



XGB

Programmable Logic Controller

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XGB



All-In-One PLC With Next Generation Technology

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.





Functionality
Convenience
High Performance
Compactness

ALL-IN-ONE PLC



Contents

• Features	4
• General specifications	6
• Performance specifications	8
• Wiring	16
• Built-in functions	25
• Expansion	32
• DC Input	32
• Transistor Output	34
• Relay Output	36
• DC Input / Relay Output	37
• Analog Input	38
• Analog Output	39
• Analog Input / Output	40
• RTD	41
• Thermocouple	42
• Positioning module	43
• Communication module	44
• Option modules/Smart link	46
• Software	47
• Product list/Dimension	48

XGB Features



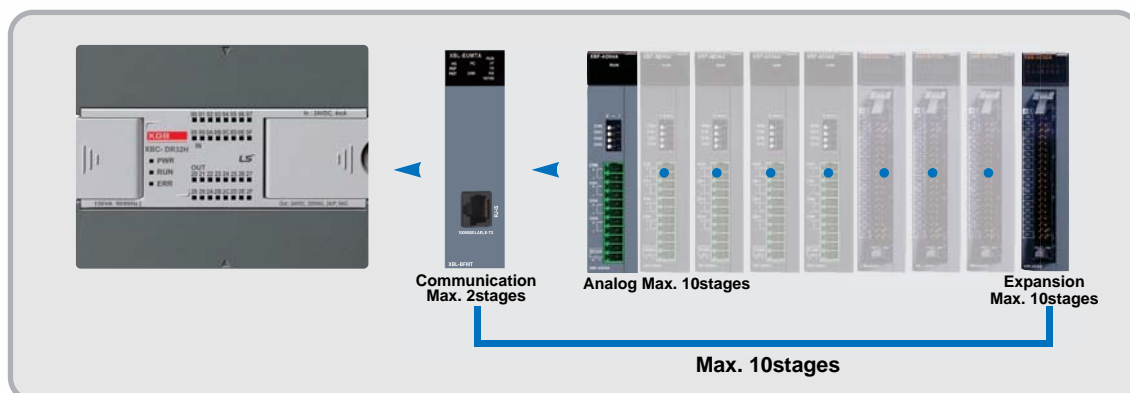
(Unit: mm)

	Item	W	H	D
XBM	DR/DN16S (16pt)	30	90	60
	DN32S (32pt)			
XBC/XEC	DR/DN32H (32pt)	114	90	64
	DR/DN64H (64pt)	180	90	64
Expansion	Relay output/Ethernet	27	90	60
	Others	20	90	60

Block type unit

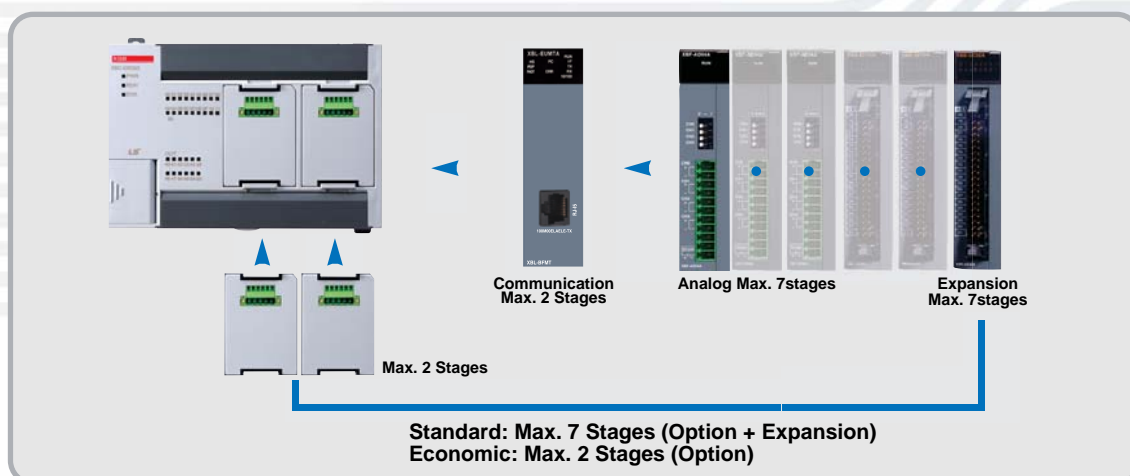
XBC/XEC (High performance type)

- 83ns/step processing speed
- Max. 10 expansion modules, Max. 384 I/O points control
- Max. 5-Ch Communication with built-in functions and expansion modules



XBC/XEC (Standard type)

- 94ns/step processing speed
- Max. 7 expansion modules, Max. 2 option modules, Max. 254 I/O points control
- Max. 5-Ch Communication with built-in functions and expansion modules



H i g h

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

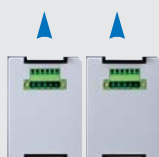


XBC/XEC (Economic type)

- 240ns/step processing speed
- Max. 2 option modules, Max. 38 I/O points control
- 2-Ch built-in communication functions (RS-232C/RS485)



Max. 2 Stages



Option modules

XBO-M2MB	Memory
XBO-RTCA	RTC(Real Time Clock), Battery
XBO-DC04A	DC 24V, Input 4 points
XBO-TN04A	Transistor(Sink), Output 4 point
XBO-RD01A	RTD(Resistance Temperature Detect, Input 1CH)

XBO-AD02A	Voltage/Current, Input 2 CHs
XBO-DA02A	Voltage/Current, Output 2 CHs
XBO-AH02A	Voltage/Current, Input 1 CH
	Voltage/Current, Output 1 CH
XBO-TC02A	TC(Thermocouple), Input 2 CHs

Modular type unit

XBM (Standard type)

- 160ns/step processing speed
- Max. 7 expansion modules, Max. 256 I/O points control
- Max. 5-Ch Communication with built-in functions and expansion modules



Communication
Max. 2stages



Analog Max. 7stages



Expansion
Max. 7stages

Max. 7stages

XGB General specifications

Block type unit (High performance, Standard, Economic)



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

^(*) 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.

Modular type unit (XBM-DR16S, DN16S, DN32S)



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

^(*) 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.

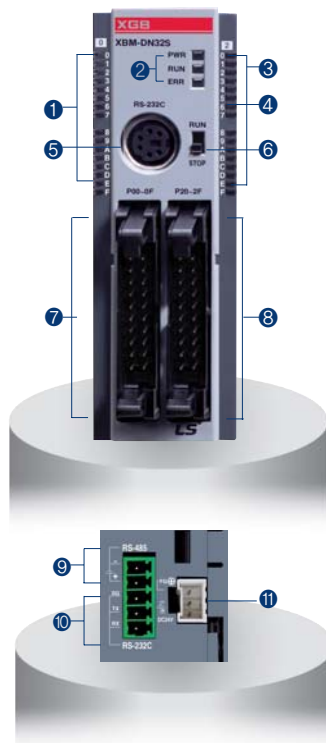
Names and functions

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 TxD, RxD, SG terminal connection	
11	Power terminal	Power supply terminal	AC 110-220V power supply	
12	Option module slot	Slot for option module	—	

Modular type unit (XBM-DR16S, DN16S, DN32S)



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

High performance type

Performance specifications

Item	XBC-DR32H XEC-DR32H ^(*) XBC-DR32H/DC	XBC-DN32H XEC-DN32H ^(*) XBC-DN32H/DC	XBC-DR64H XEC-DR64H ^(*) XBC-DR64H/DC	XBC-DN64H XEC-DN64H ^(*) 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) ^(*)			
Processing speed	83 ns/Step			
Program capacity	15K step (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(2CH), Pulse catch, Input filter, External interrupt, PID control, High-speed counter, Positioning, RTC			
Internal current consumption	660mA	260mA	1040mA	330mA
Weight	600g	500g	900g	800g
Rated voltage	AC 100 ~ 240V or DC24V			
Data memory				
XBC		XEC (IEC type)		
P	P0000 ~ P1023F (16,384 points)	Symbolic variable	A	32KB (Max. 16KB retain setting available)
M	M0000 ~ M1023F (16,384 points)	Input variable	I	2KB (%IX 15.15.63)
K	K0000 ~ K4095F (65,536 points)	Output variable	Q	2KB (%QX 15.15.63)
L	L0000 ~ L2047F (32,768 points)	Direct variable	M	16KB (Max. 8KB retain setting available)
F	F0000 ~ F1023F (16,384 points)		R	20KB (1 block)
T	100ms, 10ms, 1ms: T0000 ~ T1023 (1,024)(Adjustable by parameter setting)		W	20KB
C	C0000 ~ C1023 (1,024)	Flag variable	F	2KB
S	S00.00 ~ S127.99		K	8KB
D	D0000 ~ D10239 (10,240 word)		L	4KB
U	U00.00 ~ U0A.31 (Analog data refresh area: 352 word)		N	10KB
Z	Z000 ~ Z127 (128 word)		U	1KB
N	N000 ~ N5119 (5.120 word)	Flash area	R	20KB (2 blocks)

^{*1)} XEC is IEC standard language programming.

Standard type

Performance specifications

Item	XBC-DN20S(U) XBC-DR20SU	XBC-DN30S(U) XBC-DR30SU	XBC-DN40S(U) XBC-DR40SU	XBC-DN60S(U) XBC-DR60SU
Control method	Repetitive, cyclic, interrupt, constant scan			
I/O control method	Refresh mode (Batch processing by scan synchronization), Direct mode by instruction			
Programming language	Ladder diagram, Instruction List			
Processing speed	94 ns/Step			
Program capacity	15K step			
Main Unit I/O points	20 (Input:12, Output:8)	30 (Input:18, Output:12)	40 (Input:24, Output:16)	60 (Input:36, Output:24)
Max. I/O points (Main + Expansion 7 stages)	244 points	254 points	264 points	284 points
Total program	128			
Operation mode	RUN, STOP, DEBUG			
Self diagnosis	Detects errors of scan time, memory error, I/O error, battery error, power error, etc.			
Program port	RS-232C 1 channel (Loader), USB 1 channel (U-type model)			
Retain data at power failure	Latch area setting at Basic parameter			
Built-in functions	RS-232C / RS-485(2CH), Pulse catch, Input filter, External interrupt, PID control, High-speed counter, Positioning			
Internal current consumption	240mA	255mA	undecided	undecided
Weight	470g	475g	undecided	undecided
Rated voltage	AC 100 ~ 240V		undecided	undecided
Data memory				
XBC				
Data area	P	P0000 ~ P1023F (16,384 points)		
	M	M0000 ~ M1023F (16,384 points)		
	K	K0000 ~ K4095F (65,536 points)		
	L	L0000 ~ L2047F (32,768 points)		
	F	F0000 ~ F1023F (16,384 points)		
	T	100ms, 10ms, 1ms: T0000 ~ T1023 (1,024) (Adjustable by parameter setting)		
	C	C0000 ~ C1023 (1,024)		
	S	S00.00 ~ S127.99		
	D	D0000 ~ D10239 (10,240 word)		
	U	U00.00 ~ U0A.31(Analog data refresh area: 352 word)		
	Z	Z000 ~ Z127 (128 word)		
	R	N0000 ~ N10236 (10,240 word)		

*Some products are due in market soon.

