

*Thank you for using our products.*

**INSTALLATION INSTRUCTIONS  
 CLASS A/B SPLITTER  
 (FOR SP40S AND SPB-160/SPB-80/4)**


*Use this product according to this instruction manual. Please keep this instruction manual for future reference.*


**MODEL NUMBER:**  
 SP4Z-A/B

**GENERAL:**

The Class A/B Splitter (SP4Z-A/B) is designed to be used with Cooper Notification's SP40S SAFEPATH4 panel and the SAFEPATH4 Audio Booster (SPB-160 and SPB-80/4) panels. The SP4Z-A/B provides a means for expanding one supervised audio output zone to four Class B or two Class A zones. **The SP4Z-A/B is UL Listed under Standard 864**, Control Units for Fire Protective Signaling Systems. They are for indoor use only.

One SP4Z-A/B can be connected to the SP40S panel. It is to be mounted inside the panel enclosure onto the standoffs on the SP40S board. Two SP4Z-A/B's can be connected to the SPB-160. One SP4Z-A/B can be connected to the SPB-80/4. It is to be mounted inside the SPB-160 or SPB-80/4 panel on the Splitter Mounting Bracket (SPMB-4Z - purchased separately) mounted over the 24VDC Power Supply (SPBPS). The SP4Z-A/B has a maximum power output per zone that cannot exceed what is listed in Table 1.

**NOTE:** All **CAUTIONS** and **WARNINGS** are identified by the symbol . All warnings are printed in bold capital letters.

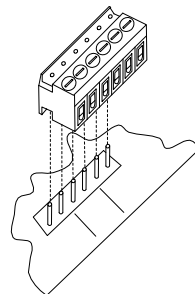
 **WARNING: PLEASE READ THESE INSTRUCTIONS CAREFULLY BEFORE USING THIS PRODUCT. FAILURE TO COMPLY WITH ANY OF THE FOLLOWING INSTRUCTIONS, CAUTIONS AND WARNINGS COULD RESULT IN IMPROPER APPLICATION, INSTALLATION AND/OR OPERATION OF THESE PRODUCTS IN AN EMERGENCY SITUATION, WHICH COULD RESULT IN PROPERTY DAMAGE AND SERIOUS INJURY OR DEATH TO YOU AND/OR OTHERS.**

**SPECIFICATIONS:**

<i>Table 1: Specifications</i>			
Class A	Audio Output Voltage	25.0V	70.7V
	Maximum Output Power Per Zone	40.0W	40.0W
	Operating Voltage	24VDC	
	Standby/Alarm Current at 24VDC	15mA	
	Minimum Ground Fault Sensitivity	20 K Ohms	
Class B	Maximum Output Power Per Zone	40W	40W

**WIRING INSTRUCTIONS:**

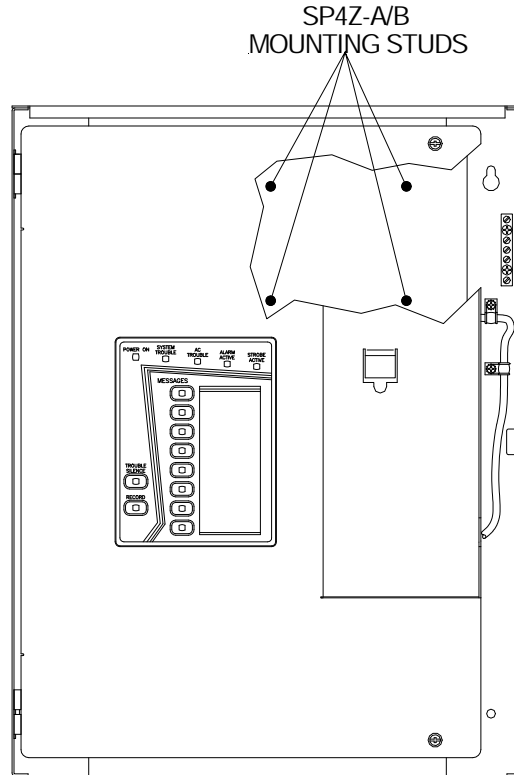
**NOTE:** The terminal blocks on the SP4Z-A/B are removable. To remove a terminal block, pull the block straight up from the circuit board as shown in Figure 1. Attach wires to the desired connections, then plug the terminal block back on the board being careful to match and align the pins.



