Digital/Analog Amplifiers Installation Instructions

Introduction

This publication describes the installation procedure for the 4100U and 4100ES Fire Alarm Control Panels (FACP) family of digital and analog amplifiers.

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

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 Amplifiers

Overview

The digital and analog audio amplifiers provide analog audio power to the system speaker circuits. Digital amplifiers decode digitally encoded input signals and analog amplifiers receive analog input signals. A speaker circuit consists of one or more speakers that are driven by the same physical wiring. All of the 100 W amplifiers described in this document are single channel amplifiers; that is, each speaker circuit is driven by the same audio signal. See below for a list of all 100 W amplifiers.

100 W Amplifiers Compatible with CSNAC Option

Note: The following PIDs (example: 4100-1314) are compatible with all options (includes the CSNAC option) and 4100U Master Firmware Rev. 11.08 or later).

Analog Amps:

- 4100-1314 100 W Amp – 120 VAC, 25 VRMS
- 4100-1315 100 W Amp – 120 VAC, 70 VRMS
- 4100-1316 100 W Amp – 120 VAC, 25 VRMS – Canada
- 4100-1317 100 W Amp – 120 VAC, 70 VRMS – Canada
- 4100-1318 100 W Amp – 220/230/240 VAC, 25 VRMS
- 4100-1319 100 W Amp – 220/230/240 VAC, 70 VRMS
- 4100-1320 Backup 100 W Amp – 120 VAC, 25 VRMS
- 4100-1321 Backup 100 W Amp – 120 VAC, 70 VRMS
- 4100-1322 Backup 100 W Amp – 120 VAC, 25 VRMS – Canada
- 4100-1323 Backup 100 W Amp – 120 VAC, 70 VRMS – Canada
- 4100-1324 Backup 100 W Amp – 220/230/240 VAC, 25 VRMS
- 4100-1325 Backup 100 W Amp – 220/230/240 VAC, 70 VRMS

Digital Amps:

- 4100-1328 100 W Amp – 120 VAC, 25 VRMS
- 4100-1329 100 W Amp – 120 VAC, 70 VRMS
- 4100-1330 100 W Amp – 120 VAC, 25 VRMS – Canada
- 4100-1331 100 W Amp – 120 VAC, 70 VRMS – Canada
- 4100-1332 100 W Amp – 220/230/240 VAC, 25 VRMS
- 4100-1333 100 W Amp – 220/230/240 VAC, 70 VRMS
- 4100-1334 Backup 100 W Amp – 120 VAC, 25 VRMS
- 4100-1335 Backup 100 W Amp – 120 VAC, 70 VRMS
- 4100-1336 Backup 100 W Amp – 120 VAC, 25 VRMS – Canada
- 4100-1337 Backup 100 W Amp – 120 VAC, 70 VRMS – Canada
- 4100-1338 Backup 100 W Amp – 220/230/240 VAC, 25 VRMS
- 4100-1339 Backup 100 W Amp – 220/230/240 VAC, 70 VRMS

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Figure 1 depicts the 100 W amplifier.

