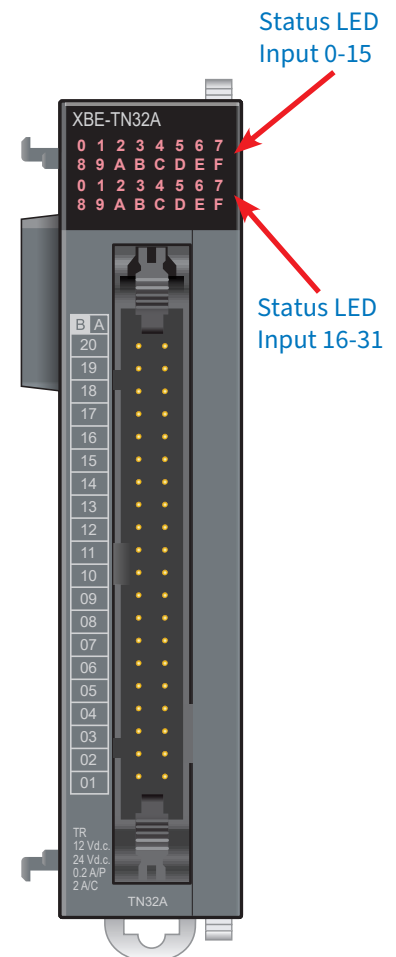


## XBE-TN32A Digital Output Module

| Part Number      | Price    | Classification | Description                                                                                                                                                                                 | Drawing |
|------------------|----------|----------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------|
| <b>XBE-TN32A</b> | \$109.00 | Digital Output | 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. | PDF     |

| General Specifications            |                 | XBE-TN32A                                       |
|-----------------------------------|-----------------|-------------------------------------------------|
| <b>Input Point</b>                |                 | 32 point                                        |
| <b>Insulation Method</b>          |                 | Photocoupler insulation                         |
| <b>Rated Load Voltage</b>         |                 | 12/24 VDC                                       |
| <b>Load Voltage Range</b>         |                 | 10.2 – 26.4 VDC                                 |
| <b>Maximum Load Current</b>       |                 | 0.2 A / 1 point, 2A / 1COM                      |
| <b>Off Leakage Current</b>        |                 | 0.1 mA or less                                  |
| <b>Maximum Inrush Current</b>     |                 | 0.7 A / 10ms or less                            |
| <b>Maximum Voltage Drop (On)</b>  |                 | 0.4 VDC or less                                 |
| <b>Over Voltage Protection</b>    |                 | Zener Diode                                     |
| <b>Response Time</b>              | <b>Off → On</b> | 1ms or less                                     |
|                                   | <b>On → Off</b> | 1ms or less (rated load, resistive load)        |
| <b>Common Method</b>              |                 | 32 point / COM                                  |
| <b>Proper Cable Size</b>          |                 | 0.3 mm <sup>2</sup>                             |
| <b>Current Consumption</b>        |                 | 120mA (when all point On)                       |
| <b>External Power Supply</b>      | <b>Voltage</b>  | 12/24 VDC ± 10% (ripple voltage 4 Vp-p or less) |
|                                   | <b>Current</b>  | 20mA or less (24VDC connection)                 |
| <b>Operation Indicator</b>        |                 | Output On, LED On                               |
| <b>External Connection Method</b> |                 | 40 pin connector                                |
| <b>Weight</b>                     |                 | 60g                                             |



## XBE-TN32A - 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](#).

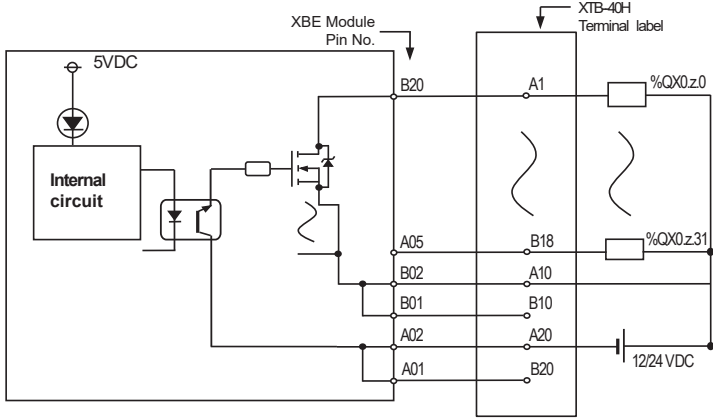
| Part Number      | PLC Memory Allocation                                       | Actual I/O Direct Variable |
|------------------|-------------------------------------------------------------|----------------------------|
| <b>XBE-TN32A</b> | Input: %IX0.z.0 – %IX0.z.63<br>Output: %QX0.z.0 – %QX0.z.63 | %QX0.z.0 – %QX0.z.31       |

