

**Introduction**

This publication describes the installation procedure for 4100-5101 (120 VAC), 4100-5102 (220/230/240 VAC), and 4100-5103 (120 VAC with battery disconnect) Expansion Power Supplies (XPSs), and the 4100-5115 Expansion NAC Module (XNAC).

This product is compatible with 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**

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# Cautions and Warnings

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## 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.



**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 NFPA72-1996, Chapter 7 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.

# Expansion Power Supply Modules

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## Overview

This publication describes the installation procedure for the following:

- 4100-5101 Expansion Power Supply (XPS), 120 VAC, 60 Hz
- 4100-5102 XPS, 220/230/240 VAC 50/60 Hz
- 4100-5103 XPS, 120 VAC, 60 Hz, with battery disconnect (Canada)
- 4100-5115 Expansion NAC Module (XNAC)

The XPS distributes added card power and signal power via the PDI. Signal power is available only in the bay in which the XPS is located. The source of card power is selected by jumpers P4 & P5 on the PDI.

The XPS includes 3 NACs, and may be expanded to 6 NACs with the 4100-5115. NACs are wired as Class B or Class A. All circuits are power limited per UL 864. The NACs support non-addressable TrueAlert and conventional reverse-polarity operation.

The Notification Appliance Circuits on these modules can be used as regulated 24 DC circuits, or special application circuits. When used as generic 24 VDC regulated circuits, only 4 Amps of current is available across the 3 circuits, and any 24 VDC appliance may be attached. When used as special applications NACs, the full 9 Amps of current is available at the 3 circuits and only the compatible appliances listed on page 27 may be connect to these circuits. The SPS/RPS can synchronize compatible appliances across all 3 circuits when those circuits are used as special applications NACs.

The XPS has a 9 A capacity. Each NAC is rated at 3 A. A NAC can also be configured as an auxiliary power point, in which case it is rated at 2 A. The total load at 24 VDC must be no more than 9 A. The total load includes NACs (on the XPS or the XNAC Module), auxiliary power, card power, and signal power used by modules plugged into the same bay.

**Note:** If NACs are to be used as auxiliary outputs, they must be configured as such in the Panel Programmer. Programming may also be required for dedicated auxiliary outputs; refer to the *ES Panel Programmer's Manual (574-849)*.

NACs are monitored for short and open circuits. If a short circuit occurs, the affected NAC will not be energized.

A NAC miswiring test, which checks for NACs that are shorted together, can be initiated on command from the operator interface.

AC power and battery backup are provided to the XPS through a connection to the PDM.

Detection of an earth fault on XPS wiring is performed by the SPS, RPS or XBC. Detection is 10k ohms minimum.

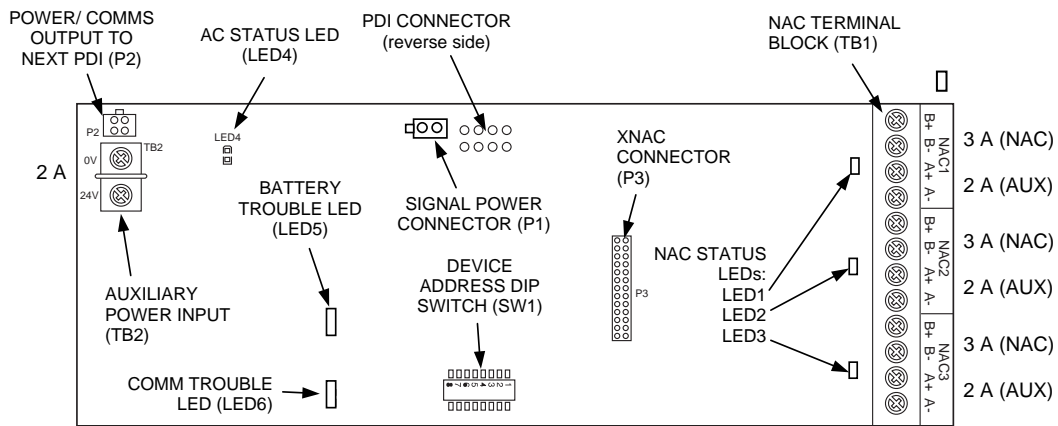
The model 4100-5103 are required in jurisdictions, such as Canada, where depleted battery conditions are required, by local code, to result in power-down of the unit until AC power is restored. The system must also be programmed for depleted battery cutout, for each power supply.

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# The Expansion Power Supply (XPS)

## XPS Features

Figure 1, below, is an illustration of the XPS.



**Figure 1. The Expansion Power Supply**

## The Expansion Power Supply (XPS), *Continued*

### LEDs

The XPS has the following LEDs:

**LED1 (yellow)\*.** Illuminates when NAC 1 is active or in a trouble state; otherwise, it is off.

**LED2 (yellow)\*.** Illuminates when NAC 2 is active or in a trouble state; otherwise, it is off.

**LED3 (yellow)\*.** Illuminates when NAC 3 is active or in a trouble state; otherwise, it is off.

**LED4 (green).** Illuminates when the XPS is running off of AC power; otherwise, it is off.

**LED5 (yellow).** General Status LED.

- On steady: Overcurrent tripped.
- Single repeating flash: Battery not connected.

