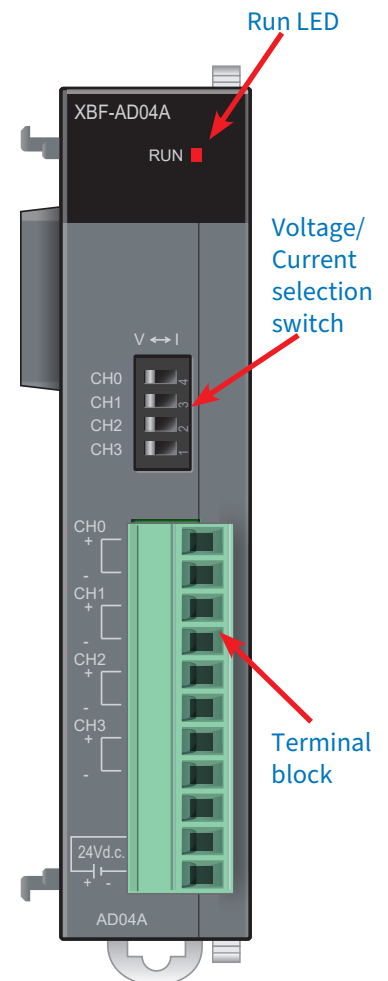


## XBF-AD04A Analog Input Module

Part Number	Price	Classification	Description	# of Channels	Drawing
<b>XBF-AD04A</b>	\$160.00	Voltage/Current Input	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.	4	PDF

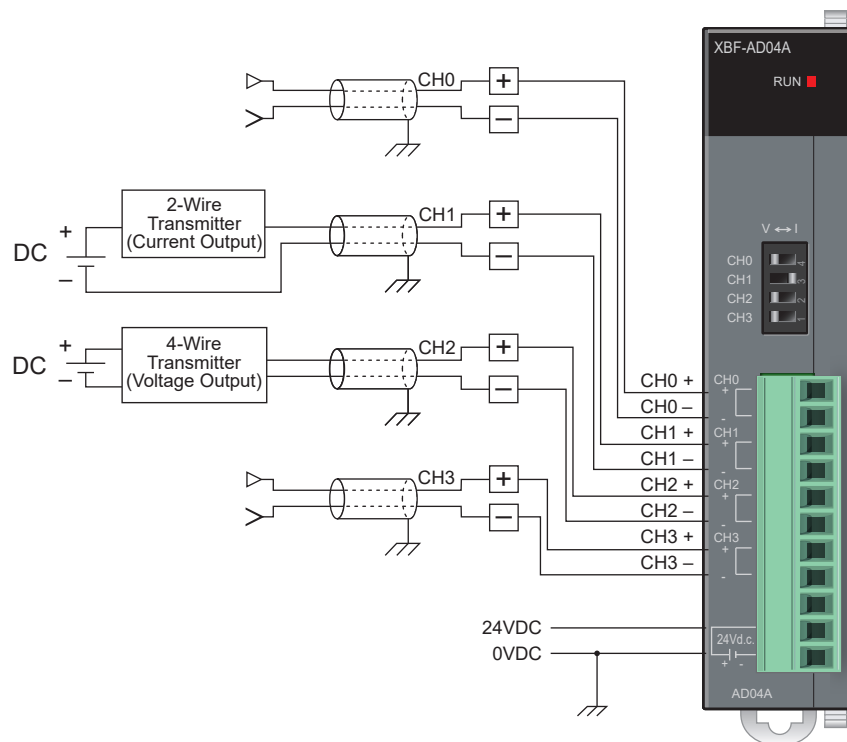
General Specifications		XBF-AD04A		
		Voltage	Current	
<b>Analog Input Range</b>		0-10 VDC (Input resistance: 1MΩ min.)	DC 4-20mA DC 0-20mA (Input resistance: 250Ω)	
<b>Digital Output</b>	<b>Type</b>	12-bit binary data		
	<b>Direct Variable</b>	%UW0.z.0 - %UW0.z.31 (z=slot number)		
	<b>Range</b>	<b>Unsigned Value</b>	0-4000	
		<b>Signed Value</b>	-2000 to 2000	
		<b>Precise Value</b>	0-1000	400-2000 / 0-2000
		<b>Percentile Value</b>	0-1000	
<b>Maximum Resolution</b>		2.5 mV (1/4000)	5μA (1/4000)	
<b>Accuracy</b>		± 0.5% or less		
<b>Maximum Conversion Speed</b>		1.5 ms/channel		
<b>Absolute Maximum Input</b>		±15VDC	±25mA DC	
<b>Number of Input Channels</b>		4 channels		
<b>Insulation Method</b>		Photocoupler insulation between input terminal and PLC power (no insulation between channels)		
<b>Connection Terminal</b>		11-point terminal block		
<b>I/O Points Occupied</b>		Fixed type: 512 points		
<b>Current Consumption</b>	<b>Internal (5VDC)</b>	120mA		
	<b>External (24VDC)</b>	62mA		
<b>Weight</b>		64g		
<b>Additional Function</b>		Filter processing, average processing (time, count)		
<b>Power Supply</b>		20.4-28.8 VDC		



## XBF-AD04A Analog Input Module Wiring

When connecting cable to your XBF-AD04A:

- 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-AD04A 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 AD04A are as follows (z refers to module slot number (2 to 8)).

Type	Scope	Variable (Symbolic)	Address (Direct Variable Alias)	Data Type	Comment
Tag	GlobalVariable	._0z_CH0_ACT	%UX0.z.16	BOOL	Analog Input Module: CH0 Activation Status
Tag	GlobalVariable	._0z_CH0_DATA	%UW0.z.2	WORD	Analog Input Module: CH0 Output
Tag	GlobalVariable	._0z_CH1_ACT	%UX0.z.17	BOOL	Analog Input Module: CH1 Activation Status
Tag	GlobalVariable	._0z_CH1_DATA	%UW0.z.3	WORD	Analog Input Module: CH1 Output
Tag	GlobalVariable	._0z_CH2_ACT	%UX0.z.18	BOOL	Analog Input Module: CH2 Activation Status
Tag	GlobalVariable	._0z_CH2_DATA	%UW0.z.4	WORD	Analog Input Module: CH2 Output
Tag	GlobalVariable	._0z_CH3_ACT	%UX0.z.19	BOOL	Analog Input Module: CH3 Activation Status
Tag	GlobalVariable	._0z_CH3_DATA	%UW0.z.5	WORD	Analog Input Module: CH3 Output
Tag	GlobalVariable	._0z_CH_ACT_ARY	%UX0.z.16	ARRAY[0..3] OF BOOL	Analog Input Module: Bool Array of Active bit for Channel 0 to 3
Tag	GlobalVariable	._0z_CH_DATA_ARY	%UW0.z.2	ARRAY[0..3] OF WORD	Analog Input Module: Word Array of Data for Channel 0 to 3
Tag	GlobalVariable	._0z_ERR	%UX0.z.0	BOOL	Analog Input Module: Error Flag
Tag	GlobalVariable	._0z_ERR_CLR	%UX0.z.176	BOOL	Analog Input Module: Error Clear Request
Tag	GlobalVariable	._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	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 <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 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	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