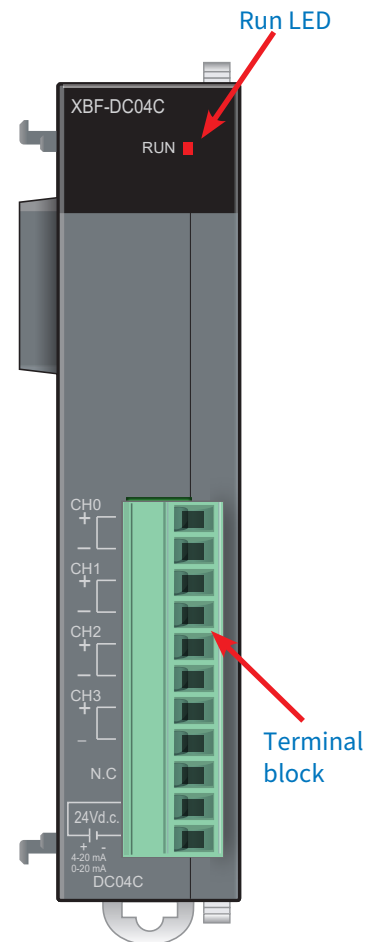**LS** *ELECTRIC*

XGB Analog Modules

XBF-DC04C Analog Output Module

DC04C is an enhanced analog output module which provides higher resolution and interpolation settings for each channel.

Run LED

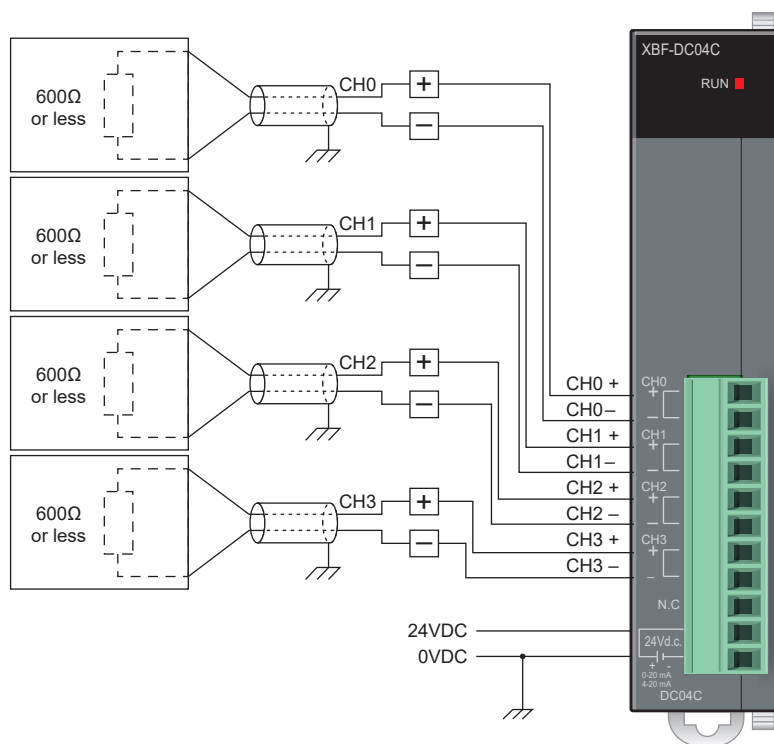| Part Number	Price	Classification	Description	# of Channels	Drawing
XBF-DC04C	$209.00	Current Output	LS Electric XGB analog output module, 4-channel, current, 14-bit, output current signal range(s) of 0-20 mA and 4-20 mA, external 24 VDC required.	4	PDF

XBF-DC04C

RUN

General Specifications			XBF-DC04C
			Current
Analog Output Range			4–20 mA DC 0–20 mA DC (Load resistance: 600Ω or less)
Digital Input	*Type*		16-bit binary data (Data: 14Bit)
	Range	*Unsigned Value*	0–16,000
		Signed Value	±8000
		Precise Value	4000–20,000 (4–20 mA) 0–20,000 (0–20 mA)
		Percentile Value	0–10,000
Maximum Resolution			1/16,000
			1.0 μA (4–20 mA) 1.25 μA (0–20 mA)
Accuracy			±0.2% (when ambient temperature 25ºC ± 5ºC) ±0.3% (when ambient temperature outside range above)
Maximum Conversion Speed			1ms/channel
Additional Function			Setting of channel output status (select one among Previous, Min, Max) Setting of interpolation method (linear interpolation, S-type interpolation)
Insulation Method			Photocoupler insulation between output terminal and PLC power (no insulation between channels)
Connection Terminal			11-point terminal
I/O Points Occupied			Fixed point assignment: 512 points
Current Consumption	*Internal (5VDC)*		75mA
	External (24VDC)		170mA
Weight			69g
Power Supply			20.4–28.8 VDC

CH0
CH1
CH2
CH3
N.C
24Vd.c.
4-20 mA
0-20 mA
DC04C

Terminal block

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XGB Analog Modules

XBF-DC04C Analog Output Module Wiring

When connecting cable to your XBF-DC04C:

- 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 ($0.3mm^2$) 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 ($0.3mm^2$) or greater cable
- Load resistance is 600Ω or less
- Terminal screwdriver: slotted 2.5 mm

XBF-DC04C Analog Output 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-DC04C are as follows (z refers to module slot number (2 to 8)).

