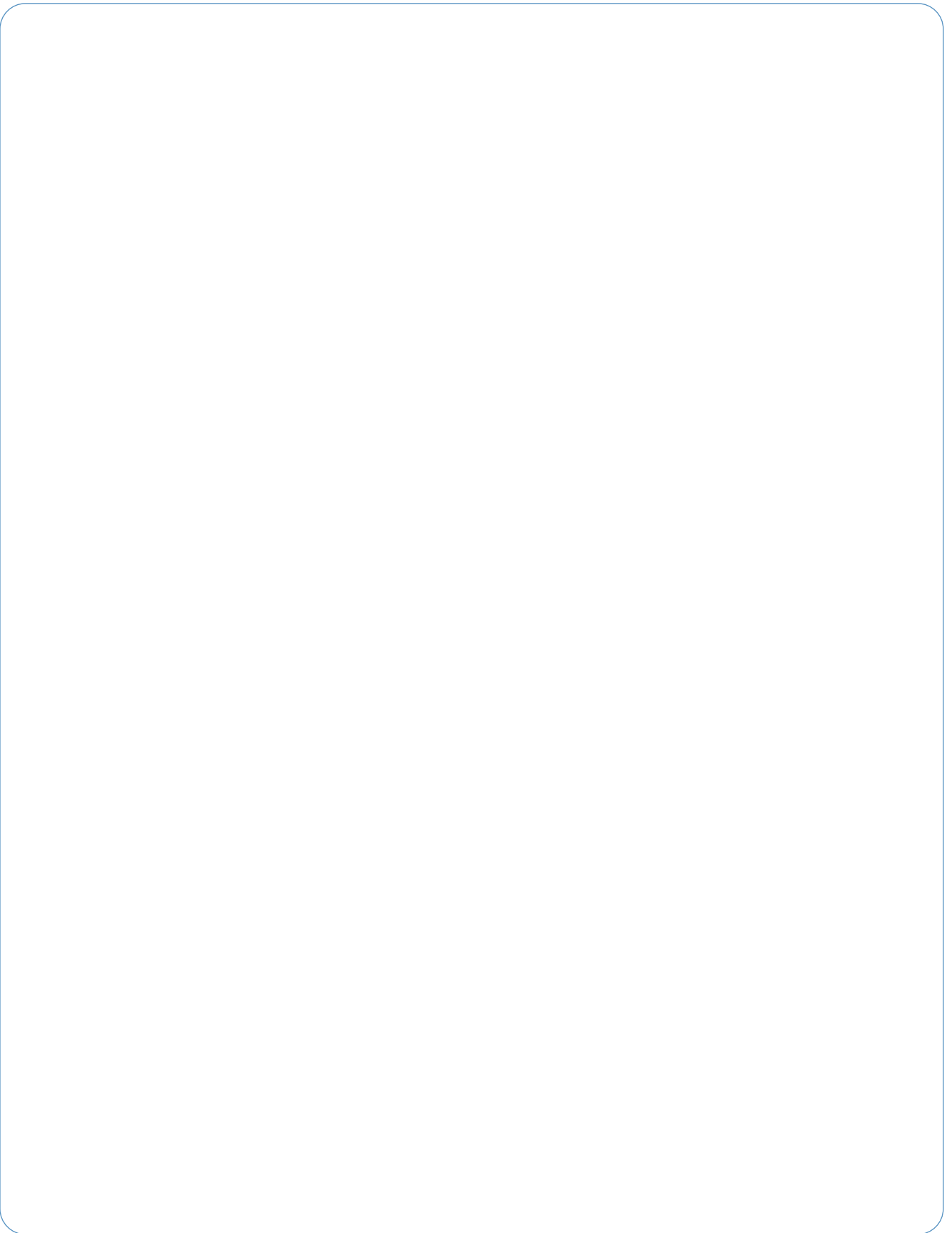
Circuit configuration	No.	Contact	No.	Contact	Type
	TB2	PE	TB1	AC100	
	TB4	COM0	TB3	-240V	
	TB6	COM1	TB5	40	
	TB8	COM2	TB7	41	
	TB10	43	TB9	42	
	TB12	COM3	TB11	P	
	TB14	45	TB13	44	
	TB16	47	TB15	46	
	TB18	COM4	TB17	NC	
	TB20	49	TB19	48	
	TB22	4B	TB21	4A	
	TB24	COM5	TB23	NC	
	TB26	4D	TB25	4C	
	TB28	4F	TB27	4E	
	TB30	COM6	TB29	NC	
	TB32	51	TB31	50	
	TB34	53	TB33	52	
	TB36	COM7	TB35	NC	
	TB38	55	TB37	54	
	TB40	57	TB39	56	
	TB42	24G	TB41	24V	

## XBC/XEC-DP60SU

Transistor output wiring  
(source type)

Circuit configuration	No.	Contact	No.	Contact	Type
	TB2	PE	TB1	AC100	
	TB4	COM0	TB3	-240V	
	TB6	COM1	TB5	00	
	TB8	COM2	TB7	01	
	TB10	03	TB9	02	
	TB12	COM3	TB11	N	
	TB14	05	TB13	04	
	TB16	07	TB15	06	
	TB18	COM4	TB17	NC	
	TB20	09	TB19	08	
	TB22	11	TB21	10	
	TB24	COM5	TB23	NC	
	TB26	13	TB25	12	
	TB28	15	TB27	14	
	TB30	COM6	TB29	NC	
	TB32	17	TB31	16	
	TB34	19	TB33	18	
	TB36	COM7	TB35	NC	
	TB38	21	TB37	20	
	TB40	23	TB39	22	
	TB42	24G	TB41	24V	

\* XBC input : P00~P23, XEC input : I00~I35 \* XBC output : P40~P57, XEC output : Q00~Q23







# XBC/XEC E

Economic

## C o n t e n t s

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## Economic

### Performance specifications

Item	Specifications ('E' type)			
	XBC/XEC-DR10E	XBC/XEC-DR14E	XBC/XEC-DR20E	XBC/XEC-DR30E
	XBC/XEC-DN10E	XBC/XEC-DN14E	XBC/XEC-DN20E	XBC/XEC-DN30E
	XBC/XEC-DP10E	XBC/XEC-DP14E	XBC/XEC-DP20E	XBC/XEC-DP30E
Program control method	Reiterative operation, Fixed cycle operation			
I/O control method	Scan synchronized batch processing method (Refresh method) Direct method by instruction			
Program language	Ladder Diagram (LD), Sequential Function Chart (SFC) Structured Text (ST), Instruction List (IL)			
Processing speed (Basic instruction)	240 ns/step			
Program capacity	4 Kstep (XBC-Dxxx E), 50 KB (XEC-Dxxx E)			
Max. I/O points (Main+Option X )	14 point (1 option)	18 point (1 option)	28 point (2 option)	38 point (2 option)
Operation Mode	RUN, STOP, DEBUG			
Total number of program block	128			
Task	Initialization	1		
	Fixed period	8		
	External input	4 (%I×0.0.0~%I×0.0.3)		
	Internal device	8		
Program port	RS-232C 1 channel (Loader)			
Self - diagnostic functions	Watchdog Timer, Memory error detection I/O error detection, etc.			
Built-in functions	RS-232C or RS-485(1 ch), Pulse catch, Input filter, External interrupt, High-speed counter			
Retain data at power failure	Latch area setting at basic parameter			

# Wiring | XBC/XEC E input/output wiring

**XBC/XEC-DR10E**  
**XBC/XEC-DN10E**  
**XBC/XEC-DP10E**  
 Input wiring  
 (sink/source type)

Circuit configuration	No.	Contact	No.	Contact	Type																																							
	TB2	485+	TB1	RX	<table><tr><td>⊕</td><td></td><td></td></tr><tr><td>485+</td><td>RX</td><td>TB1</td></tr><tr><td>485-</td><td>TX</td><td>TB3</td></tr><tr><td>00</td><td>SG</td><td>TB5</td></tr><tr><td>01</td><td>01</td><td>TB7</td></tr><tr><td>02</td><td>03</td><td>TB9</td></tr><tr><td>04</td><td>05</td><td>TB11</td></tr><tr><td>NC</td><td>NC</td><td>TB13</td></tr><tr><td>COM</td><td></td><td></td></tr><tr><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td></tr></table>	⊕			485+	RX	TB1	485-	TX	TB3	00	SG	TB5	01	01	TB7	02	03	TB9	04	05	TB11	NC	NC	TB13	COM														
	⊕																																											
	485+	RX	TB1																																									
	485-	TX	TB3																																									
	00	SG	TB5																																									
	01	01	TB7																																									
	02	03	TB9																																									
	04	05	TB11																																									
	NC	NC	TB13																																									
	COM																																											
TB4	485-	TB3	TX																																									
TB6	00	TB5	SG																																									
TB8	02	TB7	01																																									
TB10	04	TB9	03																																									
TB12	NC	TB11	05																																									
TB14	COM	TB13	NC																																									

**XBC/XEC-DR10E**  
 Relay output wiring

Circuit configuration	No.	Contact	No.	Contact	Type																																				
<p>Terminal block no.</p>	TB2	PE	TB1	AC100 ~240V	<table><tr><td>⊕</td><td></td><td></td><td></td></tr><tr><td>PE</td><td>AC100 ~240V</td><td>TB1</td><td></td></tr><tr><td>COM0</td><td>40</td><td>TB3</td><td></td></tr><tr><td>COM1</td><td>41</td><td>TB5</td><td></td></tr><tr><td>COM2</td><td>42</td><td>TB7</td><td></td></tr><tr><td>43</td><td>43</td><td>TB9</td><td></td></tr><tr><td>NC</td><td>NC</td><td>TB11</td><td></td></tr><tr><td>24G</td><td>24V</td><td>TB13</td><td></td></tr><tr><td>⊕</td><td></td><td>TB15</td><td></td></tr></table>	⊕				PE	AC100 ~240V	TB1		COM0	40	TB3		COM1	41	TB5		COM2	42	TB7		43	43	TB9		NC	NC	TB11		24G	24V	TB13		⊕		TB15	
	⊕																																								
	PE	AC100 ~240V	TB1																																						
	COM0	40	TB3																																						
	COM1	41	TB5																																						
	COM2	42	TB7																																						
	43	43	TB9																																						
	NC	NC	TB11																																						
	24G	24V	TB13																																						
	⊕		TB15																																						
	TB4	COM0	TB3																																						
	TB6	COM1	TB5	40																																					
	TB8	COM2	TB7	41																																					
	TB10	43	TB9	42																																					
TB12	NC	TB11	NC																																						
TB14	24G	TB13	24V																																						

**XBC/XEC-DN10E**  
 Transistor output wiring  
 (sink type)

Circuit configuration		No.	Contact	No.	Contact	Type																											
	TB2	PE	TB1	AC100	TB2 TB4 TB6 TB8 TB10 TB12 TB14	<table><tr><td>⊕</td><td></td><td>TB1</td></tr><tr><td>PE</td><td>AC100 ~240V</td><td>TB3</td></tr><tr><td>P</td><td>00</td><td>TB5</td></tr><tr><td>COM0</td><td>01</td><td>TB7</td></tr><tr><td>COM1</td><td>02</td><td>TB9</td></tr><tr><td>03</td><td>NC</td><td>TB11</td></tr><tr><td>NC</td><td>24V</td><td>TB13</td></tr><tr><td>24G</td><td></td><td></td></tr><tr><td>⊕</td><td></td><td></td></tr></table>	⊕		TB1	PE	AC100 ~240V	TB3	P	00	TB5	COM0	01	TB7	COM1	02	TB9	03	NC	TB11	NC	24V	TB13	24G			⊕		
	⊕		TB1																														
	PE	AC100 ~240V	TB3																														
	P	00	TB5																														
	COM0	01	TB7																														
	COM1	02	TB9																														
	03	NC	TB11																														
	NC	24V	TB13																														
	24G																																
	⊕																																
	TB4	P	TB3	~240V																													
	TB6	COM0	TB5	00																													
	TB8	COM1	TB7	01																													
	TB10	03	TB9	02																													
TB12	NC	TB11	NC																														
TB14	24G	TB13	24V																														
Terminal block no.																																	

**XBC/XEC-DP10E**  
 Transistor output wiring  
 (source type)

Circuit configuration	No.	Contact	No.	Contact	Type																															
	TB2	PE	TB1	AC100	<table><tr><td>⊕</td><td></td><td></td><td>⊕</td></tr><tr><td>PE</td><td>AC100</td><td>TB1</td></tr><tr><td></td><td>~240V</td><td>TB3</td></tr><tr><td>N</td><td>00</td><td>TB5</td></tr><tr><td>COM0</td><td>01</td><td>TB7</td></tr><tr><td>COM1</td><td>02</td><td>TB9</td></tr><tr><td>03</td><td>NC</td><td>TB11</td></tr><tr><td>NC</td><td>24V</td><td>TB13</td></tr><tr><td>24G</td><td></td><td></td></tr><tr><td></td><td></td><td>⊕</td></tr></table>	⊕			⊕	PE	AC100	TB1		~240V	TB3	N	00	TB5	COM0	01	TB7	COM1	02	TB9	03	NC	TB11	NC	24V	TB13	24G					⊕
	⊕			⊕																																
	PE	AC100	TB1																																	
		~240V	TB3																																	
	N	00	TB5																																	
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	COM1	02	TB9																																	
	03	NC	TB11																																	
	NC	24V	TB13																																	
	24G																																			
			⊕																																	
	TB4	N	TB3	~240V																																
	TB6	COM0	TB5	00																																
	TB8	COM1	TB7	01																																
TB10	03	TB9	02																																	
TB12	NC	TB11	NC																																	
TB14	24G	TB13	24V																																	

\* XBC input : P00~P11, XEC input : I00~I17      \* XBC output : P40~P4B, XEC output : Q00~Q11

## XBC/XEC-DR14E XBC/XEC-DN14E XBC/XEC-DP14E

Input wiring  
(sink/source type)

Circuit configuration	No.	Contact	No.	Contact	Type																								
<p>Terminal block no.</p>	TB2	485+	TB1	RX	<table><tr><td>+</td><td>RX</td><td>TB1</td></tr><tr><td>485+</td><td>TX</td><td>TB3</td></tr><tr><td>485-</td><td>SG</td><td>TB5</td></tr><tr><td>00</td><td>01</td><td>TB7</td></tr><tr><td>02</td><td>03</td><td>TB9</td></tr><tr><td>04</td><td>05</td><td>TB11</td></tr><tr><td>06</td><td>07</td><td>TB13</td></tr><tr><td>COM</td><td></td><td></td></tr></table>	+	RX	TB1	485+	TX	TB3	485-	SG	TB5	00	01	TB7	02	03	TB9	04	05	TB11	06	07	TB13	COM		
	+	RX	TB1																										
	485+	TX	TB3																										
	485-	SG	TB5																										
	00	01	TB7																										
	02	03	TB9																										
	04	05	TB11																										
	06	07	TB13																										
	COM																												
	TB4	485-	TB3	TX																									
TB6	00	TB5	SG																										
TB8	02	TB7	01																										
TB10	04	TB9	03																										
TB12	06	TB11	05																										
TB14	COM	TB13	07																										

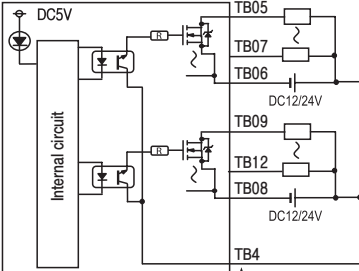
## XBC-DR14E

Relay output wiring

Circuit configuration	No.	Contact	No.	Contact	Type																											
<p>Internal circuit</p> <p>Terminal block no.</p>	TB2	PE	TB1	AC100 ~240V	<table><tr><td>+</td><td>AC100 ~240V</td><td>TB1</td></tr><tr><td>PE</td><td>40</td><td>TB3</td></tr><tr><td>COM0</td><td>41</td><td>TB5</td></tr><tr><td>COM1</td><td>42</td><td>TB7</td></tr><tr><td>COM2</td><td>44</td><td>TB9</td></tr><tr><td>43</td><td>24V</td><td>TB11</td></tr><tr><td>45</td><td>24V</td><td>TB13</td></tr><tr><td>24G</td><td></td><td></td></tr><tr><td></td><td></td><td></td></tr></table>	+	AC100 ~240V	TB1	PE	40	TB3	COM0	41	TB5	COM1	42	TB7	COM2	44	TB9	43	24V	TB11	45	24V	TB13	24G					
	+	AC100 ~240V	TB1																													
	PE	40	TB3																													
	COM0	41	TB5																													
	COM1	42	TB7																													
	COM2	44	TB9																													
	43	24V	TB11																													
	45	24V	TB13																													
	24G																															
TB4	COM0	TB3	40																													
TB6	COM1	TB5	41																													
TB8	COM2	TB7	42																													
TB10	43	TB9	44																													
TB12	NC	TB11	NC																													
TB14	24G	TB13	24V																													

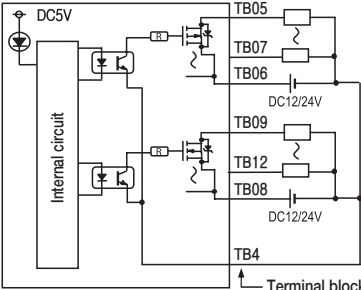
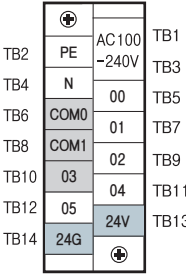
## XBC/XEC-DN14E

Transistor output wiring  
(sink type)

Circuit configuration	No.	Contact	No.	Contact	Type																																				
 <p>Terminal block no.</p>	TB2	PE	TB1	AC100 -240V	<table><tr><td></td><td>⊕</td><td></td><td>TB1</td></tr><tr><td>TB2</td><td>PE</td><td>AC100 -240V</td><td>TB3</td></tr><tr><td>TB4</td><td>P</td><td>00</td><td>TB5</td></tr><tr><td>TB6</td><td>COM0</td><td>01</td><td>TB7</td></tr><tr><td>TB8</td><td>COM1</td><td>02</td><td>TB9</td></tr><tr><td>TB10</td><td>03</td><td>04</td><td>TB11</td></tr><tr><td>TB12</td><td>05</td><td>24V</td><td>TB13</td></tr><tr><td>TB14</td><td>24G</td><td></td><td></td></tr><tr><td></td><td></td><td>⊕</td><td></td></tr></table>		⊕		TB1	TB2	PE	AC100 -240V	TB3	TB4	P	00	TB5	TB6	COM0	01	TB7	TB8	COM1	02	TB9	TB10	03	04	TB11	TB12	05	24V	TB13	TB14	24G					⊕	
		⊕		TB1																																					
	TB2	PE	AC100 -240V	TB3																																					
	TB4	P	00	TB5																																					
	TB6	COM0	01	TB7																																					
	TB8	COM1	02	TB9																																					
	TB10	03	04	TB11																																					
	TB12	05	24V	TB13																																					
	TB14	24G																																							
			⊕																																						
	TB4	P	TB3	00																																					
	TB6	COM0	TB5	01																																					
	TB8	COM1	TB7	02																																					
	TB10	03	TB9	04																																					
TB12	05	TB11	24V																																						
TB14	24G	TB13	24V																																						

## XBC/XEC-DP14E

Transistor output wiring  
(source type)

Circuit configuration	No.	Contact	No.	Contact	Type	
 <p>Terminal block no.</p>	TB2	PE	TB1	AC100 ~240V		
	TB4	N	TB3			
	TB6	COM0	TB5	00		
	TB8	COM1	TB7	01		
	TB10	03	TB9	02		
	TB12	05	TB11	04		
	TB14	24G	TB13	24V		

\* XBC input : P00~P11, XEC input : I00~I17 \* XBC output : P40~P4B, XEC output : Q00~Q11

**XBC/XEC-DR20E**  
**XBC/XEC-DN20E**  
**XBC/XEC-DP20E**  
 Input iring  
 (sink/source type)

Circuit configuration	No.	Contact	No.	Contact	Type
	TB2	485+	TB1	RX	
	TB4	485-	TB3	TX	
	TB6	00	TB5	SG	
	TB8	02	TB7	01	
	TB10	04	TB9	03	
	TB12	06	TB11	05	
	TB14	08	TB13	07	
	TB16	0A	TB15	09	
	TB18	NC	TB17	0B	
	TB20	NC	TB19	NC	
	TB22	NC	TB21	NC	
	TB24	COM	TB23	NC	

**XBC-DR20E**  
 Relay output wiring

Circuit configuration	No.	Contact	No.	Contact	Type
	TB2	PE	TB1	AC100	
	TB4	COM0	TB3	-240V	
	TB6	COM1	TB5	40	
	TB8	COM2	TB7	41	
	TB10	43	TB9	42	
	TB12	45	TB11	NC	
	TB14	47	TB13	44	
	TB16	NC	TB15	46	
	TB18	NC	TB17	NC	
	TB20	NC	TB19	NC	
	TB22	NC	TB21	NC	
	TB24	24G	TB23	24V	

**XBC/XEC-DN20E**  
 Transistor output wiring  
 (sink type)

Circuit configuration	No.	Contact	No.	Contact	Type
	TB2	PE	TB1	AC100	
	TB4	P	TB3	-240V	
	TB6	COM0	TB5	00	
	TB8	COM1	TB7	01	
	TB10	03	TB9	02	
	TB12	COM2	TB11	NC	
	TB14	05	TB13	04	
	TB16	07	TB15	06	
	TB18	NC	TB17	NC	
	TB20	NC	TB19	NC	
	TB22	NC	TB21	NC	
	TB24	24G	TB23	24V	

**XBC/XEC-DP20E**  
 Transistor output wiring  
 (source type)

Circuit configuration	No.	Contact	No.	Contact	Type
	TB2	PE	TB1	AC100	
	TB4	N	TB3	-240V	
	TB6	COM0	TB5	00	
	TB8	COM1	TB7	01	
	TB10	03	TB9	02	
	TB12	COM2	TB11	NC	
	TB14	05	TB13	04	
	TB16	07	TB15	06	
	TB18	NC	TB17	NC	
	TB20	NC	TB19	NC	
	TB22	NC	TB21	NC	
	TB24	24G	TB23	24V	

\* XBC input : P00~P11, XEC input : I00~I17      \* XBC output : P40~P4B, XEC output : Q00~Q11

## XBC/XEC-DR30E XBC/XEC-DN30E XBC/XEC-DP30E

Input iring  
(sink/source type)

Circuit configuration	No.	Contact	No.	Contact	Type
	TB2	485+	TB1	RX	
	TB4	485-	TB3	TX	
	TB6	00	TB5	SG	
	TB8	02	TB7	01	
	TB10	04	TB9	03	
	TB12	06	TB11	05	
	TB14	08	TB13	07	
	TB16	0A	TB15	09	
	TB18	0C	TB17	0B	
	TB20	0E	TB19	0D	
	TB22	10	TB21	0F	
	TB24	COM	TB23	11	

## XBC-DR30E

Relay output wiring

Circuit configuration	No.	Contact	No.	Contact	Type
	TB2	PE	TB1	AC100	
	TB4	COM0	TB3	-240V	
	TB6	COM1	TB5	40	
	TB8	COM2	TB7	41	
	TB10	43	TB9	42	
	TB12	COM3	TB11	NC	
	TB14	45	TB13	44	
	TB16	47	TB15	46	
	TB18	COM4	TB17	NC	
	TB20	49	TB19	48	
	TB22	4B	TB21	4A	
	TB24	24G	TB23	24V	

## XBC/XEC-DN30E

Transistor output wiring  
(sink type)