Economic type

Performance specifications

Item	XBC-DR10E	XBC-DR14E	XBC-DR20E	XBC-DR30E
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	240 ns/Step			
Program capacity	4K step			
Main Unit I/O points	10 (Input:6, Output:4)	14 (Input:8, Output:6)	20 (Input:12, Output:8)	30 (Input:18, Output:12)
Max. I/O points	14 (Main + 1option)	18 (Main + 1option)	28 (Main + 2 options)	38 (Main + 2 options)
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 or RS-485(1CH), Pulse catch, Input filter, External interrupt, High-speed counter			
Internal current consumption	250mA	315mA	355mA	485mA
Weight	330g	340g	450g	465g
Rated voltage	AC 100 ~ 240V			
Data memory				
XBC				
Data area	P	P0000 ~ P127F (2,048 points)		
	M	M0000 ~ M255F (4,096 points)		
	K	K0000 ~ K2559F (Special area: K2600~K2559F) (40,960 points)		
	L	L0000 ~ L1279F (20,480 points)		
	F	F000 ~ F255F (4,096 points)		
	T	100ms, 10ms, 1ms: T000 ~ T255 (256) (Adjustable by parameter setting)		
	C	C000 ~ C255 (256)		
	S	S00.00 ~ S127.99		
	D	D0000 ~ D5119 (5120 word)		
	U	U00.00 ~ U07.31 (Analog data refresh area: 256 word)		
	Z	Z000 ~ Z127 (128 word)		

Standard type

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	10K step			
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(2CH), Pulse catch, Input filter, External interrupt, PID control, High-speed counter, Positioning ^{*1)}			
Internal current consumption	400mA	250mA	280mA	
Weight	140g	100g	100g	
Rated voltage	DC24V			
Data memory				
XBM				
Data area	P	P0000 ~ P127F (2,048 points)		
	M	M0000 ~ M255F (4,096 points)		
	K	K0000 ~ K2559F (Special area: K2600~K2559F) (40,960 points)		
	L	L0000 ~ L1279F (20,480 points)		
	F	F000 ~ F255F (4,096 points)		
	T	100ms, 10ms, 1ms: T000 ~ T255 (256) (Adjustable by parameter setting)		
	C	C000 ~ C255 (256)		
	S	S00.00 ~ S127.99		
	D	D0000 ~ D5119 (5120 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.

High performance type

Input specification

Item	XBC-DR32H XEC-DR32H	XBC-DN32H XEC-DN32H	XBC-DR64H XEC-DR64H	XBC-DN64H XEC-DN64H
Input points	16 points		32 points	
Rated input voltage	DC 24V			
Rated input current	4mA (Contact 0~7: 9mA)			
Operation voltage range	DC 20.4 ~ 28.8V (Ripple rate < 5%)			
On voltage / On current	DC 19V or more / 3mA or more			
Off voltage / Off current	DC 6V or less / 1mA or less			
Input resistance	5.6k Ω (P00 ~ P07: 2.7k Ω)			
Response time	Off \rightarrow On	1 / 3 / 5 / 10 / 20 / 70 / 100 ms (Setting by CPU parameter) Initial value: 3ms		
	On \rightarrow Off			
Weight	600g	500g	900g	800g

Relay output specification

Item	XBC-DR32H/XEC-DR32H	XBC-DR64H/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 ϕ = 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 ϕ = 0.7) 100,000 times or more
		AC 200V / 1A, AC 240V / 0.5A (COS ϕ = 0.35) 100,000 times or more
Response time	Off \rightarrow On	10ms or less
		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-DN32H	XBC-DN64H/XEC-DN64H
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 (P 20 ~ 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-DN20S	XBC-DN30S
Input point	12 points	18 points
Rated input voltage	DC 24V	
Rated input current	4mA (Contact point 0 ~ 3: 7mA)	
Operation voltage range	DC 20.4 ~ 28.8V (Ripple rate < 5%)	
On voltage / On current	DC 19V or more / 3mA or more	
Off voltage / Off current	DC 6V or less / 1mA or less	
Input resistance	5.6k Ω (P00 ~ P07: 2.7k Ω)	
Response time	Off \rightarrow On On \rightarrow Off	1 / 3 / 5 / 10 / 20 / 70 / 100 ms (Setting by CPU parameter) Initial value: 3ms
Weight	470g	475g

Transistor output specification

Item	XBC-DN20S	XBC-DN30S
Input point	12 points	18 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 / 1 point, 2A / 1 COM	
Off leakage current	0.1mA or less	
Max. inrush current	4A / 10ms or less	
Max. voltage drop (On)	DC0.4V or less	
Surge absorber	Zener Diode	
Response time	Off \rightarrow On On \rightarrow Off	1ms or less 1ms or less (Rated load, resistive load)
Common method	4 points / com	
External power supply	Voltage Current	DC 12 / 24V \pm 10% (ripple voltage 4 Vp-p or less) 25mA or less (DC24V connection)



Economic type

Input specification

Item	XBC-DR10E	XBC-DR14E	XBC-DR20E	XBC-DR30E
Input point	10 points	14 points	20 points	30 points
Rated input voltage	DC 24V			
Rated input current	4mA (Contact point 0 ~ 3: 7mA)			
Operation voltage range	DC 20.4 ~ 28.8V (Ripple rate < 5%)			
On voltage / On current	DC 19V or more / 3mA or more			
Off voltage / Off current	DC 6V or less / 1mA or less			
Input resistance	5.6k Ω (P00 ~ P07: 2.7k Ω)			
Response time	Off \rightarrow On	1 / 3 / 5 / 10 / 20 / 70 / 100 ms (set by I/O parameter) Initial value: 3ms		
	On \rightarrow Off			
Weight	330g	340g	450g	465g

Relay output specification

Item	XBC-DR10E	XBC-DR14E	XBC-DR20E	XBC-DR30E
Input point	10 points	14 points	20 points	30 points
Insulation method	Relay insulation			
Rated load voltage / current	DC 24V 2A (Resistive load) / AC 220V 2A (COS ϕ = 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 ϕ = 0.7) 100,000 times or more		
		AC 200V / 1A, AC 240V / 0.5A (COS ϕ = 0.35) 100,000 times or more		
Response time	Off \rightarrow On	10ms or less		
	On \rightarrow Off	12ms or less		
Common method	2 points / com	4 points / com	COM0 ~ COM8: 4 points / COM COM4 ~ COM5: 8 points / COM	

Standard type

Input specification

Item	XBM-DR16S	XBM-DN16S	XBM-DN32S
Input point	8 points	8 points	16 points
Rated input voltage	DC24 V		
Rated input current	4mA (00 ~ 03: 7mA)		
Operation voltage range	DC20.4 ~ 28.8V (ripple rate < 5%)		
Response time	Off → On	1 / 3 / 5 / 10 / 20 / 70 / 100ms	
	On → Off	(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 ϕ = 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 ϕ = 0.7) 100,000 times or more
		AC 200V / 1A, AC 240V / 0.5A (COS ϕ = 0.35) 100,000 times or more
Response time	Off → On	10ms or less
	On → Off	12ms or less
Common method	8 points / COM	

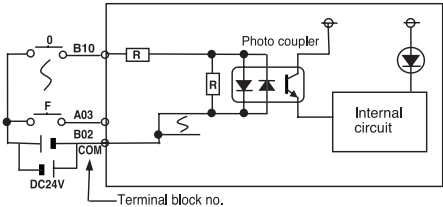






Transistor output specification

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

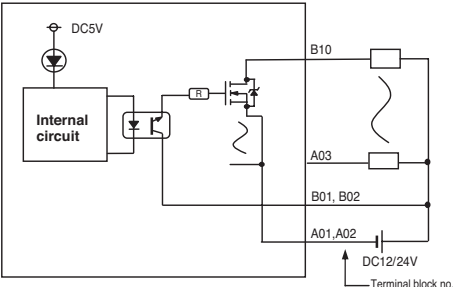
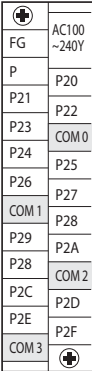
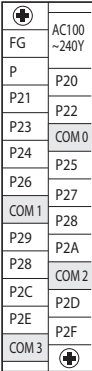
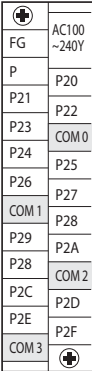
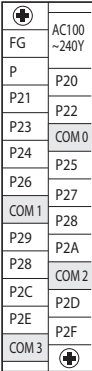
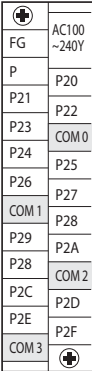
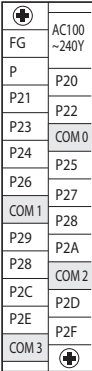
XGB Wiring | Block type unit

High performance type (H-Type 32 points unit)

Input wiring (XBC-DR32H / XBC-DN32H XEC-DR32H / XEC-DN32H)

Circuit configuration	No.	Contact	No.	Contact	Type																																														
	TB2	485+	TB1	RX	<table><tr><td rowspan="2">TB2</td><td></td><td>RX</td><td>TB1</td></tr><tr><td>485 +</td><td>TX</td><td>TB3</td></tr><tr><td rowspan="2">TB4</td><td>485 -</td><td>SG</td><td>TB5</td></tr><tr><td>P02</td><td>P01</td><td>TB7</td></tr><tr><td>TB6</td><td>P04</td><td>P03</td><td>TB9</td></tr><tr><td>TB8</td><td>P06</td><td>P05</td><td>TB11</td></tr><tr><td>TB10</td><td>P08</td><td>P07</td><td>TB13</td></tr><tr><td>TB12</td><td>P0A</td><td>P0B</td><td>TB15</td></tr><tr><td>TB14</td><td>P0C</td><td>P0D</td><td>TB17</td></tr><tr><td>TB16</td><td>P0E</td><td>P0F</td><td>TB19</td></tr><tr><td>TB18</td><td>COM</td><td>24G</td><td>TB21</td></tr><tr><td>TB20</td><td>24V</td><td></td><td>TB23</td></tr></table>	TB2		RX	TB1	485 +	TX	TB3	TB4	485 -	SG	TB5	P02	P01	TB7	TB6	P04	P03	TB9	TB8	P06	P05	TB11	TB10	P08	P07	TB13	TB12	P0A	P0B	TB15	TB14	P0C	P0D	TB17	TB16	P0E	P0F	TB19	TB18	COM	24G	TB21	TB20	24V		TB23
	TB2		RX	TB1																																															
		485 +	TX	TB3																																															
	TB4	485 -	SG	TB5																																															
		P02	P01	TB7																																															
	TB6	P04	P03	TB9																																															
	TB8	P06	P05	TB11																																															
	TB10	P08	P07	TB13																																															
	TB12	P0A	P0B	TB15																																															
	TB14	P0C	P0D	TB17																																															
	TB16	P0E	P0F	TB19																																															
	TB18	COM	24G	TB21																																															
TB20	24V		TB23																																																
TB4	485-	TB3	TX																																																
TB6	00	TB5	SG																																																
TB8	02	TB7	01																																																
TB10	04	TB9	03																																																
TB12	06	TB11	05																																																
TB14	08	TB13	07																																																
TB16	0A	TB15	09																																																
TB18	0C	TB17	0B																																																
TB20	0E	TB19	0D																																																
TB22	COM	TB21	0F																																																
TB24	24V	TB23	24G																																																

Transistor output wiring (XBC-DN32H / XEC-DN32H)

Circuit configuration	No.	Contact	No.	Contact	Type																																							
	TB2	FG	TB1	AC100	<table><tr><td rowspan="12">TB1 TB3 TB5 TB7 TB9 TB11 TB13 TB15 TB17 TB19 TB21 TB23</td><td></td><td>TB1</td></tr><tr><td>FG</td><td>AC100 ~240V</td><td>TB3</td></tr><tr><td>P</td><td>P20</td><td>TB5</td></tr><tr><td>P21</td><td>P22</td><td>TB7</td></tr><tr><td>P23</td><td>COM0</td><td>TB9</td></tr><tr><td>P24</td><td>P25</td><td>TB11</td></tr><tr><td>P26</td><td>P27</td><td>TB13</td></tr><tr><td>COM1</td><td>P28</td><td>TB15</td></tr><tr><td>P29</td><td>P2A</td><td>TB17</td></tr><tr><td>P28</td><td>COM2</td><td>TB19</td></tr><tr><td>P2C</td><td>P2D</td><td>TB21</td></tr><tr><td>P2E</td><td>P2F</td><td>TB23</td></tr><tr><td>COM3</td><td></td><td>TB1</td></tr></table>	TB1 TB3 TB5 TB7 TB9 TB11 TB13 TB15 TB17 TB19 TB21 TB23		TB1	FG	AC100 ~240V	TB3	P	P20	TB5	P21	P22	TB7	P23	COM0	TB9	P24	P25	TB11	P26	P27	TB13	COM1	P28	TB15	P29	P2A	TB17	P28	COM2	TB19	P2C	P2D	TB21	P2E	P2F	TB23	COM3		TB1
	TB1 TB3 TB5 TB7 TB9 TB11 TB13 TB15 TB17 TB19 TB21 TB23		TB1																																									
		FG	AC100 ~240V	TB3																																								
		P	P20	TB5																																								
		P21	P22	TB7																																								
		P23	COM0	TB9																																								
		P24	P25	TB11																																								
		P26	P27	TB13																																								
		COM1	P28	TB15																																								
		P29	P2A	TB17																																								
		P28	COM2	TB19																																								
		P2C	P2D	TB21																																								
P2E		P2F	TB23																																									
COM3		TB1																																										
TB4	DC12/24V	TB3	~240V	TB3																																								
TB6	21	TB5	20	TB5																																								
TB8	23	TB7	22	TB7																																								
TB10	24	TB9	COM0	TB9																																								
TB12	26	TB11	25	TB11																																								
TB14	COM1	TB13	27	TB13																																								
TB16	29	TB15	28	TB15																																								
TB18	2B	TB17	2A	TB17																																								
TB20	2C	TB19	COM2	TB19																																								
TB22	2E	TB21	2D	TB21																																								
TB24	COM3	TB23	2F	TB23																																								

