



XGB CPU Modules



CPU Module (with embedded I/O)

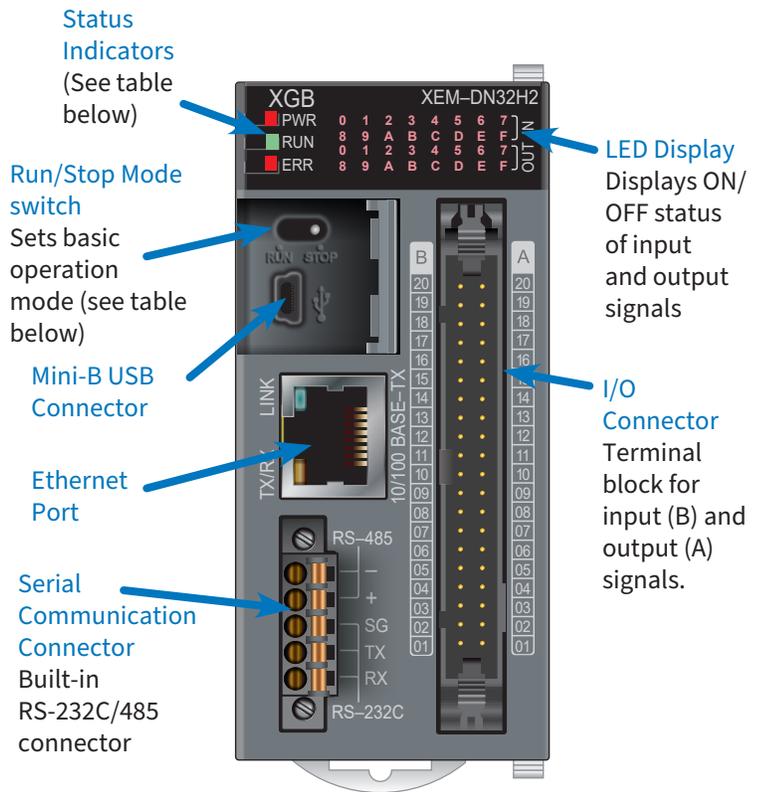
- XEM-DN32H2
- XEM-DN32HP
- XEM-DP32H2
- XEM-DP32HP

The XEM CPU module from LS Electric is the anchor of the XGB PLC series. It is a high performance motion-capable PLC in a small package. The CPU module is equipped with a high performance microprocessor that controls up to 6 axis of position control, high speed I/O, and built in ethernet communications.

The XEM CPU is a stand-alone block style PLC. It requires one Smart Link cable and terminal block for wiring the embedded 16 input points and 16 output points. The system can be expanded with up to 7 modules.

I/O and memory are assigned direct variables. User-defined symbolic variables can be created for easy reference in the programming.

The PLC offers an advanced level of programming, featuring the IEC61131-3 standard capable of Ladder, Structured Text, Sequential Function Chart and Instruction List. Over 700 advanced Function block instructions, including 80+ motion specific, are available for use in both Ladder and Structured Text programming.



Features

- 16 DC inputs, 16 DC outputs
- (4) 200kHz high speed counters
- 2- or 6-axis motion control (high speed pulse outputs)
- Module expansion supports up to 7 slots
- 22 different option modules available to handle digital, analog, counter input, and communications
- XG5000 software with IEC 61131 programming languages: Ladder, Structured Text, SFC, and IL. Includes XG-PM software for table-based motion configuration and testing

CPU Status Indicators	
PWR	Red LED is illuminated when power is on.
RUN	Green LED is illuminated when PLC is in RUN mode.
ERR	Red LED is illuminated to indicate program error(s).

CPU RUN/STOP Switch	
RUN position	Executes user program.
STOP position	Normal program load position. Allows for Remote Run from XG5000.

PLC (CPU with I/O) Feature Breakdown

Part Number	Price	Built-in I/O			Max Option Cards	USB	Ethernet	RS-232C	RS-485	Memory Backup	Online Editing	Drawing
		Motion Axis	Inputs	Outputs								
XEM-DN32H2	\$299.00	2	16 sink/ source	16 sink	7	Yes (mini-B)	Yes (10/100Base-T)	Yes	Yes	Memory: Non-Volatile RAM RTC: 6 month backup (No battery)	Yes	PDF
XEM-DP32H2	\$299.00	2		16 source								PDF
XEM-DN32HP	\$349.00	6		16 sink								PDF
XEM-DP32HP	\$349.00	6		16 source								PDF

XGB Series PLC - Basic System Setup

Follow the steps below to select and configure the fundamental components needed to get your XEM CPU module up and running. You can also access several quick start video guides here: [Building and Powering the LS PLC Rack](#)

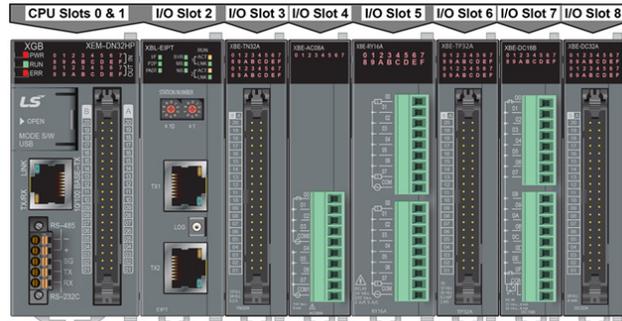
- 1 Select your XEM CPU module, Smart Link cable, and Smart Link terminal block. The Smart Link cable and terminal block are only required if using on board I/O.
See "Smart Link I/O System" on page tLSE-78 for cable and terminal block part numbers.



Note: Screwdriver size 04/2.5

- 2 Select and install up to seven option modules. 32-point I/O and counter input modules will require a Smart Link cable and terminal block.

Use the Product Selector to help configure the PLC at automationdirect.com/xgb/config.



Note: Screwdriver size 2.5 mm

- 3 Connect user-supplied 24VDC power. Connect power to the XEM module, then connect power to the XTB-40H terminal block and any installed I/O modules.

Note: XGB-CON-3PX cable pigtail is included with the CPU.