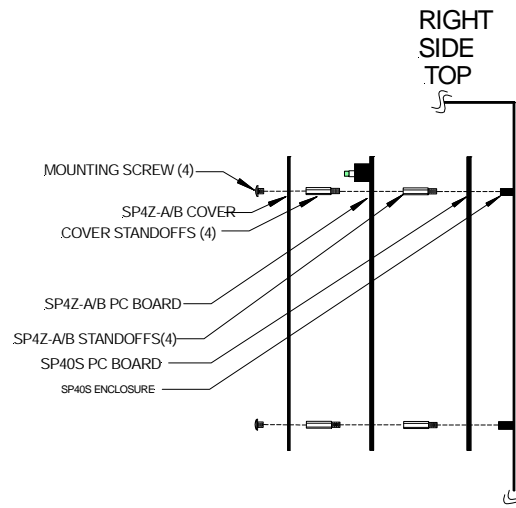
**Figure 1: Removable Terminal Block**

## MOUNTING INSTRUCTIONS: (SP40S)

Figure 2 shows the mounting location of the SP4Z-A/B Splitter to the SP40S panel. Figure 3 shows the correct mounting procedure.



**Figure 2:**  
**Mounting Location**

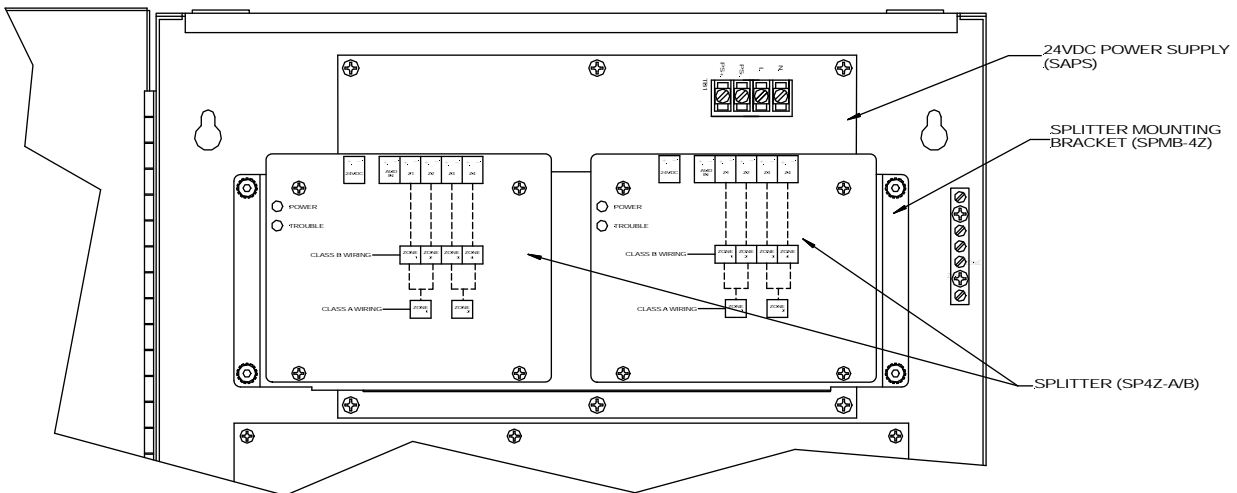


**Figure 3:**  
**SP4Z-A/B Mounting in SP40S Enclosure**

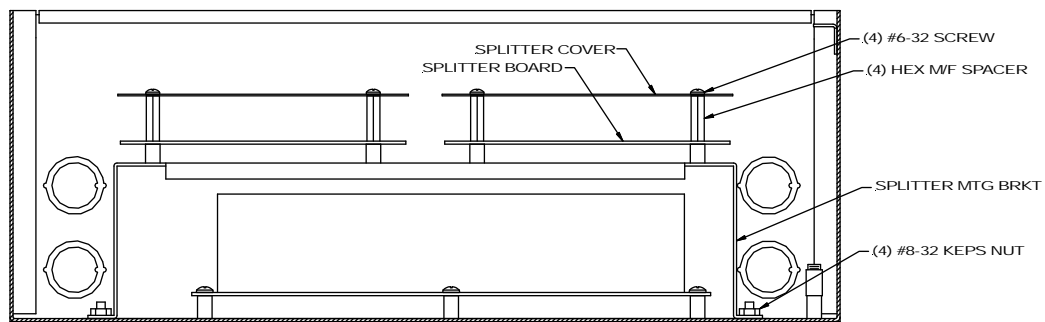
1. Install 4 standoffs through the SP40s board to the 4 mounting studs of the SP40S enclosure.
2. Position the SP4Z-A/B PC board with the terminal blocks pointing to the top of the SP40S enclosure and align the mounting holes on the PC board with the mounting studs.
3. Screw the male end of the 4 cover standoffs through the SP4Z-A/B PC board and to the 4 standoff installed in Step 1. Tighten standoffs snug.
4. Attach wiring in accordance with the wiring section of this installation instruction.
5. Align the SP4Z-A/B cover with the holes in the cover standoffs and mount the cover using the 4 mounting screws. Tighten the screws hand tight.