Relay output wiring (XBC-DR32H / XEC-DR32H)

Circuit configuration	No.	Contact	No.	Contact	Type															
	TB2	FG	TB1	AC100	<table><tr><td rowspan="12">TB2</td><td rowspan="12">FG</td><td rowspan="12">AC100 ~240V</td><td>TB1</td></tr><tr><td>TB3</td></tr><tr><td>TB5</td></tr><tr><td>TB7</td></tr><tr><td>TB9</td></tr><tr><td>TB11</td></tr><tr><td>TB13</td></tr><tr><td>TB15</td></tr><tr><td>TB17</td></tr><tr><td>TB19</td></tr><tr><td>TB21</td></tr><tr><td>TB23</td></tr></table>	TB2	FG	AC100 ~240V	TB1	TB3	TB5	TB7	TB9	TB11	TB13	TB15	TB17	TB19	TB21	TB23
	TB2	FG	AC100 ~240V	TB1																
				TB3																
				TB5																
				TB7																
				TB9																
				TB11																
				TB13																
				TB15																
				TB17																
				TB19																
				TB21																
TB23																				
TB4	NC	TB3	~240V	TB3																
TB6	21	TB5	20	TB5																
TB8	23	TB7	22	TB7																
TB10	24	TB9	COM0	TB9																
TB12	26	TB11	25	TB11																
TB14	COM1	TB13	27	TB13																
TB16	29	TB15	28	TB15																
TB18	2B	TB17	2A	TB17																
TB20	2C	TB19	COM2	TB19																
TB22	2E	TB21	2D	TB21																
TB24	COM3	TB23	2F	TB23																

High performance type (H-Type 64 points unit)

Input wiring (XBC-DR64H / XBC-DN64H XEC-DR64H / XEC-DN64H)

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	COM0	TB21	0F		
		TB24	10	TB23	NC		
		TB26	12	TB25	11		
		TB28	14	TB27	13		
		TB30	16	TB29	15		
		TB32	18	TB31	17		
		TB34	1A	TB33	19		
		TB36	1C	TB35	1B		
		TB38	1E	TB37	1D		
		TB40	COM1	TB39	1F		
		TB42	24V	TB41	24G		

Transistor output wiring (XBC-DN64H / XEC-DN64H)

Circuit configuration		No.	Contact	No.	Contact	Type	
		TB2	FG	TB1	AC100		
		TB4	DC12/24V	TB3	~240V		
		TB6	21	TB5	20		
		TB8	23	TB7	22		
		TB10	24	TB9	COM0		
		TB12	26	TB11	25		
		TB14	COM1	TB13	27		
		TB16	29	TB15	28		
		TB18	2B	TB17	2A		
		TB20	2C	TB19	COM2		
		TB22	2E	TB21	2D		
		TB24	COM3	TB23	2F		
		TB26	31	TB25	30		
		TB28	33	TB27	32		
		TB30	35	TB29	34		
		TB32	37	TB31	36		
		TB34	38	TB33	COM4		
		TB36	3A	TB35	39		
		TB38	3C	TB37	3B		
		TB40	3E	TB39	3D		
		TB42	COM5	TB41	3F		

XGB Wiring | Block type unit

High performance type (H-Type 64 points unit)

Relay output wiring
(XBC-DR64H/XEC-DR64H)

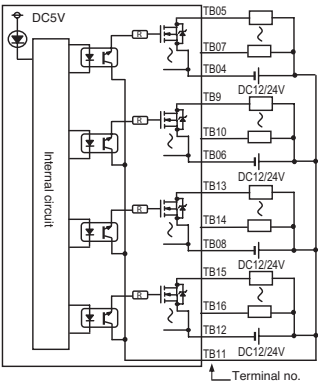
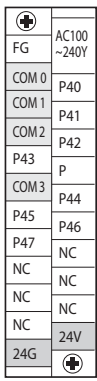
Circuit configuration		No.	Contact	No.	Contact	Type	
		TB2	FG	TB1	AC100		TB1
		TB4	NC	TB3	~240V		TB3
		TB6	21	TB5	20		TB5
		TB8	23	TB7	22		TB7
		TB10	24	TB9	COM0		TB9
		TB12	26	TB11	25		TB11
		TB14	COM1	TB13	27		TB13
		TB16	29	TB15	28		TB15
		TB18	2B	TB17	2A		TB17
		TB20	2C	TB19	COM2		TB19
		TB22	2E	TB21	2D		TB21
		TB24	COM3	TB23	2F		TB23
		TB26	31	TB25	30		TB25
		TB28	33	TB27	32		TB27
		TB30	35	TB29	34		TB29
		TB32	37	TB31	36		TB31
		TB34	38	TB33	COM4		TB33
		TB36	3A	TB35	39		TB35
		TB38	3C	TB37	3B		TB37
		TB40	3E	TB39	3D		TB39
		TB42	COM5	TB41	3F		TB41

Standard type

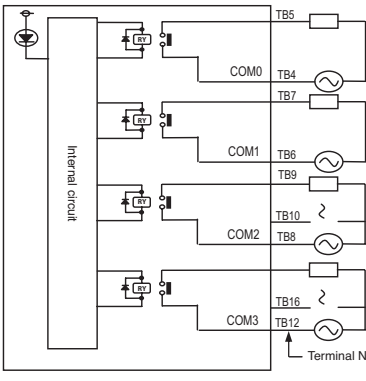
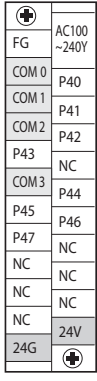
Input wiring
(XBC-DN20S (U) /
XBC-DR20SU)

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

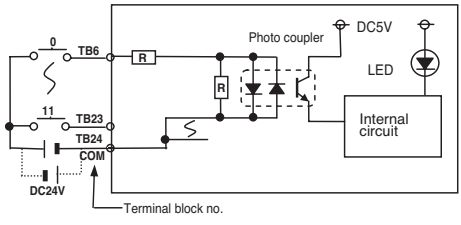
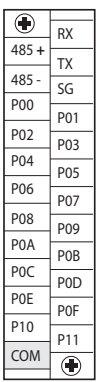
Transistor output wiring (XBC-DN20S(U))

Circuit configuration		No.	Contact	No.	Contact	Type	
		TB2	FG	TB1	AC100 ~240V		
		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		

Relay output wiring (XBC-DR20SU)

Circuit configuration		No.	Contact	No.	Contact	Type	
		TB2	FG	TB1	AC100 ~240V		
		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		

Input wiring (XBC-DN30S(U)/ XBC-DR30SU)

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		

XGB Wiring | Block type unit

Standard type

Transistor output wiring (XBC-DN30S(U))

Circuit configuration		No.	Contact	No.	Contact	Type	
		TB2	FG	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		

Relay output wiring (XBC-DR30SU)

Circuit configuration		No.	Contact	No.	Contact	Type	
		TB2	FG	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		

Economic type

Input wiring (XBC-DR10E)

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	NC	TB11	05		
		TB14	COM	TB13	NC		

Relay output wiring (XBC-DR10E)

Circuit configuration		No.	Contact	No.	Contact	Type	
		TB2	FG	TB1	AC100		TB1
		TB4	COM0	TB3	~240V		TB3
		TB6	COM1	TB5	40		TB5
		TB8	COM2	TB7	41		TB7
		TB10	43	TB9	42		TB9
		TB12	NC	TB11	NC		TB11
		TB14	24G	TB13	24V		TB13

Input wiring (XBC-DR14E)

Circuit configuration		No.	Contact	No.	Contact	Type	
		TB2	485+	TB1	RX		TB1
		TB4	485-	TB3	TX		TB3
		TB6	00	TB5	SG		TB5
		TB8	02	TB7	01		TB7
		TB10	04	TB9	03		TB9
		TB12	06	TB11	05		TB11
		TB14	08	TB13	07		TB13

Relay output wiring (XBC-DR14E)

Circuit configuration		No.	Contact	No.	Contact	Type	
		TB2	FG	TB1	AC100		TB1
		TB4	COM0	TB3	~240V		TB3
		TB6	COM1	TB5	40		TB5
		TB8	COM2	TB7	41		TB7
		TB10	43	TB9	42		TB9
		TB12	NC	TB11	NC		TB11
		TB14	24G	TB13	24V		TB13

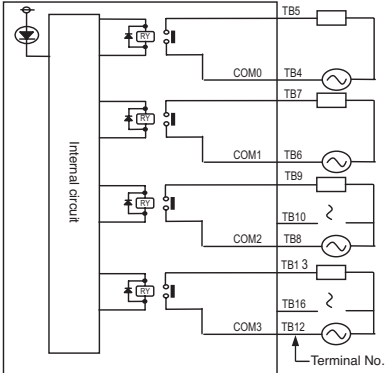
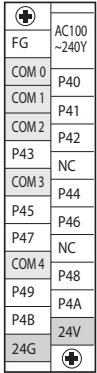
Input wiring (XBC-DR20E)

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

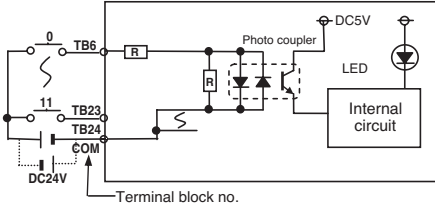
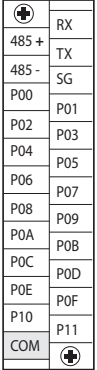
XGB Wiring | Block type unit

Economic type

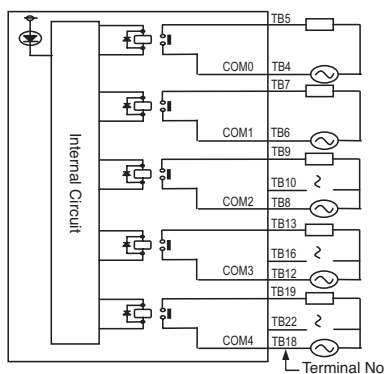
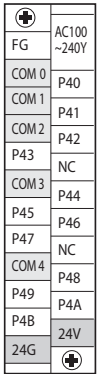
Relay output wiring (XBC-DR20E)

Circuit configuration	No.	Contact	No.	Contact	Type
	TB2	FG	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	

Input wiring (XBC-DR30E)

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	

Relay output wiring (XBC-DR30E)

Circuit configuration	No.	Contact	No.	Contact	Type
	TB2	FG	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	

Modular type unit

Programmable Logic Controller

Standard type

Input wiring (XBM-DR16S)

Circuit configuration		No.	Contact	Type
		TB1	00	TB1
		TB2	01	TB2
		TB3	02	TB3
		TB4	03	TB4
		TB5	04	TB5
		TB6	05	TB6
		TB7	06	TB7
		TB8	07	TB8
		TB9	COM	TB9

Relay output wiring (XBM-DR16S)

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

Input wiring (XBM-DN16S)

Circuit configuration		No.	Contact	No.	Contact	Type
		B10	00	A10	NC	B10
		B09	01	A09	NC	B09
		B08	02	A08	NC	B08
		B07	03	A07	NC	B07
		B06	04	A06	NC	B06
		B05	05	A05	NC	B05
		B04	06	A04	NC	B04
		B03	07	A03	NC	B03
		B02	COM	A02	NC	B02
		B01	COM	A01	NC	B01
						A10

