

Top 100  
Global  
Innovator  
for 10 years

# XGB Series

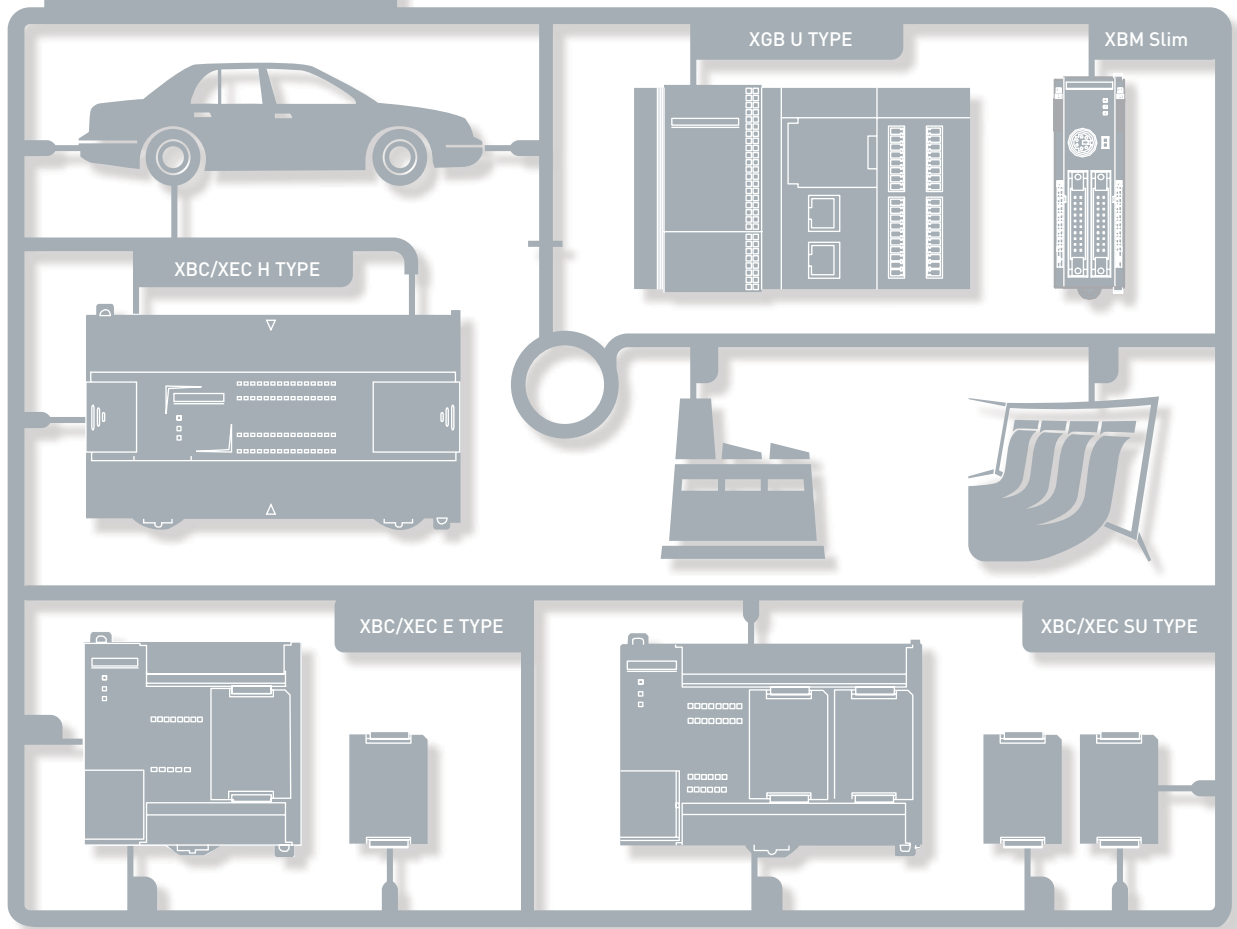
Programmable Logic Controller



**LS** ELECTRIC

Programmable Logic Controller

**XGB** Series



EASINESS

COMPACTNESS

FUNCTIONALITY

CONVENIENCE

HIGH PERFORMANCE

Programmable Logic Controller  
**XGB Series**



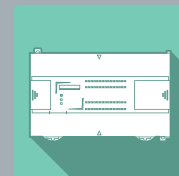
**URES**  
4 ~ 15

FEATURES



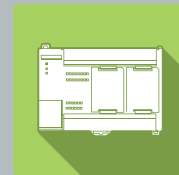
**XBC/XEC U**  
16 ~ 23

XGB U



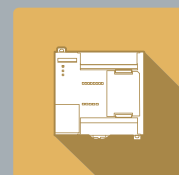
**XBC/XEC H**  
24 ~ 29

XBC/XEC H



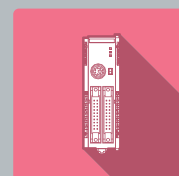
**XBC/XEC SU**  
30 ~ 33

XBC/XEC SU



**XBC/XEC E**  
40 ~ 47

XBC/XEC E



**XBM Slim**  
48 ~ 61

XBM Slim



**APPLICATION**  
62 ~ 118

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

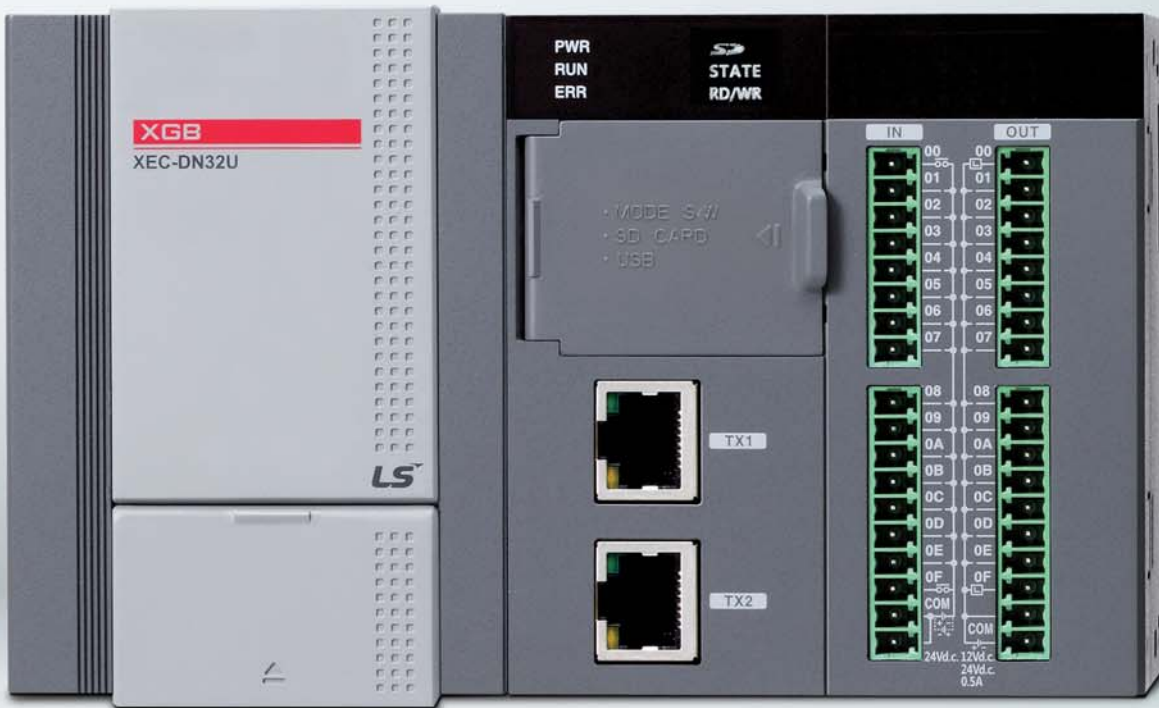
# It's Slim It's Powerful



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





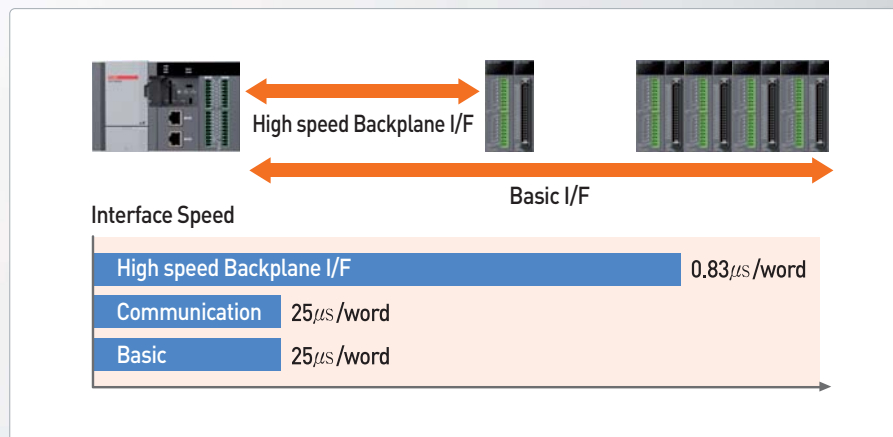


## Various Expansion

- 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

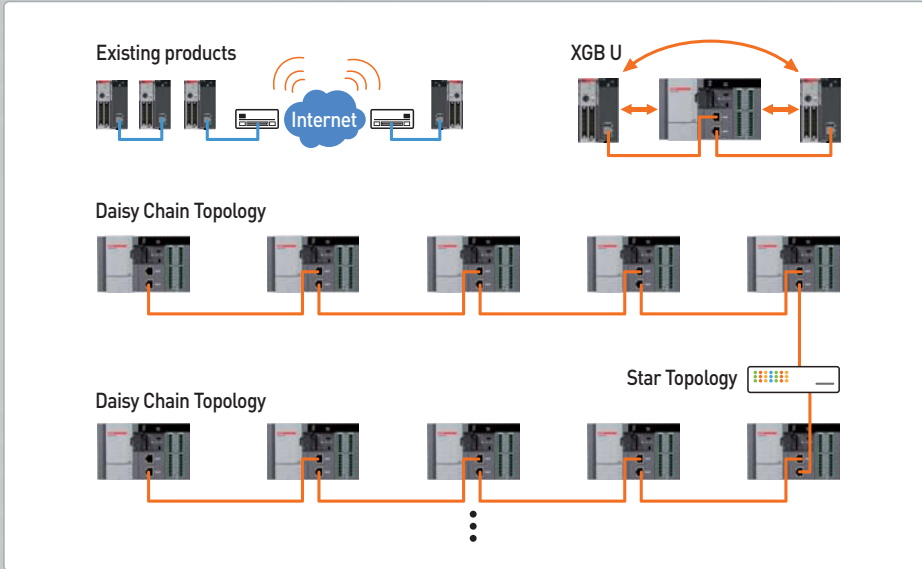


## Data Log

- 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

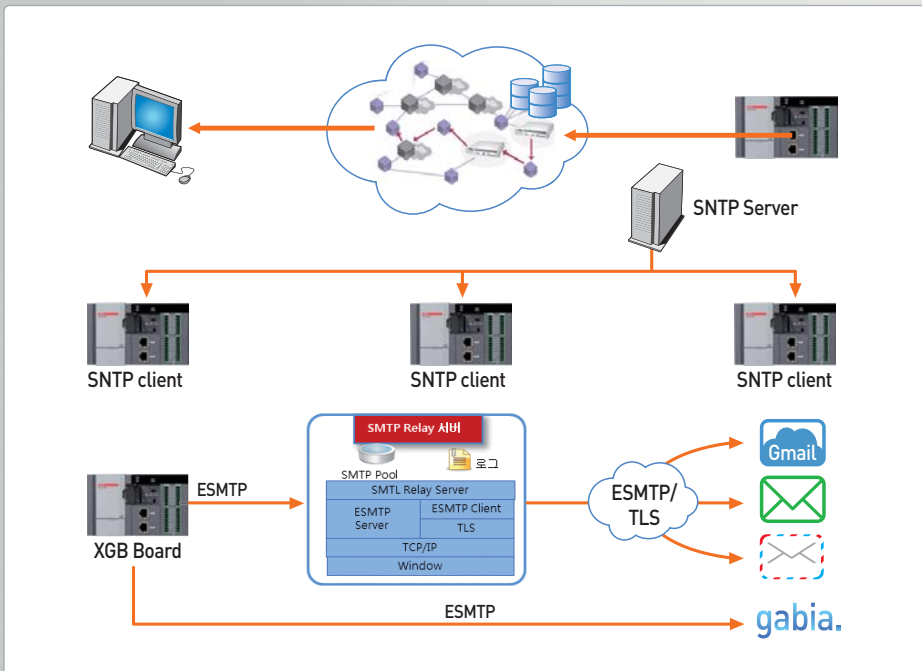
### Dual Port Ethernet(XBC/XEC U type)

- 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)



Compactness Function  
High Performance Easiness

# 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) 20kHz(4Ch)	100kHz(2Ch) 20kHz(6Ch)	4kHz	20kHz
	8Ch	8Ch	8Ch	4Ch	4Ch
2 Phase	50kHz(4Ch)	50kHz(4Ch) 10kHz(4Ch)	50kHz(1Ch) 8kHz(3Ch)	2kHz	2 multiplication: 10kHz 4 multiplication: 8kHz
	4Ch	4Ch	4Ch	2Ch	2Ch



### Built-in PID function

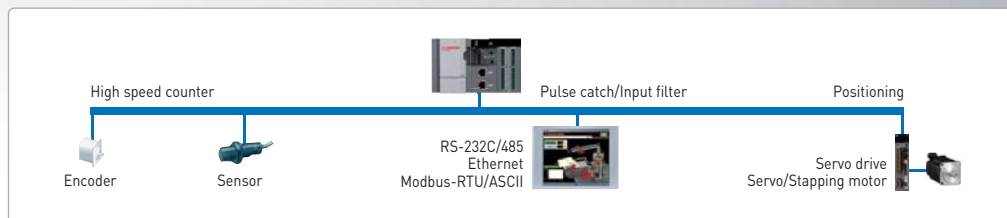
- It supports built-in PID control function up to 16 loops.
  - It provides parameter setting using XG5000, convenient loop state monitoring through trend monitor.
  - It can simply get a coefficient value by improved auto-tuning algorithm
  - Control accuracy improvement by using various additional 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)

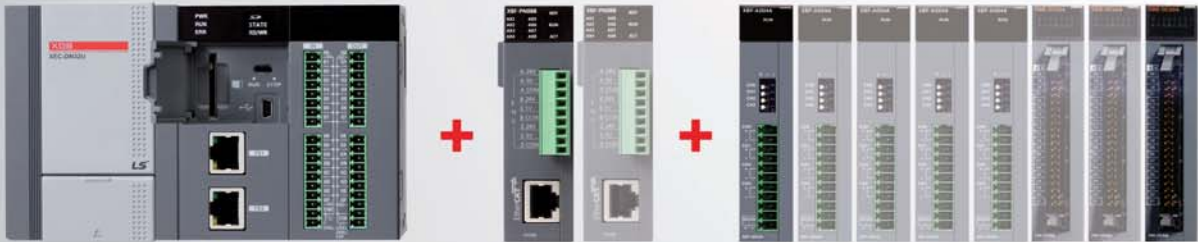
- Line drive output positioning function with up to 2Mpps 4-axis
- Parameter set up by XG-PM providing operation data edition, divers monitoring and diagnosis functions.



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



XBC/XEC U



Standard type

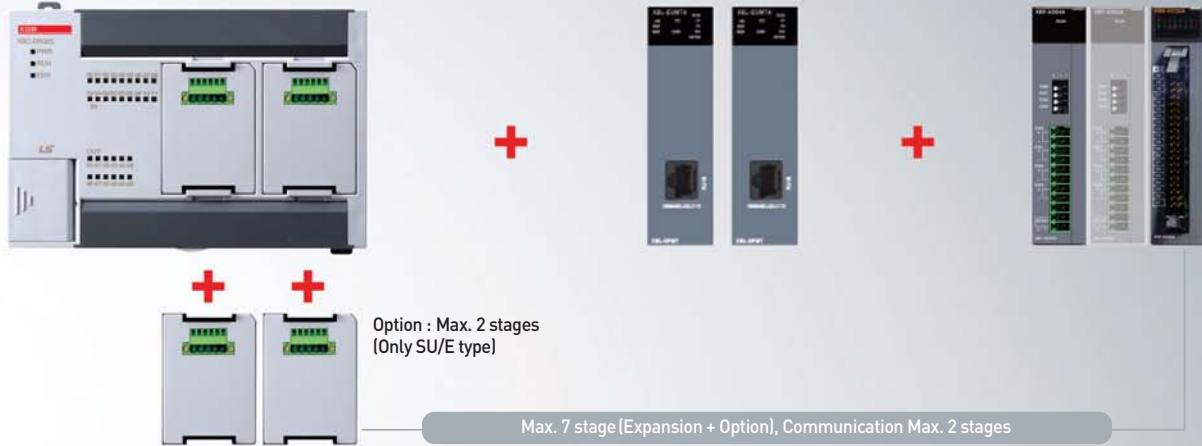
Max. 10 stages (High speed interface module : Max. 2 stages)

XBC/XEC H

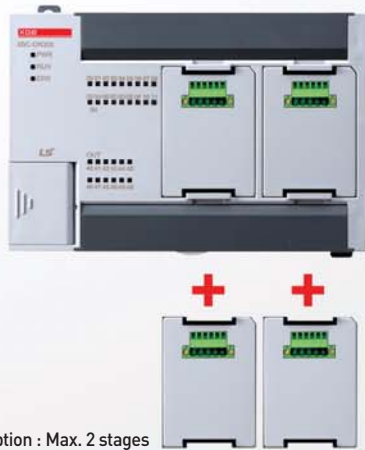


Max. 10 stage (Including communication 2 stages)

### XBC/XEC SU

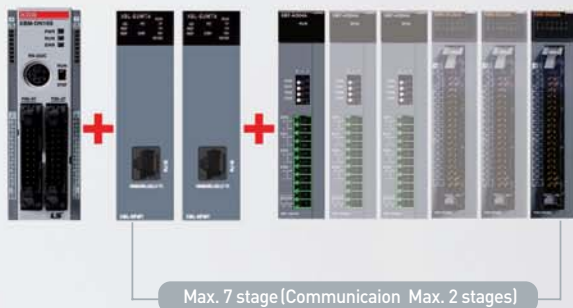


### XBC/XEC E

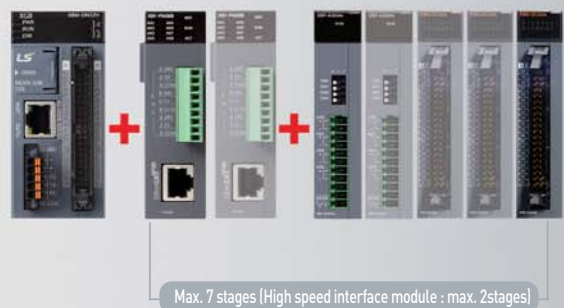


Option modules	
XBO-M2MB	Memory / program READ/WRITE
XBO-RTCA	RTC (Real time clock), Battery
XBO-DC04A	DC 24V, Input 4 points
XBO-TN04A	TR (Sink), Output 4 points
XBO-AD02A	Voltage/Current, Input 2ch
XBO-DA02A	Voltage/Current, Output 2ch
XBO-AH02A	Voltage/Current, Input 1ch / Voltage/Current, Output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

### XBM Slim



### XBM/XEM H, H2, HP





# XGB U

Ultimate Performance  
Universal IoT  
User Oriented

## C o n t e n t s

General specifications .....	18
Performance specifications .....	19
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/s <sup>2</sup> (1G)	-	
	Continuous vibration			
	Frequency	Acceleration	Pulse width	
10 ≤ f < 57Hz	-	0.035mm		
57 ≤ f ≤ 150Hz	4.9m/s <sup>2</sup> (0.5G)	-		
Shock resistance	<ul style="list-style-type: none"> <li>• Peak acceleration: 147m/s<sup>2</sup> (15g) • Duration: 11ms</li> <li>• Pulse waveform: Half-sine, 3times each direction per each axis</li> </ul>			IEC61131-2
Noise resistance	Square wave impulse noise	±500 V		LS ELECTRIC 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	
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			

\*1) 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)					
	N	N0000~N10239(10,240 word)					
File register	R	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	
PID control		Control by instruction, auto-tuning, PWM output, Forced output, Operation scan time setting, Antiwindup, Delta MV, PV tracking, Hybrid operation, Cascade operation					
Seria	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					Embedded01 P2P:02 High-speed link:01
	Topology	Line, star					
	Diagnosis	Module information, service condition					
	Protocol	XGT dedicated Modbus TCP/IP user define frame					
	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