## MOUNTING INSTRUCTIONS: (SPB-160 and SPB-80/4)

Figure 4 shows the mounting location of the SP4Z-A/B Splitter to the Splitter Mounting Bracket (SPMB-4Z - purchased separately). Figure 5 shows the correct mounting procedure.



**Figure 4:**  
**SP4Z-A/B Mounting Location for the SPB-80/4 and SPB-160**



**Figure 5:**  
**Mounting Diagram for SP4Z-A/B Splitter and SPMB-4Z Mounting Bracket**

1. Mount the Splitter Mounting Bracket (SPMB-4Z) to the SPB-160 or SPB-80/4 according to installation instructions (P84252).
2. Position the SP4Z-A/B PC board with the terminal blocks pointing to the top of the Audio Booster enclosure and align the mounting holes on the PC board with the mounting studs.
3. Screw the male end of the 4 Hex M/F Spacers through the SP4Z-A/B PC board and to SPMB-4Z. Tighten standoffs snug plus ¼ turn.
4. Attach wiring in accordance with the wiring section of this installation instruction.
5. Align the SP4Z-A/B Cover with the holes in the cover spacers and mount the cover using the 4 mounting screws. Tighten the screws hand tight.
6. Repeat Steps 2 through 6 when installing second splitter in the SPB-160 Audio Booster.

**NOTE:** One SPMB-4Z mounting bracket can support two SP4Z-A/B splitters.

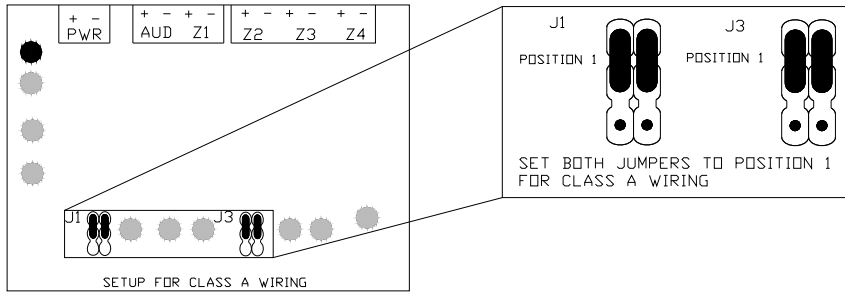
## WIRING INSTRUCTIONS:

**⚠ WARNING:** SHUT OFF ALL POWER BEFORE STARTING THE INSTALLATION. ELECTRICAL SHOCK CAN CAUSE DEATH OR SERIOUS INJURY.

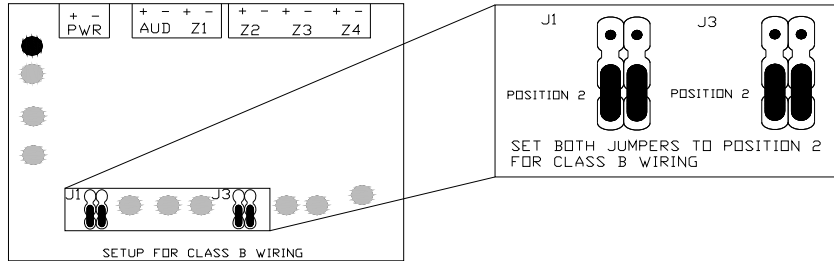
**⚠ CAUTION:** Do not move jumpers while the unit is powered on. Doing so may damage the Splitter.

Jumper Plugs J1 and J3 must be set for either Class A or Class B Wiring (Figures 6A and 6B).

**NOTE:** Factory setting is for Class B Wiring.



**Figure 6A: Setup for Class A Wiring**



**Figure 6B: Setup for Class B Wiring**

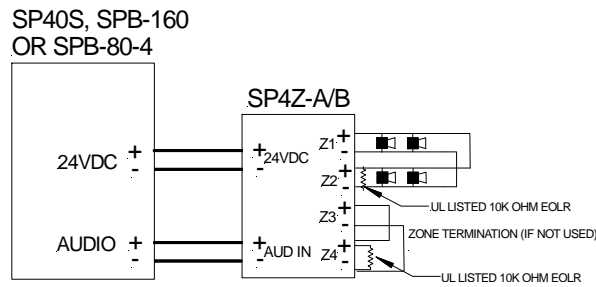
1. See Figures 6C and 6D for wiring diagram.

**NOTE: Unused zones must have a Listed 10K Ohm EOLR installed to prevent an open trouble condition.**

**NOTE: Cannot utilize Class A and Class B wiring on single splitter.**

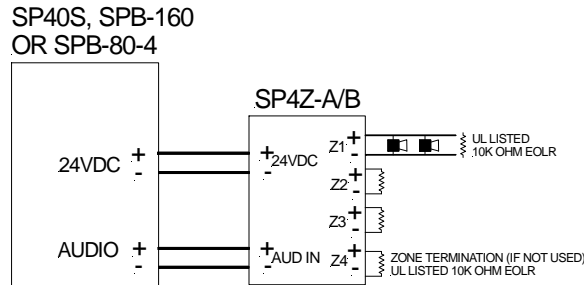
2. See Figure 8 or the Splitter cover silkscreen for terminal block wiring designs.