Standard type

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	

Built-in functions | High-speed counter

Programmable Logic Controller

Performance specifications

Classification		Description			
		Block type unit			Modular type
		H-type	S(U)-type	E-type	S-type
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): output contact point of basic unit available		1 point/channel (for each channel): output contact point of basic unit available	
	Type	Select program setting, signal-compared (>, >=, =, <=, <) or section compared output (included or excluded)			
	Output Type	Relay, Open-collector output (Sink)			
Count enable		To be set through program			
Preset function		To be set through terminal (contact) or program			
Auxiliary mode		Count latch			

Input specification

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

Parts designation | Block type unit

High performance type (XBC-H)

Terminal No.	Names		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.	Names		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

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

Economic type

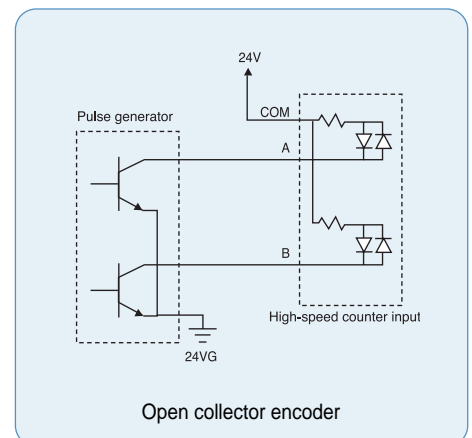
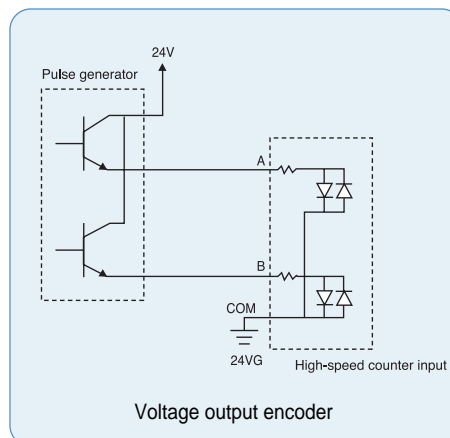
Terminal No.	Names		Usage	
	1-phase	2-Phase	1-phase	2-Phase
P000	Ch0 counter input	Ch0 A-phase input	Counter input terminal	A-phase input
P001	Ch1 counter input	Ch0 B-phase input	Counter input terminal	B-phase input
P002	Ch2 counter input	Ch2 A-phase input	Counter input terminal	A-phase input
P003	Ch3 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

Standard type

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

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

Electrical specification

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

I/O specifications | Block type unit

High performance type (XBC-H/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)	→	DC5~24V
	P00022 (%QX0.0.2)	P00023 (%QX0.0.3)	Direction	Direction/CCW (Open collector)	→	
	P		DC12V	External power supply	→	
	COM 0 ~ 3		Output COM	External 24V GND	→	

Standard type (XBC-S(U))

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)	→	DC5~24V
	P00042 (%QX0.0.2)	P00043 (%QX0.0.3)	Direction	Direction/CCW (Open collector)	→	
	P		DC12V	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		DC12/24V	External power supply	→	-
	COM		Output COM	External 24V GND	→	-

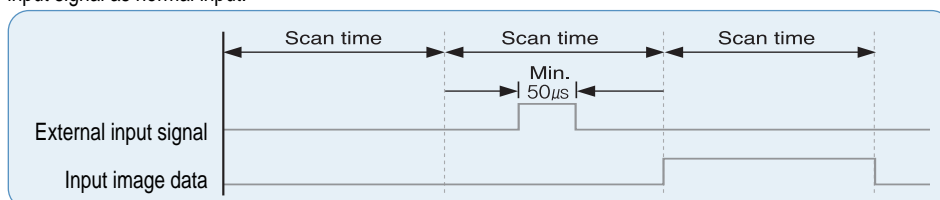
Performance specification (PID)

Classification		Description		
		Block type unit		Modular type
		H-type	S(U)-type	S-type
No. of control loop		16-loop independent control		
Control mode		P control, PI control, PD control, PID control		
Control period		10ms ~ 6,563.5ms (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, Δ MV, Δ PV, etc		

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

Pulse catch

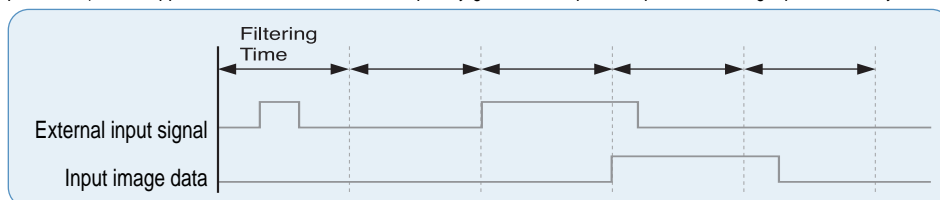
When the On-condition time of input signal is shorter than 1 scan time (Min. 50 μ s), Pulse catch processes the input signal as normal input.



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

Input filter

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



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

Task

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

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

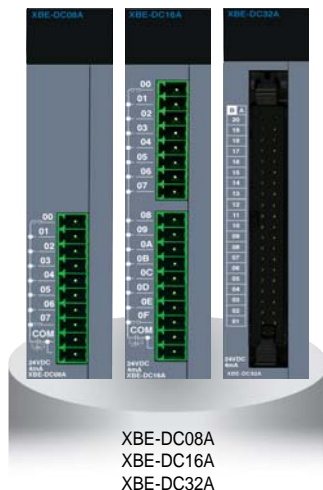
RTC

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-type	S(U)-type	E-type	S-type
RTC	Built-in	Option module	Option module	Not available

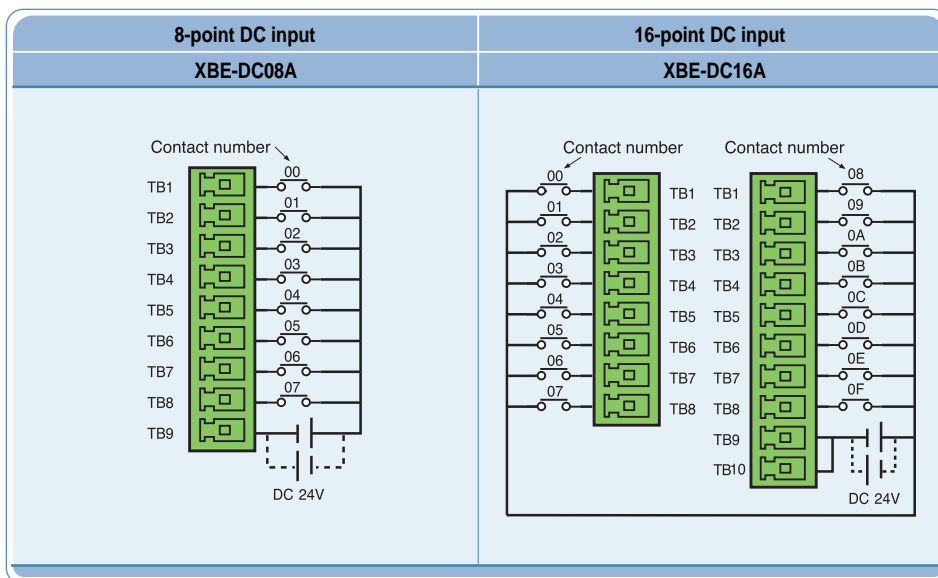


Specification

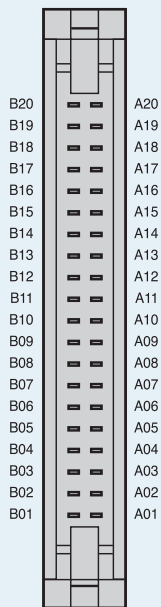


Specification	Model	XBE-DC08A	XBE-DC16A	XBE-DC32A
Input point		8 points	16 points	32 points
Rated input voltage / current		DC 24V / 4mA		
Operation voltage range		DC 20.4 ~ 28.8V (Ripple rate < 5%)		
Input resistance		5.6kΩ		
Response time	Off → On	1 / 3 / 5 / 10 / 20 / 70 / 100ms (setting by CPU parameter)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



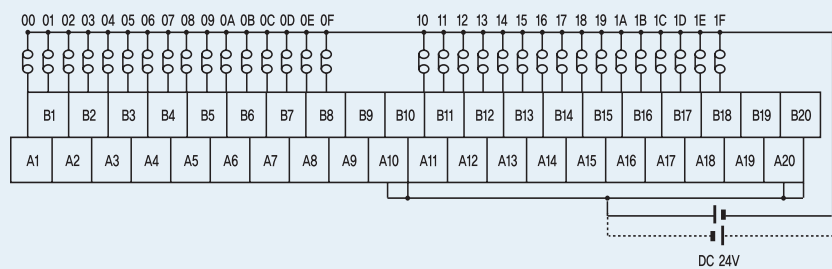
Wiring (XBE-DC32A)



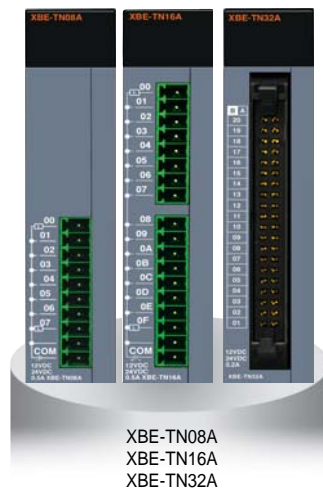
PLC				Smart Link	
Pin number		XBE-DC32A		SLP-T40P	
B20	A20	00	10	A1	A11
B19	A19	01	11	B1	B11
B18	A18	02	12	A2	A12
B17	A17	03	13	B2	B12
B16	A16	04	14	A3	A13
B15	A15	05	15	B3	B13
B14	A14	06	16	A4	A14
B13	A13	07	17	B4	B14
B12	A12	08	18	A5	A15
B11	A11	09	19	B5	B15
B10	A10	0A	1A	A6	A16
B09	A09	0B	1B	B6	B16
B08	A08	0C	1C	A7	A17
B07	A07	0D	1D	B7	B17
B06	A06	0E	1E	A8	A18
B05	A05	0F	1F	B8	B18
B04	A04	NC	NC	A9	A19
B03	A03	NC	NC	B9	B19
B02	A02	COM	COM	A10	A20
B01	A01			B10	B20

Input wiring with Smart Link (XBE-DC32A)

Terminal number

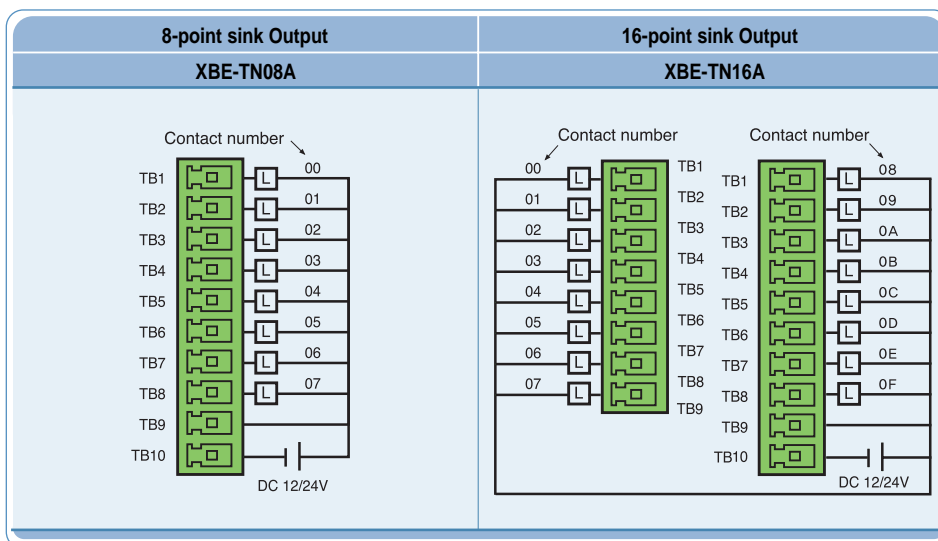


Specification

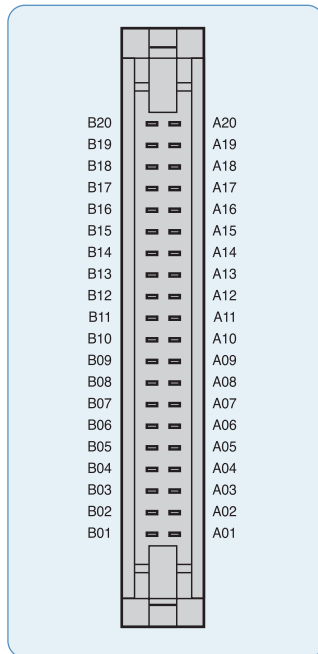


Specification		Model	XBE-TN08A	XBE-TP08A	XBE-TN16A	XBE-TP16A	XBE-TN32A	XBE-TP32A
Type			Sink	Source	Sink	Source	Sink	Source
Output point			8 point		16 point		32 point	
Rated load voltage			DC 12 / 24V					
Load voltage range			DC 10.2 ~ 26.4 V					
Max. load current			0.2A / 1point		0.2A / 1point, 2A / 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)	