“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-TN32A Digital Output Module Wiring

| XBE-TN32A Circuit Configuration                                                    |             |                  |                 |             |
|------------------------------------------------------------------------------------|-------------|------------------|-----------------|-------------|
| Circuit Configuration                                                              | Module Pins | XTB-40H Terminal | Direct Variable | Description |
|  | B20         | A1               | %QX0.z.0        | Output 0    |
|                                                                                    | B19         | B1               | %QX0.z.1        | Output 1    |
|                                                                                    | B18         | A2               | %QX0.z.2        | Output 2    |
|                                                                                    | B17         | B2               | %QX0.z.3        | Output 3    |
|                                                                                    | B16         | A3               | %QX0.z.4        | Output 4    |
|                                                                                    | B15         | B3               | %QX0.z.5        | Output 5    |
|                                                                                    | B14         | A4               | %QX0.z.6        | Output 6    |
|                                                                                    | B13         | B4               | %QX0.z.7        | Output 7    |
|                                                                                    | B12         | A5               | %QX0.z.8        | Output 8    |
|                                                                                    | B11         | B5               | %QX0.z.9        | Output 9    |
|                                                                                    | B10         | A6               | %QX0.z.10       | Output 10   |
|                                                                                    | B09         | B6               | %QX0.z.11       | Output 11   |
|                                                                                    | B08         | A7               | %QX0.z.12       | Output 12   |
|                                                                                    | B07         | B7               | %QX0.z.13       | Output 13   |
|                                                                                    | B06         | A8               | %QX0.z.14       | Output 14   |
|                                                                                    | B05         | B8               | %QX0.z.15       | Output 15   |
|                                                                                    | B04         | A9               | —               | NC          |
|                                                                                    | B03         | B9               | —               | NC          |
|                                                                                    | B02         | A10              | —               | +12/24 V    |
|                                                                                    | B01         | B10              | —               | +12/24 V    |
|                                                                                    | A20         | A11              | %QX0.z.16       | Output 16   |
|                                                                                    | A19         | B11              | %QX0.z.17       | Output 17   |
|                                                                                    | A18         | A12              | %QX0.z.18       | Output 18   |
|                                                                                    | A17         | B12              | %QX0.z.19       | Output 19   |
|                                                                                    | A16         | A13              | %QX0.z.20       | Output 20   |
|                                                                                    | A15         | B13              | %QX0.z.21       | Output 21   |
|                                                                                    | A14         | A14              | %QX0.z.22       | Output 22   |
|                                                                                    | A13         | B14              | %QX0.z.23       | Output 23   |
|                                                                                    | A12         | A15              | %QX0.z.24       | Output 24   |
|                                                                                    | A11         | B15              | %QX0.z.25       | Output 25   |
|                                                                                    | A10         | A16              | %QX0.z.26       | Output 26   |
|                                                                                    | A09         | B16              | %QX0.z.27       | Output 27   |
|                                                                                    | A08         | A17              | %QX0.z.28       | Output 28   |
|                                                                                    | A07         | B17              | %QX0.z.29       | Output 29   |
|                                                                                    | A06         | A18              | %QX0.z.30       | Output 30   |
|                                                                                    | A05         | B18              | %QX0.z.31       | Output 31   |
|                                                                                    | A04         | A19              | —               | NC          |
|                                                                                    | A03         | B19              | —               | NC          |
|                                                                                    | A02         | A20              | —               | COM         |
|                                                                                    | A01         | B20              | —               | COM         |

