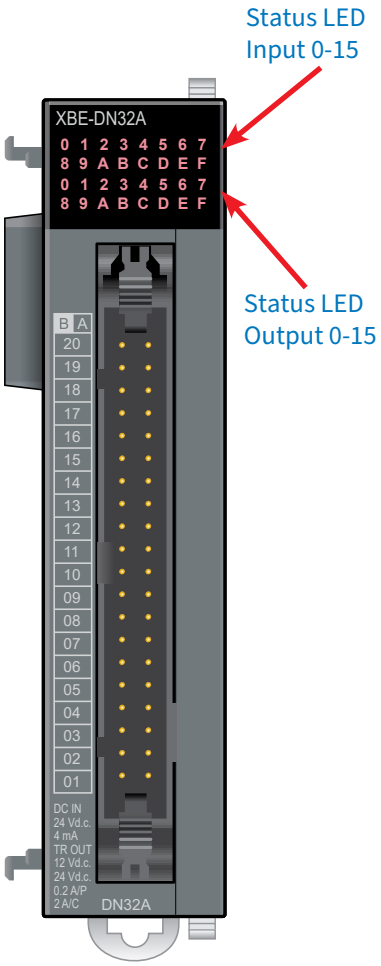
LS ELECTRIC

XGB Digital Modules

XBE-DN32A Digital Combo Module

Part Number	Price	Classification	Description	Drawing
XBE-DN32A	$172.00	Digital Input/Output	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.	PDF



General Specifications			XBE-DN32A
Input Specifications	Input Point		16 point
	Rated Input Voltage		24VDC
	Rated Input Current		~ 4mA
	Operation Voltage Range		20.4 – 28.8 VDC (ripple rate <5%)
	On Voltage/Current		19VDC or higher / 3mA or higher
	Off Voltage/Current		6VDC or less / 1mA or less
	Input Resistance		~ 5.6kΩ
	Response Time	Off → On	1/3/5/10/20/70/100 ms (set by CPU parameter) Default: 3ms
		On → Off	
	Common Method		16 point / COM
Output Specifications	Output Point		16 point
	Rated Voltage		12/24 VDC
	Operation Voltage Range		10.2–26.4 VDC
	Operation Load Current		0.2 A / 1 point, 2A / 1COM
	Off Leakage Current		0.1 mA or less
	Maximum Load Current		0.7A / 10ms or less
	Maximum Voltage Drop (On)		0.4 VDC or less
	Response Time	Off → On	1ms or less
		On → Off	1ms or less (rated load, resistive load)
	Common Method		16 point / COM
	External Power	Voltage	12/24 VDC ±10% (ripple voltage 4 Vp-p or less)
		Current	20mA or less (connecting 24VDC)
Over Voltage Protection			TVS Diode
Insulation Method			Photocoupler insulation
Insulation Pressure			560VACrms / 3 Cyle (altitude 2000m)
Insulation Resistance			10MΩ or more by Megohmmeter
Proper Cable Size			0.3 mm^2
Current Consumption			60mA (when all inputs and outputs are On)
Operation Indicator			Input On, LED On
External Connection Method			40 pin connector
Weight			60g

XBE-DN32A - Digital I/O Module Configuration

Direct Variables

The base rack slot number determines the Direct Variable name for the module. Each slot is automatically allocated 64 input points and 64 output points. See the chart below for the actual input Direct Variable assignments used.

For Direct Variable nomenclature explanation, see Direct Variable User Programming Memory.

Part Number	PLC Memory Allocation	Actual I/O Direct Variable
XBE-DN32A	Input: %IX0.z.0 – %IX0.z.63 Output: %QX0.z.0 – %QX0.z.63	%IX0.z.0 - %IX0.z.15 %QX0.z.0 - %QX0.z.15

"z" denotes the module slot (2 to 8).