XGB U

## 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 1 Channel (Max 200kpps)	

### Analog

Item	Specifications	Remark			
Analog input	Channels	4 channels (current/voltage)	Available On UP type		
	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		1M $\Omega$ or more (voltage input), 250 $\Omega$ (current input)	
		Max. Resolution		1/16000	
				0.250mV (1~5V), 0.3125mV (0~5V) 0.625mV (0~10V), 1.250mV ( $\pm$ 10V)	1.0 $\mu$ A (4~20mA) 1.25 $\mu$ A (0~20mA)
		Accuracy		$\pm$ 0.2% or less (When ambient temperature is 25 $^{\circ}$ C) $\pm$ 0.3% or less (When ambient temperature is 0~55 $^{\circ}$ C)	
Analog output	Channels	Voltage 2 channels, Current 2 channels	Available On UP type		
	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		1M $\Omega$ or more (voltage output), 600 $\Omega$ or less (current output)	
		Max. Resolution		1/16000	
				0.250mV (1~5V), 0.3125mV (0~5V) 0.625mV (0~10V), 1.250mV ( $\pm$ 10V)	1.0 $\mu$ A (4~20mA) 1.25 $\mu$ A (0~20mA)
		Accuracy		$\pm$ 0.2% or less (When ambient temperature is 25 $^{\circ}$ C) $\pm$ 0.3% or less (When ambient temperature is 0~55 $^{\circ}$ C)	

## 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

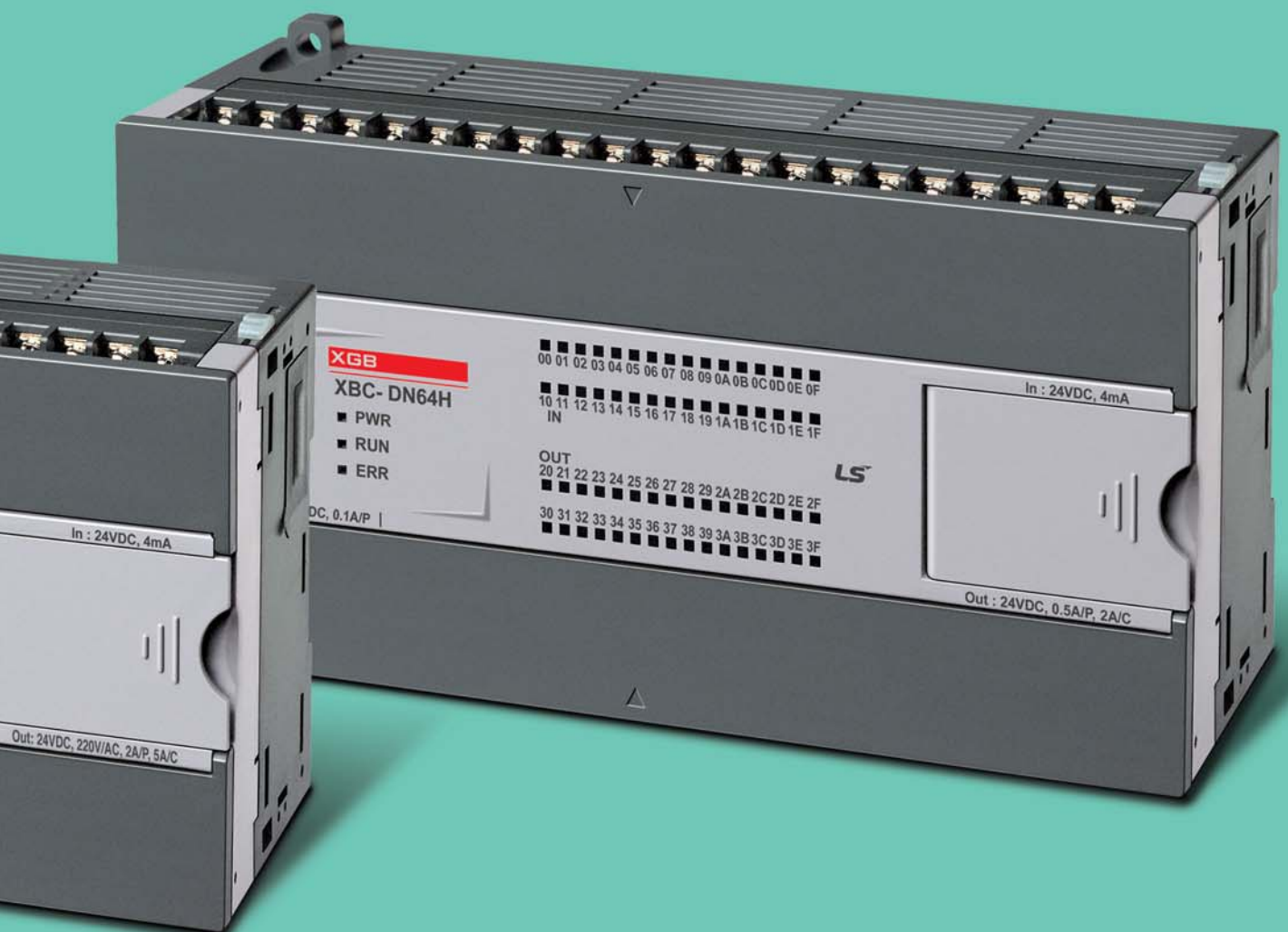
High Performance

## C o n t e n t s

Performance specifications ..... 26  
Wiring ..... 27







## High performance type

### Performance specifications

Item	XBC/XEC-DR32H	XBC/XEC-DN32H	XBC/XEC-DR64H	XBC/XEC-DN64H
	XBC-DR32H/DC <sup>*1)</sup>	XEC-DP32H <sup>*1)</sup>	XBC-DR64H/DC <sup>*1)</sup>	XEC-DP64H <sup>*1)</sup>
	XEC-DR32H/DI	XBC-DN32H/DC	XEC-DR64H/DI	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>*1)</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			
<b>Data memory</b>				
<b>XBC</b>		<b>XEC (IEC type)</b>		
P	P0000 ~ P1023F (16,384 points)	<b>Symbolic variable</b>	A	32KB (Max. 16KB retain setting available)
M	M0000 ~ M1023F (16,384 points)	<b>Input variable</b>	I	2KB (%IX 15.15.63)
K	K0000 ~ K4095F (65,536 points)	<b>Output variable</b>	Q	2KB (%QX 15.15.63)
L	L0000 ~ L2047F (32,768 points)	<b>Direct variable</b>	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)	<b>Flag variable</b>	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)	<b>Flash area</b>	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)

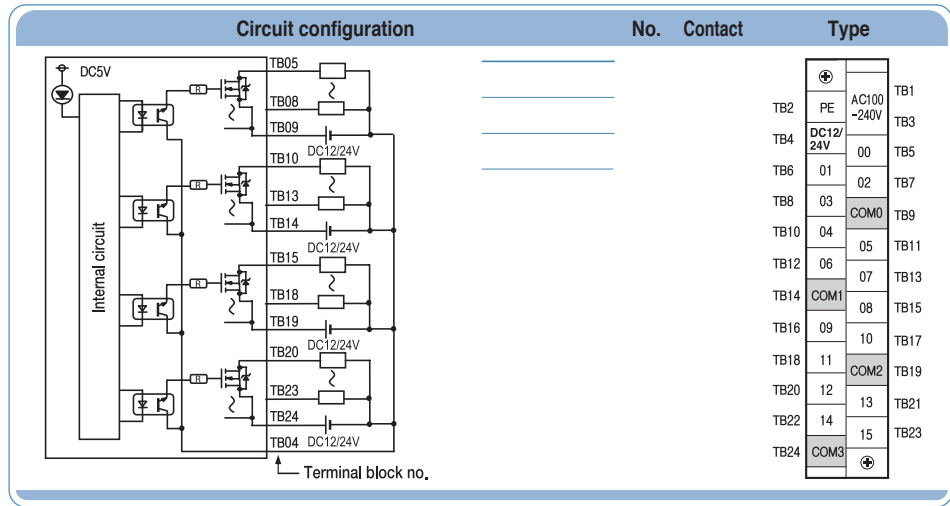
Circuit configuration	No. Contact	Type	
		⊕	
			RX
			TX
			SG
			01
			03
			05
			07
			09
			0B
			0D
			0F
			24G
		⊕	

	⊕		TB1
TB2	PE	AC100 ~240V	TB3
TB4	NC	20	TB5
TB6	21	22	TB7
TB8	23	COM0	TB9
TB10	24	25	TB11
TB12	26	27	TB13
TB14	COM1	28	TB15
TB16	29	2A	TB17
TB18	28	COM2	TB19
TB20	2C	2D	TB21
TB22	2E	2F	TB23
TB24	COM3	⊕	

	⊕		TB1
TB2	PE	AC100 ~240V	TB3
TB4	DC12/ 24V	20	TB5
TB6	21	22	TB7
TB8	23	COM0	TB9
TB10	24	25	TB11
TB12	26	27	TB13
TB14	COM1	28	TB15
TB16	29	2A	TB17
TB18	28	COM2	TB19
TB20	2C	2D	TB21
TB22	2E	2F	TB23
TB24	COM3	⊕	

### XEC-DP32H

Transistor output wiring  
(source type)

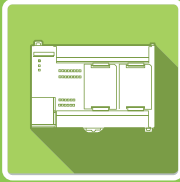


TB2	PE	AC100 ~240V	TB1
TB4	DC12/ 24V		TB3
TB6	01	00	TB5
TB8	03	02	TB7
TB10	04	COM0	TB9
TB12	06	05	TB11
TB14	COM1	07	TB13
TB16	09	08	TB15
TB18	11	10	TB17
TB20	12	COM2	TB19
TB22	14	13	TB21
TB24	COM3	15	TB23

TB2	485+	RX	TB1
TB4	485-	TX	TB3
TB6	00	SG	TB5
TB8	02	01	TB7
TB10	04	03	TB9
TB12	06	05	TB11
TB14	08	07	TB13
TB16	10	09	TB15
TB18	12	11	TB17
TB20	14	13	TB19
TB22	16	15	TB21
TB24	COM0	MC	TB23
TB26	18	17	TB25
TB28	20	19	TB27
TB30	22	21	TB29
TB32	24	23	TB31
TB34	26	25	TB33
TB36	28	27	TB35
TB38	30	29	TB37
TB40	COM1	31	TB39
TB42	24V	24G	TB41

TB2	PE	AC100 ~240V	TB1
TB4	NC		TB3
TB6	01	00	TB5
TB8	03	02	TB7
TB10	04	COM0	TB9
TB12	06	05	TB11
TB14	COM1	07	TB13
TB16	09	08	TB15
TB18	11	10	TB17
TB20	12	COM2	TB19
TB22	14	13	TB21
TB24	COM2	15	TB23
TB26	17	16	TB25
TB28	19	18	TB27
TB30	21	20	TB29
TB32	23	22	TB31
TB34	24	COM4	TB33
TB36	26	25	TB35
TB38	28	27	TB37
TB40	30	29	TB39
TB42	COM5	31	TB41





# 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		
<b>Control method</b>	Repetitive, cyclic, interrupt, constant scan					
<b>I/O control method</b>	Refresh mode (Batch processing by scan synchronization), Direct mode by instruction					
<b>Programming language</b>	Ladder diagram, Instruction List					
<b>Processing speed</b>	94 ns / Step					
<b>Program capacity</b>	15Kstep / 200KB					
<b>Main unit I/O points</b>	20 (Input:12, Output:8)	30 (Input:18, Output:12)	40 (Input:24, Output:16)	60 (Input:36, Output:24)		
<b>Max. I/O points (Main + Expansion 7 stages)</b>	244 points	254 points	264 points	284 points		
<b>Total program</b>	128					
<b>Operation mode</b>	RUN, STOP, DEBUG					
<b>Self diagnosis</b>	Detects errors of scan time, memory error, I/O error, battery error, power error, etc.					
<b>Program port</b>	RS-232C 1 channel (Loader), USB 1 channel (U-type model)					
<b>Retain data at power failure</b>	Latch area setting at basic parameter					
<b>Built-in functions</b>	RS-232C / RS-485(2 ch), Pulse catch, Input filter, External interrupt, PID control, High-speed counter, Positioning					
<b>Data memory</b>						
<b>XBC</b>			<b>XEC</b>			
<b>Data area</b>	<b>P</b>	P0000 ~ P1023F (16,384 points)	<b>Symbolic variable</b>	<b>A</b>	16KB (Max. 16KB retain setting available)	
	<b>M</b>	M0000 ~ M1023F (16,384 points)		<b>Input variable</b>	<b>I</b>	2KB (%IX 15.15.63)
	<b>K</b>	K0000 ~ K4095F (65,536 points)	<b>Output variable</b>		<b>Q</b>	2KB (%QX 15.15.63)
	<b>L</b>	L0000 ~ L2047F (32,768 points)		<b>Direct variable</b>	<b>M</b>	8KB (Max. retain setting available)
	<b>F</b>	F0000 ~ F1023F (16,384 points)	<b>R</b>		20KB (1 block)	
	<b>T</b>	100ms, 10ms, 1ms: T0000 ~ T1023 (1,024) (Adjustable by parameter setting)	<b>W</b>		20KB	
	<b>C</b>	C0000 ~ C1023 (1,024)	<b>Flag variable</b>		<b>F</b>	2KB
	<b>S</b>	S00.00 ~ S127.99		<b>K</b>	8KB	
	<b>D</b>	D0000 ~ D10239 (10,240 word)		<b>L</b>	4KB	
	<b>U</b>	U00.00 ~ U0A.31 (Analog data refresh area: 352 word)		<b>U</b>	1KB	
	<b>Z</b>	Z000 ~ Z127 (128 word)	<b>Flash area</b>		20KB (2 block)	
	<b>R</b>	R0000 ~ R10236 (10,240 word)				

\*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																																							
		TB2	485+	TB1	RX	<table border="1"> <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																																							
		TB2	PE	TB1	AC100	<table border="1"> <tr><td>⊕</td><td>AC100</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	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	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	⊕																																										
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 border="1"> <tr><td>⊕</td><td>AC100</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	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	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
	TB05	TB1	AC100	TB1	AC100	TB1
	TB04	TB3	-240V	TB3	-240V	TB3
	TB07	TB5	Q00	TB5	Q00	TB5
	TB06	TB7	Q01	TB7	Q01	TB7
	TB09	TB9	Q02	TB9	Q02	TB9
	TB10	TB11	N	TB11	N	TB11
	TB12	TB13	Q04	TB13	Q04	TB13
	TB14	TB15	Q06	TB15	Q06	TB15
	TB16	TB17	NC	TB17	NC	TB17
	TB18	TB19	NC	TB19	NC	TB19
	TB20	TB21	NC	TB21	NC	TB21
	TB22	TB23	24V	TB23	24V	TB23
	TB24	24G				TB24

## XBC/XEC-DR30SU

## XBC/XEC-DN30SU

## XBC/XEC-DP30SU

Input wiring  
(sink/source type)

Circuit configuration		No.	Contact	No.	Contact	Type
	TB6	TB1	RX	TB1	RX	TB1
	TB23	TB3	TX	TB3	TX	TB3
	TB24	TB5	SG	TB5	SG	TB5
	COM	TB7	01	TB7	01	TB7
		TB9	03	TB9	03	TB9
		TB11	05	TB11	05	TB11
		TB13	07	TB13	07	TB13
		TB15	09	TB15	09	TB15
		TB17	0B	TB17	0B	TB17
		TB19	0D	TB19	0D	TB19
		TB21	0F	TB21	0F	TB21
		TB23	11	TB23	11	TB23
	TB24	COM				TB24

## XBC/XEC-DR30SU

Relay output wiring

Circuit configuration		No.	Contact	No.	Contact	Type
	TB5	TB1	AC100	TB1	AC100	TB1
	TB4	TB3	-240V	TB3	-240V	TB3
	TB04	TB5	40	TB5	40	TB5
	TB07	TB7	41	TB7	41	TB7
	TB06	TB9	42	TB9	42	TB9
	TB09	TB11	NC	TB11	NC	TB11
	TB10	TB13	44	TB13	44	TB13
	TB08	TB15	46	TB15	46	TB15
	TB16	TB17	NC	TB17	NC	TB17
	TB12	TB19	48	TB19	48	TB19
	TB19	TB21	4A	TB21	4A	TB21
	TB22	TB23	24V	TB23	24V	TB23
	TB18	24G				TB24

\* 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**

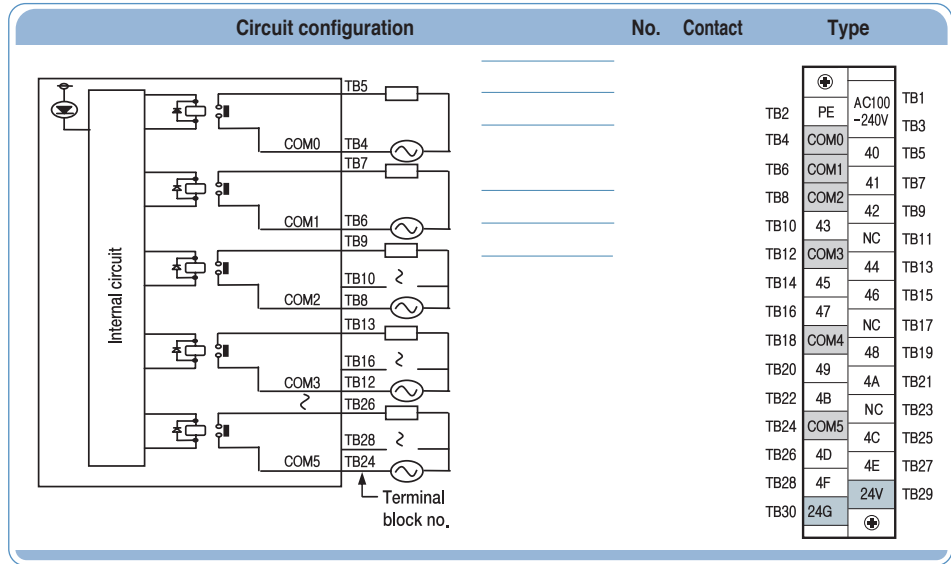
**XBC/XEC-DN40SU**

**XBC/XEC-DP40SU**

DC24 Input wiring  
(sink/source type)

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

## XBC/XEC-DR40SU Relay output wiring



TB2	PE	AC100-240V	TB1
TB4	COM0	40	TB3
TB6	COM1	41	TB5
TB8	COM2	42	TB7
TB10	43	NC	TB9
TB12	COM3	44	TB11
TB14	45	46	TB13
TB16	47	NC	TB15
TB18	COM4	48	TB17
TB20	49	4A	TB19
TB22	4B	NC	TB21
TB24	COM5	4C	TB23
TB26	4D	4E	TB25
TB28	4F	24V	TB27
TB30	24G	⊕	TB29

**No. Contact**

TB2	PE	TB1	AC100	<table border="1" style="width: 100%; border-collapse: collapse;"> <tbody> <tr><td>TB2</td><td>PE</td><td>AC100-240V</td><td>TB1</td></tr> <tr><td>TB4</td><td>COM0</td><td>00</td><td>TB3</td></tr> <tr><td>TB6</td><td>COM1</td><td>01</td><td>TB5</td></tr> <tr><td>TB8</td><td>COM2</td><td>02</td><td>TB7</td></tr> <tr><td>TB10</td><td>03</td><td>N</td><td>TB9</td></tr> <tr><td>TB12</td><td>COM3</td><td>04</td><td>TB11</td></tr> <tr><td>TB14</td><td>05</td><td>06</td><td>TB13</td></tr> <tr><td>TB16</td><td>07</td><td>NC</td><td>TB15</td></tr> <tr><td>TB18</td><td>COM4</td><td>08</td><td>TB17</td></tr> <tr><td>TB20</td><td>09</td><td>10</td><td>TB19</td></tr> <tr><td>TB22</td><td>11</td><td>NC</td><td>TB21</td></tr> <tr><td>TB24</td><td>COM5</td><td>12</td><td>TB23</td></tr> <tr><td>TB26</td><td>13</td><td>14</td><td>TB25</td></tr> <tr><td>TB28</td><td>15</td><td>24V</td><td>TB27</td></tr> <tr><td>TB30</td><td>24G</td><td>⊕</td><td>TB29</td></tr> </tbody> </table>	TB2	PE	AC100-240V	TB1	TB4	COM0	00	TB3	TB6	COM1	01	TB5	TB8	COM2	02	TB7	TB10	03	N	TB9	TB12	COM3	04	TB11	TB14	05	06	TB13	TB16	07	NC	TB15	TB18	COM4	08	TB17	TB20	09	10	TB19	TB22	11	NC	TB21	TB24	COM5	12	TB23	TB26	13	14	TB25	TB28	15	24V	TB27	TB30	24G	⊕	TB29
TB2	PE	AC100-240V	TB1																																																													
TB4	COM0	00	TB3																																																													
TB6	COM1	01	TB5																																																													
TB8	COM2	02	TB7																																																													
TB10	03	N	TB9																																																													
TB12	COM3	04	TB11																																																													
TB14	05	06	TB13																																																													
TB16	07	NC	TB15																																																													
TB18	COM4	08	TB17																																																													
TB20	09	10	TB19																																																													
TB22	11	NC	TB21																																																													
TB24	COM5	12	TB23																																																													
TB26	13	14	TB25																																																													
TB28	15	24V	TB27																																																													
TB30	24G	⊕	TB29																																																													
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	24G	TB29	24V																																																													