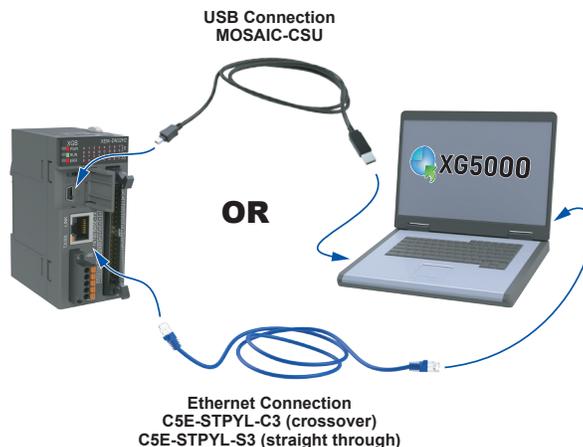
- 4 Choose programming cable, either a USB connection cable or Ethernet cable.

To connect via USB:

[USB Connection to XEM CPU](#)

To connect via Ethernet:

[Ethernet Connection to XEM CPU](#)





XGB CPU Modules

Performance Specifications, XEM-DN32H2/HP and XEM-DP32H2/HP

Specification			Part Number			
			XEM-DN32H2	XEM-DP32H2	XEM-DN32HP	XEM-DP32HP
Power Specifications	Input	Input Voltage Range	20.4–28.8 VDC (-15% to +20%)			
		Rated Input Voltage	24VDC			
		Input Current	1A or less			
		Efficiency	60% or more			
		Permitted Momentary Power Failure	1ms or less			
	Output	Rated Output Voltage	5VDC (±2%)			
		Output Current	2.0 A			
	Power Supply Status Indication		LED On when power supply is normal			
Cable Specification		0.75–2 mm ²				
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			
Programming Languages			LD (Ladder Diagram), ST (Structured Text), SFC (Sequential Function Chart), IL (Instruction List)			
Programming Instructions	Operator (LD only)		11			
	Extension (LD, ST, IL)		9 (Break, Call, End, For, Jmp, Next, Ret, Sbrt, Init_Done)			
	Function (LD, ST, IL)		400+ (295+ for Data Tpe Conversion)			
	Function Block (LD & ST)		300+ (80+ motion specific)			
	Sequential Function Chart		7			
Special Features/Instructions			User Defined Data Type, User Defined Functions/Function Blocks			
Processing Speed (Basic Instruction)			40ns/step			
Program Capacity			384kb			
Maximum Base Rack I/O Points			(PLC + 7 option cards) Digital: 32(PLC built in) + 224 (32 point IO x 7 slots) = 256 Total Analog: 56 (8 point AI x 7 slots) = 56 total			
Data Area (User Assigned)	Symbolic Variable		64KB (retain selectable by individual variable)			
	Direct Variables	M	32KB (retain configurable - by block)			
		W	64KB (retain)			
Data Area (PLC Reserved)	Input Variables	I	2KB (%IX0.0.0–%IX15.15.63)			
	Output Variables	Q	2KB (%QX0.0.0–%QX15.15.63)			
	Flag Variables	F	4KB			
		K	8KB			
		L	8KB			
		U	0.5 KB			
	P2P Service Variables	N	20KB			
Total Program			256			
Task	Initialization Task		1			
	Cycle Time Task		Max 16			
	I/O Task		Max 8			
	Internal Device Task		Max 16			
	High Speed Counter Task		Max 4			
	Position Control Task		1			
Operation Mode			RUN, STOP, DEBUG			
Self-diagnosis Function			Detects errors of scan time, memory, I/O and power supply			
Program Port			USB Mini-B type, USB 1 channel			
Retain Area Setup			Retain area setting in basic parameter			
Internal Consumption Current			540mA			
Weight			134g (4.73 oz)			



XGB CPU Modules

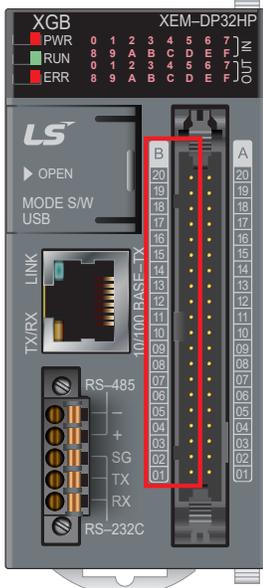
Built-in Functions, XEM-DN32H2/HP and XEM-DP32H2/HP

Specification			Part Number			
			XEM-DN32H2	XEM-DP32H2	XEM-DN32HP	XEM-DP32HP
Number of Motion Control Axis			2-axis		6-axis	
Interpolation Function			<ul style="list-style-type: none"> 2-axis linear interpolation 2-axis circular interpolation 		<ul style="list-style-type: none"> 2/3/4/5/6 axis linear interpolation 2-axis circular interpolation 3-axis helical interpolation 	
High Speed Counter	Performance	1 phase	200kHz			
		2 phase	100kHz			
	Channels	1 phase	4 channels			
		2 phase	2 channels			
	Counter Mode	4 counter modes are supported: <ul style="list-style-type: none"> Single pulse counter mode with 1 pulse input Pulse and direction counter mode with 2 pulse inputs CW/CCW counter mode with 2 pulse inputs Quadrature (Phase A/B) counter mode with 2 pulse inputs 				
Function	Internal/external preset, Latch counter, Compare output, Number of rotations per unit time					
High Speed Pulse Output Motion Control	Basic Function	Control Method	Position control, Speed control, Speed/Position control, Position/Speed control			
		Control Unit	Pulse, mm, inch, degree			
		Position Data	400 steps for each axis (1–400)			
		Operation Mode	End, Keep, Continuous			
		Operation Method	Single, Repeat			
	Position	Control	Absolute method/Incremental method			
		Address Range	-2,147,483,648 – 2,147,483,647 (Pulse)			
		Speed	200kHz max			
		Acc/Dec Processing	Trapezoid-shaped, S-curve			
	Homing Method	DOG+HOME (Off), DOG+HOME (On), Upper/Lower limit + HOME, DOG, High speed, Upper/Lower limit, HOME				
Jog Operation	Jog operation, Inching operation, Manual Pulse Generator operation					
Pulse Catch			10μs 4-point (%IX0.0.0–%IX0.0.3), 50μs 4-point (%IX0.0.4–%IX0.0.7)			
External Point Interrupt			10μs 4-point (%IX0.0.0–%IX0.0.3), 50μs 4-point (%IX0.0.4–%IX0.0.7)			
Input Filter			1,3,5,10,20,70,100 ms			
PID Control			Max. 16 PID loops, Control by instruction, Auto-tuning, PWM output, Forced output, Operation scan time setting, Antiwindup, Delta MV, SV lamp, Hybrid operation, Cascade operation			
Serial (Cnet)	Protocol		Modbus RTU/ASCII, XGT Dedicated, User-defined			
	Channel		1 RS-232C port, 1 RS-485 port			
Ethernet (FEnet)	Transfer Spec		Cable: 100Base-TX, Speed: 100Mbps, Auto-MDIX ¹ , IEEE 802.3			
	Topology		Star			
	Diagnosis		Module information, Service condition			
	Protocol/Usage		Modbus TCP/IP Client and Server, Email (SMTP client), XGT dedicated, User Define frame, Programming/Online Monitoring			
	Channel		1 port 10/100MB Ethernet			
	Service		P2P, High Speed link, Remote connection, SMTP, SNMP, Auto scan			