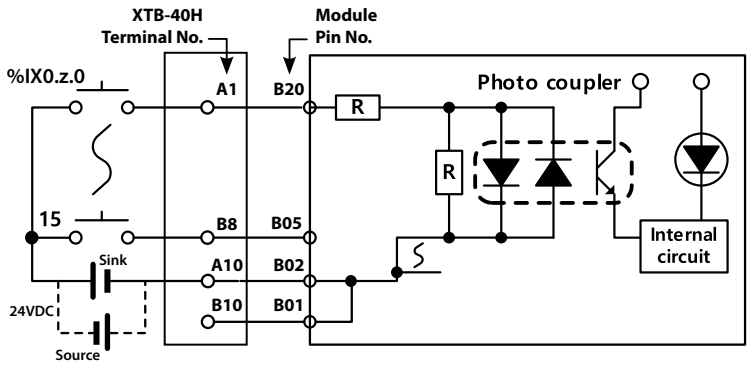
Follow the Quick start video to learn how to Register and Configure any Digital I/O Module.

Digital Module Setup

XBE-DN32A Digital Combo Module Wiring

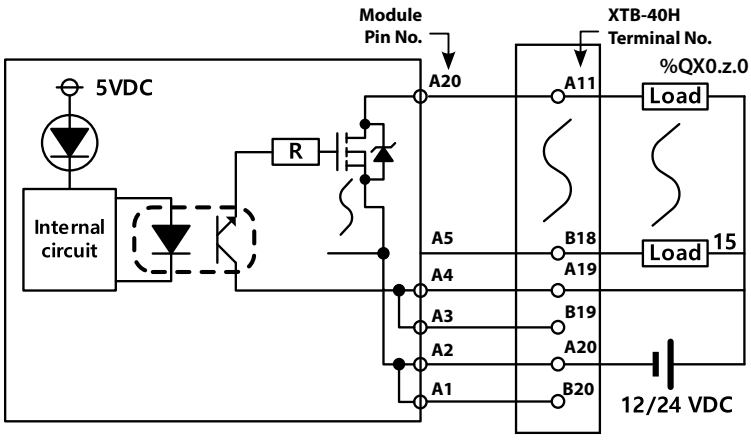
XBE-DN32A Input Circuit Configuration

Circuit Configuration



XTB-40H Terminal	XEM Pin#	I/O Direct Variable	Description
A1	B20	%IX0.z.0	General Input 0
B1	B19	%IX0.z.1	General Input 1
A2	B18	%IX0.z.2	General Input 2
B2	B17	%IX0.z.3	General Input 3
A3	B16	%IX0.z.4	General Input 4
B3	B15	%IX0.z.5	General Input 5
A4	B14	%IX0.z.6	General Input 6
B4	B13	%IX0.z.7	General Input 7
A5	B12	%IX0.z.8	General Input 8
B5	B11	%IX0.z.9	General Input 9
A6	B10	%IX0.z.10	General Input 10
B6	B09	%IX0.z.11	General Input 11
A7	B08	%IX0.z.12	General Input 12
B7	B07	%IX0.z.13	General Input 13
A8	B06	%IX0.z.14	General Input 14
B8	B05	%IX0.z.15	General Input 15
A9	B04	–	Not used (NC)
B9	B03	–	Not used (NC)
A10	B02	–	Common
B10	B01	–	Common

