Flex Amplifiers
Installation Instructions

Introduction

This publication describes the installation procedure for the 4100U and 4100ES Flex Amplifiers.

This product is compatible with both 4100U and 4100ES Fire Alarm Control Panels (FACP).

IMPORTANT: Verify FACP System Programmer, Executive, and Slave Software compatibility when installing, or replacing system components. Refer to the Technical Support Information and Downloads website for compatibility information.

In this Publication

This publication discusses the following topics:

Cautions, Warnings, and Regulatory Information

Cautions and Warnings

READ AND SAVE THESE INSTRUCTIONS- Follow the instructions in this installation manual. These instructions must be followed to avoid damage to this product and associated equipment. Product operation and reliability depend upon proper installation.

DO NOT INSTALL ANY SIMPLEX® PRODUCT THAT APPEARS DAMAGED- Upon unpacking your Simplex product, inspect the contents of the carton for shipping damage. If damage is apparent, immediately file a claim with the carrier and notify an authorized Simplex product supplier.

ELECTRICAL HAZARD - Disconnect electrical field power when making any internal adjustments or repairs. All repairs should be performed by a representative or authorized agent of your local Simplex product supplier.

EYE SAFETY HAZARD - Under certain fiber optic application conditions, the optical output of this device may exceed eye safety limits. Do not use magnification (such as a microscope or other focusing equipment) when viewing the output of this device.

STATIC HAZARD - Static electricity can damage components. Handle as follows:

- Ground yourself before opening or installing components.
- Prior to installation, keep components wrapped in anti-static material at all times.

FCC RULES AND REGULATIONS – PART 15 - This equipment has been tested and found to comply with the limits for a Class A digital device pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

SYSTEM REACCEPTANCE TEST AFTER SOFTWARE CHANGES - To ensure proper system operation, this product must be tested in accordance with NFPA 72® after any programming operation or change in site-specific software. Reacceptance testing is required after any change, addition or deletion of system components, or after any modification, repair or adjustment to system hardware or wiring.

All components, circuits, system operations, or software functions, known to be affected by a change, must be 100% tested. In addition, to ensure that other operations are not inadvertently affected, at least 10% of initiating devices that are not directly affected by the change, up to a maximum of 50 devices, must also be tested and proper system operation verified.

Introduction to the Flex Amplifiers

Overview

The Flex amplifiers provide audio signals to system speaker circuits. The Flex Amplifier is offered in two versions, the Flex-35 and the Flex-50. Functionally, both amplifiers behave identically but the Flex-50 is capable of supplying an additional 15W of power over the 35W version. The maximum available output from the Flex-50 and Flex-35 is 50W and 35W, respectively. The load may be configured in any way so long as the maximum power output limit is not exceeded. Both amplifiers provide dual-channel capability with internal backup functionality. (All Flex Amplifiers described in this publication are listed in the next two sections.)

Flex Amplifiers Not Compatible with CSNAC Option

Note: The following Product IDs or PIDs (example: 4100-1212/1261) are not compatible with the Constant Supervision Notification Appliance Circuit (CSNAC) option.

- 4100-1212/1261 Analog Flex-50/Flex-35 Amp (25 VRMS)
- 4100-1213/1262 Analog Flex-50/Flex-35 Amp (70 VRMS)
- 4100-1226/1263 Digital Flex-50/Flex-35 Amp (25 VRMS)
- 4100-1227/1264 Digital Flex-50/Flex-35 Amp (70 VRMS)

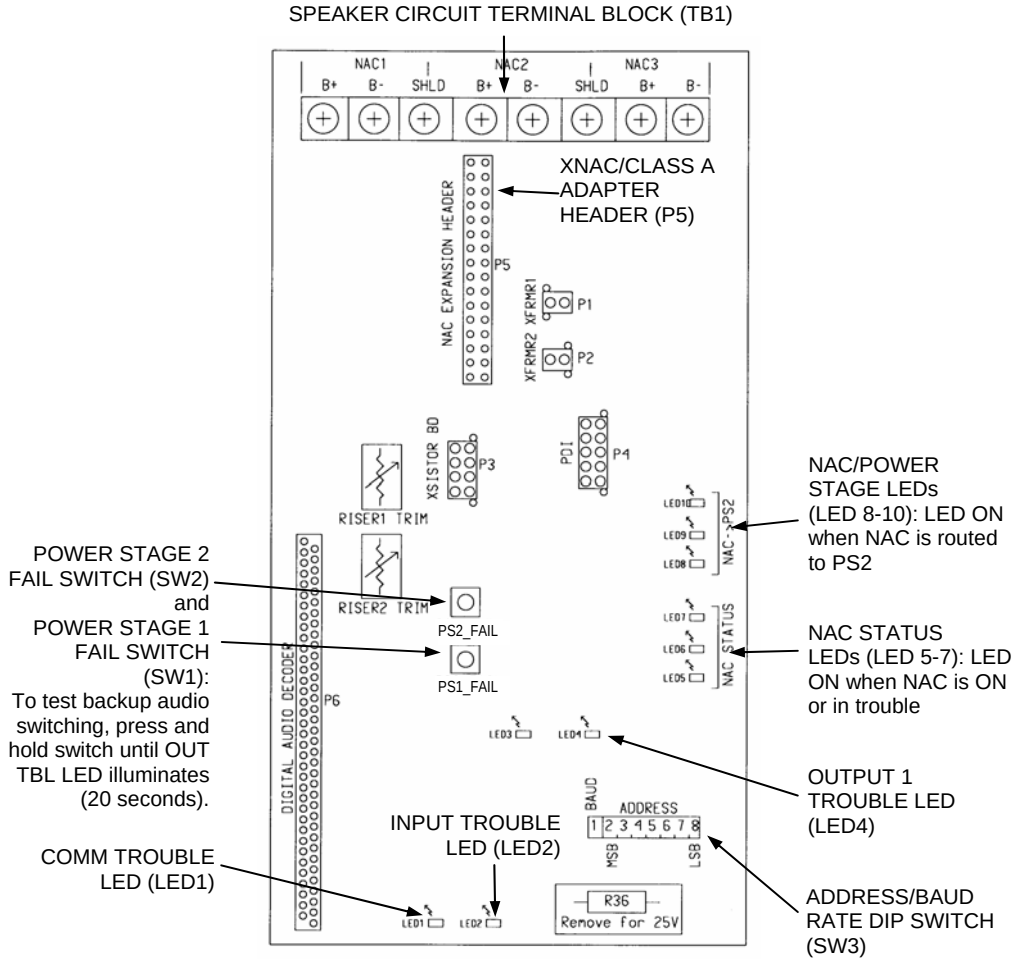

Figure 1. Flex Amplifier without CSNAC Compatibility

For LED descriptions, see the “LED Indications” section at the end of this document.