**LED6 (yellow).** Illuminates when communication loss with the CPU occurs. Normally off.

\*During initialization of the XPS, LEDs 1, 2, 3 illuminate because the NACs are held in the isolate stage and create an open circuit trouble.

### Input and Output Specifications

Table 1 summarizes the input and output specifications for the XPS.

**Table 1. Input and Output Specifications**

<b>AC Input Specifications</b>	
4100-5103	120 VAC @ 60 Hz, nominal, 4 A Max
4100-5102	220/230/240 VAC @ 50 or 60 Hz 2 A Max
<b>DC Output Specifications</b>	
All XPSs	Minimum: 19.5 VDC Maximum: 32 VDC Ripple: 2 VDC p-p @ full load (9 A)

### Environmental Operating Range

The 4100U /4100ES modules are rated to operate at ambient temperatures from 32°F - 120°F (0°C-49°C).

The 4100U /4100ES modules are rated for operation at 90°F (32°C), 93% RH (non-condensing).

# Step 1. Mounting the XPS

## Guidelines

The XPS is normally mounted on the rightmost top and bottom positions of the PDI in a 4100 expansion cabinet. Before mounting the XPS, follow these guidelines:

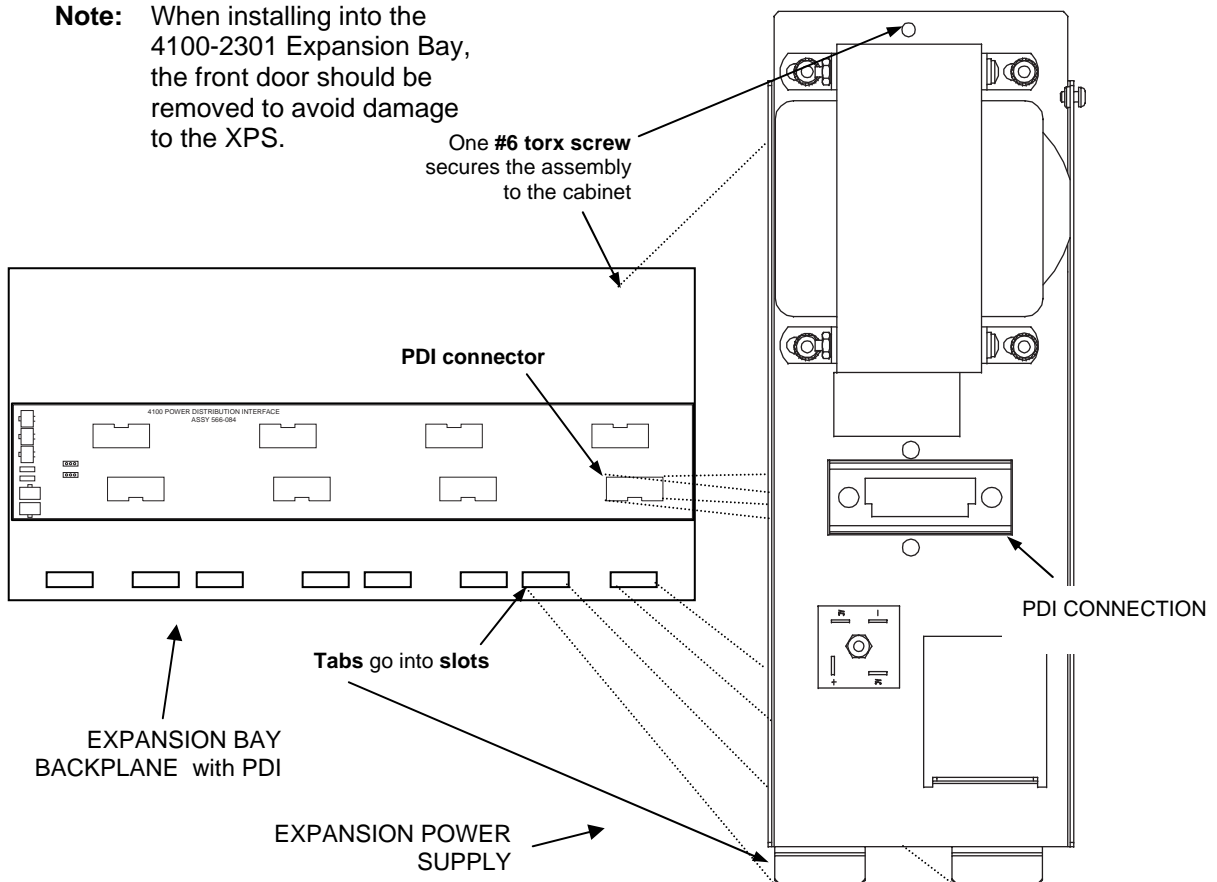
- Disconnect power to the system or remove power at the breaker before mounting or installing any modules.