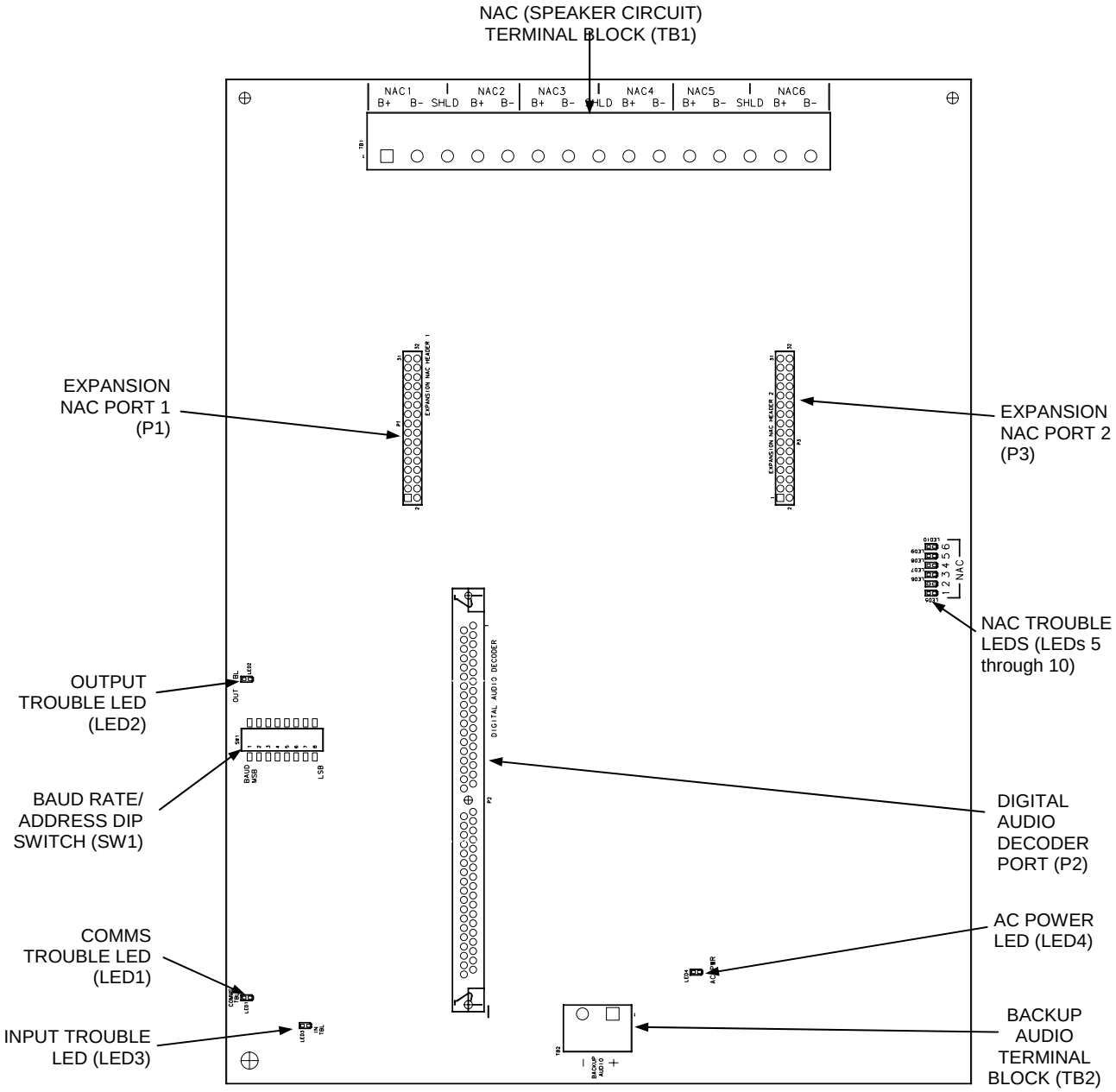

Figure 1. The 100 W Amplifier

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

Amplifier Specifications

The specifications below apply to both analog and digital amplifiers.

Input voltage: 120 VAC, 60 Hz, 4A (US and Canadian Versions)
Input: 220/230/240 VAC, 50 Hz/60 Hz, 2A
DC supply capacity: 20.4-33 VDC, 0-9.57 A load, 2 V p-p ripple (max.)

Table 1. Amplifier Battery Current Draw

Amplifier Status		Average Current Draw	Peak dc Current Draw
Alarm State	Slow Whoop	4.7 A	6.0 A
	Temporal Coded Horn*	3.8 A*	10 A
	Horn	9.6 A	10 A
	Chime	1.8 A	6.0 A
	Local Tone Generator (500 Hz Square wave)	3.5 A	9.0 A
Standby, power stage supervised		400 mA (Analog amplifier) 220 mA (Digital amplifier)	N/A
Standby, power stage in low power mode		75 mA	N/A

* Tone used for backup battery calculations (average current draw).

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 2, 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 FACP communications line running between the card and the FACP CPU. Set this switch to ON.
- **SW1-2 through SW1-8**. These switches set the card's address within the FACP. Refer to Table 2 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.

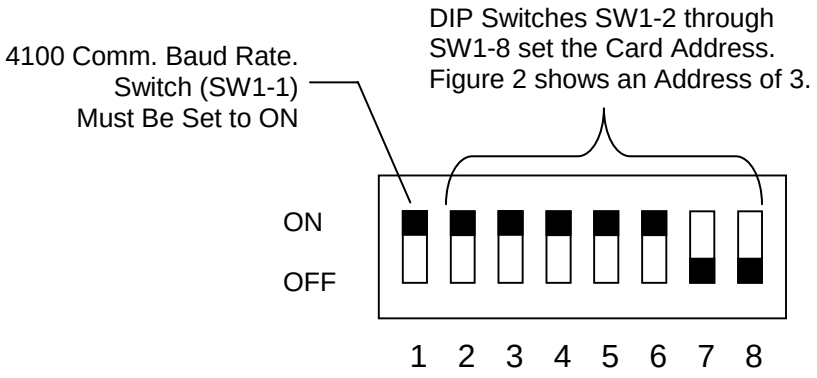

Figure 2. DIP Switch SW1

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Setting the Baud Rate and Address, *Continued*

Using DIP Switch SW1

Table 2. 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								

Power Wiring (AC and Battery)

Overview

The amplifier is powered through the Power Distribution Module (PDM). The PDM takes power directly from a dedicated AC line and the two backup batteries, and distributes power to each bay in the cabinet.

