BASrouterSX

BASRTSX-B

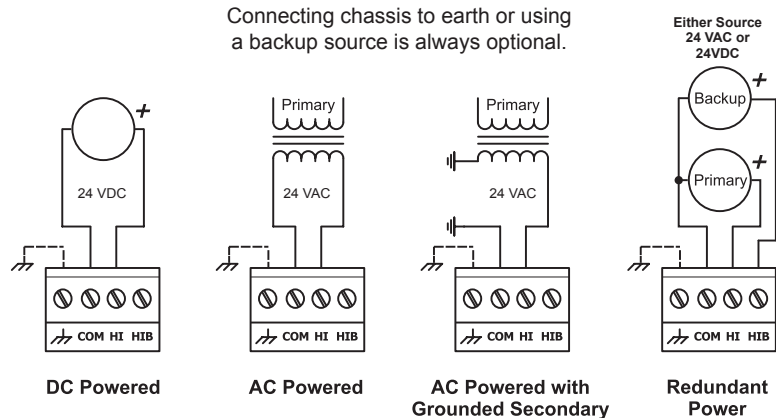## BACnet® Multi-Network Router

The BASrouterSX is a high-performance BACnet router providing stand-alone routing between BACnet networks such as BACnet/IP, BACnet Ethernet, and BACnet MS/TP. Besides its high-speed processor, it has advanced features such as MS/TP slave proxy support (allowing auto-discovery of MS/TP slaves) and diagnostic MS/TP frame capture and storage for use with Wireshark®. Up to 50 BBMD and 147 FDR entries can be made. The BASrouterSX has two physical communication ports — a 10/100 Mbps BACnet/IP Ethernet port and an optically isolated EIA-485 port for MS/TP. Router configuration is accomplished using resident web pages over SSL.

- Optically isolated MS/TP port
- MS/TP baud rate range from 9.6–115.2 Kbps
- MS/TP capture using Wireshark®
- BACnet/IP Broadcast Management Device (BBMD)
- Foreign Device Registration (FDR)
- 50 BBMD entries, 147 FDR entries
- MS/TP Backbone
- Whitelist
- Backward Routing

Installation

Power Connection

The BASRTSX-B 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.

Connecting chassis to earth or using a backup source is always optional.

| DC Powered | AC Powered | AC Powered with Grounded Secondary | Redundant Power |

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.

Electrical *(Class 2 Circuits Only)*

INPUT	DC	AC
Voltage (±10%):	24 V	24 V
Power:	3 W	6 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	MS/TP
Physical Layer:	10BASE-T 100BASE-TX	EIA-485
Cable length limit:	100 m	1200 m (1000 m if using 115.2 Kbps)
MS/TP data rate (Kbps):	9.6, 19.2, 38.4, 57.6, 76.8, 115.2 Kbps	
MS/TP node limit:	254 devices total, 31 full-load devices per segment	

MS/TP Physical Layer Bias and Termination

End-of-Line termination (120Ω) is normally applied at both ends of the MS/TP bus, especially when using long cable segments and faster data rates. Fail-safe voltage bias (200mV) ensures stable MS/TP operation. Depending on the application, these can be configured from the selectable DIP-switches independently for each EIA-485 port. NOTE: The switches for bias and termination should both be either in on or off position.
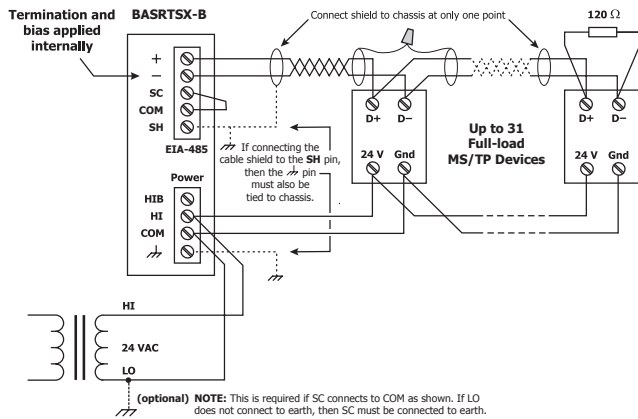
End Device – In an application where the location of the device is at the end of the MS/TP bus segment – both bias and EOL termination must be applied.

