

## Overview

When an HVAC communications network has to travel between different buildings BAPI recommends the use of fiber optic cable. Because fiber optic cable is not electrically conductive it is unaffected by electrical disturbances such as lightning strikes, radio transmitters, electrical power distribution system ground variations, etc.

Once inside the building envelope the fiber optic transceiver, BA/SOX, converts the fiber optic signal into RS-485 for distribution to controllers in that building. The BA/SOX accepts the fiber cable on connectors along its front edge and RS-485 data on the connector that plugs into the communications repeater backplane, BA/RBP. The BA/SOX converts the RS-485 data on the back plane to a fiber optic signal and sends it out on the transmit fiber cable. The BA/SOX converts the data on the receive fiber into an RS-485 signal on the backplane.

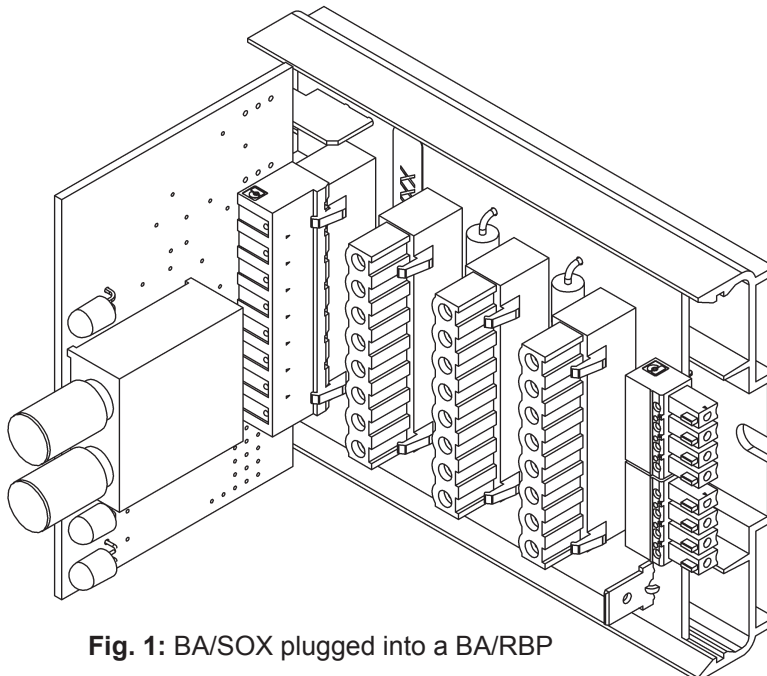
A green power LED shows that the unit has 12 VDC power. One red LED for each fiber cable connection will flash when data is transmitted or received.

## Specifications

Power Voltage:	7 to 18 VDC (from BAPI BA/3312VC)
Power Current:	50mA max
Communications Rates:	1,200 to 115.2K Auto Baud (auto-adjusting)
Optical Network Length:	65,600 feet (20,000 meters)
RS-485 Network Length:	4,000 feet (1200 meters)
Optical Cable:	Single mode filter, 9/125 um ST connectors)
Transmission Wavelength:	1,310 nm

## Mounting

The BA/SOX plugs into a BA/RBP as shown in Figure 1.



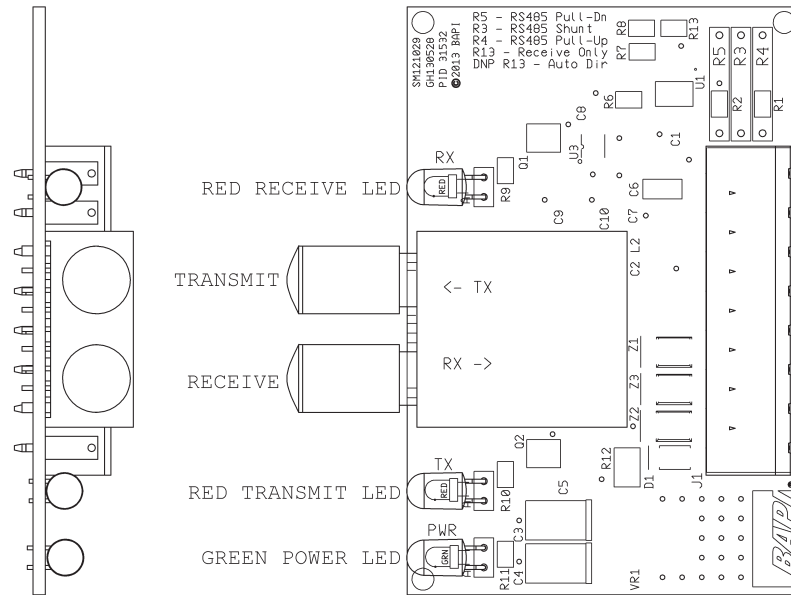
**Fig. 1:** BA/SOX plugged into a BA/RBP

### Termination

Remove the dust covers from the fiber optic connector, then connect your transmit and receive fiber optic cable to the emitter and receiver as shown in Figure 2. The receive line of one BA/SOX communications repeater is connected to the transmit line of another.

**Fig. 2:**  
BA/SOX component identifier

Note: The transmit and receive LEDs are located to match the position of the transmit and receive LEDs on the FOX and RPTR ETA modules. The transmit and receive ST connectors of the SOX module are in the reverse position of the LEDs.



### Troubleshooting

**Possible Problems:**

Power LED L1 does not light

**Possible Solutions:**

- Check to see that the BA/SOX is firmly inserted into the backplane
- Check to see if the power cable is firmly inserted into the backplane.
- Check to see if the 3312VC is working correctly
- Check to see if the power to the PS17 supplying the 3312VC is turned on
- Verify proper polarity on the RBP power connector

Data LEDs do not blink

- Check fiber optic cable for proper termination
- Check RS485 communications link for proper termination