## Mounting

Use Figure 2, and the following instructions to mount the XPS.

1. Insert the two tabs on the bottom of the XPS into the rightmost two slots in the cabinet.
2. Push the XPS assembly against the back of the expansion bay.
  - Connect to the PDI as shown in Figure 2.
  - Correctly align the screw hole at the top of the XPS assembly with the hole in the bay chassis.
  - Use one #6 torx screw to secure the assembly to the expansion box.

**Note:** When installing into the 4100-2301 Expansion Bay, the front door should be removed to avoid damage to the XPS.



**Figure 2. XPS Mounting**

## Step 2. XPS Configuration

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### Overview

XPS configuration consists of setting the address switch as described in this section.

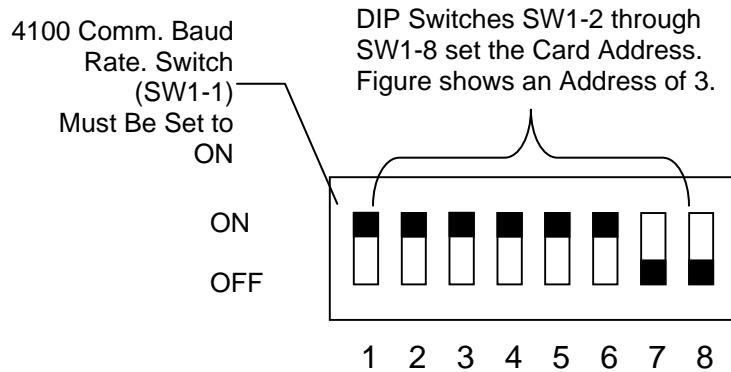
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### Setting the Address

The XPS device 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 4100 communications line running between the card and the 4100 CPU. Set this switch to ON to communicate.
- **SW1-2 through SW1-8.** These switches set the card's address within the 4100 FACP. Refer to Table 2 for a complete list of the switch settings for all of the possible card addresses.

