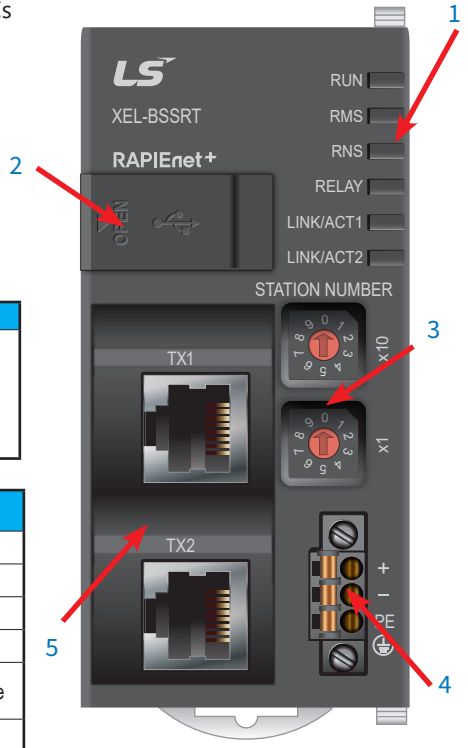
XEL-BSSRT Bus Coupler

XEL-BSSRT is a cost-effective bus coupler that brings XGB Remote I/O to many brands of PLCs that support EtherNet/IP and Modbus TCP.

Features

- Provides EtherNet/IP and Modbus/TCP protocol communications
- Easy setup and configuration using XG5000 software
- Supports Line, Tree, Star, DLR (Ring node), and Ring topologies
- Automatic identification of cable type and communication speed
- Easy addressing with addressing tool available at: https://www.automationdirect.com/support/software-downloads?itemcode=XGB+Field+I-O

Part Number	Price	Classification	Description	Drawing
XEL-BSSRT	$233.00	Bus Coupler	LS Electric XGB bus coupler, 24 VDC, (2) Ethernet (RJ45) and (1) USB B port(s), EtherNet/IP and Modbus TCP, 100/1000 Mbps. For use with LS Electric XGB series I/O modules.	PDF



Location	Function
1	LED Display
2	Mini-USB Connector
3	Station Number switch
4	24VDC input power
5	Ethernet connectors

General Specifications		XEL-BSSRT
Transmission Specifications	Transmission Speed	PORT1/PORT2 (Electric): 100/1000Mbps
	Transmission Method	Base band
	Max Distance between Nodes	100m@CAT5E or higher
	Min Distance between Nodes	1m or more[1]
	Send Media	Electric: Category 5E or higher STP (Shielded Twisted-pair) cable
	Maximum Protocol Size	1,500 bytes
	Communication Network Access Method	CSMA/CD
	Frame Error Check Method	CRC32
Maximum Load		Ethernet: 10,000pps
Topology		Line, Tree, Star etc. (with switch) DLR (Ring node)[2]
Diagnosis Function		Station number / IP collision detection function, self-diagnosis service, diagnosis using XG5000
Station Number	IP Setting Method	Rotary switch, XG5000, BOTP/DHCP
	IP Setting Range	Station number; Rotary switch (1–99). IP:192.168.1.xx, where xx=100+rotary switch 1–99. When the switch is set to 0, the station number is set by XG5000 or DHCP.
External Connecting terminal	USB mini B	PADT connection
	RJ45, SFP	PADT connection, data communication
	3-pin Push-in/Screw Connector	24VDC Power input
Status Indication LED		RUN, RMS, RNS, RELAY, LINK/ACT1, LINK/ACT2
Parameter Setting		XG5000(USB, Ethernet)
Device File		EDS file(Only EtherNet/IP)
Max Number of Modules to be Installed		8ea[3]
Protocol		EtherNet/IP, Modbus-TCP, BOOTP, DHCP
I/O Refresh Size	Max Inputs	512 bytes
	Max Output	512 bytes

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1 - When using a cable of less than 1m, the SNR (Signal to Noise Ratio) decreases due to the influence of reflected waves, which may cause Link Down or packet loss.
2 - DLR (Ring node) only works with XEL-BSSRT V1.80 or higher.
3 - Supports a maximum output current of 3A.