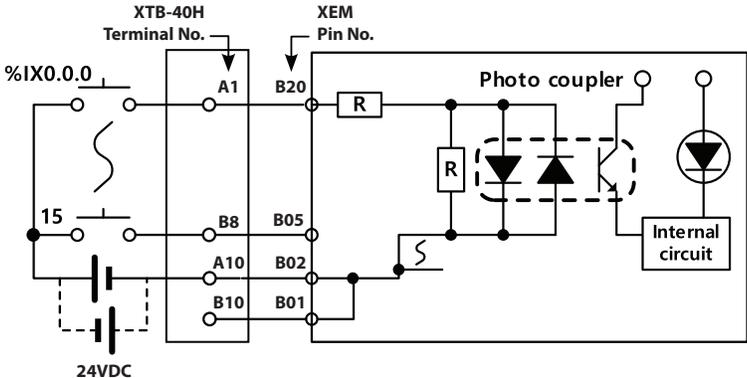
1 - Auto-MDIX (Automation medium-dependent interface crossover) automatically detects whether the cable connected to the Ethernet port is peer-to-peer (straight) or crossover cable.

Digital Input Specifications, XEM-DN32H2/HP and XEM-DP32H2/HP

16-point 24VDC Input (Sink/Source Type) Specifications				
Model	XEM-DN32H2	XEM-DP32H2	XEM-DN32HP	XEM-DP32HP
Input Point	16 point			
Insulation Method	Photocoupler Insulation			
Rated Input Volage	24VDC			
Rated Input Current	~4mA (Inputs 0-3 about 7mA)			
Operation Voltage Range	20.4-28.8 VDC (within ripple rate 5%)			
On Voltage	19VDC or higher			
On Current	3mA or higher			
Off Voltage	6VDC or less			
Off Current	1mA or less			
Input Resistance	About 5.6 kΩ (Inputs 0-7 about 4.7 kΩ)			
Response Time	Off → On	1/3/4/10/20/70/100 ms (set by I/O parameter)		
	On → Off	Default: 3ms		
Insulation Pressure	AC560Vrms / 3 cycle (altitude 2000m)			
Insulation Resistance	100MΩ or more by MegOhmMeter			
Common Method	16 point / COM			
Proper Cable Size	0.3 mm ²			
Operation Indicator	LED On when Input On			
External Connection Method	40 point connector			

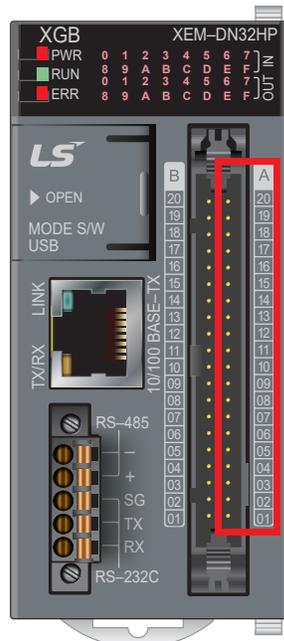


Note: Red box highlights pins of the CPU inputs.

16-point 24VDC Input (Sink/Source Type) Circuit Configuration				
Circuit Configuration	XTB-40H Terminal	XEM Pin#	I/O Direct Variable	Description
	A1	B20	%IX0.0.0	High Speed Counter Inputs
	B1	B19	%IX0.0.1	1 phase- 200kpps 4 channel
	A2	B18	%IX0.0.2	2 phase- 100kpps 2 channel
	B2	B17	%IX0.0.3	or General Input
	A3	B16	%IX0.0.4	Preset Input or General Input
	B3	B15	%IX0.0.5	
	A4	B14	%IX0.0.6	General Input
	B4	B13	%IX0.0.7	
	A5	B12	%IX0.0.8	General Input
	B5	B11	%IX0.0.9	General Input
	A6	B10	%IX0.0.10	General Input
	B6	B09	%IX0.0.11	General Input
	A7	B08	%IX0.0.12	General Input
	B7	B07	%IX0.0.13	General Input
	A8	B06	%IX0.0.14	General Input
	B8	B05	%IX0.0.15	General Input
A9	B04	-	Not used (NC)	
B9	B03	-	Not used (NC)	
A10	B02	-	Common	
B10	B01	-	Common	

Digital Output Specifications, XEM-DN32H2 and XEM-DN32HP

16-point Transistor Output (Sink Type) Specifications			
Model	XEM-DN32H2	XEM-DN32HP	
Input Point	16 point		
Insulation Method	Photocoupler Insulation		
Rated Load Voltage	12VDC / 24VDC		
Operation Load Voltage Range	10.2–26.4 VDC		
Max. Load Current	%QX0.0.0–11: 0.1A / 1-point, %QX0.0.12–15: 0.5A / 1-point, 2A / 1COM		
Off Leakage Current	0.1 mA or less		
Max. Inrush Current	4A / 10ms or less		
Max. Voltage Drop when On	0.4 VDC or less		
Over Voltage Protection	TVS 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, 0.3–0.75 mm ² (external diameter 2.8 mm or less)		
External Power	Voltage	12VDC / 24VDC ± 10% (ripple voltage 4 Vp-p or less)	
	Current	80mA or less (when connecting 24VDC)	
Operation Indicator	LED On when Output On		
External Connection Method	40-point connector		