**Note:** You must set these switches to the value assigned to the card by the Panel Programmer.



**Figure 3. DIP Switch SW1**

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*Continued on next page*

## Step 2. XPS Configuration, *Continued*

### Setting the Address

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

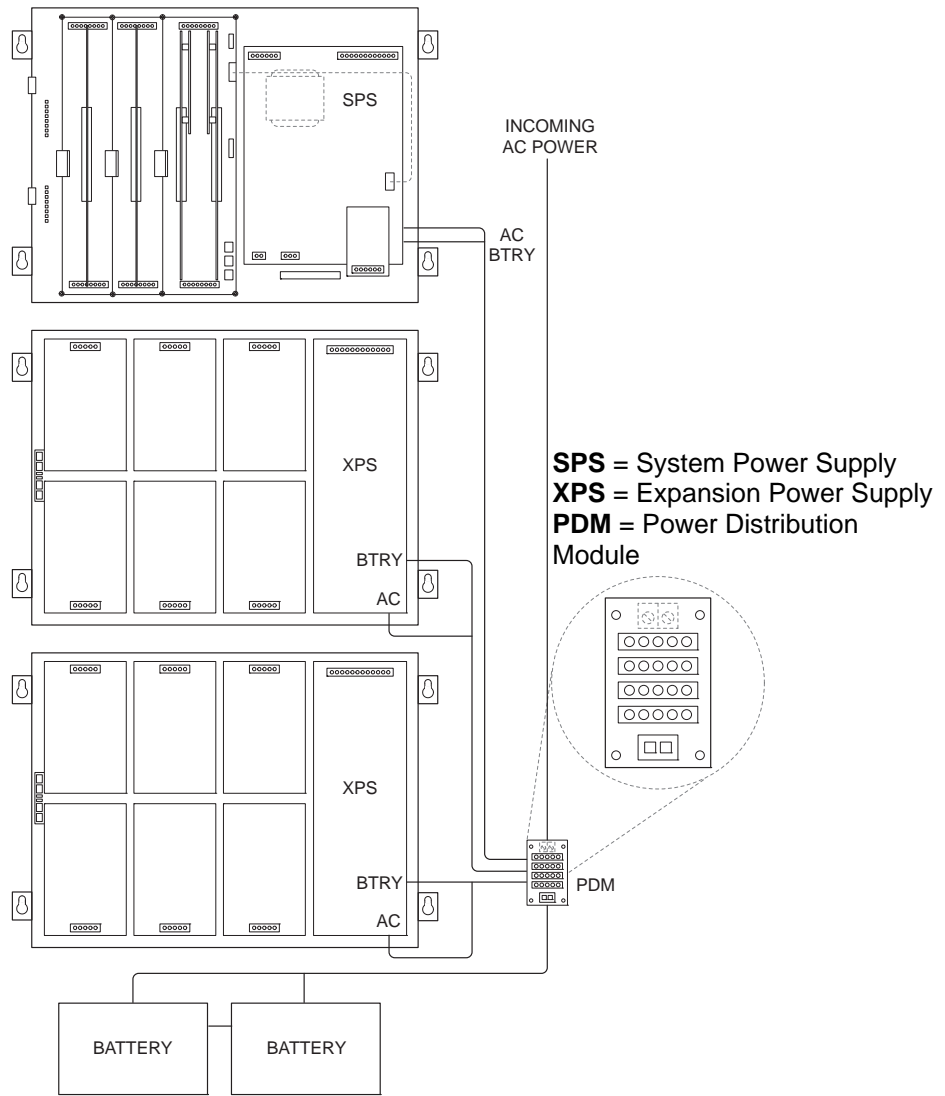


### Step 3. Internal Wiring

#### Overview

The XPS gets its power from the power distribution module or PDM (4100U and 4100ES only) or the power distribution terminal block (4100-2301 Expansion Bay only). The PDM or terminal block take power directly from the AC mains and the two backup batteries, and distributes power to each bay in the cabinet.

Figure 4, below, shows the PDM in the 4100U/4100ES connecting to a host FACP with two XPSs.



**Figure 4. System Power**

The instructions in this section describe how to connect the XPS to AC mains and batteries in both regular 4100U/4100ES back boxes (2975-94.xx Back Boxes) and the 4100-2301 Expansion Bay (for 2975-91.xx for non-4100U/4100ES Back Boxes).

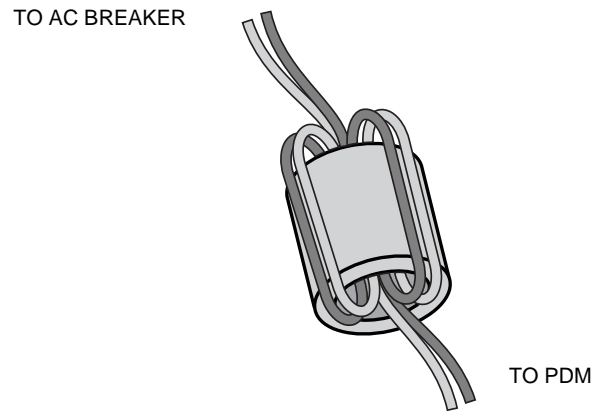
### Step 3. Internal Wiring, *Continued*

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**Power Distribution  
Module  
Connections**

The power distribution module (PDM) connects to the SPS, RPS, or XPS in each bay. One PDM is used per back box. Use the instructions below to properly connect the PDM to each bay.

1. Route the black and white AC power wires to the supplied ferrite bead. Loop the wires twice through the bead as shown in Figure 5.



**Figure 5. Loop wires through bead as shown**

2. Wire 120/220/230/240 VAC to the PDM, keeping AC wires at least 1 inch away from all other wires. AC power must stay in the right side of the cabinet, in the non-power-limited area.
3. Connect batteries to P5 on the PDM using Harness 734-015.

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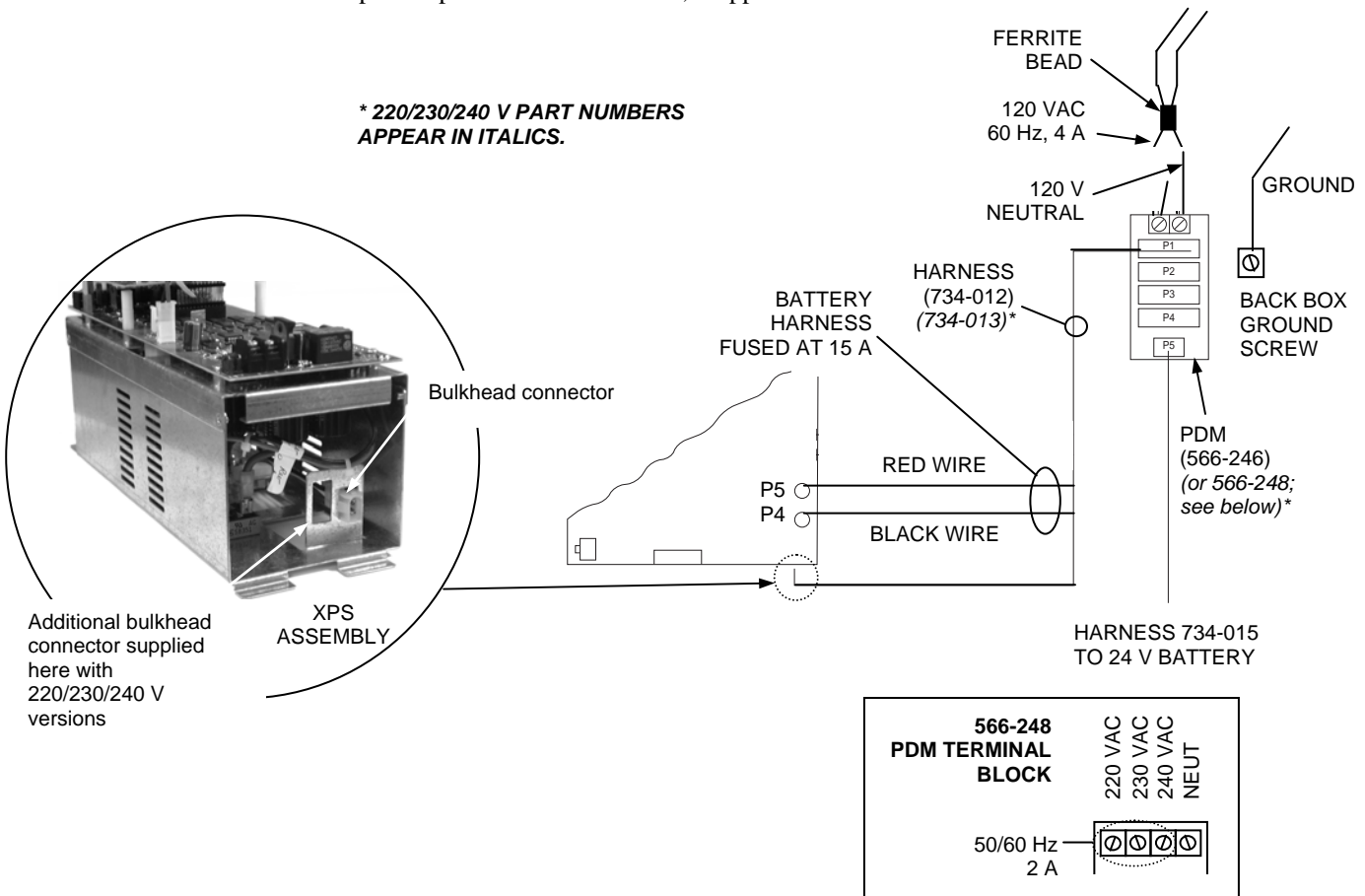
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### Step 3. Internal Wiring, *Continued*