**CLASS A WIRING:**



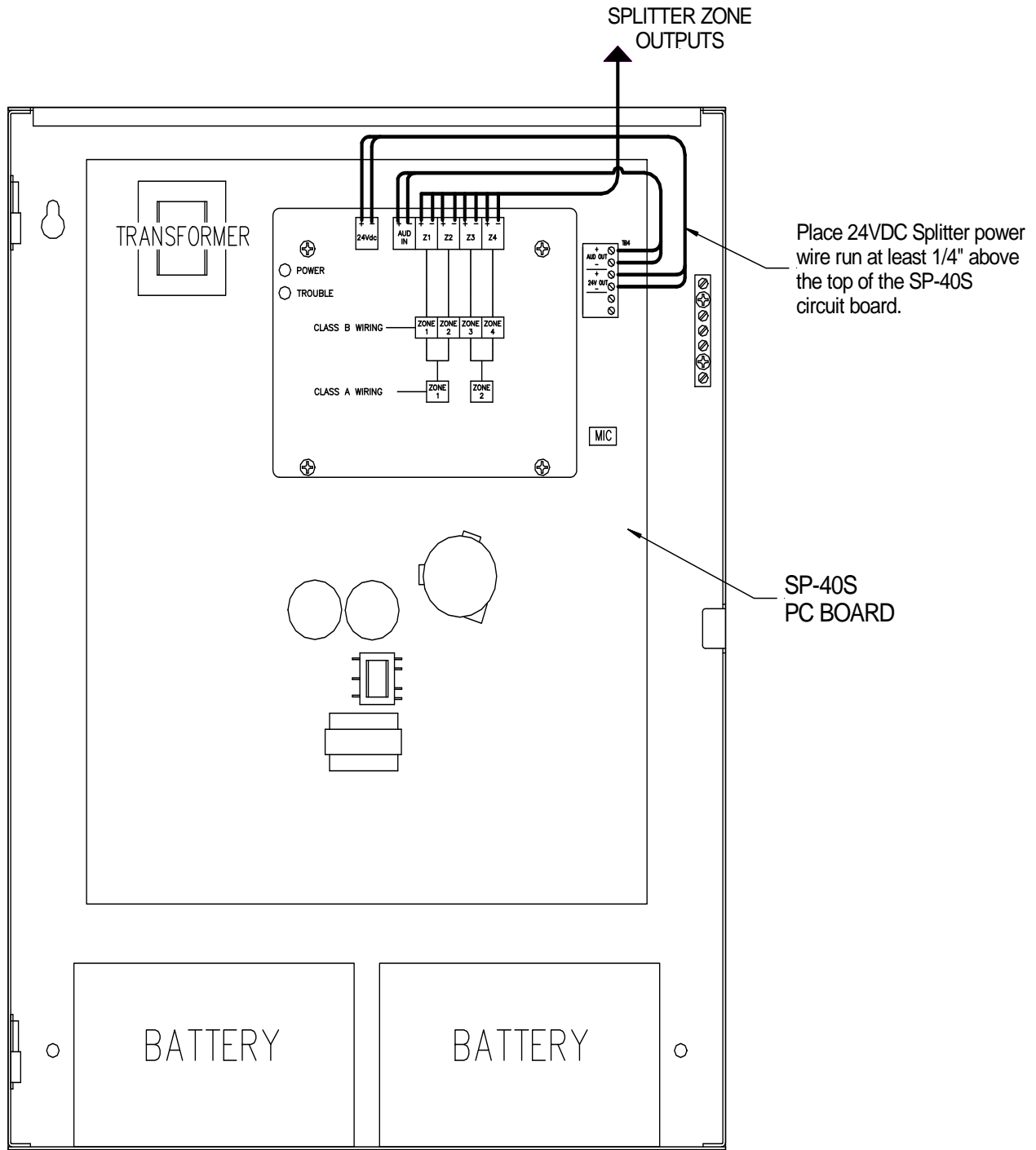
**Figure 6C: Power Limited For Supervised Class A Wiring.**