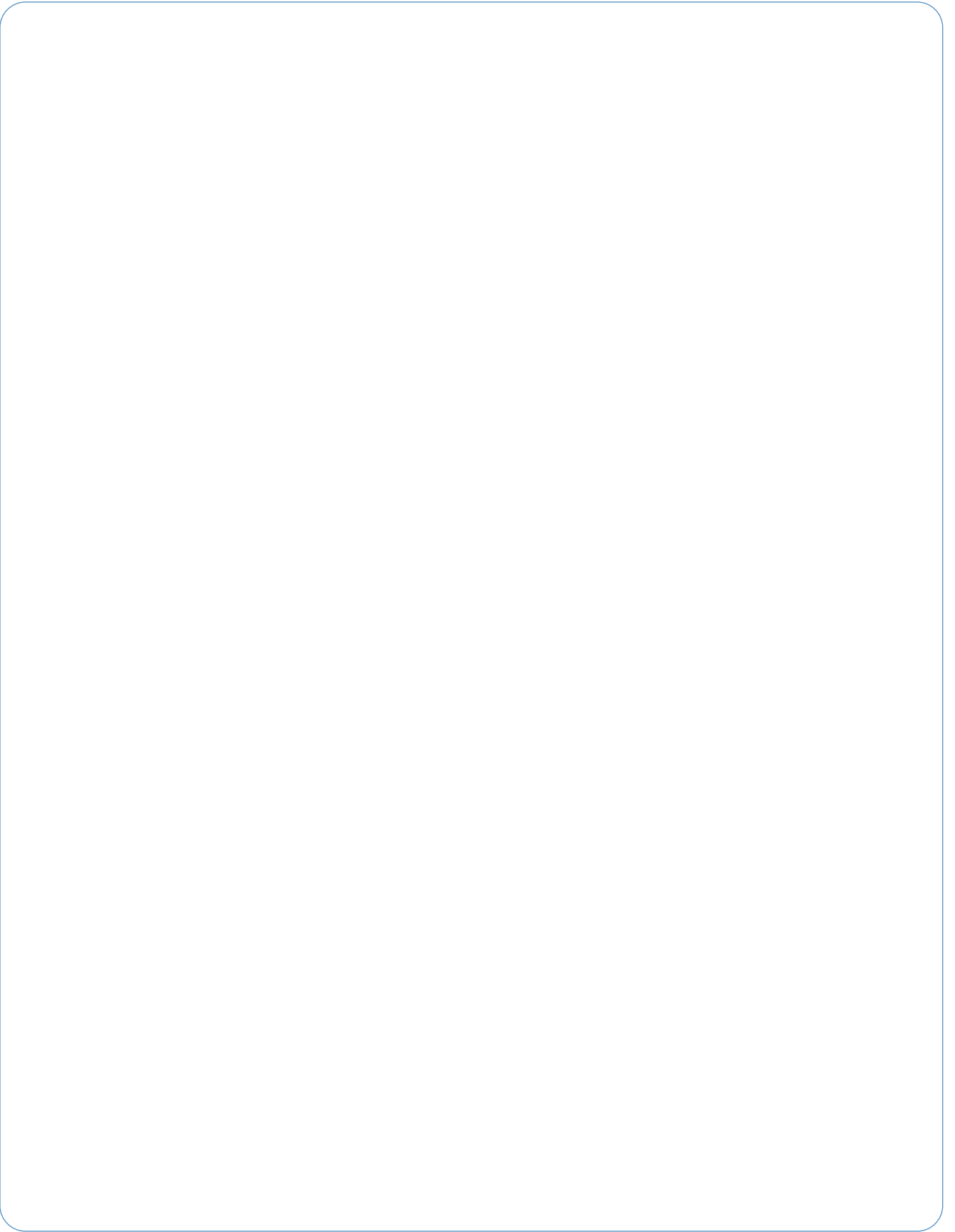


## XBC/XEC-DN60SU Transistor output wiring (sink type)

Circuit configuration	No.	Contact	Type
	TB2	PE	AC100
	TB4	COM0	-240V
	TB6	COM1	40
	TB8	COM2	41
	TB10	43	42
	TB12	COM3	P
	TB14	45	44
	TB16	47	46
	TB18	COM4	NC
	TB20	49	48
	TB22	4B	4A
	TB24	COM5	NC
	TB26	4D	4C
	TB28	4F	4E
	TB30	COM6	NC
	TB32	51	50
	TB34	53	52
	TB36	COM7	NC
	TB38	55	54
	TB40	57	56
TB42	24G	24V	

### No. Contact

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/XEC-SU







# XBC/XEC E

Economic

## C o n t e n t s

Performance specifications	42
Wiring	43



## Economic

### Performance specifications

Item	Specifications ('E' type)			
	XBC/XEC-DR10E XBC/XEC-DN10E XBC/XEC-DP10E	XBC/XEC-DR14E XBC/XEC-DN14E XBC/XEC-DP14E	XBC/XEC-DR20E XBC/XEC-DN20E XBC/XEC-DP20E	XBC/XEC-DR30E XBC/XEC-DN30E 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-D×××E), 50 KB (XEC-D×××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 border="1"> <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>NC</td> <td>NC</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	NC	NC	TB13	COM	⊕	
		⊕	RX	TB1																										
		485+	TX	TB3																										
		485-	SG	TB5																										
		00	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																								
		TB2	PE	TB1	AC100	<table border="1"> <tr> <td>⊕</td> <td>AC100</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>NC</td> <td>24V</td> <td>TB13</td> </tr> <tr> <td>24G</td> <td>⊕</td> <td>TB15</td> </tr> </table>	⊕	AC100	TB1	PE	~240V	TB3	COM0	40	TB5	COM1	41	TB7	COM2	42	TB9	43	NC	TB11	NC	24V	TB13	24G	⊕	TB15
		⊕	AC100	TB1																										
		PE	~240V	TB3																										
		COM0	40	TB5																										
		COM1	41	TB7																										
		COM2	42	TB9																										
		43	NC	TB11																										
		NC	24V	TB13																										
		24G	⊕	TB15																										
		TB4	COM0	TB3	~240V																									
		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	<table border="1"> <tr> <td>⊕</td> <td>AC100</td> <td>TB1</td> </tr> <tr> <td>PE</td> <td>~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> </table>	⊕	AC100	TB1	PE	~240V	TB3	P	00	TB5	COM0	01	TB7	COM1	02	TB9	03	NC	TB11	NC	24V	TB13	24G	⊕	
		⊕	AC100	TB1																										
		PE	~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																											

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

Circuit configuration		No.	Contact	No.	Contact	Type																								
		TB2	PE	TB1	AC100	<table border="1"> <tr> <td>⊕</td> <td>AC100</td> <td>TB1</td> </tr> <tr> <td>PE</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> </table>	⊕	AC100	TB1	PE	~240V	TB3	N	00	TB5	COM0	01	TB7	COM1	02	TB9	03	NC	TB11	NC	24V	TB13	24G	⊕	
		⊕	AC100	TB1																										
		PE	~240V	TB3																										
		N	00	TB5																										
		COM0	01	TB7																										
		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 E

**XBC/XEC-DR14E**  
**XBC/XEC-DN14E**  
**XBC/XEC-DP14E**  
 Input wiring  
 (sink/source type)

Circuit configuration		No.	Contact	No.	Contact	Type															
	TB2	485+	TB1	RX	<table border="1"> <tr><td>485+</td><td>RX</td></tr> <tr><td>485-</td><td>TX</td></tr> <tr><td>00</td><td>SG</td></tr> <tr><td>02</td><td>01</td></tr> <tr><td>04</td><td>03</td></tr> <tr><td>06</td><td>05</td></tr> <tr><td>COM</td><td>07</td></tr> <tr><td></td><td>+</td></tr> </table>	485+	RX	485-	TX	00	SG	02	01	04	03	06	05	COM	07		+
	485+	RX																			
	485-	TX																			
	00	SG																			
	02	01																			
	04	03																			
	06	05																			
	COM	07																			
		+																			
	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															
	TB2	PE	TB1	AC100	<table border="1"> <tr><td>PE</td><td>AC100</td></tr> <tr><td>COM0</td><td>-240V</td></tr> <tr><td>COM1</td><td>40</td></tr> <tr><td>COM2</td><td>41</td></tr> <tr><td>43</td><td>42</td></tr> <tr><td>45</td><td>44</td></tr> <tr><td>24G</td><td>24V</td></tr> <tr><td></td><td>+</td></tr> </table>	PE	AC100	COM0	-240V	COM1	40	COM2	41	43	42	45	44	24G	24V		+
	PE	AC100																			
	COM0	-240V																			
	COM1	40																			
	COM2	41																			
	43	42																			
	45	44																			
	24G	24V																			
		+																			
	TB4	COM0	TB3	-240V																	
	TB6	COM1	TB5	40																	
	TB8	COM2	TB7	41																	
	TB10	43	TB9	42																	
	TB12	NC	TB11	NC																	
TB14	24G	TB13	24V																		

**XBC/XEC-DN14E**  
 Transistor output wiring  
 (sink type)

Circuit configuration		No.	Contact	No.	Contact	Type															
	TB2	PE	TB1	AC100	<table border="1"> <tr><td>PE</td><td>AC100</td></tr> <tr><td>P</td><td>-240V</td></tr> <tr><td>COM0</td><td>00</td></tr> <tr><td>COM1</td><td>01</td></tr> <tr><td>03</td><td>02</td></tr> <tr><td>05</td><td>04</td></tr> <tr><td>24G</td><td>24V</td></tr> <tr><td></td><td>+</td></tr> </table>	PE	AC100	P	-240V	COM0	00	COM1	01	03	02	05	04	24G	24V		+
	PE	AC100																			
	P	-240V																			
	COM0	00																			
	COM1	01																			
	03	02																			
	05	04																			
	24G	24V																			
		+																			
	TB4	P	TB3	-240V																	
	TB6	COM0	TB5	00																	
	TB8	COM1	TB7	01																	
	TB10	03	TB9	02																	
	TB12	05	TB11	04																	
TB14	24G	TB13	24V																		

**XBC/XEC-DP14E**  
 Transistor output wiring  
 (source type)

Circuit configuration		No.	Contact	No.	Contact	Type															
	TB2	PE	TB1	AC100	<table border="1"> <tr><td>PE</td><td>AC100</td></tr> <tr><td>N</td><td>-240V</td></tr> <tr><td>COM0</td><td>00</td></tr> <tr><td>COM1</td><td>01</td></tr> <tr><td>03</td><td>02</td></tr> <tr><td>05</td><td>04</td></tr> <tr><td>24G</td><td>24V</td></tr> <tr><td></td><td>+</td></tr> </table>	PE	AC100	N	-240V	COM0	00	COM1	01	03	02	05	04	24G	24V		+
	PE	AC100																			
	N	-240V																			
	COM0	00																			
	COM1	01																			
	03	02																			
	05	04																			
	24G	24V																			
		+																			
	TB4	N	TB3	-240V																	
	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 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	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 E

**XBC/XEC-DR30E**  
**XBC/XEC-DN30E**  
**XBC/XEC-DP30E**  
 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	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		

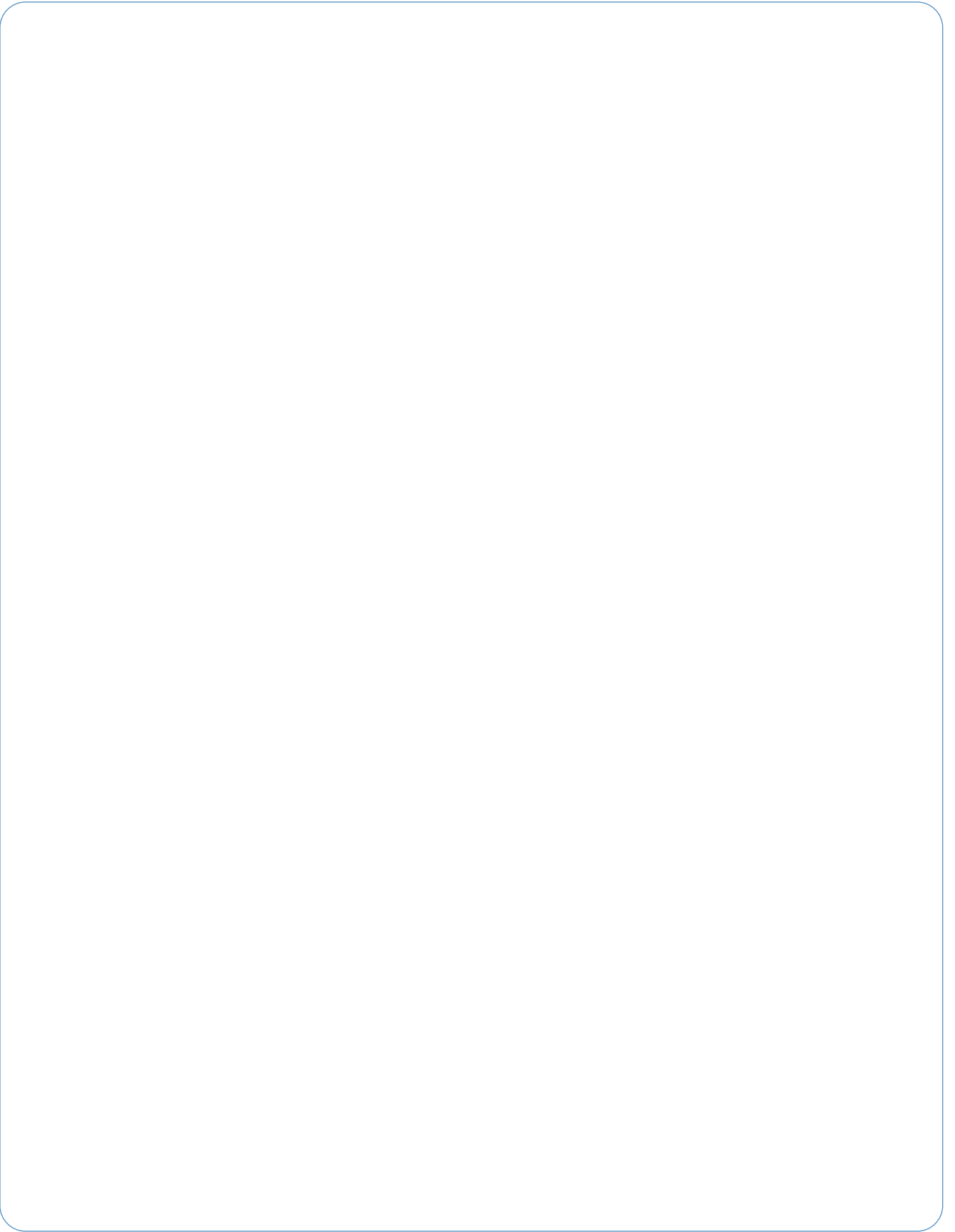
**XBC/XEC-DN30E**  
 Transistor output wiring  
 (sink type)

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		

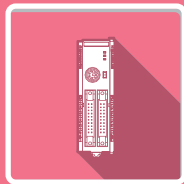
**XBC/XEC-DP30E**  
 Transistor output wiring  
 (source type)

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



XBC/KEC E



# XBM Slim

Slim

## C o n t e n t s

General specification .....	50
Performance specifications .....	51
Wiring .....	55







# XGB General specification

## Slim

### Modular type unit

(XBM-DN32H, DN32HP, DN32S, DR16S, DN16S)



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/s <sup>2</sup> (1G)	-	
	Continuous vibration			
	Frequency	Acceleration	Pulse width	
10 ≤ f < 57Hz	-	0.035mm		
57 ≤ f ≤ 150Hz	4.9m/s <sup>2</sup> (0.5G)	-		
Shock resistance	<ul style="list-style-type: none"> <li>• Peak acceleration: 147m/s<sup>2</sup> (15g)</li> <li>• Duration: 11ms</li> <li>• Pulse waveform: Half-sine, 3times each direction per each axis</li> </ul>			IEC61131-2
Noise resistance	Square wave impulse noise	±500 V		LS ELECTRIC 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	
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			

\*1) 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

## Common performance specifications for CPU



Item	Specifications		Remark
	XBM-DN32H2/XBM-DN32HP, XBM-DP32H2/XBM-DP32HP		
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	LD(Ladder Diagram), Instruction List, SFC (Sequential Function Chart)ST (Structured Text)		
Number of instructions	Basic	28	
	Application	677	
Processing speed (Basic instruction)	40ns/step		
Program capacity	64kStep		
Max. I/O points	256 points (Main + Expansion 7 stages)		
Data area	P	P0000 ~ P2047F (32,768 points)	Input/Output
	M	M0000 ~ M2047F (32,768 points)	
	K	K0000 ~ K4095F (65,536 points)	
	L	L0000 ~ L4095F (65,536 points)	Link
	F	F0000 ~ F2047F (32,768 points)	
	T	100 <sup>ms</sup> , 10 <sup>ms</sup> , 1 <sup>ms</sup> : T0000 ~ T2047 (set by parameter)	Timer
	C	C0000 ~ C2047	Counter
	S	S00.00 ~ S127.99	Step
	D	D0000 ~ D32767	Data register
	U	U0.0 ~ U08.31	Analog Data
	Z	Z000 ~ Z127 (128word)	
	N	N0000 ~ N10239 (10,240 word)	
File register	P	RAM area 8block (R00000 ~ R32,767)	
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 4	
	File register	1	
Operation mode	RUN, STOP, DEBUG		
Self-diagnosis function	Detects errors of scan time, memory, I/O and power supply		
Program port	USB 1 channel		
Back-up method	Latch area setting in basic parameter		
Internal consumption current	540mA		
Weight	134g		

# XGB General specification

## Common performance specifications for CPU



Item		Specifications		Remark	
		XEM-DN32H2/XEM-DN32HP, XEM-DP32H2/XEM-DP32HP			
Program control metho		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		LD (Ladder Diagram), Instruction List, SFC (Sequential Function Chart) ST(Structured Text)			
Number of instructions	Operator	18			
	Basic function	136+Real number operation function			
	Basic function block	43			
	Dedicated function block	Special function dedicated function			
Processing speed (Basic instruction)		40ns/step			
Program capacity		384KB			
Max. I/O points		256 points (Main + Expansion 7 stages)			
Data area	Automatic variable (A)	64KB (All area retain setting available)			
	Input variable (I)	2 KB (%IX15.15.63)			
	Output variable (Q)	2 KB (%QX15.15.63)			
	Direct variable	M	32KB (All area retain setting available)		
		R	32KB (2block)		
		W	64KB		
	Flag variable	F	4KB		
		K	8KB		
		L	8KB		
		U	576KB		
		N0000 ~ N10239 (10,240 word)			
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 4			
	Positioning task	1			
Operation mode		RUN, STOP, DEBUG			
Self-diagnosis function		Detects errors of scan time, memory, I/O and power supply			
Program port		USB 1 channel			
Back-up method		Latch area setting in basic parameter			
Internal consumption current		540mA			
Weight		134g			

## Built in Function

Item		
<b>PID control</b>		Control by instruction, auto-tuning, PWM output, Forced output, Operation scan time setting, Antiwindup, Delta MV, SV lamp, Hybrid operation, Cascade operation
<b>Cnet</b>	<b>PID control</b>	Dedicated protocol(XGT) Modbus protocol User defined protocol , LS bus(inverter protocol)
	<b>Channel</b>	RS-232C 1 port and RS-485 1 port
<b>Enet</b>	<b>Transfer spec</b>	Cable: 100Base-TX, Speed: 100Mbps, Auto-MDIX*1, IEEE 802.3
	<b>Topology</b>	Star
	<b>Diagnosis</b>	Module information, Service condition
	<b>Protocol</b>	XGT dedicated, Modbus TCP/IP, user define frame
	<b>Service</b>	P2P, High Speed link, Remote connection, SMTP, SNTTP, Auto scan
<b>High speed counter</b>	<b>Performance</b>	1 phase: 200B'(2 phase: 100B')
	<b>channels</b>	1phase 4 channels, 2 phase 2 channels
	<b>Counter mode</b>	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>
	<b>Function</b>	<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>
<b>Position</b>	<b>Basic function</b>	No. of control axis: 6axis(XBM / XEM-DN32H2: 2 axis) Control method : Position control, Speed control, Speed/Position control, Position/Speed control Control Unit: Pulse, mm, inch, degree Position data: 400 steps for each axis(1~400) Operation mode: end, keep, continuous Operation method: single, repeat
	<b>Interpolation function</b>	<ul style="list-style-type: none"> <li>• 2/3/4/5/6 axis linear interpolation ( XBM/XEM-DN32H2: 2 axis linear interpolation )</li> <li>• 2 axis circular interpolation</li> <li>• 3 axis helical interpolation( not supported in XBM / XEM-DN32H2)</li> </ul>
	<b>Position</b>	Absolute method / Incremental method Position address range: -2,147,483,648 ~ 2,147,483,647(Pulse) Speed: max. 200kpps Acc/dec processing: Trapezoid-shaped , S-curve
	<b>Origin return method</b>	DOG + HOME (Off), DOG + HOME(On), Upper / Lower limit + HOME, DOG, High speed, / Lower limit, HOME
	<b>Jog operation</b>	Jog Operation, MPG Operation, Inching Operation
<b>Pulse catch</b>		10 $\mu$ S 4point (%IX0.0.0~%IX0.0.3), 50 $\mu$ S 4point (%IX0.0.4~%IX0.0.7)
<b>External point Interrupt</b>		10 $\mu$ S 4point (%IX0.0.0~%IX0.0.3), 50 $\mu$ S 4point (%IX0.0.4~%IX0.0.7)
<b>Input filter</b>		1,3,5,10,20,70,100ms

\*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

# XGB General specification

## Common performance specifications for CPU



Item	Specifications		Remark
	XBM-DN32H		
Program control metho	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	LD(Ladder Diagram), Instruction List, SFC (Sequential Function Chart)ST (Structured Text)		
Number of instructions	Basic	28	
	Application	677	
Processing speed (Basic instruction)	40ns/step		
Program capacity	64kStep		
Max. I/O points	256 points (Main + Expansion 7 stages)		
Data area	P	P0000 ~ P2047F (32,768 points)	Input/Ouput
	M	M0000 ~ M2047F (32,768 points)	
	K	K0000 ~ K4095F (65,536 points)	
	L	L0000 ~ L4095F (65,536 points)	Link
	F	F0000 ~ F2047F (32,768 points)	
	T	100 <sup>ms</sup> , 10 <sup>ms</sup> , 1 <sup>ms</sup> · T0000 ~ T2047 (set by parameter)	Timer
	C	C0000 ~ C2047	Counter
	S	S00.00 ~ S127.99	Step
	D	D0000 ~ D32767	Data register
	U	U0.0 ~ U08.31	Analog Data
	Z	Z000 ~ Z127 (128word)	
N	N0000 ~ N10239 (10,240 word)		
File resister	P	RAM area 8block (R00000 ~ R32,767)	
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 4	
	File resister	1	
Operation mode	RUN, STOP, DEBUG		
Self-diagnosis function	Detects errors of scan time, memory, I/O and power supply		
Program port	USB 1 channel		
Back-up method	Latch area setting in basic parameter		
Internal consumption current	540mA		
Weight	134g		

# Modular type unit

## Slim

### 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>		
<b>Data memory</b>			
<b>XBM</b>			
<b>Data area</b>	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)	

\*1) XBM-DR16S does not have built-in positioning function.