XEL-BSSRT Bus Coupler, *continued*

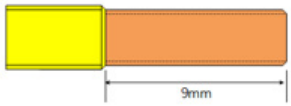
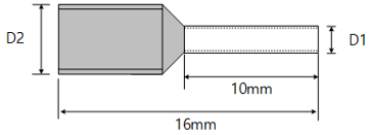
General Specifications			XEL-BSSRT
Protocol Specifications	EtherNet/IP	Data processing unit	Byte (8-bit)
		Max read data size	Non-periodic tag: 1,400 byte Non-periodic object: 1,024 byte Cycle[4]: 1,024 byte
		Max write data size	Non-periodic tag: 1,400 byte Non-periodic object: 1,024 byte Cycle[4]: 1,024 byte
		Available communication type	Connection-type (Cycle) messages: Class1 Non-connection type (Non-periodic) message: Tag, Object
		Maximum number of connections	Connection-type (Cycle): 10 Non-connection type (Non-periodic) message (Tag, Object): 10
	Modbus/TCP	Data processing unit	Word (16-bit), bit
		Max read data size	125 Word (2,000 bits)
		Max write data size	123 Word (1,968 bits)
		Maximum number of connections	64
Weight			136g

4 - The I/O refresh size can only be accessed by an Originator that supports Large forward open (0x5B) if it is greater than or equal to 512 bytes including the header. The input header size consists of a 2-byte PDU sequence number, the output header size includes a 2-byte PDU sequence number and 4 bytes of Run-Idle information. Run-Idle information 4 bytes are determined according to the setting value of EDS.

Power Specifications		XEL-BSSRT
Input	Rated input voltage	24VDC
	Input voltage range	20.4–28.8 VDC (-15%, + 20%)
	Input current	1.3 A or less (typically 1A)
	Inrush current	50A peak or less
	Efficiency	80% or more
	Permitted momentary power failure	Less than 10ms
Output	Rated output voltage	5VDC (±2%)
	Output point	3.0 A
Power Supply Status Indication		When output voltage is normal, LED On

XEL-BSSRT Bus Coupler, *continued*

Wiring

Wiring Specifications	*XEL-BSSRT*
Using Solid Wire	Wire specification: 24–16 AWG (0.2–1.5 mm^2) Strip: 9mm 
Using Stranded Wire	Sleeve type crimp terminal  D1 and D2 according to the wire standard are as follows. • 20 AWG: D1 (1mm), D2 (2.6 mm) • 18 AWG: D1 (1.2 mm), D2 (2.8 mm)