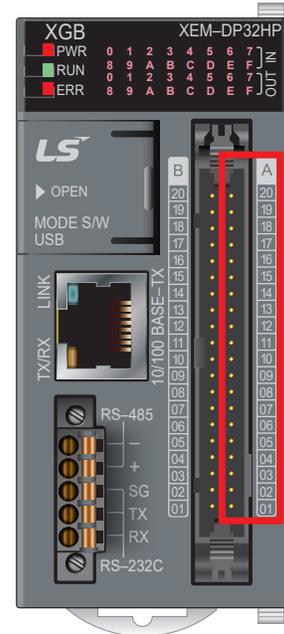


16-point Transistor Output (Sink Type) Circuit Configuration					
Circuit Configuration	XTB-40H Terminal	XEM Pin#	I/O Direct Variable	Description	
	A11	A20	%QX0.0.0	Pulse- Axis1 or General Output 0.1A/pt	
	B11	A19	%QX0.0.1	Pulse- Axis2 or General Output 0.1A/pt	
	A12	A18	%QX0.0.2	Pulse- Axis3* or General Output 0.1A/pt	
	B12	A17	%QX0.0.3	Pulse- Axis4* or General Output 0.1A/pt	
	A13	A16	%QX0.0.4	Pulse- Axis5* or General Output 0.1A/pt	
	B13	A15	%QX0.0.5	Pulse- Axis6* or General Output 0.1A/pt	
	A14	A14	%QX0.0.6	Direction- Axis 1 or General Output 0.1A/pt	
	B14	A13	%QX0.0.7	Direction- Axis 2 or General Output 0.1A/pt	
	A15	A12	%QX0.0.8	Direction- Axis 3* or General Output 0.1A/pt	
	B15	A11	%QX0.0.9	Direction- Axis 4* or General Output 0.1A/pt	
	A16	A10	%QX0.0.10	Direction- Axis 5* or General Output 0.1A/pt	
	B16	A09	%QX0.0.11	Direction- Axis 6* or General Output 0.1A/pt	
	A17	A08	%QX0.0.12	General Outputs - 0.5A/pt	2.0A/common
	B17	A07	%QX0.0.13	General Outputs - 0.5A/pt	
	A18	A06	%QX0.0.14	General Outputs - 0.5A/pt	
	B18	A05	%QX0.0.15	General Outputs - 0.5A/pt	
	A19	A04	-	P (24VDC)	
	B19	A03	-	P (24VDC)	
	A20	A02	-	OUT_COM	
	B20	A01	-	OUT_COM	

* Note: DN32HP module only

Digital Output Specifications, XEM-DP32H2 and XEM-DP32HP

16-point Transistor Output (Source Type) Specifications		
Model	XEM-DP32H2	XEM-DP32HP
Input Point	16 point	
Insulation Method	Photocoupler Insulation	
Rated Load Voltage	12VDC / 24VDC	
Operation Load Voltage Range	10.2–26.4 VDC	
Max. Load Current	%QX0.0.0–11: 0.1A / 1-point %QX0.0.12–15: 0.5 A / 1-point, 2A / 1COM	
Off Leakage Current	0.1 mA or less	
Max. Inrush Current	4A / 10ms or less	
Max. Voltage Drop when On	0.4 VDC or less	
Over Voltage Protection	TVS 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, 0.3–0.75 mm ² (external diameter 2.8 mm or less)	
External Power	Voltage	12VDC / 24VDC ± 10% (ripple voltage 4 Vp-p or less)
	Current	50mA or less (when connecting 24VDC)
Operation Indicator	LED On when Output On	
External Connection Method	40-point connector	



16-point Transistor Output (Source Type) Circuit Configuration					
Circuit Configuration	XTB-40H Terminal	XEM Pin#	I/O Direct Variable	Description	
	A11	A20	%QX0.0.0	Pulse- Axis1 or General Output 0.1A/pt	
	B11	A19	%QX0.0.1	Pulse- Axis2 or General Output 0.1A/pt	
	A12	A18	%QX0.0.2	Pulse- Axis3* or General Output 0.1A/pt	
	B12	A17	%QX0.0.3	Pulse- Axis4* or General Output 0.1A/pt	
	A13	A16	%QX0.0.4	Pulse- Axis5* or General Output 0.1A/pt	
	B13	A15	%QX0.0.5	Pulse- Axis6* or General Output 0.1A/pt	
	A14	A14	%QX0.0.6	Direction- Axis 1 or General Output 0.1A/pt	
	B14	A13	%QX0.0.7	Direction- Axis 2 or General Output 0.1A/pt	
	A15	A12	%QX0.0.8	Direction- Axis 3* or General Output 0.1A/pt	
	B15	A11	%QX0.0.9	Direction- Axis 4* or General Output 0.1A/pt	
	A16	A10	%QX0.0.10	Direction- Axis 5* or General Output 0.1A/pt	
	B16	A09	%QX0.0.11	Direction- Axis 6* or General Output 0.1A/pt	
	A17	A08	%QX0.0.12	General Outputs - 0.5A/pt	
	B17	A07	%QX0.0.13	General Outputs - 0.5A/pt	
	A18	A06	%QX0.0.14	General Outputs - 0.5A/pt	
	B18	A05	%QX0.0.15	General Outputs - 0.5A/pt	
	A19	A04	-	OUT_COM	2.0A/common
	B19	A03	-	OUT_COM	
	A20	A02	-	N (0VDC)	
	B20	A01	-	N (0VDC)	