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Flex Amplifiers Compatible with CSNAC Option

Note: The following PIDs (example: 4100-1312/1361) are compatible with all options (including the CSNAC option) and 4100U Master Firmware Revision 11.08 or later.

- 4100-1312/1361 Analog Flex-50/Flex-35 Amp (25 VRMS)
- 4100-1313/1362 Analog Flex-50/Flex-35 Amp (70 VRMS)
- 4100-1326/1363 Digital Flex-50/Flex-35 Amp (25 VRMS)
- 4100-1327/1364 Digital Flex-50/Flex-35 Amp (70 VRMS)

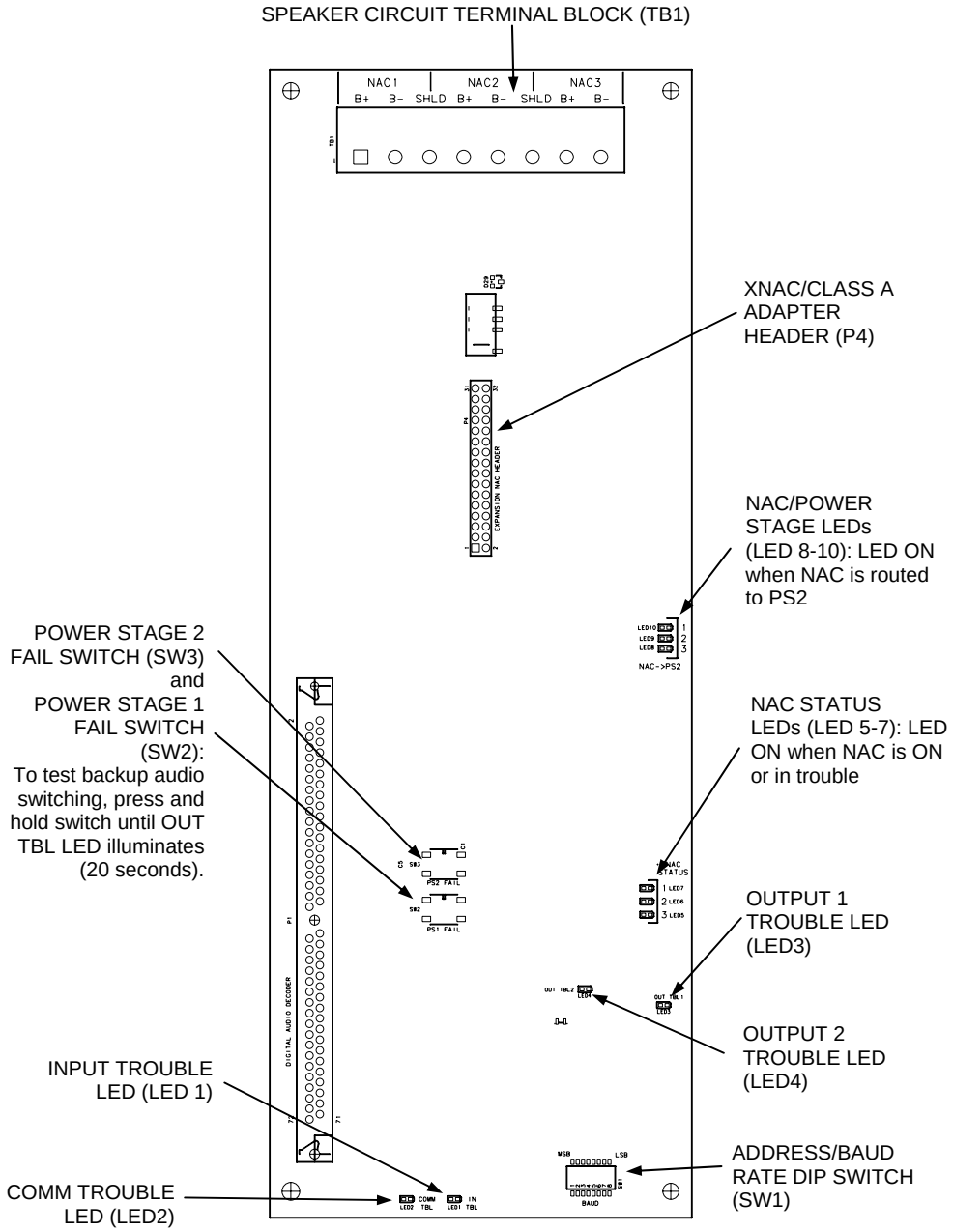

Figure 2. Flex Amplifier with CSNAC Compatibility

For LED descriptions, see the "LED Indications" section at the end of this document.

Amplifier Specifications

Specifications

The specifications below apply to both analog and digital amplifiers.

Supply voltage:	19.7-31.1 VDC
Output voltage:	25 VRMS or 70.7 VRMS
Maximum output power:	Flex-35 = 35 W; Flex-50 = 50 W

Flex-50

Alarm state:	5.55 A (signal)	74 mA (card)
Supervision state:	351 mA (signal)	74 mA (card)
Low power state (NACs in supervision, no power to power stage):	0 A (signal)	85 mA (card)

Flex-35

Alarm state:	4.00 A (signal)	74 mA (card)
Supervision state:	351 mA (signal)	74 mA (card)
Low power state (NACs in supervision, no power to power stage):	0 A (signal)	85 mA (card)

The equipment operates normally with ambient temperatures outside the cabinet from 32° to 120° F (0° to 49° C), inclusive.

The equipment operates normally under non-condensing humidity conditions up to 93% relative humidity at 90° F (32° C).

Setting the Baud Rate and Address

Overview

This section describes how to configure the amplifier's baud rate and address using DIP switch SW1. Configuration is the same for analog and digital amplifiers.

Using DIP Switch SW1

The device baud rate and address is set via DIP switch SW1, which is a bank of eight switches. From left to right (see Figure 3, below) these switches are designated as SW1-1 through SW1-8. The function of these switches is as follows:

- **SW1-1**. This switch sets the baud rate for the internal communications line running between the card and the CPU. Set this switch to ON.
- **SW1-2 through SW1-8**. These switches set the card's address within the FACP. Refer to Table 1 for a complete list of the switch settings for all of the possible card addresses.

Notes:

- You must set these switches to the value assigned to the card by the Programmer.
- The SW1 setting applies to audio controller slaves, including audio input cards.