**Power Distribution Module Connections**

4. Connect the 734-012 Harness (734-013 for 220/230/240 V versions) from the next connector on the PDM to the first XPS.
  - Connect the separate red and black wires (with yellow female terminations) to plugs P4 (black) and P5 (red) on the XPS.
  - Connect the white and black wires, which terminate together in a white snap-on connector, to the connector at the bottom of the XPS assembly, as shown below. The black wire must be closer to the wall at the XPS connection point.
5. Repeat step 4 for the second XPS, if applicable.

*\* 220/230/240 V PART NUMBERS APPEAR IN ITALICS.*



**Figure 6. XPS/PDM Connection**

### Step 3. Internal Wiring, *Continued*

#### 4100-2301 Expansion Bay Wiring

If the XPS is being installed in a 4100-2301 Expansion Bay (for non-4100U/4100ES 2975-91xx Back Boxes),

1. For DC wiring, connect the battery block (635-852) to the XPS using Harness 734-050. Feed red and black wires through the side rail to the front of the XPS to prevent wire damage when the front panel is lowered. Connect the separate red and black wires (with yellow female terminations) to plugs P4 (black) and P5 (red) on the XPS.
2. For AC wiring, connect the white and black wires (Harness 734-049) from the 120 V and NEUT terminal blocks to the connector at the bottom of the XPS assembly, keeping AC wires at least 1 inch away from all other wires. AC power must be kept to the right side of the cabinet, in the non-power-limited area. The black wire must be closer to the wall at the XPS connection point.

