

All-In-One PLC

With Next Generation Technology

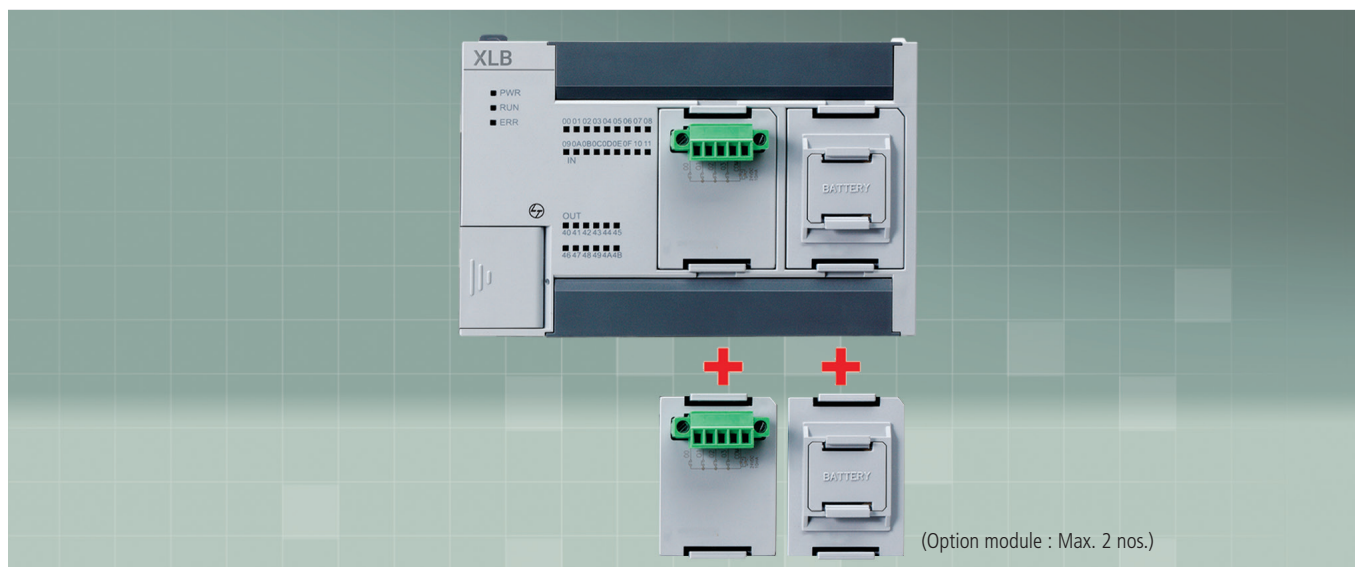


XLB Series Programmable Logic Controller for cost-effective control

XLB is a micro PLC that offers maximum performance at minimum cost. It supports from simple control system to complex task. Based on its strengths, XLB can be used in many application areas.

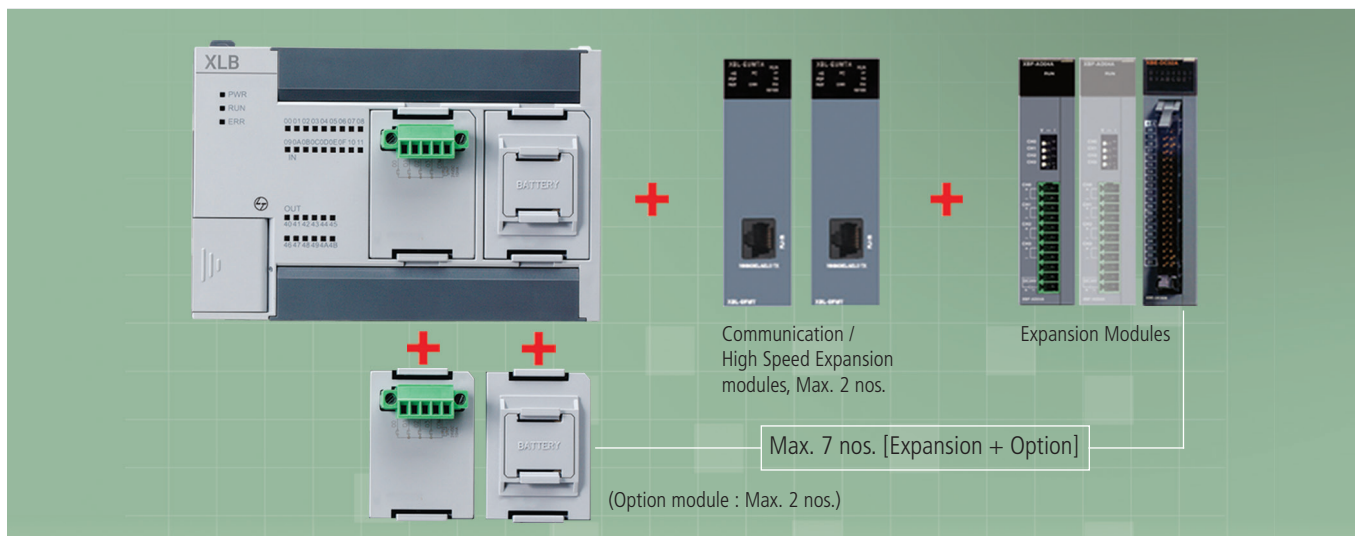
XLB Series Programmable Logic Controller

XLB-E series



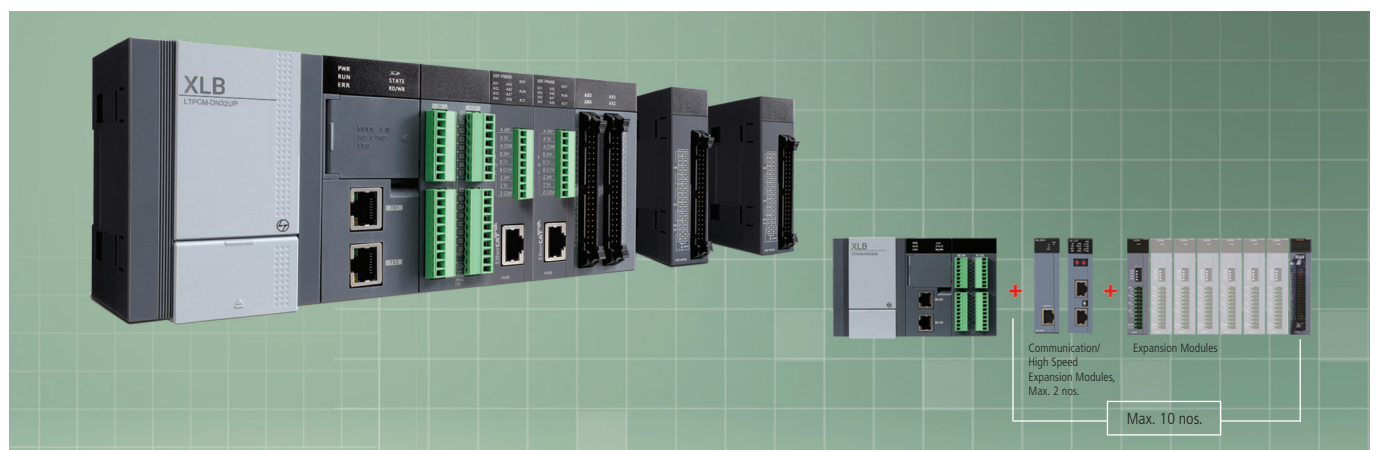
- CPU processing speed : 0.24μs/step
- I/O Points
 - Up to 38 local I/O points
- Memory
 - Program Memory : 50KB
- Data Memory : 128KB
- Floating Point
- HSC : High Speed Counter
 - 1-Ph: 4Ch @ 4kHz
 - 2-Ph: 2Ch @ 2kHz
- Pulse Catch Input
- Interrupt : 21 nos.
- Communication Ports : 2 nos.
 - 1 Ch RS-232C
 - 1 Ch RS-232C / RS-485