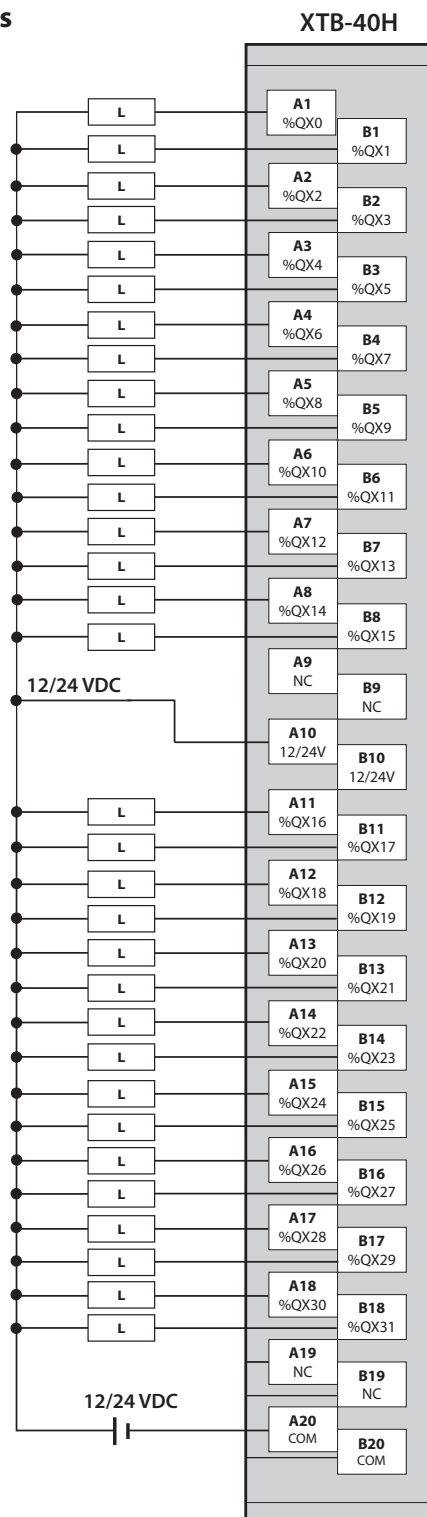
Note: In the I/O Direct Variable name, **z**=slot number.

## XBE-TN32A Digital Output Module Terminal Block Wiring

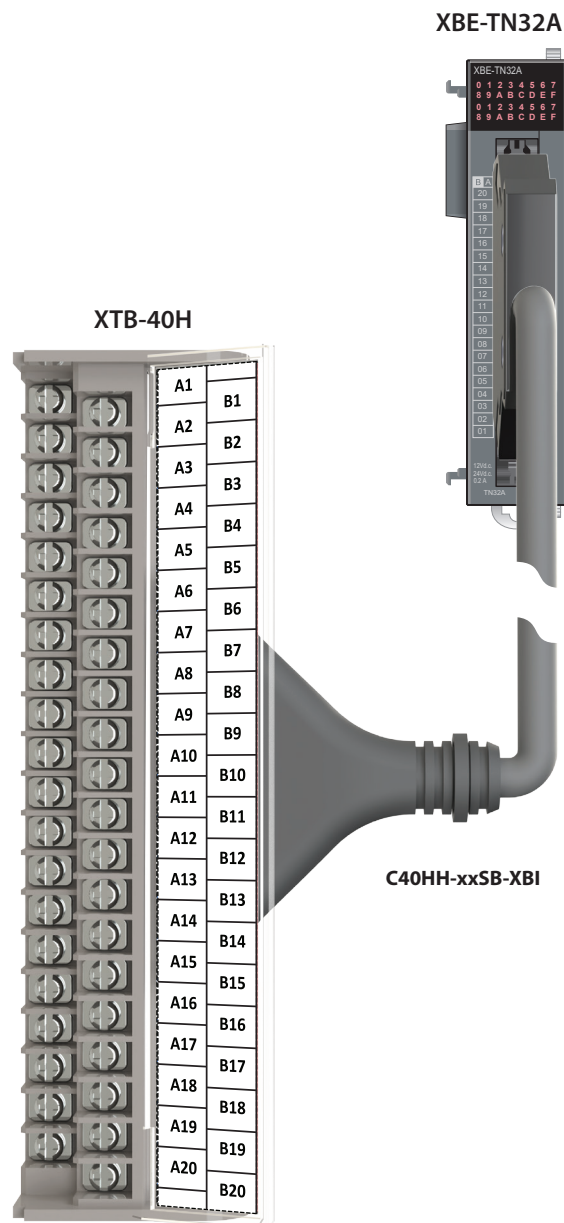
Download module specific XTB-40H Terminal Label Printouts here: [Download Printouts](#)

### Terminal Wiring

#### Outputs (Sink)



### PLC Connection



#### Note:

- Wiring: AWG22-16 (1.5mm<sup>2</sup>/MAX)
- Screw: M3 X 8L
- Screw Torque: 1.2 N·m (12kgf·cm)