RJ45 Cable Wiring

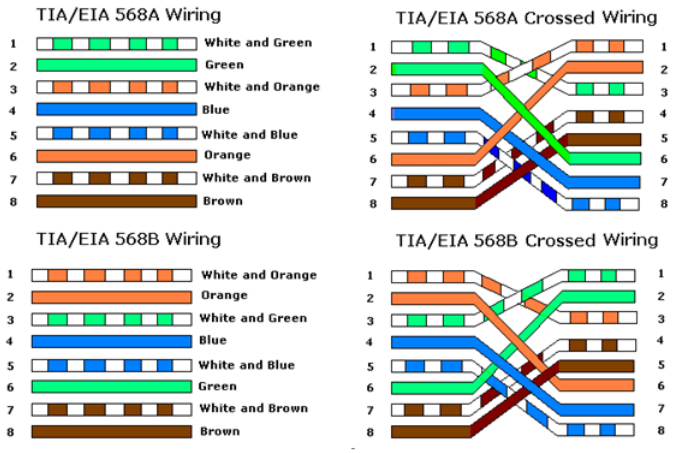


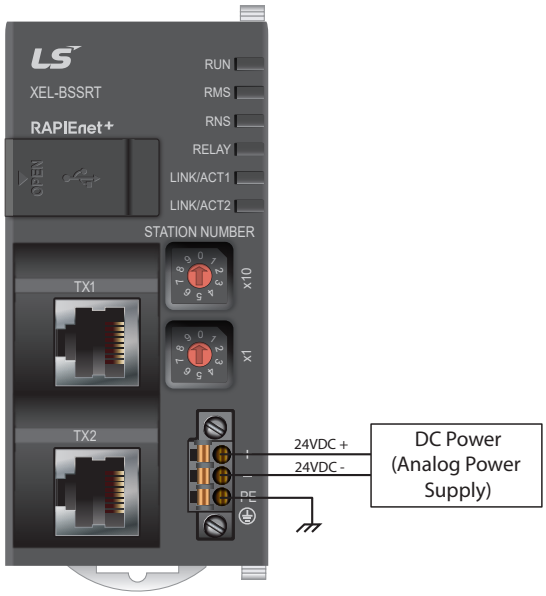
Figure A

Shows the Pin Out of Straight through Cables

Figure B

Shows the Pin Out of Crossover Cables

Power Wiring



XEL-BSSRT Bus Coupler, *continued*

LED Functionality

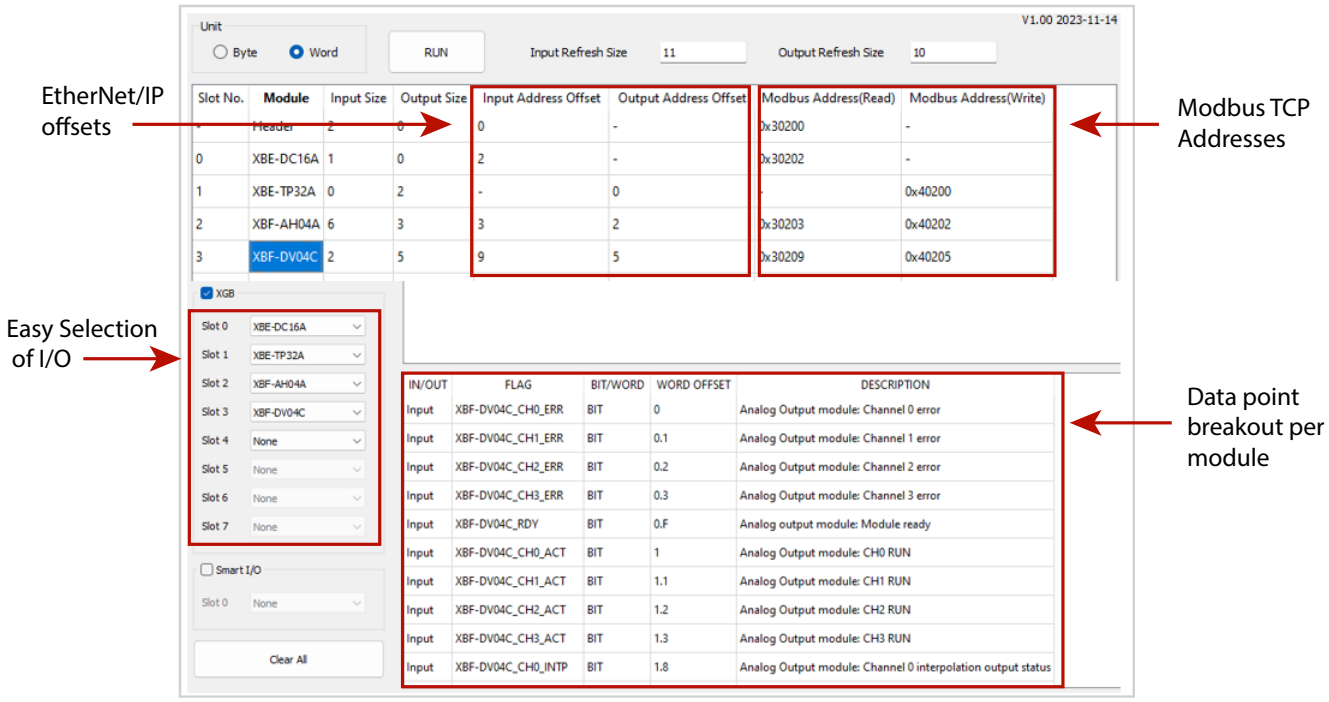
Faceplate View	LED	Status	Meaning
	***RUN***	Green ON	Ethernet (Master) run status.
		Red ON	Ethernet (Master) stop status.
		Green flicker	This is Initial service wait state or time out.
		OFF	Power Off state.
	RMS	Green ON	Normal operation.
		Green flicker	The expansion device setting is not completed.
		Red ON	An unrecoverable error has occurred.
		Red flicker	There is a recoverable error (misconfiguration, parameter error, initialization error, mismatching port-to-port speed or duplex).
	RNS	Green ON	When data is received normally.
		Green flicker	This is the initial state of the network.
		Red ON	A duplicate IP address / station number is detected.
		Red flicker	Timeout, station number conflict, overload status (receiving more than 60000 packets per second) from other nodes on the network.
	RELAY	ON	When the Relay option of the basic parameter is checked and the media speed of Port 1 and Port 2 is the same, the data frame can be relayed.
		OFF	The relay option is not selected.
	LINK/ACT1	Green ON	1G Link=Yes, Activity=No
		Green flicker	1G Link=Yes, Activity=Yes
		Yellow ON	10/100M Link=Yes, Activity=No
		Yellow flicker	10/100M Link=Yes, Activity=Yes
		OFF	Link=No, Activity=NA
	LINK/ACT2	Green ON	1G Link=Yes, Activity=No
		Green flicker	1G Link=Yes, Activity=Yes
		Yellow ON	10/100M Link=Yes, Activity=No
		Yellow flicker	10/100M Link=Yes, Activity=Yes
		OFF	Link=No, Activity=NA

Device Switch Functionality

Faceplate View	Name	Setting	Function
	***Station Number***	1–99	Sets the station number
		0	The station number setting value is set by XG5000 or DHCP
		IP: 192.168.1.xx	IP set by the switch, where xx=100+switch setting 1-99.