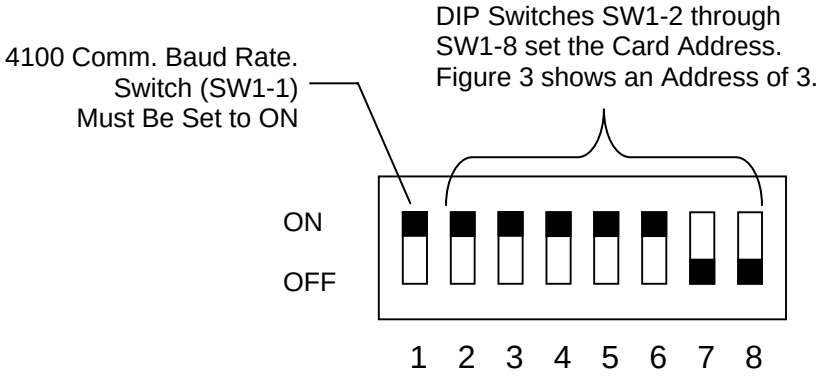

Figure 3. DIP Switch SW1

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Setting the Baud Rate and Address, *Continued*

Using DIP Switch SW1

Table 1. Card Addresses

Address	SW 1-2	SW 1-3	SW 1-4	SW 1-5	SW 1-6	SW 1-7	SW 1-8	Address	SW 1-2	SW 1-3	SW 1-4	SW 1-5	SW 1-6	SW 1-7	SW 1-8
1	ON	ON	ON	ON	ON	ON	OFF	61	ON	OFF	OFF	OFF	OFF	ON	OFF
2	ON	ON	ON	ON	ON	OFF	ON	62	ON	OFF	OFF	OFF	OFF	OFF	ON
3	ON	ON	ON	ON	ON	OFF	OFF	63	ON	OFF	OFF	OFF	OFF	OFF	OFF
4	ON	ON	ON	ON	OFF	ON	ON	64	OFF	ON	ON	ON	ON	ON	ON
5	ON	ON	ON	ON	OFF	ON	OFF	65	OFF	ON	ON	ON	ON	ON	OFF
6	ON	ON	ON	ON	OFF	OFF	ON	66	OFF	ON	ON	ON	ON	OFF	ON
7	ON	ON	ON	ON	OFF	OFF	OFF	67	OFF	ON	ON	ON	ON	OFF	OFF
8	ON	ON	ON	OFF	ON	ON	ON	68	OFF	ON	ON	ON	OFF	ON	ON
9	ON	ON	ON	OFF	ON	ON	OFF	69	OFF	ON	ON	ON	OFF	ON	OFF
10	ON	ON	ON	OFF	ON	OFF	ON	70	OFF	ON	ON	ON	OFF	OFF	ON
11	ON	ON	ON	OFF	ON	OFF	OFF	71	OFF	ON	ON	ON	OFF	OFF	OFF
12	ON	ON	ON	OFF	OFF	ON	ON	72	OFF	ON	ON	OFF	ON	ON	ON
13	ON	ON	ON	OFF	OFF	ON	OFF	73	OFF	ON	ON	OFF	ON	ON	OFF
14	ON	ON	ON	OFF	OFF	OFF	ON	74	OFF	ON	ON	OFF	ON	OFF	ON
15	ON	ON	ON	OFF	OFF	OFF	OFF	75	OFF	ON	ON	OFF	ON	OFF	OFF
16	ON	ON	OFF	ON	ON	ON	ON	76	OFF	ON	ON	OFF	OFF	ON	ON
17	ON	ON	OFF	ON	ON	ON	OFF	77	OFF	ON	ON	OFF	OFF	ON	OFF
18	ON	ON	OFF	ON	ON	OFF	ON	78	OFF	ON	ON	OFF	OFF	OFF	ON
19	ON	ON	OFF	ON	ON	OFF	OFF	79	OFF	ON	ON	OFF	OFF	OFF	OFF
20	ON	ON	OFF	ON	OFF	ON	ON	80	OFF	ON	OFF	ON	ON	ON	ON
21	ON	ON	OFF	ON	OFF	ON	OFF	81	OFF	ON	OFF	ON	ON	ON	OFF
22	ON	ON	OFF	ON	OFF	OFF	ON	82	OFF	ON	OFF	ON	ON	OFF	ON
23	ON	ON	OFF	ON	OFF	OFF	OFF	83	OFF	ON	OFF	ON	ON	OFF	OFF
24	ON	ON	OFF	OFF	ON	ON	ON	84	OFF	ON	OFF	ON	OFF	ON	ON
25	ON	ON	OFF	OFF	ON	ON	OFF	85	OFF	ON	OFF	ON	OFF	ON	OFF
26	ON	ON	OFF	OFF	ON	OFF	ON	86	OFF	ON	OFF	ON	OFF	OFF	ON
27	ON	ON	OFF	OFF	ON	OFF	OFF	87	OFF	ON	OFF	ON	OFF	OFF	OFF
28	ON	ON	OFF	OFF	OFF	ON	ON	88	OFF	ON	OFF	OFF	ON	ON	ON
29	ON	ON	OFF	OFF	OFF	ON	OFF	89	OFF	ON	OFF	OFF	ON	ON	OFF
30	ON	ON	OFF	OFF	OFF	OFF	ON	90	OFF	ON	OFF	OFF	ON	OFF	ON
31	ON	ON	OFF	OFF	OFF	OFF	OFF	91	OFF	ON	OFF	OFF	ON	OFF	OFF
32	ON	OFF	ON	ON	ON	ON	ON	92	OFF	ON	OFF	OFF	OFF	ON	ON
33	ON	OFF	ON	ON	ON	ON	OFF	93	OFF	ON	OFF	OFF	OFF	ON	OFF
34	ON	OFF	ON	ON	ON	OFF	ON	94	OFF	ON	OFF	OFF	OFF	OFF	ON
35	ON	OFF	ON	ON	ON	OFF	OFF	95	OFF	ON	OFF	OFF	OFF	OFF	OFF
36	ON	OFF	ON	ON	OFF	ON	ON	96	OFF	OFF	ON	ON	ON	ON	ON
37	ON	OFF	ON	ON	OFF	ON	OFF	97	OFF	OFF	ON	ON	ON	ON	OFF
38	ON	OFF	ON	ON	OFF	OFF	ON	98	OFF	OFF	ON	ON	ON	OFF	ON
39	ON	OFF	ON	ON	OFF	OFF	OFF	99	OFF	OFF	ON	ON	ON	OFF	OFF
40	ON	OFF	ON	OFF	ON	ON	ON	100	OFF	OFF	ON	ON	OFF	ON	ON
41	ON	OFF	ON	OFF	ON	ON	OFF	101	OFF	OFF	ON	ON	OFF	ON	OFF
42	ON	OFF	ON	OFF	ON	OFF	ON	102	OFF	OFF	ON	ON	OFF	OFF	ON
43	ON	OFF	ON	OFF	ON	OFF	OFF	103	OFF	OFF	ON	ON	OFF	OFF	OFF
44	ON	OFF	ON	OFF	OFF	ON	ON	104	OFF	OFF	ON	OFF	ON	ON	ON
45	ON	OFF	ON	OFF	OFF	ON	OFF	105	OFF	OFF	ON	OFF	ON	ON	OFF
46	ON	OFF	ON	OFF	OFF	OFF	ON	106	OFF	OFF	ON	OFF	ON	OFF	ON
47	ON	OFF	ON	OFF	OFF	OFF	OFF	107	OFF	OFF	ON	OFF	ON	OFF	OFF
48	ON	OFF	OFF	ON	ON	ON	ON	108	OFF	OFF	ON	OFF	OFF	ON	ON
49	ON	OFF	OFF	ON	ON	ON	OFF	109	OFF	OFF	ON	OFF	OFF	ON	OFF
50	ON	OFF	OFF	ON	ON	OFF	ON	110	OFF	OFF	ON	OFF	OFF	OFF	ON
51	ON	OFF	OFF	ON	ON	OFF	OFF	111	OFF	OFF	ON	OFF	OFF	OFF	OFF
52	ON	OFF	OFF	ON	OFF	ON	ON	112	OFF	OFF	OFF	ON	ON	ON	ON
53	ON	OFF	OFF	ON	OFF	ON	OFF	113	OFF	OFF	OFF	ON	ON	ON	OFF
54	ON	OFF	OFF	ON	OFF	OFF	ON	114	OFF	OFF	OFF	ON	ON	OFF	ON
55	ON	OFF	OFF	ON	OFF	OFF	OFF	115	OFF	OFF	OFF	ON	ON	OFF	OFF
56	ON	OFF	OFF	OFF	ON	ON	ON	116	OFF	OFF	OFF	ON	OFF	ON	ON
57	ON	OFF	OFF	OFF	ON	ON	OFF	117	OFF	OFF	OFF	ON	OFF	ON	OFF
58	ON	OFF	OFF	OFF	ON	OFF	ON	118	OFF	OFF	OFF	ON	OFF	OFF	ON
59	ON	OFF	OFF	OFF	ON	OFF	OFF	119	OFF	OFF	OFF	ON	OFF	OFF	OFF
60	ON	OFF	OFF	OFF	OFF	ON	ON								