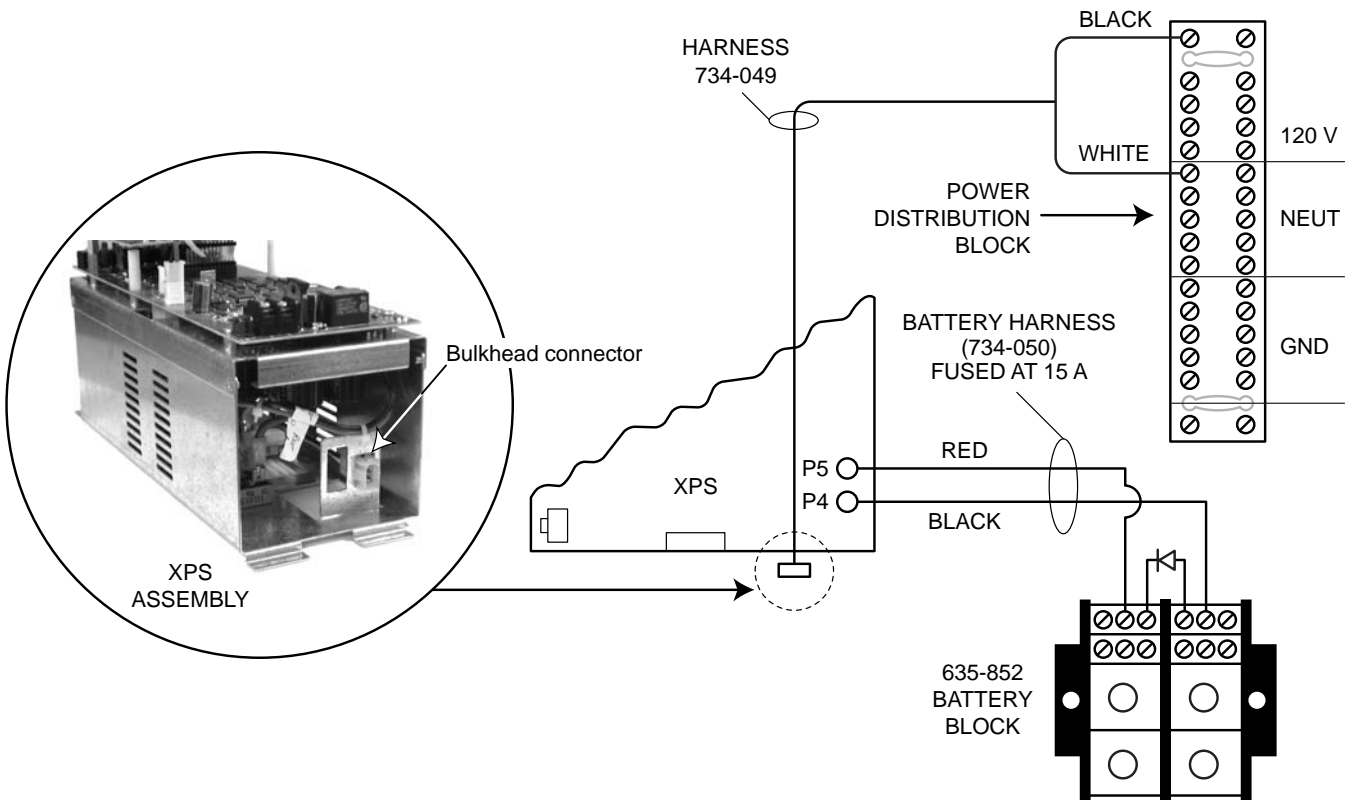


Figure 7. XPS Connection When Mounted in a 4100 Style Box

## Step 4. XPS Field Wiring

### Overview

The XPS provides three outputs for reverse-polarity notification appliance circuits. This section describes basic NAC wiring from the XPS to 4100-compatible appliances.

### NAC Wiring Styles

The XPS supports both Class A and Class B NAC wiring.

Class A wiring provides a circuit path XPS in the event of a single open circuit somewhere in the loop. Class A wiring requires that two wires are routed from the XPS to each appliance, and then back again to the XPS.

### Class A NAC Wiring Table

Table 3 lists the maximum distances from the XPS to the last appliance in a Class A configuration, depending on wire gauge and current. Use Table 3 to calculate wire distances for your application if you are using Class A wiring.

**Table 3. Class A Wiring Distances**

Alarm Current @ 24 V	Max Distance w/ 18 AWG (0.8231 mm <sup>2</sup> )	Max Distance w/ 16 AWG (1.309 mm <sup>2</sup> )	Max Distance w/ 14 AWG (2.081 mm <sup>2</sup> )	Max Distance w/ 12 AWG (3.309 mm <sup>2</sup> )	DC Resistance
0.25 A	420 ft. (128 m)	667 ft. (203 m)	1,063 ft. (324 m)	1,691 ft. (515 m)	6 Ohms
0.50 A	210 ft. (64 m)	334 ft. (102 m)	532 ft. (162 m)	845 ft. (258 m)	3 Ohms
0.75 A	140 ft. (43 m)	222 ft. (68 m)	354 ft. (108 m)	564 ft. (172 m)	2 Ohms
1 A	105 ft. (32 m)	167 ft. (51 m)	266 ft. (81 m)	423 ft. (129 m)	1.5 Ohms
1.25 A	84 ft. (26 m)	133 ft. (41 m)	213 ft. (65 m)	338 ft. (103 m)	1.2 Ohms
1.50 A	70 ft. (21 m)	111 ft. (34 m)	177 ft. (54 m)	282 ft. (86 m)	1 Ohm
1.75 A	60 ft. (18 m)	95 ft. (29 m)	152 ft. (46 m)	242 ft. (74 m)	0.86 Ohm
2 A	53 ft. (16 m)	83 ft. (25 m)	133 ft. (41 m)	211 ft. (64 m)	0.75 Ohm
2.25 A	47 ft. (14 m)	74 ft. (23 m)	118 ft. (36 m)	188 ft. (57 m)	0.67 Ohm
2.50 A	42 ft. (13 m)	67 ft. (20 m)	106 ft. (32 m)	169 ft. (51 m)	0.60 Ohm
2.75 A	38 ft. (12 m)	61 ft. (19 m)	97 ft. (30 m)	154 ft. (47 m)	0.55 Ohm
3 A	35 ft. (11 m)	56 ft. (17 m)	89 ft. (27 m)	141 ft. (43 m)	0.50 Ohm