## XBM-DN32HP

16 point DC24V input wiring  
(Source/Sink type)

Circuit configuration		No.	Contact	No.	Contact	Type
	B20	00	A20	20		A20
	B19	01	A19	21		A19
	B18	02	A18	22		A18
	B17	03	A17	23		A17
	B16	04	A16	24		A16
	B15	05	A15	25		A15
	B14	06	A14	26		A14
	B13	07	A13	27		A13
	B12	08	A12	28		A12
	B11	09	A11	29		A11
	B10	0A	A10	2A		A10
	B09	0B	A9	2B		A09
	B08	0C	A8	2C		A08
	B07	0D	A7	2D		A07
	B06	0E	A6	2E		A06
	B05	0F	A5	2F		A05
B04	NC	A4	P	A04		
B03	NC	A3	P	A03		
B02	IN_COM	A2	OUT_COM	A02		
B01	IN_COM	A1	OUT_COM	A01		

## XBM-DN32HP

16 point transistor output  
(Sink type)

Circuit configuration		No.	Contact	Type
	B20	00	A20	A20
	B19	01	A19	A19
	B18	02	A18	A18
	B17	03	A17	A17
	B16	04	A16	A16
	B15	05	A15	A15
	B14	06	A14	A14
	B13	07	A13	A13
	B12	08	A12	A12
	B11	09	A11	A11
	B10	0A	A10	A10
	B09	0B	A9	A09
	B08	0C	A8	A08
	B07	0D	A7	A07
	B06	0E	A6	A06
	B05	0F	A5	A05
B04	NC	A4	A04	
B03	NC	A3	A03	
B02	IN_COM	A2	OUT_COM	A02
B01	IN_COM	A1	OUT_COM	A01



### XBM-DN32H

Input wiring  
(Sink / Source type)

Circuit configuration		No.	Contact	No.	Contact	Type
	B20	00	A20	20		
	B19	01	A19	21		
	B18	02	A18	22		
	B17	03	A17	23		
	B16	04	A16	24		
	B15	05	A15	25		
	B14	06	A14	26		
	B13	07	A13	27		
	B12	08	A12	28		
	B11	09	A11	29		
	B10	0A	A10	2A		
	B09	0B	A9	2B		
	B08	0C	A8	2C		
	B07	0D	A7	2D		
	B06	0E	A6	2E		
	B05	0F	A5	2F		
	B04	NC	A4	P		
	B03	NC	A3	P		
	B02	IN_COM	A2	OUT_COM		
	B01	IN_COM	A1	OUT_COM		

### XBM-DN32H

Transistor output  
(Sink type)

Circuit configuration		No.	Contact	Type	
	B20	00	A20	20	
	B19	01	A19	21	
	B18	02	A18	22	
	B17	03	A17	23	
	B16	04	A16	24	
	B15	05	A15	25	
	B14	06	A14	26	
	B13	07	A13	27	
	B12	08	A12	28	
	B11	09	A11	29	
	B10	0A	A10	2A	
	B09	0B	A9	2B	
	B08	0C	A8	2C	
	B07	0D	A7	2D	
	B06	0E	A6	2E	
	B05	0F	A5	2F	
	B04	NC	A4	P	
	B03	NC	A3	P	
	B02	IN_COM	A2	OUT_COM	
	B01	IN_COM	A1	OUT_COM	

XBM Slim

### 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		A10 A09 A08 A07 A06 A05 A04 A03 A02 A01
	B09	21		
	B08	22		
	B07	23		
	B06	24		
	B05	25		
	B04	26		
	B03	27		
	B02	DC12 /24V		
	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		A10 A09 A08 A07 A06 A05 A04 A03 A02 A01
	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		A10 A09 A08 A07 A06 A05 A04 A03 A02 A01
	B09	21		
	B08	22		
	B07	23		
	B06	24		
	B05	25		
	B04	26		
	B03	27		
	B02	DC12 /24V		
	A10	28		
	A09	29		
	A08	2A		
	A07	2B		
	A06	2C		
	A05	2D		
	A04	2E		
A03	2F			
A02	COM			
A01	COM			

XBM Slim

## Slim

### Transistor output wiring (XBM-DN16S)

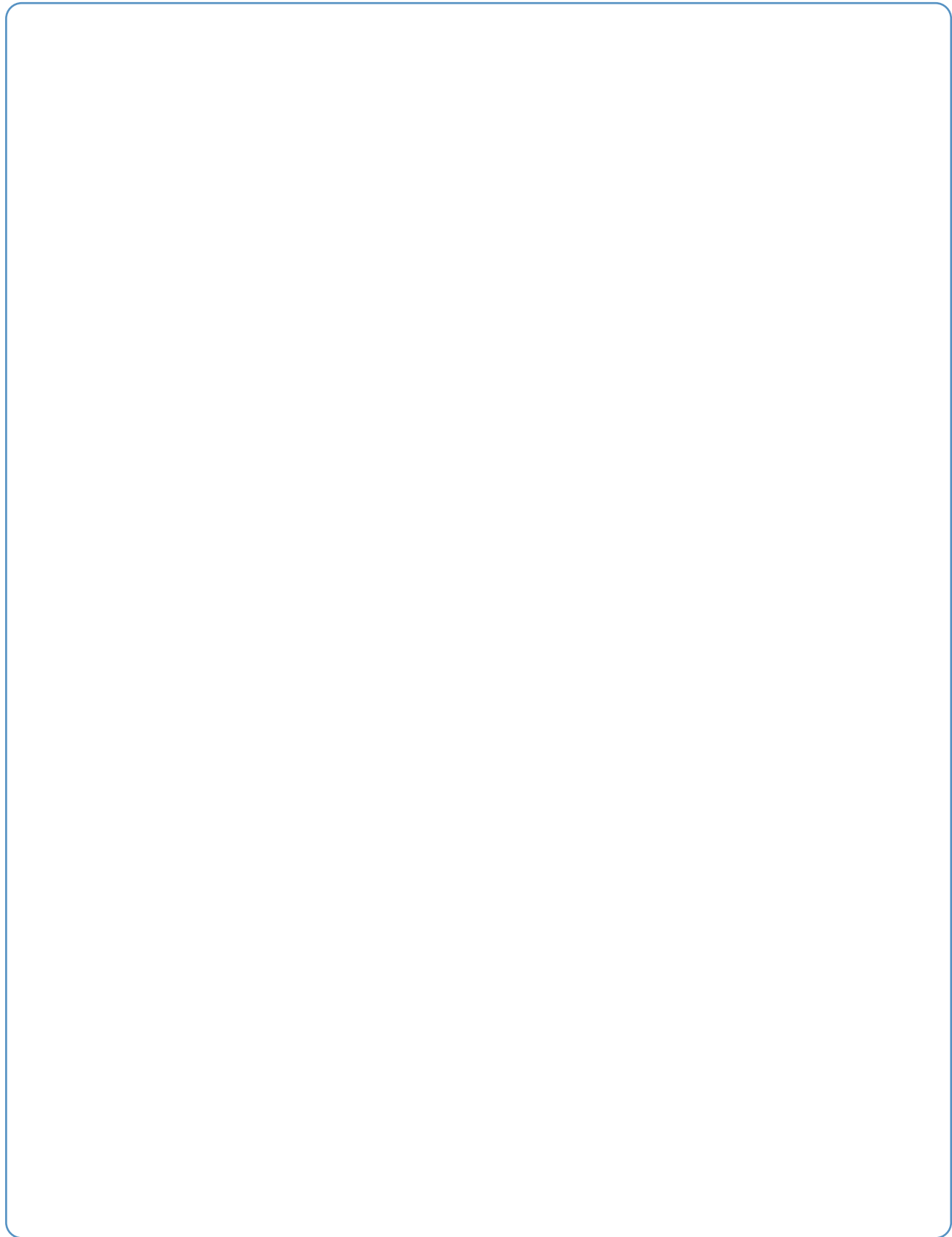
Circuit configuration		No.	Contact	Type
	B10	20		
	B09	21		
	B08	22		
	B07	23		
	B06	24		
	B05	25		
	B04	26		
	B03	27		
	B02	DC12/24V		
	B01	24V		
A10	NC			
A09	NC			
A08	NC			
A07	NC			
A06	NC			
A05	NC			
A04	NC			
A03	NC			
A02	COM			
A01	COM			

### 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

### C o n t e n t s

Input/Output specification .....	64
Names and functions .....	71
Built-in functions .....	75
Expansion .....	86
DC Input .....	86
Transistor Output .....	87
Relay Output .....	88
DC Input/Relay Output .....	89
Analog Input .....	91
Analog Output .....	92
Analog Input/Output .....	93
RTD .....	94
Thermocouple .....	95
Temperature controller module .....	96
Load Cell input module .....	98
Positioning module .....	99
EtherCAT positioning module .....	100
High Speed counter module .....	102
Modular type .....	103
Communication .....	104
Option modules/Smart link .....	108
Software .....	109
XGT Panel iXP2 Series .....	110
XGT Panel iXP Series .....	111
XGT Panel eXP2 Series .....	112
XGT Panel eXP Series .....	113
XGT Panel XP Series .....	114
Product list .....	115
Dimension .....	118





## 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 5.6kΩ (P00~P07: about 4.7kΩ)
Response time	Off → On
	On → Off
	1/3/5/10/20/70/100ms (Set by I/O parameter) Default: 3ms
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
	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
	Current
	DC12/24V ± 10% (Ripple voltage 4 Vp-p or less) 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 $\rightarrow$ On	1/3/5/10/20/70/100 ms (Setting by CPU parameter) Initial value: 3ms			
	On $\rightarrow$ 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
	DC 24V/1A, DC 100V/0.1A (L / R = 7ms) 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-DN30SU	XBC/XEC-DN40SU	XBC/XEC-DN60SU
	XBC/XEC-DR20SU	XBC/XEC-DR30SU	XBC/XEC-DR40SU	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	5.6kΩ (P00 ~ P07 : 2.7kΩ)			
Response time	Off → On	1/3/5/10/20/70/100ms (Setting by CPU parameter) Initial value : 3ms		
	On → Off			

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

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
	XBC/XEC-DP20SU	XBC/XEC-DP30SU	XBC/XEC-DP40SU	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 → On	DC 12/24V± 10% (Ripple voltage 4Vp-p or less)		
	On → Off	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
Insulation method	Relay insulation			
Rated load voltage/current	DC 24V 2A/AC 220V 2A (COSϕ = 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		
	Electrical	AC 220V/1.5A, AC 240V/1A (COSϕ= 0.7) 10 million times or more		
		AC 200V/1A, AC 240V/0.5A (COSϕ= 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			
		DC 24V / 1A, DC 100V / 0.1A (L / R = 7ms) 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	Modal	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

### XBM H Input specification

Model		Main unit
Specification		XBM-DN32H
Input point		16 point
Insulation method		Photo coupler insulation
Rated input voltage		DC24V
Rated input current		About 4mA (Contact point 0~3: about 5mA)
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 resistanceMechanical		About 5.6kΩ / (P00~P03: about 4.7kΩ)
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		10MΩ 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		40point terminal connector
Weight		134g

### Transistor output specification

Model		Main unit
Specification		XBM-DN32H
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, position (p00,p01,p02,p03) 0.1A/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 (rated load, resistive load)
	On → Off	
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	
Operation indicator		LED On when Output On
External connection method		4 point terminal block connector
Weight		134g

## 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	1/3/5/10/20/70/100ms		
	(Set by CPU parameter) Default : 3ms		
Common method	8 points/COM		16 points/COM

### Relay output specification

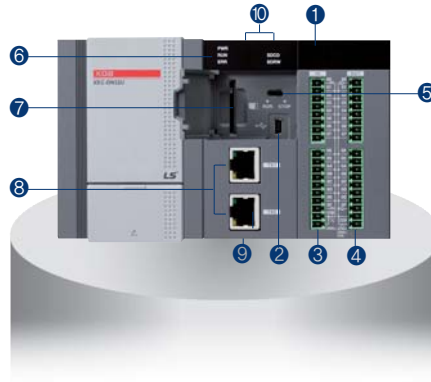
Item	XBM-DR16S	
Output point	8 points	
Insulation method	Relay insulation	
Rated load voltage / current	DC 24V 2A (Resistive load)/AC 220V 2A (COS $\phi$ = 1), 5A/COM	
Min. load voltage / current	DC 5V/1mA	
Max. load voltage	AC 250V, DC 125V	
Off leakage current	0.1mA (AC 220V, 60Hz)	
Max. On / Off frequency	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
Response time	Off $\rightarrow$ On	10 ms or less
	On $\rightarrow$ Off	12 ms 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	1 ms or less	
	1 ms or less (Rated load, Resistive load)	
Common method	8 point / COM	16 point / COM
External power supply	DC 12/24V $\pm$ 10% (Ripple voltage 4 Vp-p or less)	
	25mA or less (DC 24V connection)	
External connection method	20pin connector	

# Names and functions

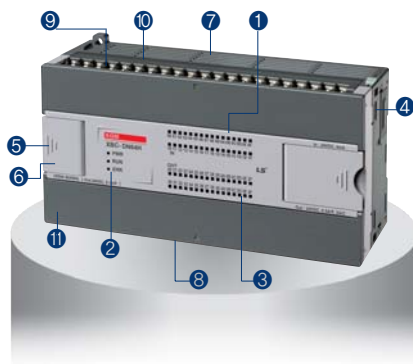
## Block type unit (U)



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 1 channel) 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

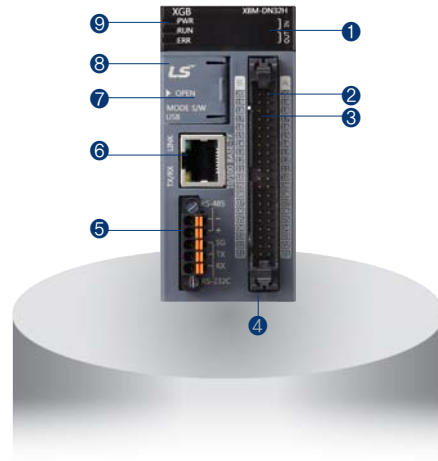
(High performance,  
Standard, Economic)



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-DN32H)



No.	Name	Descriptions
①	LED for displaying input, output	Displays the On/Off status of input, output contacts
②	Input connector	Terminal block receiving the actual input signal
③	Output connector	Terminal block outputting the actual output signal
④	Power supply connector	Power supply connector (24V)
⑤	Built-in serial communication connecting connector	Built-in RS-232C/485 connecting connector
⑥	Built-in ethernet connecting connector	Built-in Enet connecting connector
⑦	PADT connecting connector	PADT connecting connector
⑧	RUN/STOP mode switch	<ul style="list-style-type: none"> <li>• Sets the basic unit's operation mode.</li> <li>- STOP→RUN : Program's operation is executed.</li> <li>- RUN→STOP : Program's operation is stopped. (In case of STOP, the remote operation is available.)</li> </ul>
⑨	Status display LED	<ul style="list-style-type: none"> <li>• Displays the basic unit's operation status.</li> <li>- PWR(Red light On) : The power is supplied.</li> <li>- RUN(Green light On) : During RUN mode</li> <li>- ERR(Flickering red light) : Occurrence of errors during operation</li> <li>- 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.</li> <li>- RD/WR(Flickering red light) : During SD card Write</li> </ul>

## 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 T×D, R×D, 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*1 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	

\*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

## 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)	Availavle on Analog		
	<b>Specification</b>	<b>Input Range</b>		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.	
		<b>Input resistance</b>		1MΩ or more (voltage input), 250Ω (current iput)	
		<b>Max. resolution</b>		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)
<b>Accuracy</b>	±0.2% or less (When ambient temperature is 25°C) ±0.3% or less (When ambient temperature is 0 ~ 55°C)				
<b>Analog output</b>	<b>Channels</b>	Voltage 2 channels ,Current 2 channels			
	<b>Specification</b>	<b>Output Range</b>		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.	
		<b>Load resistance</b>		1MΩ or more(voltage output), 600Ω or less(current output)	
		<b>Max. resolution</b>		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)	
<b>Accuracy</b>	±0.2% or less (When ambient temperature is 25°C) ±0.3% or less (When ambient temperature is 0 ~ 55°C)				

## XGB H/SU/E, XBM S

### 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			
		Increasing/Decreasing operation setting by program			
	2 phase input	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):	1 point / channel (for each channel):		
		output contact point of basic unit available		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

## XBM HP

### Built in function

Items		Specification	Remark
		XBM-DN32HP	
<b>PID control</b>		Control by instruction, auto-tuning, PWM output, Forced output, Operation scan time setting, Antiwindup, Delta MV, SV lamp, Hybrid operation, Cascade operation	
<b>Cnet</b>	<b>PID control</b>	Dedicated protocol(XGT) Modbus protocol User defined protocol , LS bus(inverter protocol)	
	<b>Channel</b>	RS-232C 1 port and RS-485 1 port	
<b>Enet</b>	<b>Transfer spec</b>	Cable: 100Base-TX Speed: 100Mbps Auto-MDIX*1 IEEE 802.3	
	<b>Topology</b>	Star	
	<b>Diagnosis</b>	Module information, Service condition	
	<b>Protocol</b>	XGT dedicated, Modbus TCP/IP, user define frame	
	<b>Service</b>	P2P, High Speed link, Remote connection, SMTP, SNTP, Auto scan	
<b>High Speed Counte</b>	<b>Performance</b>	1 phase: 200kHz(2 phase: 100kHz)	
	<b>channels</b>	1phase 4 channels, 2 phase 2 channels	
	<b>Counter mode</b>	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>	
	<b>Function</b>	<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>	
<b>Position</b>	<b>Basic function</b>	No. of control axis: 2axis Pulse output type : pulse+ direction Position data: 80 steps for each axis(1~80) Operation mode: end, keep, continuous Operation method: single, repeat	
	<b>Interpolation function</b>	<ul style="list-style-type: none"> <li>• 2/3/4/5/6 axis linear interpolation(XBMH: 2 axis linear interpolation)</li> <li>• 2 axis circular interpolation</li> <li>• 3 axis helical interpolation( not supported in XBMH)</li> </ul>	
	<b>Position</b>	Absolute method / Incremental method Position address range: -2,147,483,648 ~ 2,147,483,647(Pulse) Speed range: 1~100,000pps(1pps unit) Acc/dec processing: Trapezoid-shaped	
	<b>Origin return method</b>	DOG + HOME (Off), DOG + HOME(On), Upper/Lower limit + HOME, DOG, High speed, Upper/Lower limit, HOME	
	<b>Jog operation</b>	Jog Operation, MPG Operation, Inching Operation	
<b>Pulse catch</b>		10μs 4point(P0000 ~ P0003), 50μs 4point(P0004 ~ P0007)	
<b>External point Interrupt</b>		10μs 4point(P0000 ~ P0003), 50μs 4point(P0004 ~ P0007)	
<b>Input filter</b>		1,3,5,10,20,70,100ms	