Installing the Amplifier onto the PDI

Overview

The Flex amplifier assembly mounts on the PDI in an expansion bay. Up to two Flex Amplifiers may receive power from an XPS. If two Flex Amplifiers receive power from one XPS, then the XPS is solely dedicated to providing power for the Flex Amplifiers and cannot be used for supplying any other modules or I/O wiring off of the XPS I/O terminals.

If the XPS is providing power for one Flex Amplifier, see Figure 4 for mounting placement. If the XPS is providing power for two Flex Amplifiers, see Figure 5 for mounting placement.

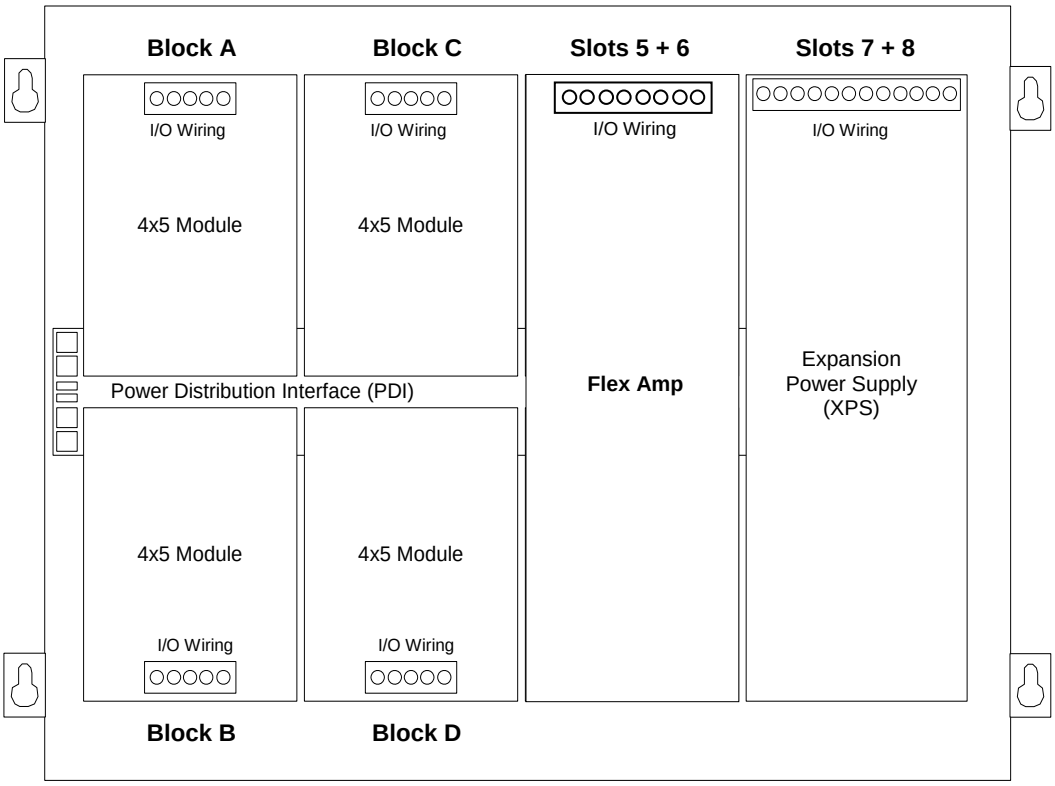

Figure 4. Mounting Placement (One Flex Amplifier)