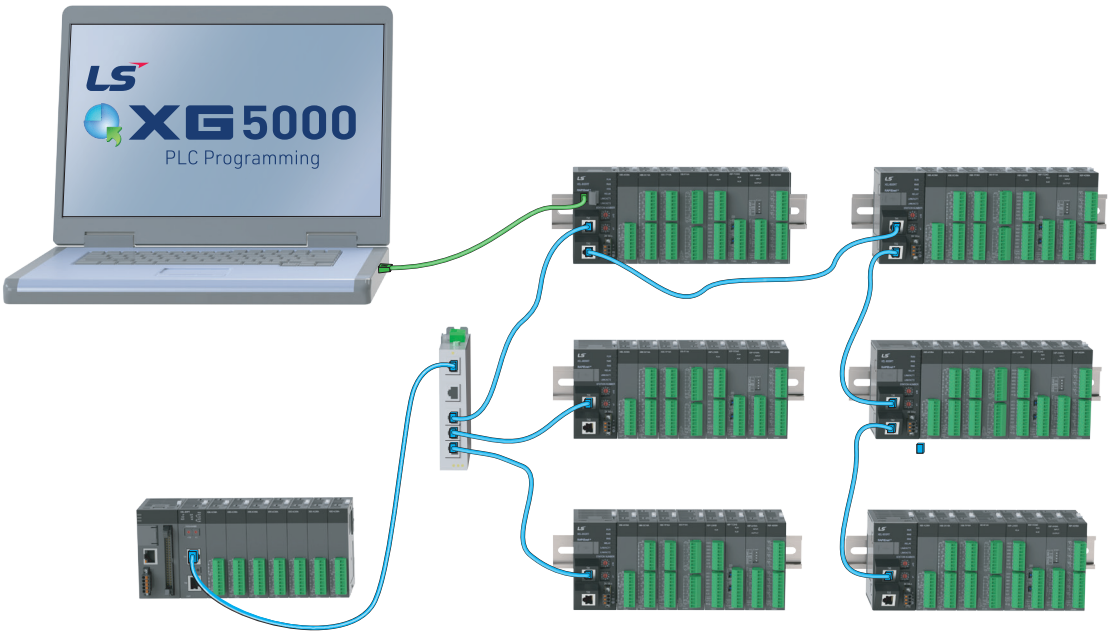
XEL-BSSRT Bus Coupler, *continued*

Addressing Tool

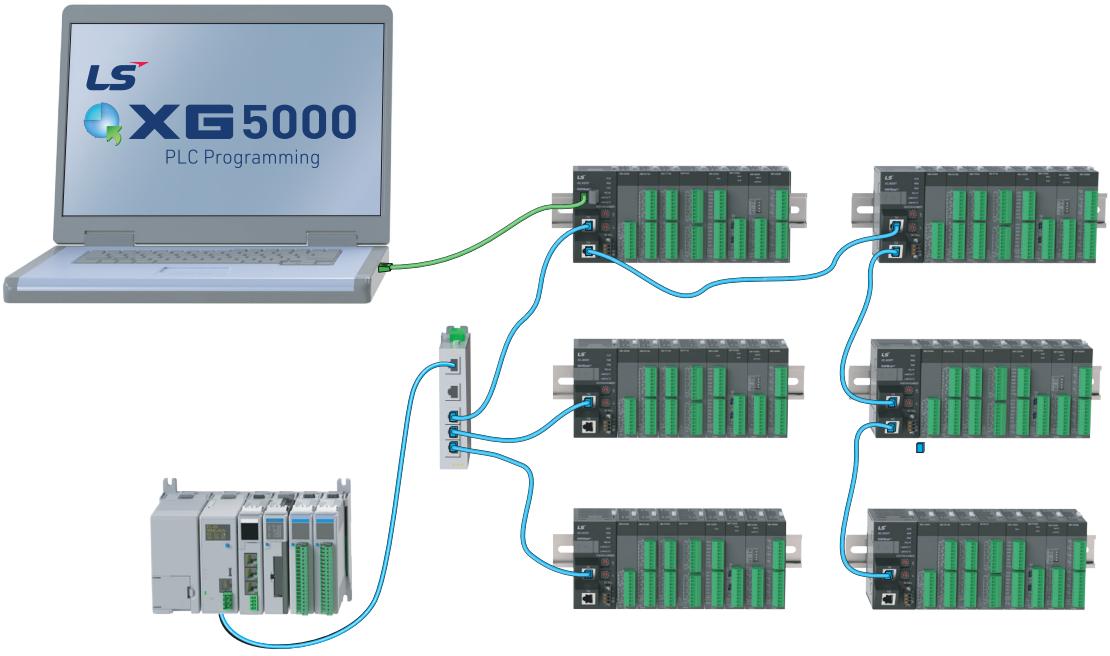


XEL-BSSRT Bus Coupler, *continued*

Example Network Diagram with XEM-DN32 Series



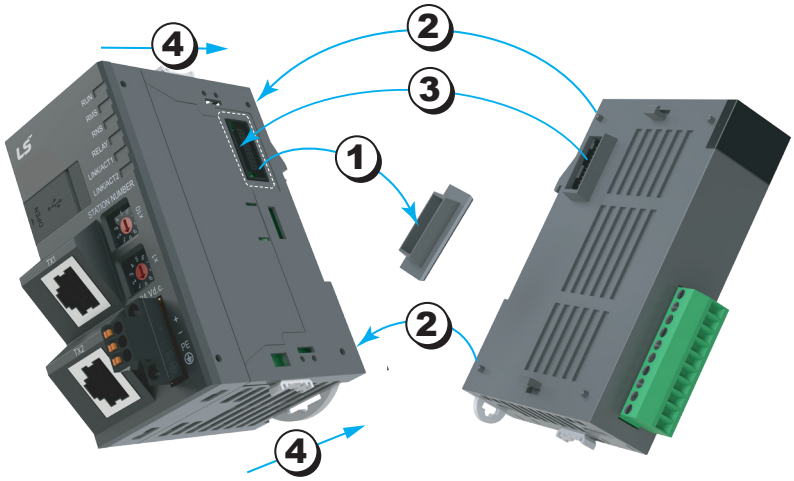
Example Network Diagram with P2000



XEL-BSSRT Bus Coupler, *continued*

Module Installation

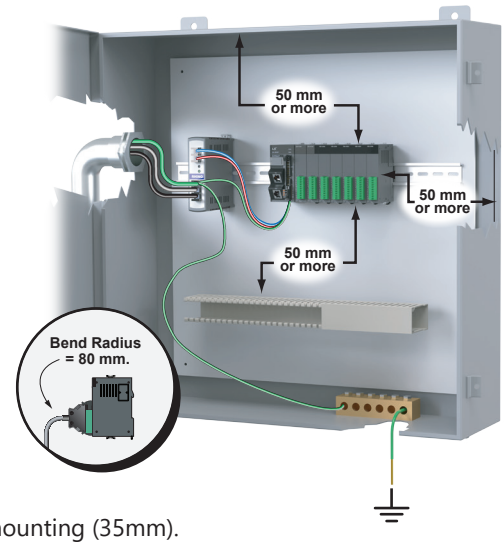
Attach each I/O module to the XEL-BSSRT bus coupler per the diagram to the right. Up to eight modules can be attached by hooking in to each expansion module in the same manner. Any 32-point I/O and counter input module will require a Smart Link cable and terminal block. Use the online Product Selector to help configure the PLC at automationdirect.com/ls/config.



1.Remove expansion port cover.
2. Align tabs with corresponding holes.
3. Seat the expansion port connector.
4. Secure modules with top and bottom sliding lock.

Mounting the XEL-BSSRT

When mounting the completed XEL-BSSRT module to your structure, keep the distances shown in the diagram below to maintain proper ventilation and allow easy detachment and attachment.



Additional Clearance Distances:

- Wire duct on the side requires 5mm or more
- Panel wall on the side requires 20mm or more
- Another device on the side requires 50mm or more

DIN Rail Mounting

The XEL-BSSRT has a hook for DIN rail mounting (35mm). To mount to DIN rail:

- Pull the hook as shown below at the bottom of module and install it at the DIN rail.
- Push the hook to fix the module to the rail after installing.