Wiring (XBE-TN08A / TN16A)



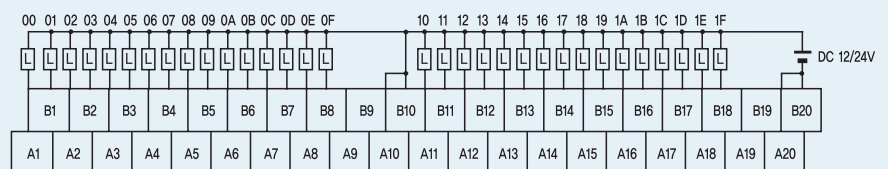
Wiring (XBE-TN32A)



PLC				Smart Link	
Pin number		XBE-DC32A		SLP-T40P	
B20	A20	00	10	A1	A11
B19	A19	01	11	B1	B11
B18	A18	02	12	A2	A12
B17	A17	03	13	B2	B12
B16	A16	04	14	A3	A13
B15	A15	05	15	B3	B13
B14	A14	06	16	A4	A14
B13	A13	07	17	B4	B14
B12	A12	08	18	A5	A15
B11	A11	09	19	B5	B15
B10	A10	0A	1A	A6	A16
B09	A09	0B	1B	B6	B16
B08	A08	0C	1C	A7	A17
B07	A07	0D	1D	B7	B17
B06	A06	0E	1E	A8	A18
B05	A05	0F	1F	B8	B18
B04	A04	NC	NC	A9	A19
B03	A03	NC	NC	B9	B19
B02	A02	DC 12 / 24V	COM	A10	A20
B01	A01			B10	B20

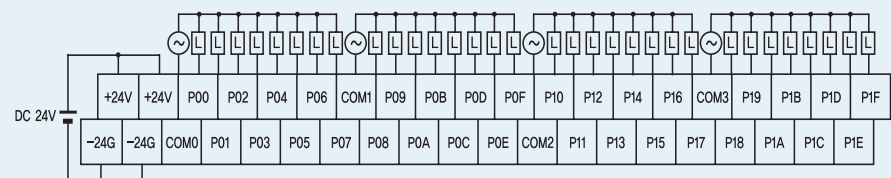
SLP-T40P Output wiring (XBE-TN32A)

Terminal number



SLP-RY4A Output wiring (XBE-TN32A)

Terminal number



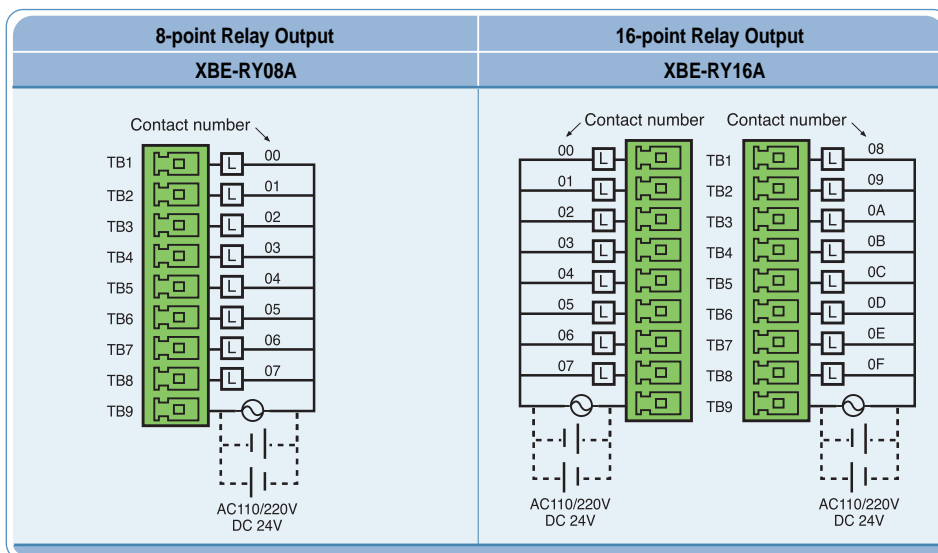
XGB Expansion | Relay output

Specification



Model		XBE-RY08A	XBE-RY16A
Specification			
Output point		8 points	16 points
Insulation method		Relay insulation	
Rated input voltage / current		DC 24V 2A (resistive load) / AC 220V 2A (COS ψ = 1), 5A /COM	
Min. load voltage / current		DC5V 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 ψ = 0.7) 100,000 times or more	
		AC 200V / 1A, AC 240V / 0.5 (COS ψ = 0.35) 100,000 tiems or more	
Response time	Off → On	10ms or less	
	On → Off	12ms or less	
COMMON method		8 points / 1COM	
Internal current consumption		230mA	420mA
Operation indicator		Output On, LED On	
External connection method		9-pin terminal block connector	

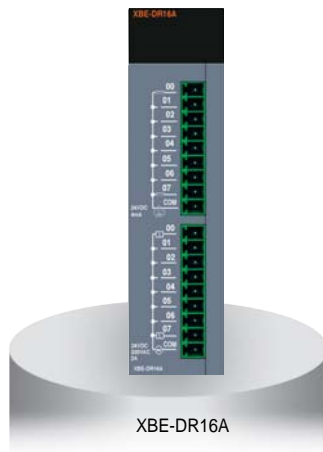
Wiring (XBE-RY08A / RY16A)



Expansion | DC Input / Relay output

Programmable Logic Controller

DC Input specification

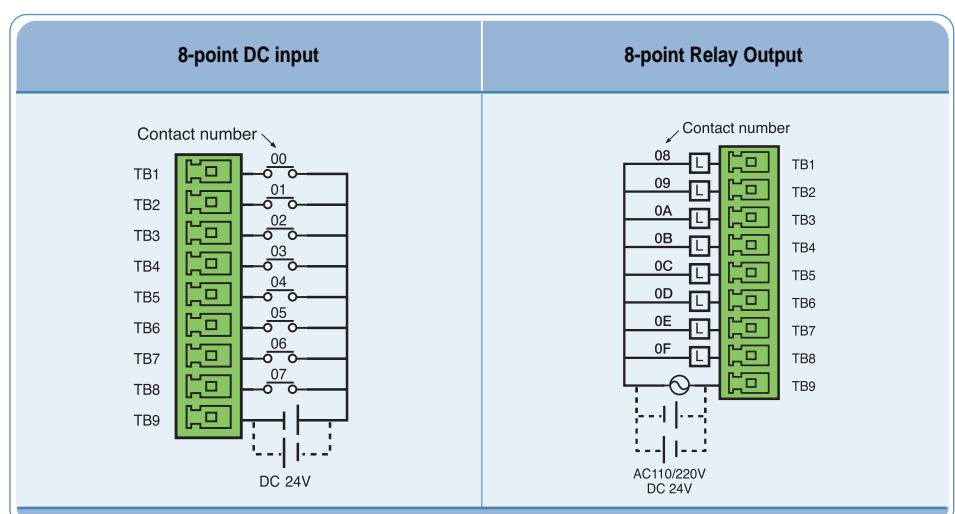


Specification	Model	DC Input (XBE-DR16A)
Input point		8 points
Insulation method		Photo coupler
Rated input voltage		DC24V
Rated input current		4mA
Operation voltage range		DC20.4 ~ 28.8V (Ripple rate < 5%)
On voltage / On current		DC19V or more / 3mA or more
Off voltage / Off current		DC6V or less / 1mA or less
Input resistance		5.6k Ω
Response time	Off \rightarrow On On \rightarrow Off	1 / 3 / 5 / 10 / 20 / 70 / 100ms (setting by CPU parameter) init value: 3ms
COMMON method		8 points / COM
Weight		81g

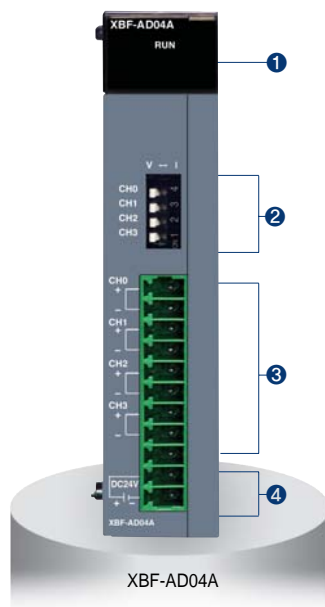
Relay output specification

Specification	Model	Relay output (XBE-DR16A)
Output point		8 points
Insulation method		Relay insulation
Rated input voltage / current		DC 24V 2A (resistive load) / AC 220V 2A (COS ψ = 1), 5A /COM
Min. load voltage / current		DC5V 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 ψ = 0.7) 100,000 times or more
		AC 200V / 1A, AC 240V / 0.5 (COS ψ = 0.35) 100,000 tiems or more
Response time	Off \rightarrow On	10ms or less
	On \rightarrow Off	12ms or less
COMMON method		8 points / 1COM
Internal current consumption		250mA
Operation indicator		Output On, LED On
External connection method		9-pin terminal block connector

Wiring (XBE-DR16A)



Specification



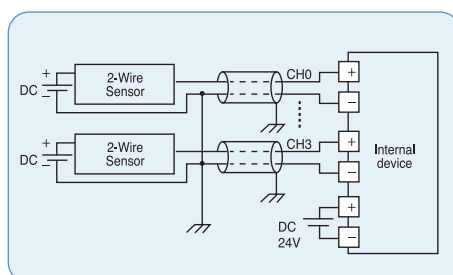
Item	XBF-AD04A			
Analog range	DC 0 ~ 10 V (input resistance: 1M Ω min.) DC 4 ~ 20mA, DC 0 ~ 20mA (input resistance 250 Ω)			
Analog range selection	XG5000 I/O Parameter			
Digital data	Analog range	0 ~ 10V	4 ~ 20mA	0 ~ 20mA
	Unsigned value	0 ~ 4000		
	Signed value	-2000 ~ 2000		
	Precise value	0 ~ 1000	400 ~ 2000	0 ~ 2000
	Percentile value	0 ~ 1000		
	Data format of digital output is set by user program or I/O parameter (Setting for each channel is available.)			
Resolution	Analog input	Resolution (1 / 4000)	Analog input	Resolution (1 / 4000)
	0 ~ 10V	2.5mV	4 ~ 20mA 0 ~ 20mA	5.0 μ A
Max. conversion speed	1.5ms / channel			
Max. absolute input				\pm 25mA
Accuracy	\pm 0.5% or less			
Analog Input channels	4 channel / module			
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	62mA		

Names and Functions

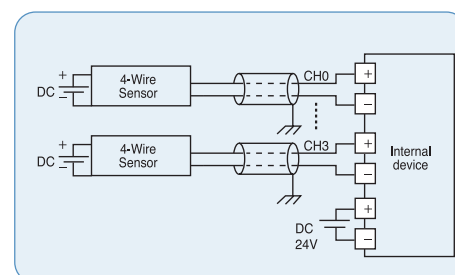
No.	Name	Descriptions
①	RUN LED	<ul style="list-style-type: none"> ► Indicates condition of module • LED On: Normal condition • LED On and Off: Error • LED Off: Power Off or module malfunction
②	Input selection S/W	<ul style="list-style-type: none"> ► Voltage / Current selection switch • V: Voltage input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