XBE-DN32A Output Circuit Configuration



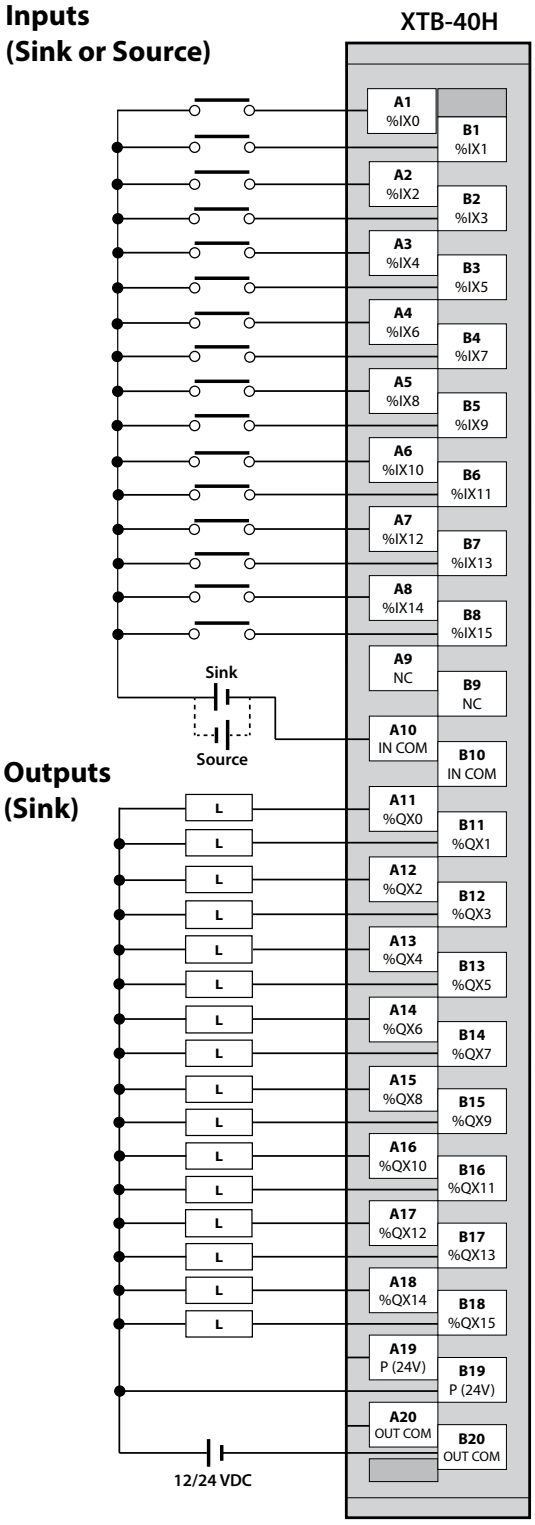
XTB-40H Terminal	XEM Pin#	I/O Direct Variable	Description	
A11	A20	%QX0.z.0	General Output 0	
B11	A19	%QX0.z.1	General Output 1	
A12	A18	%QX0.z.2	General Output 2	
B12	A17	%QX0.z.3	General Output 3	
A13	A16	%QX0.z.4	General Output 4	
B13	A15	%QX0.z.5	General Output 5	
A14	A14	%QX0.z.6	General Output 6	
B14	A13	%QX0.z.7	General Output 7	
A15	A12	%QX0.z.8	General Output 8	
B15	A11	%QX0.z.9	General Output 9	
A16	A10	%QX0.z.10	General Output 10	
B16	A09	%QX0.z.11	General Output 11	
A17	A08	%QX0.z.12	General Output 12	
B17	A07	%QX0.z.13	General Output 13	
A18	A06	%QX0.z.14	General Output 14	
B18	A05	%QX0.z.15	General Output 15	
A19	A04	–	P (24V)	2.0A/common
B19	A03	–	P (24V)	
A20	A02	–	OUT_COM	
B20	A01	–	OUT_COM	

Note: Input Ambient Temp Derating: Derate 5% for each degree above 50°C. Max 55°C (25% derating at 55°C).

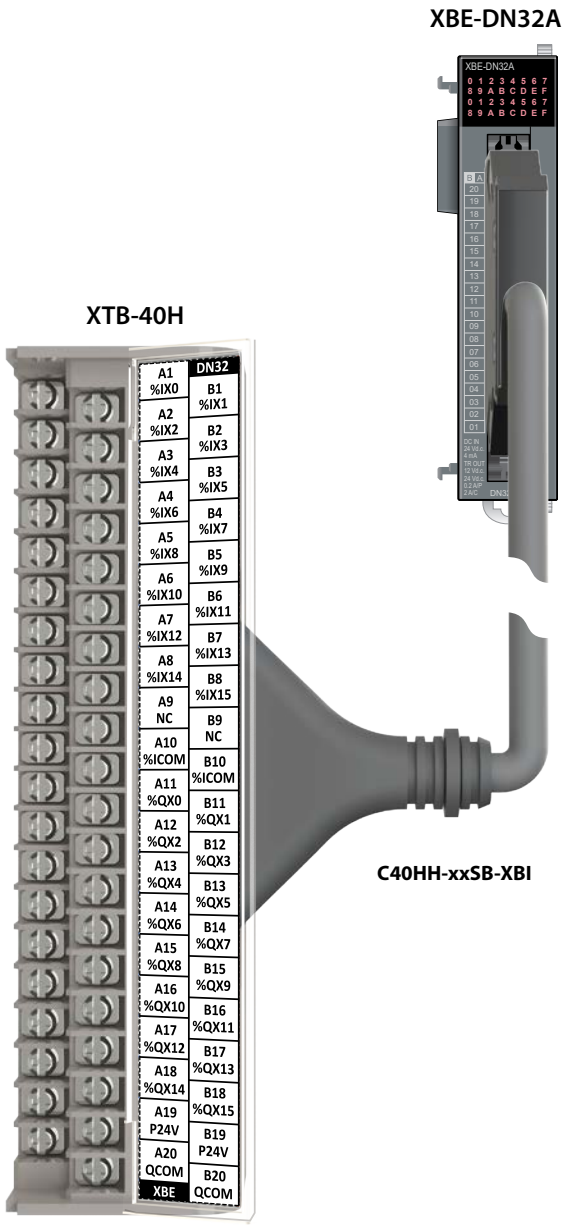
XBE-DN32A Digital Output Module Terminal Block Wiring

