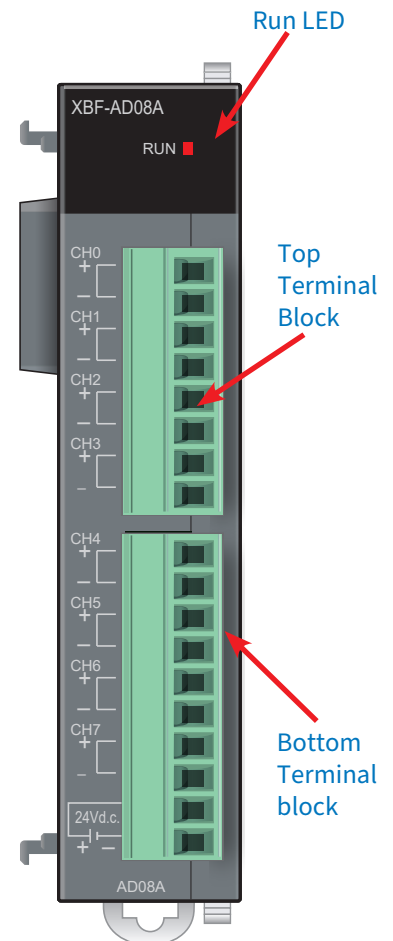


## XBF-AD08A Analog Input Module

| Part Number      | Price    | Classification        | Description                                                                                                                                                                                                        | # of Channels | Drawing |
|------------------|----------|-----------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------|---------|
| <b>XBF-AD08A</b> | \$242.00 | Voltage/current Input | 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. | 8             | PDF     |