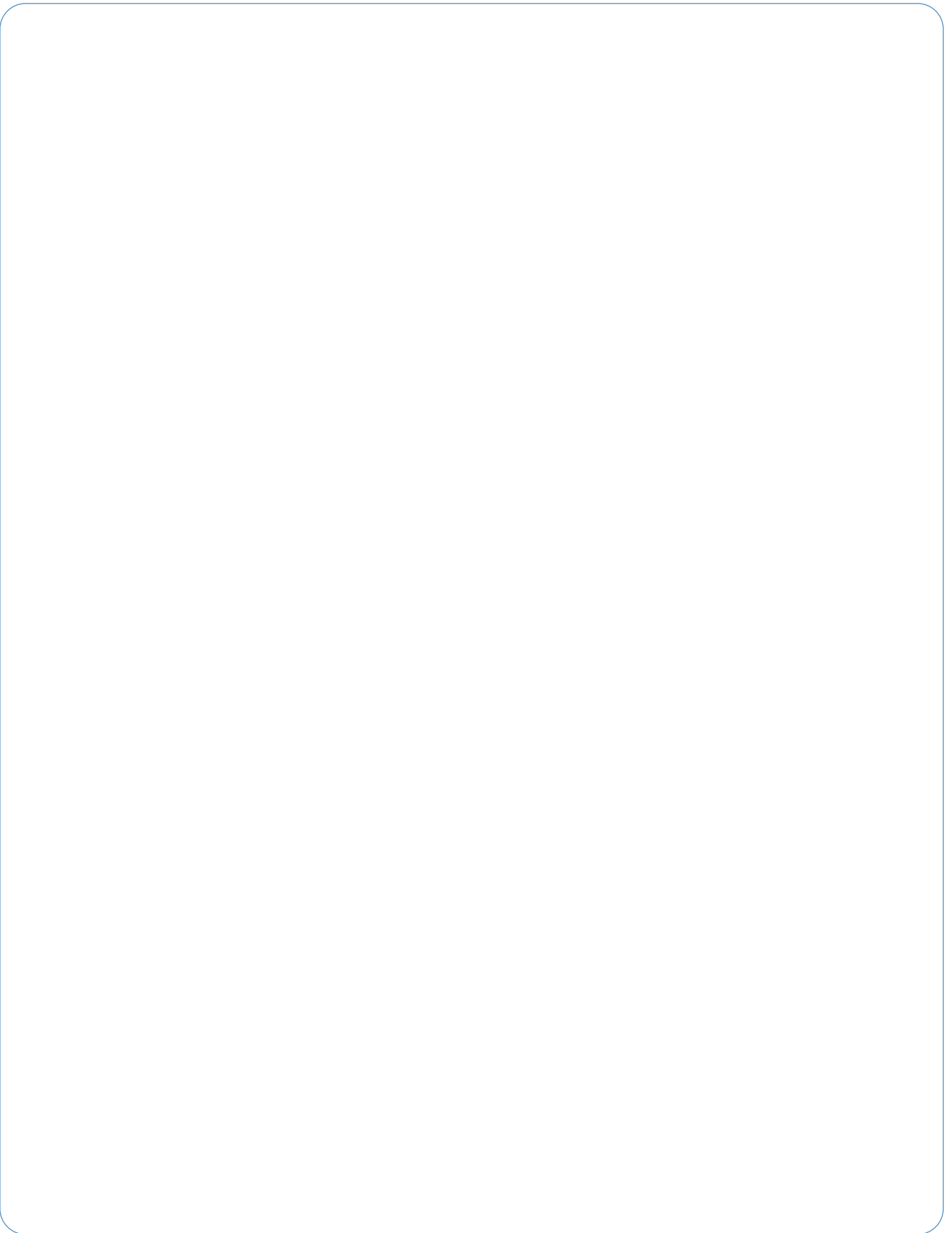
Circuit configuration	No.	Contact	No.	Contact	Type
	TB2	PE	TB1	AC100	
	TB4	P	TB3	-240V	
	TB6	COM0	TB5	00	
	TB8	COM1	TB7	01	
	TB10	03	TB9	02	
	TB12	COM2	TB11	NC	
	TB14	05	TB13	04	
	TB16	07	TB15	06	
	TB18	COM3	TB17	NC	
	TB20	09	TB19	08	
	TB22	11	TB21	10	
	TB24	24G	TB23	24V	

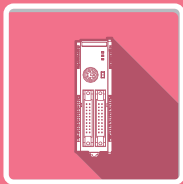
## XBC/XEC-DP30E

Transistor output wiring  
(source type)

Circuit configuration	No.	Contact	No.	Contact	Type
	TB2	PE	TB1	AC100	
	TB4	N	TB3	-240V	
	TB6	COM0	TB5	00	
	TB8	COM1	TB7	01	
	TB10	03	TB9	02	
	TB12	COM2	TB11	NC	
	TB14	05	TB13	04	
	TB16	07	TB15	06	
	TB18	COM3	TB17	NC	
	TB20	09	TB19	08	
	TB22	11	TB21	10	
	TB24	24G	TB23	24V	

\* XBC input : P00~P11, XEC input : I00~I17 \* XBC output : P40~P4B, XEC output : Q00~Q11





# XBM Slim

Slim

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## Slim

### Modular type unit

[XBM-DR16S, DN16S, DN32S]



Item	Descriptions			Standard
Ambient temperature	0 ~ 55 °C			
Storage temperature	- 25 ~ + 70 °C			
Ambient humidity	5 ~ 95%RH (Non-condensing)			
Storage humidity	5 ~ 95%RH (Non-condensing)			
Vibration resistance	Occasional vibration			10 times each direction (X, Y and Z)  IEC61131-2
	Frequency	Acceleration	Pulse width	
	10 ≤ f < 57Hz	–	0.075mm	
	57 ≤ f ≤ 150Hz	9.8m/s² (1G)	–	
	Continuous vibration			
	Frequency	Acceleration	Pulse width	
	10 ≤ f < 57Hz	–	0.035mm	
	57 ≤ f ≤ 150Hz	4.9m/s² (0.5G)	–	
Shock resistance	• Peak acceleration: 147m/s² (15g)   • Duration: 11ms • Pulse waveform: Half-sine, 3times each direction per each axis			IEC61131-2
Noise resistance	Square wave impulse noise	±500 V		LSIS Standard
	Electrostatic discharge	4kV		IEC61131-2 IEC61000-4-2
	Radiated electromagnetic field noise	80 ~ 1000MHz, 10V/m		IEC61131-2 IEC61000-4-3
	Fast transient/ Burst noise	Main unit	Expansion module	IEC61131-2 IEC61000-4-4
		2kV	1kV	
Operating ambience	Free from corrosive gases and excessive dust			
Altitude	Up to 2,000m			
Pollution level <sup>*1)</sup>	Less than 2			
Cooling	Air-cooling			

<sup>\*1)</sup> Pollution level indicates the degree to which conductive material is generated in the environment where the equipment is used. Pollution level 2 is the condition that only non-conductive pollution occurred but temporary conductivity may be produced due to condensing.

# Performance specifications | Modular type unit

## Performance specifications

Item	XBM-DR16S		XBM-DN16S	XBM-DN32S
Control method	Repetitive, cyclic, fixed cycle operation, constant scan			
I/O control method	Refresh mode (Batch processing by scan synchronization), Direct mode by instruction			
Programming language	Ladder diagram, Instruction List			
Processing speed	160 ns/Step			
Program capacity	10Kstep			
Main unit I/O points	16 points (Input:8, Output:8)	16 points (Input:8, Output:8)	32 points (Input:16, Output:16)	
Max. I/O points (Main + Expansion 7 stages)	240 points			256 points
Total program	128			
Operation mode	RUN, STOP, DEBUG			
Self diagnosis	Detects errors of scan time, memory error, I/O error, battery error, power error, etc.			
Program port	RS-232C 1 channel (Loader)			
Retain data at power failure	Latch area setting at basic parameter			
Built-in functions	RS-232C/RS-485(2 ch), Pulse catch, Input filter, External interrupt, PID control, High-speed counter, Positioning <sup>*1)</sup>			
Data memory				
XBM				
Data area	P	P0000 ~ P127F (2,048 points)		
	M	M0000 ~ M255F (4,096 points)		
	K	K0000 ~ K2559F (Special area: K2600~K2559F) (40,960 points)		
	L	L0000 ~ L1279F (20,480 points)		
	F	F000 ~ F255F (4,096 points)		
	T	100ms, 10ms, 1ms: T000 ~ T255 (256) (Adjustable by parameter setting)		
	C	C000 ~ C255 (256)		
	S	S00.00 ~ S127.99		
	D	D0000 ~ D5119 (5,120 word)		
	U	U00.00 ~ U07.31 (Analog data refresh area: 256 word)		
	Z	Z000 ~ Z127 (128 word)		
	N	N0000 ~ N3935 (3,936 word)		

<sup>\*1)</sup> XBM-DR16S does not have built-in positioning function.

## XBM-DR16S

Input wiring  
(sink/source type)

Circuit configuration	No.	Contact	Type
	TB1	0	
	TB2	1	
	TB3	2	
	TB4	3	
	TB5	4	
	TB6	5	
	TB7	6	
	TB8	7	
	TB9	COM	

## XBM-DR16S

Relay output wiring

Circuit configuration	No.	Contact	Type
	TB1	20	
	TB2	21	
	TB3	22	
	TB4	23	
	TB5	24	
	TB6	25	
	TB7	26	
	TB8	27	
	TB9	COM	

## XBM-DN16S

Input wiring(sink/source type)

Circuit configuration	No.	Contact	No.	Contact	Type
	B10	0	A10	NC	
	B09	1	A09	NC	
	B08	2	A08	NC	
	B07	3	A07	NC	
	B06	4	A06	NC	
	B05	5	A05	NC	
	B04	6	A04	NC	
	B03	7	A03	NC	
	B02	COM	A02	NC	
	B01	COM	A01	NC	

### XBM-DR16S

Transistor output wiring  
(sink type)

Circuit configuration	No.	Contact	Type
	B10	20	
	B09	21	
	B08	22	
	B07	23	
	B06	24	
	B05	25	
	B04	26	
	B03	27	
	B02	DC12 /24V	
	B01	NC	
	A10	NC	
	A09	NC	
	A08	NC	
	A07	NC	
	A06	NC	
	A05	NC	
	A04	NC	
	A03	NC	
	A02	COM	
	A01	COM	

### XBM-DN16S

Input wiring(sink/source type)

Circuit configuration	No.	Contact	No.	Contact	Type
	B10	0	A10	NC	
	B09	1	A09	NC	
	B08	2	A08	NC	
	B07	3	A07	NC	
	B06	4	A06	NC	
	B05	5	A05	NC	
	B04	6	A04	NC	
	B03	7	A03	NC	
	B02	COM	A02	COM	
	B01	COM	A01	COM	

### XBM-DR16S

Transistor output wiring  
(sink type)

Circuit configuration	No.	Contact	Type
	B10	20	
	B09	21	
	B08	22	
	B07	23	
	B06	24	
	B05	25	
	B04	26	
	B03	27	
	B02	DC12 /24V	
	B01	NC	
	A10	28	
	A09	29	
	A08	2A	
	A07	2B	
	A06	2C	
	A05	2D	
	A04	2E	
	A03	2F	
	A02	COM	
	A01	COM	

## Slim

### Transistor output wiring (XBM-DN16S)

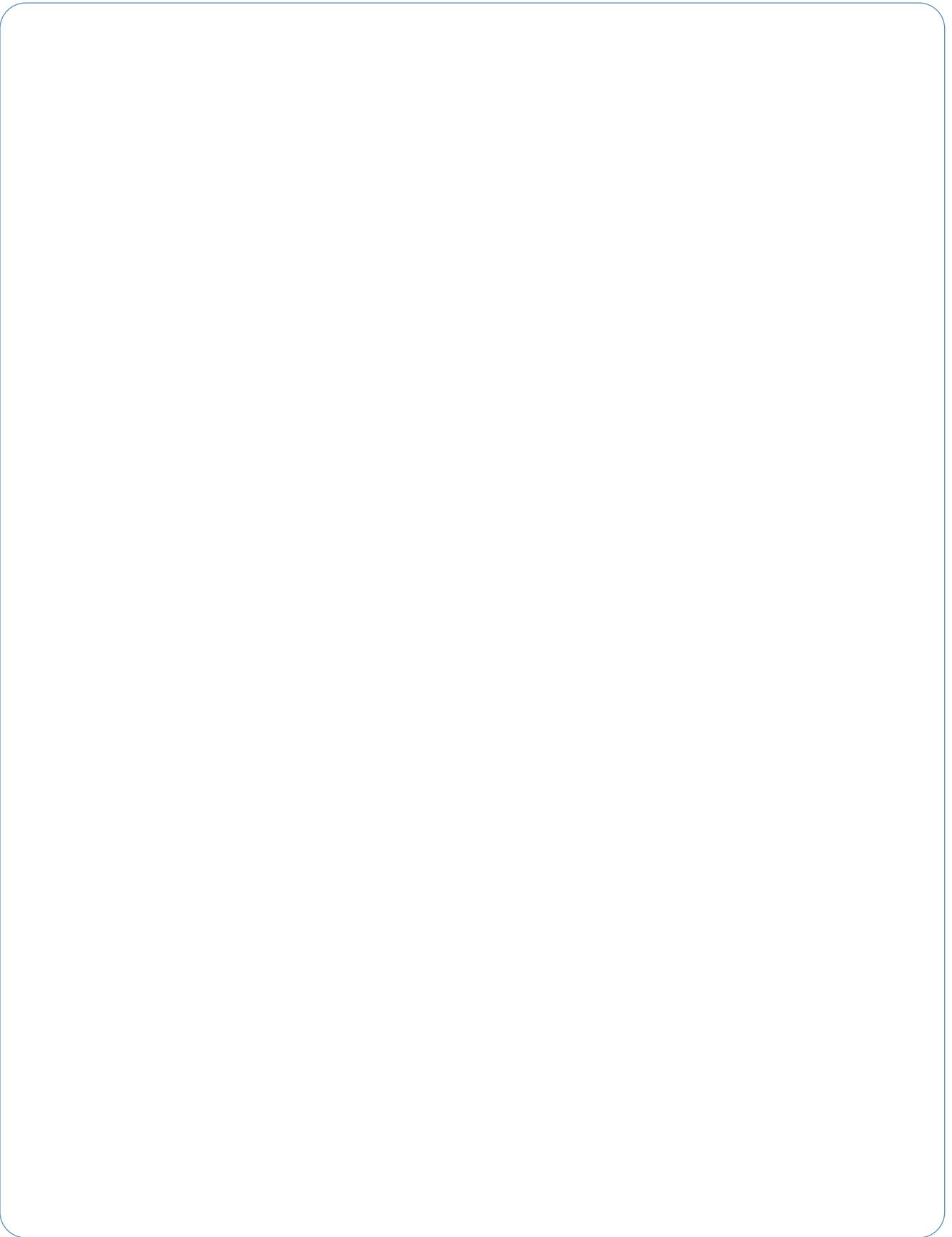
Circuit configuration	No.	Contact	Type
	B10	20	
	B09	21	
	B08	22	
	B07	23	
	B06	24	
	B05	25	
	B04	26	
	B03	27	
	B02	DC12/24V	
	B01	24V	
	A10	NC	
	A09	NC	
	A08	NC	
	A07	NC	
	A06	NC	
	A05	NC	
	A04	NC	
	A03	NC	
	A02	COM	
	A01	COM	

### Input wiring (XBM-DN32S)

Circuit configuration	No.	Contact	No.	Contact	Type
	B10	00	A10	08	
	B09	01	A09	09	
	B08	02	A08	0A	
	B07	03	A07	0B	
	B06	04	A06	0C	
	B05	05	A05	0D	
	B04	06	A04	0E	
	B03	07	A03	0F	
	B02	COM	A02	COM	
	B01	COM	A01	COM	

### Transistor output wiring (XBM-DN32S)

Circuit configuration	No.	Contact	Type
	B10	20	
	B09	21	
	B08	22	
	B07	23	
	B06	24	
	B05	25	
	B04	26	
	B03	27	
	B02	DC12/24V	
	B01	24V	
	A10	28	
	A09	29	
	A08	2A	
	A07	2B	
	A06	2C	
	A05	2D	
	A04	2E	
	A03	2F	
	A02	COM	
	A01	COM	





# Application

## XGB Series

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## U type

### Input specification

Item		XEC-DN32U/XEC-DN32UP/XEC-DN32UA XEC-DR28U/XEC-DR28UP/XEC-DR28UA
Input point		16 point
Insulation method		Photo coupler insulation
Rated input voltage		DC24V
Rated input current		About 4mA (Contact point 0~3: about 7mA)
Operation voltage range		DC20.4~28.8V (within ripple rate 5%)
On voltage / On current		DC19V or higher / 3mA or higher
Off voltage / Off current		DC6V or lower / 1mA or lower
Input resistance		About 5.6 $\Omega$ (P00~P07: about 4.7 $\Omega$ )
Response time	Off → On	1/3/5/10/20/70/100ms (Set by I/O parameter) Default: 3ms
	On → Off	
Insulation pressure		AC560Vrms/3 cycle (altitude 2000m)
Insulation resistance		10ms or more by MegOhmMeter
Common method		16 point/COM
Proper cable size		0.3~0.75mm <sup>2</sup>
Operation indicator		LED On when Input On
External connection method		8 point terminal block + 10point terminal connector
Weight		571g

### Transistor output specification

Item		XEC-DN32U/XEC-DN32UP/XEC-DN32UA
Output point		16 point
Insulation method		Photo coupler insulation
Rated load voltage		DC 12/24V
Operation load voltage range		DC 10.2 ~ 26.4V
Max. load current		0.5A/1 point, 2A/1COM
Off leakage current		0.1mA or less
Max. inrush current		4A/10ms or less
Max. voltage drop when On		DC 0.4V or less
Surge absorber		Zener diode
Response time	Off → On	1ms or less
	On → Off	1ms or less (rated load, resistive load)
Common method		16 point/COM
Proper wire size		Stranded wire 0.3~0.75mm <sup>2</sup> (external diameter 2.8mm or less)
External power	Voltage	DC12/24V ± 10% (Ripple voltage 4 Vp-p or less)
	Current	10mA or less (When connecting DC24V)
Operation indicator		LED On when Output On
External connection method		8 point terminal block connector + 10 point terminal block connector
Weight		571g

## High performance type

### Input specification

Item		XBC/XEC-DR32H	XBC/XEC-DN32H XEC-DP32H	XBC/XEC-DR64H	XBC/XEC-DN64H XEC-DP64H	XEC-DR32H/D1 XEC-DR64H/D1
Input points		16 points		32 points		16 points
Rated input voltage		DC 24V				DC 12/24V
Rated input current		4mA (Contact 0~7: 9mA)				5/10mA (Contact 0~7 : 7/15mA)
Operation voltage range		DC 20.4 ~ 28.8V (Ripple rate < 5%)				DC 9.5~30V (Ripple rate < 5%)
On voltage / On current		DC 19V or more/3mA or more				DC 9V or more/3mA or more
Off voltage / Off current		DC 6V or less/1mA or less				DC 5V or less/1mA or less
Input resistance		5.6k $\Omega$ (P00 ~ P07: 2.7k $\Omega$ )				2.7k $\Omega$ (%IX0.0.0~%IX0.0.7:1.8k $\Omega$ )
Response time	Off → On	1/3/5/10/20/70/100 ms (Setting by CPU parameter) Initial value: 3ms				
	On → Off					

### Relay output specification

Item	XBC/XEC-DR32H	XBC/XEC-DR64H
Output point	16 points	32 points
Insulation method	Relay insulation	
Rated load voltage / current	DC 24V 2A (Resistive load)/AC 220V 2A (COS $\phi$ = 1), 5A/COM	
Min. load voltage / current	DC 5V/1mA	
Max. load voltage	AC 250V, DC 125V	
Off leakage current	0.1mA (AC 220V, 60Hz)	
Max. On / Off frequency	3,600 times/hr	
Service life	Mechanical	20millions times or more
	Electrical	Rated load voltage/current 100,000 times or more
		AC 200V/1.5A, AC 240V/1A (COS $\phi$ = 0.7) 100,000 times or more
		AC 200V/1A, AC 240V/0.5A (COS $\phi$ = 0.35) 100,000 times or more
Response time	Off $\rightarrow$ On	10ms or less
	On $\rightarrow$ Off	12ms or less
Common method	4 points/COM	P20 ~ 2F: 4 points/COM P30 ~ 3F: 8 points/COM

### Transistor output specification

Item	XBC-DN32H/XEC-DN(P)32H	XBC-DN64H/XEC-DN(P)64H
Output point	16 points	32 points
Insulation method	Photo coupler insulation	
Rated load voltage	DC 12/24V	
Load voltage range	DC 10.2 ~ 26.4 V	
Max. load voltage	0.5A / 1point (P20 ~ 23: 0.1A/point)	
Off leakage current	0.1mA or less	
Max. inrush current	4A/10ms or less	
Max. voltage drop (On)	DC 0.4V or less	
Surge absorber	Zener Diode	
Response time	Off $\rightarrow$ On	1ms or less
	On $\rightarrow$ Off	1ms or less (Rated load, resistive load)
Common method	4 points/COM	P20 ~ 2F: 4 points/COM P30 ~ 3F: 8 points/COM
External power supply	Voltage	DC 12/24V $\pm$ 10% (Ripple voltage 4 Vp-p or less)
	Current	10mA or less (DC 24V connection)

## Standard type

### Input specification

Item	XBC/XEC-DN20SU XBC/XEC-DR20SU	XBC/XEC-DN30SU XBC/XEC-DR30SU	XBC/XEC-DN40SU XBC/XEC-DR40SU	XBC/XEC-DN60SU XBC/XEC-DR60SU
Input point	12 points	18 points	24 points	36 points
Rated input voltage	DC 24V			
Rated input current	4mA (Contact point 0~1:16mA, 2~7 :10mA), DN20SU (DN30SU) : 4mA (Contact point 0~7: 10mA)			
Operation voltage range	DC 20.4 ~ 28.8V (Ripple rate < 5%)			
On voltage / On current	DC 19V or more/3mA or more			
Off voltage / Off current	DC 6V or less/1mA or less			
Input resistance	5.6k $\Omega$ (P00 ~ P07 : 2.7k $\Omega$ )			
Response time	Off $\rightarrow$ On On $\rightarrow$ Off	1/3/5/10/20/70/100ms (Setting by CPU parameter) Initial value : 3ms		

### Transistor output specification (Sink/Source type)

Item	XBC/XEC-DN20SU XBC/XEC-DR20SU XBC/XEC-DP20SU	XBC/XEC-DN30SU XBC/XEC-DR30SU XBC/XEC-DP30SU	XBC/XEC-DN40SU XBC/XEC-DR40SU XBC/XEC-DP40SU	XBC/XEC-DN60SU XBC/XEC-DR60SU XBC/XEC-DP60SU
Output point	8 points	12 points	16 points	24 points
Insulation method	Photo coupler insulation			
Rated load voltage	DC 12/24V			
Load voltage range	DC 10.2 ~ 26.4V			
Max. load voltage	0.5A/1 point, 2A/ 1COM			
Off leakage current	0.1mA or less			
Max. inrush current	4A/10ms or less			
Max voltage drop (on)	DC 0.4V or less			
Surge absorber	Zener Diode			
Response time	Off $\rightarrow$ On On $\rightarrow$ Off	DC 12/24V $\pm$ 10% (Ripple voltage 4Vp-p or less) 25mA or less (DC 24V connection)		

### Relay output specification

Item		XBC/XEC-DR20SU	XBC/XEC-DR30SU	XBC/XEC-DR40SU	XBC/XEC-DR60SU
Output point		8 points	12 points	16 points	24 points
Insulation method		Relay insulation			
Rated load voltage/current		DC 24V 2A/AC 220V 2A (COSØ = 1), 5A/COM			
Min. load voltage/current		DC 5V/1mA			
Max. load Current		AC 250V, DC 125V			
Off leakage current		0.1mA (AC 220V, 60Hz)			
Surge absorber		-			
Response time	Off → On	10ms or less			
	On → Off	12ms or less			
Common method ( / COM)		4 points/COM (P40, P41 : 1 point/COM), (P42 P43 : 2 points/COM)			
Life-cycle	Mechanical	Rated load voltage/Current 10 million times or more			
		AC 220V/1.5A, AC 240V/1A (COSØ= 0.7) 10 million times or more			
	Electrical	AC 200V/1A, AC 240V/0.5A (COSØ= 0.35) 10 million times or more			
		DC 24V/1A, DC 100V/0.1A (L / R = 7ms) 10 million times or more			