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Overview

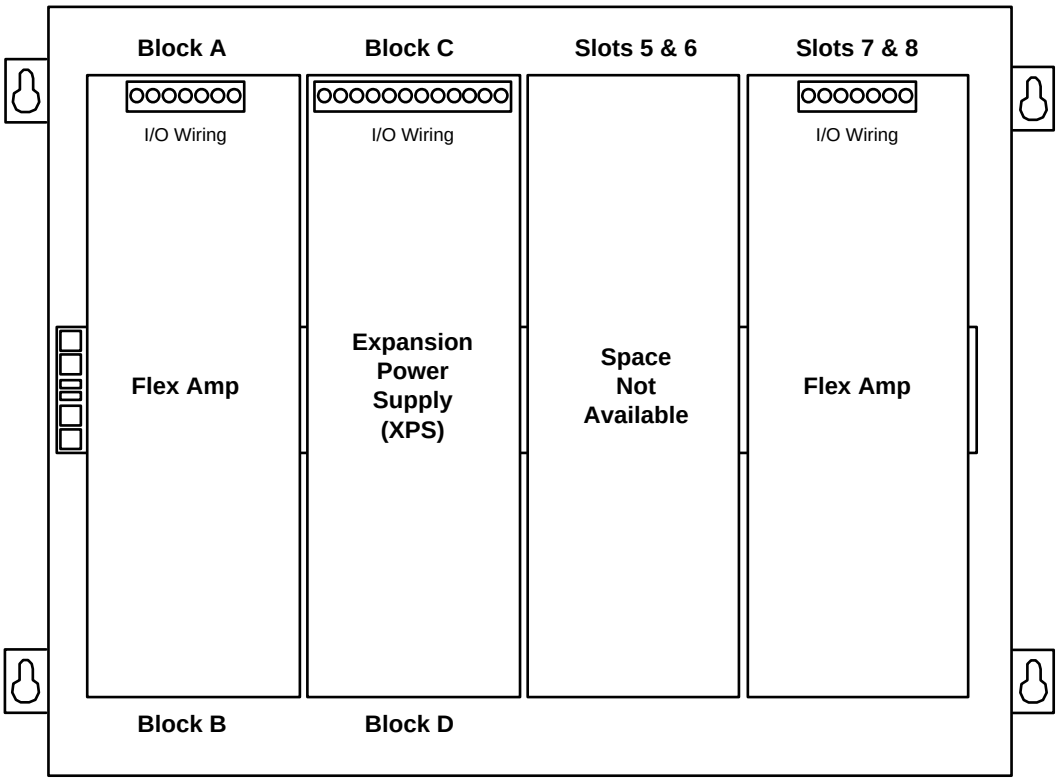

Figure 5. Mounting Placement (Two Flex Amplifiers)

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Mounting

Lower the amplifier into the bay by placing the two tabs on the back of the amplifier assembly into the two slots on the bottom of the bay. Then, use the connector on the backside of the Flex module to connect to the PDI as shown in Figure 6, below.

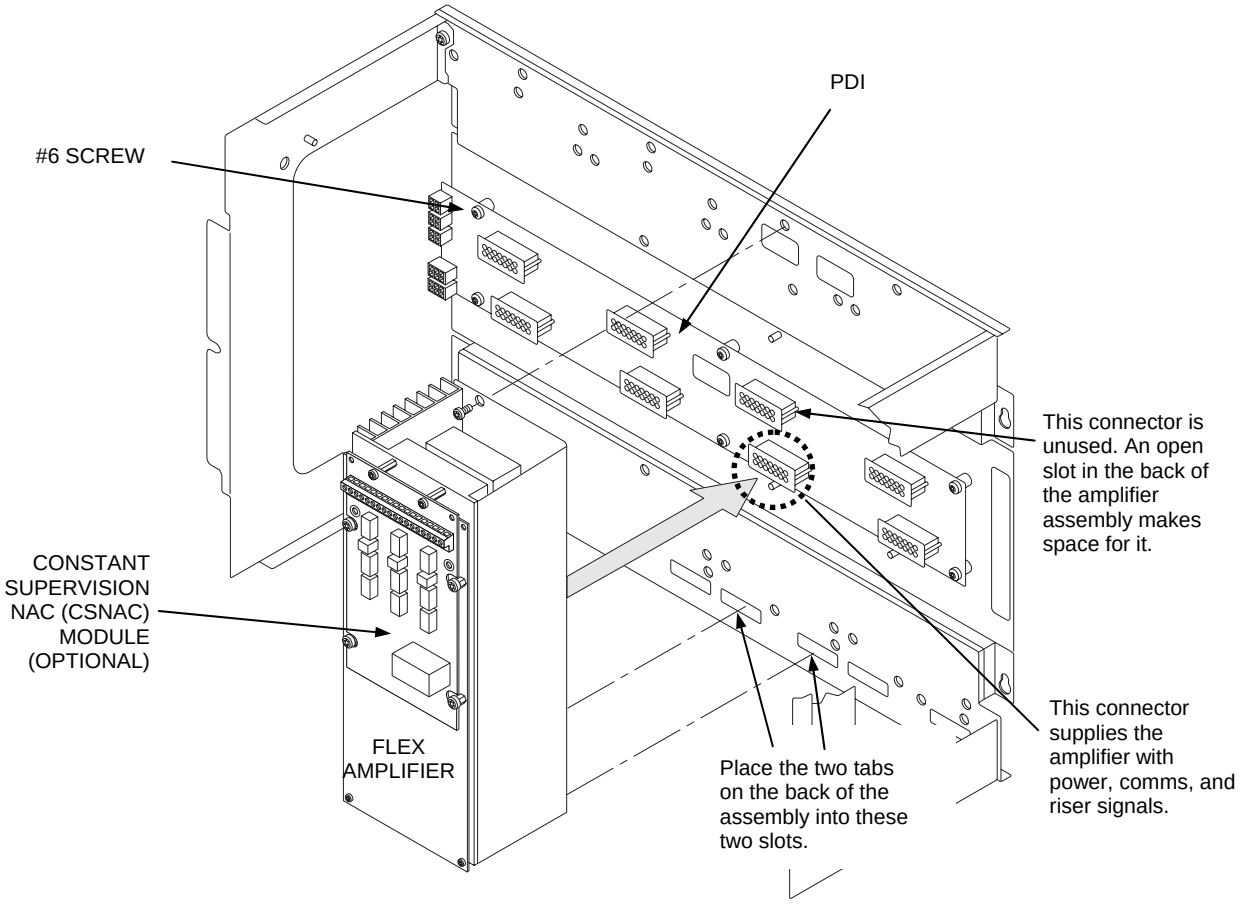

Figure 6. Mounting onto the Power Distribution Interface

Amplifier Field Wiring

Overview

This section contains field wiring guidelines and illustrations for the amplifiers. These diagrams apply to both the Flex-35 and Flex-50. Wiring of optional NAC Expansion, Class A, and Constant Supervision NAC (CSNAC) modules is also covered in this section, as well as speaker circuit wiring distances. Since the Flex amplifiers allow self-backing operation, no wiring is required for configuring an amplifier for backup operation.