XLB-S series



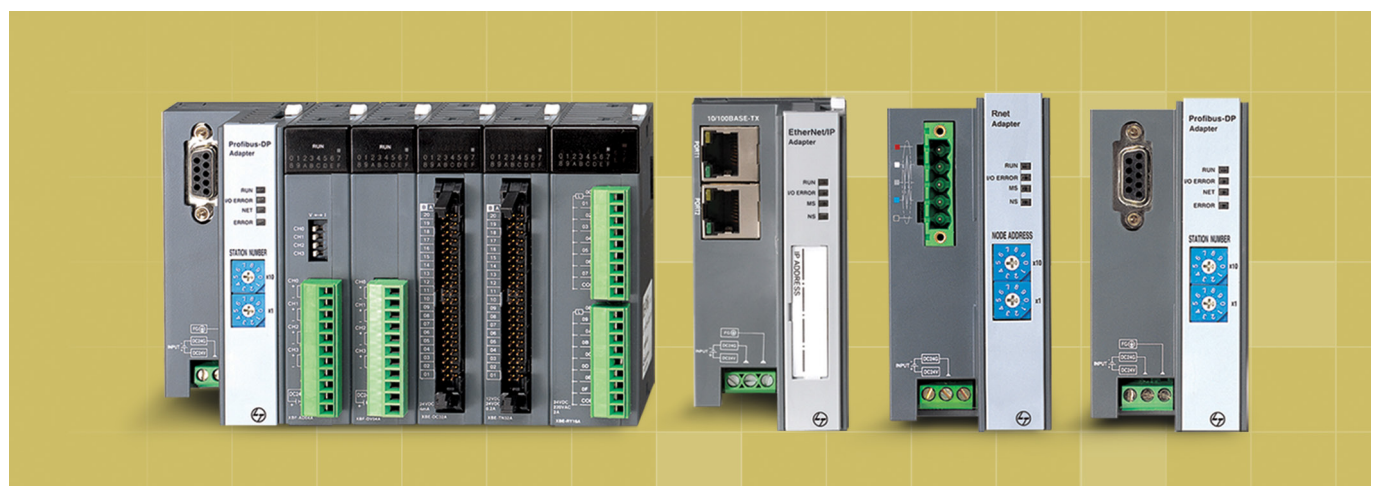
- CPU processing speed : 0.094μs/step
- I/O Points
 - Up to 284 local I/O points,
 - Up to 1820 remote I/O points
- Memory
 - Program Memory : 200KB
 - Data Memory : 128KB
- Floating Point
- HSC : High Speed Counter
 - 1-Ph : 8Ch (2Ch @ 100kHz, 6Ch @ 20kHz)
 - 2-Ph : 4Ch (1Ch @ 50kHz, 3Ch @ 8kHz)
- Pulse Catch Input
- PID : 16 Loops
- Interrupt : 25 nos.
- Positioning : 2 Axis, 100 kpps Open Collector, (Tr. Output only)
- Communication Ports : 5 nos.
 - 1 Ch USB
 - 2 Ch RS-232C / RS-485
 - 2 Communication Modules (Expansion)

XLB-U series



- CPU processing speed : 0.06μs/step
- I/O Points
 - Up to 352 local I/O points,
 - Up to 5728 remote I/O points
- Memory
 - Program Memory : 384KB
 - Data Memory : 256KB
- RTC
- Floating Point
- HSC : High Speed Counter
 - 1-Ph : 8Ch @ 100kHz
 - 2-Ph : 4Ch @ 50kHz
- Pulse Catch Input
- PID : 16 Loops
- Interrupt : 25 nos.
- Communication Ports : 6 nos.
 - 1 Ch USB
 - 2 Ch RS-232C / RS-485
 - 1 Ch Ethernet (Dual-port Ethernet)
 - 2 Communication Modules (Expansion)
- Web-Server
- SMTP E-mail service & SNTP time sync
- SD card Interface
- Analog Control - Built-in (LTPCM-DN32UA)
 - Built-in High-density analog 14bit resolution
 - Input 4ch/Output 4ch (Voltage 2ch, Current 2ch)
- Positioning - Built-in (LTPCM-DN32UP)
 - 4 axis built-in positioning control (Pulse type) up to 2Mbps
 - Support Interpolation functions (Linear, Circular, Helical)
 - Support CAM operation

Remote I/O



- Easy configuration remote system using XLB expansion I/O
- Upto 8 modules expandable with Network adaptor
- Max. 256 point digital I/O
- Max. 16 channel analog I/O
- Universal Remote I/O
- Network adaptor
 - Profibus-DP
 - Rnet
 - Modbus TCP/IP
 - Ethernet/IP

XLB Series Programmable Logic Controller

General Specifications

Items	Specification			Standard	
Operating Temp.	0 ~ 55 °C			-	
Storage Temp.	-25 ~ +70 °C				
Humidity	5 ~ 95%RH (Non-condensing)				
Vibration resistance	Occasional vibration		-	10 times each direction (X,Y and Z)	IEC61131-2
	Frequency	Acceleration	Amplitude		
	10 ≤ f < 57Hz	-	0.075mm		
	57 ≤ f ≤ 150Hz	9.8m/s ² (1g)	-		
	Continuous vibration				
	Frequency	Acceleration	Amplitude		
	10 ≤ f < 57Hz	-	0.035mm		
	57 ≤ f ≤ 150Hz	4.9m/s ² (0.5g)	-		
Shock resistance	Peak acceleration : 147 m/s ² (15g), Duration : 11ms Half-sine, 3 times each direction per each axis			IEC61131-2	
Noise resistance	Square wave impulse noise	AC: ±1,500 V DC: ±900 V		-	
	Electrostatic discharge	4kV (Contact discharge)		IEC61131-2, IEC61000-4-2	
	Radiated electromagnetic field noise	80 ~ 1,000 MHz, 10V/m		IEC61131-2, IEC61000-4-3	
	Fast transient /Burst noise	Main Unit: 2kV	Expansion Module: 1kV	IEC61131-2, IEC61000-4-4	
Environment	Free from corrosive gases and excessive dust			-	
Altitude	Up to 2,000 ms				
Pollution level*	2 or less				
Cooling	Air-cooling				

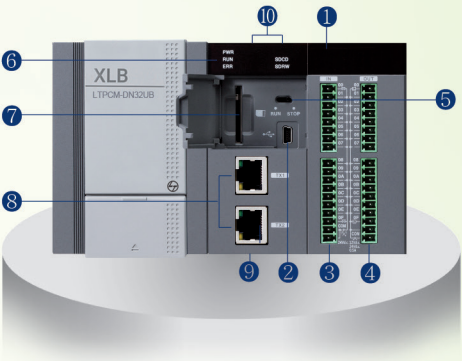
*Pollution level indicates the degree to which conductive material is generated in the environment where the equipment is used. Pollution level 2 is the condition that only non-conductive pollution occurred but temporary conductivity may be produced due to condensing.