Wiring

Wiring with 2-wire sensor

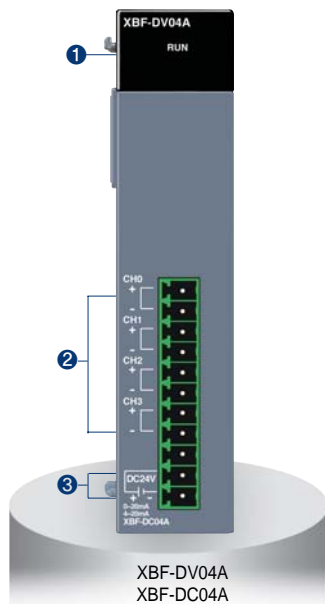


Wiring with 4-wire sensor



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

Specification

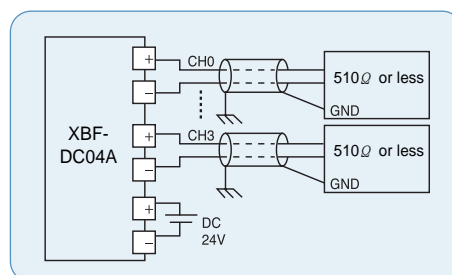
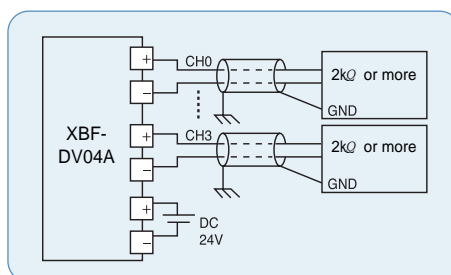


Item		XBF-DV04A	XBF-DC04A
Analog range		DC 0 ~ 10 V (Load resistance $\geq 2k\Omega$)	4 ~ 20mA / 0 ~ 20mA (Load resistance $\leq 510\Omega$)
Analog range Selection		-	XG 5000 I/O parameter
Digital data	Output range	0 ~ 10 V	4 ~ 20mA / 0 ~ 20mA
	Unsigned value	0 ~ 4000	0 ~ 4000
	Signed value	- 2000 ~ 2000	- 2000 ~ 2000
	Precise value	0 ~ 1000	400 ~ 2000 / 0 ~ 2000
	Percentile value	0 ~ 1000	0 ~ 1000
Data format		Data format of digital input is set by user program or I/O parameter (Setting for each channel is available.)	
Resolution		Resolution (1 / 4000)	
		2.5mV	5 μ A
Max. conversion speed		1ms / channel	
Max. absolute output		$\pm 15V$	$\pm 25mA$
Accuracy		$\pm 0.5\%$ or less	
Analog output channels		4 channel / module	
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	110mA	110mA
	DC 24V	70mA	120mA

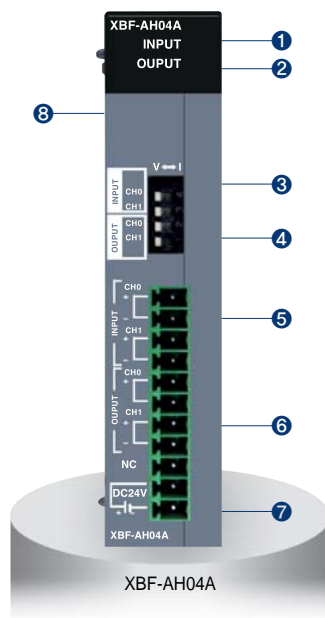
Names and Functions

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

Wiring



Specification



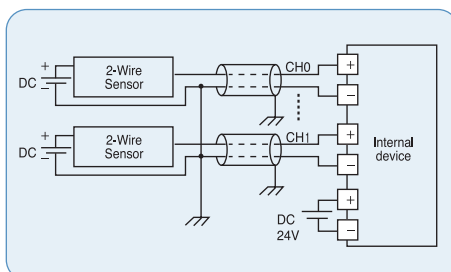
Item	XBF-AH04A	
	Input	Output
Analog channel	2 channels	
Analog range	DC 1 ~ 5V, DC 0 ~ 5V, DC 0 ~ 10V (Input resistance: 1 MΩ min.)	DC 1 ~ 5V, DC 0 ~ 5V, DC 0 ~ 10V (Load resistance ≥ 2kΩ)
	DC 4 ~ 20mA, DC 0 ~ 20mA (Input resistance 250Ω)	DC 4 ~ 20mA, DC 0 ~ 20mA (Load resistance ≤ 510Ω)
Analog range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

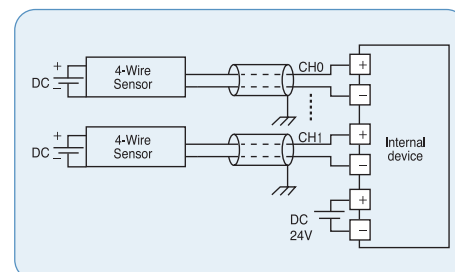
No.	Name	Descriptions
1	INPUT LED	<ul style="list-style-type: none"> ► Indicates input condition of module • LED On: Normal condition • LED On and Off: Error • LED Off: Power Off or module malfunction
2	OUTPUT LED	<ul style="list-style-type: none"> ► Indicates output condition of module • LED On: Normal condition • LED On and Off: Error • LED Off: Power Off or module malfunction
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

Wiring with 2-wire sensor (for analog input)



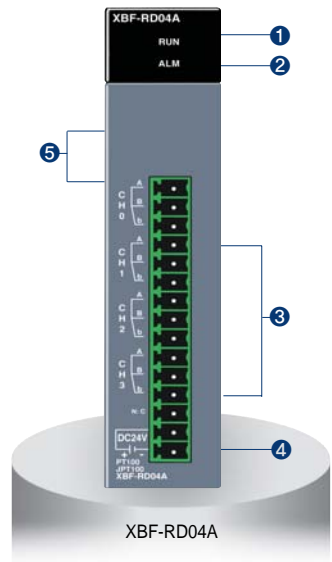
Wiring with 4-wire sensor (for analog input)



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

Expansion | RTD

Specification

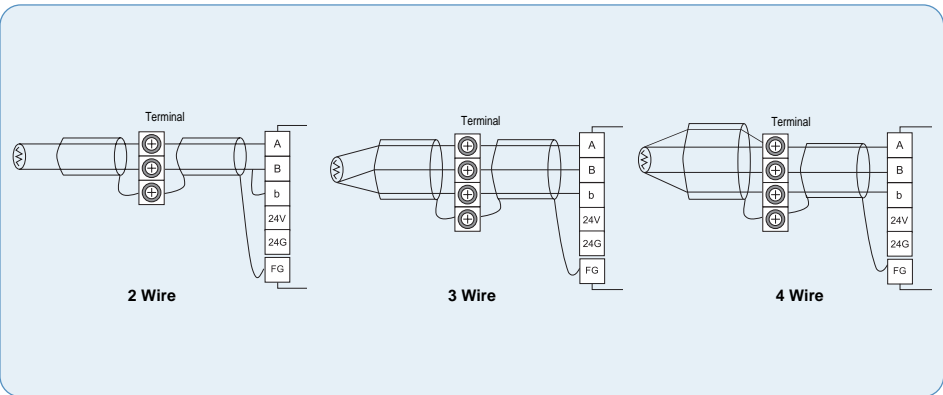


Item		XBF-RD04A
Number of channels		4
Sensor Type	PT 100	JIS C1804-1997
	JPT 100	JIS C1604-1981, KS C1603-1991
Temperature range	PT 100	- 200 ~ 600℃
	JPT 100	- 200 ~ 600℃
Digital output	PT 100	- 2000 ~ 6000
	JPT 100	- 2000 ~ 6000
	Scaling	0 ~ 4000
Accuracy	25℃	± 0.3% or less
	0 ~ 55℃	± 0.5% or less
Conversion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

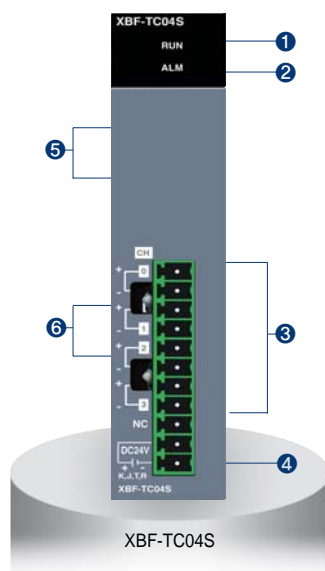
Names and Functions

No.	Name	Descriptions
①	RUN LED	► Displays the hardware operation status (Fatal fault) <ul style="list-style-type: none">• On: Normal status• Flickering: Error (0.2s flickering)• Off: hardware error or power off
②	ALM LED	► Displays the status of the channels (Light fault) <ul style="list-style-type: none">• Flickering: Line disconnection (1s flickering)• Off: Normal status
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

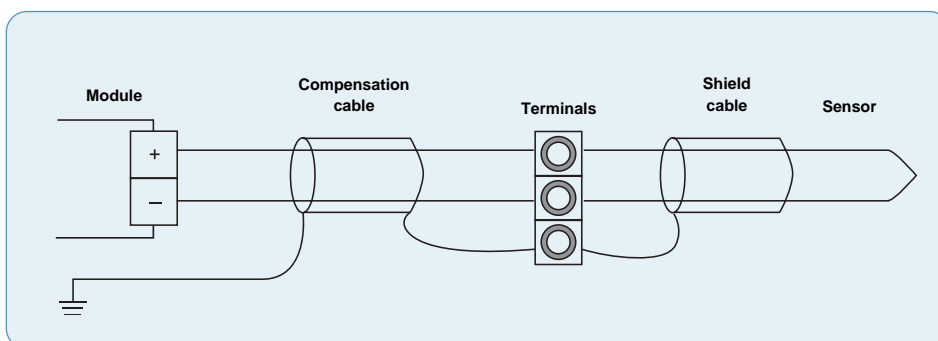


Item		XBF-TC04S
Number of channels		4
Input sensor type		Thermocouple K / J / T / R JIS C1602-1995
Temperature Input range	K	- 200.0℃ ~ 1300.0℃ (-328.0°F ~ 2372.0°F)
	J	- 200.0℃ ~ 1200.0℃ (-328.0°F ~ 2192.0°F)
	T	- 200.0℃ ~ 400.0℃ (-328.0°F ~ 752.0°F)
	R	0.0℃ ~ 1700.0℃ (32.0°F ~ 3092.0°F)
Digital output	Temperature display unit	Display down to one decimal place K, J, T: 0.1℃ R: 0.5℃
	Scaling display (Defined by user)	Unsigned scaling (0 ~ 65535)
		Signed scaling (-32768 ~ 32767)
Accuracy	Normal temperature (25℃)	±0.2%
	Temperature coefficient (0 ~ 55℃)	±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"> Displays the hardware operation status (Fatal fault) On: Normal status Flickering: Error (0.2s flickering) Off: hardware error or power off
②	ALM LED	<ul style="list-style-type: none"> Displays the status of the channels (Light fault) Flickering: Line disconnection (1s flickering) Off: Normal status
③	Terminal block	Terminals to connect the thermo-couple sensor
④	External power terminal	Terminals to supply the external DC 24V
⑤	Expansion connector	Terminal to connect the expansion modules
⑥	RJC	Device for reference junction compensation

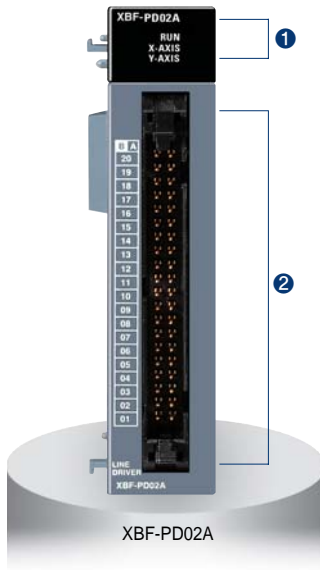
Wiring



Expansion | Positioning module

Programmable Logic Controller

Specification

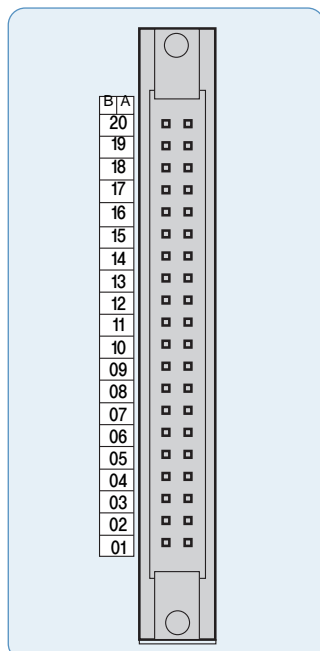


Item		XBF-PD02A
N0. of control axis		2 axis
Pulse output type		Line drive
Max. pulse output		2Mpps
Max. connection length		10m
Control mode		Position control, Speed control / Position switching control, Position / Speed switching control
Interpolation		linear interpolation, Circular interpolation
Positioning 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/秒)
	Acceleration/Deceleration type	Trapezoidal acceleration / deceleration
Acceleration/Deceleration time		0~65,535ms, Asymmetric acceleration / deceleration
Max. encoder input		200kpps(Line drive)
Error/Operation		LED
Occupied/O points (XBC)		Fixed type: 64points
Connection terminal		40pin connector
Current consumption		500mA