\*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

# XBM H

## Built in function

Items		Specification	Remark
		XBM-DN32H	
Built-in Function	<b>PID control</b>		Control by instruction, auto-tuning, PWM output, Forced output, Operation scan time setting, Antiwindup, Delta MV, SV lamp, Hybrid operation, Cascade operation
	<b>Cnet</b>	<b>PID control</b>	Dedicated protocol(XGT) Modbus protocol User defined protocol , LS bus(inverter protocol)
		<b>Channel</b>	RS-232C 1 port and RS-485 1 port
	<b>Enet</b>	<b>Transfer spec</b>	Cable: 100Base-TX Speed: 100Mbps Auto-MDIX <sup>*1</sup> IEEE 802.3
		<b>Topology</b>	Star
		<b>Diagnosis</b>	Module information, Service condition
		<b>Protocol</b>	XGT dedicated, Modbus TCP/IP, user define frame
		<b>Service</b>	P2P, High Speed link, Remote connection, SMTP, SNTP, Auto scan
	<b>High Speed Counte</b>	<b>Performance</b>	1 phase: 200kHz(2 phase: 100kHz)
		<b>channels</b>	1phase 4 channels, 2 phase 2 channels
		<b>Counter mode</b>	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>
		<b>Function</b>	<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>
	<b>Position</b>	<b>Basic function</b>	No. of control axis: 2axis Pulse output type : pulse+ direction Position data: 80 steps for each axis(1~80) Operation mode: end, keep, continuous Operation method: single, repeat
		<b>Interpolation function</b>	2/3/4/5/6 axis linear interpolation(XBMH: 2 axis linear interpolation) 2 axis circular interpolation 3 axis helical interpolation( not supported in XBMH)
		<b>Position</b>	Absolute method / Incremental method Position address range: -2,147,483,648 ~ 2,147,483,647(Pulse) Speed range: 1~100,000pps(1pps unit) Acc/dec processing: Trapezoid-shaped
<b>Origin return method</b>		DOG + HOME (Off), DOG + HOME(On), Upper/Lower limit + HOME, DOG, High speed, Upper/Lower limit, HOME	
<b>Jog operation</b>		Jog Operation, MPG Operation, Inching Operation	
	<b>Pulse catch</b>	10μS 4point(P0000 ~ P0003), 50μS 4point(P0004 ~ P0007)	
	<b>External point Interrupt</b>	10μS 4point(P0000 ~ P0003), 50μS 4point(P0004 ~ P0007)	
	<b>Input filter</b>	1,3,5,10,20,70,100ms	

\*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



## 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



## Parts designation | Block type unit

### Economic type (XBC-E)

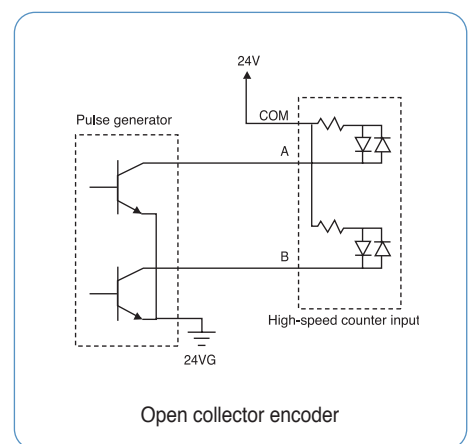
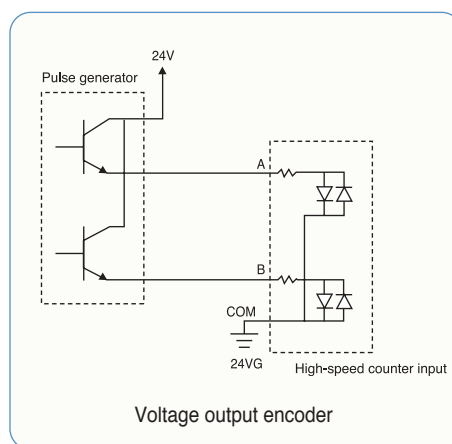
Terminal No.	Name		Usage	
	1-phase	2-Phase	1-phase	2-Phase
P000	Ch0 counter input	Ch0 A-phase input	Counter input terminal	A-phase input
P001	Ch1 counter input	Ch0 B-phase input	Counter input terminal	B-phase input
P002	Ch2 counter input	Ch2 A-phase input	Counter input terminal	A-phase input
P003	Ch3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

## Wiring



## 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

	Signal	Rated input voltage	Load voltage range	Max. load current /Inrush current	Max. voltage drop (On)	Leakage current (Off)	Response time
Output	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
	Signal	Rated input voltage/Current	Load voltage range	On voltage/Current	Off voltage/Current	Input resistance	Response time
Input	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	External power supply	→	-
	COM	Output COM	External 24V GND	External 24V GND	→	-

APPLICATION

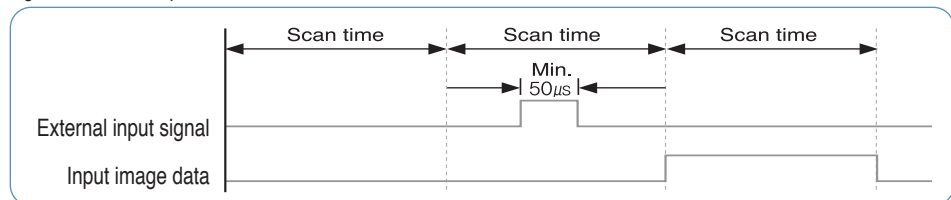
## Performance specification (PID)

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, ΔMV, ΔPV, etc	

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

## Pulse catch

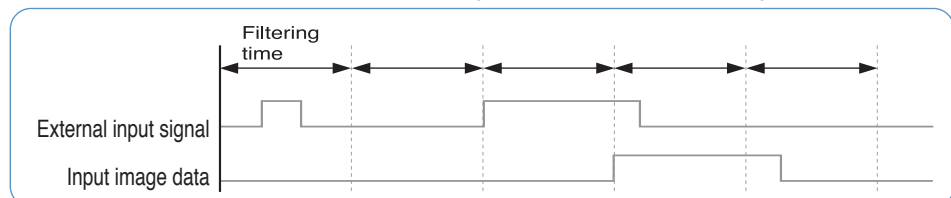
When On-condition time of input signal is shorter than 1 scan time (Min. 50μs), Pulse catch processes the input signal as normal input.



Item	Description			
	Block type unit			Modular type
	H	SU	E	S
Pulse catch	10μs: 4 points (P00000~P00003)	10μs: 2 points (P00000~P00001)	50μs: 4 points (P00000~P00003)	50μs: 8 points (P00000~P00007)
	50μs: 4 points (P00004~P00007)	50μs: 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)			

## I/O specifications | Block type unit

### 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.

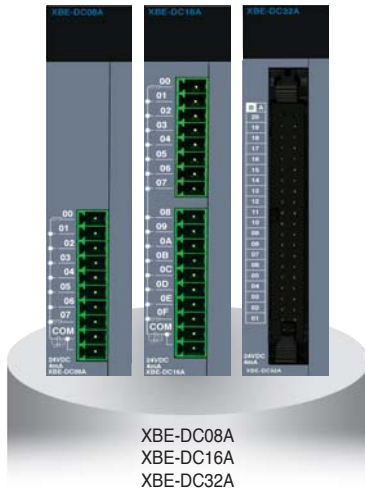
Classification	Description			
	Block type unit			Modular type
	H	SU	E	S
Initial task	1(_INT)			
Cyclic task	8			
I/O task	8	8	4	8
Internal device task	8			
External interrupt	10 $\mu$ S: 4 points (P00000~P00003) 50 $\mu$ S: 4 points (P00004~P00007)	10 $\mu$ S: 2 points (P00000~P00001) 50 $\mu$ S: 6 points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

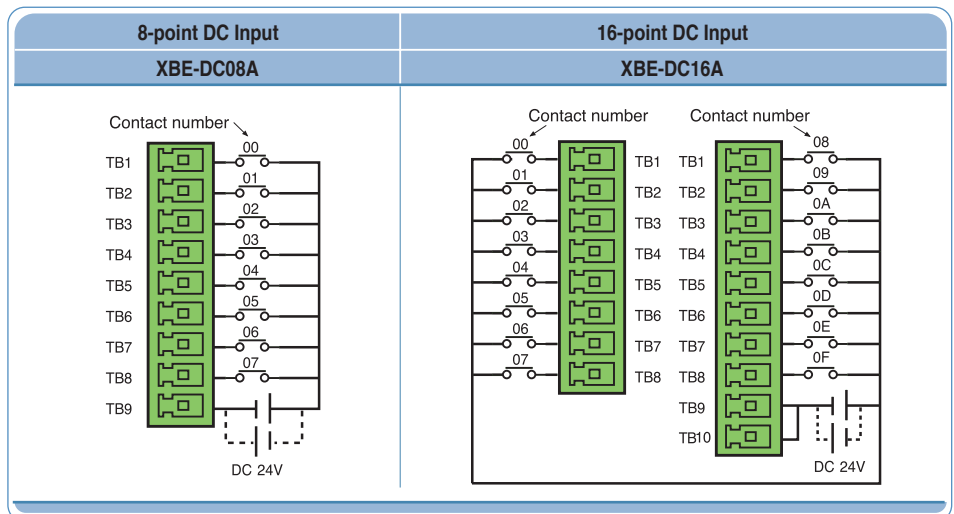
## Specification



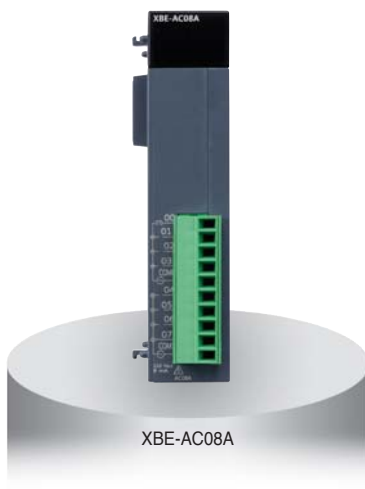
Specification	Model	XBE-DC08A	XBE-DC16A	XBE-DC32A
Input point		8 points	16 points	32 points
Rated input voltage/current		DC 24V / 4mA		
Operation voltage range		DC 20.4 ~ 28.8V (Ripple rate < 5%)		
Input resistance		5.6kΩ		
Response time	Off → On	1 / 3 / 5 / 10 / 20 / 70 / 100ms (setting by CPU parameter) 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]

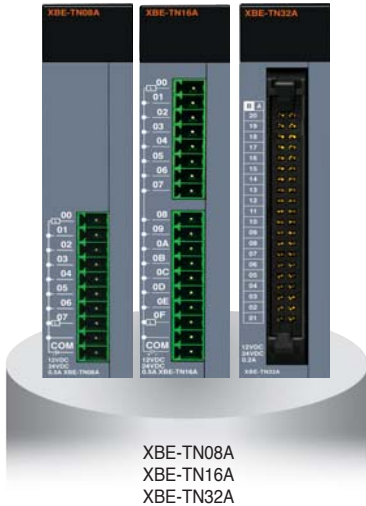


## Specification



Specification	Model	XBE-AC08A
Input point		8 point
Insulation method		Photo coupler insulation
Rated input voltage		AC100-120V(+10/-15%) 50/60Hz(±3Hz) (distortion rate < 5%)
Rated input current		Max. 12mA / point
Inrush current		Max. 200mA 1ms (AC132V)
On Voltage/Current		AC80V or higher / 5 mA or higher (50Hz, 60Hz)
Off Voltage/Current		AC30V or lower / 1 mA or lower (50Hz, 60Hz)
Input resistance		About 12kΩ(60Hz), About 15kΩ(50Hz)
Response time	Off → On	20 ms or less (AC100V 50Hz, 60Hz)
	On → Off	25 ms or less (AC100V 50Hz, 60Hz)
Insulation pressure		AC3000Vrms / 3Cycle (altitude 2000m)
Insulation resistance		10MΩ or more by Megohmmeter
Common method		4 point / COM
Weight		70 g

### Specification

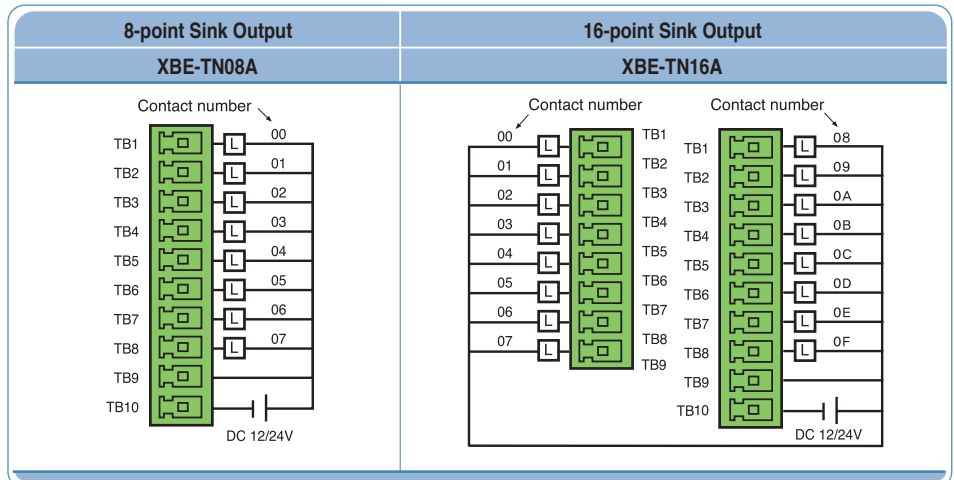


Specification	Model	XBE-TN08A	XBE-TP08A	XBE-TN16A	XBE-TP16A	XBE-TN32A	XBE-TP32A
Type		Sink	Source	Sink	Source	Sink	Source
Output point		8 point		16 point		32 point	
Rated load voltage		DC 12 / 24V					
Load voltage range		DC 10.2 ~ 26.4 V					
Max. load current		0.2A / 1point		0.2A / 1point, 2A / COM			
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	
	Range	DC 1 ~ 5V, DC 0 ~ 5V, DC 0 ~ 10V, DC -10 ~ 10V (Input resistance 1MΩ min )	Current DC 4 ~ 20mA DC 0 ~ 20mA (Input resistance 250MΩ )
Digital Output	Type	16bit binary data (Data : 14bit)	
	Range	Unsigned value	0 ~ 16000
		Signed value	-8000 ~ 8000
		Precise value	1000 ~ 5000 (1 ~ 5V), 0 ~ 5000 (0 ~ 5V), 0 ~ 10000 (0 ~ 10V)
Percentile value	0 ~ 10000		
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)
Max. conversion speed		1ms/channel	
Max. absolute input		DC ±15V	
Analog 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)



APPLICATION

## Specification

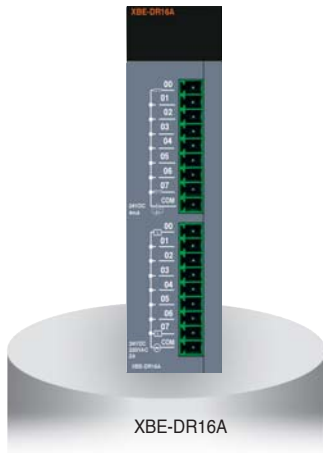


Specification	Model	XBE-RY08A	XBE-RY16A
Output point		8 points	16 points
Insulation method		Relay insulation	
Rated input voltage/Current		DC 24V 2A (resistive load)/AC 220V 2A (COS $\psi$ = 1), 5A /COM	
Min. load voltage/Current		DC 5V 1mA	
Max. load voltage		AC 250V, DC 125V	
Off leakage current		0.1mA (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 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 / 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)		
	Range	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			
Resolution		1/16000		
		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



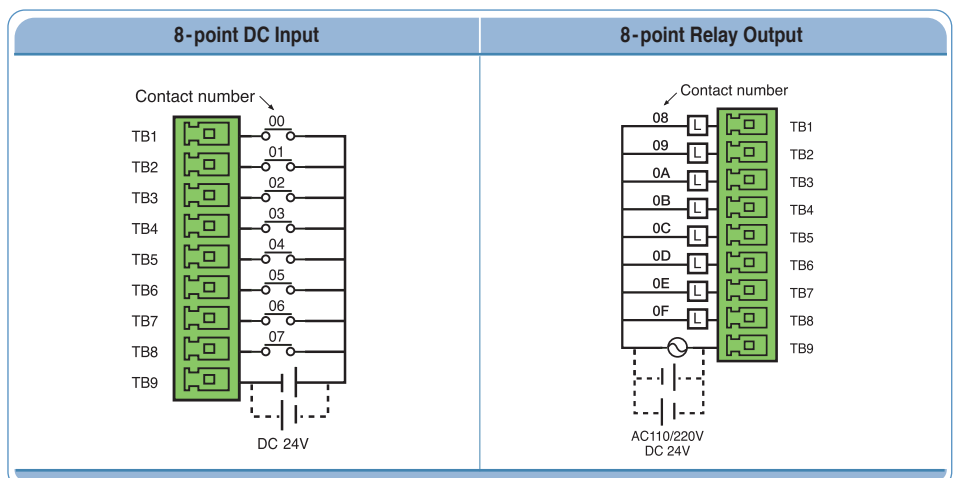
XBE-DR16A

Relay output 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

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 (COSψ = 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 (COSψ = 0.7) 100,000 times or more
		AC 200V/1A, AC 240V/0.5 (COSψ = 0.35) 100,000 tiems 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/1COM
Internal current consumption		250mA
Operation indicator		Output On, LED On
External connection method		9-pin terminal block connector

Wiring (XBE-DR16A)



APPLICATION

## DC Input specification



XBE-DN32A

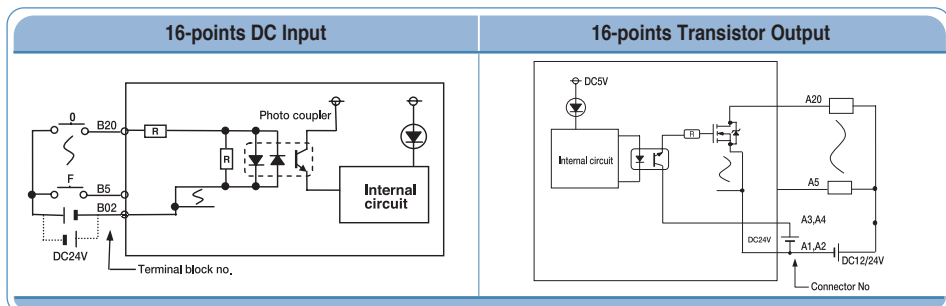
Model		DC input module
Specification		XBE-DN32A
Input point		16 point
Insulation method		Photo coupler insulation
Rated input voltage		DC24V
Rated input current		About 4mA
Input Derating		DC20.4~28.8V (ripple rate < 5%)
Operation voltage range		Refer to Derating diagram
On voltage / On current		DC 19V or higher / 3 mA or higher
Off voltage / Off current		DC 6V or less / 1mA or less
Input resistance		About 5.6kΩ
Response time	Off → On On → Off	1/3/5/10/20/70/100ms (set by CPU parameter) Default:3ms
Insulation pressure		AC 560Vrms / 3 Cycle (altitude 2000m)
Insulation resistance		10MΩ or more by Megohmmeter
Common method		16 point / COM
Proper cable size		0.3mm <sup>2</sup>
Current consumption		60mA (When all inputs and outputs are on)
Operation indicator		Input On, LED On
External connection method		40 pin connector
Weight		60g