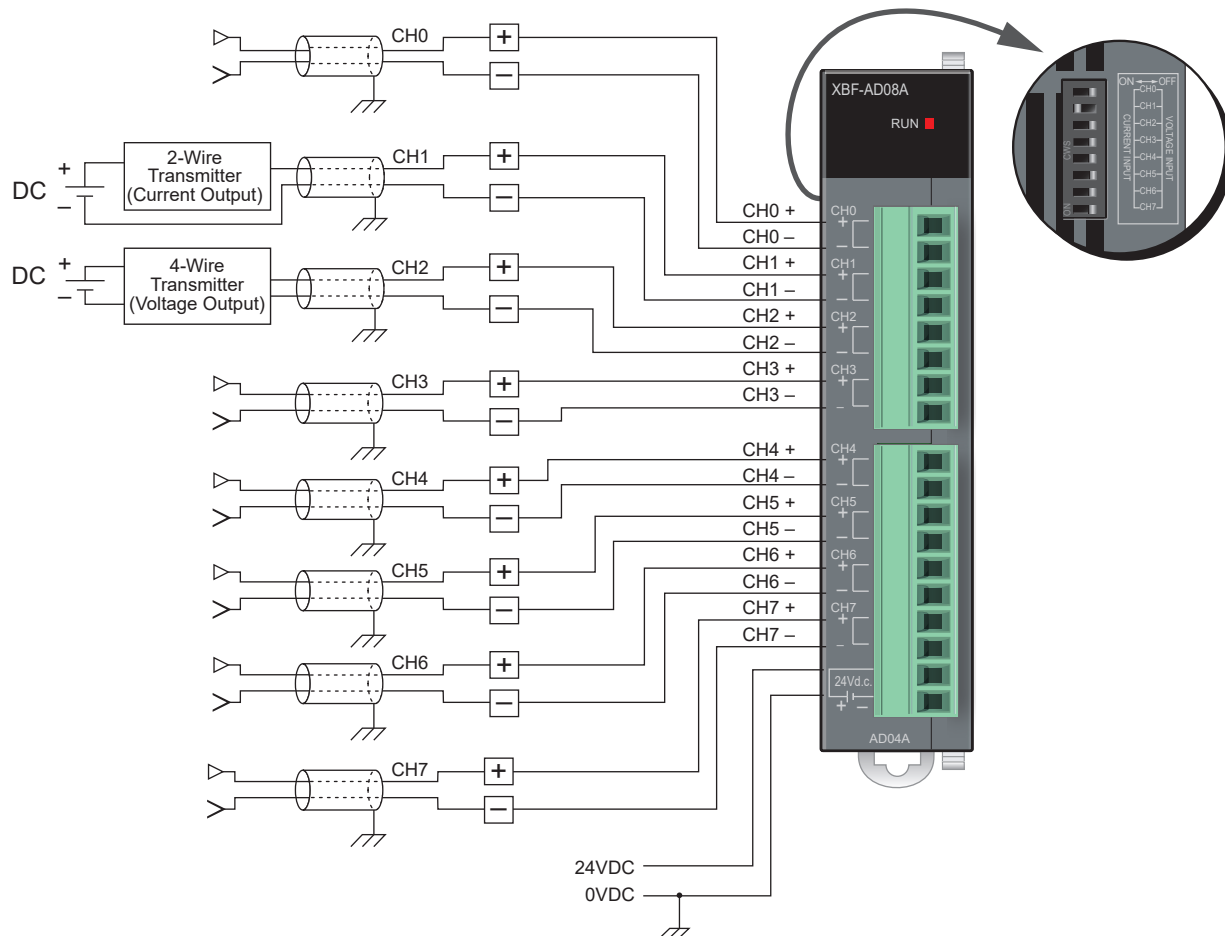
| General Specifications   |                  | XBF-AD08A                                                                                      |                                                    |
|--------------------------|------------------|------------------------------------------------------------------------------------------------|----------------------------------------------------|
|                          |                  | Voltage                                                                                        | Current                                            |
| Analog Input Range       |                  | 1-5 VDC<br>0-5 VDC<br>0-10 VDC<br>(input resistance 1MΩ min.)                                  | 4-20 mA DC<br>0-20mA DC<br>(input resistance 250Ω) |
| Digital Output           | Type             | 12 bit binary data                                                                             |                                                    |
|                          | Unsigned Value   | 0-4000                                                                                         |                                                    |
|                          | Signed Value     | -2000-2000                                                                                     |                                                    |
|                          | Precise Value    | 100-500 (1-5 VDC)<br>0-500 (0-5 VDC)<br>0-1000 (0-10 VDC)                                      | 400-2000 (4-20 mA DC)<br>0-2000 (0-20 mA DC)       |
|                          | Percentile Value | 0-1000                                                                                         |                                                    |
| Maximum Resolution       |                  | 1/4000                                                                                         |                                                    |
|                          |                  | 1.25 mV (1-5, 0-5 VDC)<br>2.5 mV (0-10 VDC)                                                    | 5 μA (4-20 mA, 0-20 mA DC)                         |
| Accuracy                 |                  | ±0.5% or less                                                                                  |                                                    |
| Maximum Conversion Speed |                  | 1.5 ms/channel                                                                                 |                                                    |
| Absolute Maximum Input   |                  | ±15VDC                                                                                         | ±25mA DC                                           |
| Additional Function      | Filter Function  | Digital filter (4-64,000 ms)                                                                   |                                                    |
|                          | Average Function | Time average (4-16,000 ms)                                                                     |                                                    |
|                          |                  | Count average (2-64,000 times)                                                                 |                                                    |
|                          | Alarm Function   | Moving average (2-100)                                                                         |                                                    |
| Insulation Method        |                  | Photocoupler insulation between I/O terminal and PLC power<br>(no insulation between channels) |                                                    |
| Input Terminal           |                  | 8-pin terminal block + 10-pin terminal block connector                                         |                                                    |
| I/O Points Occupied      |                  | Fixed type: 512 points                                                                         |                                                    |
| Current Consumption      | Internal (5VDC)  | 105mA                                                                                          |                                                    |
|                          | External (24VDC) | 85mA                                                                                           |                                                    |
| Weight                   |                  | 81g                                                                                            |                                                    |
| Power Supply             |                  | 20.4-28.8 VDC                                                                                  |                                                    |



## XBF-AD08A Analog Input Module Wiring

When connecting cable to your XBF-AD08A:

- In case of voltage/current input, wiring is the same. Adjust the voltage/current setting switch according to the case.
- Keep the AC power line away from the analog input module's external input signal line to prevent surge or inductive noise.
- Use cable rated to meet your application's ambient temperature and current needs. AWG22 (0.3mm<sup>2</sup>) or greater recommended.
- Keep cable clear of high heat and oil.
- Check polarity when wiring the terminal.
- Using high-voltage line or power line may cause abnormal operations or defects due to inductive hindrance.
- Make sure the desired channel is enabled.