Technical Specifications

Items		XLB-U Series	XLB-S Series	XLB-E Series
Processing speed		0.060μs/Step	0.094μs/Step	0.24μs/Step
Language		IEC 61131-3 (LD, SFC, ST)	IEC 61131-3 (LD, SFC, ST)	IEC 61131-3 (LD, SFC, ST)
Max. I/O point		352	284	38
Program memory		384 KB	200 KB	50 KB
Data memory		256 KB	128 KB	128 KB
SD Card option		upto 16GB (commercial)	-	-
Floating Point		Yes	Yes	Yes
RTC		Inbuilt	Optional	Optional
Program download		USB or Ethernet	Serial (PS2) or USB	Serial (PS2)
Max. expansion		10	7	2 (option Board only)
Built-in Comm.		Ethernet: 1Ch (Dual Port), Serial: 2Ch (RS-232C & RS-485)	Serial: 2Ch (RS-232C & RS-485)	Serial: 1Ch (RS-232 or RS-485)
Built-in function	Pulse catch Input	4pt, 10μs, 4pt, 50μs	2pt, 10μs, 6pt, 50μs	4pt, 50μs
	Input Filter	1 ~ 100 ms	1 ~ 100 ms	1 ~ 100 ms
	HSC	1-Ph: 100kHz 8Ch 2-Ph: 50kHz 4Ch	1-Ph: 100kHz 2Ch, 20kHz 6Ch 2-Ph: 50kHz 1Ch, 8kHz 3Ch	1-Ph: 4kHz 4Ch 2-Ph: 2kHz 2Ch
	PID	16 Loops	16 Loops	-
	Positioning	4 Axis, Line Drive, 2 Mpps, CAM (For DN32UP only)	2 Axis, Open Collector, 100 kpps (Tr. Output only)	-
	Task (Interrupt)	Max. 25	Max. 25	Max. 21
Operating power		AC110V ~ AC220V, DC24V	AC110V ~ AC220V	AC110V ~ AC220V

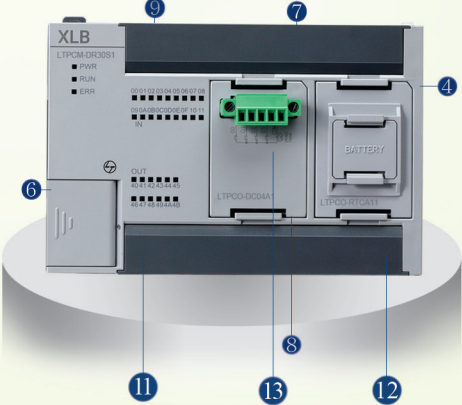
XLB-U series

No.	Name	Descritptions
1	LED for displaying input, output	Displays the On/Off status of input, output contacts
2	Connector for PADT	Programming Port USB - 1Ch
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 Enet communication	Terminal block for the embedded Enet communication
9	Terminal block for RS-232C/485	Terminal block (lower part of the product) for the embedded RS-232C/485 communication
10	Battery holder	Battery holder (upper part of the product)
11	Power terminal	Terminal block for input power supply



XLB-S / E series

No.	Name	Descritptions
1	Input LED	Displays the On/Off status of input
2	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
3	Output LED	Displays the On/Off status of output contacts
4	Expansion module connector	Connection of expansion module (only for XLB-S series)
5	Connector for PADT	Programming Port USB - 1Ch (only for XLB-S type) PS-2 (RS-232) - 1Ch
6	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.)
7	Input terminal block	Terminal block receiving the actual input signal
8	Output terminal block	Terminal block outputting the actual output signal
9	Terminal block for RS-232C/485	Terminal block for the embedded RS-232C/485 communication
10	Built-in RS-232C connector	Terminal block for the embedded RS-232 Tx/D, Rx/D, SG terminal connection
11	Input power terminal	Terminal block for input power supply
12	Output power terminal	Terminal block with 24Vdc output
13	Option module slot	Slot for option module