**CLASS B WIRING:**



**Figure 6D: Power Limited For Supervised Class B Wiring.**

**⚠ WARNING: SHUT OFF ALL POWER BEFORE STARTING THE INSTALLATION. ELECTRICAL SHOCK CAN CAUSE DEATH OR SERIOUS INJURY.**



**Figure 7A:**  
**Wiring Routes for Wiring the SP4Z-A/B to the SP40S**

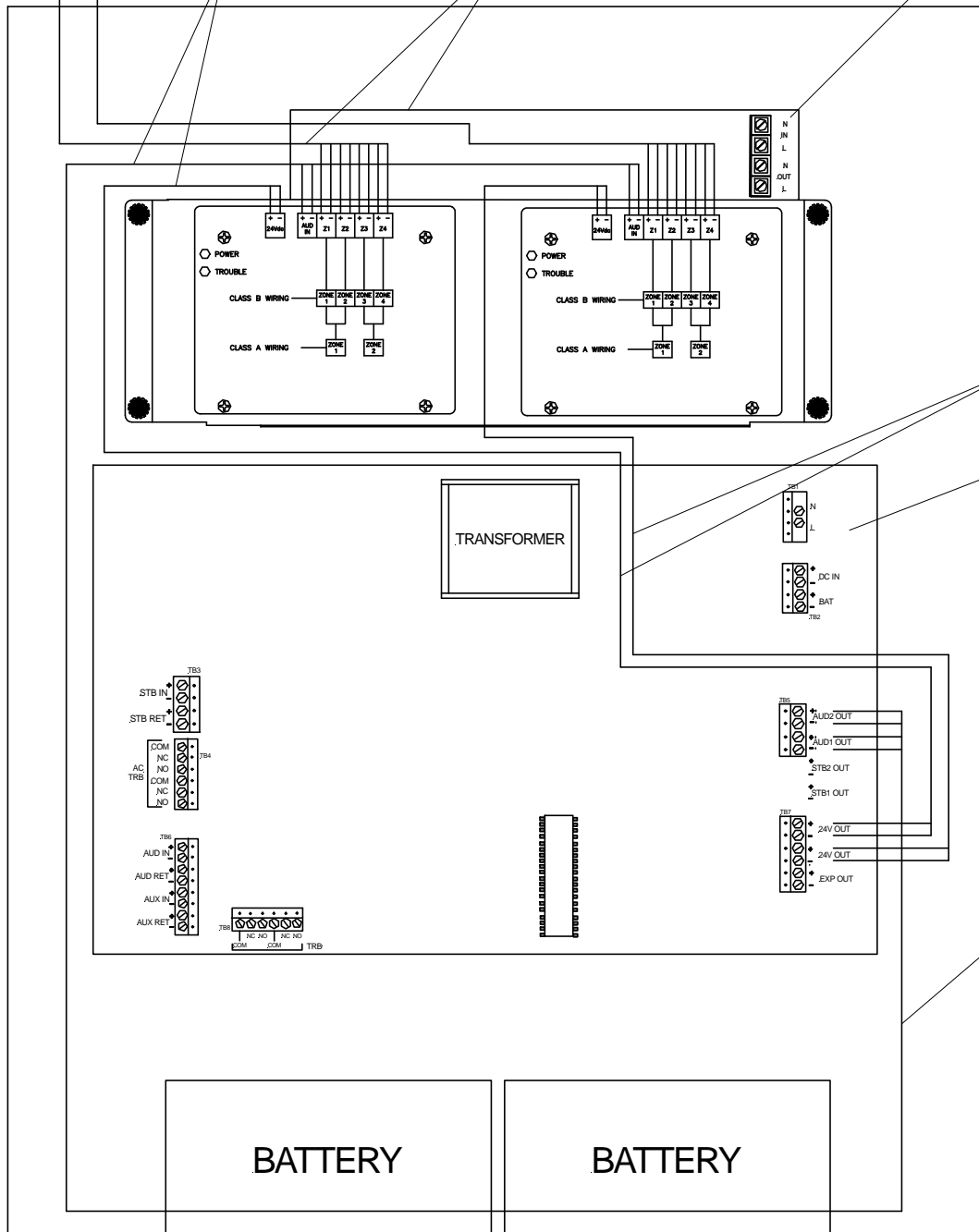
**⚠ WARNING: SHUT OFF ALL POWER BEFORE STARTING THE INSTALLATION. ELECTRICAL SHOCK CAN CAUSE DEATH OR SERIOUS INJURY.**

**SPLITTER ZONE  
OUTPUTS**

Place AUD1 and AUD2  
wire run at least 1/4" from  
the 24VDC wire run.

Place Splitter output wire run  
at least 1/4" above the top of  
the splitter circuit board.

**24VDC  
POWER SUPPLY**



Place 24VDC Splitter power  
wire run at least 1/4" above  
the top of the SPB-160  
circuit board.

**SPB-160  
PC BOARD**

Run the Audio Output wiring  
along the right side and to the  
bottom of the enclosure, then  
along the bottom to the left  
side of the enclosure, up the  
left side and to the AUD IN  
terminals of the splitter.