## Transistor specification

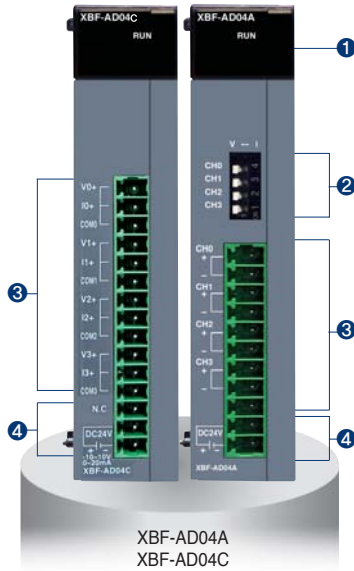
Model		Main unit
Specification		XBE-DN32A
Output point		16 point
Insulation method		Photo coupler insulation
Rated voltage		DC12/24V
Rated current		About 4mA
Operation voltage range		DC10.2~26.4V
Max. load voltage		0.2A / 1 point, 2A / 1COM
Off leakage current		0.1mA or less
Max. load voltage		0.7A / 10ms or less
Max. voltage drop (On)		DC 0.4V or less
Surge absorber		TVS Diode
Response time	Off → On On → Off	1ms or less 1ms or less (Rated load, resistive load)
Common method		32 point / COM
Proper cable size		0.3mm <sup>2</sup>
Current consumption		60mA (when all point On)
External power	Voltage Current	DC12/24V 10% (ripple voltage 4 Vp-p or less) 20mA or less (connecting DC24V)
Operation indicator		LED On when output On
External connection method		40 pin terminal block connector
Weight		60g

## Wiring

(XBE-DN32A)



### Specification

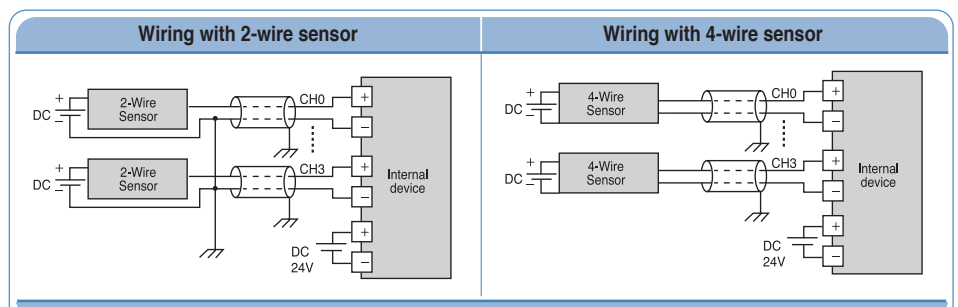


Item		XBF-AD04A		XBF-AD04C		XBF-AD08A		
Analog range	Item	Voltage	Current	Voltage	Current	Voltage	Current	
	Range	DC 0~10V (input resistance : 1MΩ min.)	DC 4~20mA, DC 0~20mA (input resistance : 250Ω)	DC 1 ~ 5V DC 0 ~ 5V DC 0 ~ 10V DC -10 ~ 10V (Input resistance : 1MΩ min)	DC 4 ~ 20mA DC 0 ~ 20mA (Input resistance : 250MΩ)	DC 1~5V DC 0~5V DC 0~10V (Input resistance : 250MΩ)	DC 4~20mA, DC 0~20mA (input resistance : 250Ω)	
Digital output	Type	12bit binary data		16bit binary data (Data : 14bit)		12bit binary data		
	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		DC ±15V		±15V			
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

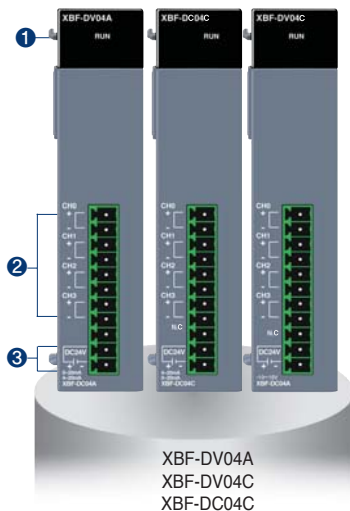
### Wiring



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

APPLICATION

## Specification

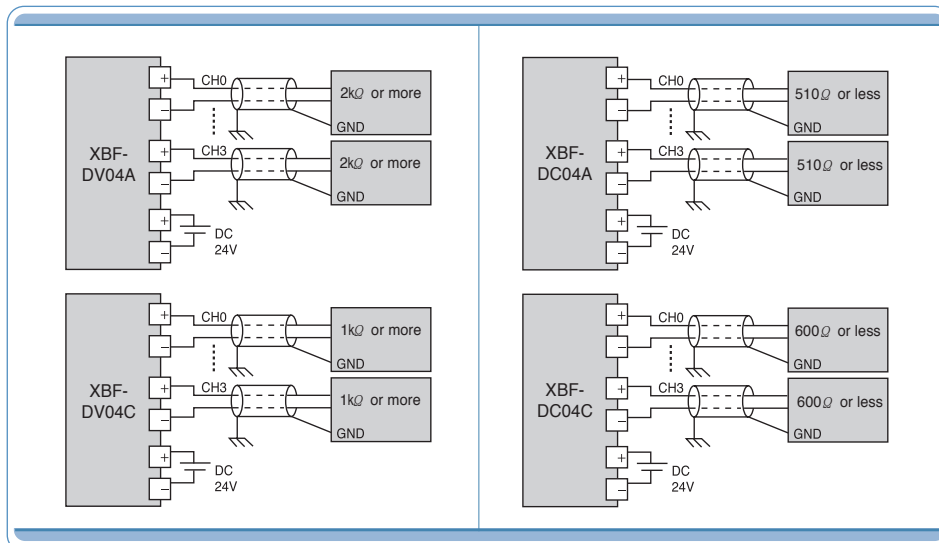


Item	XBF-DV04A	XBF-DV04C	XBF-DC04C	XBF-DC04A
<b>Analog range</b>	DC 0 ~ 10 V (Load resistance $\geq 2k\Omega$ )	DC 1 ~ 5V DC 0 ~ 5V DC 0 ~ 10V DC -10 ~ 10V (Input resistance : $1k\Omega$ or more)	DC 4 ~ 20mA DC 0 ~ 20mA (Input resistance : $600M\Omega$ or less)	4 ~ 20mA / 0 ~ 20mA (Load resistance $\leq 510\Omega$ )
<b>Analog range Selection</b>	-	-	-	XG 5000 I/O parameter
<b>Digital data</b>	<b>Output range</b>	0 ~ 10 V	-	4 ~ 20mA/0 ~ 20mA
	<b>Unsigned value</b>	0 ~ 4000	0 ~ 16000	0 ~ 4000
	<b>Signed value</b>	- 2000 ~ 2000	- 8000 ~ 8000	- 2000 ~ 2000
	<b>Precise value</b>	0 ~ 1000	1000~5000 (1~5V) 0~5000 (0~5V) 0~10000 (0~10V) -1000~10000 ( $\pm 10V$ )	4000~20000 (4~20mA) 0~20000 (0~20mA)
<b>Percentile value</b>	0~1000	0~10000	0~1000	0~1000
<b>Data format</b>	Data format of digital input is set by user program or I/O parameter (Setting for each channel is available.)			
<b>Resolution</b>	Resolution (1/4000)	1/1600		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
<b>Max. conversion speed</b>	1ms/channel	1ms/channel		1ms/channel
<b>Max. absolute output</b>	$\pm 15V$	-		$\pm 25mA$
<b>Accuracy</b>	$\pm 0.5\%$ or less	-		$\pm 0.5\%$ or less
<b>Analog output channels</b>	4 channel/module	4 channel/module		4 channel/module
<b>Insulation method</b>	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
<b>Connection terminal</b>	11-point terminal block			
<b>Occupied I/O points</b>	Fixed type: 64 points			
<b>Current consumption</b>	DC 5V	110mA	75mA	110mA
	DC 24V	70mA	170mA	120mA

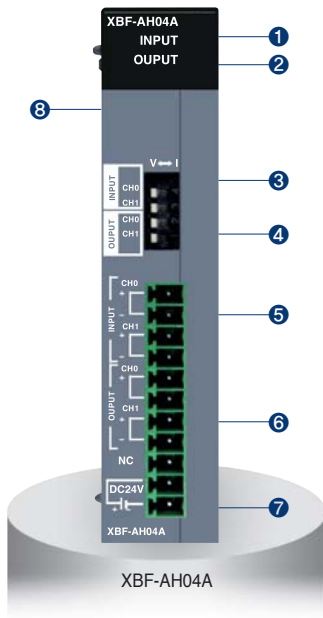
## Names and Functions

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

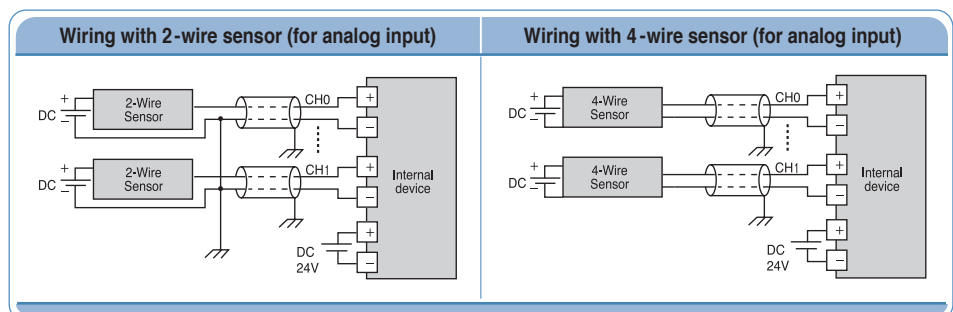


Item	XBF-AH04A	
	Input	Output
Analog channel	2 channels	2 channels
Analog range	DC 1 ~ 5V, DC 0 ~ 5V, DC 0 ~ 10V (Input resistance: 1 MΩ min.) DC 4 ~ 20mA, DC 0 ~ 20mA (Input resistance 250Ω)	DC 1 ~ 5V, DC 0 ~ 5V, DC 0 ~ 10V (Load resistance ≥ 2kΩ) DC 4 ~ 20mA, DC 0 ~ 20mA (Load resistance ≤ 510Ω)
Analog 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

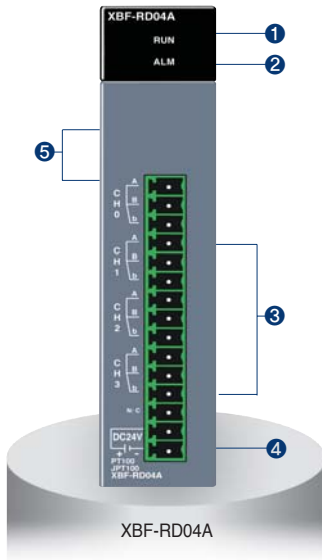
### Wiring



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

APPLICATION

## Specification

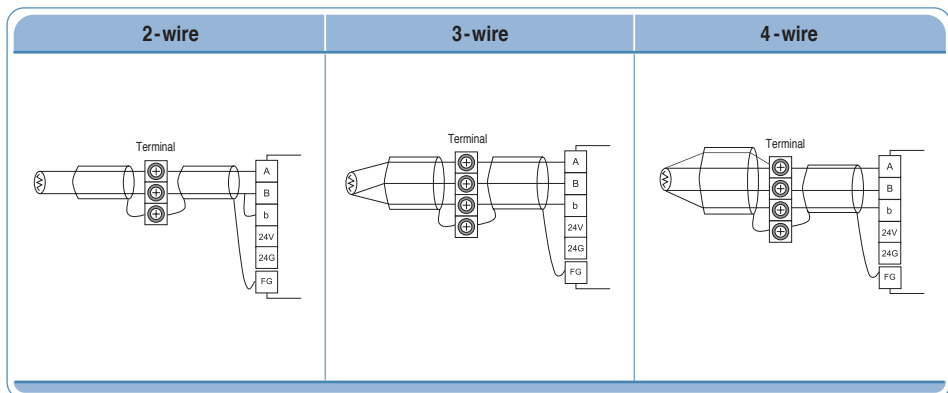


Item	XBF-RD04A	
Number of channels	4	
Sensor type	PT 100	JIS C1804-1997
	JPT 100	JIS C1604-1981, KS C1603-1991
Temperature range	PT 100	- 200 ~ 600°C
	JPT 100	- 200 ~ 600°C
Digital output	PT 100	- 2000 ~ 6000
	JPT 100	- 2000 ~ 6000
	Scaling	0 ~ 4000
Accuracy	25°C	±0.3% or less
	0 ~ 55°C	±0.5% or less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

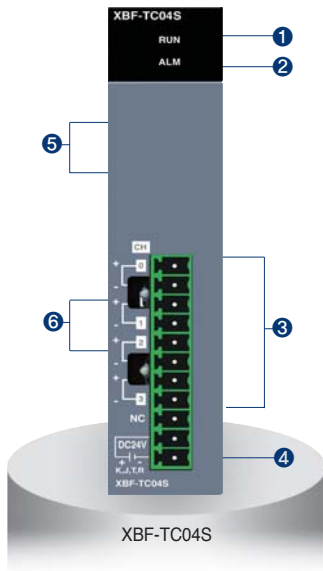
## Names and Functions

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



Specification

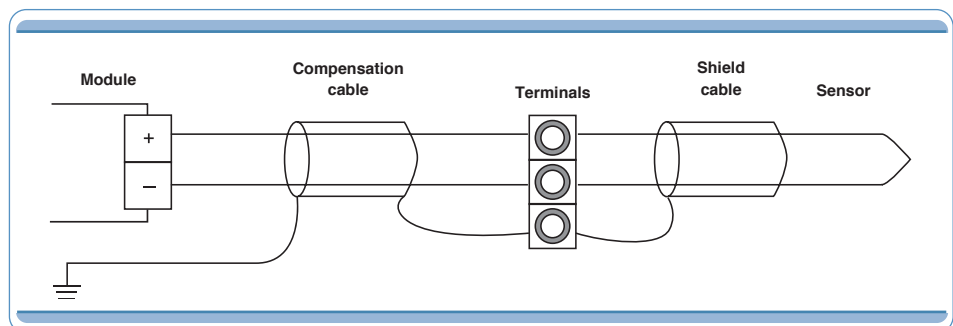


Item		XBF-TC04S
Number of channels		4
Input sensor type		Thermocouple K/J/T/R JIS C1602-1995
Temperature input range	K	-200.0°C ~ 1300.0°C (-328.0°F ~ 2372.0°F)
	J	-200.0°C ~ 1200.0°C (-328.0°F ~ 2192.0°F)
	T	-200.0°C ~ 400.0°C (-328.0°F ~ 752.0°F)
	R	0.0°C ~ 1700.0°C (32.0°F ~ 3092.0°F)
Digital output	Temperature display unit	Display down to one decimal place K, J, T: 0.1°C R: 0.5°C
	Scaling display (Defined by user)	Unsigned scaling (0 ~ 65535) Signed scaling (-32768 ~ 32767)
Accuracy	Normal temperature (25°C)	±0.2%
	Temperature coefficient (0 ~ 55°C)	±100 ppm / °C
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

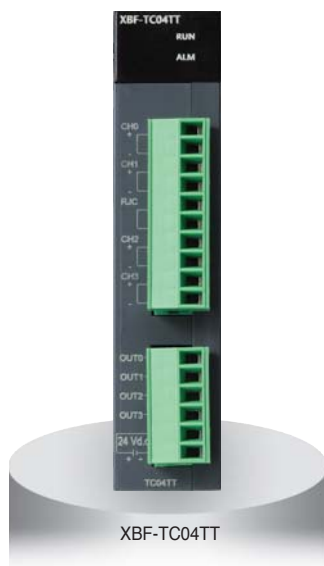
Names and Functions

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



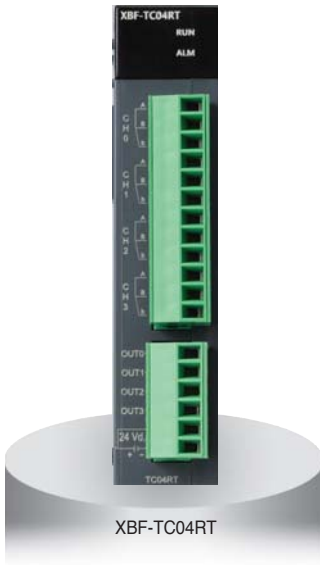
## Specification



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		
T		-200.0 ~ 800 °C		
Precision	Standard precision	±0.2% or less (25 °C, normal temperature, except -200~-100 °C for the T type)		
	Temperature coefficient	±100ppm/°C(0.01%/°C)		
Cold junction compensation	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	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: 400V AC, 50/60Hz 1min, leakage current 10mA or less	
	Input terminal-PLC power	Photo relay	Insulation resistor: 500V DC, 10 MΩ 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)		
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		

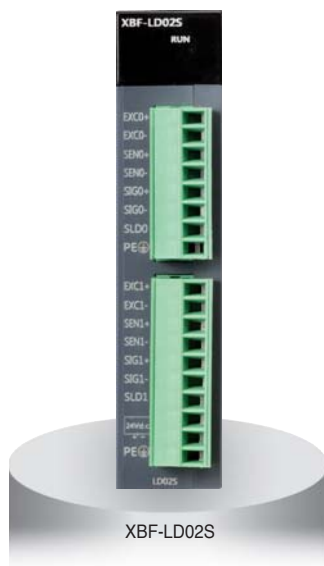


## Specification



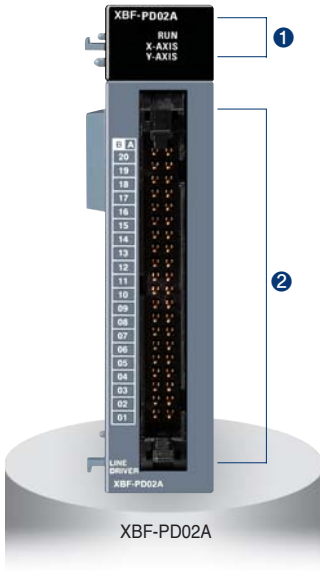
Item		XBF-TC04RT		
Control loop		4 loop		
RTD type and input range	Pt100	-200.0 ~ 850.0 °C		
	JPt100	-200.0 ~ 600.0 °C		
Precision	Standard precision	±0.2% or less (25 °C, normal temperature)		
	Temperature coefficient	±100ppm/°C(0.01%/°C)		
Sampling period		500ms/4 loop		
Control method		PID CONTROL, 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 MΩ or above	
	Output terminal- PLC power Between output channels	Non-insulation		
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	0.0~6.0mV			
Load Cell Output Sensitivity	0.125 $\mu$ V/(when the rated output of the load cell is 0.0 ~ 1.0mV/ V)			
Input Accuracy	$\pm 0.01\%$ or below (nonlinear accuracy, 25 $^{\circ}$ C) Zero Drift: $\pm 0.25^{\circ}$ C), Gain Drift: $\pm 15$ ppm/ $^{\circ}$ C			
Sampling Cycle (per channel)	5ms			
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 : 110mA, External DC24V : 280mA			

### Specification

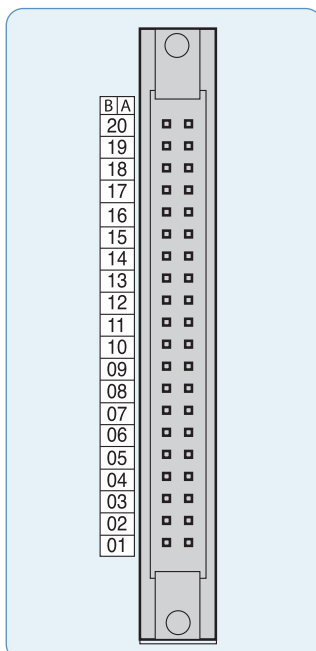


Item		XBF-PD02A
NO. of control axis		2 axis
Pulse output type		Line drive
Max. pulse output		2Mpps
Max. connection length		10m
Control mode		Position control, Speed control, Speed/Position switching control, Position/Speed switching control
Interpolation		Linear interpolation, Circular interpolation
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.