XLB-U SERIES

Ultimate Performance

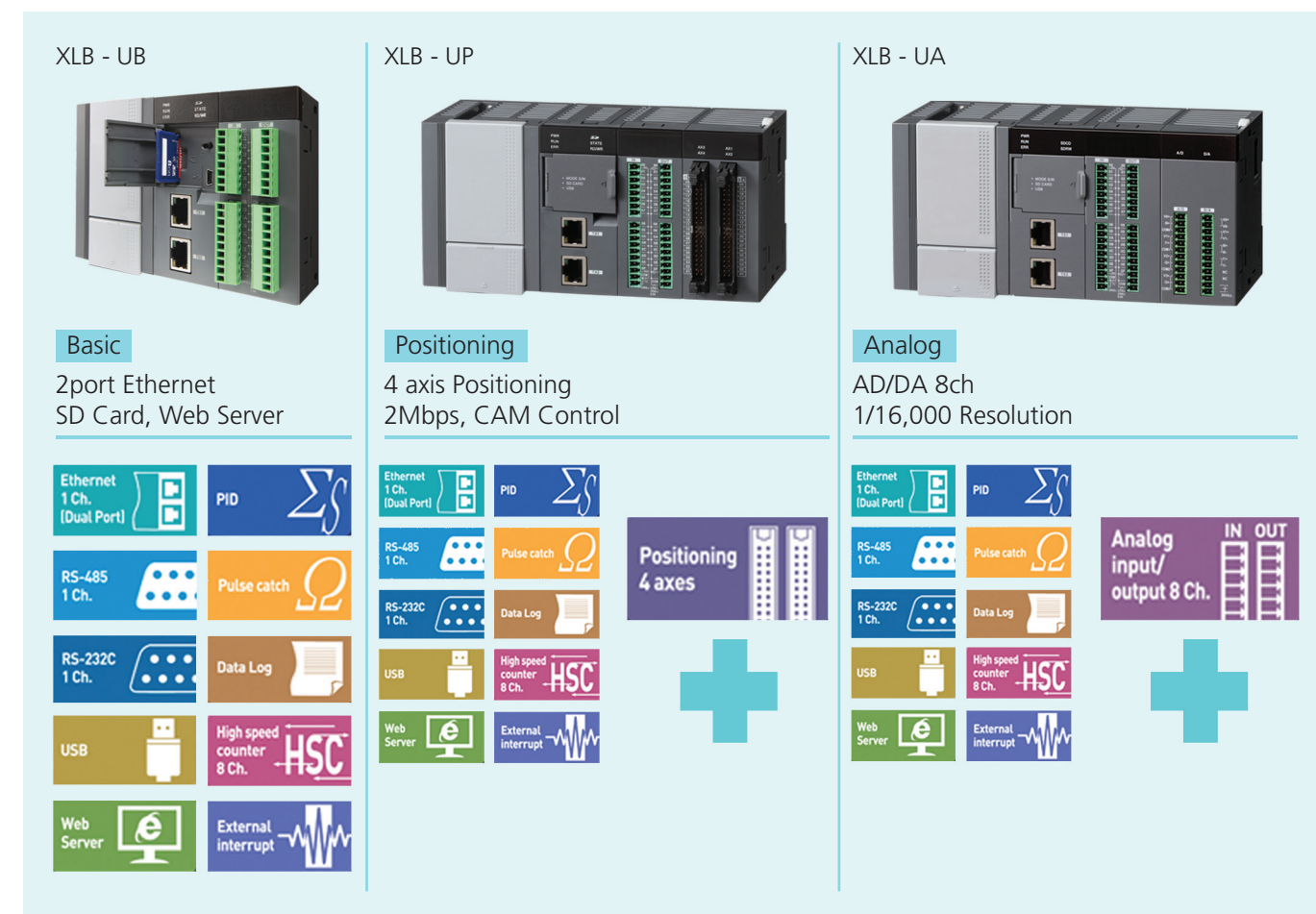
Universal I/O

User Oriented



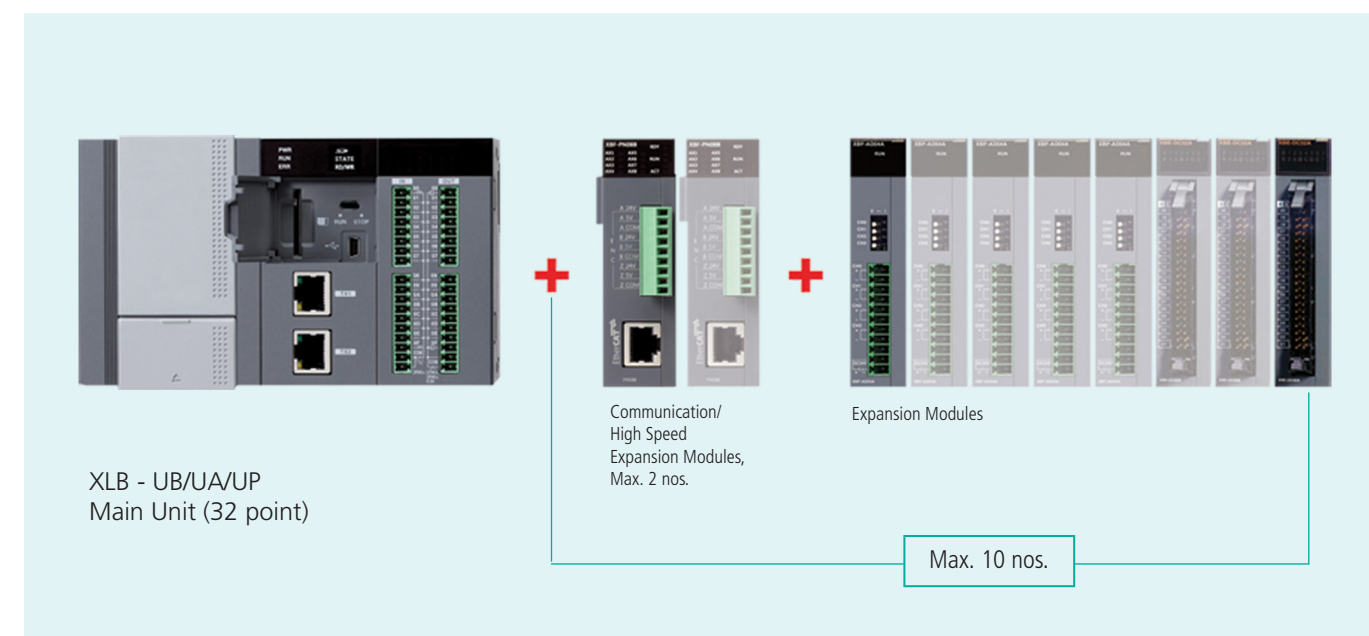
XLB-U Line up

XLB-U supports a wide variety of embedded functionality to enable users to solve a wide array of applications in the field.



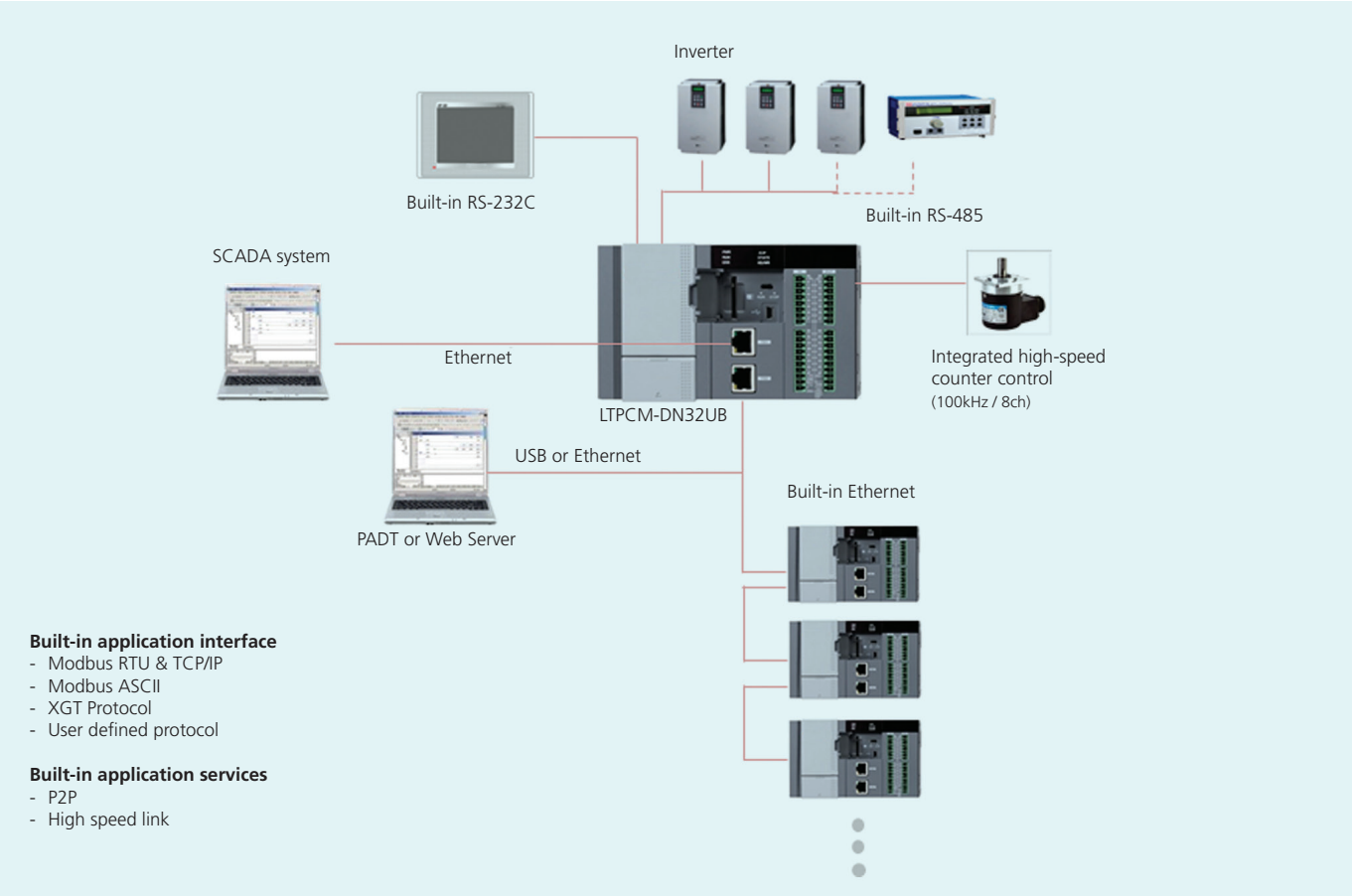
Max. input/output

- Maximize your system with flexible expansion I/O modules to locally control up to 352 points.
- 10 extension modules can be expendable quickly and easily.
- Additional connection with a smart I/O adapter can make large-scale system control.