* Note: DP32HP module only

PLC I/O Wiring (Sinking Outputs), XEM-DN32H2/HP

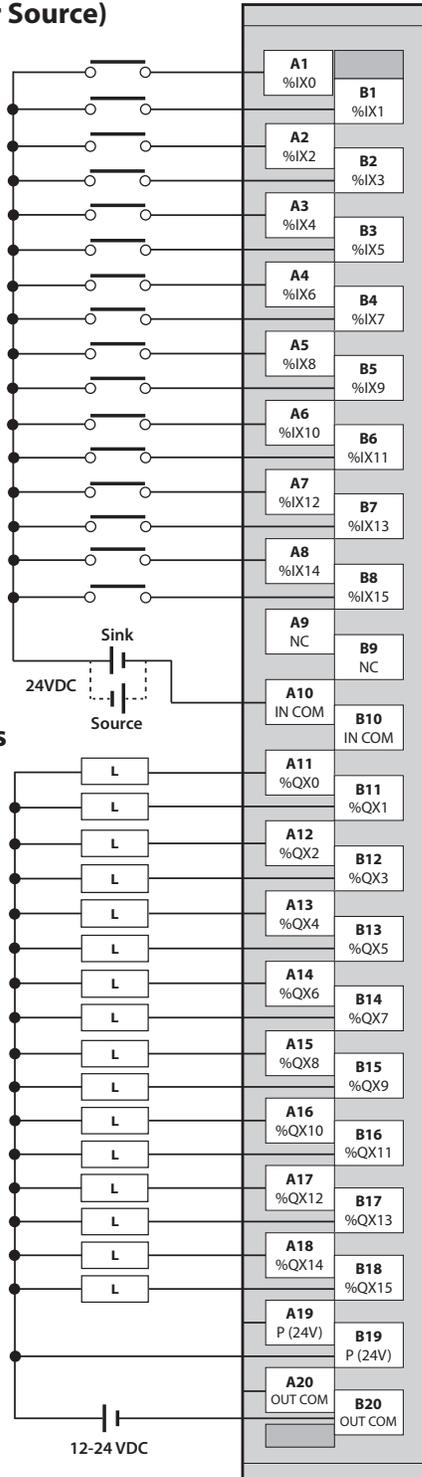
Download module specific XTB-40H Terminal Label Printouts here: [Download Printouts](#)

Terminal Wiring

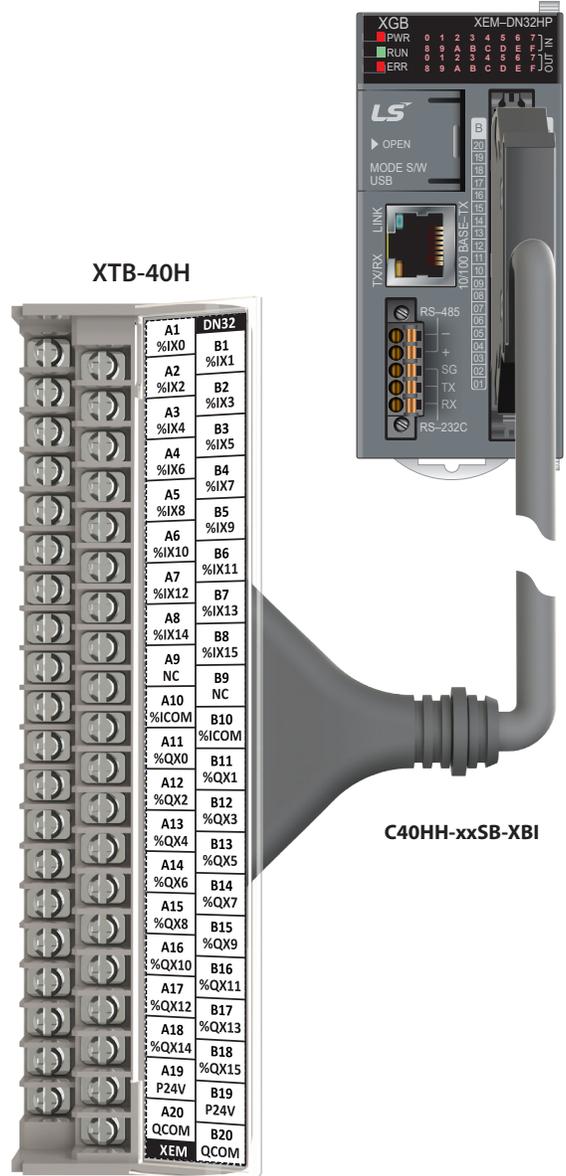
PLC Connection

Inputs
(Sink or Source)

XTB-40H



XEM PLC



- Note:**
- Wiring: AWG22-16 (1.5mm²/MAX)
 - Screw: M3 X 8L
 - Screw Torque: 1.2 N·m (12kgf·cm)

PLC I/O Wiring (Sourcing Outputs), XEM-DP32H2/HP

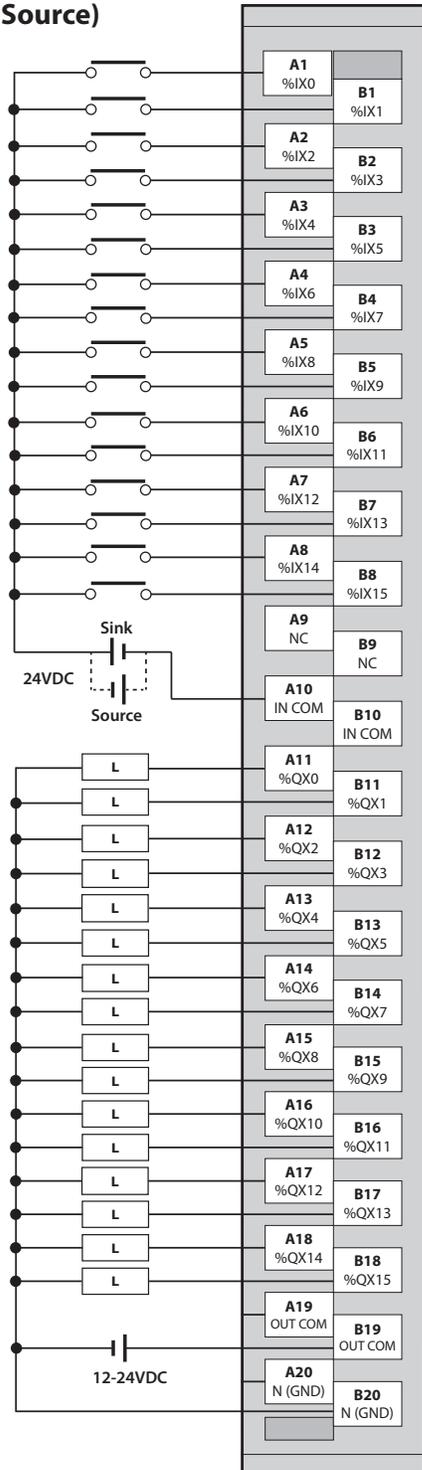
Download module specific XTB-40H Terminal Label Printouts here: [Download Printouts](#)