Middle Device – In an application where the location of the device is anywhere between the end MS/TP devices (in the middle of the bus), the DIP switches should be in the OFF position. Other devices on the EIA-485 bus can be used to provide additional bias.
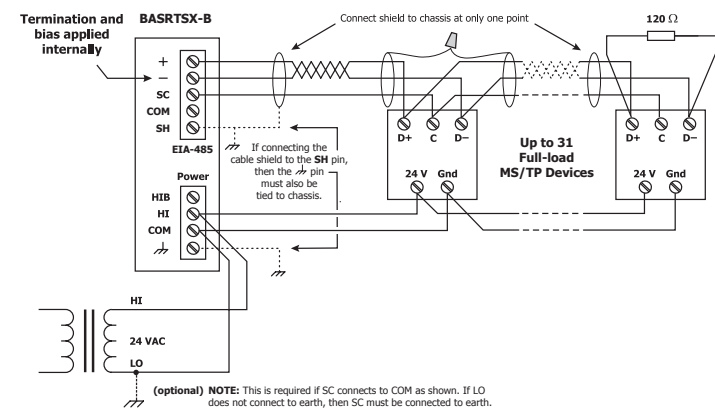
MS/TP Physical Layer Connection Options

For MS/TP devices that share a power source with the BASRTSX-B

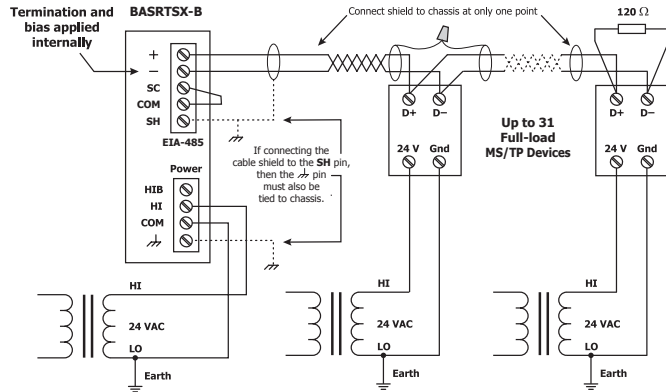### 2-wire MS/TP Bus with Shared Power Source

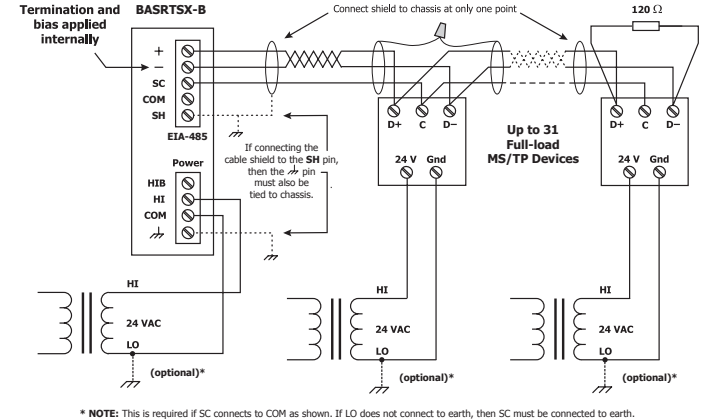### 3-wire MS/TP Bus with Shared Power Source

For MS/TP devices that use a power source separate from the BASRTSX-B

2-wire MS/TP Bus with Separate Power Sources

3-wire MS/TP Bus with Separate Power Sources

Web Page Configuration

The BASrouterSX 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 router 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 BASrouter (e.g. 192.168.92.5 /24).

BASrouterSX'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 BASrouterSX 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 router 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 router is powered. Remove power and restore power again to complete the reset IP, User ID, and Password procedure to factory-programmed defaults.

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