## Economic type

### Input specification

Specification	Modal	Main unit			
		XBC/XEC-DR10E XBC/XEC-DN10E	XBC/XEC-DR14E XBC/XEC-DN14E	XBC/XEC-DR20E XBC/XEC-DN20E	XBC/XEC-DR30E XBC/XEC-DN30E
Input point		6 points	8 points	12 points	18 points
Insulation method		Photo coupler insulation			
Rated input voltage		DC 24V			
Rated input current		About 4mA (Contact point 0~3: about 7mA)			
Operation voltage range		DC 20.4~28.8V (Within ripple rate 5%)			
On voltage / On current		DC 19V or higher / 3mA or higher			
Off voltage / Off current		DC 6V or lower / 1mA or lower			
Input resistance		About 5.6k $\Omega$ (%I $\times$ 0.0.0~%I $\times$ 0.0.3: about 2.7k $\Omega$ )			
Response time	Off $\rightarrow$ On	1 / 3 / 5 / 10 / 20 / 70 / 100ms (Set by I/O parameter) Default: 3ms			
	On $\rightarrow$ Off				
Insulation pressure		AC 560Vrms / 3 cycle (Altitude 2000m)			
Insulation resistance		10k $\Omega$ or more by MegOhmMeter			
Common method		6 points / COM	8 points / COM	12 points / COM	18 points / COM
Proper cable size		0.3mm <sup>2</sup>			
Operation indicator		LED On when Input On			
External connection method		14 point terminal block connector (M3 $\times$ 6 screw)		24 point terminal block connector (M3 $\times$ 6 screw)	
Weight		330g	340g	450g	465g
		313g	315g	418g	423g

### Relay output specification

Specification	Modal	Main unit			
		XBC/XEC-DR10E	XBC/XEC-DR14E	XBC/XEC-DR20E	XBC/XEC-DR30E
Output point		4 points	6 points	8 points	12 points
Insulation method		Relay insulation			
Rated load voltage / Current		DC 24V 2A (resistive load) / AC 220V 2A (COS $\phi$ = 1), 5A / COM			
Min. load voltage / Current		DC 5V / 1mA			
Max. load voltage		AC 250V, DC 125V			
Off leakage current		0.1mA (AC 220V, 60Hz)			
Max. On / Off frequency		3,600 times / hour			
Surge absorber		None			
Service life	Mechanical	20 million times or more			
	Electrical	Rated load voltage / Current 100,000 times or more			
		AC 200V / 1.5A, AC 240V / 1A (CO $\phi$ = 0.7) 100,000 times or more			
		AC 200V / 1A, AC 240V / 0.5A (CO $\phi$ = 0.35) 100,000 times or more			
Response time	Off $\rightarrow$ On	10ms or less			
	On $\rightarrow$ Off	12ms or less			
Common method		2 points / COM	4 points / COM	4 points / COM	4 points / COM
Proper cable size		Stranded cable 0.3~0.75mm <sup>2</sup> (External diameter 2.8mm or less)			
Operation indicator		LED On when Output On			
External connection method		14 point terminal block connector (M3 $\times$ 6 screw)		24 point terminal block connector (M3 $\times$ 6 screw)	

## Economic type

Transistor output specification  
(Sink / Source type)

Specification		Main unit			
		XBC/XEC-DN10E XBC/XEC-DP10E	XBC/XEC-DN14E XBC/XEC-DP14E	XBC/XEC-DN20E XBC/XEC-DP20E	XBC/XEC-DN30E XBC/XEC-DP30E
Output point		4 points	6 points	8 points	12 points
Insulation method		Photo coupler insulation			
Rated load voltage		DC 12/24V			
Operation load voltage range		DC 10.2~26.4V			
Max. load current		0.5A/1 point, 2A/1COM			
Off leakage current		0.1mA or less			
Max. inrush current		4A/10ms or less			
Max. voltage drop when On		DC 0.4V or less			
Surge absorber		Zener diode			
Response time	Off → On	1ms less			
	On → Off	1ms less (Rated load, resistive load)			
Common method		4 point / COM			
Proper wire size		Stranded wire 0.3~0.75mm <sup>2</sup> (External diameter 2.8mm or less)			
External power	Voltage	DC 12/24V ± 10% (Ripple voltage 4 Vp-p or less)			
	Current	25mA or less (When connecting DC 24V)			
Operation indicator		LED On when Output On			
External connection method		14 point terminal block connector (M3 × 6 screw)		24 point terminal block connector (M3 × 6 screw)	

## Slim type

### Input specification

Item	XBM-DR16S	XBM-DN16S	XBM-DN32S
Input point	8 points	8 points	16 points
Rated input voltage	DC 24V		
Rated input current	4mA (00 ~ 03: 7mA)		
Operation voltage range	DC 20.4 ~ 28.8V (Ripple rate < 5%)		
Response time	Off → On	1/3/5/10/20/70/100ms (Set by CPU parameter) Default: 3ms	
	On → Off		
Common method	8 points/COM		16 points/COM

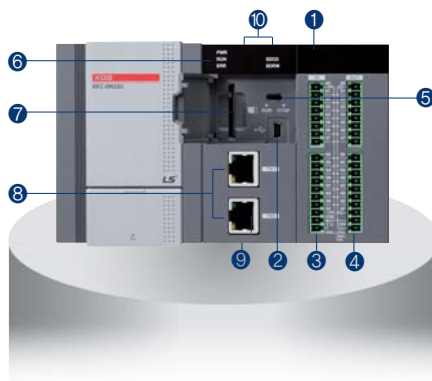
### Relay output specification

Item	XBM-DR16S	
Output point	8 points	
Insulation method	Relay insulation	
Rated load voltage / current	DC 24V 2A (Resistive load)/AC 220V 2A (COS $\phi$ = 1), 5A/COM	
Min. load voltage / current	DC 5V/1mA	
Max. load voltage	AC 250V, DC 125V	
Off leakage current	0.1mA (AC 220V, 60Hz)	
Max. On / Off frequency	3,600 times/hr	
Service life	Mechanical	20 millions times or more
	Electrical	Rated load voltage/Current 100,000 times or more
		AC 200V/1.5A, AC 240V/1A (COS $\phi$ = 0.7) 100,000 times or more
		AC 200V/1A, AC 240V/0.5A (COS $\phi$ = 0.35) 100,000 times or more
		DC 24V/1A, DC 100V/0.1A (L / R = 7ms) 100,000 times or more
Response time	Off → On	10ms or less
	On → Off	12ms or less
Common method	8 points / COM	

### Transistor output specification

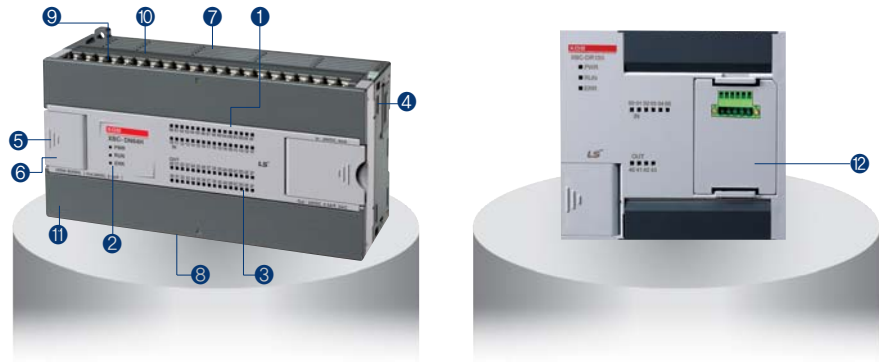
Item	XBM-DN16S	XBM-DN32S
Output point	8 point	16 point
Insulation method	Photo coupler insulation	
Rated load voltage	DC 12/24V	
Load voltage range	DC 10.2 ~ 26.4V	
Max. load voltage	0.2A/1 point (P20 ~ 23: 0.1A/Point)	
Max. inrush current	4A/10ms or less	
Max. voltage drop (On)	DC 0.4V or less	
Response time	Off → On	1ms or less
	On → Off	1ms or less (Rated load, Resistive load)
Common method	8 point / COM	16 point / COM
External power supply	Voltage	DC 12/24V $\pm$ 10% (Ripple voltage 4 Vp-p or less)
	Current	25mA or less (DC 24V connection)
External connection method	20pin connector	

## Block type unit (U)



No.	Name	Descriptions	Remark
①	LED for displaying input, output	Displays the On/Off status of input, output contacts	
②	Connector for PADT	Connector (USB 1channel) to access to XG5000	
③	Input terminal block	Terminal block receiving the actual input signal	
④	Output terminal block	Terminal block outputting the actual output signal	
⑤	RUN/STOP mode switch	Sets the basic unit's operation mode. - STOP → RUN : Program's operation is executed. - RUN → STOP : Program's operation is stopped. (In case of STOP, the remote operation is available.)	
⑥	Status display LED	Displays the basic unit's operation status. - PWR (Red light On) : The power is supplied. - RUN (Green light On) : During RUN mode - ERR (Flickering red light) : Occurrence of errors during operation - STATE (Red light On/flickering Red light): When the SD card is installed, the red light is turned On; when the SD card error occurs, the red light is flickering. - RD/WR (Flickering red light) : During SD card Write	
⑦	SD card connector	Connector with the SD memory card	
⑧	Terminal block for the embedded Enet communication	Terminal block for the embedded Enet communication	
⑨	Terminal block for the embedded communication	Terminal block (lower part of the product) for the embedded RS-232C/485 communication	
⑩	Battery holder	Battery holder (upper part of the product)	

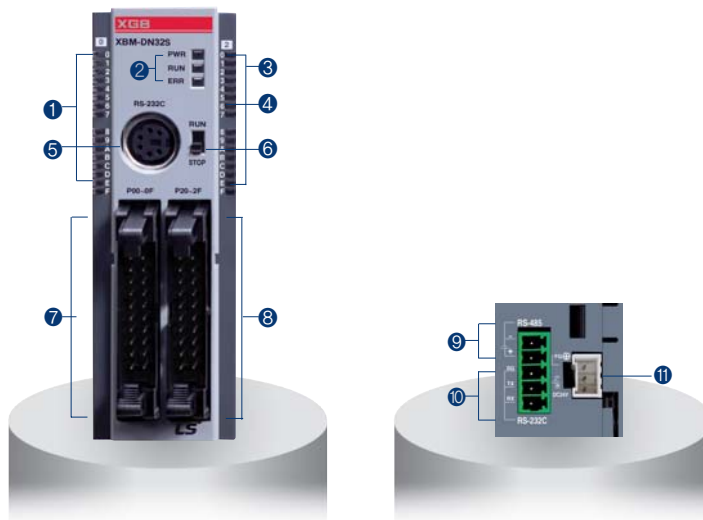
**Block type unit**  
(High performance,  
Standard, Economic)



No.	Name	Descriptions	Descriptions	Remark
①	Input LED	Input indication	Red On: Input signal On Red Off: Input signal Off	
②	Condition LED	PWR: Power indication	Red On: Power On Red Off: Power Off	
		RUN: RUN indication	Green On: PLC Run Green Off: PLC Stop	
		ERR: Error indication	Red On-and-Off: PLC Error Red Off: PLC Normal condition	
③	Output LED	Output LED	On: Output signal On Off: Output signal Off	
④	Expansion module connector	Expansion module connector	Connection of expansion module (I/O, Special function, Communication)	
⑤	PADT connector	PADT connection	Connector for XG5000/XG-PD connection	
⑥	Mode switch	Mode setting	Setting Run/Stop mode of PLC	
⑦	Input terminal block	Input wiring connection	-	
⑧	Output terminal block	Output wiring connection	-	
⑨	Built-in RS-485 connector	Built-in RS-485 connection	RS-485 +/- terminal connection	
⑩	Built-in RS-232C connector	Built-in RS-232C connection	RS-232C T × D, R × D, SG terminal connection	
⑪	Power terminal	Power supply terminal	AC 100-240V power supply	
⑫	Option module slot	Slot for option module	-	

## Modular type unit

(XBM-DR16S, DN16S, DN32S)



No.	Name	Descriptions	Descriptions	Remark
①	Input LED	Input indication	Red On: Input signal On Red Off: Input signal Off	
②	Condition LED	PWR: Power indication	Red On: Power On Red Off: Power Off	
		RUN: RUN indication	Green On: PLC Run Green Off: PLC Stop	
		ERR: Error indication	Red On-and-Off: PLC Error Red Off: PLC Normal condition	
③	Output LED	Output LED	On: Output signal On Off: Output signal Off	
④	Expansion module connector	Expansion module connector	Connection of expansion module (I/O, Special function, Communication)	
⑤	PADT connector	PADT connection	Connector for XG5000/XG-PD connection	
⑥	Mode switch	Mode setting	Setting Run / Stop mode of PLC	
⑦	Input connector / Terminal block	Input wiring connection	—	
⑧	Output connector / Terminal block	Output wiring connection	—	
⑨	Built-in RS-485 connector	Built-in RS-485 connection	RS-485 +/- terminal connection	
⑩	Built-in RS-232C connector	Built-in RS-232C connection	RS-232C TxD, RxD, SG terminal connection	
⑪	Power connector	Power supply connection	DC 24V power supply	

# Built-in functions

## XGB U

### Performance specifications

Items		Specification	Remark
<b>PID control</b>		Control by instruction, auto-tuning, PWM output, Forced output, Operation scan time setting, Antiwindup, Delta MV, PV tracking, Hybrid operation, Cascade operation	
<b>Serial</b>	<b>Protocol</b>	Dedicated protocol, Modbus protocol User defined protocol , LS bus (inverter protocol)	Embedded00 P2P:01
	<b>Channel</b>	RS-232C 1 port and RS-485 1 port	
<b>Ethernet</b>	<b>Transfer spec</b>	Cable: 100Base-TX Speed: 100Mbps Auto-MDIX <sup>*1</sup> IEEE 802.3	
	<b>Topology</b>	Line, star	
	<b>Diagnosis</b>	Module information, service condition	
	<b>Protocol</b>	XGT dedicated Modbus TCP/IP user define frame	Embedded01 P2P:02 High-speed link:01
	<b>Service</b>	P2P, High Speed link, Remote connection	
<b>Datalog</b>	<b>Group</b>	Max 10 group	
	<b>Data set</b>	32 per group	
	<b>Extension</b>	csv file	
	<b>File size</b>	Max 16Mbyte	
	<b>SD memory type</b>	SD,SDHC type (Recommand: SanDisk,Transcend)	
	<b>Memory size</b>	Max 16GB	
	<b>File system</b>	FAT32	
<b>High speed counter</b>	<b>Performance</b>	1-phase : 100MHz 8 channels 2-phase : 50MHz 4 channels	
	<b>Counter mode</b>	4 counter modes are supported based on input pulse and INC/DEC method • 1 pulse operation Mode : INC/DEC count by program • 1 pulse operation Mode : INC/DEC count by phase B pulse input • 2 pulse operation Mode : INC/DEC count by input pulse • 2 pulse operation Mode : INC/DEC count by difference of phase	
	<b>Function</b>	• Internal/external preset • Latch counter • Compare output • No. of rotation per unit time	

<sup>\*1</sup> Auto-MDIX (Automatic medium-dependent interface crossover) :

It is the function to automatically detect whether the cable connected to the Ethernet port is peer-to-peer (straight) or cross cable

## XGB U

### Built-in positioning function (XBC/XEC-DxxxUP)

Items	Specification	Remark
<b>Basic function</b>	No. of control axi: 4axis Control Method:Position, Speed, Speed/Position, Feed Control Control Unit: Pulse ,mm, inch, degree Positioning Data: Each axis can have up to 400 data (Step number:1~400) Operation pattern: End, Keep, Continuous Operation method: Singular, Repeat	Availavle on Analog
<b>Interpolation</b>	2/3/4 axis linear interpolation 2 axis circular interpolation 3 axis helical interpolation	
<b>Positioning</b>	Method: Absolute/Incremental method Address range: 2, 147, 483, 648~2, 147, 483, 647 Speed: Max 2Mpps (1~2,000,000pps) Acc /Dec process: Trapezoid type, S-type	
<b>Homing method</b>	DOG+HOME (Off), DOG+HOME (On), Upper limit + HOME, DOG, High speed, Upper/Lower limit, HOME	
<b>Manual operation</b>	Jog operation, MPG operation, Inching operation	
<b>Encoder input</b>	Line drive (RS-422A) input 1Channel (Max 200kpps)	

### Built-in analog function (XBC/XEC-DxxxUA)

Items	Specification	Remark
<b>Analog input</b>	<b>Channels</b>	4channels (current/voltage)
	<b>Specification</b>	<b>Input Range</b> Voltage: 1~5V, 0~5V, 0~10V, -10~10V Current: 4~20 mA, 0~20 mA Current input or Voltage input can be selected through the external terminal wiring setting.
		<b>Input resistance</b> 1MΩ or more (voltage input), 250Ω (current input)
		<b>Max. resolution</b> 1/16000 0.250 mV (1 ~ 5V) 0.3125 mV (0 ~ 5V) 0.625 mV (0 ~ 10V) 1.250 mV (±10V) 1.0 μA (4 ~ 20 mA) 1.25 μA (0 ~ 20 mA)
		<b>Accuracy</b> ±0.2% or less (When ambient temperature is 25℃) ±0.3% or less (When ambient temperature is 0 ~ 55℃)
	<b>Channels</b>	Voltage 2 channels ,Current 2 channels
<b>Analog output</b>	<b>Specification</b>	<b>Output Range</b> Voltage: 1~5V, 0~5V, 0~10V, -10~10V Current: 4~20 mA, 0~20 mA Output ranges are set in user program or I/O parameter per each channel.
		<b>Load resistance</b> 1MΩ or more(voltage output), 600Ω or less(current output)
		<b>Max. resolution</b> 1/16000 0.250 mV (1 ~ 5V) 0.3125 mV (0 ~ 5V) 0.625 mV (0 ~ 10V) 1.250 mV (±10V) 1.0 μA (4 ~ 20 mA) 1.25 μA (0 ~ 20 mA)
		<b>Accuracy</b> ±0.2% or less (When ambient temperature is 25℃) ±0.3% or less (When ambient temperature is 0 ~ 55℃)
	<b>Channels</b>	Voltage 2 channels ,Current 2 channels

## XGB H/SU/E, XBM

### Performance specifications

Classification		Description			
		Block type unit			Modular type
		H	SU	E	XBM
Count input Signal	Signal	A-phase, B-phase			
	Input type	Voltage input (Open collector)			
	Signal level	DC 24V			
Max. count speed		100kpps	100kpps	4kpps	20kpps
Number of channels	1 phase	100kpps 4ch/20kpps 4ch	100kpps 2ch/20kpps 6ch	4kpps 4ch	20kpps 4ch
	2 phase	50kpps 2ch/10kpps 2ch	50kpps 1ch	2kpps 2ch	2 multiplication: 10kpps
		50kpps 2ch/8kpps 2ch	8kpps 3ch		4 multiplication: 8kpps
Count range		Signed 32bit (-2,147,483,648 ~ 2,147,483,647)			
Count mode (Program setting)		Linear count (If 32bit range exceeded, Carry / Borrow occurs)			
		Ring count (Repeated count within setting range)			
Input mode (Program setting)		1-phase input			
		2-phase input			
		CW/CCW input			
Signal type		Voltage			
Up/Down setting	1 phase input	Increasing/Decreasing operation setting by B-phase input			
	2 phase input	Increasing/Decreasing operation setting by program			
		Automatic setting by difference in phase			
		CW/CCW	A-phase input: increasing operation B-phase input: decreasing operation		
Multiplication function	1 phase input	1 multiplication			
	2 phase input	4 multiplication			
	CW/CCW	1 multiplication			
Control input	Signal	Preset instruction input			
	Signal level	DC 24V input type			
	Signal type	Voltage			
External output	Output points	2 point / channel (for each channel): output contact point of basic unit available		1 point / channel (for each channel): output contact point of basic unit available	
	Type	Select program setting, signal-compared (>, >=, =, <=, <) or section compared output (Included or excluded)			
	Output type	Relay, Open-collector output (Sink)			
Count enable		To be set through program			
Preset function		To be set through terminal (contact) or program			
Auxiliary mode		Count latch			

### Input specification

Item	Description
Input voltage	24V DC (20.4V ~ 28.8V)
Input current	4mA
On voltage (min.)	20.4V
Off voltage (max.)	6V

## Parts designation | Block type unit

### High performance type (XBC-H)

Terminal No.	Name		Usage	
	1-phase	2-Phase	1-phase	2-Phase
P000	Ch0 counter input	Ch0 A-phase input	Counter input terminal	A-phase input
P001	Ch1 counter input	Ch0 B-phase input	Counter input terminal	B-phase input
P002	Ch2 counter input	Ch2 A-phase input	Counter input terminal	A-phase input
P003	Ch3 counter input	Ch2 B-phase input	Counter input terminal	B-phase input
P004	Ch4 counter input	Ch4 A-phase input	Counter input terminal	A-phase input
P005	Ch5 counter input	Ch4 B-phase input	Counter input terminal	B-phase input
P006	Ch6 counter input	Ch6 A-phase input	Counter input terminal	A-phase input
P007	Ch7 counter input	Ch6 B-phase input	Counter input terminal	B-phase input
P008	Ch0 preset 24V	Ch0 preset 24V	Preset input terminal	Preset input terminal
P009	Ch1 preset 24V	-	Preset input terminal	No use
P00A	Ch2 preset 24V	Ch2 preset 24V	Preset input terminal	Preset input terminal
P00B	Ch4 preset 24V	-	Preset input terminal	No use
P00C	Ch5 preset 24V	Ch4 preset 24V	Preset input terminal	Preset input terminal
P00D	Ch6 preset 24V	-	Preset input terminal	No use
P00E	Ch7 preset 24V	Ch6 preset 24V	Preset input terminal	Preset input terminal
P00F	Ch8 preset 24V	-	Preset input terminal	No use
COM0	Input common	Input common	Input common	Input common

### High performance type (XEC-H)

Terminal No.	Name		Usage	
	1-phase	2-Phase	1-phase	2-Phase
IX0.0.0	Ch0 counter input	Ch0 A-phase input	Counter input terminal	A-phase input
IX0.0.1	Ch1 counter input	Ch0 B-phase input	Counter input terminal	B-phase input
IX0.0.2	Ch2 counter input	Ch2 A-phase input	Counter input terminal	A-phase input
IX0.0.3	Ch3 counter input	Ch2 B-phase input	Counter input terminal	B-phase input
IX0.0.4	Ch4 counter input	Ch4 A-phase input	Counter input terminal	A-phase input
IX0.0.5	Ch5 counter input	Ch4 B-phase input	Counter input terminal	B-phase input
IX0.0.6	Ch6 counter input	Ch6 A-phase input	Counter input terminal	A-phase input
IX0.0.7	Ch7 counter input	Ch6 B-phase input	Counter input terminal	B-phase input
IX0.0.8	Ch0 preset 24V	Ch0 preset 24V	Preset input terminal	Preset input terminal
IX0.0.9	Ch1 preset 24V	-	Preset input terminal	No use
IX0.0.10	Ch2 preset 24V	Ch2 preset 24V	Preset input terminal	Preset input terminal
IX0.0.11	Ch4 preset 24V	-	Preset input terminal	No use
IX0.0.12	Ch5 preset 24V	Ch4 preset 24V	Preset input terminal	Preset input terminal
IX0.0.13	Ch6 preset 24V	-	Preset input terminal	No use
IX0.0.14	Ch7 preset 24V	Ch6 preset 24V	Preset input terminal	Preset input terminal
IX0.0.15	Ch8 preset 24V	-	Preset input terminal	No use
COM0	Input common	Input common	Input common	Input common