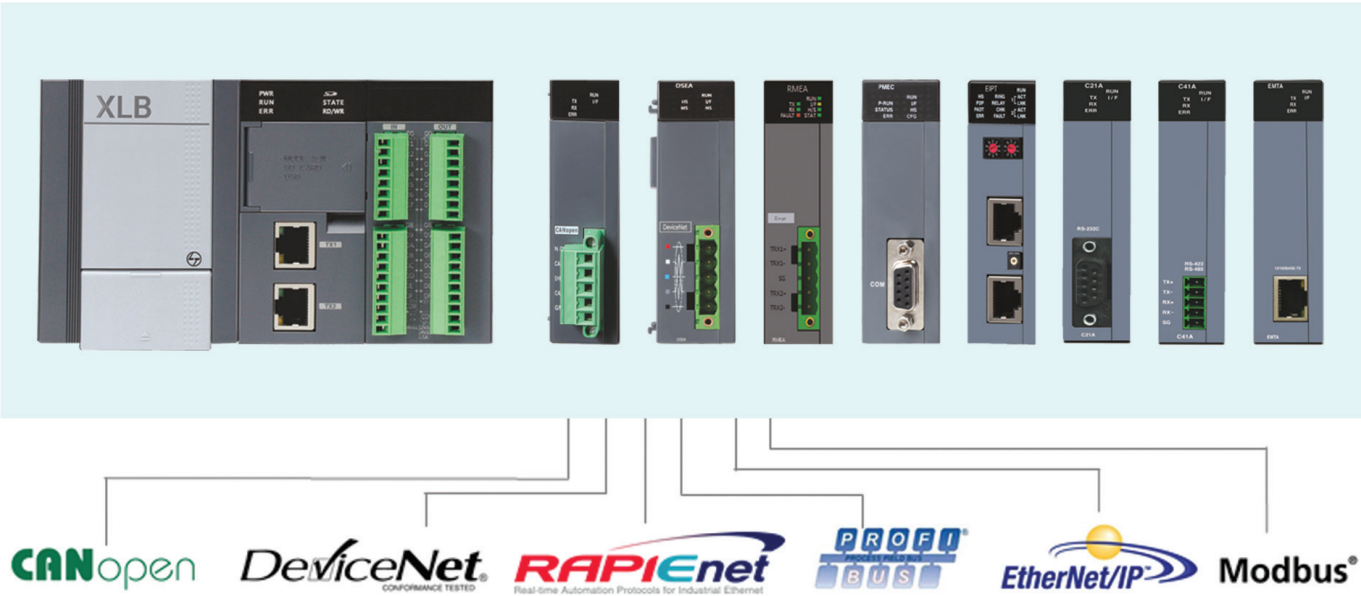
Built-in functions

- Integrated Ethernet (Dual Port), RS-232C, RS-485 provided to interface into existing network without any additional costs.
- Eliminating the need for additional hardware; space and cost effectiveness



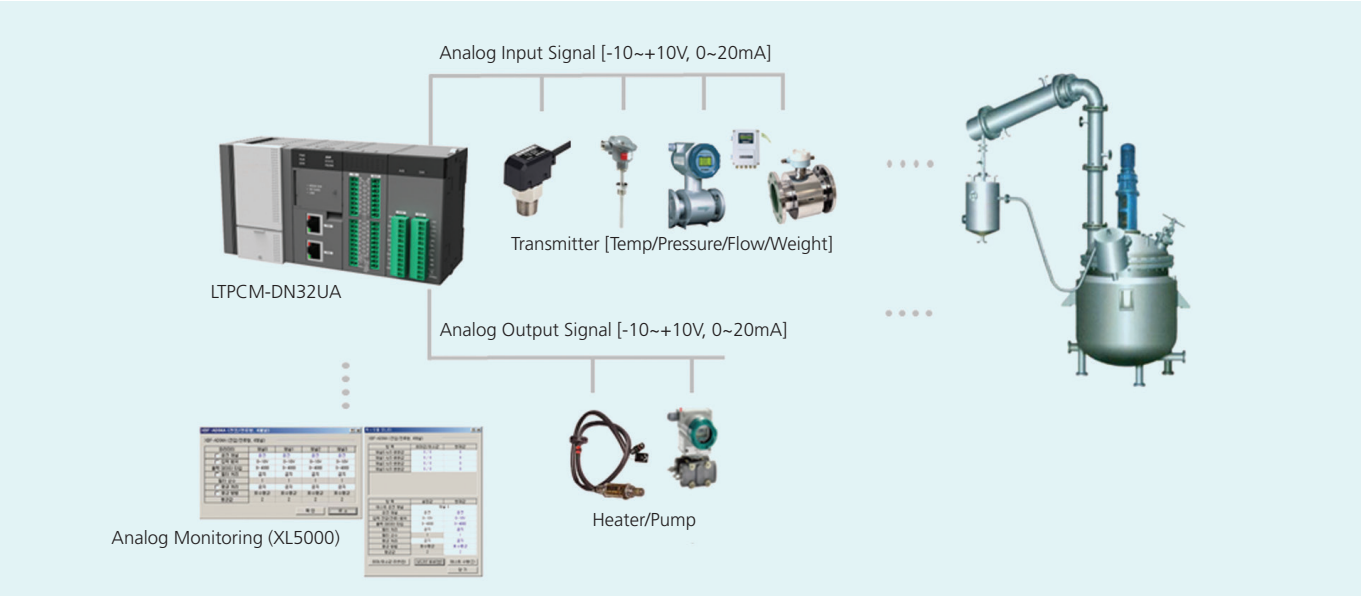
Communication Models

- Wider range of communication modules for various networks such as Ethernet/IP, Modbus, Profibus, CANopen, RAPIEnet.
- Reliable data transfer to external devices.