Terminal Wiring

PLC Connection

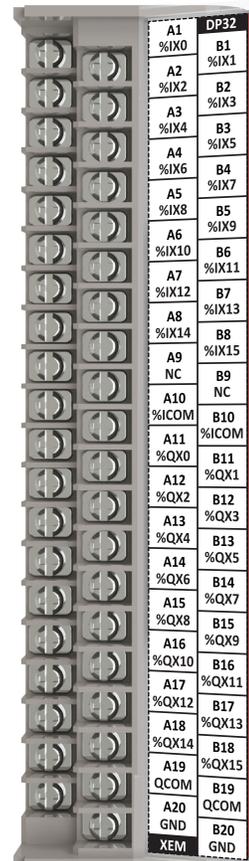
Inputs
(Sink or Source)

XTB-40H



Outputs
(Source)

XTB-40H



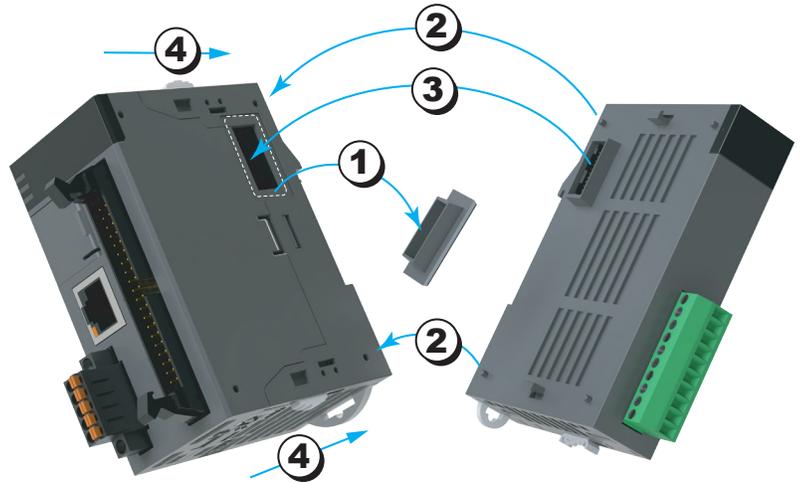
C40HH-xxSB-XBI

Note:

- Wiring: AWG22-16 (1.5mm²/MAX)
- Screw: M3 X 8L
- Screw Torque: 1.2 N·m (12kgf·cm)

I/O Module Installation

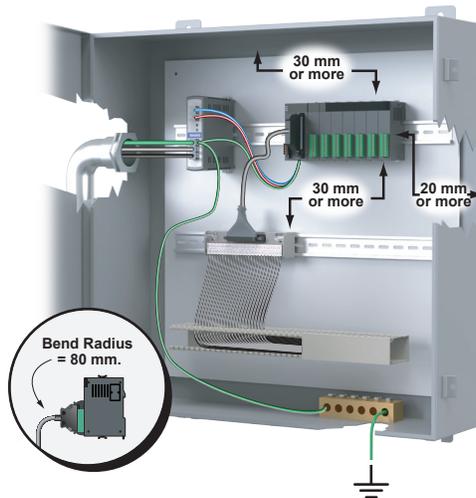
Attach each I/O module to the PLC per the diagram to the right. Up to seven modules can be attached by hooking in to each expansion module in the same manner. Any 32-point I/O and counter input module will require a Smart Link cable and terminal block. Use the online Product Selector to help configure the PLC at automationdirect.com/xgb/config.



1. Remove expansion port cover.
2. Align tabs with corresponding holes.
3. Seat the expansion port connector.
4. Secure modules with top and bottom sliding lock.

Mounting the PLC

When mounting the completed PLC module to your structure, keep the distances shown in the diagram below to maintain proper ventilation and allow easy detachment and attachment.

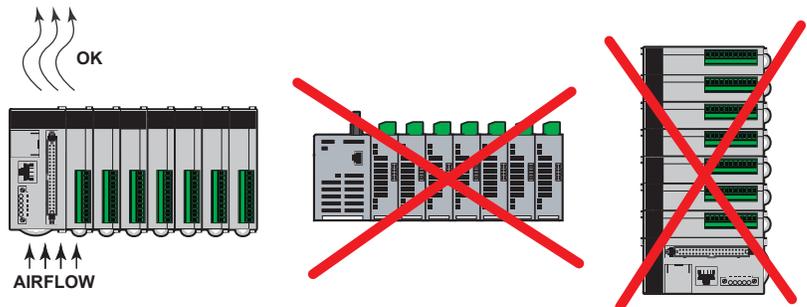


- Additional Clearance Distances:**
- Wire duct on the side requires 5mm or more
 - Panel wall on the side requires 20mm or more
 - Another device on the side requires 50mm or more

DIN Rail Mounting

The PLC has a hook for DIN rail mounting (35mm). To mount to DIN rail:

- Pull the hook as shown below at the bottom of module and install it at the DIN rail.
- Push the hook to fix the module to the rail after installing.



Environmental Specifications, all XGB Series Modules

Item		Specification	Reference	
Ambient Operating Temperature		0–55°C (32–131°F)	-	
Storage Temperature		-25–70°C (-13–158°F)		
Ambient Operating Humidity		5–95% relative humidity (non-condensing)		
Storage Humidity		5–95% relative humidity (non-condensing)		
Vibration ¹	Occasional Vibration	5 ≤ f < 8.4 Hz	IEC61131-3-2	
		8.4 ≤ f < 150Hz		
	Continuous Vibration	5 ≤ f < 8.4 Hz		
		8.4 ≤ f < 150Hz		
Shocks		Peak Acceleration		147 m/s ² (15G)
		Duration		11ms
		Pulse Wave Type	Half-sine (3 times each direction per each axis)	
Noise Resistance	Square Wave Impulse Noise		1,500VAC 900VDC	LS Electric standard
	Electrostatic Discharge		Voltage: 4kV (contact discharge)	IEC61131-3-2 IEC61000-4-2
	Radiated Electromagnetic Field Noise		80–1,000 MHz, 10 V/m	IEC61131-3-2 IEC61000-4-3
	Fast Transient / Burst Noise	Classification	Voltage	IEC61131-3-2 IEC61000-4-4
		Power Supply	2kV	
Digital/Analog Input/Output Communication Interface		1kV		
Environment		Free from corrosive gases and excessive dust	-	
Attitude		Less than 2,000m		
Pollution Degree		Less than 2 (see note 2)		
Cooling Method		Air-cooling		

1 - Vibration of 10 times each direction (X, Y, and Z)

2 - Normally only nonconductive pollution occurs. Temporary conductivity caused by condensation is to be expected.