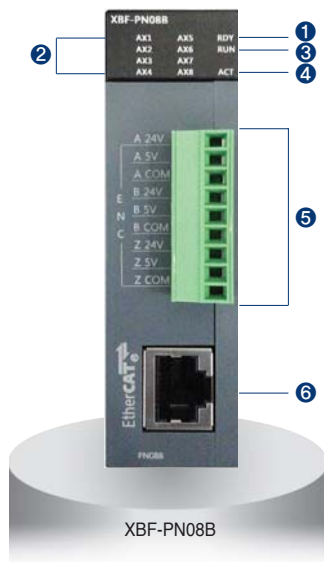
### Terminal



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	-

APPLICATION

## 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( $\mu$ m)	-214748364.8~-214748364.7( $\mu$ m)	-214748364.8~-214748364.7( $\mu$ m)
		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	0.01~2000000.00(B $\ddot{A}$ /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
A 24V	1	A 24V	Input
A 5V	2	A 5V	
A COM	3	A COM	
B 24V	4	B 24V	
B 5V	5	B 5V	
B COM	6	B COM	
Z 24V	7	Z 24V	
Z 5V	8	Z 5V	
Z COM	9	Z COM	

## Specification

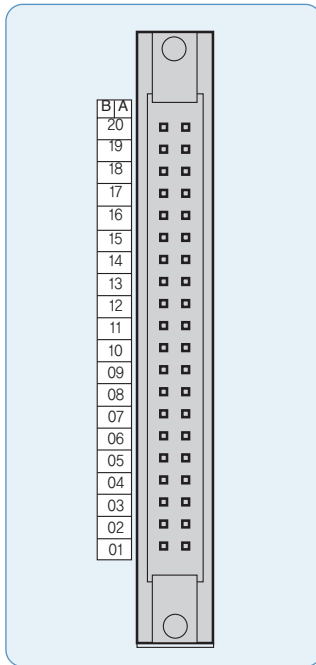


Item		Specification	
		XBF-H002A	XGF-HD02A
Count input signal	Signal	A-phase, B-phase	
	Input type	Voltage input (Open Collector)	Differential input (Line Drive):
	Signal level	DC 5/12/24V	RS-422A Line Drive/HTL LEVEL Line Drive
Maximum coefficient speed		200kpps	500kpps (HTL input : 250kpps)
Number 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	A-phase input: Increasing operation B-phase input: Decreasing operation	
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

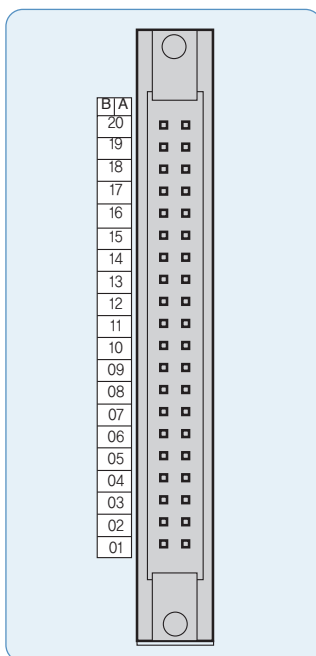
No.	Name	Descriptions
①	Run LED (ØA, ØB, P, G, 00, 01)	<ul style="list-style-type: none"> <li>▶ On: Relevant channel pulse inputting, Preset/Auxiliary function signal inputting, Outputting</li> <li>▶ Off: No input of relevant channel pulse, No input of preset/ Auxiliary function signal, No output of 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)



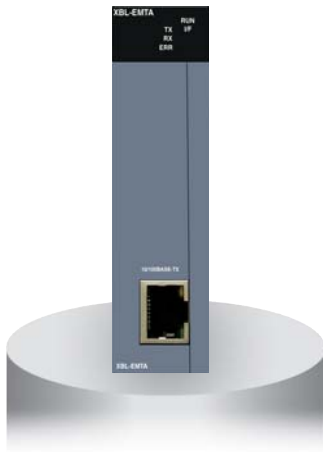
Pin arrangement		Signal name	
B ch1	A ch0		
20	20	A 24V	A phase pulse input 24V
19	19	A 12V	A phase pulse input 12V
18	18	A 5V	A phase pulse input 5V
17	17	A COM	A phase pulse input COM
16	16	B 24V	B phase pulse input 24V
15	15	B 12V	B phase pulse input 12V
14	14	B 5V	B phase pulse input 5V
13	13	B COM	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 LS ELECTRIC 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	
Dagnostic	Via LED and XG-PD			
Max. expansion	Built-in	2 stages	Built-in	2 stages

## RAPINet (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	$CRC\ 32 = X^{32} + X^{26} + X^{23} + \dots + X^2 + X + 1$
Basic standard	Normal communication guarantee	Max. 1,200 (packet/sec)
	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)



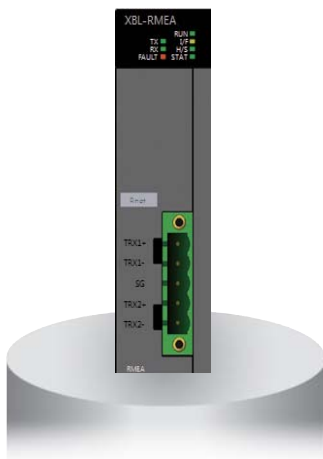
Item	XBL-PMEC	XBL-PSEA
Module Type	Slave	
Network Type	Profibus-DP	
Standard	EN501170/DIN19245	
Interface	RS-485 (Electric)	
Topology	Bus type	
Modulation Type	NRZ (Non Return to Zero)	
Protocol	Profibus DP-V0	
Max. Distance & Transmission Speed	Distance (m)	Send Speed (bps)
	1,200	9.6k/19.2k/93.75k/187.5k
	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	<ul style="list-style-type: none"> <li>Trunk/drop line</li> <li>Power/Signal cable inside the identical network cable</li> </ul>	
	Bus Type	<ul style="list-style-type: none"> <li>Poll type</li> </ul>	
	Max. number of nodes	Up to 64 (including master) MAC IDs (MAC Identifier)	
	System Features	Insertion and removal of nod available in voltage On status	
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)		
XG5000 (High-speed link) Specification	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)	
Basic Specification	Max. modules installed	Up to 2	
	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)		110Ω (±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)



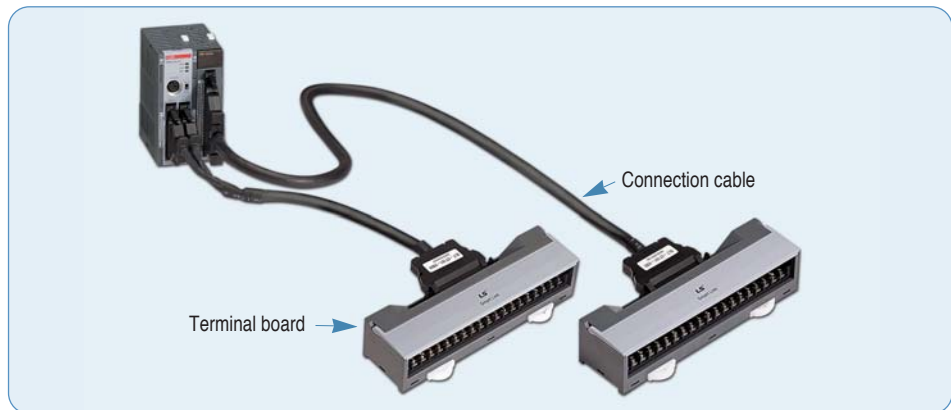
Item	XBL-CMEA	XBL-CSEA
Transmission Speed	10, 20, 50, 100, 125, 250, 500, 800, 1000Kbps	
Num. of port	1	
Max. node	32	-
PDO	TPDO	64
	RPDO	64
Max. size of data per PDO	8Byte	
PDO transfer type	Synchronous acyclic (0), synchronous cyclic (1~240), RTR (252~253), time-event trigger (254~255)	
Support SDO	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

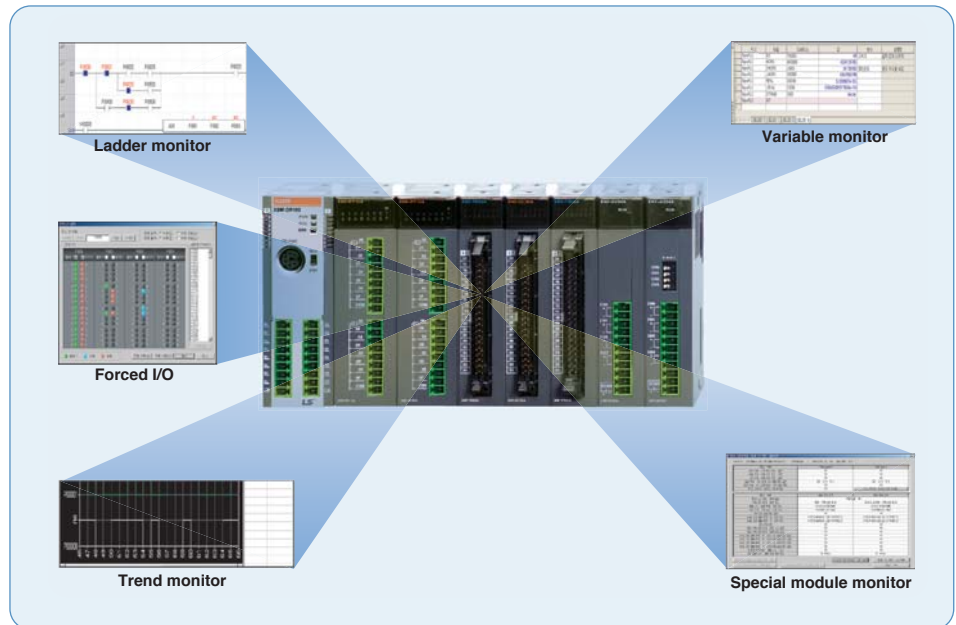


Connection cable	XBF-PD02A	XBF-HO02A	XBF-HD02A	XBE-DC32A	XBE-TN32A	XBE-TP32A	XBM-DN16S	XBM-DN32S	XBM-DN32H	XBM/XEM-DN32HP (H2)	XGB-UP
R40H/20HH-05S-XBM3	-	-	-	-	-	-	●	●	-	-	-
R40H/20HH-10S-XBM3	-	-	-	-	-	-	●	●	-	-	-
C40HH-05SB-XBI	●	●	●	●	●	●	-	-	●	●	●
C40HH-10SB-XBI	●	●	●	●	●	●	-	-	●	●	●
C40HH-15SB-XBI	●	●	●	●	●	●	-	-	●	●	●
C40HH-20SB-XBI	●	●	●	●	●	●	-	-	●	●	●
C40HH-30SB-XBI	●	●	●	●	●	●	-	-	●	●	●
C40HH-05SB-XBE	-	-	-	-	●	●	-	-	-	-	-
C40HH-10SB-XBE	-	-	-	-	●	●	-	-	-	-	-
C40HH-15SB-XBE	-	-	-	-	●	●	-	-	-	-	-
C40HH-20SB-XBE	-	-	-	-	●	●	-	-	-	-	-
C40HH-30SB-XBE	-	-	-	-	●	●	-	-	-	-	-
C40HH-05SB-XBE	-	-	-	-	●	-	-	-	-	-	-
C40HH-10SB-XBE	-	-	-	-	●	-	-	-	-	-	-
C40HH-15SB-XBE	-	-	-	-	●	-	-	-	-	-	-
C40HH-20SB-XBE	-	-	-	-	●	-	-	-	-	-	-
C40HH-30SB-XBE	-	-	-	-	●	-	-	-	-	-	-

### XG5000

(Programming software)

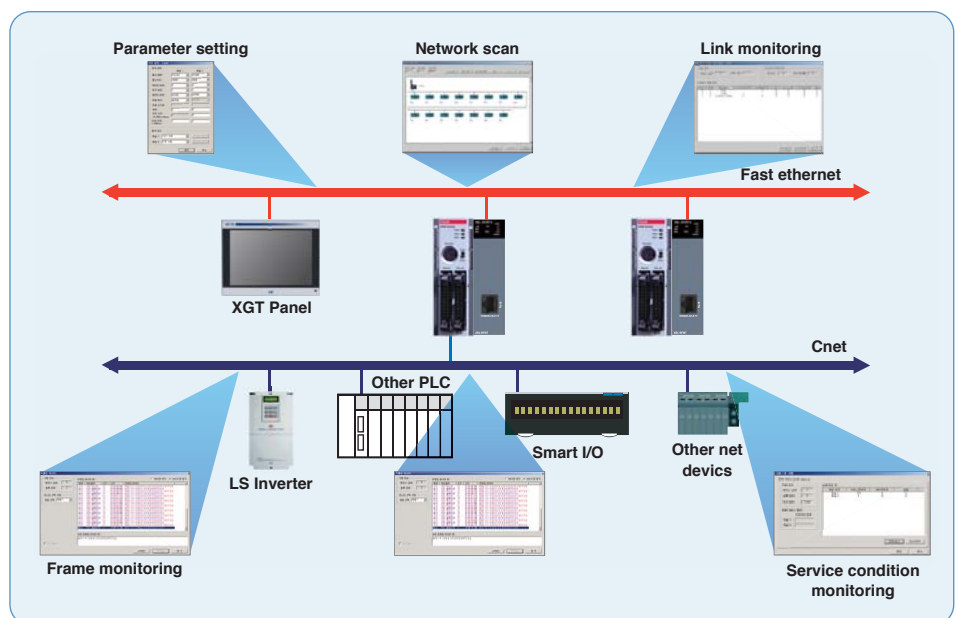
- Program editing & Engineering software
- Windows-based easy operation
- Multi-PLC, Multi-programming support
- Various monitoring and diagnosis functions
- Vista 2000, XP (Limited use in Windows 98, ME)



### 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)



APPLICATION

## Main Specification

- Aluminum body frame, responsive touch screen.
- Easy-to-use Multi-touch, gesture, dual screen, portrait mode.
- Multi connected with 1Gbits 2ch. Ethernet between PC to PLC.
- Various interfaces : USB host /device, SD card, HDMI.
- High resolution : 1024 X 768
- IP66, UL type 4x, NEMA 4x standards
- Explosion proof. IECEx, ATEX, KCs



Item	iXP2-0800A/D	iXP2-1000A/D	iXP2-1200A/D	iXP2-1500A/D
Display type	TFT color LCD			
Screen size	8.4"	10.4"	12.1"	15"
Display resolution	800 × 600	1,024 × 768		
Color indication	24-bit color (16.7M colors)			
Backlight	LED method, automatic On / Off support			
Backlight lifetime	40,000 hour			
Touch panel	Capacitive touch			
Audio output	Magnetic buzzer (85dB)			
Processor	1GHz, Dual core			
Memory	Flash	1GB		
	Operating RAM	1GB		
	Backup RAM	1 Mbyte		
Backup data	Date / Time data, Logging / Alarm / Recipe data, Non-volatile devices			
Battery	CR2032(3.0V/210mAh, About 3years/25°C )			
Video output	1 × HDMI			
Ethernet	1 × 10Base-T / 100Base-TX, 1 × 10Base-T / 100Base-TX / 1000Base-T			
USB host	3 × USB 2.0 (Front × 1, Rear × 2)			
USB device	1 × USB 2.0 (Send / Receive front, PC and project data etc.)			
RS-232C	1 × RS-232C (DSUB 9 / Male type)			
RS-422/485	1 × RS-422/485 (Terminal block)			
Multi-language	Can display 12 languages simultaneously			
Animation	GIF format support			
Recipe	Support			
Data logging	Support			
Script launcher	Support			
Standard certification	CE, KC, UL, IECEx, ATEX, KCs			
Protection standard	IP66, Conform to the UL type 4x, NEMA 4x standard			
Explosion proof	Ex nA IIC T5 Gc, Ex tc IIIC T100°C Dc IP64			
Dimensions (mm)	240 × 180 × 60	271 × 212 × 60	313 × 239 × 60	395 × 294 × 66
Panel cut (mm)	228.5 × 158.5	259.0 × 201.0	301.5 × 227.5	383.5 × 282.5
Power	iXP2-xxxxA : AC100 / 240V, iXP2-xxxxD : DC24V			
Power consumption (W)	25	25	30	30
Weight (Kg)	1.87	2.35	3.0	4.6

# XGT Panel eXP2 Series

Programmable Logic Controller

## Fully compatible with eXP

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

## Superior Performance

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

## Enhanced product reliability

- LCD Backlight lifespan extended
- Non Battery Type NVRAM

## Variety of interfaces and functions

- Various communication drivers and Micro SD I/F available



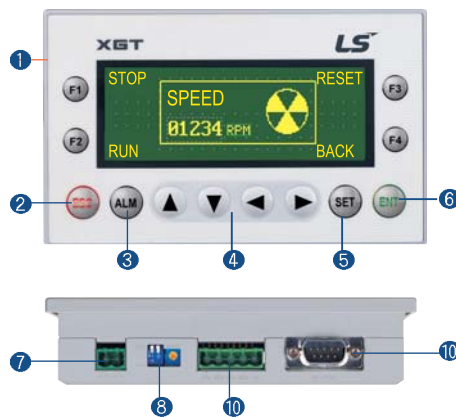
Item	eXP2-04 □ *0D	eXP2-05 □ *0D	eXP2-05 □ *2D	eXP2-07 □ *0D	eXP2-07 □ *1D	eXP2-07 □ *2D	eXP2-10 □ *0D	eXP2-10 □ *1D	
Display Type	TFT Color LCD								
Screen Size	10.9cm [4.3"]	14.2cm [5.6"]		17.8cm [7"]			25.9cm [10.1"]		
Display Resolution	480 x 272	640 x 480		800 x 480			1024 x 600		
Color Indication	24Bit Color [16.7M]	18Bit Color [262,144]		24Bit Color [16.7M]			24Bit Color [16.7M]		
Indication Degree	Left/Right: 60 deg. Upper: 40 deg. Lower: 50 deg.	Left/Right: 60 deg. Upper: 40 deg. Lower: 60 deg.		Left/Right: 70 deg. Upper: 50 deg. Lower: 70 deg.			Left/Right: 70 deg. Upper: 50 deg. Lower: 70 deg.		
Backlight	LED Type (Supports Backlight Auto-off Function)								
Backlight Duration	50,000 Hours	20,000 Hours		50,000 Hours			30,000 Hours		
Touch Panel	4-Wire Resistive, Analog								
Audio Output	Magnetic Buzzer (85dB)								
Process	800MHz	800MHz		800MHz			800MHz		
Memory	Drawing Memory	64MB	64MB		64MB			64MB	
	Operating RAM	512MB	512MB		512MB			512MB	
	Operating RAM	128KB	128KB		128KB			128KB	
Backup Data	Date/Hour Data, Logging/Alarm/Recipe Data and Nonvolatile Device								
Battery Life	Approx. 3 years (Operating Ambient Temperature of 50℃)								
Ethernet	1 Channel, IEEE802.1a, 10Base-T/100Base-TX		-		1 Channel, IEEE802.1a, 10Base-T/100Base-TX		-		1 Channel, IEEE802.1a, 10Base-T/100Base-TX
USB Host	1 Channel, USB 2.0 Host (Mouse, keyboard, printer, USB flash drive, etc.)								
USB Device	-		1 Channel, USB 2.0 Device (for Download and Upload Project)				1 Channel, USB 2.0 Device (for Download and Upload Project File)		
Micro SD Card	-		-		1 Channel SDHC Class10	-		1 Channel SDHC Class10	
RS-485, RS-232C	1 Channel, RS-232C [DSUB 9/Male Type]			2 Channels, RS-485, RS-232C [DSUB 9/Male Type]					
RS-422/485	1 Channel, RS-422/485 [DSUB 9/Male Type]			1 Channel, RS-422/485 Mode (Terminal Type)					
Multi-language	Up to 12 Language Simultaneously								
Animation	GIF Format is Available								
Recipe	Available								
Data Logging	Available								
Script Executor	Available								
Certifications	CE, UL[cUL], UL Type 4X, KC		CE, UL[cUL], KC		CE, UL[cUL], UL Type 4X, KC		CE, UL[cUL], KC		CE, UL[cUL], UL Type 4X, KC
Protection Standard	IP65 <sup>Note 1)</sup>		IP65 <sup>Note 1)</sup>		IP65 <sup>Note 1)</sup>			IP65 <sup>Note 1)</sup>	
Dimension (mm)	128 x 102 x 32.5		165 x 132.5 x 36.1		208 x 154 x 44.4			276 x 218 x 35.1	
Panel Cut (mm)	119 x 93		156 x 123.5		192 x 138			260 x 202	
Rated Voltage	DC24V		DC24V		DC24V			DC24V	
Power Consumption [W]	4		5.5		6			6	
Weight (kg)	0.27		0.43		0.59		1.0		1.0

□ \*0 (WinCE 7.0 Core), 1 (WinCE 7.0 Pro)  
 Note 1): IP66 for UL Type 4X models.