### Notes:

- Use 2-core twisted shield cable
- Use AWG22 (0.3mm<sup>2</sup>) or greater cable
- Current input resistance is 250Ω
- Voltage input resistance is 1MΩ
- Terminal screwdriver: slotted 2.5 mm



# XGB Analog Modules

## XBF-AD08A Analog Input Module Configuration

Follow the Quick start video to learn how to Register and Configure any Analog Module:

[Analog Module Setup](#)

### Direct Variables

All XGB series analog modules are assigned 32 words in the “U” memory area based on the slot number assignment. (%UW0.z.0 - %UW0.z.31, z = slot number). The actual memory address used within the 32 word block are specific to each module. See the table below for Direct Variable assignments.

For Direct Variable nomenclature explanation, see [Direct Variable User Programming Memory](#).

### Symbolic Variables

Symbolic variables for the analog module can be automatically created in XG5000 software by using the top MENU bar: Edit > Register Module Variable Comments.

Symbolic variables and direct variables for XBF-AD08A are as follows (z refers to module slot number (2 to 8)).

| Type | Scope           | Variable<br>(Symbolic) | Address<br>(Direct Variable Alias) | Data Type           | Comment                                         |
|------|-----------------|------------------------|------------------------------------|---------------------|-------------------------------------------------|
| Tag  | Global/Variable | _0z_CH0_ACT            | %UX0.z.16                          | BOOL                | Analog Input Module: CH0 Activation Status      |
| Tag  | Global/Variable | _0z_CH0_DATA           | %UW0.z.2                           | WORD                | Analog Input Module: CH0 Output                 |
| Tag  | Global/Variable | _0z_CH0_ERR            | %UX0.z.24                          | BOOL                | Analog Input Module: CH0 Error                  |
| Tag  | Global/Variable | _0z_CH0_IDD            | %UX0.z.160                         | BOOL                | Analog Input Module: CH0 Disconnection Flag     |
| Tag  | Global/Variable | _0z_CH1_ACT            | %UX0.z.17                          | BOOL                | Analog Input Module: CH1 Activation Status      |
| Tag  | Global/Variable | _0z_CH1_DATA           | %UW0.z.3                           | WORD                | Analog Input Module: CH1 Output                 |
| Tag  | Global/Variable | _0z_CH1_ERR            | %UX0.z.25                          | BOOL                | Analog Input Module: CH1 Error                  |
| Tag  | Global/Variable | _0z_CH1_IDD            | %UX0.z.161                         | BOOL                | Analog Input Module: CH1 Disconnection Flag     |
| Tag  | Global/Variable | _0z_CH2_ACT            | %UX0.z.18                          | BOOL                | Analog Input Module: CH2 Activation Status      |
| Tag  | Global/Variable | _0z_CH2_DATA           | %UW0.z.4                           | WORD                | Analog Input Module: CH2 Output                 |
| Tag  | Global/Variable | _0z_CH2_ERR            | %UX0.z.26                          | BOOL                | Analog Input Module: CH2 Error                  |
| Tag  | Global/Variable | _0z_CH2_IDD            | %UX0.z.162                         | BOOL                | Analog Input Module: CH2 Disconnection Flag     |
| Tag  | Global/Variable | _0z_CH3_ACT            | %UX0.z.19                          | BOOL                | Analog Input Module: CH3 Activation Status      |
| Tag  | Global/Variable | _0z_CH3_DATA           | %UW0.z.5                           | WORD                | Analog Input Module: CH3 Output                 |
| Tag  | Global/Variable | _0z_CH3_ERR            | %UX0.z.27                          | BOOL                | Analog Input Module: CH3 Error                  |