**Figure 7B:**  
**Wiring Routes for Wiring the SP4Z-A/B to the SPB-160 to the AUD1 and AUD2 Splitters.**

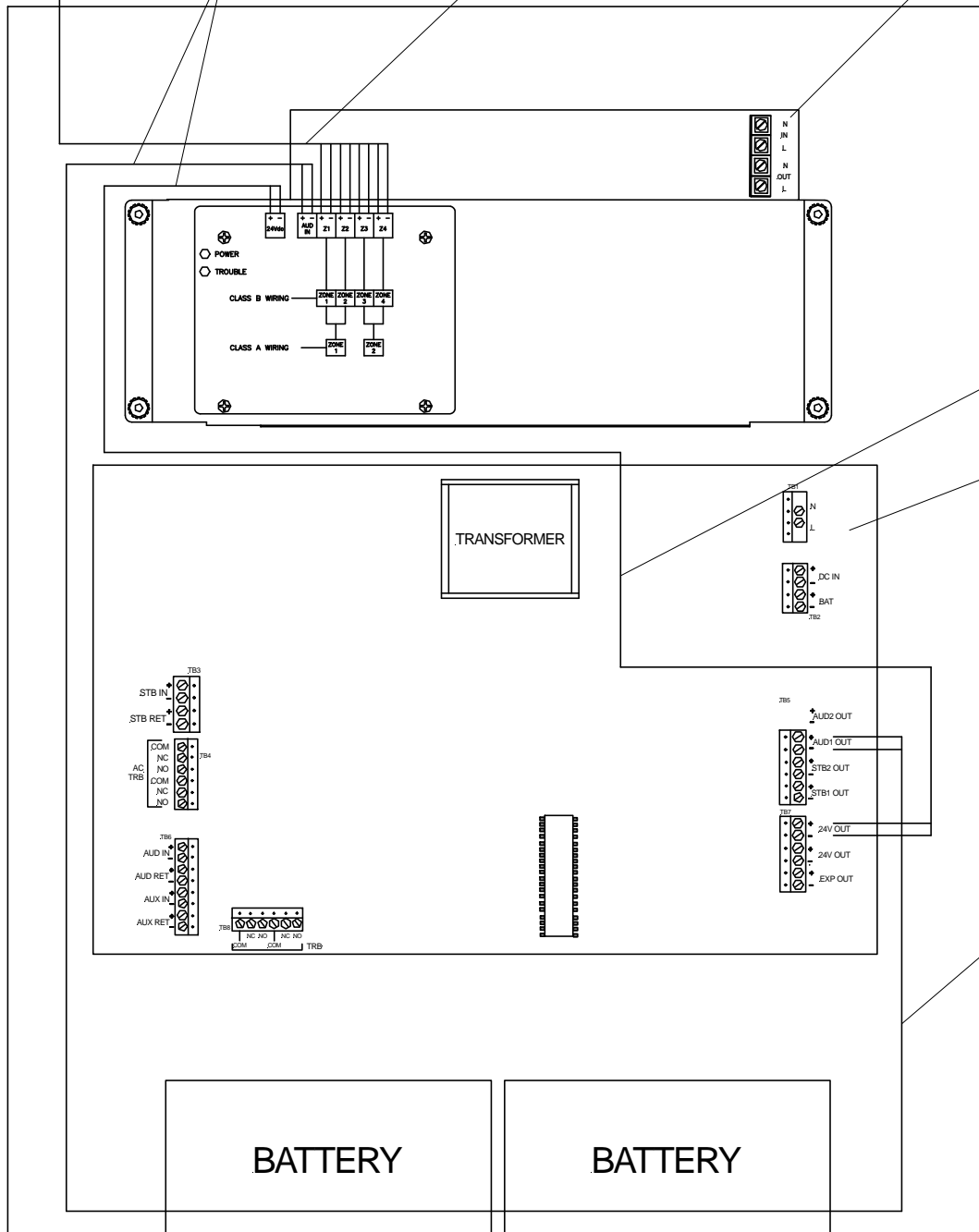
**⚠ WARNING: SHUT OFF ALL POWER BEFORE STARTING THE INSTALLATION. ELECTRICAL SHOCK CAN CAUSE DEATH OR SERIOUS INJURY.**

**SPLITTER ZONE  
OUTPUTS**

Place AUD1 and AUD2  
wire run at least 1/4" from  
the 24VDC wire run.

Place Splitter output wire run  
at least 1/4" above the top of  
the splitter circuit board.

**24VDC  
POWER SUPPLY**



Place 24VDC Splitter power  
wire run at least 1/4" above  
the top of the SPB-80/4  
circuit board.