Download module specific XTB-40H Terminal Label Printouts here: Download Printouts

Terminal Wiring



PLC Connection



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	Frequency	$5 \le f < 8.4$ Hz	3.5 mm pulse width	IEC61131-3-2
			$8.4 \le f < 150$Hz	9.8 m/s^2 (1G)	
	Continuous Vibration		$5 \le f < 8.4$ Hz	1.75 mm pulse width	
			$8.4 \le f < 150$Hz	4.9 m/s^2 (0.5G)	
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.

Available I/O Modules

XGB Series I/O Modules									
Part Number	**Price**	**Description**	**Digital Input**	**Digital Output**	**Analog Input**	**Analog Output**	**Motion**	**Bus Coupler Compatible**	**Smart Link Required**
Digital									
XBE-DC08A	$59.00	LS Electric XGB discrete input module, 8-point, 24 VDC, sinking/sourcing, 1 common(s), 8 point(s) per common. Removable terminal block included.	✓					✓	
XBE-DC16A	$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.	✓					✓	
XBE-DC16B	$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.	✓					✓	
XBE-DC32A	$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.	✓					✓	✓
XBE-AC08A	$88.00	LS Electric XGB discrete input module, 8-point, 120 VAC, 2 common(s), 4 point(s) per common. Removable terminal blocks included.	✓					✓	
XBE-RY08A	$80.00	LS Electric XGB relay output module, 8-point, 125 VDC/250 VAC, (8) Form A, 1 common(s), 8 point(s) per common, 2A/point, 5A/common. Removable terminal block included.		✓				✓	
XBE-RY08B	$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.		✓				✓	
XBE-RY16A	$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.		✓				✓	
XBE-TN08A	$60.00	LS Electric XGB discrete output module, 8-point, 12-24 VDC, sinking, 1 common(s), 8 point(s) per common, 0.5A/point, 2A/common. Removable terminal blocks included.		✓				✓	
XBE-TN16A	$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.		✓				✓	
XBE-TN32A	$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.		✓				✓	✓
XBE-TP08A	$62.00	LS Electric XGB discrete output module, 8-point, 12-24 VDC, sourcing, 1 common(s), 8 point(s) per common, 0.5A/point, 2A/common. Removable terminal blocks included.		✓				✓	
XBE-TP16A	$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.		✓				✓	
XBE-TP32A	$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.		✓				✓	✓
XBE-DN32A	$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.	✓	✓				✓	✓
XBE-DR16A	$97.00	LS Electric XGB discrete combo module, Input: 8-point, 24 VDC, sinking/sourcing, Output: 8-point, 125 VDC/250 VAC, relay, (8) Form A (SPST) relays, 2A/point, 5A/common. Removable terminal blocks included.	✓	✓				✓	
Motion									
XBF-PN04B	$199.00	LS Electric XGB 4-axis positioning module, EtherCAT Master, 1 high-speed input point(s), sinking/line driver (differential), 1-channel, differential and single-ended encoder input(s), (1) Ethernet 100Base-TX (RJ45) port(s). For use with LS Electric XEM-DxxxHx PLCs.					✓		
XBF-PN08B	$229.00	LS Electric XGB 8-axis positioning module, EtherCAT Master, 1 high-speed input point(s), sinking/line driver (differential), 1-channel, differential and single-ended encoder input(s), (1) Ethernet 100Base-TX (RJ45) port(s). For use with LS Electric XEM-DxxxHx PLCs.					✓		
XBF-HO02A	$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.					✓	✓	✓
XBF-HD02A	$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.					✓	✓	✓

Note: See "Smart Link I/O System" on page tLSE-131 for the XTB-40H terminal block and cables. See "XGB PLC Replacement Terminals" on page tLSE-149 for replacement removable terminal blocks.