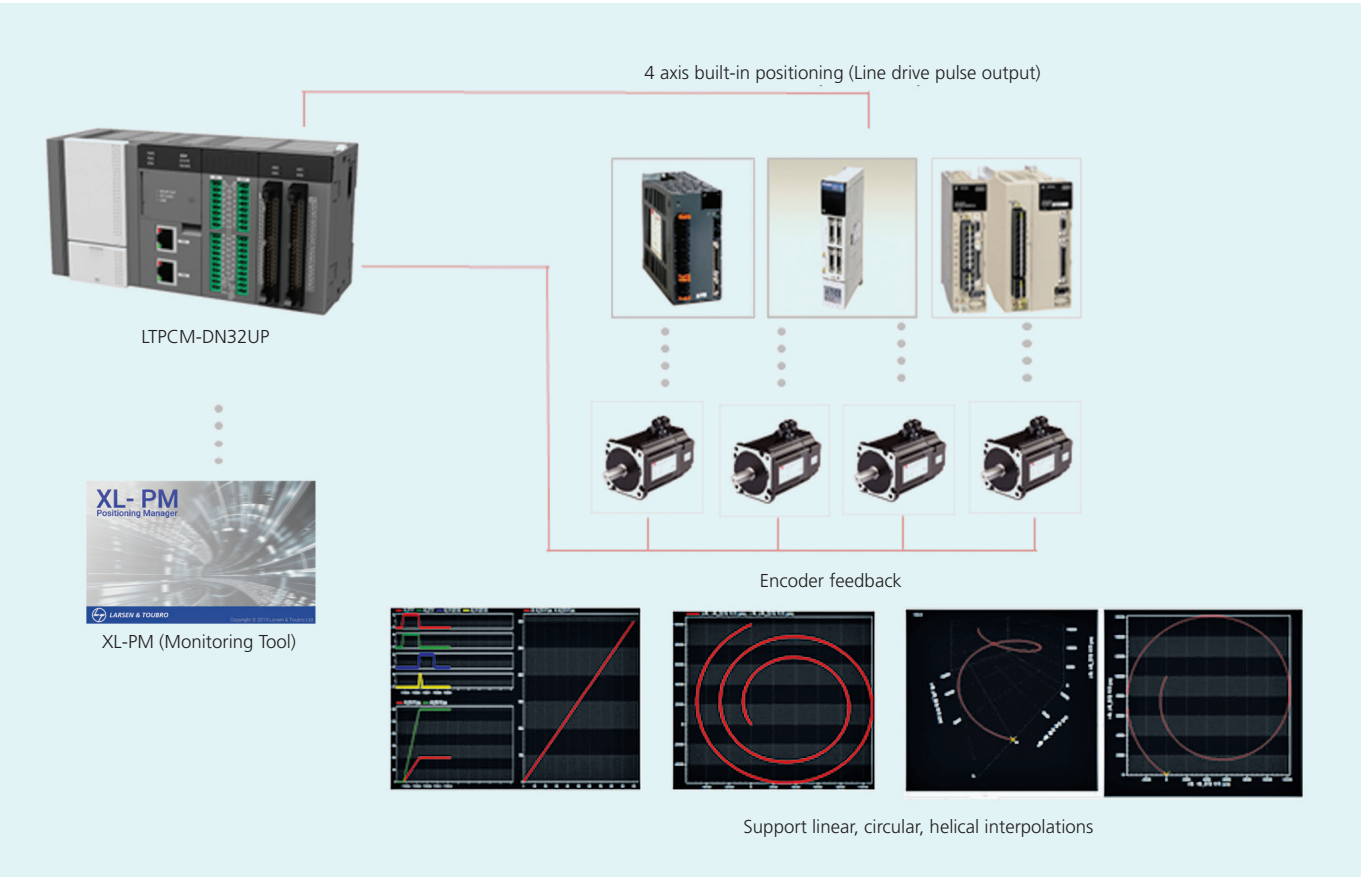
Built-in analog control

- Built-in High-density analog 14bit resolution (1/16000)
- Input 4ch/Output 4ch (Voltage 2ch, Current 2ch)
- Support output-disconnection detection, Interpolation function
- Precise 16 PID control loops
- It provides automatic tuning for a single control loop.
- Turning process also can be monitored by trend viewer visualized in detail



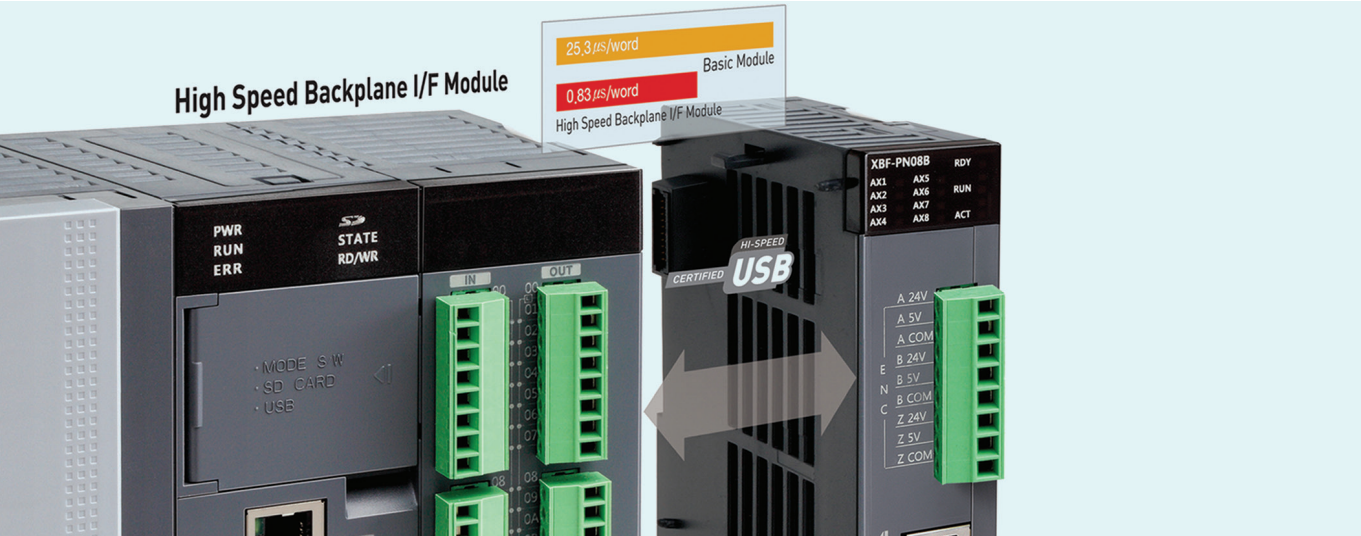
Built-in positioning

- 4 axis built-in positioning control (Pulse Input type)
- Interpolation functions (Linear, Circular, Helical), ROM Teaching
- Max speed: 2Mbps
- Support CAM operation (7blocks)
- Positioning data per axis (400ea)



High-speed backplane interface

- USB backplane for high-speed processing of extension modules.
- Support 12Mbps serial interface.



