

BASgatewayLX

BASGLX-M1 BASGLX-M1/P

Modbus RTU/ASCII and Modbus TCP/IP to BACnet® Gateway

Modbus remains a popular network interface, and is commonly found on jobs such as boiler control, variable speed drives, and metering applications, but these devices lack BACnet compliance. To make Modbus devices appear as individual BACnet devices a BASgatewayLX is used. This device has one 10/100 Mbps Modbus TCP and BACnet/IP Ethernet port and an opto-isolated Modbus EIA-485 serial port for Modbus RTU or Modbus ASCII devices. Up to 100 Modbus serial devices (represented by up to 1000 polled points) can share the single Modbus EIA-485 port on the BASgatewayLX. The virtual routing feature in the BASgatewayLX allows each connected Modbus device to appear as an individual BACnet compliant device. What is needed is a device profile for each Modbus type device. Contemporary Controls maintains a library of common device profiles available for download here: www.ccontrols.com/profiles or scan QR below.

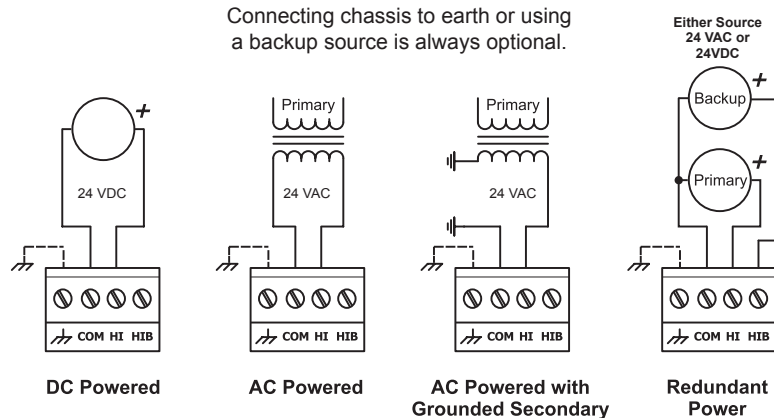
If the device profile is not available, Contemporary Controls will provide it upon request. Custom Modbus device profiles can also be uploaded to the BASgatewayLX using the web page. Modbus data points from Modbus Serial or Modbus TCP/IP devices can be mapped to BACnet objects.



Installation

Power Connection

The BASgatewayLX requires 24 VAC or 24 VDC while drawing no more than 10 VA of power. The recommended conductor size is 16–18 AWG. COM is directly connected to zero volts and the chassis is DC isolated from zero volts. Input connections are reverse-polarity protected. See figure below for power options.



WARNING: Internally, this device utilizes a half-wave rectifier and therefore can only share the same AC power source with other half-wave rectified devices. Sharing a common DC power source is also possible. Sharing AC power with full-wave rectified devices is NOT recommended. Devices powered from a common AC source could be damaged if a mix of half-wave and full-wave rectified devices exists.

Installation Guide

Electrical (Class 2 Circuits Only)

INPUT	DC	AC
Voltage (±10%):	24 V	24 V
Power:	6 W	10 VA
Frequency:	N/A	47-63 Hz

Environmental

Operating temperature:	0°C to 60°C	
Storage temperature:	-40°C to +85°C	
Relative humidity:	10–95%, non-condensing	

Functional

	Ethernet	Modbus
Physical Layer:	10BASE-T 100BASE-TX	EIA-485
Cable length limit:	100 m	1200 m
Modbus data rate (Kbps):	2.4, 4.8 9.6, 19.2, 38.4, 57.6, 76.8, 115.2 Kbps	



EIA-485 Physical Layer Bias and Termination

End-of-Line termination (120Ω) is normally applied at both ends of the EIA-485 bus, especially when using long cable segments and faster data rates. Fail-safe voltage bias (200mV) ensures stable Modbus operation. The BASgatewayLX is shipped with fail-safe voltage bias and EOL termination applied. Depending on the application, these can be configured by removing jumpers inside of the case.

End Device – In a gateway application where the location of the gateway is at the end of the EIA-485 bus segment – both bias and EOL termination must be applied.

Middle Device – In a gateway application where the location of the gateway is anywhere between the end Modbus devices (in the middle of the bus), termination jumper should be removed. Fail-safe voltage bias jumpers could be left in place depending on whether other devices on the EIA-485 bus are providing additional bias or not.

Three configuration jumpers are located inside BASgatewayLX's case near the EIA-485 connector. Removing the BASgatewayLX cover provides access to the 6-pin jumper block.

