

## Overview

There are many applications for 2-position actuators in HVAC. The BA/EA1 provides a simplified method for wiring and trouble shooting of up to two “Belimo<sup>®</sup>” style 2-position actuators with auxiliary switch position feedback.

The BA/EA1 plugs into the 4-point power backplane, BA/BP4, or the 8-point power backplane, BA/BP8. A green LED on the BA/EA1 lights whenever power is present.

Easily reached on the edge of the board facing you are all the display LEDs, I/O connector and two actuator connectors. The BA/EA1 provides power for the actuators from the backplane. The actuator connectors provide power to the actuators and terminations for the auxiliary switch wires. The I/O connector accepts the On/Off signal from the controller, an Auxiliary end-switch input and the end-switch made output.

With no input signal to the BA/EA1 both actuators are in position A. Applying 24VDC and ground to the input connector of the BA/EA1 switches both actuators to position B. The actuators can move together or in opposite directions based on jumper settings. When the actuator end-switches close, an output contact is closed. An auxiliary end switch input allows unlimited numbers of BA/EA1s to be cascaded together.

## Mounting

The BA/EA1 plugs into either a BA/BP4 or a BA/BP8 as shown in Figure 1.

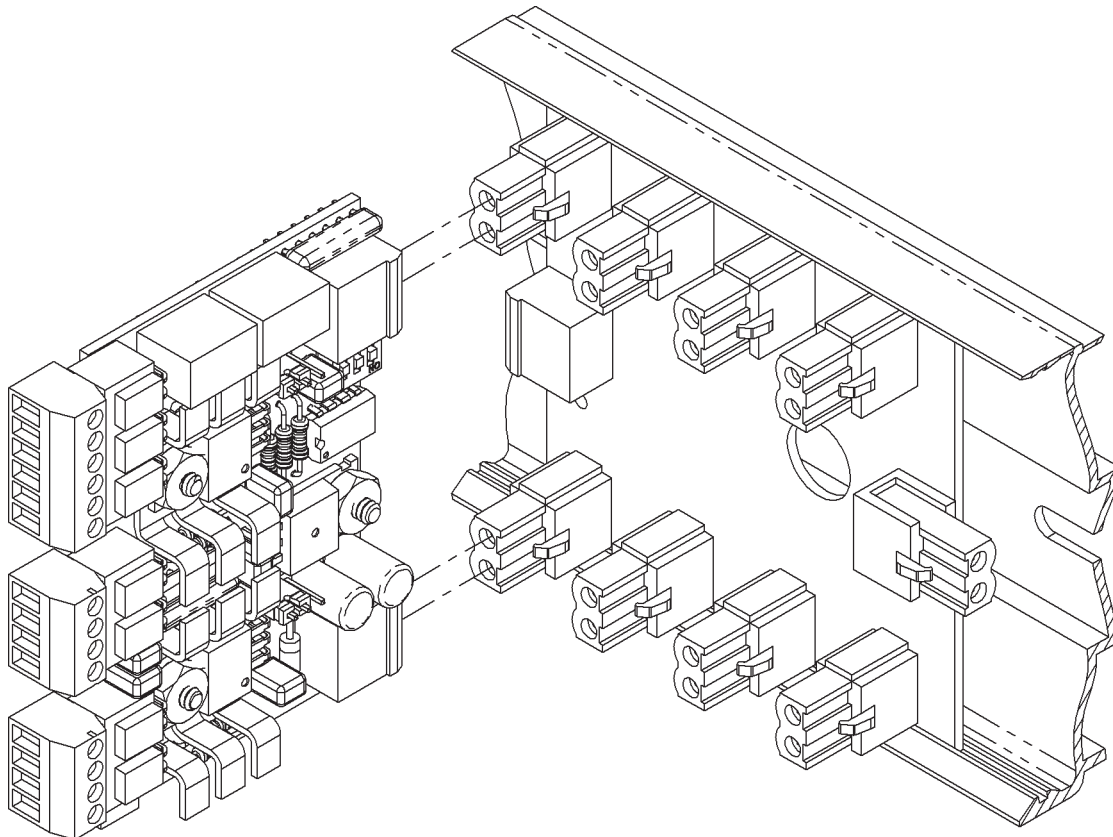


Figure 1 BA/EA1 plugging into a BA/BP4

Specifications subject to change without notice.

**Termination**

Connect to the BA/EA1 as shown in the table below.