Backplane	Speed	Remark
High-speed extension module	Approx. 0.83 μs/1word	Max. 2ea installable
Communication module	Approx. 25 μs/1word	Max. 2ea installable
General module	Approx. 25 μs/1word	Max. 10ea installable

Total 10 modules installable

Dual-port Ethernet

- Support switch function to build up Daisy Chain Topology with less complexity and low cost
- Auto MDIX (Medium Dependent Interface Crossover) enables a user to use both straight, cross cables for connection



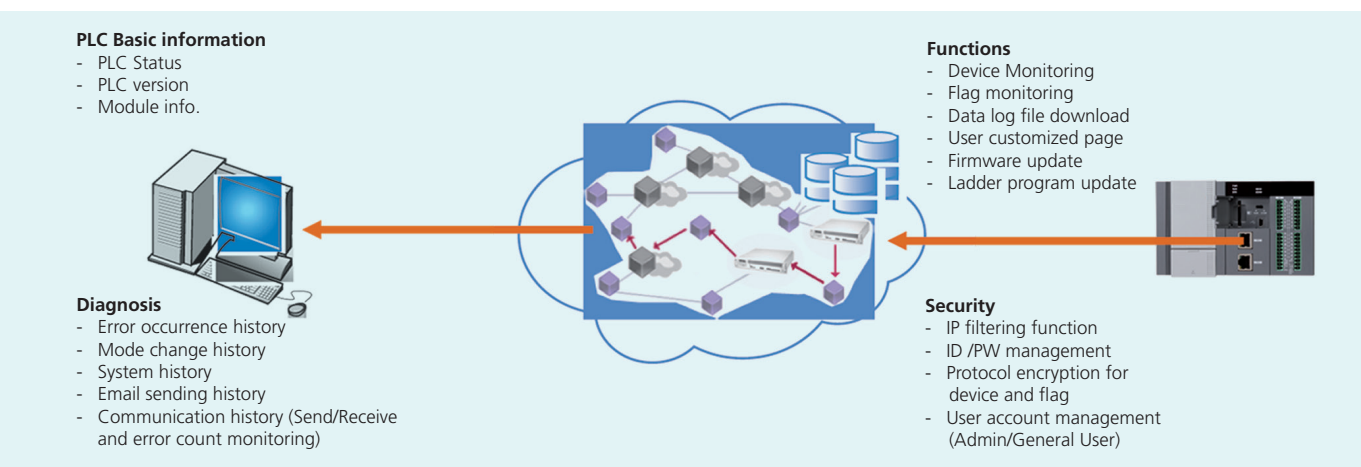
SD card usage

- Data logging function simply with commercial SD card (Max. 16GB).
- Support various logging conditions.
- Easy to update OS firmware with SD card.
- Easy to up/download project from/to SD card.
- Remote SD card format available.



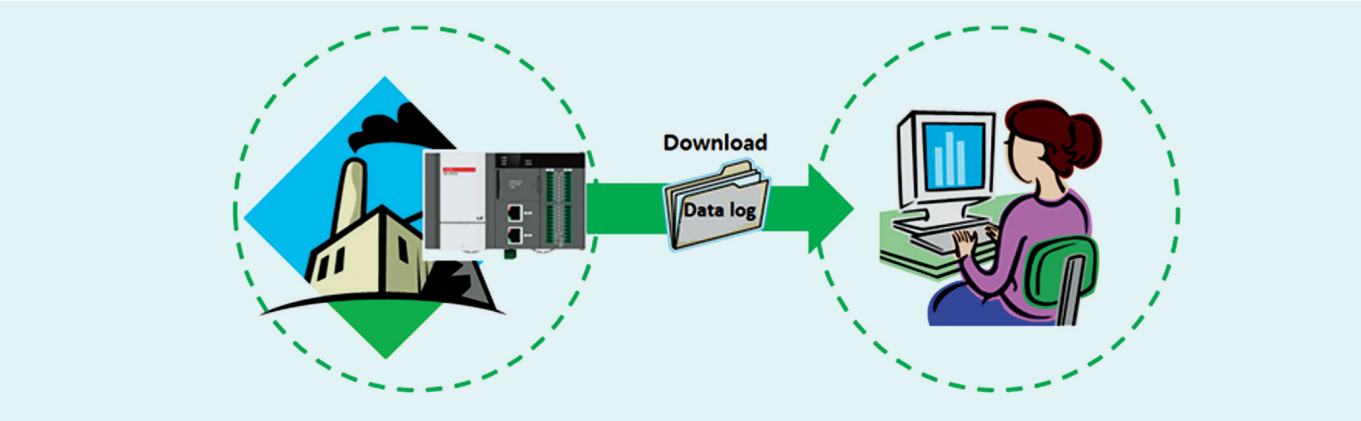
Web Server

- Monitor/Control data in PLC through commercial web-browser
- Upto 4 web clients can access the web server at a time



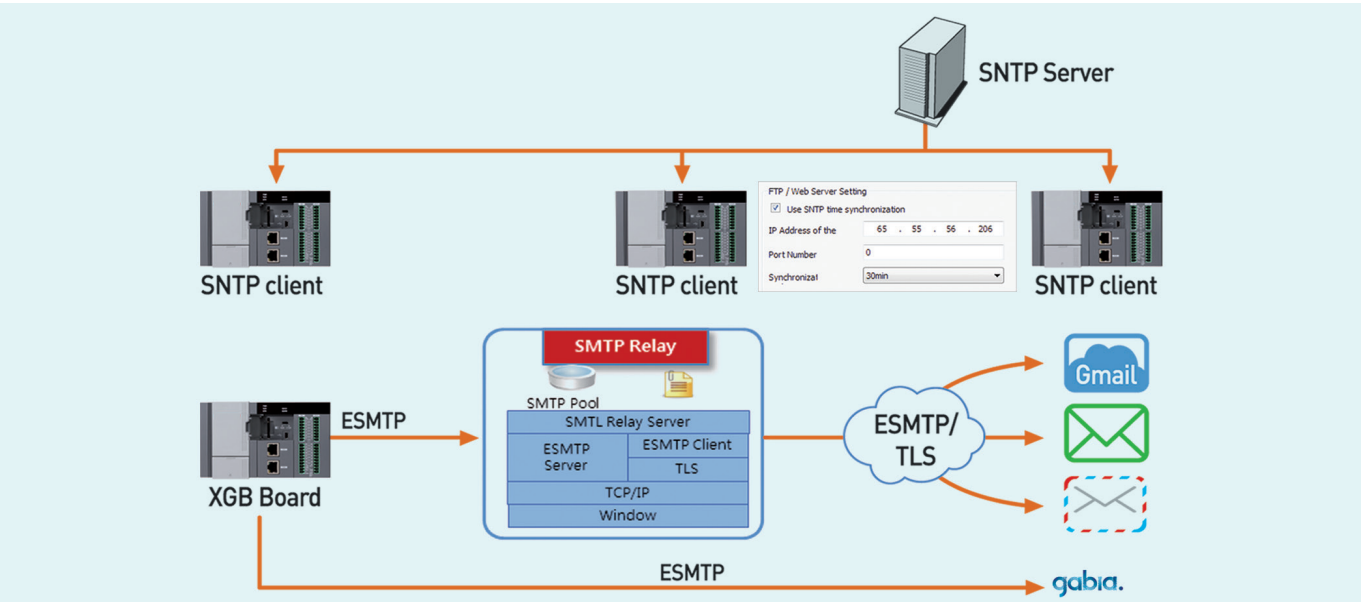
FTP Server

- PLC logging data is transmitted to the office through FTP and saved in PC.