### Standard type (XBC-SU)

Terminal No.	Name		Usage	
	1-phase	2-Phase	1-phase	2-Phase
P000	Ch0 counter input	Ch0 A-phase input	Counter input terminal	A-phase input
P001	Ch1 counter input	Ch0 B-phase input	Counter input terminal	B-phase input
P002	Ch2 counter input	Ch2 A-phase input	Counter input terminal	A-phase input
P003	Ch3 counter input	Ch2 B-phase input	Counter input terminal	B-phase input
P004	Ch4 counter input	Ch4 A-phase input	Counter input terminal	A-phase input
P005	Ch5 counter input	Ch4 B-phase input	Counter input terminal	B-phase input
P006	Ch6 counter input	Ch6 A-phase input	Counter input terminal	A-phase input
P007	Ch7 counter input	Ch6 B-phase input	Counter input terminal	B-phase input
P008	Ch0 preset 24V	Ch0 preset 24V	Preset input terminal	Preset input terminal
P009	Ch1 preset 24V	-	Preset input terminal	No use
P00A	Ch2 preset 24V	Ch2 preset 24V	Preset input terminal	Preset input terminal
P00B	Ch4 preset 24V	-	Preset input terminal	No use
P00C	Ch5 preset 24V	Ch4 preset 24V	Preset input terminal	Preset input terminal
P00D	Ch6 preset 24V	-	Preset input terminal	No use
P00E	Ch7 preset 24V	Ch6 preset 24V	Preset input terminal	Preset input terminal
P00F	Ch8 preset 24V	-	Preset input terminal	No use
COM0	Input common	Input common	Input common	Input common

### Economic type (XBC-E)

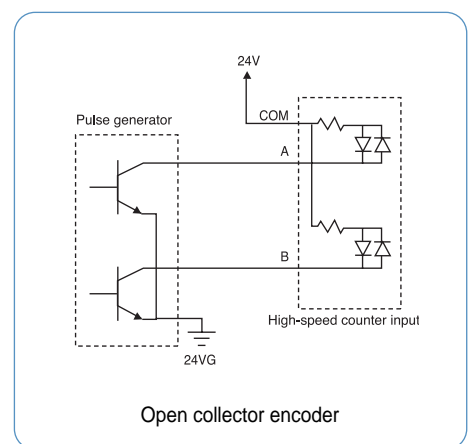
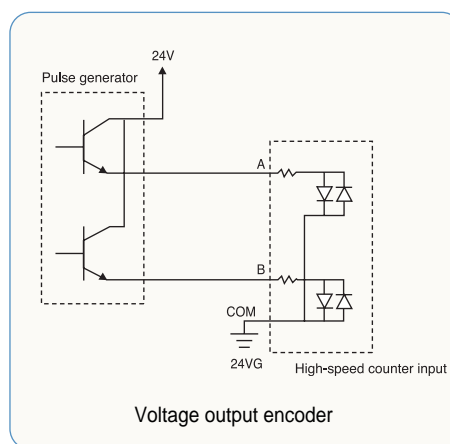
Terminal No.	Name		Usage	
	1-phase	2-Phase	1-phase	2-Phase
<b>P000</b>	Ch0 counter input	Ch0 A-phase input	Counter input terminal	A-phase input
<b>P001</b>	Ch1 counter input	Ch0 B-phase input	Counter input terminal	B-phase input
<b>P002</b>	Ch2 counter input	Ch2 A-phase input	Counter input terminal	A-phase input
<b>P003</b>	Ch3 counter input	Ch2 B-phase input	Counter input terminal	B-phase input
<b>P004</b>	Ch0 preset 24V	Ch0 preset 24V	Preset input terminal	Preset input terminal
<b>P005</b>	Ch1 preset 24V	-	Preset input terminal	No use
<b>P006</b>	Ch2 preset 24V	Ch2 preset 24V	Preset input terminal	Preset input terminal
<b>P007</b>	Ch4 preset 24V	-	Preset input terminal	No use
<b>COM0</b>	Input common	Input common	Common terminal	Common terminal

## Parts designation | Modular type unit

### Modular type (XBM)

Terminal No.	Name		Usage	
	1-phase	2-Phase	1-phase	2-Phase
<b>P000</b>	Ch0 counter input	Ch0 A-phase input	Counter input terminal	A-phase input
<b>P001</b>	Ch1 counter input	Ch0 B-phase input	Counter input terminal	B-phase input
<b>P002</b>	Ch2 counter input	Ch2 A-phase input	Counter input terminal	A-phase input
<b>P003</b>	Ch3 counter input	Ch2 B-phase input	Counter input terminal	B-phase input
<b>P004</b>	Ch0 preset 24V	Ch0 preset 24V	Preset input terminal	Preset input terminal
<b>P005</b>	Ch1 preset 24V	-	Preset input terminal	No use
<b>P006</b>	Ch2 preset 24V	Ch2 preset 24V	Preset input terminal	Preset input terminal
<b>P007</b>	Ch3 preset 24V	-	Preset input terminal	No use
<b>COM0</b>	Input common	Input common	Common terminal	Common terminal

## Wiring



## Parts designation | Block type unit

### Performance specification

Classification		Description		
		Block type unit		Modular type
		H-type	SU-type	S-type
No. of control axis		2 axes		
Interpolation		2-axis linear interpolation		
Control mode		Position control, Speed control, Speed/Position switching control, Position/Speed switching control		
Control unit		Pulse		
Positioning data		30-step pattern for each axis (XBC: 80step) (operation step number : 1~ 30, XBC : 1~ 80)		
Positioning monitor		Dedicated monitoring function for positioning in XG5000		
Back-up		Permanent backup of downloaded parameter (FLASH memory)		
		2-month Super Cap.backup of parameter / Data modified during operation(XBM) battery back-up (XBC)		
		Permanent backup of parameter / Data in RAM by instruction (FLASH memory)		
Positioning	Positioning method	Absolute/incremental method		
	Positioning range	-2,147,483,648 ~ 2,147,483,647		
	Speed range	1 ~ 100,000 (pulse/sec)		
	Acceleration / Deceleration type	Trapezoidal acceleration/Deceleration		
	Acceleration / Deceleration time	1 ~ 10,000ms (4 patterns each can be set)		
Max. output pulse		100 Kpps		
Max. distance of connection		2m		

※ Economic block type unit (E-type) dose not support built-in positioning functions

### Electrical specification

Output	Signal	Rated input voltage	Load voltage range	Max. load current / Inrush current	Max. voltage drop (On)	Leakage current (Off)	Response time
	Output pulse	DC 5~24V	DC 4.75~26.4V	100mA (1 point) 1A/10ms or less	DC 0.3V or less	0.1mA or less	100μs or less
Input	Signal	Rated input voltage/Current	Load voltage range	On voltage / Current	Off voltage / Current	Input resistance	Response time
	External high limit	DC 24V/7mA	DC 20.4 ~ 28.8V	DC 19V/5.7mA or more	DC 6V/1.8mA or less	3.3Ω	0.5ms or less
	External low limit						
	Approximate zero	DC 24V/4mA		DC 19V/3.4mA or more	DC 6V/1.1mA or less	5.6Ω	
zero							

## I/O specifications | Block type unit

### High performance type

(XBC/XEC-H)

Item	XBC pin number (XEC pin number)		Signal name		Direction of positioning signal to external	Operating condition
	X axis	Y axis				
Input	P00008 (%IX0.0.8)	P0000A (%IX0.0.10)	Limit L	Low limit	←	4mA/ 24V
	P00009 (%IX0.0.9)	P0000B (%IX0.0.11)	Limit H	High limit	←	
	P0000C (%IX0.0.12)	P0000E (%IX0.0.14)	DOG	Near point	←	
	P0000D (%IX0.0.13)	P0000F (%IX0.0.15)	Origin	Zero signal (+24V)	←	
	COM		Input COM	Common	←	
Output	P00020 (%QX0.0.0)	P00021 (%QX0.0.1)	Pulse	Pulse/CW (Open collector)	→	DC 12~24V
	P00022 (%QX0.0.2)	P00023 (%QX0.0.3)	Direction	Direction/CCW (Open collector)	→	
	P		DC 12V~24V	External power supply	→	
	COM 0 ~ 3		Output COM	External 24V GND	→	

### Standard type

(XBC/XEC-SU)

Item	XBC pin number		Signal name		Direction of positioning signal to external	Operating condition
	X axis	Y axis				
Input	P00008 (%IX0.0.8)	P0000A (%IX0.0.10)	Limit L	Low limit	←	4mA/ 24V
	P00009 (%IX0.0.9)	P0000B (%IX0.0.11)	Limit H	High limit	←	
	P0000C (%IX0.0.12)	P0000E (%IX0.0.14)	DOG	Near point	←	
	P0000D (%IX0.0.13)	P0000F (%IX0.0.15)	Origin	Zero signal (+24V)	←	
	COM		Input COM	Common	←	
Output	P00040 (%QX0.0.0)	P00041 (%QX0.0.1)	Pulse	Pulse/CW (Open collector)	→	DC 12~24V
	P00042 (%QX0.0.2)	P00043 (%QX0.0.3)	Direction	Direction/CCW (Open collector)	→	
	P		DC 12V~24V	External power supply	→	
	COM 0~3		Output COM	External 24V GND	→	

## I/O specifications | Modular type unit

### Standard type

Item	XBM pin number		Signal name		Direction of positioning signal to external	Operating condition
	X axis	Y axis				
Input	P00000	P00002	Limit L	Low limit	←	Edge
	P00001	P00003	Limit H	High limit	←	Edge
	P00004	P00006	DOG	Near point	←	Edge
	P00005	P00007	Origin	Zero signal (+24V)	←	Edge
	COM		Input COM	Common	←	-
Output	P00020	P00021	Pulse	Pulse/CW (Open collector)	→	-
	P00022	P00023	Direction	Direction/CCW (Open collector)	→	-
	12/24V		DC 12/24V	External power supply	→	-
	COM		Output COM	External 24V GND	→	-

## I/O specifications | Block type unit

### Performance specification

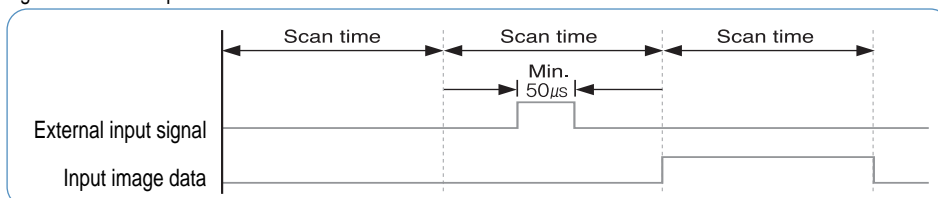
(PID)

Classification		Description		
		Block type unit		Modular type
		H	SU	S
No. of control loop		16-loop independent control		
Control mode		P control, PI control, PD control, PID control		
Control period		10ms ~ 6,553.5ms (Setting unit: 0.1ms)		
Function	Forward/Reverse Mixed control	Switching control direction automatically when exceeding dead band		
	Cascade	Improved control precision by serial connection between master loop and slave loop		
	SV Ramp	Preventing overload caused by excessive SV change by setting variation slope		
	Alarm	Improved control stability with various alarm function such as MV high limit / Low limit, PV high limit/low limit, PV variation width		
	Auto tuning	Auto tuning with improved auto-tuning algorithm		
	Additional function	PWM output, PV Tracking, $\Delta$ MV, $\Delta$ PV, etc		

※ Economic block type unit (E-type) dose not support built-in PID functions

### Pulse catch

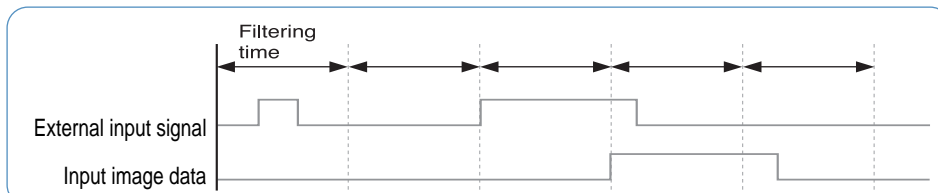
When On-condition time of input signal is shorter than 1 scan time (Min. 50 $\mu$ s), Pulse catch processes the input signal as normal input.



Item	Description			
	Block type unit			Modular type
	H	SU	E	S
Pulse catch	10 $\mu$ s: 4 points (P00000~P00003)	10 $\mu$ s: 2 points (P00000~P00001)	50 $\mu$ s: 4 points (P00000~P00003)	50 $\mu$ s: 8 points (P00000~P00007)
	50 $\mu$ s: 4 points (P00004~P00007)	50 $\mu$ s: 6 points (P00002~P00007)		

### Input filter

Input filter prevents processing of the input signal that is shorter than the filtering time. (Filtering time is set by parameter) In the application site where noise is frequently generated, input filter prevents wrong input caused by noise.



Classification	Description			
	Block type unit			Modular type
	H	SU	E	S
No. of setting points	Every input contact			
Input filtering time setting	Assigning for each module			
Setting range	1 ~ 100ms (1, 3, 5, 10, 20, 70, 100)			

## Task

Task function is the processing method of internal/external signal generated periodically or aperiodically. It stops operation of scan program for the moment and then execute the assigned task.

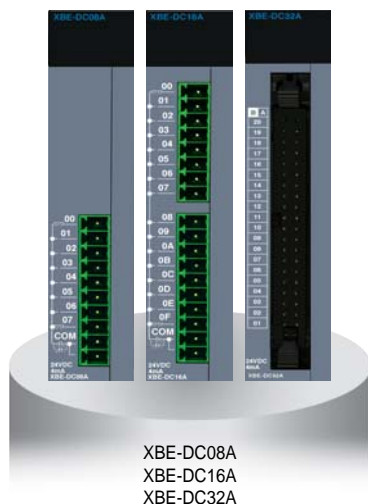
Classification	Description			
	Block type unit			Modular type
	H	SU	E	S
Initial task	1(_INT)			
Cyclic task	8			
I/O task	8	8	4	8
Internal device task	8			
External interrupt	10 $\mu$ S: 4 points (P00000~P00003) 50 $\mu$ S: 4 points (P00004~P00007)	10 $\mu$ S: 2 points (P00000~P00001) 50 $\mu$ S: 6 points (P00002~P00007)	50 $\mu$ S: 4 points (P00000~P00003)	50 $\mu$ S: 8 points (P00000~P00007)

## RTC

RTC function is for time management of system and error log. RTC function is executed steadily when power is off or instantaneous power cut status. Current time of RTC is renewed every scan by system operation status information flag.

Classification	Description			
	Block type unit			Modular type
	H	SU	E	S
RTC	Built-in	Option module	Option module	Not available

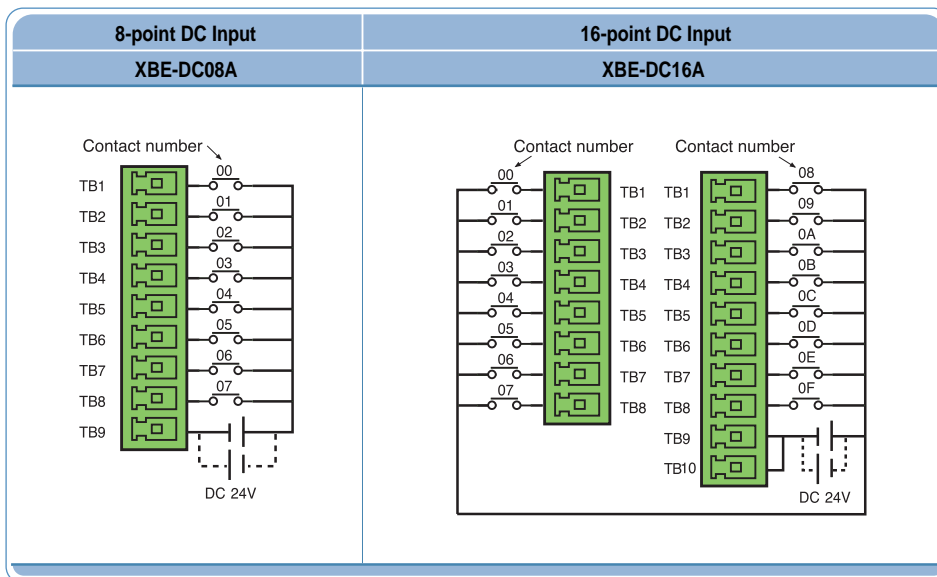
## Specification



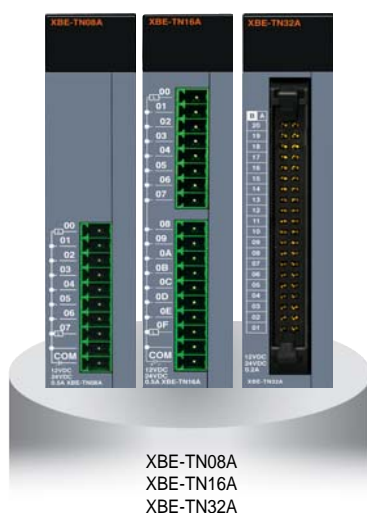
Specification	Model	XBE-DC08A	XBE-DC16A	XBE-DC32A
Input point		8 points	16 points	32 points
Rated input voltage/current		DC 24V / 4mA		
Operation voltage range		DC 20.4 ~ 28.8V (Ripple rate < 5%)		
Input resistance		5.6kΩ		
Response time	Off → On	1 / 3 / 5 / 10 / 20 / 70 / 100ms (setting by CPU parameter) Initial value: 3ms		
	On → Off			
Insulation pressure		AC 560Vrms / 3 Cycle (altitude 2000m)		
Insulation resistance		10MΩ or more by megger		
COMMON method		8 points / COM	16 points / COM	32 points / COM
Internal current consumption		30mA	40mA	50mA

## Wiring

(XBE-DC08A/DC16A)



### Specification

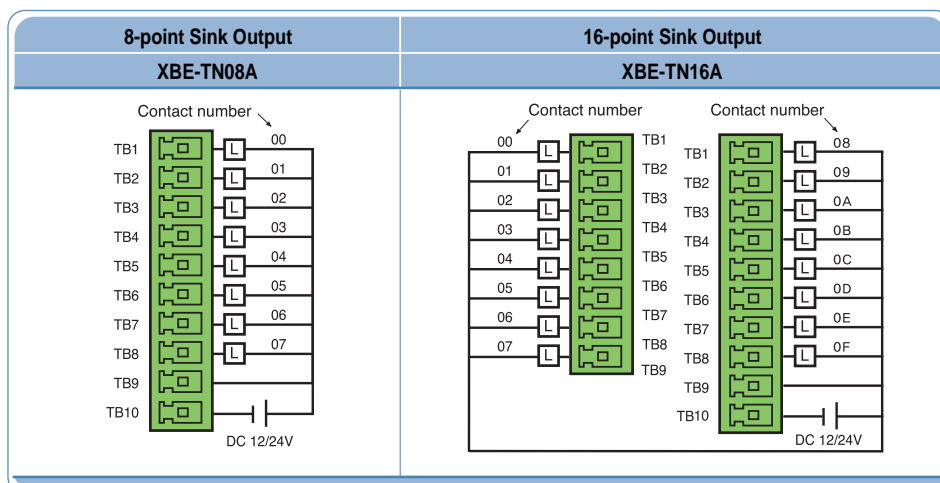


Specification		Model	XBE-TN08A	XBE-TP08A	XBE-TN16A	XBE-TP16A	XBE-TN32A	XBE-TP32A
Type			Sink	Source	Sink	Source	Sink	Source
Output point			8 point		16 point		32 point	
Rated load voltage			DC 12 / 24V					
Load voltage range			DC 10.2 ~ 26.4 V					
Max. load current			0.2A / 1point		0.2A / 1point, 2A / COM			
Off leakage current			0.1mA or less					
Max. voltage drop (On)			DC 0.4V					
Response time	Off → On		1mA or less					
	On → Off		1mA or less (Rated load, resistive load)					
Common method			8 points / COM		16 points / COM		32 points / COM	
Internal current consumption			40mA		60mA		120mA	
External power supply	Voltage		DC 12 / 24V ± 10% (Ripple voltage ≤ 4 Vp-p)					
	Current		10mA or less (DC 24V connection)				20mA or less (DC 24V connection)	

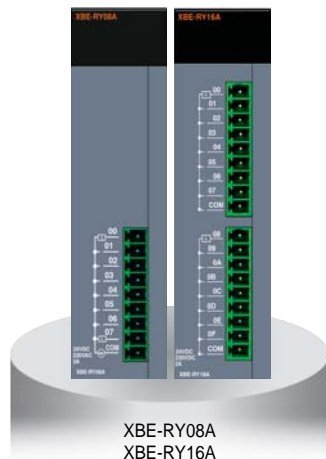
Item		XBF-AD04C	
Analog range	Item	Voltage	Current
	Range	DC 1 ~ 5V, DC 0 ~ 5V, DC 0 ~ 10V, DC -10 ~ 10V (Input resistance 1MΩ min )	DC 4 ~ 20mA DC 0 ~ 20mA (Input resistance 250MΩ )
Digital Output Range	Type	16bit binary data (Data : 14bit)	
	Unsigned value	0 ~ 16000	
	Signed value	-8000 ~ 8000	
	Precise value	1000 ~ 5000 (1 ~ 5V), 0 ~ 5000 (0 ~ 5V), 0 ~ 10000 (0 ~ 10V)	4000 ~ 20000 (4 ~ 20mA), 0 ~ 20000 (0 ~ 20mA)
Resolution	Percentile value	0 ~ 10000 1/16000	
		0.250mV (1 ~ 5V) 0.3125mV(0 ~ 5V) 0.625mV (0 ~ 10V) 1.250mV(±10V)	1.0μA (4 ~ 20mA) 1.25μA (0 ~ 20mA)
Max. conversion speed		1ms/channel	
Max. absolute input		DC ±15V	DC ±3mA
Analogue Input Channels		4 channel/module	
Insulation method		Photo-coupler insulation between input terminal and PLC power (no insulation between channels)	
Connection terminal		15-point terminal block	
Occupied I/O points		Fixed type : 64points	
Current consumption	DC 5V	110mA	
	DC 24V	100mA	

### Wiring

(XBE-TN08A/TN16A)



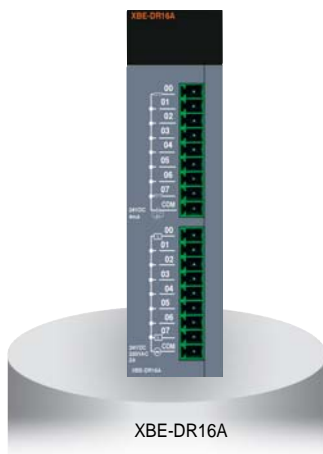
## Specification



Specification		Model	XBE-RY08A	XBE-RY16A
Output point			8 points	16 points
Insulation method			Relay insulation	
Rated input voltage/Current			DC 24V 2A (resistive load)/AC 220V 2A (COS $\psi$ = 1), 5A /COM	
Min. load voltage/Current			DC 5V 1mA	
Max. load voltage			AC 250V, DC 125V	
Off leakage current			0.1mA (AC 220V, 60Hz)	
Max. on/Off frequency			3,600 times / hr	
Surge absorber			None	
Service life	Mechanical		20million times or more	
	Electrical		Rated load voltage/Current 100,000 times or more	
			AC 200V/1.5A, AC 240V/1A (COS $\psi$ = 0.7) 100,000 times or more	
			AC 200V/1A, AC 240V/0.5 (COS $\psi$ = 0.35) 100,000 tiems or more	
Response time	Off → On		10ms or less	
	On → Off		12ms or less	
	COMMON method		8 points / 1COM	
Internal current consumption			230mA	420mA
Operation indicator			Output On, LED On	
External connection method			9-pin terminal block connector	9-pin terminal block connector × 2