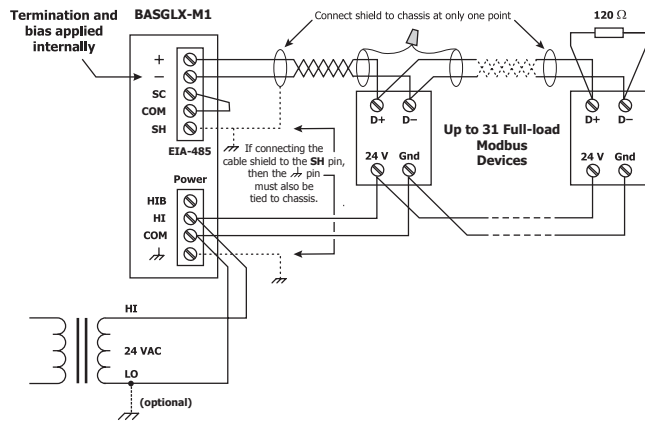
- U Install jumper to apply pull-up bias.
- T Install jumper to terminate bus.
- D Install jumper to apply pull-down bias. (all jumpers are installed by default)



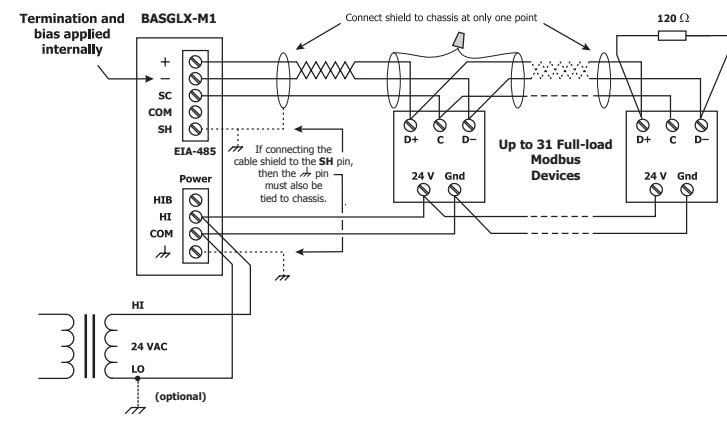
Modbus EIA-485 Physical Layer Connection Options

For Modbus devices that share a power source with the BASgatewayLX

2-wire EIA-485 Bus with Shared Power Source

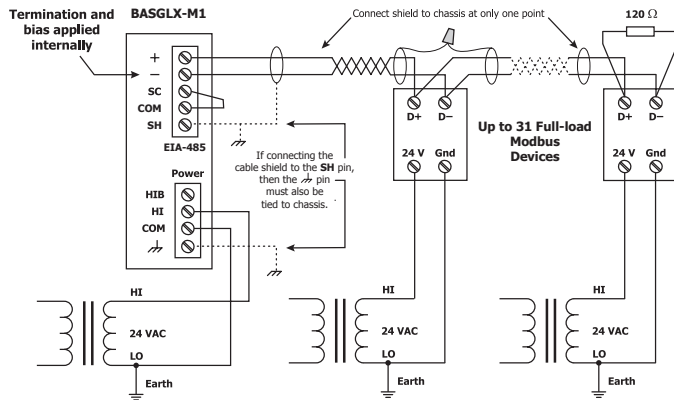


3-wire EIA-485 Bus with Shared Power Source

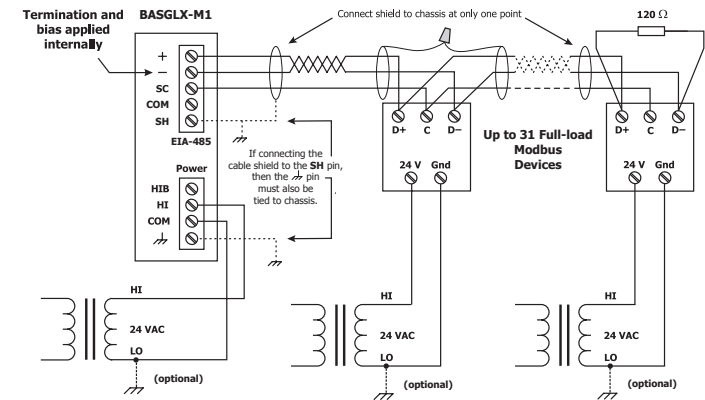


For Modbus devices that use a power source separate from the BASgatewayLX

2-wire EIA-485 Bus with Separate Power Sources



3-wire EIA-485 Bus with Separate Power Sources



Web Page Configuration

The BASgatewayLX contains an interactive web server accessible from any Internet-compatible PC on the local network with recent versions of most standard web browsers such as Microsoft Internet Explorer, Microsoft Edge, Mozilla Firefox, or Google Chrome installed. To configure the gateway initially, connect it to your Windows PC using an Ethernet cable and set the PC's IP and subnet mask in Local Area Connection -> Properties. In the Internet Protocol Version 4 (TCP/IPv4) settings of your Windows PC, specify an IP address and a Subnet mask in the same subnet as the BASgatewayLX (e.g. 192.168.92.5 /24).

BASgatewayLX's factory-programmed: Default IP address is 192.168.92.68 and a Class C subnet mask of 255.255.255.0 (/24) User Name is: admin and Password is: admin

ATTENTION: The default login credentials must be changed before the BASgatewayLX can be used or its system configuration altered. Please change the username to an 8-63 character alphanumeric value (at least one letter and one number), and the password to an 8-63 character alphanumeric and the optional special characters allowed (~!@#%^[]_) value. This ensures authorized access to the gateway only.

Reset IP switch is located on the front, underneath Power LED. Press and hold the *Reset IP* button using a paper clip for at least 5 seconds while the gateway is powered. Remove power and restore power again to complete the reset IP, User ID, and Password procedure to factory-programmed defaults.

For complete datasheet and details on BASgatewayLX, support, or compliance information, please download our BASgatewayLX User Manual at:

<https://www.ccontrols.com/basautomation/basgatewaylx.php> and click on the Support tab under More Information.