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+	MPG/Encoder A+ input
A20		MPG A-	MPG/Encoder A- input
B19		MPG B+	MPG/Encoder B+ input
A19		MPG B-	MPG/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(DC5V)
A02	B02	HOME COM	Zero signal Common
A01	B01	NC	-

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	Dedicated protocol service, XG5000 service
HS link sending / receiving data		200words / block (Max. 64blocks)
No. of channel connectable to upper stage		6 channels
Service		Communication with PC (HMI) and external devices, High-speed communication among LSIS PLCs
Media		UTP / STP Category 5
Current consumption		300mA

RS-232C, RS-422 / 485



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

RAPIDnet (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)
	Consumption current	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 maximum services (P2P)		2
Number of maximum 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)
	Consumption current	290
	Weight (g)	102

Option modules



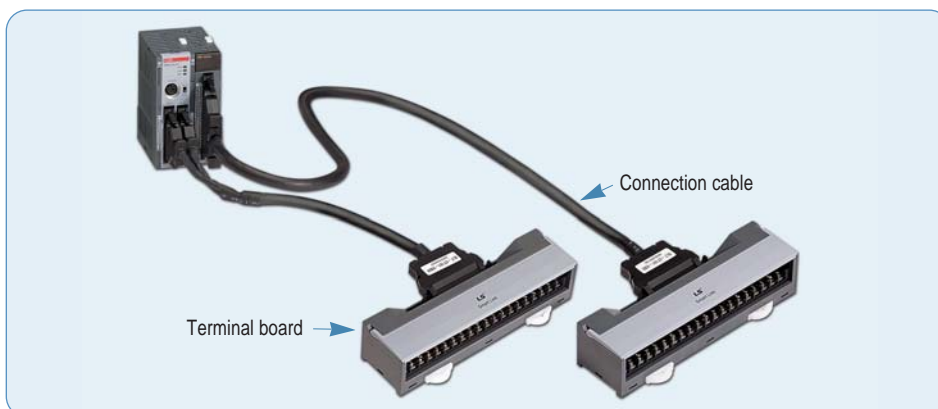
Option I/O modules

XBO-AD02A	Voltage/Current, Input 2 CHs
XBO-DA02A	Voltage/Current, Output 2 CHs
XBO-AH02A	Voltage/Current, Input 1 CH
	Voltage/Current, Output 1 CH
XBO-TC02A	TC(Thermocouple), Input 2 CHs

Option modules

XBO-M2MB	Memory
XBO-RTCA	RTC(Real Time Clock), Battery
XBO-DC04A	DC 24V, Input 4 points
XBO-TN04A	Transistor(Sink), Output 4 point
XBO-RD01A	RTD(Resistance Temperature Detect, Input 1CH)

Smart link

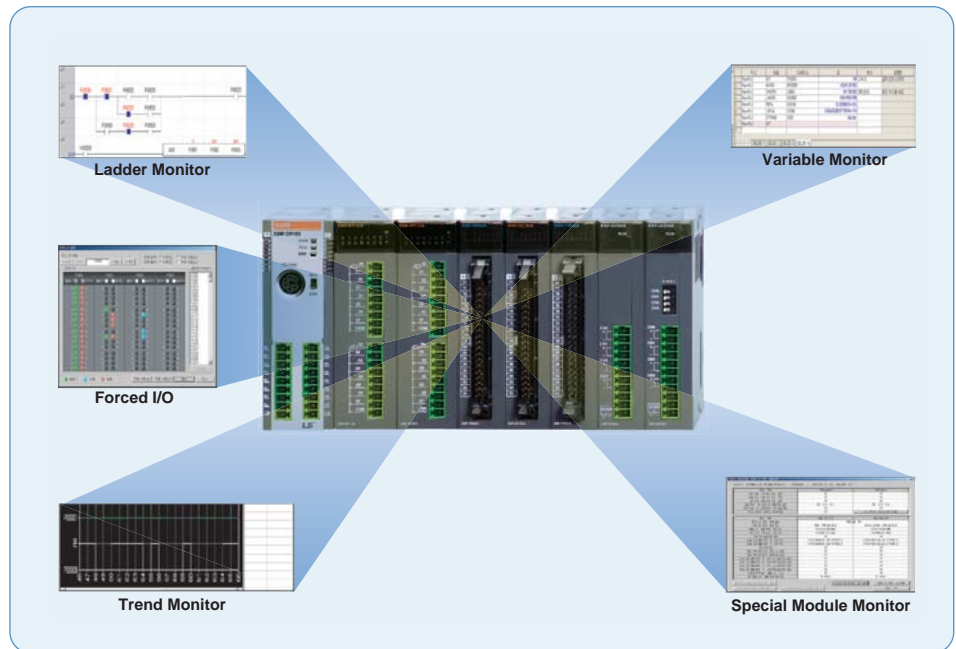


Terminal board	Connection cable	XBM-DN16S XBM-DN32S	XBE-DC32A	XBE-TN32A	XBE-TP32A	Cable length
TG7-1H40S (Terminal board)	R40H/20HH-05S-XBM3	●	—	—	—	0.5m
	R40H/20HH-10S-XBM3	●	—	—	—	1.0m
	C40HH-05SB-XBI	—	●	●	●	0.5m
	C40HH-10SB-XBI	—	●	●	●	1.0m
	C40HH-15SB-XBI	—	●	●	●	1.5m
	C40HH-20SB-XBI	—	●	●	●	2.0m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

Software

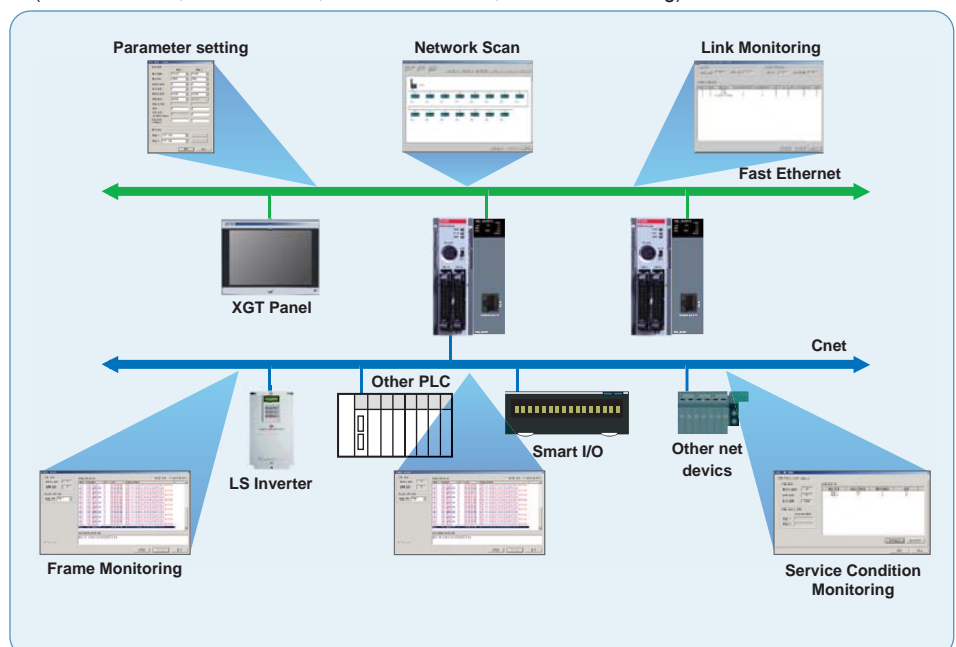
XG5000 (Programming software)

- Program editing & Engineering software
- Windows-based easy operation
- Multi-PLC, Multi-programming support
- Various monitoring and diagnosis functions
- Windows 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)



I/O specifications | Block type unit

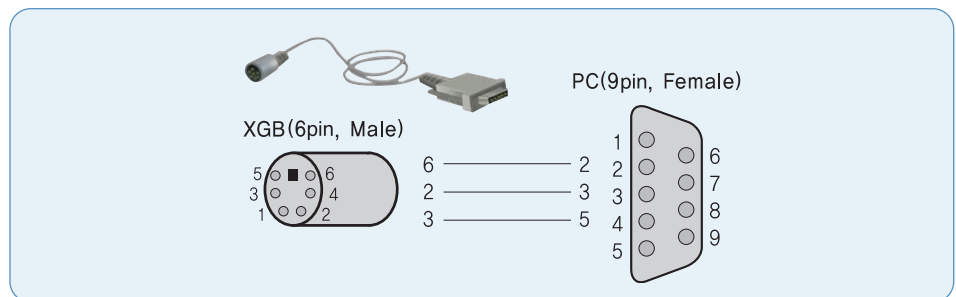
Product list

Item	Model	Specifications
Block type unit (Economic type)	XBC-DR10E	AC100~240V, 6-point DC input, 4-point Relay output
	XBC-DR14E	AC100~240V, 8-point DC input, 6-point Relay output
	XBC-DR20E	AC100~240V, 12-point DC input, 8-point Relay output
	XBC-DR30E	AC100~240V, 18-point DC input, 12-point Relay output
	XBC-DR20SU	AC100~240V, 12-point DC input, 8-point Relay output
Block type unit (Standard type)	XBC-DN20S(U)	AC100~240V, 12-point DC input, 8-point TR output
	XBC-DR30SU	AC100~240V, 18-point DC input, 12-point Relay output
	XBC-DN30S(U)	AC100~240V, 18-point DC input, 12-point TR output
Block type unit (High performance type)	XBC-DR32H	AC110~220V, 16-point DC input, 16-point Relay output
	XBC-DN32H	AC110~220V, 16-point DC input, 16-point TR output
	XBC-DR64H	AC110~220V, 32-point DC input, 32-point Relay output
	XBC-DN64H	AC110~220V, 32-point DC input, 32-point TR output
	XBC-DR32H/DC	DC24V, 16-point DC input, 16-point Relay output
	XBC-DN32H/DC	DC24V, 16-point DC input, 16-point TR output
	XBC-DR64H/DC	DC24V, 32-point DC input, 32-point Relay output
	XBC-DN64H/DC	DC24V, 32-point DC input, 32-point TR output
	XEC-DR32H	AC110~220V, 16-point DC input, 16-point Relay output
	XEC-DN32H	AC110~220V, 16-point DC input, 16-point TR output
	XEC-DR64H	AC110~220V, 32-point DC input, 32-point Relay output
	XEC-DN64H	AC110~220V, 32-point DC input, 32-point TR output
Modular type unit	XBM-DR16S	DC24V, 8-point DC24V input, 8-point relay output
	XBM-DN16S	DC24V, 8-point DC24V input, 8-point TR output
	XBM-DN32S	DC24V, 16-point DC24V input, 16-point TR output
Expansion I/O module	XBE-DC08A	8-point DC24V input
	XBE-DC16A	16-point DC24V input
	XBE-DC32A	32-point DC24V 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 DC24V input, 8-point relay output
Special module	XBF-AD04A	4-channel analog input (current/voltage)
	XBF-AH04A	2-channel analog input (current/voltage) / 2-channel analog output (current/voltage)
	XBF-DV04A	4-channel analog output (voltage)
	XBF-DC04A	4-channel analog output (current)
	XBF-RD04A	4-channel RTD input
	XBF-TC04S	4-channel Thermocouple input
	XBF-PD2A	Line drive 2axis
	XBL-C41A	Cnet (RS-422/485), 1Ch
Communication module	XBL-C21A	Cnet (RS-232C), 1Ch
	XBL-EMTA	Fast Ethernet (100Mbps), 1Ch
	XBL-EIMT	RAPIDnet, 2Ch
	XBL-EIPT	Ethernet/IP, 2Ch
Loader cable	PMC-310S	Connection cable (PC to PLC), 9pin(PC)-6pin(PLC)
	USB-301A	Connection cable (PC to PLC), USB
Memory module	XBO-M1024A	External memory for program back-up (1024Kbyte)
Option modules	XBO-A02A	Voltage/Current, Input 2Ch
	XBO-DA02A	Voltage/Current, Output 2Ch
	XBO-AH02A	Voltage/Current, Input 1Ch / Voltage/Current, Output 1Ch
	XBO-TC02A	TC (Thermo couple), Input 2Ch
	XBO-M2MB	Memory
	XBO-RTCA	RTC (Real time clock), Battery
	XBO-DC04A	DC24V, Input 4 points
	XBO-TN04A	TR (Sink), Output 4 points
	XBO-RD01A	RTD (Resistance temperature detect), Input 1Ch