XGB Series PLC Family

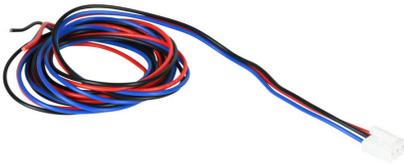
Available I/O Modules

XGB Series I/O Modules								
Part Number	Price	Description	Digital Input	Digital Output	Analog Input	Analog Output	Motion	Smart Link Cable and Terminal Required
Digital								
<u>XBE-DC16A</u>	\$70.00	LS Electric XGB discrete input module, 16-point, 24 VDC, sinking/sourcing, 1 common(s), 16 point(s) per common. Removable terminal blocks included.	✓					
<u>XBE-DC16B</u>	\$78.00	LS Electric XGB discrete input module, 16-point, 12-24 VDC, sinking/sourcing, 1 common(s), 16 point(s) per common. Removable terminal blocks included.	✓					
<u>XBE-DC32A</u>	\$97.00	LS Electric XGB discrete input module, 32-point, 24 VDC, sinking/sourcing, 1 common(s), 32 point(s) per common. Requires XTB-40H terminal block and C40HH-xxSB-XBI cable.	✓					✓
<u>XBE-AC08A</u>	\$88.00	LS Electric XGB discrete input module, 8-point, 120 VAC, 2 common(s), 4 point(s) per common. Removable terminal blocks included.	✓					
<u>XBE-RY08B</u>	\$95.00	LS Electric XGB relay output module, 8-point, 125 VDC/250 VAC, (8) Form A, 8 isolated common(s), 1 point(s) per common, 2A/point. Removable terminal blocks included.		✓				
<u>XBE-RY16A</u>	\$110.00	LS Electric XGB relay output module, 16-point, 125 VDC/250 VAC, (16) Form A, 2 isolated common(s), 8 point(s) per common, 2A/point, 5A/common. Removable terminal blocks included.		✓				
<u>XBE-TN16A</u>	\$78.00	LS Electric XGB discrete output module, 16-point, 12-24 VDC, sinking, 1 common(s), 16 point(s) per common, 0.5A/point, 2A/common. Removable terminal blocks included.		✓				
<u>XBE-TN32A</u>	\$109.00	LS Electric XGB discrete output module, 32-point, 12-24 VDC, sinking, 1 common(s), 32 point(s) per common, 0.2A/point, 2A/common. Requires XTB-40H terminal block and C40HH-xxSB-XBI cable.		✓				✓
<u>XBE-TP16A</u>	\$88.00	LS Electric XGB discrete output module, 16-point, 12-24 VDC, sourcing, 1 common(s), 16 point(s) per common, 0.5A/point, 2A/common. Removable terminal blocks included.		✓				
<u>XBE-TP32A</u>	\$93.00	LS Electric XGB discrete output module, 32-point, 12-24 VDC, sourcing, 1 common(s), 32 point(s) per common, 0.2A/point, 2A/common. Requires XTB-40H terminal block and C40HH-xxSB-XBI cable.		✓				✓
<u>XBE-DN32A</u>	\$172.00	LS Electric XGB discrete combo module, Input: 16-point, 24 VDC, sinking/sourcing, Output: 16-point, 12-24 VDC, sinking, 0.2A/point, 2A/common. Requires XTB-40H terminal block and C40HH-xxSB-XBI cable.	✓	✓				✓
Analog								
<u>XBF-AD04A</u>	\$160.00	LS Electric XGB analog input module, 4-channel, current/voltage, 12-bit, input current signal range(s) of 0-20 mA, 4-20 mA, input voltage signal range(s) of 0-10 VDC, external 24 VDC required.			✓			
<u>XBF-AD08A</u>	\$242.00	LS Electric XGB analog input module, 8-channel, current/voltage, 12-bit, input current signal range(s) of 0-20 mA, 4-20 mA, input voltage signal range(s) of 0-5 VDC, 1-5 VDC, 0-10 VDC, external 24 VDC required.			✓			
<u>XBF-AD04C</u>	\$231.00	LS Electric XGB analog input module, 4-channel, current/voltage, 14-bit, input current signal range(s) of 0-20 mA, 4-20 mA, input voltage signal range(s) of 0-5 VDC, 1-5 VDC, 0-10 VDC, +/- 10 VDC, external 24 VDC required.			✓			
<u>XBF-DV04A</u>	\$152.00	LS Electric XGB analog output module, 4-channel, voltage, 12-bit, output voltage signal range(s) of 0-10 VDC, external 24 VDC required.				✓		
<u>XBF-DV04C</u>	\$209.00	LS Electric XGB analog output module, 4-channel, voltage, 14-bit, output voltage signal range(s) of 0-5 VDC, 1-5 VDC, 0-10 VDC and +/- 10 VDC, external 24 VDC required.				✓		
<u>XBF-DC04A</u>	\$162.00	LS Electric XGB analog output module, 4-channel, current, 12-bit, output current signal range(s) of 0-20 mA and 4-20 mA, external 24 VDC required.				✓		
<u>XBF-DC04C</u>	\$209.00	LS Electric XGB analog output module, 4-channel, current, 14-bit, output current signal range(s) of 0-20 mA and 4-20 mA, external 24 VDC required.				✓		
<u>XBF-AH04A</u>	\$216.00	LS Electric XGB analog combo module, Input: 2-channel, current/voltage, 0-20 mA and 4-20 mA, 0-5 VDC, 1-5 VDC and 0-10 VDC, Output: 2-channel, current/voltage, 0-20 mA and 4-20 mA, 0-5 VDC, 1-5 VDC and 0-10 VDC.			✓	✓		
Motion								
<u>XBF-HO02A</u>	\$176.00	LS Electric XGB counter input module, 200 kHz maximum switching frequency, 2 high-speed input point(s), 5-24 VDC, sinking, 2-channel, single-ended encoder input(s), 2 high-speed output point(s), 5-24 VDC, sinking, external 24 VDC required.					✓	✓
<u>XBF-HD02A</u>	\$253.00	LS Electric XGB counter input module, 500 kHz maximum switching frequency, 2 high-speed input point(s), 5-24 VDC, sinking, 2-channel, differential encoder input(s), 2 high-speed output point(s), 5-24 VDC, sinking, external 24 VDC required.					✓	✓
Communication								
<u>XBL-EIPT</u>	\$199.00	LS Electric XGB communication module, EtherNet/IP, 2 ports, (2) Ethernet 10/100Base-T (RJ45) port(s). For use with LS Electric XGB series PLCs.						