Table 2. Class A (Style Z) Speaker Circuit Wiring Distances for Flex Amplifiers

VRMS	Power (Watts)		Distance to the Last Speaker (One Way) (Feet/Meters)			
	Applied	Actual	12 AWG (3.309 mm^2)	14 AWG (2.081 mm^2)	16 AWG (1.309 mm^2)	18 AWG (0.8231 mm^2)
25	50	25	812 ft. (247 m)	510 ft. (155 m)	340 ft. (104 m)	200 ft. (61 m)
25	40	20	1,015 ft. (309 m)	640 ft. (195 m)	402 ft. (123 m)	252 ft. (77 m)
25	30	15	1,350 ft. (411 m)	850 ft. (259 m)	535 ft. (163 m)	337 ft. (103 m)
25	20	10	2,035 ft. (620 m)	1,250 ft. (381 m)	804 ft. (245 m)	505 ft. (154 m)
25	10	5	4,070 ft. (1,241 m)	2,600 ft. (792 m)	1,600 ft. (488 m)	1,012 ft. (308 m)
70	50	25	6,500 ft. (1,981 m)	4,096 ft. (1,248 m)	2,578 ft. (786 m)	1,620 ft. (494 m)
70	40	20	8,121 ft. (2,475 m)	5,108 ft. (1,557 m)	3,212 ft. (979 m)	2,020 ft. (616 m)
70	30	15	10,860 ft. (3,310 m)	6,800 ft. (2,073 m)	4,270 ft. (1,301 m)	2,689 ft. (820 m)
70	20	10	16,212 ft. (4,941 m)	10,190 ft. (3,106 m)	6,400 ft. (1,951 m)	4,030 ft. (1,228 m)
70	10	5	32,400 ft. (9,876 m)	20,000 ft. (6,096 m)	12,500 ft. (3,810 m)	8,000 ft. (2,438 m)

Table 3. Class B (Style Y) Speaker Circuit Wiring Distances for Flex Amplifiers

VRMS	Power (Watts)		Distance to the Last Speaker (One Way) (Feet/Meters)			
	Applied	Actual	12 AWG (3.309 mm^2)	14 AWG (2.081 mm^2)	16 AWG (1.309 mm^2)	18 AWG (0.8231 mm^2)
25	50	25	1,624 ft. (495 m)	1,021 ft. (311 m)	680 ft. (207 m)	400 ft. (122 m)
25	40	20	2,033 ft. (620 m)	1,279 ft. (390 m)	804 ft. (245 m)	505 ft. (154 m)
25	30	15	2,707 ft. (825 m)	1,704 ft. (519 m)	1,070 ft. (326 m)	673 ft. (205 m)
25	20	10	4,067 ft. (1,240 m)	2,558 ft. (780 m)	1,608 ft. (490 m)	1,011 ft. (308 m)
25	10	5	8,140 ft. (2,481 m)	5,120 ft. (1,561 m)	3,219 ft. (981 m)	2,024 ft. (617 m)
70	50	25	13,000 ft. (3,962 m)	8,197 ft. (2,498 m)	5,154 ft. (1,571 m)	3,241 ft. (988 m)
70	40	20	16,243 ft. (4,951 m)	10,216 ft. (3,114 m)	6,424 ft. (1,958 m)	4,040 ft. (1,231 m)
70	30	15	21,721 ft. (6,621 m)	13,602 ft. (4,146 m)	8,553 ft. (2,607 m)	5,379 ft. (1,640 m)
70	20	10	32,424 ft. (9,883 m)	20,394 ft. (6,216 m)	12,823 ft. (3,908 m)	8,065 ft. (2,458 m)
70	10	5	64,800 ft. (19,751 m)	40,000 ft. (12,192 m)	25,000 ft. (7,620 m)	16,000 ft. (4,877 m)

Class B Wiring

- Leave the 10 K, ½ W resistors (378-030; brown/black/orange) on the “B+” to “B-” terminals of unused circuits.
- All wiring is between 18 AWG (0.8231 mm^2) and 12 AWG (3.309 mm^2).
- Field wiring is supervised and power-limited.
- Total available Flex-50 power is 50 W (2A @ 25 VRMS, 0.707A @ 70.7 VRMS).
- Total available Flex-35 power is 35 W (1.4A @ 25VRMS, 0.5A @ 70.7 VRMS).
- NACs and power stages can be configured for any combination of circuits as long as the total output power does not exceed the maximum specified rating.
  Flex-35 Examples:
  25 W to PS1 + 10 W to PS2
  0 W to PS1 + 35 W to PS2*
  Flex-50 Examples:
  25 W to PS1 + 2 5W to PS2
  40 W to PS1 + 10 W to PS2
  *This is an example of a self-backing configuration. PS1 is not loaded, but is saved for backup should PS2 fail.
- Terminal designations “+” and “-” are for the alarm state.
- Shields, when required, are normally connected to 0 V as shown. Alternate shield termination using Earth ground is provided on the amplifier chassis.