Item		XBF-DV04C	XBF-DC04C
Analog range	Item	Voltage	Current
	Range	DC 1 ~ 5V, DC 0 ~ 5V, DC 0 ~ 10V, DC -10 ~ 10V (Input resistance 1k $\Omega$ or more )	DC 4 ~ 20mA DC 0 ~ 20mA (Input resistance 600M $\Omega$ or less )
Digital Output	Type	16bit binary data (Data : 14bit)	
	Unsigned value	0 ~ 16000	
	Signed value	-8000 ~ 8000	
	Precise value	1000 ~ 5000 (1 ~ 5V), 0 ~ 5000 (0 ~ 5V), 0 ~ 10000 (0 ~ 10V)	4000 ~ 20000 (4 ~ 20mA), 0 ~ 20000 (0 ~ 20mA)
		Percentile value	
		0 ~ 10000	
		1/16000	
Resolution		0.250mV (1 ~ 5V) 0.3125mV (0 ~ 5V) 0.625m V(0 ~ 10V) 1.250mV ( $\pm$ 10V)	1.0 $\mu$ A (4 ~ 20mA) 1.25 $\mu$ A (0 ~ 20mA)
Max. conversion speed		1ms/channel	
Analog Input Channels		4 channel/module	
Insulation method		Photo-coupler insulation between output terminal and PLC power (no insulation between channels)	
Connection terminal		11-point terminal block	
Occupied I/O points		Fixed type : 64points	
Current consumption	DC 5V	75mA	
	DC 24V	170mA	

### DC Input specification

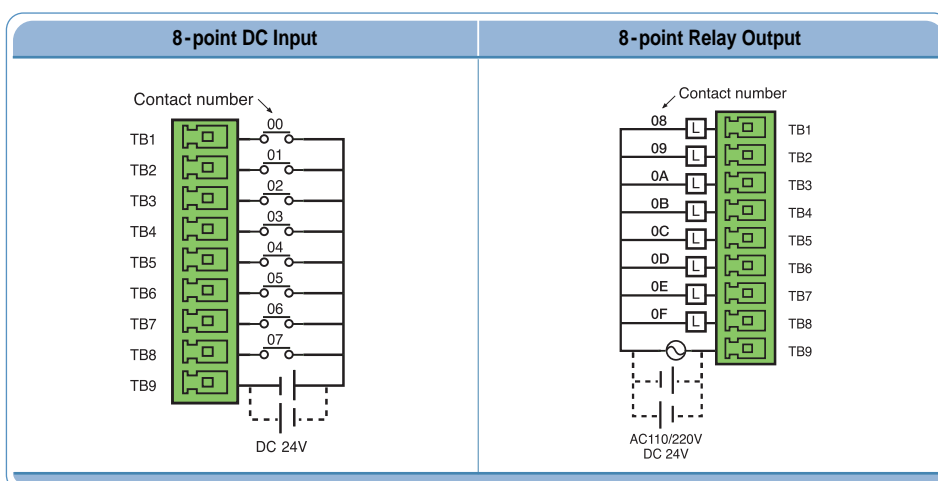


Specification	Model	DC Input (XBE-DR16A)
Input point		8 points
Insulation method		Photocoupler
Rated input voltage		DC 24V
Rated input current		4mA
Operation voltage range		DC 20.4 ~ 28.8V (Ripple rate < 5%)
On voltage/On current		DC 19V or more/3mA or more
Off voltage/Off current		DC 6V or less/1mA or less
Input resistance		5.6kΩ
Response time	Off → On On → Off	1/3/5/10/20/70/100ms (setting by CPU parameter) init value: 3ms
COMMON method		8 points/COM
Weight		81g

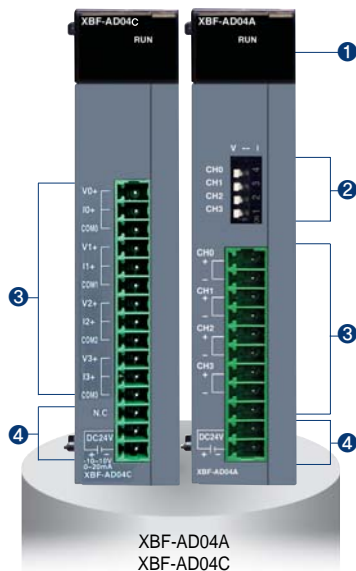
### Relay output specification

Specification	Model	Relay Output (XBE-DR16A)
Output point		8 points
Insulation method		Relay insulation
Rated input voltage/Current		DC 24V 2A (resistive load)/AC 220V 2A (COS $\psi$ = 1), 5A /COM
Min. load voltage/Current		DC 5V 1mA
Max. load voltage		AC 250V, DC 125V
Off leakage current		0.1mA (AC 220V, 60Hz)
Max. on/Off frequency		3,600 times/hr
Surge absorber		None
Service life	Mechanical	20million times or more
	Electrical	Rated load voltage/Current 100,000 times or more
		AC 200V/1.5A, AC 240V/1A (COS $\psi$ = 0.7) 100,000 times or more
		AC 200V/1A, AC 240V/0.5 (COS $\psi$ = 0.35) 100,000 tiems or more
Response time	Off → On	10ms or less
	On → Off	12ms or less
COMMON method		8 points/1COM
Internal current consumption		250mA
Operation indicator		Output On, LED On
External connection method		9-pin terminal block connector

### Wiring (XBE-DR16A)



## Specification

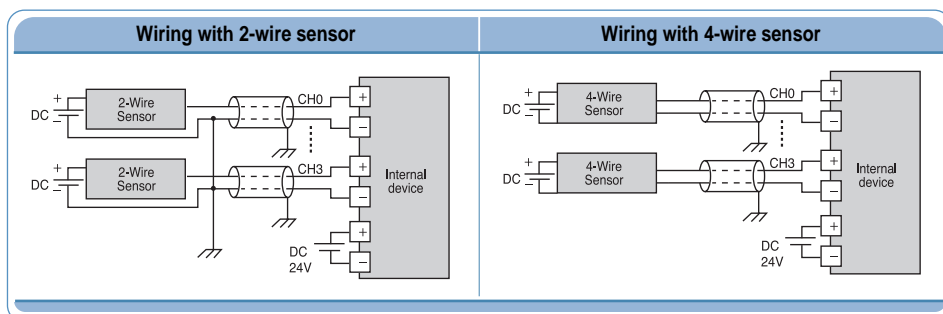


Item			XBF-AD04A		XBF-AD04C		XBF-AD08A	
Analog range	Item		Voltage	Current	Voltage	Current	Voltage	Current
	Range		DC 0~10V (input resistance : 1MΩ min.)	DC 4~20mA, DC 0~20mA (input resistance: 250Ω)	DC 1 ~ 5V DC 0 ~ 5V DC 0 ~ 10V DC -10 ~ 10V (Input resistance : 1MΩ min)	DC 4 ~ 20mA DC 0 ~ 20mA (Input resistance : 250MΩ)	DC 1~5V DC 0~5V DC 0~10V (Input resistance : 250MΩ)	DC 4~20mA, DC 0~20mA (input resistance: 250Ω)
	Type		12bit binary data		16bit binary data (Data : 14bit)		12bit binary data	
Digital output	Range	Unsigned value	0~4000		0 ~ 16000		0~4000	
		Signed value	-2000~2000		-8000~8000		-2000~2000	
		Precise value	0~1000	4000~2000/ 0~2000	100~5000 (1~5V) 0~5000 (0~5V) 0~10000 (0~5V) -10000~10000 (±10V)	4000~20000 (4~20mA) 0~20000 (0~20mA)	100~500 (DC 1~5V) 0~500 (DC 0~5V) 0~1000 (DC 0~10V)	4000~2000 (DC 4~20mA) 0~2000 (DC 0~20mA)
		Percentile value	0~1000		0~10000		0~1000	
Resolution			2.5mV (1/4000)	5μA (1/4000)	1/16000  0.250mV (1~5V) 0.3125mV (0~5V) 0.625mV (0~10V) 1.250mV (±10V)		1.25mV (DC 1~5V, 0~5V) 2.5mV (DC 0~10V)	5μA (DC 4~20mA, 0~20mA)
Max. conversion speed			1.5ms / channel		1ms / channel		1.5ms / channel	
Max. absolute input			±15V	±25mA	DC±15V	DC±3mA	±15V	±25mA
Analog Input channels			4 channel/module		4 channel/module		8 channel/module	
Insulation method			Photocoupler insulation between I/O terminal and power supply		Photo-coupler insulation between input terminal and PLC power (No insulation between channels)		Photocoupler insulation between I/O terminal and power supply	
Connection terminal			11-point terminal block		15-point terminal block		11-point terminal block	
Occupied I/O points			Fixed type : 64 points					
Current consumption	DC 5V		120mA		110mA		105mA	
	DC 24V		62mA		100mA		85mA	

## Names and Functions

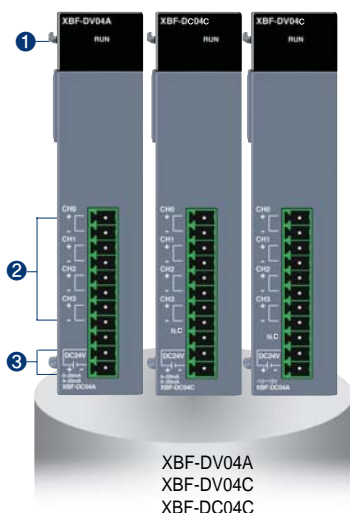
No.	Name	Descriptions
①	RUN LED	<ul style="list-style-type: none"> <li>Indicates condition of module</li> <li>LED On: Normal condition</li> <li>LED On and Off: Flickering</li> <li>LED Off: Power Off or module malfunction</li> </ul>
②	Input selection S/W	<ul style="list-style-type: none"> <li>Voltage/Current selection switch</li> <li>V: Voltage input selection</li> <li>I: Current input selection</li> </ul>
③	Terminal block	External device connection
④	External power supply terminal	External DC 24V input

## Wiring



※ Use 22AWG, 2 conductor, twist shielded cable when wiring between analog module and external device.

### Specification

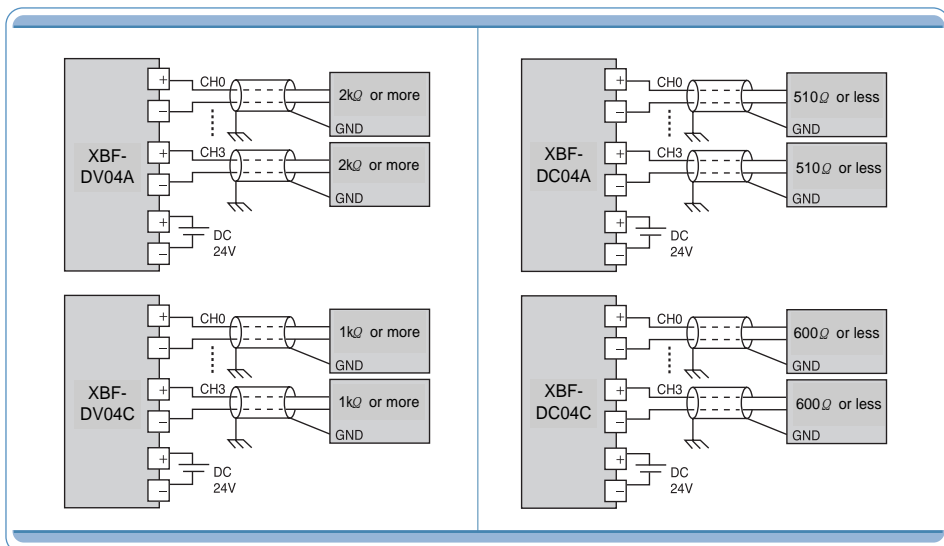


Item	XBF-DV04A	XBF-DV04C	XBF-DC04C	XBF-DC04A
Analog range	DC 0 ~ 10 V (Load resistance $\geq 2k\Omega$ )	DC 1 ~ 5V DC 0 ~ 5V DC 0 ~ 10V DC -10 ~ 10V (Input resistance : $1k\Omega$ or more)	DC 4 ~ 20mA DC 0 ~ 20mA (Input resistance : $600M\Omega$ or less)	4 ~ 20mA / 0 ~ 20mA (Load resistance $\leq 510\Omega$ )
Analog range Selection	-	-	-	XG 5000 I/O parameter
Digital data	Output range	0 ~ 10 V	-	4 ~ 20mA/0 ~ 20mA
	Unsigned value	0 ~ 4000	0 ~ 16000	0 ~ 4000
	Signed value	- 2000 ~ 2000	- 8000 ~ 8000	- 2000 ~ 2000
	Precise value	0 ~ 1000	1000~5000 (1~5V) 0~5000 (0~5V) 0~10000 (0~10V) -1000~10000 ( $\pm 10V$ )	400 ~ 2000/0 ~ 2000
	Percentile value	0~1000	0~10000	0~1000
Data format	Data format of digital input is set by user program or I/O parameter (Setting for each channel is available.)			
Resolution	Resolution (1/4000)	1/1600	Resolution (1/4000)	Resolution (1/4000)
	2.5mV	0.250m (1~5V) 0.3125m (0~5V) 0.625m (0~10V) 1.250m ( $\pm 10V$ )	1.0 $\mu$ A (4~20mA) 1.25 $\mu$ A (0~20mA)	5 $\mu$ A
Max. conversion speed	1ms/channel	1ms/channel	1ms/channel	1ms/channel
Max. absolute output	$\pm 15V$	-	-	$\pm 25mA$
Accuracy	$\pm 0.5\%$ or less	-	-	$\pm 0.5\%$ or less
Analog output channels	4 channel/module	4 channel/module	4 channel/module	4 channel/module
Insulation method	Photocoupler insulation between I/O terminal and power supply	Photo-coupler insulation between output terminal and PLC power (no insulation between channels)	Photocoupler insulation between I/O terminal and power supply	Photocoupler insulation between I/O terminal and power supply
Connection terminal	11-point terminal block			
Occupied I/O points	Fixed type: 64 points			
Current consumption	DC 5V	110mA	75mA	110mA
	DC 24V	70mA	170mA	120mA

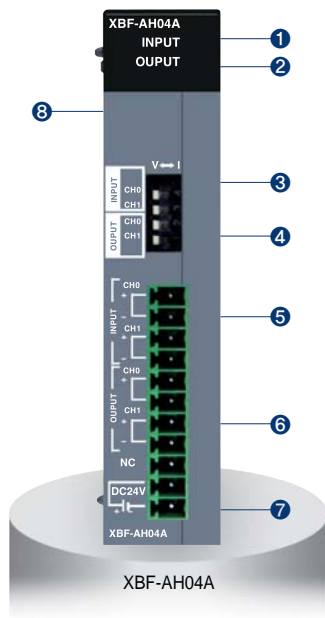
### Names and Functions

No.	Name	Descriptions
①	RUN LED	<ul style="list-style-type: none"> <li>Indicates condition of module</li> <li>LED On: Normal condition</li> <li>LED On and Off: Flickering</li> <li>LED Off: Power Off or module malfunction</li> </ul>
②	Terminal block	External device connection
③	External power supply terminal	External DC 24V input

### Wiring



## Specification

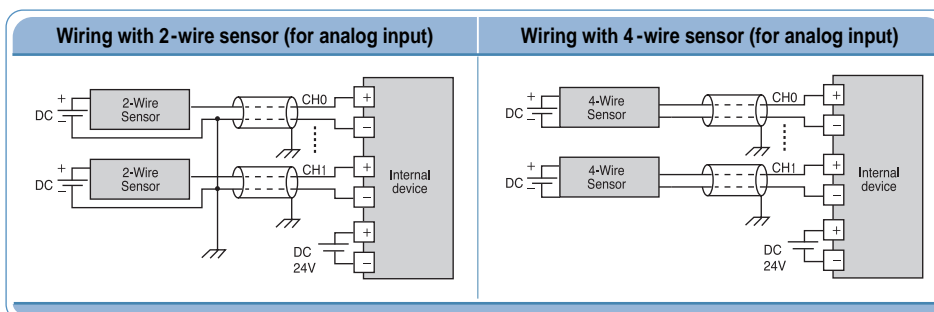


Item	XBF-AH04A	
	Input	Output
Analog channel	2 channels	
Analog range	DC 1 ~ 5V, DC 0 ~ 5V, DC 0 ~ 10V (Input resistance: 1 MΩ min.) DC 4 ~ 20mA, DC 0 ~ 20mA (Input resistance 250Ω)	DC 1 ~ 5V, DC 0 ~ 5V, DC 0 ~ 10V (Load resistance ≥ 2kΩ) DC 4 ~ 20mA, DC 0 ~ 20mA (Load resistance ≤ 510Ω)
Analog range selection	XG 5000 I/O parameter and External switch	
Digital data	Unsigned value	0 ~ 4000
	Signed value	-2000 ~ 2000
	Precise value	100 ~ 500 (DC 1 ~ 5V), 0 ~ 500 (DC 0 ~ 5V), 0 ~ 1000 (DC 0 ~ 10V) 400 ~ 2000 (DC 4 ~ 20mA), 0 ~ 2000 (DC 0 ~ 20mA)
	Percentile value	0 ~ 1000
Resolution (1/4000)	1.25mV (DC 1~5V, 0~5V), 2.5mV (DC 0~10V) 5μA (DC 4~20mA, 0~20mA)	
Max. conversion speed	±15V, 25mA	
Max. absolute output	1ms / Channel	
Accuracy	±0.5% or less	
Insulation method	Photocoupler insulation between I/O terminal and power supply	
Connection terminal	11-point terminal block	
Occupied I/O points	Fixed type: 64 points	
Current consumption	DC 5V	120mA
	DC 24V	130mA

## Names and Functions

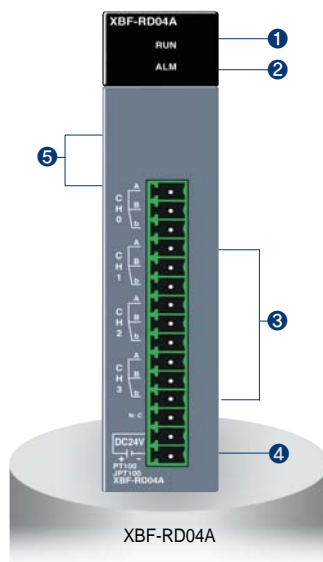
No.	Name	Descriptions
1	INPUT LED	<ul style="list-style-type: none"> <li>Indicates input condition of module</li> <li>LED On: Normal condition</li> <li>LED On and Off: Flickering</li> <li>LED Off: Power Off or module malfunction</li> </ul>
2	OUTPUT LED	<ul style="list-style-type: none"> <li>Indicates output condition of module</li> <li>LED On: Normal condition</li> <li>LED On and Off: Flickering</li> <li>LED Off: Power Off or module malfunction</li> </ul>
3	Input selection S/W	► Voltage / Current selection switch for input
4	Output selection S/W	► Voltage / Current selection switch for output
5	Terminal block	► Terminal for external input device
6		► Terminal for external output device
7	External power supply terminal	► Terminal for external DC 24V input
8	Expansion connector	► Terminal for expansion

## Wiring



※ Use 22AWG, 2 conductor, twist shielded cable when wiring between analog module and external device.

## Specification



Item		XBF-RD04A
Number of channels		4
Sensor type	PT 100	JIS C1804-1997
	JPT 100	JIS C1604-1981, KS C1603-1991
Temperature range	PT 100	- 200 ~ 600℃
	JPT 100	- 200 ~ 600℃
Digital output	PT 100	- 2000 ~ 6000
	JPT 100	- 2000 ~ 6000
	Scaling	0 ~ 4000
Accuracy	25℃	±0.3% or less
	0 ~ 55℃	±0.5% or less
Conversion speed		40ms / Ch
Wiring method		3-wire
Current consumption	DC 5V	100mA
	DC 24V	100mA

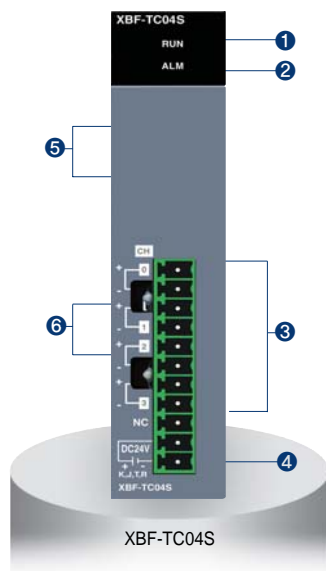
## Names and Functions

No.	Name	Descriptions
1	RUN LED	<ul style="list-style-type: none"> <li>▶ Displays the hardware operation status (Fatal fault)</li> <li>• On: Normal status</li> <li>• Flickering: Error (0.2s flickering)</li> <li>• Off: hardware error or power off</li> </ul>
2	ALM LED	<ul style="list-style-type: none"> <li>▶ Displays the status of the channels (Light fault)</li> <li>• Flickering: Line disconnection (1s flickering)</li> <li>• Off: Normal status</li> </ul>
3	Terminal block	▶ 3-wire RTD sensors can be connected
4	External power terminal	▶ Supplies the external DC 24V
5	Expansion connector	▶ Connects the module with an expansion module

## Wiring

2-wire	3-wire	4-wire

## Specification

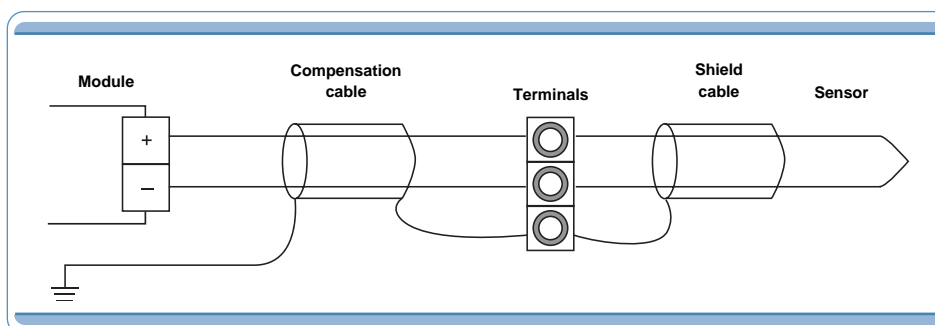


Item		XBF-TC04S
Number of channels		4
Input sensor type		Thermocouple K/J/T/R JIS C1602 - 1995
Temperature input range	K	- 200.0℃ ~ 1300.0℃ (-328.0°F ~ 2372.0°F)
	J	- 200.0℃ ~ 1200.0℃ (-328.0°F ~ 2192.0°F)
	T	- 200.0℃ ~ 400.0℃ (-328.0°F ~ 752.0°F)
	R	0.0℃ ~ 1700.0℃ (32.0°F ~ 3092.0°F)
Digital output	Temperature display unit	Display down to one decimal place K, J, T: 0.1℃ R: 0.5℃
	Scaling display (Defined by user)	Unsigned scaling (0 ~ 65535) Signed scaling (-32768 ~ 32767)
	Accuracy	Normal temperature (25℃) Temperature coefficient (0 ~ 55℃)
Max. conversion speed		50ms / Channel
Warming-up time		15 minutes or more
Terminal		11-point terminal
I/O points occupied		64 points
Current consumption	DC 5V	100mA
	DC 24V	100mA

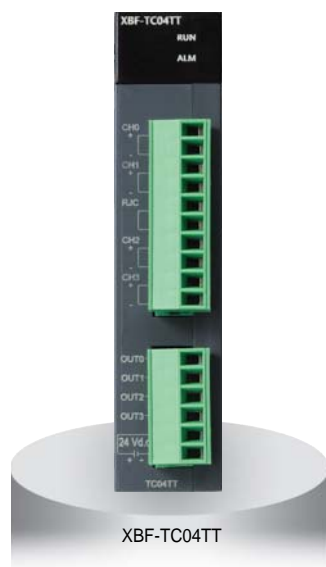
## Names and Functions

No.	Name	Descriptions
①	RUN LED	<ul style="list-style-type: none"> <li>▶ Displays the hardware operation status (Fatal fault)</li> <li>• On: Normal status</li> <li>• Flickering: Error (0.2s flickering)</li> <li>• Off: hardware error or power off</li> </ul>
②	ALM LED	<ul style="list-style-type: none"> <li>▶ Displays the status of the channels (Light fault)</li> <li>• Flickering: Line disconnection (1s flickering)</li> <li>• Off: Normal status</li> </ul>
③	Terminal block	▶ Terminals to connect the thermo-couple sensor
④	External power terminal	▶ Terminals to supply the external DC 24V
⑥	RJC	▶ Device for Reference Junction Compensation