Product list

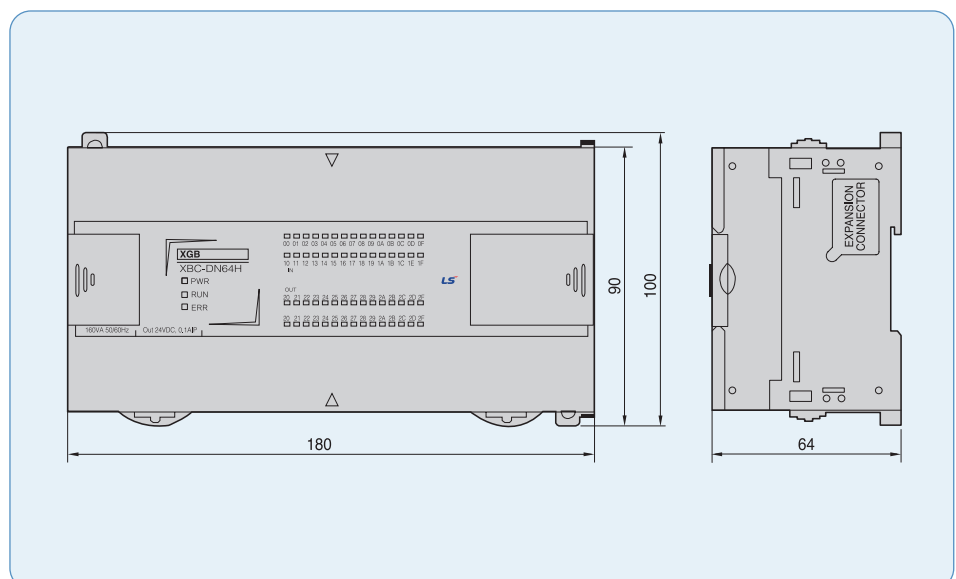
Terminal board	Connection cable	XBM-DN16S XBM-DN32S	XBE-DC32A	XBE-TN32A	XBE-TP32A	Cable length
TG7-1H40S (Terminal board)	R40H/20HH-05S-XBM3	●	—	—	—	0.5m
	R40H/20HH-10S-XBM3	●	—	—	—	1.0m
	C40HH-05SB-XBI	—	●	●	●	0.5m
	C40HH-10SB-XBI	—	●	●	●	1.0m
	C40HH-15SB-XBI	—	●	●	●	1.5m
	C40HH-20SB-XBI	—	●	●	●	2.0m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

Download cable diagram



Block type unit

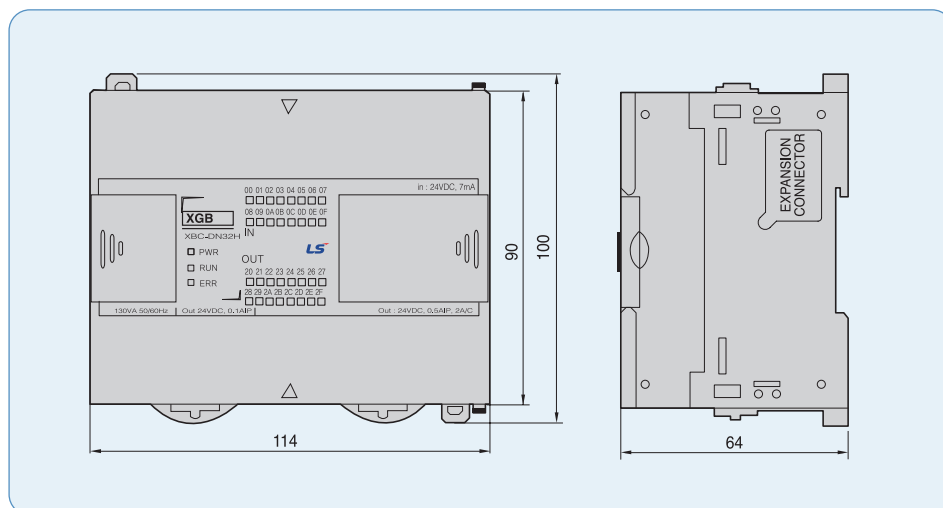
XBC/XEC-H type (64points)



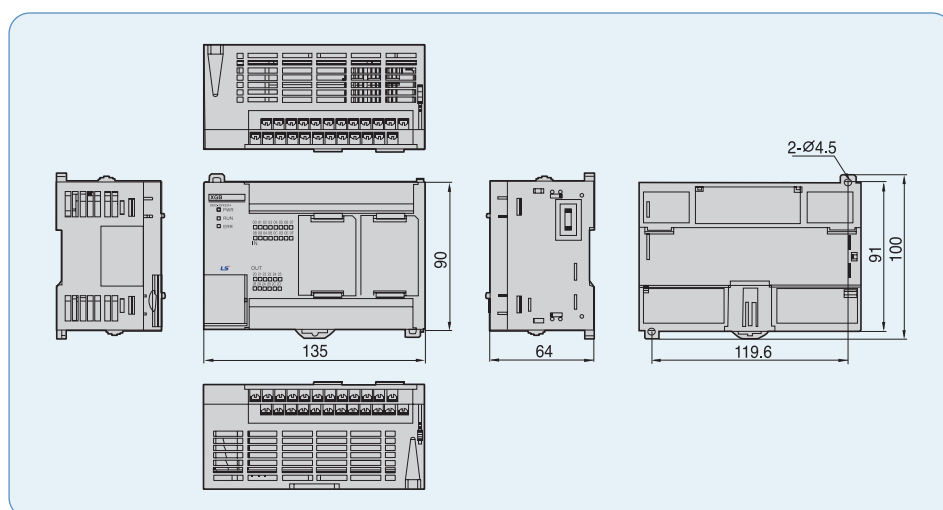
XGB Dimension

Block type unit

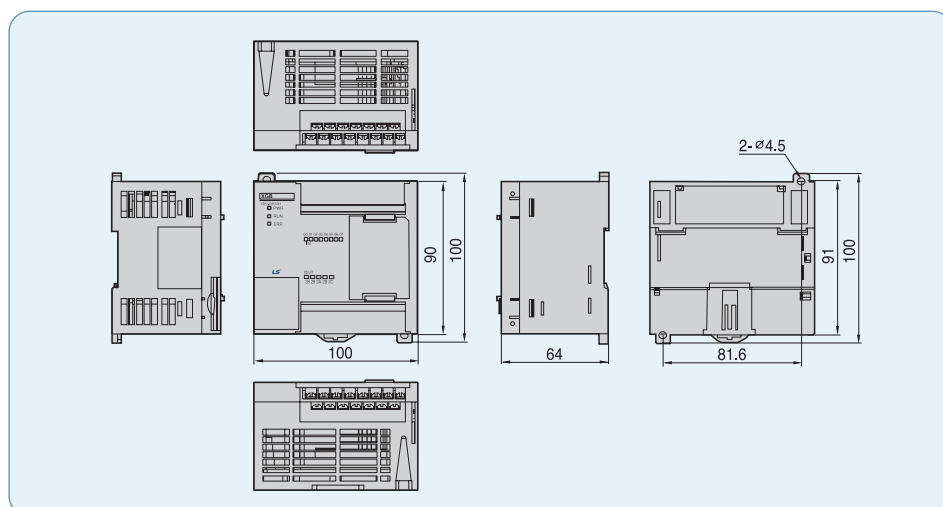
XBC/XEC-H type
(32points)



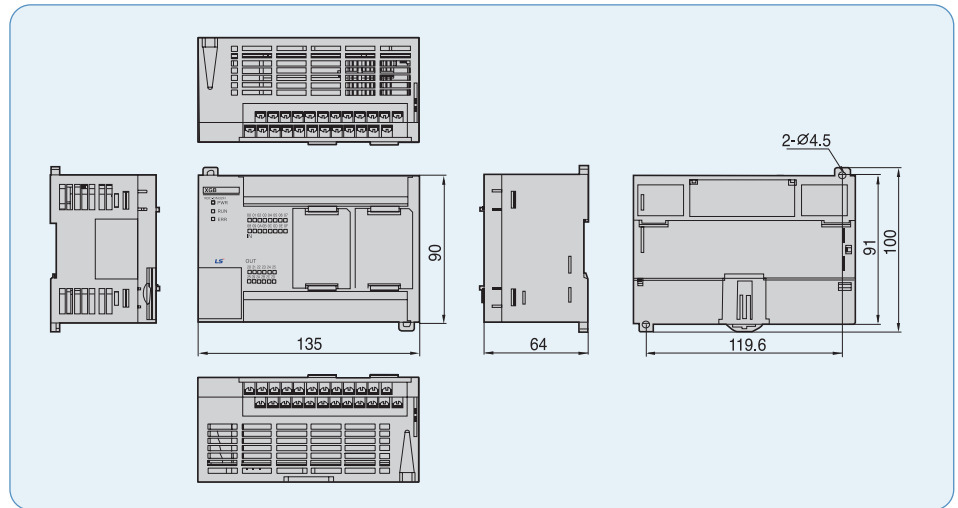
XBC-S type



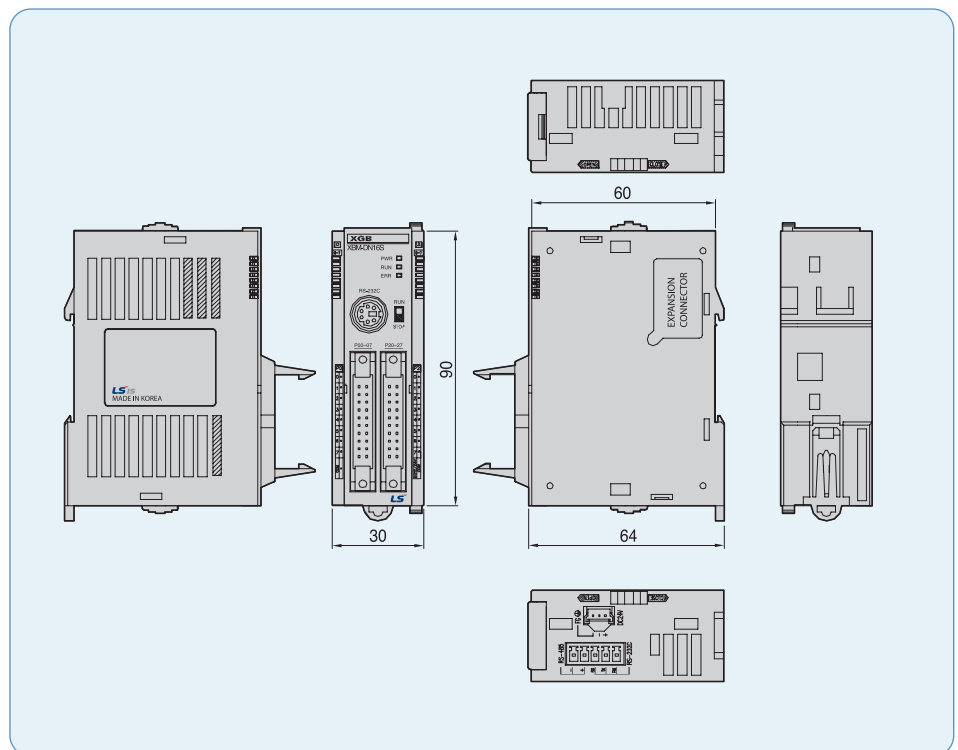
XBC-E type
(DR10E, DR14E)



**XBC-E type
(DR20E, DR30E)**



**Modular type unit
XBM-S type**



Green Innovators of Innovation



Safety Instructions

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

LS IS Co., Ltd.

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