Continued on next page

Smart Link I/O System

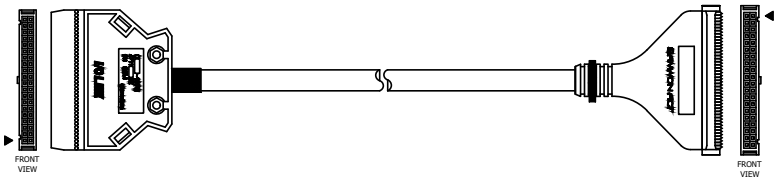
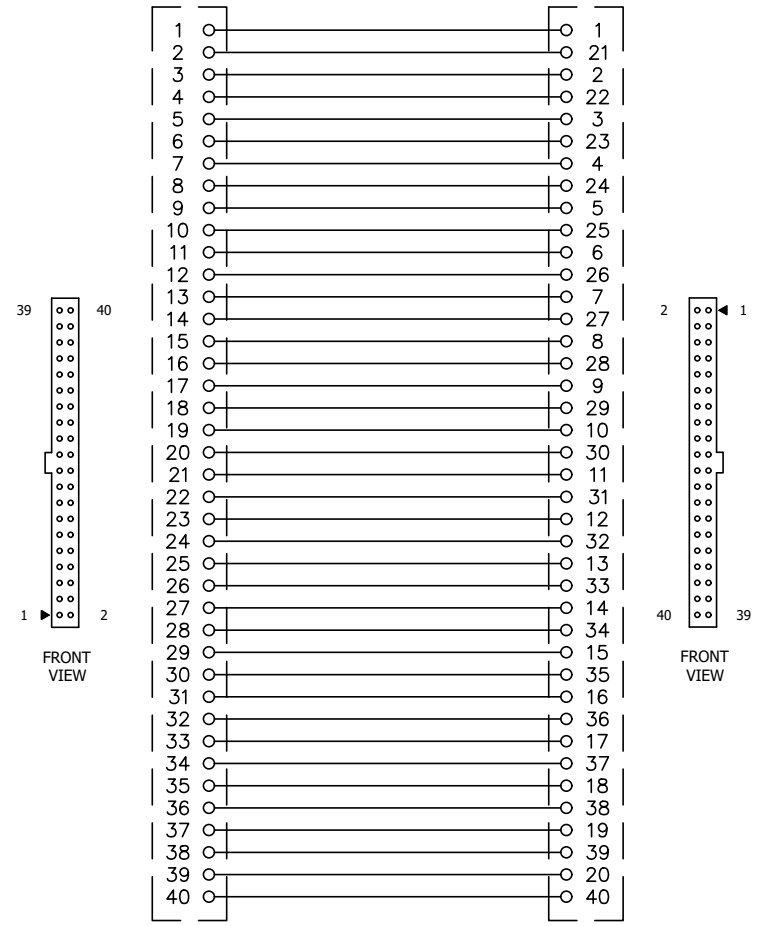
The Smart Link I/O system is a breakout wiring system used for high density I/O modules in the LS Electric XGB PLC series. The system is required for all modules with a 40-pin connection, and consists of a Smart Link cable with an XTB-40H terminal block.

Download module specific XTB-40H Terminal Label Printouts here: Terminal Printouts

Part Number	Price	Description	Length	Compatible With
XTB-40H	$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
XTB-40H-LABEL	$3.00	AutomationDirect terminal label sheet, printed with terminal names for LS Electric XGB series modules. Package of 8. For use with XTB-40H terminal block.	n/a	
C40HH-05SB-XBI	$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	
C40HH-10SB-XBI	$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	
C40HH-15SB-XBI	$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	
C40HH-20SB-XBI	$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	
C40HH-30SB-XBI	$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		-10ºC to +50ºC (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		A1
B19		B1
B18		A2
B17		B2
B16		A3
B15		B3
B14	HIROSE HIF3BA-40D-2.54R HIROSE HIF3BA-40D-2.54R	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