## Wiring

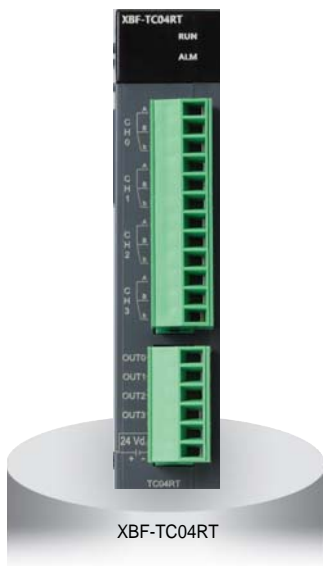


### Specification



Item		XBF-TC04TT
Control loop		4 loop
Thermocouple type and input range	K	-200.0 ~ 1300.0 °C
		0.0 ~ 500.0 °C
	J	-200.0 ~ 1200.0 °C
		0.0 ~ 500.0 °C
Precision	T	-200.0 ~ 800 °C
	Standard precision	±0.2% or less (25 °C, normal temperature, except -200~-100 °C for the T type)
Cold junction compensation	Temperature coefficient	±100ppm/°C (0.01%/°C)
	Compensation method	Automatic compensation by RJC sensing
Compensation degree		±2.0 °C
Sampling period		500ms/ 4 loop
Control method		PID CONTROL, ON/OFF CONTROL
Control parameter	Target value (SV)	Setting within range according to input type (temperature unit setting)
	Proportional gain	0: ON/OFF CONTROL, REAL
	Integral time	0: Except integral control, REAL
	Derivative time	0: Except derivative control, REAL
Transistor output	Output point	4
	Rated load voltage	DC 24 V
	Max. load current	0.1 A / Output point
	Max. voltage drop when on	DC 1.2 V or less
	Leakage current when off	0.1 mA or less
	Response time	On => Off
		Off => On
	Control output cycle	0.5 ~ 120.0 sec (Setting unit: 0.5 sec.)
Insulation	Time proportional resolution	Larger one of either 10 ms or 0.05% of the full-scale
	Between input channels	Photo relay
	Input terminal-PLC power	Photo relay
	Output terminal-PLC power	Insulation resistor: 500V DC, 10 M Ω or above
Averaging function	Between output channels	Non-insulation
	Weighted average	0 ~ 99% (setting range)
Warm-up	Moving average	0 ~ 99 times (setting range)
	Warm-up	20 minutes or above
Maximum rate of ambient temperature changing		0.5 °C/min (30 °C/hour) or less
Access terminal		16 point terminal (10 point terminal 1ea, 6 point terminal 1ea)
IO occupation point		Fixed: 64 points
Max. no. of installation		XBM-DxxxS type: 7ea, XB(E)C-DxxxH type: 10ea, XB(E)C-DxxxSU: 7ea, XB(E)C-DxxxU: 10ea
Power supply		5 V, DC 24 V
Current consumed		Internal DC 5 V : 120 mA, External DC 24 V : 100 mA

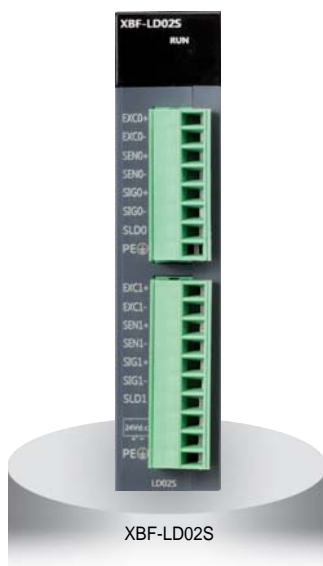
## Specification



XBF-TC04RT

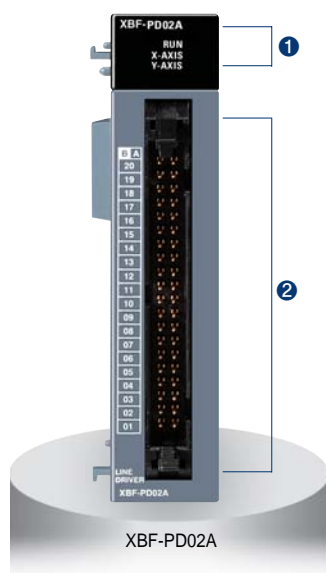
Item		XBF-TC04RT	
Control loop		4 loop	
RTD type and input range	Pt100	-200.0 ~ 850.0 °C	
	JPt100	-200.0 ~ 600.0 °C	
Precision	Standard precision	±0.2% or less (25 °C, normal temperature)	
	Temperature coefficient	±100ppm/ °C (0.01%/ °C)	
Sampling period		500ms/ 4 loop	
Control method		PID CONTROL, ON/OFF CONTROL	
Control parameter	Target value (SV)	Setting within range according to input type (temperature unit setting)	
	Proportional gain	0: ON/OFF CONTROL, REAL	
	Integral time	0: Except integral control, REAL	
	Derivative time	0: Except derivative control, REAL	
Transistor output	Output point	4	
	Rated load voltage	DC 24 V	
	Max. load current	0.1 A/Output point	
	Max. voltage drop when on	DC 1.2 V or less	
	Leakage current when off	0.1 mA or less	
	Response time	On => Off	1 ms or less
		Off => On	1 ms or less
	Control output cycle	0.5 ~ 120.0 sec (Setting unit: 0.5 sec.)	
	Time proportional resolution	Larger one of either 10 ms or 0.05% of the full-scale	
Insulation	Between input channels	Photo relay	Withstanding voltage: 1500V AC, 50/60Hz 1min, leakage current 10mA or less
	Input terminal- PLC power	Photo relay	Insulation resistor: 500V DC, 10 M $\Omega$ or above
	Output terminal- PLC power	Non-insulation	
	Between output channels		
Averaging function	Weighted average	0 ~ 99% (setting range)	
	Moving average	0 ~ 99 times (setting range)	
Access terminal		18 point terminal (12 point terminal 1ea, 6 point terminal 1ea)	
IO occupation point		Fixed: 64 points	
Max. no. of installation		XBM-DxxxS type: 7ea, XB(E)C-DxxxH type: 10ea, XB(E)C-DxxxSU: 7ea, XB(E)C-DxxxU: 10ea	
Power supply		5 V, DC 24 V	
Current consumed		Internal DC 5 V : 120 mA, External DC 24 V : 100 mA	

### Specification



Item	Specifications			
Input Channel	2 Channel (Insulation between Channels)			
Load Cell Input Voltage	5VDC $\pm 5\%$ , (8 per 350 $\Omega$ load cell channel)			
Load Cell Type	Four-wire or Six-wire			
Resolution	1/40000			
Analog Input Range	0.0~6.0 mV			
Load Cell Output Sensitivity	0.125 $\mu V$ (when the rated output of the load cell is 0.0 ~ 1.0 mV/ V)			
Input Accuracy	$\pm 0.01\%$ or below (nonlinear accuracy, 25℃) Zero Drift: $\pm 0.25\text{ }^{\circ}\text{C}$ ), Gain Drift: $\pm 15\text{ppm}/^{\circ}\text{C}$			
Sampling Cycle (per channel)	5 ms			
Insulation	Classification	Insulation Method	Insulation Voltage Resistance (Internal Test Specifications)	Insulation Resistance
	Input terminal-Internal circuits	Isolator	AC 550 V 50/60 Hz 1 minute, Leakage 10 mA or below	DC500 V, 10 M $\Omega$ or above
	Between input channels	Transformer		
	External power-Internal circuits	DC/DC Converter		
Warm-up time	30 minutes or above			
Input Connector	8 pins Connector(CH0)/10 pins Connector(CH1)			
IO Occupation Points:	Fixed type:64 points			
Max. no. of installation	XBM-DxxxS type: 7ea, XB(E)C-DxxxH type: 10ea, XB(E)C-DxxxSU: 7ea, XB(E)C-DxxxU: 10ea,			
Power Supply	5V, DC 24			
Consumption	Internal DC5V : 110 mA , External DC24V : 280 mA			

## Specification

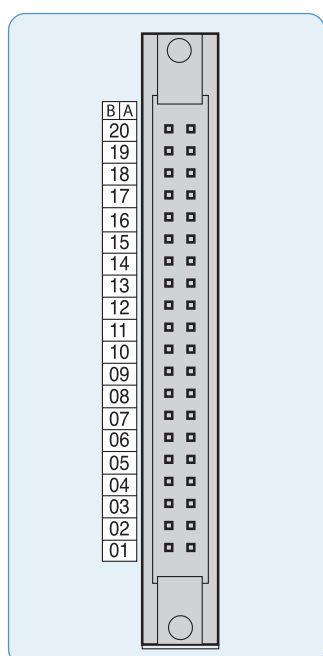


Item		XBF-PD02A
N0. of control axis		2 axis
Pulse output type		Line drive
Max. pulse output		2Mpps
Max. connection length		10m
Control mode		Position control, Speed control, Speed/Position switching control, Position/Speed switching control
Interpolation		Linear interpolation, Circular interpolation
Positioning data		150 operation data for each axis
Configuration tool		Built-in function parameter of XG5000
Back-up		Flash memory
Positioning	Positioning method	Absolute/Incremental method
	Unit	pulse
	Positioning range	- 2,147,483,648 ~ 2,147,483,648
	Speed range	1 ~ 2,000,000 (pulse/sec)
	Acceleration/Deceleration type	Trapezoidal acceleration/deceleration
Acceleration/Deceleration time		0 ~ 65.535ms, Asymmetric acceleration/deceleration
Max. encoder input		200kpps (Line drive)
Error/Operation		LED
I/O occupied points		Fixed type: 64 points
Connection terminal		40pin connector
Current consumption (mA)		500

## Names and Functions

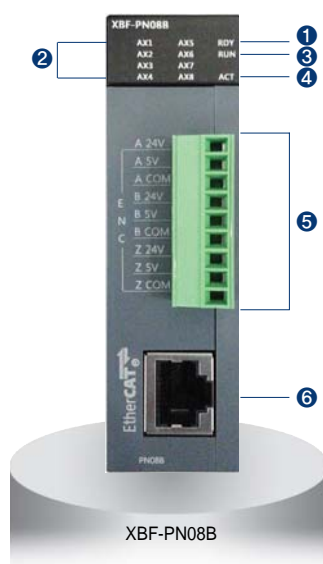
No.	Name	Descriptions
①	RUN LED	1. RUN ▶ Displays the hardware operation status • On: Normal status • Off: Abnormal status 2. X_AXIS, Y_AXIS • On: Operation • Flickering: Error
②	Terminal block	▶ Terminals to connect the MPG, external device and drive device.

## Terminal



Pin number		Signal name	
X axis	Y axis		
B20		MPG A+	Manual Pulse Generator/Encoder A+ input
A20		MPG A-	Manual Pulse Generator/Encoder A- input
B19		MPG B+	Manual Pulse Generator/Encoder B+ input
A19		MPG B-	Manual Pulse Generator/Encoder B- input
A18	B18	FP+	Forward pulse +
A17	B17	FP-	Forward pulse -
A16	B16	RP+	Reverse pulse +
A15	B15	RP-	Reverse pulse -
A14	B14	OV+	High limit
A13	B13	OV-	Low limit
A12	B12	DOG	Near point
A11	B11	NC	-
A10	B10		
A09	B09	COM	Common
A08	B08	NC	-
A07	B07	INP	Inposition signal
A06	B06	INP COM	Inposition signal common
A05	B05	CLR	Deviation counter clear signal
A04	B04	CLR COM	Deviation counter clear signal common
A03	B03	HOME +5V	Zero signal (DC 5V)
A02	B02	HOME COM	Zero signal Common
A01	B01	NC	-

### Specification

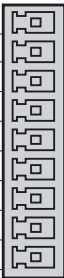


Item		XBF-PN08B				
No. of control axis		8				
Interpolation function		2~8 axes linear interpolation, 2 axes circular interpolation, 3 axes helical interpolation				
Control method		Position control, Speed control, Speed/Position control, Position/Speed control, Position/Torque Control, Feed control				
Control unit		Pulse, mm, inch, degree				
Positioning data		Each axis can have up to 400 operation data .(Operation step number : 1~400) Available to set with XG-PM or program				
XG-PM	Connection	RS-232C port of CPU module or USB				
	Setting data	Common, Basic, Extended, Servo parameter, Operation data, Cam data, Command information				
	Monitor	Operation information, Trace, Input terminal information, Error information				
Back-up		Save the parameter, operation data in MRAM ROM (No need of Battery)				
Positioning	Positioning method	Absolute method/Incremental method				
	Position address range			Absolute	Incremental	Speed/Position, Position/Speed Switching control
		mm	-214748364.8~214748364.7(μm)	-214748364.8~214748364.7(μm)	-214748364.8~214748364.7(μm)	
		Inch	-21474.83648~21474.83647	-21474.83648~21474.83647	-21474.83648~21474.83647	
		degree	-21474.83648~21474.83647	-21474.83648~21474.83647	-21474.83648~21474.83647	
		pulse	-2147483648~2147483647	-2147483648~2147483647	-2147483648~2147483647	
	Speed range	mm	0.01~20000000.00(μm/min)			
		Inch	0.001~2000000.000(Inch/min)			
		degree	0.001~2000000.000(degree/min)			
		pulse	1~20,000,000(pulse/SEC)			
		rpm	0.1~100000.0(RPM)			
	Acc./Dec. process	Trapezoid type, S-type				
	Acc./Dec. time	1~2,147,483,647ms selection is available from 4 types of acceleration/deceleration pattern				
	Manual Operation		Jog Operation, MPG Operation, Inching Operation			
Homing method		Refer to the method supported by the servo driver				
Speed change function		Speed change (Percent/Absolute value)				
Torque unit		Rated torque % designation				
Absolute position system		Available (when using absolute encoder type servo driver)				
External Encoder input	Channel	1 channel				
	Max. Input	200 kpps				
	Input form	Line drive input (RS-422A IEC specification), open collector output type encoder				
	Input type	CW/CCW, PULSE/DIR, Phase A/B				
	Connection connector	9-point connector				
Communication Period		1ms				
Max. transmission distance		100m				
Communication cable		Over CAT.5 STP (Shielded Twisted-pair) cable				
Error indication		Indicated by LED				
Communication status indication		Indicated by LED				
Consumable current		510mA				
Weight		115g				

## Names and Functions

No.	Name	Descriptions
①	Module ready signal	On: Positioning module normal status Off: Power OFF or CPU module reset status Flicker: Positioning module abnormal status
②	Operation indicator LED (AX1 ~ AX8)	On: applicable axis is running Off: applicable axis is stop status Flicker: applicable axis is error status
③	Communication status indicator LED	On: communication with servo driver is connected Off: communication with servo driver is disconnected Flicker: Error occurs during communicating with servo driver
④	TRX status LED	On: Wiring with servo driver is done Off: Wiring with servo driver is not done Flicker: communicating with servo driver
⑤	Connector for encoder wiring	Connector to connect with encoder
⑥	RJ-45 connector	RJ-45 connector to connect with servo driver

## Terminal

Pin arrangement	Pin No.	Signal name		Signal direction
<div> <div>A 24V</div> <div>A 5V</div> <div>A COM</div> <div>B 24V</div> <div>B 5V</div> <div>B COM</div> <div>Z 24V</div> <div>Z 5V</div> <div>Z COM</div> </div> 	1	A 24V	Encoder A 24V input	Input
	2	A 5V	Encoder A 5V input	
	3	A COM	Encoder A input COM	
	4	B 24V	Encoder B 24V input	
	5	B 5V	Encoder B 5V input	
	6	B COM	Encoder B input COM	
	7	Z 24V	Encoder Z 24V input	
	8	Z 5V	Encoder Z 5V input	
	9	Z COM	Encoder Z input COM	

### Specification

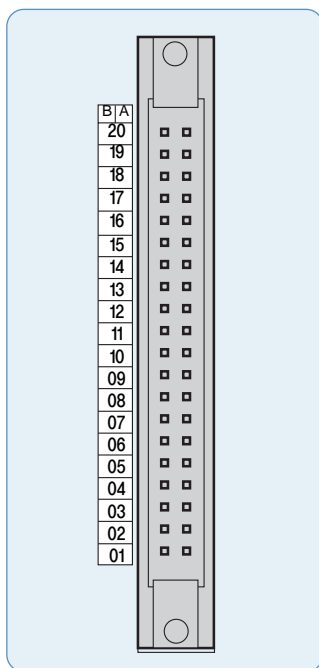


Item		Specification	
		XBF-H002A	XGF-H002A
Count input signal	Signal	A-phase, B-phase	
	Input type	Voltage input (Open Collector)	Differential input (Line Drive):
	Signal level	DC 5/12/24V	RS-422A Line Drive/HTL LEVEL Line Drive
Maximum coefficient speed		200kpps	500kpps (HTL input : 250kpps)
Number of channels		2 Channels	
Coefficient range		Signed 32-bit (-2,147,483,648 ~ 2,147,483,647)	
Count mode		Linear Count (When 32-bit range exceeded, Carry /Borrow occurs, The count value stopped)	
		Ring Count (Repeated count within setting range)	
Input pulse mode		1-phase input	
		2-phase input	
		CW/CCW input	
Up/down setting	1-phase input	Increasing/Decreasing operation setting by B-phase input	
	2-phase input	Increasing/Decreasing operation setting by program	
	CW/CCW	Automatic setting by difference in phase	
Multiplication function	1-phase input	1/2 multiplication	
	2-phase input	1/2/4 multiplication	
	CW/CCW	1- multiplication	
Control input	Signal	Preset instruction input, Auxiliary mode instruction input	
	Signal level	DC 5V/12V/24V (by terminal selection) input type	
	Signal type	Voltage	
External output	Output points	2-point/channel (for each channel): Terminal output available	
	Type	Select single-compared (>, >=, =, <=, <) or section compared output (Included or excluded)	
	Output type	Open collector output (Sink)	
Operation status display	Input signal	A-phase input, B-phase input, Preset instruction input, Auxiliary mode instruction input	
	Output signal	External output 0, External output 1	
	Busy status	Module Ready	
Count enable		To be set through program (Count available only in enable status)	
Preset function		To be set through terminal or program	
Auxiliary mode function		Count clear, Count latch, Section count(time setting value: 0~60000ms), Measurement of input frequency(for respective input phase), Measurement of counts per hour(time setting value: 0~60000ms) Count prohibited function	
Terminal		40 pin connector	
I/O occupied points		Fixed point: 64	
Current consumption (mA)		200	260
Weight		90g	

### Names and Functions

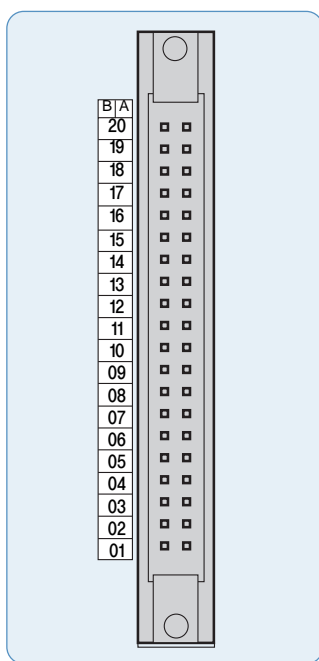
No.	Name	Descriptions
①	Run LED (ØA, ØB, P, G, 00, 01)	<ul style="list-style-type: none"> <li>▶ On: Relevant channel pulse inputting, Preset/Auxiliary function signal inputting, Outputting</li> <li>▶ Off: No input of relevant channel pulse, No input of preset/ Auxiliary function signal, No output of comparison</li> </ul>
	Ready signal (RDY)	<ul style="list-style-type: none"> <li>▶ On: HSC module normal</li> <li>▶ Off: Power off or CPU module reset, HSC module error</li> <li>• Flicker: HSC module error</li> </ul>
②	External wiring connector	Connector to connect with external I/O

Terminal (XBF-H002A)



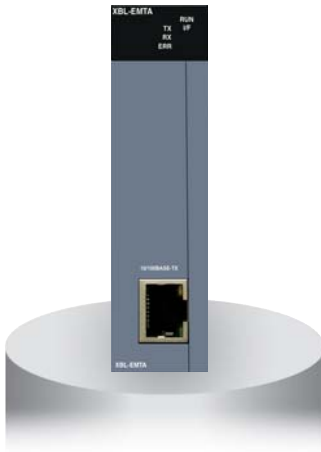
Pin arrangement		Signal name	
B ch1	A ch0		
20	20	A 24V	A phase pulse input 24V
19	19	A 12V	A phase pulse input 12V
18	18	A 5V	A phase pulse input 5V
17	17	A COM	A phase pulse input COM
16	16	B 24V	B phase pulse input 24V
15	15	B 12V	B phase pulse input 12V
14	14	B 5V	B phase pulse input 5V
13	13	B COM	B phase pulse input COM
12	12	P 24V	Preset input 24V
11	11	P 12V	Preset input 12V
10	10	P 5V	Preset input 5V
09	09	P COM	Preset input COM
08	08	G 24V	Auxiliary function input 24V
07	07	G 12V	Auxiliary function input 12V
06	06	G 5V	Auxiliary function input 5V
05	05	G COM	Auxiliary function input COM
04	04	OUT0	Comparison output 0
03	03	OUT1	Comparison output 1
02	02	24V	External power input 24V
01	01	24G	External power input GND

Terminal (XBF-HD02A)



Pin arrangement		Signal name	
B ch1	A ch0		
20	20	A I +	A I phase differentiation input +
19	19	A I -	A I phase differentiation input -
18	18	A II +	A II phase differentiation input +
17	17	A II -	A II phase differentiation input -
16	16	B I +	B I phase differentiation input +
15	15	B I -	B I phase differentiation input -
14	14	B II +	B II phase differentiation input +
13	13	B II -	B II phase differentiation input -
12	12	P 24V	Preset input 24V
11	11	P 12V	Preset input 12V
10	10	P 5V	Preset input 5V
09	09	P COM	Preset input COM
08	08	G 24V	Auxiliary function input 24V
07	07	G 12V	Auxiliary function input 12V
06	06	G 5V	Auxiliary function input 5V
05	05	G COM	Auxiliary function input COM
04	04	OUT0	Comparison output 0
03	03	OUT1	Comparison output 1
02	02	24V	External power input 24V
01	01	24G	External power input GND

## Ethernet (XBL-EMTA)



Item		XBL-EMTA
Communication spec.		10/100 Base-TX
Protocol		TCP/IP, UDP/IP
Service	With LS PLCs	High-speed link, P2P service
	With other devices	P2P service
	Application	XGT Dedicated protocol Server/Client, Modbus/TCP Server/Client
HS link sending/Receiving data		200words/block (Max. 64blocks)
No. of channel Connectable to upper stage		6 channels
Service		Communication with PC (HMI) and external devices, High-speed communication among LSIS PLCs
Media		UTP/STP Category 5
Current consumption (mA)		300