Power Distribution Module Connections

The Power Distribution Module (PDM) connects to every power supply and 100 W amplifier in each back box.

Connect the 734-012 Harness (734-013 for 220/230/240VAC versions) from the top connector on the PDM to the 100 W amplifier.

1. Wire 120/220/230/240 VAC to the PDM, keeping AC wires at least 1 inch (25 mm) away from all other wires. AC power must be kept to the right side of the cabinet, in the non-power-limited area.
2. Connect batteries to P5 on the PDM using Harness 734-015.
3. Connect the PDM to the amplifier using Harness 734-012 (734-013 for 220/230/240VAC versions).

- Connect the separate red and black wires (with yellow female terminations) to the RED and BLACK plugs on the 100 W amplifier.
- Connect the white and black wires, which terminate together in a white snap-on connector, to the bulkhead connector at the bottom of the amplifier assembly, as shown below.

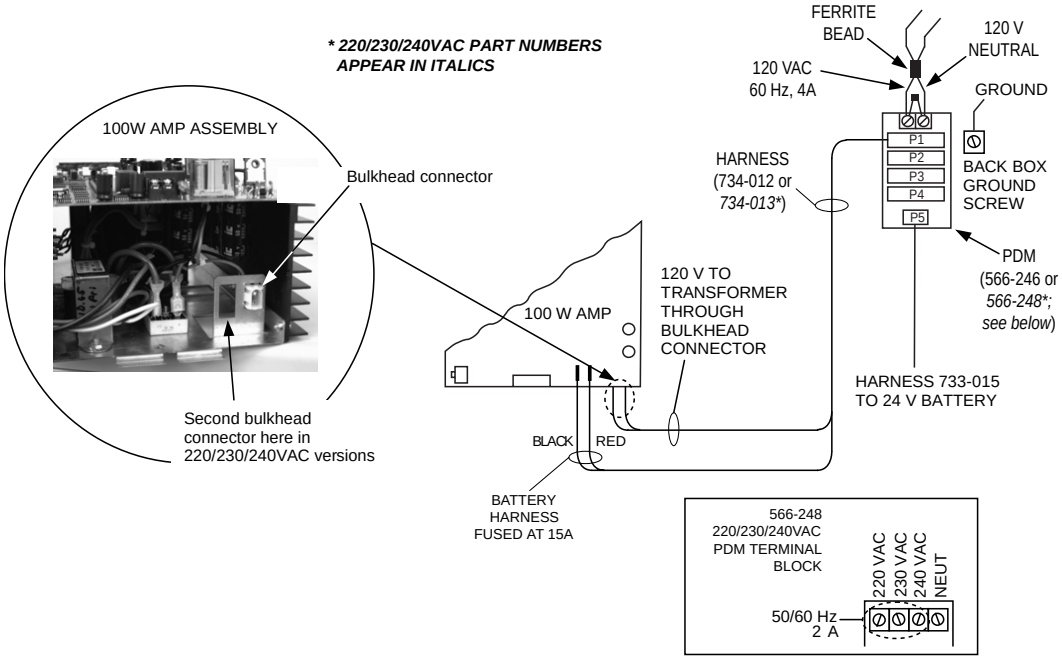

Figure 3. PDM Connections

Installing the Amplifier onto the PDI

The amplifier assembly is designed to be mounted on the PDI in a FACP expansion bay. The module should be mounted onto the rightmost side of the PDI.

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 bottom left connector on the back side of the amplifier to connect to the PDI as shown in Figure 4, below.