SMTP E-mail service & SNTP time sync

- Time synchronization by setting basic parameters (SNTP: Simple Network Time Protocol)
- Email service through commercial email (SMTP: Simple Mail Transfer Protocol)



Performance Specifications

Items			Specifications			Remark
			LTPCM- DN32UB	LTPCM-DN32UA	LTPCM-DN32UP	
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, SFC, ST			-
No. of instruction	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			384KB			-
Max. I/O points			352points			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 s)			-
Counter			No limit in points (Counter range: 64 bit)			-
Total program			256			-
Task	Initial task		1			-
	Cyclic task		Max 16			-
	I/O task		Max 8			-
	Internal device task		Max 16			-
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			700mA	780mA	1,250mA	-
Weight			571g	683g	673g	-

Performance Specifications

Built-in					
Items		Specifications			Remark
		LTPCM-DN32UB	LTPCM-DN32UA	LTPCM-DN32UP	
PID control		Control by instruction, auto-tunning, PWM output, Forced output, Operation scan time setting, Antiwindup, Delta MV, PV tracking, Hybrid operation, Cascade operation			-
Serial	Protocol	Dedicated protocol, Modbus protocol User defined protocol , LT bus(inverter protocol)			Embedded00
	Channel	RS-232C 1 port and RS-485 1 port			
Ethernet	Transfer spec	Cable: 100Base-TX, Speed: 100Mbps Auto-MDIX*1, IEEE 802.3			-
	Topology	Line, star			
	Diagnosis	Module information, service condition			
	Protocol	XGT dedicated, Modbus TCP/IP user define frame			Embedded01, P2P:02 High-speed link:01
	Service	P2P, High Speed link, Remote connection			
	Datalog	Group	Max 10 group		
Data set		32 per group			
Extension		csv file			
File size		Max 16Mbyte			
SD memory type		SD,SDHC type (Recommand: SanDisk,Transcend)			
Memory size		Max 16GB			
File system		FAT32			
High Speed Counter	Performance	1-phase : 100kHz 8 channels 2-phase : 50kHz 4 channels			-
	Counter mode	4 counter modes are supported based on input pulse and INC/DEC method 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			
	Function	Internal/external preset, Latch counter, Compare output, No. of rotation per unit time			
Pulse catch		50μs 8point(%IX0.0.8 ~ %IX0.0.15)			-
External Interrupt		50μs 8point(%IX0.0.8 ~ %IX0.0.15)			-
Input filter		1,3,5,10,20,70,100ms (adjustbale)			-

*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

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

Performance Specifications

Built-in Analog Module					
Items		Specifications			Remark
Analog input	Channels	4channels (current/voltage)			Available On UA 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	1MΩ or more(voltage input), 250Ω (current iput)		
		Max.Resolution	1/16000		
			0.250mV (1 ~ 5V), 0.3125mV (0 ~ 5V) 0.625mV (0 ~ 10V), 1.250mV (±10V)	1.0μA (4 ~ 20mA) 1.25μA (0 ~ 20mA)	
		Accuracy	±0.2% or less (When ambient temperature is 25°C) ±0.3% or less (When ambient temperature is 0 ~ 55°C)		
Analog output	Channels	Voltage 2 channels ,Current 2 channels			Available On UA 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	1MΩ or more(voltage output), 600Ω or less (current output)		
		Max.Resolution	1/16000		
			0.250mV (1 ~ 5V), 0.3125mV (0 ~ 5V) 0.625mV (0 ~ 10V), 1.250mV (±10V)	1.0μA (4 ~ 20mA) 1.25μA (0 ~ 20mA)	
		Accuracy	±0.2% or less (When ambient temperature is 25°C) ±0.3% or less (When ambient temperature is 0 ~ 55°C)		

Power Supply Specifications

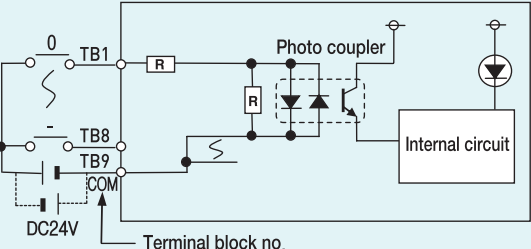
Items		Specifications				
		AC power			DC power	
Input	Input voltage range	AC85V ~ AC264V			Input voltage range	
	Rated input voltage	AC100V ~ AC240V			DC19.2~28.8V	
	Input frequency	50/60 ± 3 Hz (47 ~ 63 Hz)			-	
	input current	1.2A or less			1.6A or less	
		0.6A or less				
	Inrush current	120Apeak or less			100 A peak or less	
	Leakage current	1mA or less			3mA or less	
	Efficiency	65% or more			65% or more	
Permitted momentary power failure	10ms or less			7ms or less		
Output	Output voltage	voltage	Output voltage Ripple rate	current	Output voltage Ripple rate	current
		+5V	4.90~5.15V	5A	4.90~5.15V	5A
		+24V	21.1~26.9V	0.4A	-	-
	Ripple & Noise	voltage	ripple	noise	ripple	noise
		+5V	100mV pp or lese	200mV pp or less	100mV pp or lese	200mV pp or less
		+24V	400mV pp or less		-	
	Protecting overcurrent	+5V	5.5A or more		5.5A or more	
		+24V	0.44A or more		-	

* For protection of the power supply, you are recommended to use the power supply with the maximum of 4A fuse.

Wiring Details

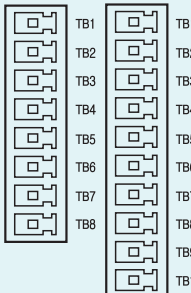
Input wiring details

Circuit Configuration



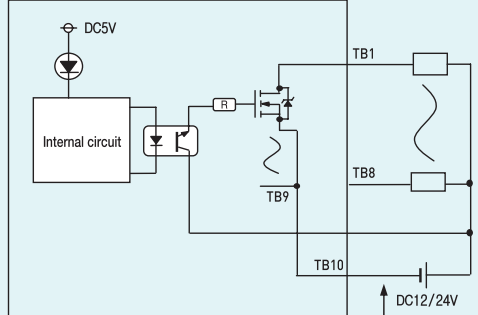
No.	Contact	No.	Contact
TB1	0	TB1	8
TB2	1	TB2	9
TB3	2	TB3	A
TB4	3	TB4	B
TB5	4	TB5	C
TB6	5	TB6	D
TB7	6	TB7	E
TB8	7	TB8	F
		TB9	COM
		TB10	COM

Type



Output wiring details : Transistor output (Sink type)

Circuit Configuration



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

Type



Input / Output Specifications

Input Specification

Item		Description
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	1/3/5/10/20/70/100ms (Set by I/O parameter) Default: 3ms
	On→Off	
Insulation pressure		AC560Vrms/3 cycle (altitude 2000m)
Insulation resistance		10ms or more by MegOhmMeter
Common method		16 point/COM
Proper cable size		0.3~0.75mm2
Operation indicator		LED On when Input On
External connection method		8 point terminal block + 10point terminal connector
Weight		571g

Output Specification

Item		Description
Output point		16 point
Insulation method		Photo coupler insulation
Rated load voltage		DC 12/24V
Operation load voltage range		DC 10.2 ~ 26.4V
Max. load current		0.5A/1 point, 2A/1COM
Off leakage current		0.1mA or less
Max. inrush current		4A/10ms or less
Max. voltage drop when On		DC 0.4V or less
Surge absorber		Zener diode
Response time	Off→On	1ms or less
	On→Off	1ms or less (rated load, resistive load)
Common method		16 point/COM
Proper wire size		Stranded wire 0.3~0.75mm2 (external diameter 2.8mm or less)
External power	Voltage	DC12/24V ± 10% (Ripple voltage 4 Vp-p or less)
	Current	10mA or less (When connecting DC24V)
Operation indicator		LED On when Output On
External connection method		8 point terminal block connector + 10 point terminal block connector
Weight		571g