# XGB Series PLC Family

## 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 <sup>1</sup>        | Occasional Vibration                 | Frequency                                           | $5 \leq f < 8.4 \text{ Hz}$                      | 3.5 mm pulse width                           | IEC61131-3-2 |
|                               |                                      |                                                     | $8.4 \leq f < 150\text{Hz}$                      | 9.8 m/s <sup>2</sup> (1G)                    |              |
|                               | Continuous Vibration                 |                                                     | $5 \leq f < 8.4 \text{ Hz}$                      | 1.75 mm pulse width                          |              |
|                               |                                      |                                                     | $8.4 \leq f < 150\text{Hz}$                      | 4.9 m/s <sup>2</sup> (0.5G)                  |              |
| Shocks                        |                                      | Peak Acceleration                                   | 147 m/s <sup>2</sup> (15G)                       |                                              |              |
|                               |                                      | Duration                                            | 11ms                                             |                                              |              |
|                               |                                      | Pulse Wave Type                                     | Half-sine (3 times each direction per each axis) |                                              |              |
| Noise Resistance              | Square Wave Impulse Noise            |                                                     | 1,500VAC<br>900VDC                               | LS Electric standard                         |              |
|                               | Electrostatic Discharge              |                                                     | Voltage: 4kV (contact discharge)                 | IEC61131-3-2<br>IEC61000-4-2                 |              |
|                               | Radiated Electromagnetic Field Noise |                                                     | 80–1,000 MHz, 10 V/m                             | IEC61131-3-2<br>IEC61000-4-3                 |              |
|                               | Fast Transient / Burst Noise         | Classification                                      | Voltage                                          | IEC61131-3-2<br>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 | Bus Coupler Compatible | Smart Link Required |
| <b>Digital</b>                   |          |                                                                                                                                                                                                                                                                           |               |                |              |               |        |                        |                     |
| <a href="#"><u>XBE-DC08A</u></a> | \$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.                                                                                                                          | ✓             |                |              |               |        | ✓                      |                     |
| <a href="#"><u>XBE-DC16A</u></a> | \$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.                                                                                                                       | ✓             |                |              |               |        | ✓                      |                     |
| <a href="#"><u>XBE-DC16B</u></a> | \$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.                                                                                                                    | ✓             |                |              |               |        | ✓                      |                     |
| <a href="#"><u>XBE-DC32A</u></a> | \$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.                                                                                                 | ✓             |                |              |               |        | ✓                      | ✓                   |
| <a href="#"><u>XBE-AC08A</u></a> | \$88.00  | LS Electric XGB discrete input module, 8-point, 120 VAC, 2 common(s), 4 point(s) per common. Removable terminal blocks included.                                                                                                                                          | ✓             |                |              |               |        | ✓                      |                     |
| <a href="#"><u>XBE-RY08A</u></a> | \$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.                                                                                                    |               | ✓              |              |               |        | ✓                      |                     |
| <a href="#"><u>XBE-RY08B</u></a> | \$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.                                                                                                     |               | ✓              |              |               |        | ✓                      |                     |
| <a href="#"><u>XBE-RY16A</u></a> | \$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.                                                                                        |               | ✓              |              |               |        | ✓                      |                     |
| <a href="#"><u>XBE-TN08A</u></a> | \$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.                                                                                                       |               | ✓              |              |               |        | ✓                      |                     |
| <a href="#"><u>XBE-TN16A</u></a> | \$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.                                                                                                     |               | ✓              |              |               |        | ✓                      |                     |
| <a href="#"><u>XBE-TN32A</u></a> | \$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.                                                                               |               | ✓              |              |               |        | ✓                      | ✓                   |
| <a href="#"><u>XBE-TP08A</u></a> | \$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.                                                                                                      |               | ✓              |              |               |        | ✓                      |                     |
| <a href="#"><u>XBE-TP16A</u></a> | \$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.                                                                                                    |               | ✓              |              |               |        | ✓                      |                     |
| <a href="#"><u>XBE-TP32A</u></a> | \$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.                                                                              |               | ✓              |              |               |        | ✓                      | ✓                   |
| <a href="#"><u>XBE-DN32A</u></a> | \$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.                                                                  | ✓             | ✓              |              |               |        | ✓                      | ✓                   |
| <a href="#"><u>XBE-DR16A</u></a> | \$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.                                                              | ✓             | ✓              |              |               |        | ✓                      |                     |
| <b>Motion</b>                    |          |                                                                                                                                                                                                                                                                           |               |                |              |               |        |                        |                     |
| <a href="#"><u>XBF-PN04B</u></a> | \$350.00 | 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. |               |                |              |               | ✓      |                        |                     |
| <a href="#"><u>XBF-PN08B</u></a> | \$395.00 | 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. |               |                |              |               | ✓      |                        |                     |
| <a href="#"><u>XBF-HO02A</u></a> | \$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.                           |               |                |              |               | ✓      | ✓                      | ✓                   |
| <a href="#"><u>XBF-HD02A</u></a> | \$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.