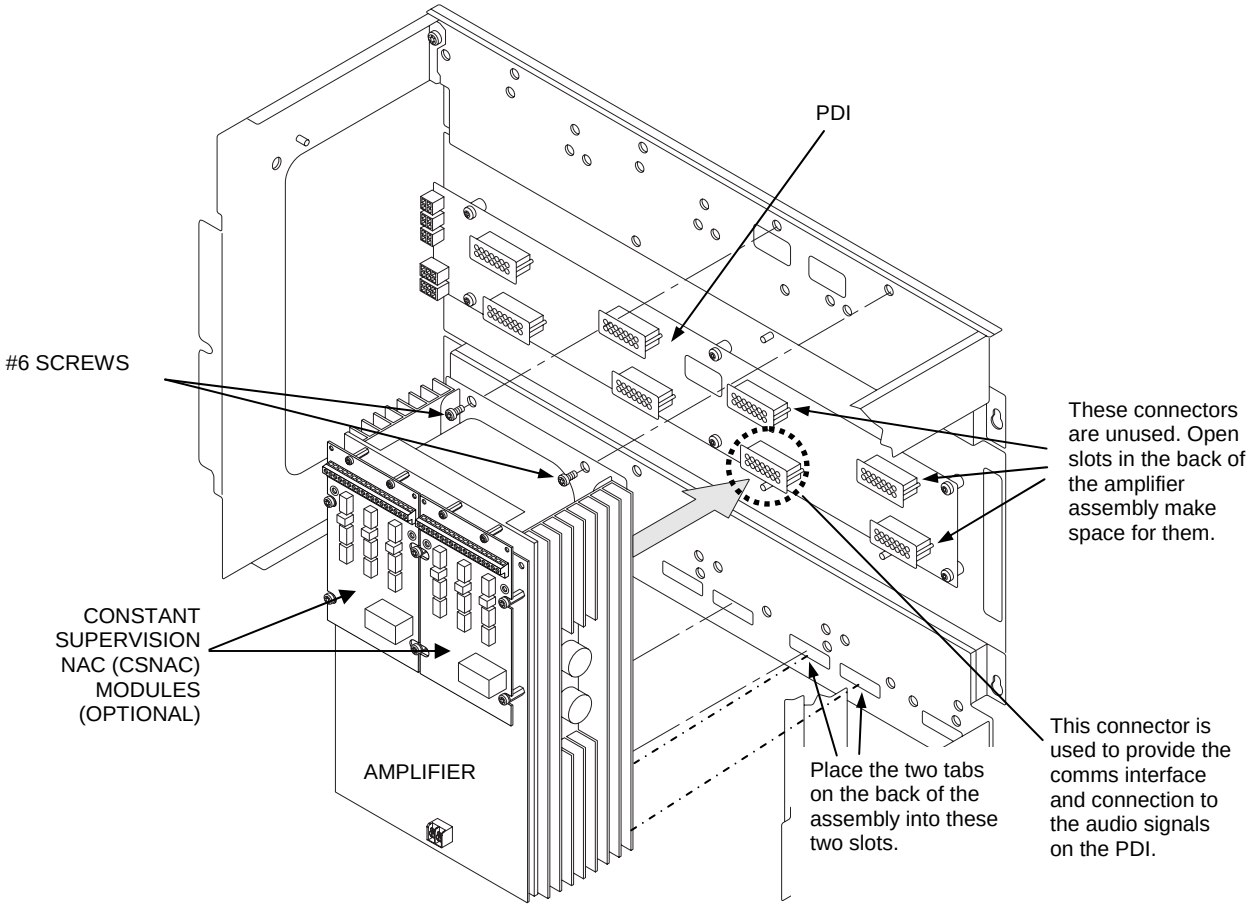

Figure 4. Mounting onto the Power Distribution Interface

Amplifier Field Wiring

Overview

This section contains amplifier field wiring guidelines and illustrations, including speaker circuit wiring distances. The information covers all types of wiring, with and without backup amplifiers, NAC expansion modules, Constant Supervision NAC (CSNAC) modules, and Class A adapters.

Table 3. Class A 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	100	50	3,250 ft. (991 m)	2,049 ft. (625 m)	1,288 ft. (393 m)	810 ft. (247 m)
70	80	40	4,060 ft. (1,237 m)	2,554 ft. (778 m)	1,600 ft. (488 m)	1,010 ft. (308 m)
70	70	35	4,959 ft. (1,511 m)	2,930 ft. (893 m)	1,820 ft. (555 m)	1,158 ft. (353 m)
70	60	30	5,430 ft. (1,655 m)	3,400 ft. (1,036 m)	2,138 ft. (652 m)	1,350 ft. (411 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 4. Class B 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	100	50	6,500 ft. (1,981 m)	4,098 ft. (1,249 m)	2,577 ft. (785 m)	1,620 ft. (494 m)
70	80	40	8,121 ft. (2,475 m)	5,108 ft. (1,557 m)	3,212 ft. (979 m)	2,020 ft. (616 m)
70	70	35	9,918 ft. (3,023 m)	5,860 ft. (1,786 m)	3,685 ft. (1,123 m)	2,317 ft. (706 m)
70	60	30	10,860 ft. (3,310 m)	6,800 ft. (2,073 m)	4,276 ft. (1,303 m)	2,700 ft. (823 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).
- All field wiring and backup audio wiring is power-limited.
- Backup audio wiring is unsupervised.
- Maximum speaker circuit current is 2 A per circuit.
- Total available power is 100 W (4 A @ 25 VRMS, 1.414 A @ 70.7 VRMS).
- Terminal designations “+” and “-“ are for the alarm state.
- When required, shields are normally connected to 0 V as shown. Alternate shield termination using Earth ground is provided on the amplifier chassis.