**SPB-80/4  
PC BOARD**

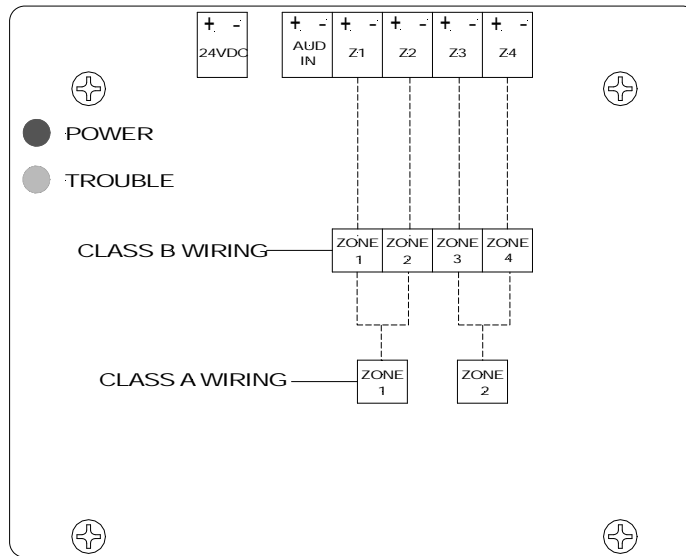
Run the Audio Output wiring  
along the right side and to the  
bottom of the enclosure, then  
along the bottom to the left  
side of the enclosure, up the  
left side and to the AUD IN  
terminals of the splitter.

**Figure 7C:**  
**Wiring Routes for Wiring the SP4Z-A/B to the SPB-80/4 to the AUD1 Splitter.**

**WIRING SPECIFICATIONS:**

Cable Size: Accepts #12 - #18 American Wire Gauge (AWG) for single wire connection or #16 - #18 AWG for double wire connections.

**OPERATING INSTRUCTIONS:**

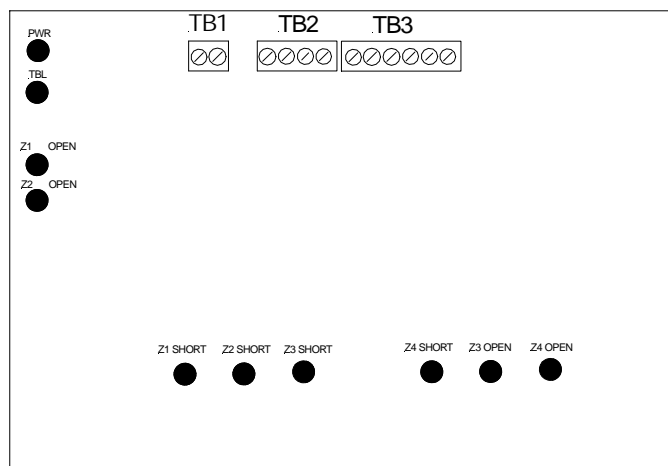


**Figure 8:**  
**SP4Z-A/B Faceplate**

**TROUBLESHOOTING PROCEDURES:**

**Figure 9 Power and trouble LED's on the SP4Z-A/B Splitter PC board.**


1. Insure that the green POWER LED is "ON". If no LED's are lighted, check the 24VDC input power.
2. Verify wiring is correct.
3. Verify jumpers are correct.
4. If the yellow TROUBLE LED is "ON" an output circuit supervision trouble is indicated. Remove the SP4Z-A/B cover and observe the 8 yellow LED's as shown in Figure 9 to determine the reason for the trouble.
5. For each SHORT LED "ON", check the speaker output wiring for that zone for a short or a faulty speaker appliance.
6. For each OPEN LED "ON", check the speaker wire run for that zone for an open or that the end of line resistor is missing. With the zone wiring removed from the SP4Z-A/B, a resistance reading on the zone will indicate the 10K Ohm EOLR and the wire resistance if the circuit is correct.
7. If a zone output does not operate and the green POWER LED is "ON" while the yellow TROUBLE LED is "OFF", the SP4Z-A/B splitter has malfunctioned. Replace.



**Figure 9:**  
**LED Indicators on the SP4Z-A/B PC Board**



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