| Tag  | Global/Variable | _0z_CH3_IDD            | %UX0.z.163                         | BOOL                | Analog Input Module: CH3 Disconnection Flag     |
| Tag  | Global/Variable | _0z_CH4_ACT            | %UX0.z.20                          | BOOL                | Analog Input Module: CH4 Activation Status      |
| Tag  | Global/Variable | _0z_CH4_DATA           | %UW0.z.6                           | WORD                | Analog Input Module: CH4 Output                 |
| Tag  | Global/Variable | _0z_CH4_ERR            | %UX0.z.28                          | BOOL                | Analog Input Module: CH4 Error                  |
| Tag  | Global/Variable | _0z_CH4_IDD            | %UX0.z.164                         | BOOL                | Analog Input Module: CH4 Disconnection Flag     |
| Tag  | Global/Variable | _0z_CH5_ACT            | %UX0.z.21                          | BOOL                | Analog Input Module: CH5 Activation Status      |
| Tag  | Global/Variable | _0z_CH5_DATA           | %UW0.z.7                           | WORD                | Analog Input Module: CH5 Output                 |
| Tag  | Global/Variable | _0z_CH5_ERR            | %UX0.z.29                          | BOOL                | Analog Input Module: CH5 Error                  |
| Tag  | Global/Variable | _0z_CH5_IDD            | %UX0.z.165                         | BOOL                | Analog Input Module: CH5 Disconnection Flag     |
| Tag  | Global/Variable | _0z_CH6_ACT            | %UX0.z.22                          | BOOL                | Analog Input Module: CH6 Activation Status      |
| Tag  | Global/Variable | _0z_CH6_DATA           | %UW0.z.8                           | WORD                | Analog Input Module: CH6 Output                 |
| Tag  | Global/Variable | _0z_CH6_ERR            | %UX0.z.30                          | BOOL                | Analog Input Module: CH6 Error                  |
| Tag  | Global/Variable | _0z_CH6_IDD            | %UX0.z.166                         | BOOL                | Analog Input Module: CH6 Disconnection Flag     |
| Tag  | Global/Variable | _0z_CH7_ACT            | %UX0.z.23                          | BOOL                | Analog Input Module: CH7 Activation Status      |
| Tag  | Global/Variable | _0z_CH7_DATA           | %UW0.z.9                           | WORD                | Analog Input Module: CH7 Output                 |
| Tag  | Global/Variable | _0z_CH7_ERR            | %UX0.z.31                          | BOOL                | Analog Input Module: CH7 Error                  |
| Tag  | Global/Variable | _0z_CH7_IDD            | %UX0.z.167                         | BOOL                | Analog Input Module: CH7 Disconnection Flag     |
| Tag  | Global/Variable | _0z_CH_ACT_ARY         | %UX0.z.16                          | ARRAY[0..7] OF BOOL | Analog Input Module: Each CH Active             |
| Tag  | Global/Variable | _0z_CH_DATA_ARY        | %UW0.z.2                           | ARRAY[0..7] OF WORD | Analog Input Module: Each CH Output             |
| Tag  | Global/Variable | _0z_CH_ERR_ARY         | %UX0.z.24                          | ARRAY[0..7] OF BOOL | Analog Input Module: Each CH Error              |
| Tag  | Global/Variable | _0z_CH_IDD_ARY         | %UX0.z.160                         | ARRAY[0..7] OF BOOL | Analog Input Module: Each CH Disconnection Flag |
| Tag  | Global/Variable | _0z_ERR                | %UX0.z.0                           | BOOL                | Analog Input Module: Error Flag                 |
| Tag  | Global/Variable | _0z_ERR_CLR            | %UX0.z.176                         | BOOL                | Analog Input Module: Error Clear Request        |
| Tag  | Global/Variable | _0z_RDY                | %UX0.z.15                          | BOOL                | Analog Input Module: Ready Flag                 |

## 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