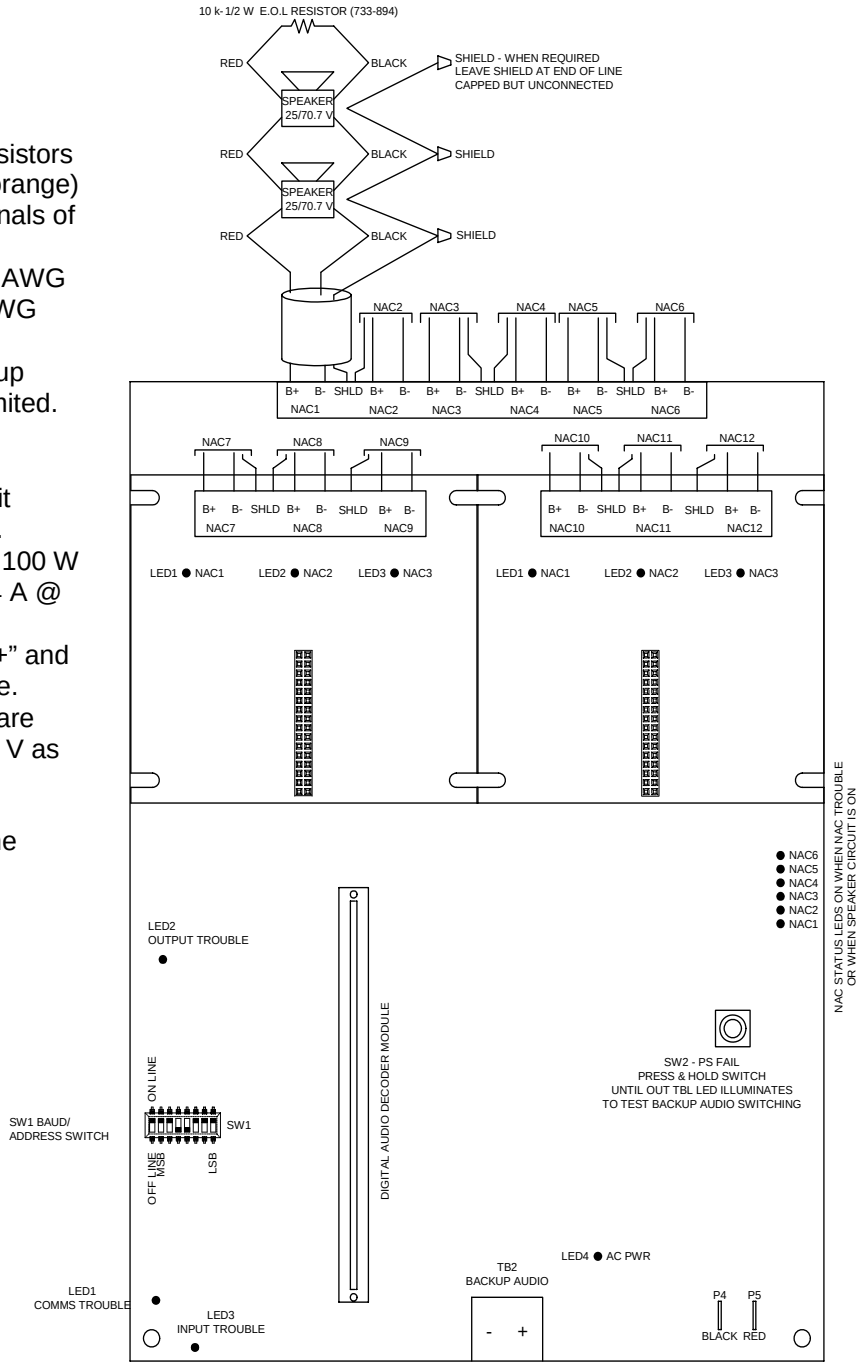

Figure 5. Class B Wiring

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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.
- All wiring is between 18 AWG (0.8231 mm^2) and 12 AWG (3.309 mm^2).
- All field wiring and backup audio wiring is power-limited.
- Backup audio wiring is unsupervised.
- Maximum speaker circuit current is 2 A per circuit.
- Total available power is 100 W (4 A @ 25 VRMS, 1.414 A @ 70.7 VRMS).
- Terminal designations "+" and "-" are for the alarm state.
- When required, shields are normally connected to 0 V as shown. Alternate shield termination using Earth ground is provided on the amplifier chassis.