## RS-232C, RS-422 / 485



XBL-C21A  
XBL-C41A

Item		Built-in RS-232C	XBL-C21A	Built-in RS-485	XBL-C41A
Interface		RS-232C 1ch	RS-232C 1ch	RS-485 1ch	RS-422 / 485 1ch
MODEM function		Remote communication via the external MODEM (XBL-C21A Only)			
Mode	Dedicated mode	1:1 or 1:N via the dedicated protocol			
	XG5000 mode	Program download, Upload and control via the remote control			
	P2P mode	Communication defined by the protocol using XG-PD XGT/Modbus master			
Operation mode	Server (slave)	XGT/Modbus server, User-defined communication			
	Client (master)	XGT/Modbus P2P Master, User-defined communication			
Data format	Start Bit	1			
	Data Bit	7 or 8			
	Stop Bit	1 or 2			
	Parity	Even / Odd / None			
	Setting	Setting by XG-PD parameter			
Synchronous		Asynchronous			
Speed (bps)		1,200/2,400/4,800/9,600/19,200/38,400/57,600/115,200 bps			
Station number		Setting by XG-PD, Max. 32 stations			
Distance		RS-232C: Max.15m (Expansion by MODEM), RS-422/485: Max 500m			
MODEM communication		–	Support	–	–
Network		1 : 1		1 : N	
Diagnostic		Via LED and XG-PD			
Max. expansion		Built-in	2 stages	Built-in	2 stages

## RAPiEnet (XBL-EIMT)



Item		XBL- EIMT
Transmission standard	Transmission speed	100Mbps
	Transmission method	Base band
	Max. extension distance between nodes	100m
	Max. number of nodes	64
	Max. protocol size	1,516 bytes
	Access method to service zone	CSMA / CD
	Frame error check	CRC 32 = $X^{32} + X^{26} + X^{23} + \dots + X^2 + X + 1$
	Normal communication guarantee	Max. 1,200 (packet/sec)
Basic standard	Dimension (mm)	90(H) x 27(W) x 60(D)
	Current consumption(mA)	290
	Weight (g)	102

## Ethernet/IP (XBL-EIPT)



Item		XBL- EIPT
Transmission standard	Transmission speed	100Mbps
	Transmission method	Base band
	Max. extension distance between nodes	100m
	Access method to service zone	CSMA/CD
	Frame error check	$CRC\ 32 = X^{32} + X^{26} + X^{23} + \dots + X^2 + X + 1$
Topology		Line, Star
The number of connections (Client/Server)	TCP	16 / 32
	CIP (IO communication)	32 / 64
Number of Max. services (P2P)		2
Number of Max. installations		2
Max. setting data size per block	Periodic client	500 bytes
	Aperiodic client	512 bytes
Basic standard	Dimension (mm)	90(H) x 27(W) x 60(D)
	Current consumption(mA)	290
	Weight (g)	102

## Profibus-DP Module (XBL-PMEC, XBL-PSEA)



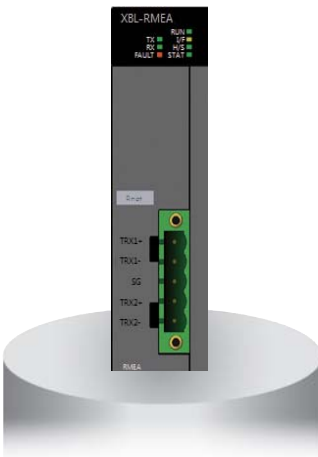
Item		XBL-PMEC	XBL-PSEA
Module Type		Slave	
Network Type		Profibus-DP	
Standard		EN501170/DIN19245	
Interface		RS-485 (Electric)	
Topology		Bus type	
Modulation Type		NRZ (Non Return to Zero)	
Protocol		Profibus DP-V0	
Max. Distance & Transmission Speed	Distance (m)	Send Speed (bps)	
	1,200	9.6k/19.2k/93.75k/187.5k	
	400	500k	
	200	1.5M	
	100	3M/6M/12M	
Max. number of stations per segment		32 (including master & repeater)	
Cable used		Electric-twist shielded pair cable	
Max. Communication size		Input : 122 Word Output : 122 Word	
Max. Communication size per block		Input : 64 Word Output : 64 Word	
Communication Transmission cycle		10/20/50/100/200/500ms, 1/5/10s	
Communication Receive cycle		Main unit scan × 2 + Data receive time + Communication module scan	
Max. number of units installed		2 units	
Communication Parameters to set		XG5000 (setting station and high-speed link parameter block)	
Internal-consumed current (mA)		300	250
Weight (g)		86 (including connector: 122)	

## DeviceNet Module (XBL-DSEA)



Item		XBL-DSEA
Transmission Specification	Transmission Speed (kbps)	125/250/500
	Transmission Type	Poll, Bit strobe, COS, Cyclic
	Communication distance (m)	Thick Cable 500 (125kbps)/250 (250kbps)/100 (500kbps)
		Thin Cable 100 (125/250/500kbps)
	Terminal resistance (Ω)	121 (1%, 1/4W)
	Max.drop length (m)	125 kbps 6 (Max. extended length 156)
		250 kbps 6 (Max. extended length 78)
		500 kbps 6 (Max. extended length 39)
	Data Packet	0-8 Bytes
	Message Access Control	CSMA/NBA
	Network Structure	• Trunk/drop line • Power/Signal cable inside the identical network cable
	Bus Type	• Poll type
	Max. number of nodes	Up to 64 (including master) MAC IDs (MAC Identifier)
	System Features	Insertion and removal of node available in voltage On status
XG5000 (High-speed link) Basic Specification	Operation Voltage	DC 24V
	Diagnosis Function	Module: Checks duplicated station/ Checks CRC error SyCon: Detects defective station/Checks BusOff/Auto-scan function XG5000: Monitors High-speed link
	Master/Slave Operation	Available only in slave
	Parameter setting	Setting to High-speed link of XG5000 (RS-232C of CPU module or USB port)
	Data process unit	Word
	Send/Receive period	Select among 10ms, 20ms, 50ms, 100ms, 200ms, 500ms, 1s, 5s and 10s - Default : 20ms
	Max. communication point	Send 2048points, Receive 2048 points, 256 bytes respectively
	Max. block number	64 (Setting range: 0~63)
	Max. point number per block	1024 points (64 Words)
	Max. modules installed	Up to 2
Basic Specification	Internal-consumed current (mA)	100mA
	Weight (g)	110

## Rnet (XBL-RMEA)



Item		XBL-RMEA
Transmission Speed		1Mbps(Rnet I/F modules common)
Max. Tx distance		Max. 750m
Connection Cable		Twisted pair shielded cable
Maximum stations connected	Network	Master station 1[station no:0(fixed)] + Slave stations up to 31[station no:1~63], Note 1) - Only 1 master is available in the network.
Diagnostic function		XG5000 : High Speed Link Monitoring
Terminal resistance (Ω)		110 Ω (±5%), 1/2W
Master/Slave operation		Only available as Master
XG5000(HS Link)	Data Processing unit	Byte
	Tx/Rx cycle	Selection among 20ms, 50ms, 100ms, 200ms(default), 500ms, 1s, 5s, 10s
	Max. Communication points.	3,780 Bytes (slave 31stations * 120Bytes/station)
	Max. Block number	64 (setting range : 0~63)
	Max. points by Block	120 Byte (60words)
	Auto scanning	Supported
Specification	Max. module mounted	2 modules

## CANopen Module (XBL-CMEA, XBL-CSEA)



Item	XBL-CMEA	XBL-CSEA
Transmission Speed	10, 20, 50, 100, 125, 250, 500, 800, 1000Kbps	
Num. of port	1	
Max. node	32	-
PDO	TPDO	64
	RPDO	64
Max. size of data per PDO	8Byte	
PDO transfer type	Synchronous acyclic (0), synchronous cyclic (1~240), RTR (252~253), time-event trigger (254~255)	
Support SDO	Client 127/Server 1	Server 1
SDO transfer type	Expedited, Normal	-
Access method	CSMA/BA (Carrier Sense Multiple Access/Bitwise Arbitration)	
Topology	BUS	
SYNC Service	Producer Cycle : 20~5000ms	Consumer
NMT. eode control	NMT master	NMT slave
Emergency	Save the last five per slave	Save up to last 10
NMT. error control	Heartbeat, Life guarding	Heartbeat
Network scan	○	-
Size (mm)	90 (H)X27 (W)X60 (D)	
Current consumption (mA)	211	202
Weight (g)	78	

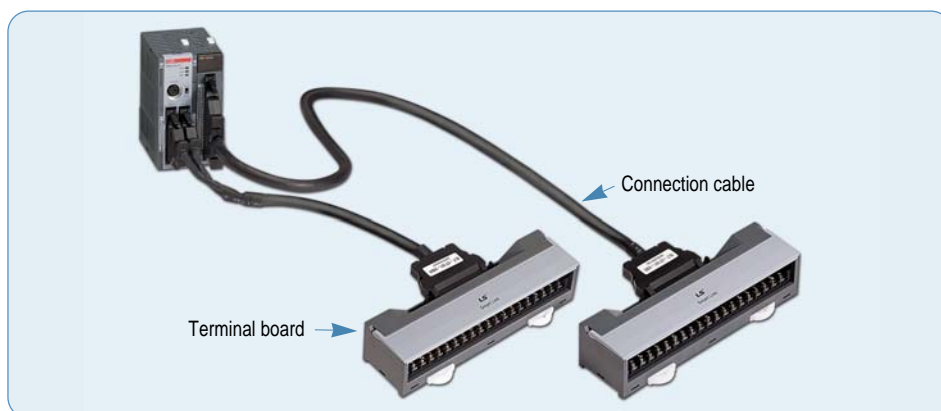
### Option modules



#### Option modules

<b>XBO-AD02A</b>	Voltage/Current, Input 2 chs
<b>XBO-DA02A</b>	Voltage/Current, Output 2 chs
<b>XBO-AH02A</b>	Voltage/Current, Input 1 ch
	Voltage/Current, Output 1 ch
<b>XBO-TC02A</b>	TC (Thermocouple), Input 2 chs
<b>XBO-RTCA</b>	RTC (Real Time Clock)
<b>XBO-DC04A</b>	DC 24V, Input 4 points
<b>XBO-TN04A</b>	Transistor (Sink), Output 4 point
<b>XBO-RD01A</b>	RTD (Resistance Temperature Detect, Input 1 ch)

### Smart link

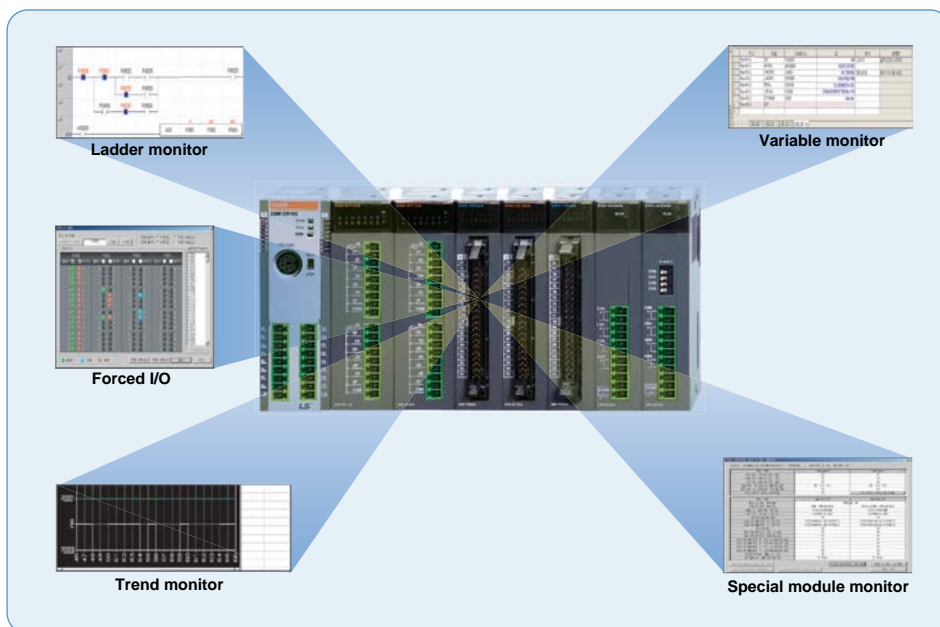


Terminal board	Connection cable	XBM-DN16S XBM-DN32S	XBE-DC32A	XBE-TN32A	XBE-TP32A	Cable length
<b>TG7-1H40S</b> (Terminal board)	R40H/20HH-05S-XBM3	●	—	—	—	0.5m
	R40H/20HH-10S-XBM3	●	—	—	—	1.0m
	C40HH-05SB-XBI	—	●	●	●	0.5m
<b>TG7-1H40CA</b> (Terminal board, Common)	C40HH-10SB-XBI	—	●	●	●	1.0m
	C40HH-15SB-XBI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

## XG5000

(Programming software)

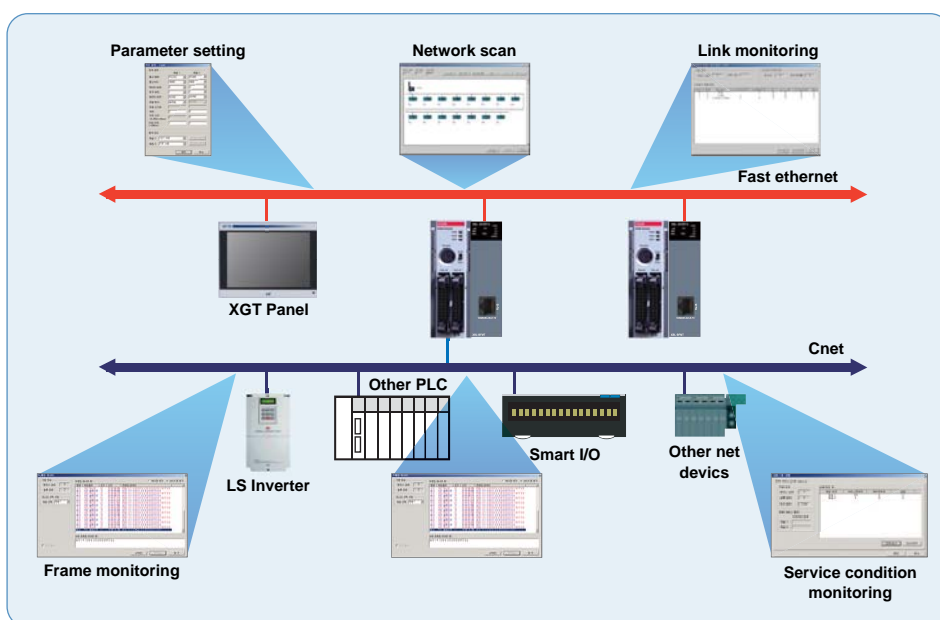
- Program editing & Engineering software
- Windows-based easy operation
- Multi-PLC, Multi-programming support
- Various monitoring and diagnosis functions
- Vista 2000, XP (Limited use in Windows 98, ME)



## XG-PD

(Network setting software)

- Convenient network setting
- Extended monitoring function for network system and communication modules
- Fast interface with CPU by effective network management
- Various built-in diagnosis, functions (CPU condition, Link condition, Service condition, Frame monitoring)



# XGT Panel iXP Series

Programmable Logic Controller

## Main Specification

- 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
- SD memory card interface

## Main Functions

- PLC ladder monitoring (XGK/XBC PLC only)
- Web Server/Data Server
- Path through
- XP-Remote : Remote controlling and monitoring



Item		iXP50-TTA/DC	iXP70-TTA/DC iXP70-TTA/AC	iXP80-TTA/DC iXP80-TTA/AC	iXP90-TTA/DC iXP90-TTA/AC
Display type		TFT color LCD			
Screen size		21.3cm (8.4")	26.4cm (10.4")	30.7cm (12.1")	38.1cm (15")
Display Resolution		800×600 pixel(SVGA)	800×600 pixel(SVGA)	800×600 pixel(SVGA)	1,024×768 pixel(SVGA)
Color indication		16-bit and 24-bit Color (default: 16-bit Color)			
Indication degree		Left/Right: 80 deg. Up: 80 deg. Down: 60 deg.	Left/Right: 80 deg. Up: 60 deg. Down: 80 deg.		
Backlight		LED Type			
Backlight duration		70,000 hours	60,000 hours		
Brightness		500 cd/m <sup>2</sup>	700 cd/m <sup>2</sup>	550 cd/m <sup>2</sup>	800 cd/m <sup>2</sup>
Touch panel		4-Line type, analog			
Sound Output		Magnetic buzzer (85dB)			
Process		ARM Cortex-A8 Core (32bit RISC), 1GHz			
Memory	Flash	512MB(display 128MB)	1GB(display 128MB)		
	Operating RAM	256MB	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℃)			
Ethernet		1 channel, 10/100BASE-TX			
USB Host		3 channels, USB 2.0 host (mouse, keyboard, printer* and USB memory driver is available)			
		1 channel, USB 2.0 slave (for download and upload project file)			
RS-232C		1 channel			
RS-422/485		1 channel, RS-422/485 mode			
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 1 channel			
Expansion module		For communication and I/O option module (available later)			
VM module		-	4 channels video input (available later)		
Multi-language		Up to 12 language simultaneously			
Animation		GIF format is available			
Recipe		available			
Data logging		available			
Script executor		available			
Certifications		CE, UL(cUL), KC			
Protection standard		IP65			
Dimension (mm)		240.5×180.0×54.4	270.5×212.5×60.0	313.0×239.0×56.0	395.0×294.0×60.0
Panel cut (mm)		228.5×158.5	259.0×201.0	301.5×227.5	383.5×282.5
Rated voltage		DC24V	DC12/24V (AC 100-240V)		
Power consumption (W)		30.8	42.3	42.3	42.3
Weight(Kg)		1.9	2.2	2.4	3.9

\*SEW00 printer only

## Main Specification

- 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



Item		eXP20-TTA/DC	eXP40-TTE/DC	eXP40-TTA/DC	eXP60-TTA/DC
Display Type		TFT color LCD			
Display Size		10.9cm (4.3 inch)	17.7cm (7 inch)		25.9cm (10.2 inch)
Resolution		480 x 272 (WQVGA)	800 x 480 (WVGA)		
Color		16.7M colors			65,536 colors
Display Angle		Left/Right: 60 deg. Up: 40 deg. Down: 60 deg.			Left/Right: 55 deg. Up: 35 deg. Down: 55 deg.
Backlight		LED mode, Auto On/Off			
Backlight Capacity		30,000 hr or more	20,000 hr or more		
Brightness(LCD)		550 cd/m <sup>2</sup>	500 cd/m <sup>2</sup>		350 cd/m <sup>2</sup>
Touch Panel		4-wire system, Analogue			
Sound		Magnetic buzzer (85dB)			
Processor		ARM9 Core (32bit RISC), 454MHz			
Memory	Flash	128MB(Screen 64MB)			
	Operation RAM	128MB			
	Backup RAM	128KB			
Backup Type		Date/Time data, Logging/Alarm/Recipe data, non-volatile device			
Battery Capacity		Around 3 years (Upon operation at 25℃)			
RTC Function		Built-in			
Ethernet		1 channel, 10/100BASE-TX	-	1 channel, 10/100BASE-TX	
USB Port		1 channel, USB 2.0 host (mouse, keyboard, printer* and USB memory driver is available)			
		-	1 channel, USB 2.0 slave (for download and upload project file)		
RS-232C		1 channel			
RS-485		-	1 channel		
RS-422/485		1 channel, 422/485 Combination			
Multi-language		Up to 12 language simultaneously			
Animation		GIF format is available			
Recipe		available			
Data logging		available			
Script executor		available			
Certification		CE, UL(cUL), KC			
Protection		IP65			
Size (mm)		128.0 × 102.0 × 32.0	208.0 × 154.0 × 44.0		276.0 × 218.0 × 44.2
Panel Cut (mm)		119.0 × 93.0	192.0 × 138.0		260.0 × 202.0
Power		DC24V			
Power Consumption (W)		7.1	23.1		
Weight (kg)		0.3	0.59	0.60	1.0

\*SEW00 printer only

# XGT Panel XP Series

Programmable Logic Controller

## Graphic type XP30/XP40/XP50/XP70/XP80/XP90

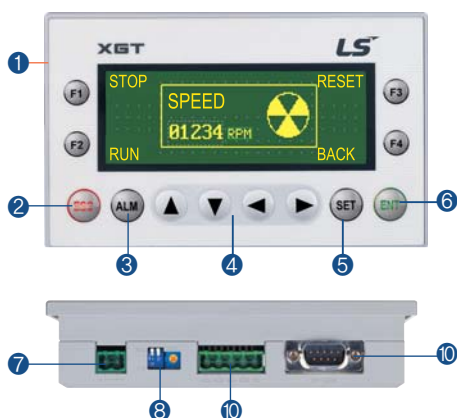
- High and vivid distinction with 65,536 colors
- High quality raster and vector symbols
- Various BMP JPG GIF graphic file support: BMP, JPG, GIF, WMF, etc
- Simple animation effects: animated GIF
- 10/100BASE-T Ethernet interface
- Convenient and easy screen editing
- Strengthened data management: 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 XGT Panel
- USB host for peripheral devices: USB Drive, Mouse, keyboard, printer, etc
- Sufficient memory for screen data: 10MB



Model Type		XP30-BTE/DC	XP30-BTA/DC	XP30-TTE/DC	XP30-TTA/DC	XP40-TTE/DC	XP40-TTA/DC	XP50-TTA/DC	XP70-TTA/AC XP70-TTA/DC	XP80-TTA/AC XP80-TTA/DC	XP90-TTA/AC	
		Mono		Color								
Display Element		Mono Blue LCD			TFT Color LCD							
Screen Size		14cm (5.7")				17.7cm (7")		21cm (8.4")	26cm (10.4")	31cm (12.1")	38cm (15")	
Resolution		320×240				800×480		640×480		800×600	1024×768	
Color		8-column Gray Scale		256 colors	65,536 colors	65,536 colors						
Backlight		LED mode					CCFL(can be replaced), Auto On/Off					
		50,000 hours		60,000 hours		30,000 hours		50,000 hours			60,000 hours	
Contrast		Adjustable		Fixed								
Brightness		230cd/m <sup>2</sup>			600cd/m <sup>2</sup>	280cd/m <sup>2</sup>		480cd/m <sup>2</sup>	430cd/m <sup>2</sup>	400cd/m <sup>2</sup>	450cd/m <sup>2</sup>	
Viewing Angle	Up/Down(Degree)	20/40		80/80	70/70	50/60		50/60	45/65	45/75	60/50	
	Left/Right(Degree)	45/45		80/80		65/65		65/65	65/65	65/65	75/75	
Touch Panel		4-wire system, analogue				Analog resistive		8-wire system, analogue				
Movement LED		Green: Normal RUN (Monitoring & drawing data download) Red: Error (Communication error & drawing data error)										
Memory	Screen Data	4MB	10MB	4MB	10MB	4MB	10MB	10MB			20MB	
	Backup Data	128KB	512KB	128KB	512KB	128KB	512KB					
Ethernet		-	1ch, 10/100Base-T	-	1ch, 10/100Base-T	-	1ch, 10/100Base-T					
USB Interface		USB Host X 1	USB Host X 2	USB Host X 1	USB Host X 2	USB Host X 1		USB Host X 2				
Serial	RS-232C	2ch(1 port for PC communication)										
	RS-422/485	1ch, 422/485 optional mode										
CF Card Interface		-	CF card (TAPE-1)×1	-	CF card (TAPE-1)×1	-		CF card (TAPE-1)×1				
AUX Interface		-	Optional	-	Optional	-		Optional				
Certification		CE, UL, KC										
Protection		IP65 (Front Water Proof Structure)										
Size(W×H×D)mm		181x140x 56.5	181 x 140 x 66.5	181 x 140 x 56.5	181 x 140 x 66.5	203.5 x 153.5 x 41.5		240 x 174 x 73	317 x 243 x 73		395 x 294 x 73	
Panel Cut (W×H)mm		155.0 x 123.5			192 x 138		228.5 x 158.5		294.5 x 227.5		383.5 x 282.5	
Weight (kg)		0.62	0.75	0.62	0.75	2.2	2.4	1.4	2.2	2.4	3.9	
Power	Rated Voltage	DC 24V							AC100~220V, DC 24V		AC100~220V	
	Permitted Voltage	AC	-							MIN 85 VAC, MAX 264 VAC		
		DC	MIN 19.2 VDC, MAX 28.8 VDC									-
	Power Consumption(W)	AC	-							21.8	31.9	31.9
DC		9.7	16.9	9.6	17.4	9.8	9.8	18.7	20.1	25.7	-	