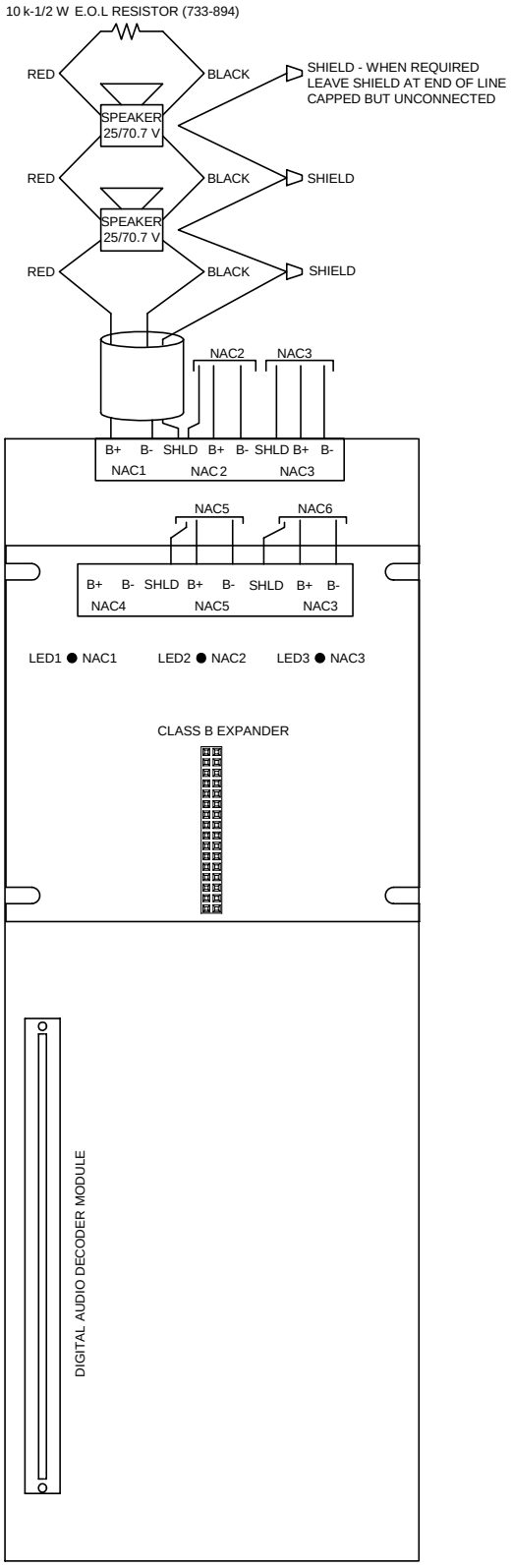

Figure 7. Class B Wiring

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Class A Wiring

- Leave the 10 K, ½ W resistors (378-030; brown/black/orange) on the "B+" to "B-" terminals of unused circuits. Leave unused "A+" and A-" terminals unconnected.
- All wiring is between 18 AWG (0.8231 mm^2) and 12 AWG (3.309 mm^2).
- Field wiring is supervised and power-limited.
- Total available Flex-50 power is 50 W (2A @ 25 VRMS, 0.707A @ 70.7 VRMS).
- Total available Flex-35 power is 35 W (1.4A @ 25 VRMS, 0.5A @ 70.7 VRMS).
- NACs and power stages can be configured for any combination of circuits as long as the total output power does not exceed the maximum specified rating.
  Flex-35 Examples:
  25 W to PS1 + 10 W to PS2
  0 W to PS1 + 35 W to PS2*
  Flex-50 Examples:
  25 W to PS1 + 25 W to PS2
  40 W to PS1 + 10 W to PS2
  *This is an example of a self-backing configuration. PS1 is not loaded, but is saved for backup should PS2 fail.
- Terminal designations "+" and "-" are for the alarm state.
- Shields, when required, are normally connected to 0 V as shown. Alternate shield termination using Earth ground is provided on the amplifier chassis.