Note: See "Smart Link I/O System" on page tLSE-78 for the XTB-40H terminal block and cables. See "XGB PLC Replacement Terminals" on page tLSE-77 for replacement removable terminal blocks.

XGB PLC Replacement Terminals

Part Number	Price	Function	Description	Compatible With
<u>XGB-CON-3PX</u>	\$4.00	LS XEM Processor Power 3 pole , Tab Lock, Assembly Connector & Wire	LS Electric XGB terminal block, 3-pin with cable pigtail, replacement. For use with LS Electric XEM-Dx32Hx PLCs.	XEM-DN32H2, XEM-DN32HP, XEM-DP32H2, XEM-DP32HP
<u>XGB-CON-5PX</u>	\$4.00	LS XEM Processor Serial Communication 5 Pole, Screw Lock	LS Electric XGB terminal block, 5-pin spring clamp, replacement. For use with LS Electric XEM-Dx32Hx PLCs.	XEM-DN32H2, XEM-DN32HP, XEM-DP32H2, XEM-DP32HP
<u>XGB-CON-8P</u>	\$5.00	LS XGB PLC IO Connector 8 Pole	LS Electric XGB terminal block, 8-pin screw type, replacement. For use with LS Electric XGB series I/O modules.	XBE-DC16A, XBE-DC16B, XBE-TN16A, XBE-TP16A, XBF-AD08A
<u>XGB-CON-9P</u>	\$6.00	LS XGB PLC IO Connector 9 Pole	LS Electric XGB terminal block, 9-pin screw type, replacement. For use with LS Electric XGB series I/O modules.	XBE-RY08B, XBE-RY16A
<u>XGB-CON-10P</u>	\$6.00	LS XGB PLC IO Connector 10 Pole	LS Electric XGB terminal block, 10-pin screw type, replacement. For use with LS Electric XGB series I/O modules.	XBE-DC16A, XBE-DC16B, XBE-TN16A, XBE-TP16A, XBF-AD08A, XBE-AC08A
<u>XGB-CON-11P</u>	\$6.00	LS XGB PLC IO Connector 11 Pole	LS Electric XGB terminal block, 11-pin screw type, replacement. For use with LS Electric XGB series I/O modules.	XBF-AD04A , XBF-AH04A, XBF-DV04A, XBF-DV04C, XBF-DC04A, XBF-DC04C
<u>XGB-CON-15P</u>	\$7.00	LS XGB PLC IO Connector 15 Pole	LS Electric XGB terminal block, 15-pin screw type, replacement. For use with LS Electric XGB series I/O modules.	XBF-AD04C



XGB-CON-3PX



XGB-CON-9P



XGB-CON-15P



XGB Accessories

Smart Link I/O System

The Smart Link I/O system is a breakout wiring system used for high density I/O modules in the LS Electric XGB PLC series. The system is required for all modules with a 40-pin connection, and consists of a Smart Link cable with an XTB-40H terminal block.

Download module specific XTB-40H Terminal Label Printouts here: [Terminal Printouts](#)



Part Number	Price	Description	Length	Compatible With
<u>XTB-40H</u>	\$20.00	LS Electric XGB terminal block, 40-pin screw type. For use with LS Electric XGB series high-density modules.	n/a	All LS XGB series PLCs and modules with 40-pin connectors
<u>C40HH-05SB-XBI</u>	\$22.00	LS Electric XGB PLC I/O cable, 1.6ft/0.5m cable length, 40-pin connector to 40-pin connector. For use with LS Electric XGB series high-density modules.	0.5 m	
<u>C40HH-10SB-XBI</u>	\$25.00	LS Electric XGB PLC I/O cable, 3.2ft/1m cable length, 40-pin connector to 40-pin connector. For use with LS Electric XGB series high-density modules.	1m	
<u>C40HH-15SB-XBI</u>	\$29.00	LS Electric XGB PLC I/O cable, 4.9ft/1.5m cable length, 40-pin connector to 40-pin connector. For use with LS Electric XGB series high-density modules.	1.5 m	
<u>C40HH-20SB-XBI</u>	\$36.00	LS Electric XGB PLC I/O cable, 6.5ft/2m cable length, 40-pin connector to 40-pin connector. For use with LS Electric XGB series high-density modules.	2m	
<u>C40HH-30SB-XBI</u>	\$42.00	LS Electric XGB PLC I/O cable, 9.8ft/3m cable length, 40-pin connector to 40-pin connector. For use with LS Electric XGB series high-density modules.	3m	

XTB-40H Specifications		
Number of Pins	40 pin	
Terminal Pitch	7.0 mm	
Connector Type	MIL-C-83503 (50P polarity guide: 2EA)	
Applicable Wires	AWG22-16 (1.5mm ² /MAX)	
Insulation Resistance	100MΩ (500VDC)	
Dielectric Strength	500VAC 1 minute	
Screw	M3 x 8L	
Screw Torque	1.2N•m (12kgf•cm)	
Ambient Temperature	-10°C to +50°C (no freezing)	
Material	Case	Modified PPO
	Protective Cover	Polycarbonate
	PCB	Epoxy 1.6t

Smart Link I/O System, Terminals and Cable Connections

Module to Cable to Terminal Pinouts		
Module Pins	C40HH-xxSB-XBI	XTB-40H Terminal
B20	<p>HIROSE HIF3BA-40D-2.54R</p> <p>HIROSE HIF3BA-40D-2.54R</p>	A1
B19		B1
B18		A2
B17		B2
B16		A3
B15		B3
B14		A4
B13		B4
B12		A5
B11		B5
B10		A6
B09		B6
B08		A7
B07		B7
B06		A8
B05		B8
B04		A9
B03		B9
B02		A10
B01		B10
A20	A11	
A19	B11	
A18	A12	
A17	B12	
A16	A13	
A15	B13	
A14	A14	
A13	B14	
A12	A15	
A11	B15	
A10	A16	
A09	B16	
A08	A17	
A07	B17	
A06	A18	
A05	B18	
A04	A19	
A03	B19	
A02	A20	
A01	B20	