APPLICATION

## Text type XP10

- Screen: 192 x64 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

## 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)
Modular type unit	XBM-DN32H	DC24V, 16 pts DC24V input, 16 pts TR output, 2 axes built-in positioning (APM)
	XBM/XEM-DN32H2	DC24V, 16 pts DC24V input, 16 pts TR output, 2 axes built-in positioning (XPM)
	XBM/XEM-DN32HP	DC24V, 16 pts DC24V input, 16 pts TR output, 6 axes built-in positioning (XPM)
	XBM/XEM-DP32H2	DC24V, 16 pts DC24V input, 16 pts TR output(source), 2 axes built-in positioning (XPM)
	XBM/XEM-DP32HP	DC24V, 16 pts DC24V input, 16 pts TR output(source), 6 axes built-in positioning (XPM)

## Product list

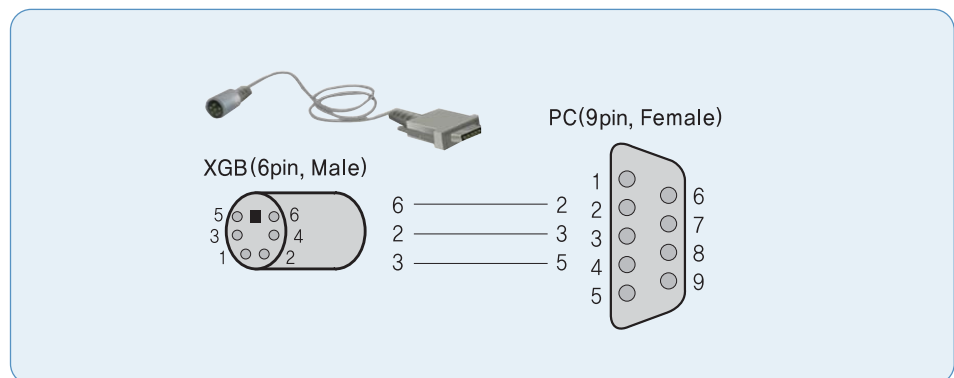
Item	Model	Specifications
<b>Modular type unit</b>	XBM-DR16S	DC 24V, 8-point DC24V input, 8-point relay output
	XBM-DN16S	DC 24V, 8-point DC24V input, 8-point TR output
	XBM-DN32S	DC 24V, 16-point DC24V input, 16-point TR output
<b>Expansion I/O module</b>	XBE-DC08A	8-point DC 24V input
	XBE-DC16A	16-point DC 24V input
	XBE-DC32A	32-point DC 24V input
	XBE-AC08A	8-point AC 110V 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
	XBE-DN32A	16-point DC24V input, 16point TR 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)
	<b>Special module</b>	XBF-DV04A
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)
XBL-C41A		Cnet (RS-422/485), 1ch
XBL-C21A		Cnet (RS-232C), 1ch
XBL-EMTA		Fast Ethernet (100Mbps), 1ch
<b>Communication module</b>		XBL-EIMT
	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)

Product list

Item	Model	Specifications
Loader cable	PMC-310S	Connection cable (PC to PLC), 9pin(PC)-6pin(PLC)
	USB-301A	Connection cable (PC to PLC), USB
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

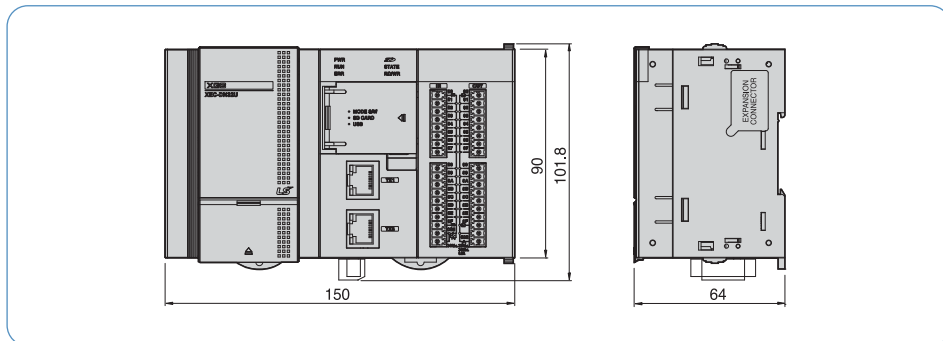
Connection cable	XBF-PD02A	XBF-HO02A	XBF-HD02A	XBE-DC32A	XBE-TN32A	XBE-TP32A	XBM-DN16S	XBM-DN32S	XBM-DN32H	XBM/XEM-DN32HP (H2)	XGB-UP
R40H/20HH-05S-XBM3	-	-	-	-	-	-	●	●	-	-	-
R40H/20HH-10S-XBM3	-	-	-	-	-	-	●	●	-	-	-
C40HH-05SB-XBI	●	●	●	●	●	●	-	-	●	●	●
C40HH-10SB-XBI	●	●	●	●	●	●	-	-	●	●	●
C40HH-15SB-XBI	●	●	●	●	●	●	-	-	●	●	●
C40HH-20SB-XBI	●	●	●	●	●	●	-	-	●	●	●
C40HH-30SB-XBI	●	●	●	●	●	●	-	-	●	●	●
C40HH-05SB-XBE	-	-	-	-	●	●	-	-	-	-	-
C40HH-10SB-XBE	-	-	-	-	●	●	-	-	-	-	-
C40HH-15SB-XBE	-	-	-	-	●	●	-	-	-	-	-
C40HH-20SB-XBE	-	-	-	-	●	●	-	-	-	-	-
C40HH-30SB-XBE	-	-	-	-	●	●	-	-	-	-	-
C40HH-05SB-XBE	-	-	-	-	●	-	-	-	-	-	-
C40HH-10SB-XBE	-	-	-	-	●	-	-	-	-	-	-
C40HH-15SB-XBE	-	-	-	-	●	-	-	-	-	-	-
C40HH-20SB-XBE	-	-	-	-	●	-	-	-	-	-	-
C40HH-30SB-XBE	-	-	-	-	●	-	-	-	-	-	-

Download cable diagram

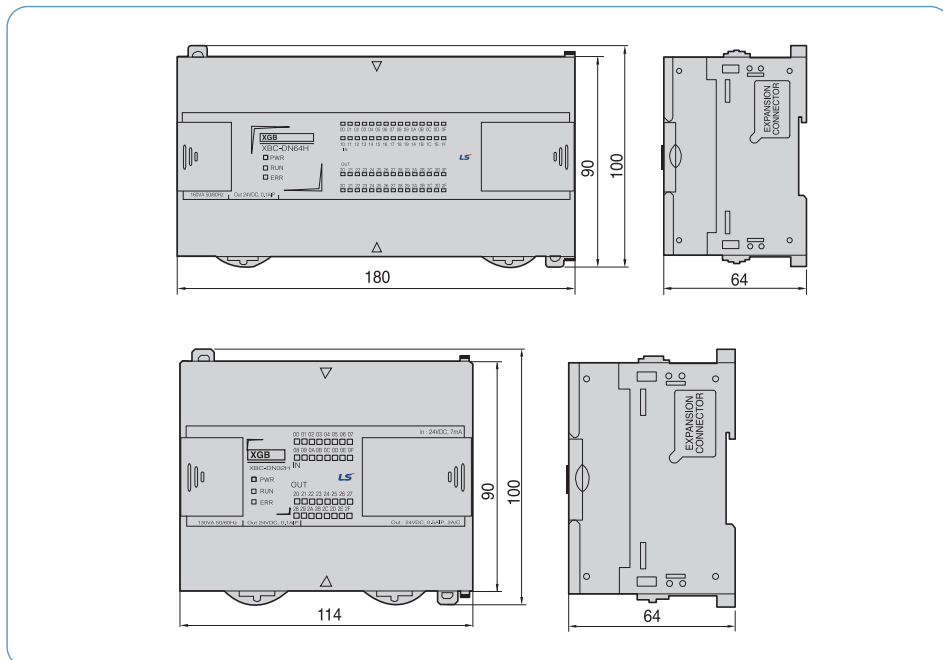


## Block type unit

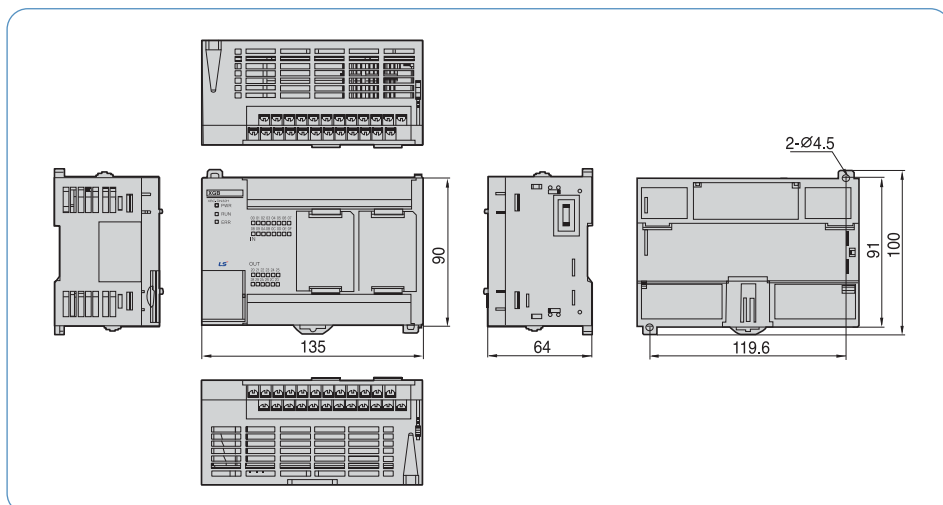
### XBC/XEC-U (Standard)



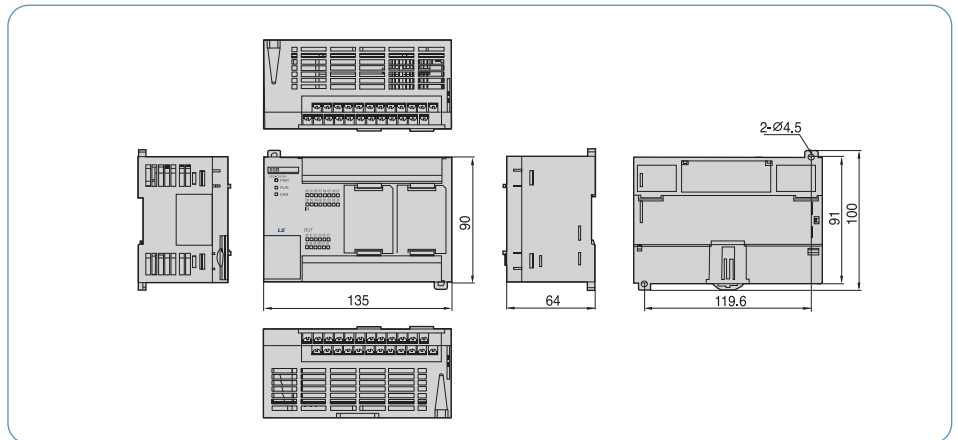
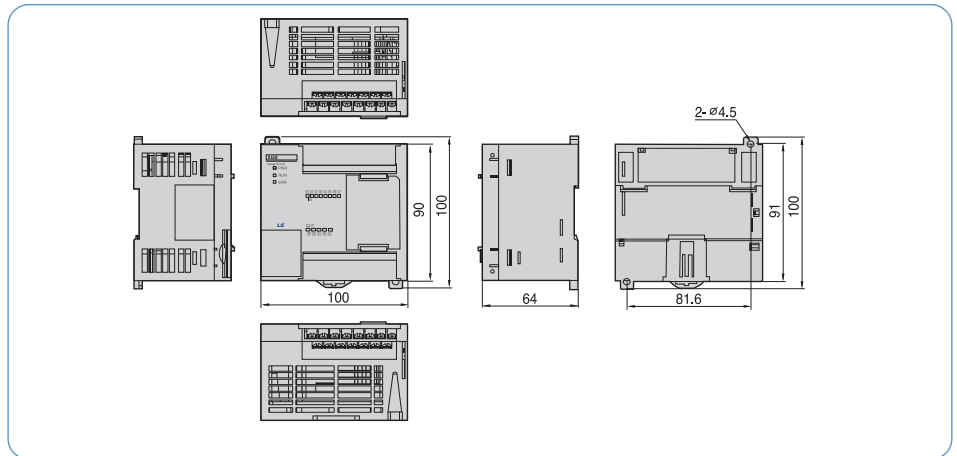
### XBC/XEC-H



### XBC/XEC-SU

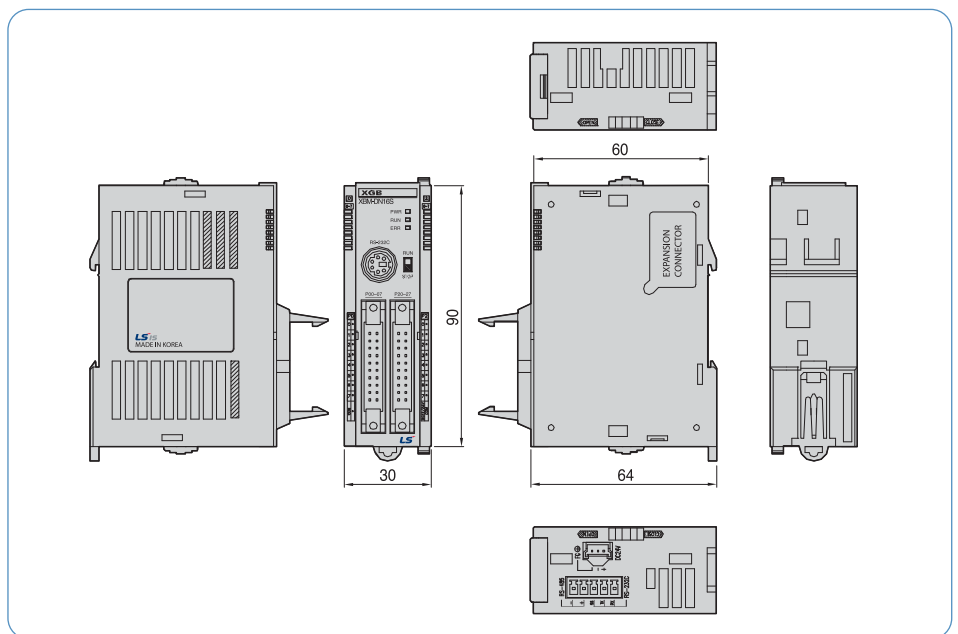


XBC/XEC-E



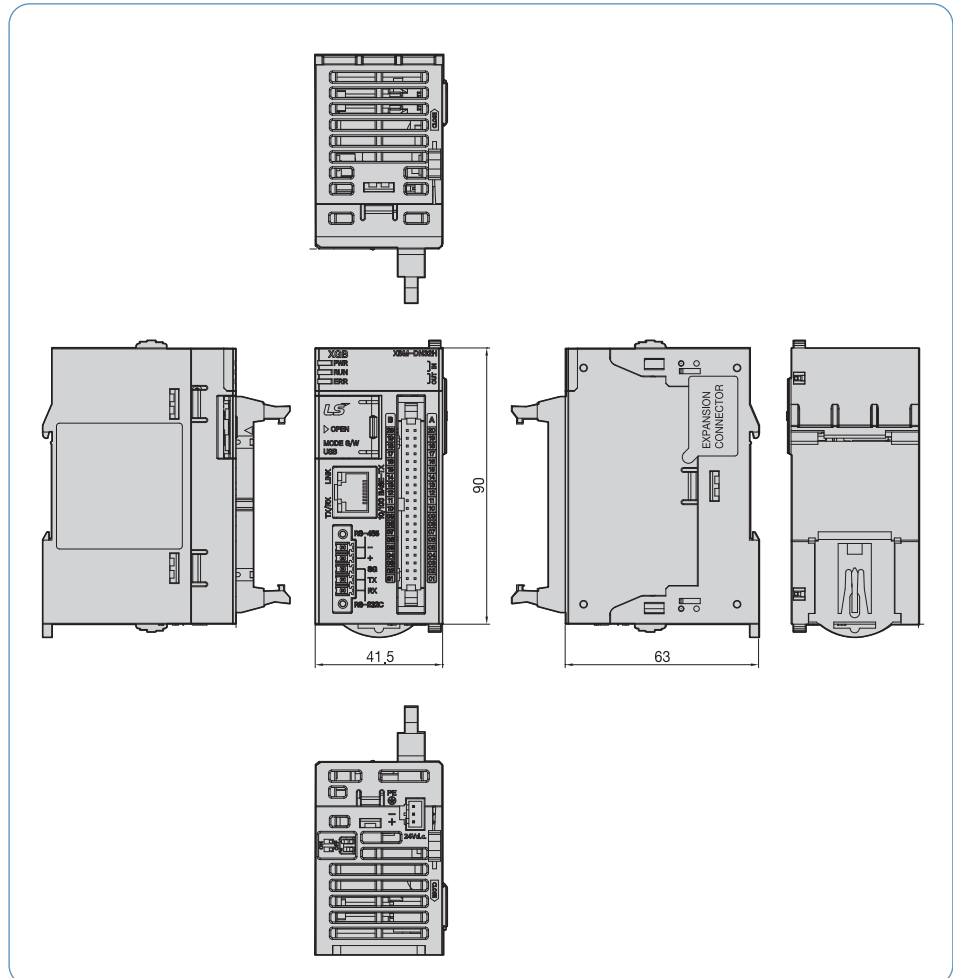
Modular type unit

XBM-S



## Modular type unit

XBM-H, H2, HP



SOLUTION SQUARE

# EVERYTHING ABOUT AUTOMATION ENGINEERING



SOLUTION SQUARE provides technical information and training materials across a wide range of automation technologies. You can build up your knowledge in the open community by sharing information and solutions with practical engineers.

## SOLUTION SQUARE

### Engineering Software-associated Services

#### Linked with Automation Software

Users can access graphic libraries and samples in the engineering software in a few clicks.



#### Simple Software Updates

Check the latest information and keep your software up-to-date through the SOLUTION SQUARE.



### Quick and Easy Search for Automation Technologies

#### Getting Effective Search Results

Quick and easy search for up-to-date contents of products and technologies



#### Open Community

Sharing knowledge and information of automation with practical engineers



#### Mobile Friendly

Optimized for web, mobile, and tablet, and easy and fast to use anywhere and anytime



Search



SOLUTION SQUARE

on Google. Visit at [sol.ls-electric.com](http://sol.ls-electric.com)



\* Service will update sequentially in 2022-2023.



### Safety Instructions

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



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



[www.ls-electric.com](http://www.ls-electric.com)

#### ■ Headquarter

LS-ro 127(Hogye-dong) Dongan-gu, Anyang-si, Gyeonggi-Do, 14119, Korea

#### ■ Seoul Office

LS Yongsan Tower, 92, Hangang-daero, Yongsan-gu, Seoul, 04386, Korea  
Tel: 82-2-2034-4033, 4888, 4703 Fax: 82-2-2034-4588  
E-mail: automation@ls-electric.com

#### ■ Overseas Subsidiaries

- **LS ELECTRIC Japan Co., Ltd. (Tokyo, Japan)**  
Tel: 81-3-6268-8241 E-Mail: japan@ls-electric.com
- **LS ELECTRIC (Dalian) Co., Ltd. (Dalian, China)**  
Tel: 86-411-8730-6495 E-Mail: china.dalian@lselectric.com.cn
- **LS ELECTRIC (Wuxi) Co., Ltd. (Wuxi, China)**  
Tel: 86-510-6851-6666 E-Mail: china.wuxi@lselectric.com.cn
- **LS ELECTRIC Middle East FZE (Dubai, U.A.E.)**  
Tel: 971-4-886-5360 E-Mail: middleeast@ls-electric.com
- **LS ELECTRIC Europe B.V. (Hoofddorp, Netherlands)**  
Tel: 31-20-654-1424 E-Mail: europartner@ls-electric.com
- **LS ELECTRIC America Inc. (Chicago, USA)**  
Tel: 1-800-891-2941 E-Mail: sales.us@lselectricamerica.com
- **LS ELECTRIC Türkiye Co., Ltd.**  
Tel: 90-212-806-1225 E-Mail: Türkiye@ls-electric.com

#### ■ Overseas Branches

- **LS ELECTRIC Tokyo Office (Japan)**  
Tel: 81-3-6268-8241 E-Mail: tokyo@ls-electric.com
- **LS ELECTRIC Beijing Office (China)**  
Tel: 86-10-5095-1631 E-Mail: china.auto@lselectric.com.cn
- **LS ELECTRIC Shanghai Office (China)**  
Tel: 86-21-5237-9977 E-Mail: china.auto@lselectric.com.cn
- **LS ELECTRIC Guangzhou Office (China)**  
Tel: 86-20-3818-2883 E-Mail: china.auto@lselectric.com.cn
- **LS ELECTRIC Chengdu Office (China)**  
Tel: 86-28-8670-3201 E-Mail: china.auto@lselectric.com.cn
- **LS ELECTRIC Qingdao Office (China)**  
Tel: 86-532-8501-2065 E-Mail: china.auto@lselectric.com.cn
- **LS ELECTRIC Nanjing Office (China)**  
Tel: 86-25-8467-0005 E-Mail: china.auto@lselectric.com.cn
- **LS ELECTRIC Bangkok Office (Thailand)**  
Tel: 66-90-950-9683 E-Mail: thailand@ls-electric.com
- **LS ELECTRIC Jakarta Office (Indonesia)**  
Tel: 62-21-2933-7614 E-Mail: indonesia@ls-electric.com
- **LS ELECTRIC Moscow Office (Russia)**  
Tel: 7-499-682-6130 E-Mail: info@lselectric-ru.com
- **LS ELECTRIC America Western Office (Irvine, USA)**  
Tel: 1-949-333-3140 E-Mail: america@ls-electric.com
- **LS ELECTRIC Italy office (Italy)**  
Tel: 39-030-8081-833 E-Mail: italia@ls-electric.com