## 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 requirements - 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)	

# Product list

## Programmable Logic Controller

### Product list

Item	Model	Specifications
Block type unit (U)	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 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)	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 points DC24V input, 4 point Relay ouput
	XBC/XEC-DR14E	AC 100 - 240V, 8 points DC24V input, 6 point Relay ouput
	XBC/XEC-DR20E	AC 100 - 240V, 12 points DC24V input, 8 point Relay ouput
	XBC/XEC-DR30E	AC 100 - 240V, 18 points DC24V input, 12 point Relay ouput
	XBC/XEC-DN10E	AC 100 - 240V, 6 points DC24V input, 4 point transistor output (Sink)
	XBC/XEC-DN14E	AC 100 - 240V, 8 points DC24V input, 6 point transistor output (Sink)
	XBC/XEC-DN20E	AC 100 - 240V, 12 points DC24V input, 8 point transistor output (Sink)
	XBC/XEC-DN30E	AC 100 - 240V, 18 points DC24V input, 12 point transistor output (Sink)
	XBC/XEC-DP10E	AC 100 - 240V, 6 points DC24V input, 4 point transistor output (Source)
	XBC/XEC-DP14E	AC 100 - 240V, 8 points DC24V input, 6 point transistor output (Source)
	XBC/XEC-DP20E	AC 100 - 240V, 12 points DC24V input, 8 point transistor output (Source)
	XBC/XEC-DP30E	AC 100 - 240V, 18 points DC24V input, 12 point transistor output (Source)

## Product list

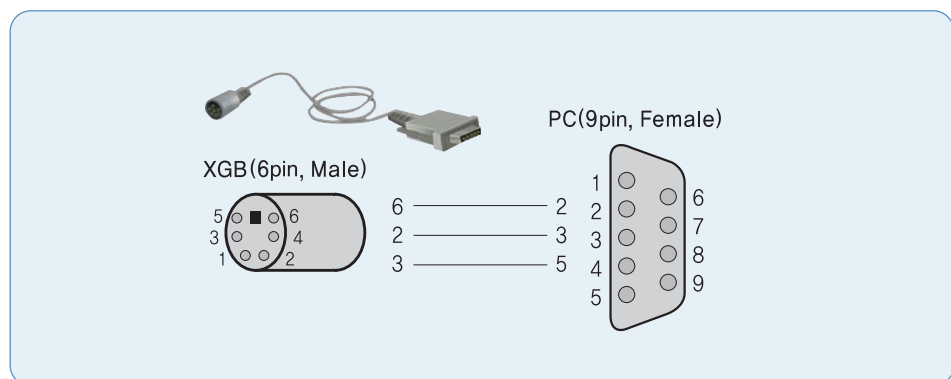
Item	Model	Specifications
Modular type unit	XBM-DR16S	DC 24V, 8-point DC24V input, 8-point relay output
	XBM-DN16S	DC 24V, 8-point DC24V input, 8-point TR output
	XBM-DN32S	DC 24V, 16-point DC24V input, 16-point TR output
Expansion I/O module	XBE-DC08A	8-point DC 24V input
	XBE-DC16A	16-point DC 24V 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
	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)
Special module	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-RD01A	1-channel RTD input
	XBF-TC04S	4-channel Thermocouple input
	XBF-TC04TT	Temperature controller, Thermocouple
	XBF-TC04RT	Temperature controller, RTD
	XBF-LD02S	Load Cell input module
	XBF-PD02A	Line drive 2 axis
	XBF-PN08B	EtherCAT Positioning module, 8axes (XBC/XEC "U" only)
	XBF-PN04B	EtherCAT Positioning module, 4axes (XBC/XEC "U" only)
	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	XBL-C41A	Cnet (RS-422/485), 1ch
	XBL-C21A	Cnet (RS-232C), 1ch
	XBL-EMTA	Fast Ethernet (100Mbps), 1ch
	XBL-EIMT	RAPIDnet, 2 ch
	XBL-EIPT	Ethernet/IP, 2 ch
	XBL-EIMF	RAPIDnet I/F, Max. 2km (Fiber 2ch.), 100Mbps
	XBL-EIMH	RAPIDnet I/F (Twisted pair 1ch, Fiber 2 ch.), 100Mbps
	XBL-PMEC	Profibus-DP, Master, RS-485
	XBL-PSEA	Profibus-DP, Slave, RS-485
	XBL-DSEA	DeviceNet, Slave
	XBL-PSEA	Profibus-DP, Slave, RS-485
	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)
Loader cable	PMC-310S	Connection cable (PC to PLC), 9pin(PC)-6pin(PLC)
	USB-301A	Connection cable (PC to PLC), USB

## Product list

Item	Model	Specifications
Memory module	XBO-M2MB	Memory
Option modules	XBO-AD02A	Voltage/Current, Input 2 ch
	XBO-DA02A	Voltage/Current, Output 2 ch
	XBO-AH02A	Voltage/Current, Input 1ch/Voltage/Current, Output 1ch
	XBO-TC02A	TC (Thermo couple), Input 2 ch
	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

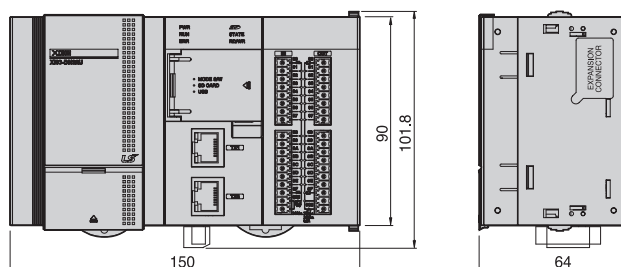
Terminal board	Connection cable	XBM-DN16S XBM-DN32S	XBE-DC32A	XBE-TN32A	XBE-TP32A	Cable length
XTB-40H (TG7-1H40S) (Terminal board)	R40H/20HH-05S-XBM3	●	—	—	—	0.5m
	R40H/20HH-10S-XBM3	●	—	—	—	1.0m
	C40HH-05SB-XBI	—	●	●	●	0.5m
	C40HH-10SB-XBI	—	●	●	●	1.0m
TG7-1H40CA (Terminal board, Common)	C40HH-15SB-XBI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

## Download cable diagram

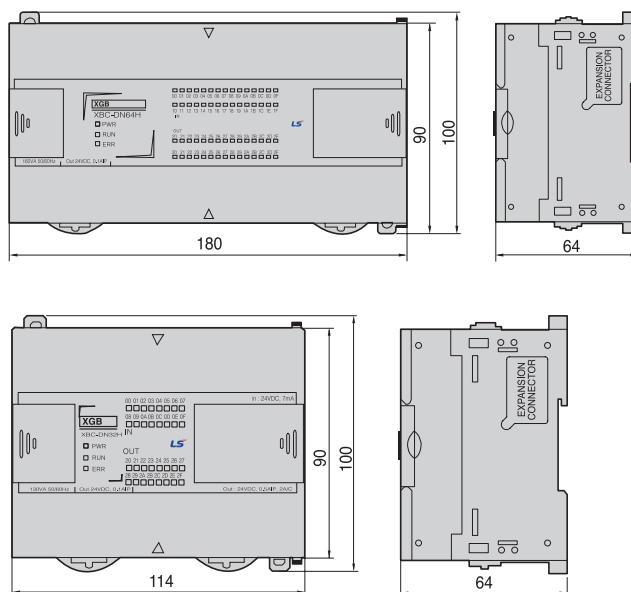


## Block type unit

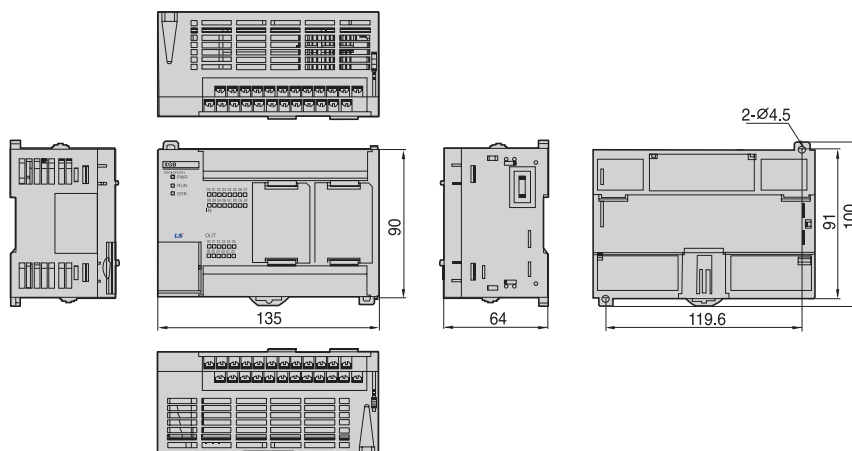
### XBC/XEC-U (Standard)



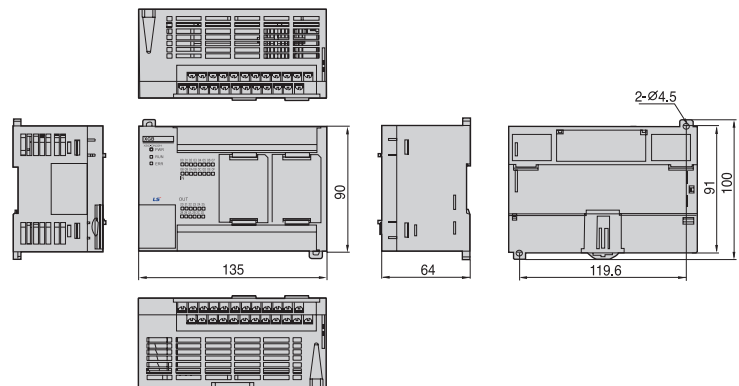
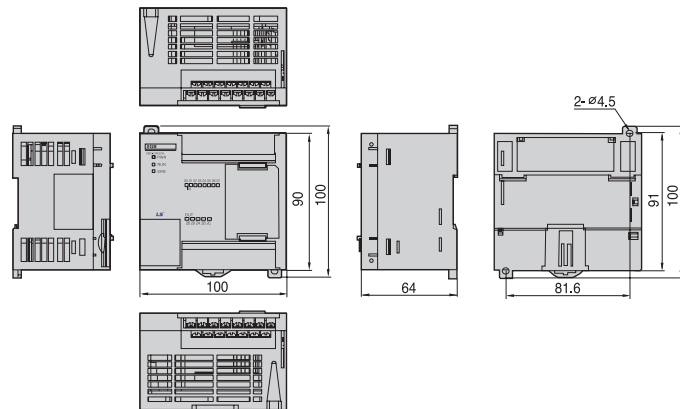
### XBC/XEC-H



### XBC/XEC-SU

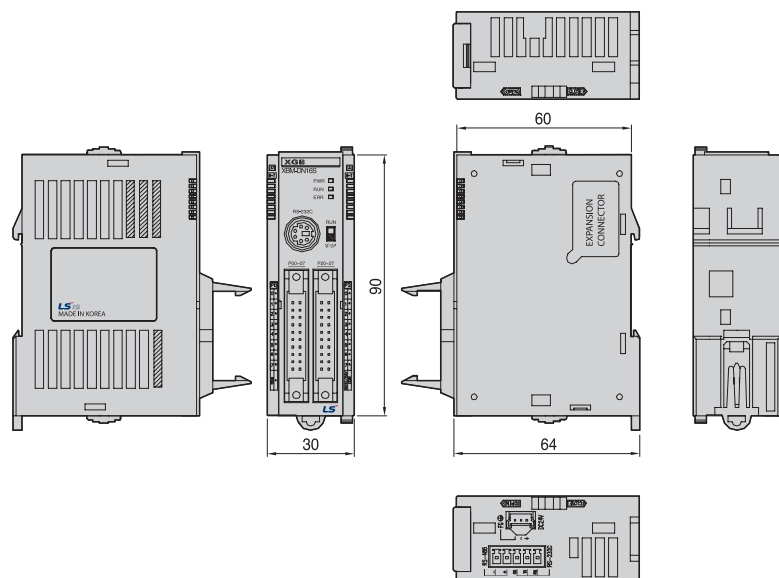


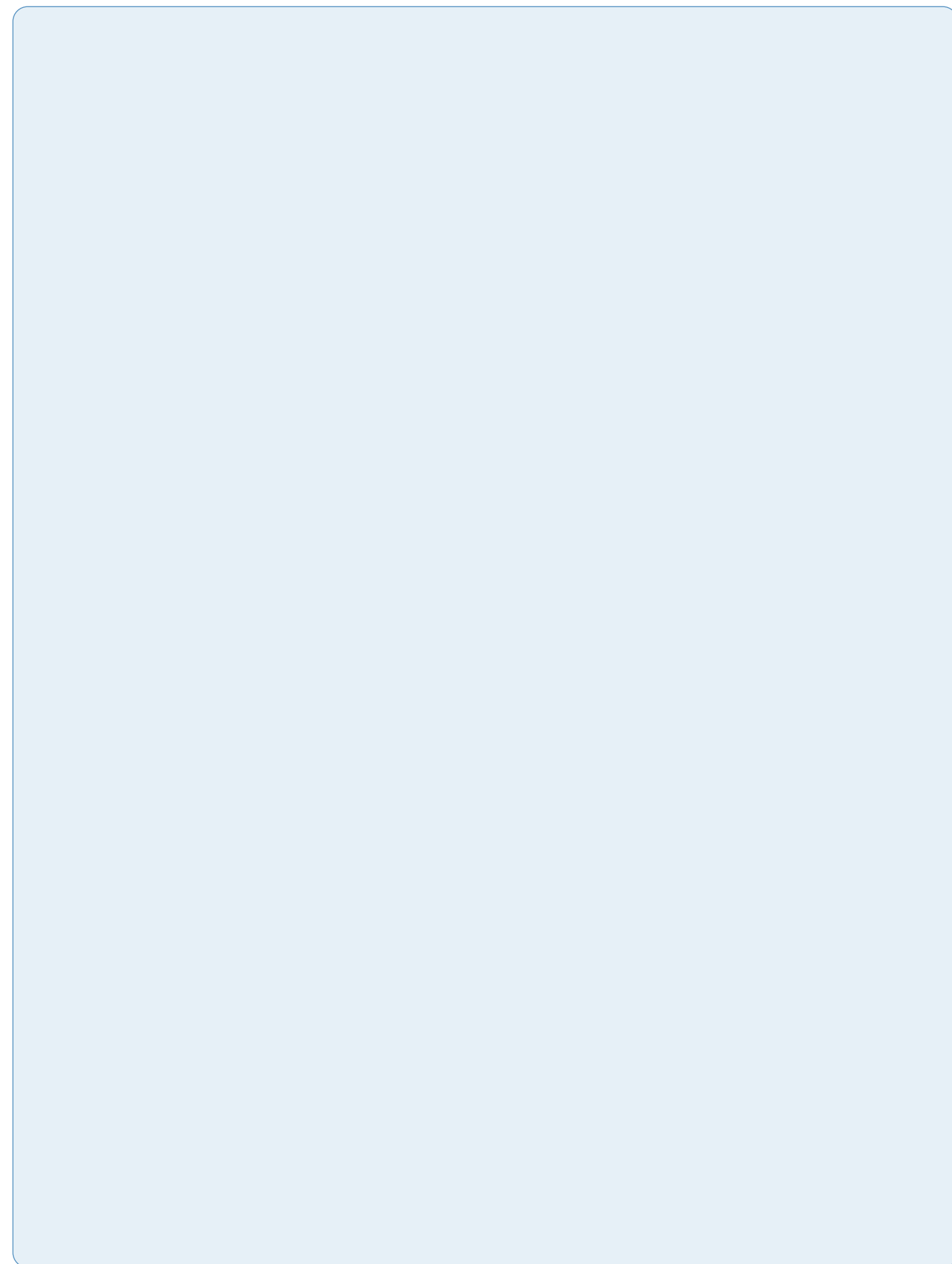
## XBC/XEC-E

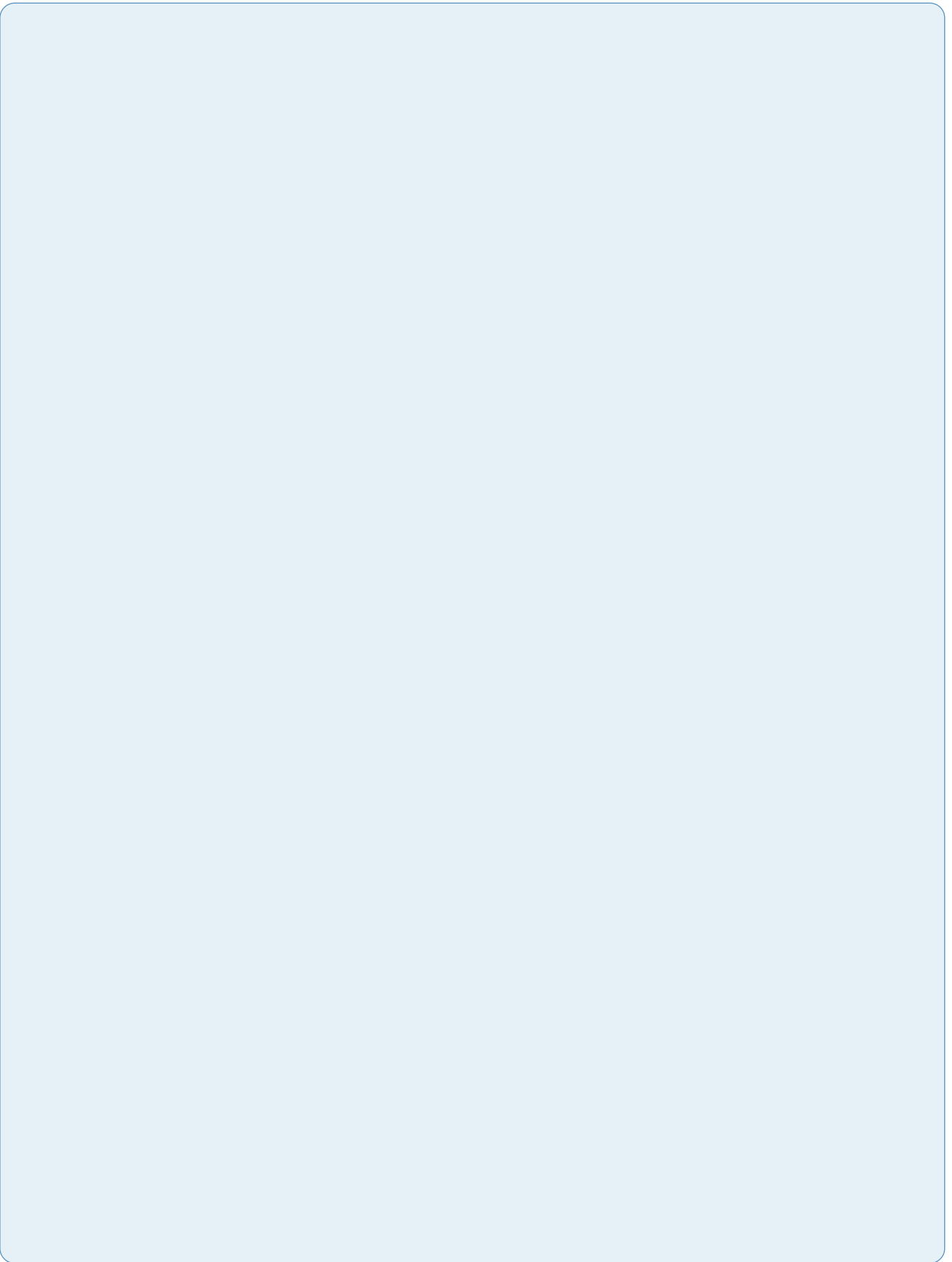


## Modular type unit

## XBM-S







# Worldwide Network

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Cheongju Factory



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Cheonan Factory



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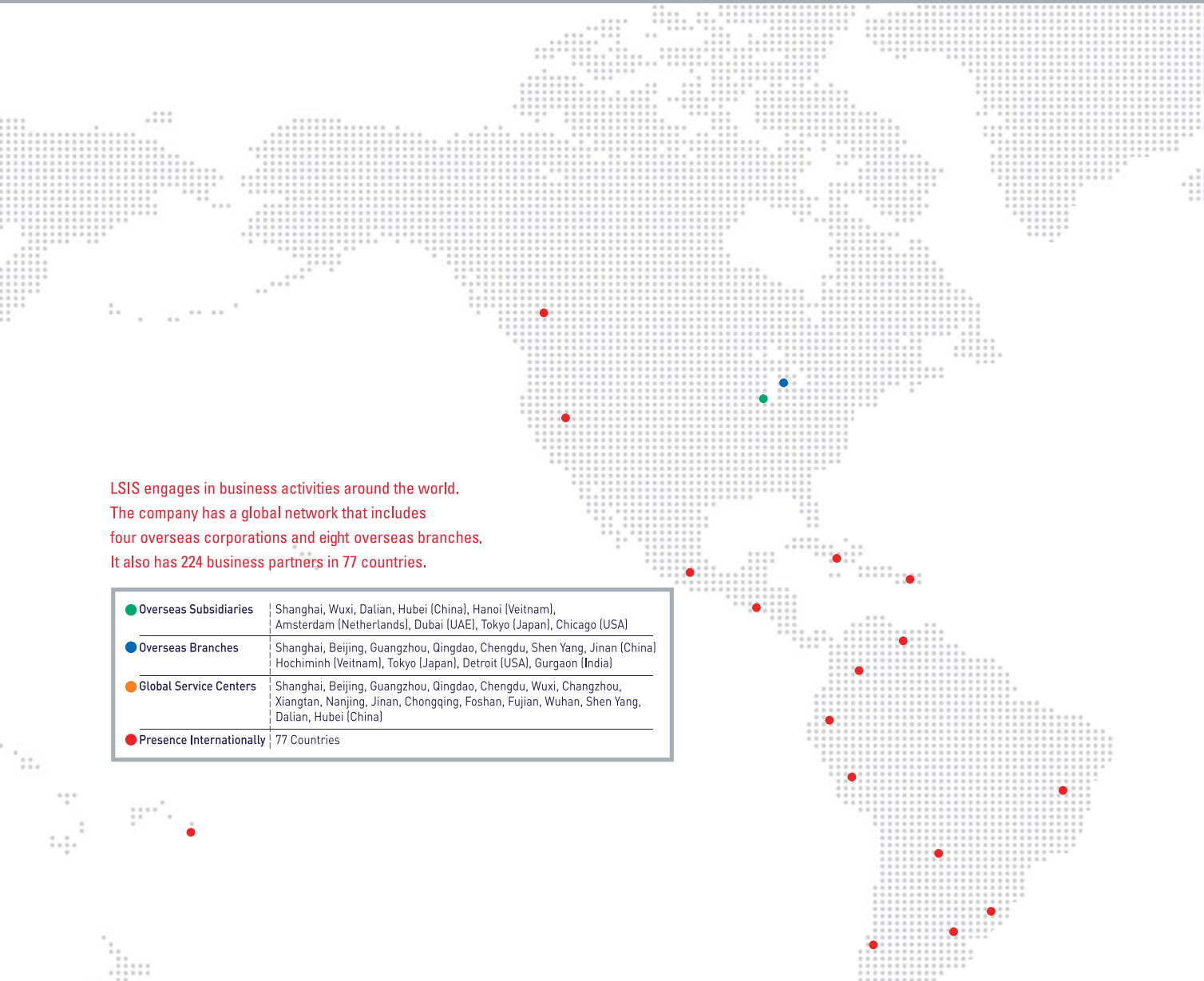


Busan Factory



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LSIS engages in business activities around the world.  
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#### 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.

## LSIS Co., Ltd.

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