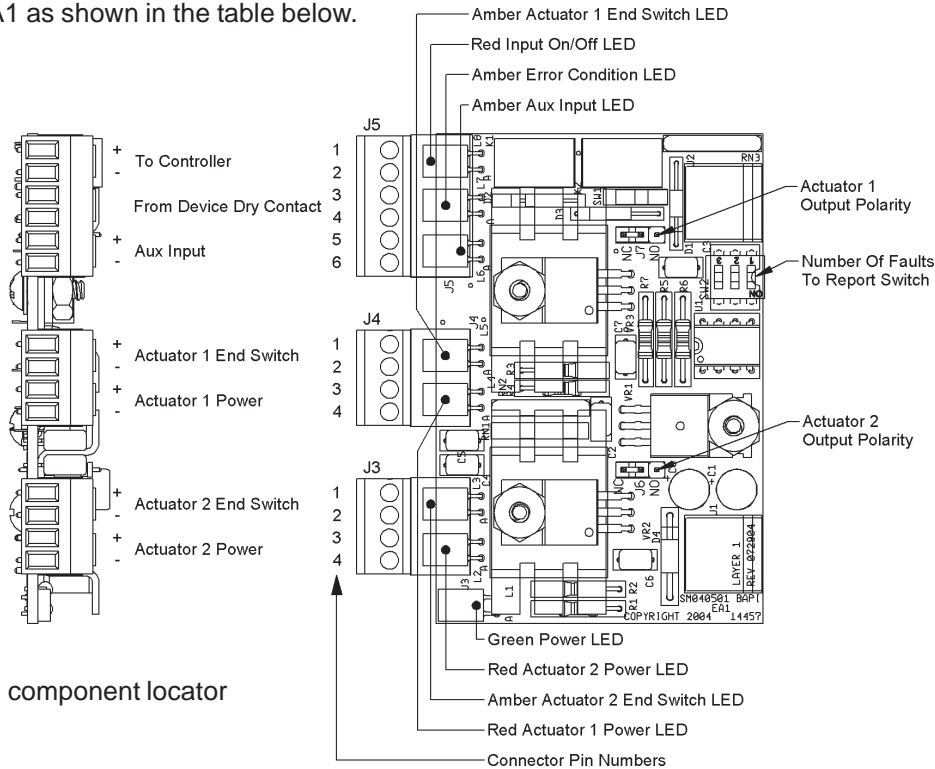


Figure 2 BA/EA1 component locator

Table 1 BA/EA1 Connection List	
Actuator Connector J3	
Pin 1	Actuator Number 2 End Switch +
Pin 2	Actuator Number 2 End Switch -
Pin 3	Actuator Number 2 Power +
Pin 4	Actuator Number 2 Power -
Actuator Connector J4	
Pin 1	Actuator Number 1 End Switch +
Pin 2	Actuator Number 1 End Switch -
Pin 3	Actuator Number 1 Power +
Pin 4	Actuator Number 1 Power -
I/O Connector J5	
Pin 1	+24 VDC from controller to turn On BA/EA1 (state 2)/ 0VDC to turn off (state 1)
Pin 2	Ground from Controller
Pin 3	Dry contact from BA/EA1 indicating actuator end switch closed
Pin 4	Dry contact from BA/EA1 indicating actuator end switch closed
Pin 5	Dry contact to BA/EA1 indicating actuator end switch error from another device
Pin 6	Dry contact to BA/EA1 indicating actuator end switch error from another device

Note: The male connectors that plug into the jacks on the board use a rising block screw terminal to hold the wires. If the block is in a partially up position the wire may be inserted under the block and the wire will not be held when the screw is tightened. To avoid improper wiring, turn the male connector screws counterclockwise until the block is below the wire opening before inserting the wire. Lightly tug on each wire after tightening to verify proper termination.

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**Troubleshooting**

**Possible Problems:**

Power LED L1 does not light

Input LED L8 does not light

Actuator drive LEDs L2 or L4 do not light

End switch LEDs L1, L5 or L6 do not light

**Possible Solutions:**

Check to see that the BA/EA1 is firmly inserted into the backplane

Check to see if the power cable is firmly inserted into the backplane.

Check to see if the PS17 is working correctly

Check to see if the power to the PS17 is turned on

Check controller for 24 VDC

Check controller ground connection

Check output setting to see if drive LED should be on.

Disconnect J2 or J4, if LED turns on check actuator wiring or actuator for short to ground

Check wiring for shorts or opens.

Check to see if actuator is physically obstructed

**Specifications**

Power Voltage	26 to 36 VDC (from BAPI BA/PS17)
Power Current	50mA maximum plus actuators (1.7VA max plus actuator)
Actuator Control Voltage	0 or 24 VDC @ 7mA max
Actuator Power Voltage	24 VDC
Actuator Power Current	2 output of 250mA maximum (12 Watts total)

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