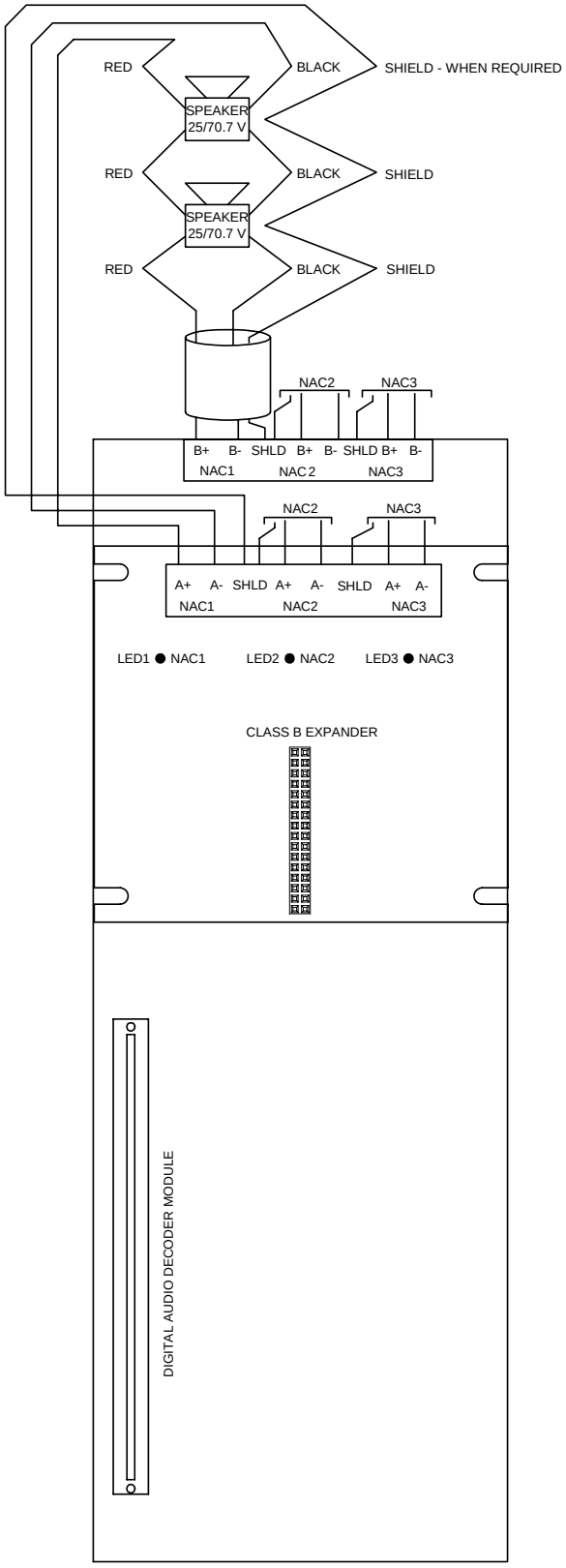

Figure 8. Class A Wiring

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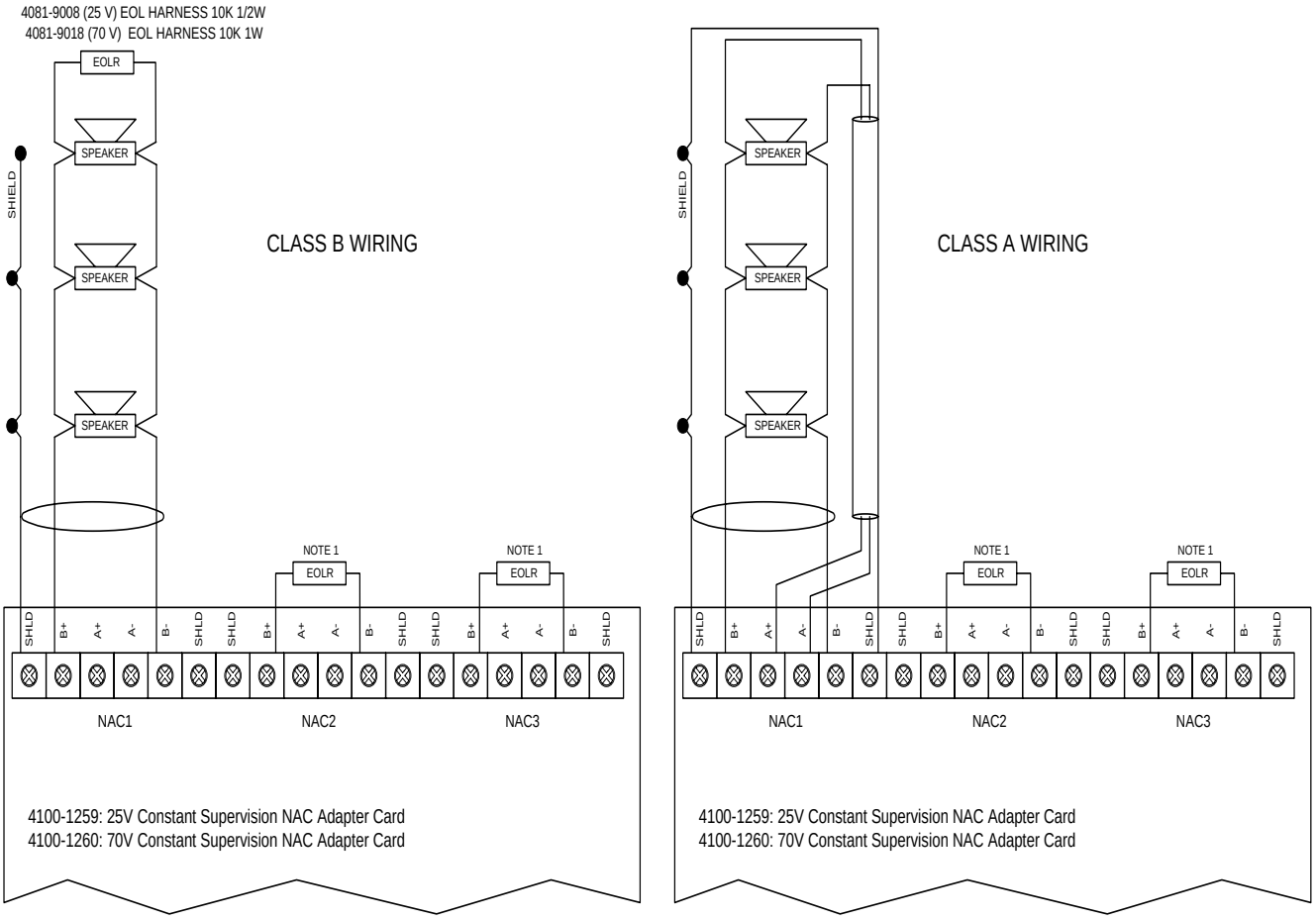
Constant Supervision NAC (CSNAC) Wiring



1. Leave the 10 K resistors on the “B+” and “B-” terminals of unused circuits.
2. Remove the 10 K resistors from the “B+” and “B-” terminals on the card that hosts the CSNAC (amplifiers and XSIG cards).
3. All wiring is between 18 AWG (0.8231 mm^2) (minimum) to 12 AWG (3.309 mm^2) (maximum).
4. Field wiring is power-limited.
5. Maximum speaker circuit current is 2 A per circuit.
6. Total available alarm power is 50 W (2 A @ 25 VRMS, 0.707 A @ 70.7 VRMS) or 35 W (1.4 A @ 25 VRMS, 0.5 A @ 70.7 VRMS) depending on the connected amplifier.
7. Shields, when required, are normally connected as shown. Alternate shield termination using earth ground is provided on amplifier chassis.
8. Signal wiring must test free of grounds.

Figure 9. CSNAC Wiring

LED Indications

Flex Amplifiers Not Compatible with CSNAC Option

The LEDs for amplifiers not compatible with the CSNAC option are summarized in Table 4.

Table 4. LED Indications for Flex Amplifiers Not Compatible with CSNAC

LED #	LED name	Meaning
LED1	Comm Loss	Steadily on when the amplifier is not communicating with the system CPU
LED2	IN_TBL	Single blink: input channel 1 failure Double blink: input channel 2 failure Steadily on: failure on input channels 1 and 2 Applies to analog or digital audio riser.
LED3	OUT_TBL2	Steadily on during Power Stage 2 Overcurrent Failure/Output Supervision Trouble
LED4	OUT_TBL1	Steadily on during Power Stage 1 Overcurrent Failure/Output Supervision Trouble
LED5	NAC 3 Status	Steadily on when NAC 3 is on or in Trouble condition
LED6	NAC 2 Status	Steadily on when NAC 2 is on or in Trouble condition
LED7	NAC 1 Status	Steadily on when NAC 1 is on or in Trouble condition
LED8	NAC3_PS2	NAC 3 routed to Power Stage 2
LED9	NAC2_PS2	NAC 2 routed to Power Stage 2
LED10	NAC1_PS2	NAC 1 routed to Power Stage 2

Flex Amplifiers Compatible with CSNAC Option

The LEDs for amplifiers compatible with the CSNAC option are summarized in Table 5.

Table 5. LED Indications for Flex Amplifiers Compatible with CSNAC

LED #	LED name	Meaning
LED1	IN_TBL	Single blink: input channel 1 failure Double blink: input channel 2 failure Steadily on: failure on input channels 1 and 2 Applies to analog or digital audio riser.
LED2	Comm Loss	Steadily on when the amplifier is not communicating with the system CPU
LED3	OUT_TBL1	Steadily on during Power Stage 1 Overcurrent Failure/Output Supervision Trouble
LED4	OUT_TBL2	Steadily on during Power Stage 2 Overcurrent Failure/Output Supervision Trouble
LED5	NAC 3 Status	Steadily on when NAC 3 is on or in Trouble condition
LED6	NAC 2 Status	Steadily on when NAC 2 is on or in Trouble condition
LED7	NAC 1 Status	Steadily on when NAC 1 is on or in Trouble condition
LED8	NAC3_PS2	NAC 3 routed to Power Stage 2
LED9	NAC2_PS2	NAC 2 routed to Power Stage 2
LED10	NAC1_PS2	NAC 1 routed to Power Stage 2

Troubleshooting

Overview	This section describes the messages that may appear on the display when using the audio amplifiers and their option cards.
Card Missing/Failed	The amplifier card is either not installed or is not at the system address specified by the Programmer.
Wrong Card	The wrong card is using the address specified by the Programmer as the amplifier card.
Power Stage Trouble	A power stage is not functioning properly. This means a signal is coming in but no signal is being outputted. Note that the supervision tone used to supervise the power stages will not be heard over the speakers. In systems configured with Power Conservation Mode, the power stage will not be supervised and a trouble will not be generated when the power stage is shut down.
NAC Module Configuration Trouble	The NAC expansion card or Class A card connected to the amplifier does not match the Programmer configuration for that card.
Additional Troubles	Additional troubles may be annunciated for shorts or opens on any of the following, each of which is supervised: • NACs (speaker circuits) • Amplifier inputs • DAR riser (communication failure)
Using the Power Stage Fail Switches	The power stage fail switches (SW2, SW3) can be used to test whether backup audio switching is working. To test the fail switches, press and hold SW2 (power stage 1) or SW3 (power stage 2) until the corresponding Trouble LED illuminates (20 seconds).