#### Notes:

- Max Distance = distance from XPS to last appliance.
- This table is calculated at 50 degrees Centigrade (120 degrees Fahrenheit). If you are installing in locations that could be exposed to higher temperatures, refer to NEC Table 8.
- Distances are based on a 3 V drop, and take into account the worst-case panel output voltage.
- If CI wire is used instead of housing cable in a fire rated enclosure, reduce wiring distances by 38 feet (12 m) for every 10 feet (3 m) of potential exposure.
- If Wheelock appliances employing EZ Mount SNAP bases are used, reduce the wiring distance and wiring resistance by:
  - 12 gauge wire: 3.5 feet per appliance, 0.0125 Ohms per appliance
  - 14 gauge wire: 2.2 feet per appliance, 0.0125 Ohms per appliance
  - 16 gauge wire: 1.4 feet per appliance, 0.0125 Ohms per appliance
  - 18 gauge wire: 0.9 feet per appliance, 0.0125 Ohms per appliance

## Step 4. XPS Field Wiring, *Continued*

### Class B NAC Wiring Table

Table 4 lists the maximum distances from the XPS to the last appliance in a Class B configuration, depending on wire gauge and current. Use Table 4 to calculate wire distances for your application if you are using Class B wiring.

**Table 4. Class B Wiring Distances**

Alarm Current @ 24 V	Max Distance w/ 18 AWG (0.8231 mm <sup>2</sup> )	Max Distance w/ 16 AWG (1.309 mm <sup>2</sup> )	Max Distance w/ 14 AWG (2.081 mm <sup>2</sup> )	Max Distance w/ 12 AWG (3.309 mm <sup>2</sup> )	DC Resistanc e
0.25 A	840 ft. (256 m)	1,335 ft. (407 m)	2,126 ft. (648 m)	3,382 ft. (1,031 m)	12 Ohms
0.50 A	420 ft. (128 m)	667 ft. (203 m)	1,063 ft. (324 m)	1,691 ft. (515 m)	6 Ohms
0.75 A	280 ft. (85 m)	445 ft. (136 m)	709 ft. (216 m)	1,127 ft. (344 m)	4 Ohms
1 A	210 ft. (64 m)	334 ft. (102 m)	532 ft. (162 m)	845 ft. (258 m)	3 Ohms
1.25 A	168 ft. (51 m)	267 ft. (81 m)	425 ft. (130 m)	676 ft. (206 m)	2.4 Ohms
1.50 A	140 ft. (43 m)	222 ft. (68 m)	354 ft. (108 m)	564 ft. (172 m)	2 Ohms
1.75 A	120 ft. (37 m)	191 ft. (58 m)	304 ft. (93 m)	483 ft. (147 m)	1.71 Ohms
2 A	105 ft. (32 m)	167 ft. (51 m)	266 ft. (81 m)	423 ft. (129 m)	1.5 Ohms
2.25 A	93 ft. (28 m)	148 ft. (45 m)	236 ft. (72 m)	376 ft. (115 m)	1.33 Ohms
2.50 A	84 ft. (26 m)	133 ft. (41 m)	213 ft. (65 m)	338 ft. (103 m)	1.2 Ohms
2.75 A	76 ft. (23 m)	121 ft. (37 m)	193 ft. (59 m)	307 ft. (94 m)	1.09 Ohms
3 A	70 ft. (21 m)	111 ft. (34 m)	177 ft. (54 m)	282 ft. (86 m)	1 Ohm

**Notes:**

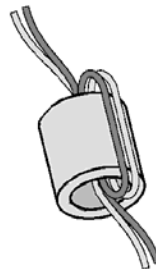
- Max Distance = distance from XPS to last appliance.
- This table is calculated at 50 degrees Centigrade (120 degrees Fahrenheit). If you are installing in locations that could be exposed to higher temperatures, refer to NEC Table 8.
- Distances are based on a 3 V drop, and take into account the worst-case panel output voltage.
- If CI wire is used instead of housing cable in a fire rated enclosure, reduce wiring distances by 38 feet (12 m) for every 10 feet (3 m) of potential exposure.

## Step 4. XPS Field Wiring, *Continued*

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### Guidelines

- All wiring is 18 AWG (0.8231 mm<sup>2</sup>) (minimum) to 12 AWG (3.309 mm<sup>2</sup>) (maximum).
- All wiring is supervised and power-limited.
- The maximum alarm current is 3 A per circuit. The supervisory current is 2.03 mA at 24 VDC.
- The nominal voltage rating is 24 VDC, 2 V p-p ripple (maximum).
- The total available current from the XPS is 9 A, unless it is used for REGULATED 24 DC notification appliances, where the XPS is rated for 4 Amps notification current, and 1 Amp for other uses. Total available auxiliary power current is 5 A (1 Amp for REG 24), and rated at 2 A per circuit. Current used for card power by modules plugged into the PDI, as well as any auxiliary 24 VDC current, must be deducted from the total 9 A available current.
- All wiring that leaves the building requires overvoltage protection. Install module 2081-9044 (3 A) or 2081-9028 (¼ A) inside a UL-Listed electrical box wherever wire enters or exits the building. When using the 2081-9044, the maximum alarm current is reduced to ¼ A for that part of the circuit downstream of the module.
- Terminal designations “+” and “-” are for the alarm state.
- Compatible appliances for NACs are listed in table 5.
- A maximum of 70 appliances can be supported per circuit.
- For CE compliant systems, use the ferrite beads as shown in each figure. Loop wires once through the ferrite bead(s) as shown in Figure 8. 4100-5129 includes 3 ferrite beads, order as needed