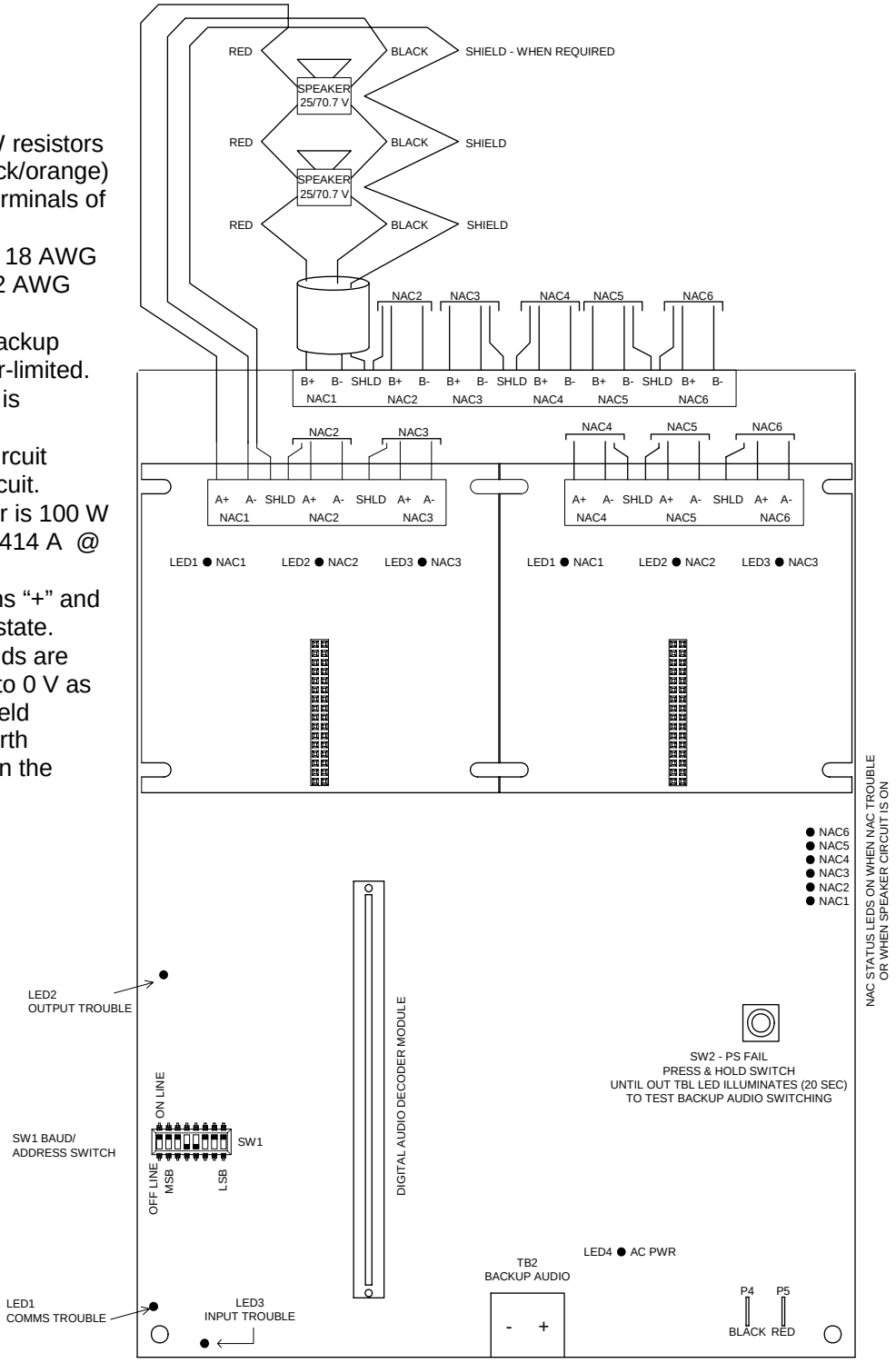

Figure 6. Class A Wiring

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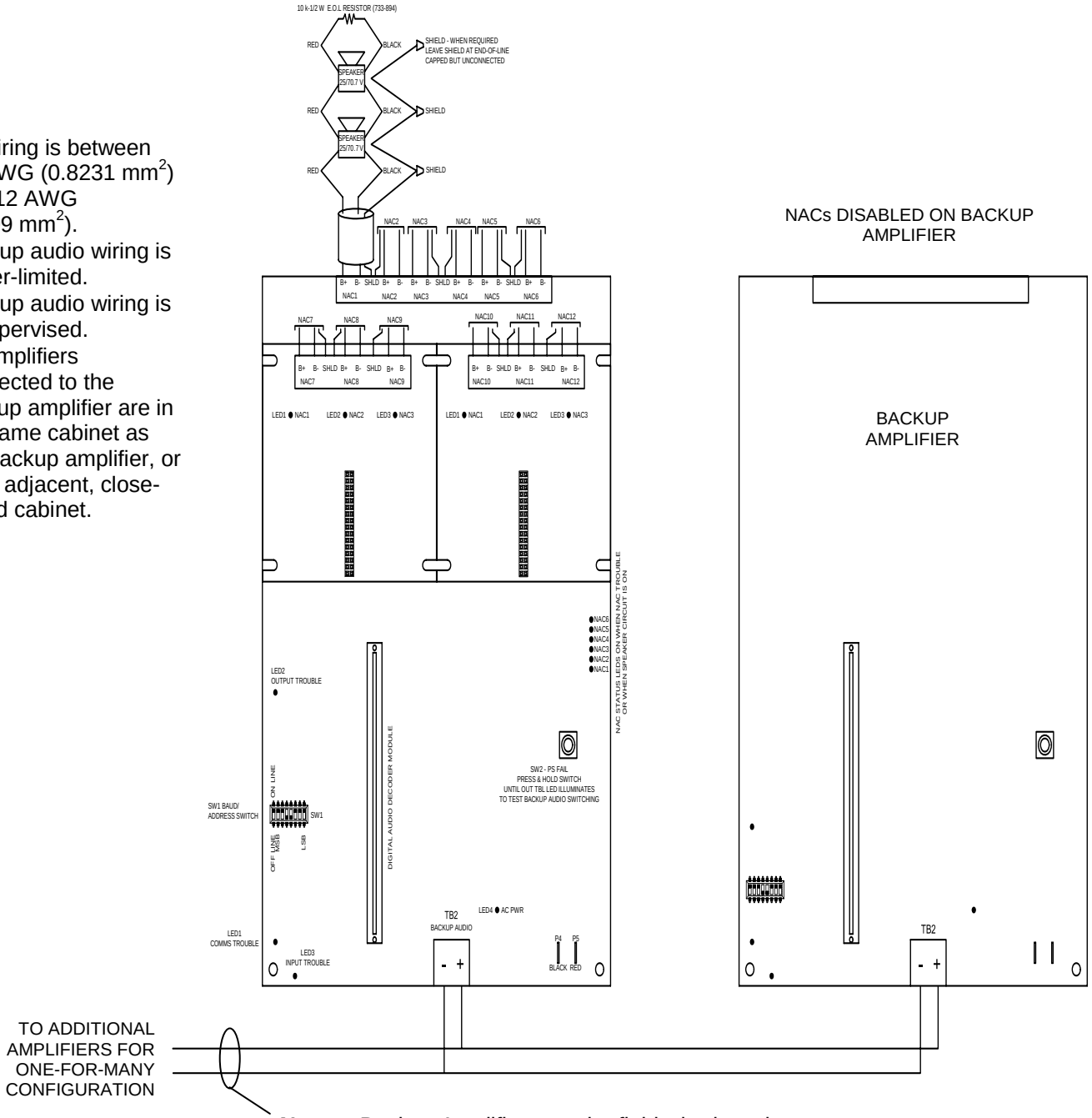
Amplifier Field Wiring, *Continued*

Backup Amplifier Wiring

- All wiring is between 18 AWG (0.8231 mm^2) and 12 AWG (3.309 mm^2).
- Backup audio wiring is power-limited.
- Backup audio wiring is unsupervised.
- All Amplifiers connected to the backup amplifier are in the same cabinet as the backup amplifier, or in an adjacent, close-linked cabinet.



Note: Backup Amplifier must be field wired as shown. Recommended wire is 12 or 14 AWG, to minimize wiring losses.