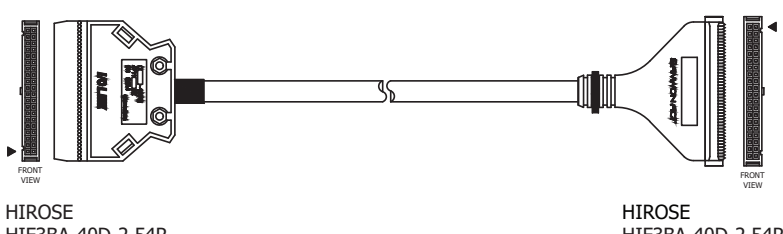
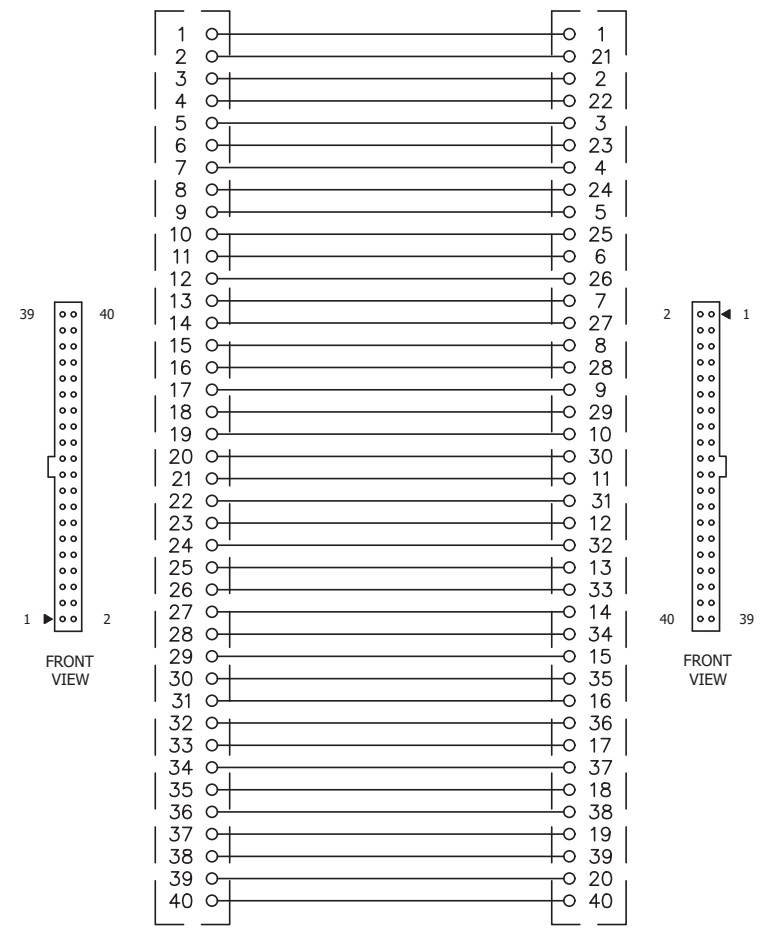
Download module specific XTB-40H Terminal Label Printouts here: [Terminal Printouts](#)



| Part Number                           | Price   | Description                                                                                                                                               | Length | Compatible With                                           |
|---------------------------------------|---------|-----------------------------------------------------------------------------------------------------------------------------------------------------------|--------|-----------------------------------------------------------|
| <a href="#"><u>XTB-40H</u></a>        | \$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 |
| <a href="#"><u>XTB-40H-LABEL</u></a>  | \$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    |                                                           |
| <a href="#"><u>C40HH-05SB-XBI</u></a> | \$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  |                                                           |
| <a href="#"><u>C40HH-10SB-XBI</u></a> | \$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     |                                                           |
| <a href="#"><u>C40HH-15SB-XBI</u></a> | \$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  |                                                           |
| <a href="#"><u>C40HH-20SB-XBI</u></a> | \$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     |                                                           |
| <a href="#"><u>C40HH-30SB-XBI</u></a> | \$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<br>(50P polarity guide: 2EA) |
| Applicable Wires       | AWG22-16 (1.5mm <sup>2</sup> /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<br>Modified PPO                     |
|                        | Protective Cover<br>Polycarbonate        |
|                        | PCB<br>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<br/>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                                 |  <p>39 40</p> <p>1 2</p> <p>FRONT VIEW</p> | 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              |