Type	Scope	Variable (Symbolic)	Address (Direct Variable Alias)	Data Type	Comment
Tag	GobalVariable	_0z_CH0_ACT	%UX0.z.16	BOOL	Analog Output Module: CH0 Activation Status
Tag	GobalVariable	_0z_CH0_DATA	%UW0.z.3	WORD	Analog Output Module: CH0 Input
Tag	GobalVariable	_0z_CH0_ERR	%UX0.z.0	BOOL	Analog Output Module: CH0 Error
Tag	GobalVariable	_0z_CH0_INTP	%UX0.z.24	BOOL	Analog Output Module : CH0 Interpolation Status
Tag	GobalVariable	_0z_CH0_ODD	%UX0.z.28	BOOL	Analog Output Module: CH0 Output Disconnection
Tag	GobalVariable	_0z_CH0_OUTEN	%UX0.z.32	BOOL	Analog Output Module: CH0 Output Enable
Tag	GobalVariable	_0z_CH1_ACT	%UX0.z.17	BOOL	Analog Output Module: CH1 Activation Status
Tag	GobalVariable	_0z_CH1_DATA	%UW0.z.4	WORD	Analog Output Module: CH1 Input
Tag	GobalVariable	_0z_CH1_ERR	%UX0.z.1	BOOL	Analog Output Module: CH1 Error
Tag	GobalVariable	_0z_CH1_INTP	%UX0.z.25	BOOL	Analog Output Module: CH1 Interpolation Status
Tag	GobalVariable	_0z_CH1_ODD	%UX0.z.29	BOOL	Analog Output Module: CH1 Output Disconnection
Tag	GobalVariable	_0z_CH1_OUTEN	%UX0.z.33	BOOL	Analog Output Module: CH1 Output Enable
Tag	GobalVariable	_0z_CH2_ACT	%UX0.z.18	BOOL	Analog Output Module: CH2 Activation Status
Tag	GobalVariable	_0z_CH2_DATA	%UW0.z.5	WORD	Analog Output Module: CH2 Input
Tag	GobalVariable	_0z_CH2_ERR	%UX0.z.2	BOOL	Analog Output Module: CH2 Error
Tag	GobalVariable	_0z_CH2_INTP	%UX0.z.26	BOOL	Analog Output Module: CH2 Interpolation Status
Tag	GobalVariable	_0z_CH2_ODD	%UX0.z.30	BOOL	Analog Output Module: CH2 Output Disconnection
Tag	GobalVariable	_0z_CH2_OUTEN	%UX0.z.34	BOOL	Analog Output Module: CH2 Output Enable
Tag	GobalVariable	_0z_CH3_ACT	%UX0.z.19	BOOL	Analog Output Module: CH3 Activation Status
Tag	GobalVariable	_0z_CH3_DATA	%UW0.z.6	WORD	Analog Output Module: CH3 Input
Tag	GobalVariable	_0z_CH3_ERR	%UX0.z.3	BOOL	Analog Output Module: CH3 Error
Tag	GobalVariable	_0z_CH3_INTP	%UX0.z.27	BOOL	Analog Output Module: CH3 Interpolation Status
Tag	GobalVariable	_0z_CH3_ODD	%UX0.z.31	BOOL	Analog Output Module: CH3 Output Disconnection
Tag	GobalVariable	_0z_CH3_OUTEN	%UX0.z.35	BOOL	Analog Output Module: CH3 Output Enable
Tag	GobalVariable	_0z_CH_ACT_ARY	%UX0.z.16	ARRAY[0..3] OF BOOL	Analog Output Module: Each CH Active
Tag	GobalVariable	_0z_CH_DATA_ARY	%UW0.z.3	ARRAY[0..3] OF WORD	Analog Output Module: Each CH Input
Tag	GobalVariable	_0z_CH_ERR_ARY	%UX0.z.0	ARRAY[0..3] OF BOOL	Analog Output Module: Each CH Error
Tag	GobalVariable	_0z_CH_INTP_ARY	%UX0.z.24	ARRAY[0..3] OF BOOL	Analog Output Module: Each CH Interpolation Status
Tag	GobalVariable	_0z_CH_OUTEN_ARY	%UX0.z.32	ARRAY[0..3] OF BOOL	Analog Output Module: Each CH Output Enable
Tag	GobalVariable	_0z_OUTEN	%UW0.z.2	WORD	Analog Output Module: Output Enable
Tag	GobalVariable	_0z_RDY	%UX0.z.15	BOOL	Analog Output 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[1]	Occasional Vibration	Frequency	5 ≤ f < 8.4 Hz	3.5 mm pulse width	IEC61131-3-2
			8.4 ≤ f < 150Hz	9.8 m/s^2 (1G)	
	Continuous Vibration		5 ≤ f < 8.4 Hz	1.75 mm pulse width	
			8.4 ≤ f < 150Hz	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.

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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**
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	$350.00	LS Electric XGB 4-axis positioning module, EtherCAT protocol, 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-Dx32Hx PLCs.					✓		
XBF-PN08B	$395.00	LS Electric XGB 8-axis positioning module, EtherCAT protocol, 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-Dx32Hx 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-120 for the XTB-40H terminal block and cables. See "XGB PLC Replacement Terminals" on page tLSE-119 for replacement removable terminal blocks.