Figure 7. Backup Amplifier Wiring

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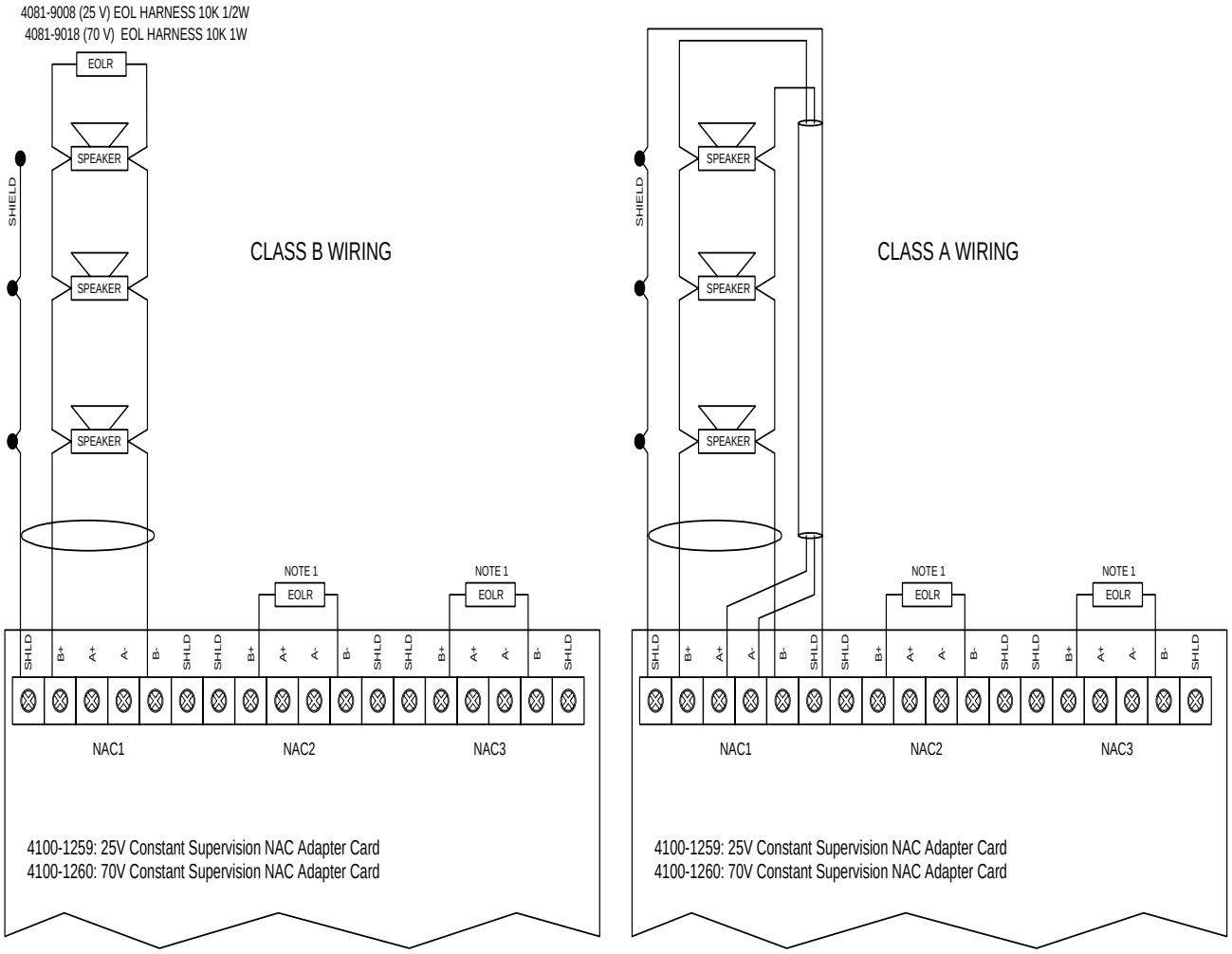
Constant Supervision NAC (CSNAC) Wiring



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 100 W (4 A @ 25 VRMS, 1.414 A @ 70.7 VRMS) or as limited by 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 8. CSNAC Wiring

LED Indications

The amplifier LEDs are summarized in the table below.

Table 5. LED Indications

LED #	LED Name	Meaning	Color
LED1	COMMS TBL	Steadily on when the amplifier is not communicating with the system CPU	Yellow
LED2	OUT_TBL	Steadily on during Power Stage Overcurrent Failure/Output Supervision Trouble	Yellow
LED3	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 input channel or digital audio riser.	Yellow
LED4	AC Pwr	Steadily on when AC supply is on	Green
LED5	NAC 1 Status	Steadily on when NAC 1 is on or in Trouble condition	Yellow
LED6	NAC 2 Status	Steadily on when NAC 2 is on or in Trouble condition	Yellow
LED7	NAC 3 Status	Steadily on when NAC 3 is on or in Trouble condition	Yellow
LED8	NAC 4 Status	Steadily on when NAC 4 is on or in Trouble condition	Yellow
LED9	NAC 6 Status	Steadily on when NAC 5 is on or in Trouble condition	Yellow
LED10	NAC 5 Status	Steadily on when NAC 6 is on or in Trouble condition	Yellow