**Figure 8. Loop Wires as Shown.**

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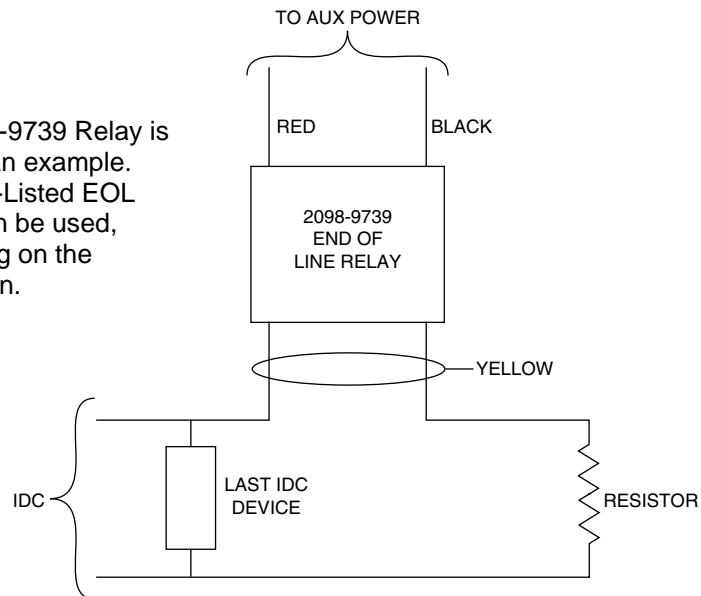
*Continued on next page*

## Step 4. XPS Field Wiring, *Continued*

### Guidelines

- *Auxiliary power only:* In order to connect a circuit using power-limited wiring, the devices being powered must all be addressable, or a UL-Listed EOL relay must be used to supervise the circuit. Refer to the figure below for wiring directions for the EOL relay.

**Note:** The 2098-9739 Relay is used as an example. Other UL-Listed EOL relays can be used, depending on the application.



**Figure 9. The EOL Relay**

- The Notification Appliance Circuits on the XPS are rated for Special Application and for Regulated 24V dc operation per UL864, 9th Edition.
- When used with the Notification Appliances listed in Table 5 or Table 6, each NAC is rated for 3A, and total XPS capacity is rated at 9A. This rating is the UL864 Special Application rating. Appliances listed in Table 5 and Table 6 are synchronized per UL864, between all NACs on the XPS, and any NACs on an SPS, RPS or XPS within the same 4100U/4100ES system, but not if appliances are mixed from both tables. Appliances from table 5 will be 1/2 second out of audible sync with appliances from table 6 in the same system. All appliances any given SPS, RPS or XPS must be from either Table 5 or Table 6, mixing of appliances from both tables is not possible within a power supply .
- For use with Notification Appliances not listed in Table 5 or Table 6, each circuit is rated for 2A maximum, with a total Notification Appliance load of 4A per XPS. This rating is the UL 864 Regulated 24V dc rating. Synchronization of strobes and other appliances requires use of the associated, Listed, compatible Synchronization Module. Consult supplier of Notification Appliances for synchronization limits and details.
- Non-pulsing, linear-type Notification Appliances, such as horns or bells may be used up to the full rating (3A / NAC, 9A total for the XPS).
- If Wheelock appliances employing EZ Mount SNAP bases are used, reduce the wiring distance and wiring resistance by:
  - 12 gauge wire: 7.0 feet per appliance, 0.025 Ohms per appliance
  - 14 gauge wire: 4.4 feet per appliance, 0.025 Ohms per appliance
  - 16 gauge wire: 2.8 feet per appliance, 0.025 Ohms per appliance
  - 18 gauge wire: 1.8 feet per appliance, 0.025 Ohms per appliance



## Step 4. XPS Field Wiring, *Continued*

### Class A NAC Wiring

To connect the XPS to appliances using Class A wiring, read the following instructions and refer to Figure 10, below.

1. Route wire (between 12 [3.309 mm<sup>2</sup>] and 18 AWG [0.8231 mm<sup>2</sup>]) from the “B+” and “B-” outputs on TB1 of the XPS to the appropriate inputs on a peripheral notification appliance. Use NAC1, NAC2, or NAC3.
2. Route wire from the first appliance to the next one. Repeat for each appliance.
3. Route wire from the last appliance to the A+ and A- inputs on the same NAC circuit of TB1 of the XPS.
4. Repeat steps 1 through 3 for each NAC output you want to use.
5. Leave the 10 K, factory-installed, ½ W, brown/black/orange resistor (378-030) on each unused circuit. The circuit must connect “B+” to “B-” terminals. No external end-of-line resistor is needed for circuits in use.

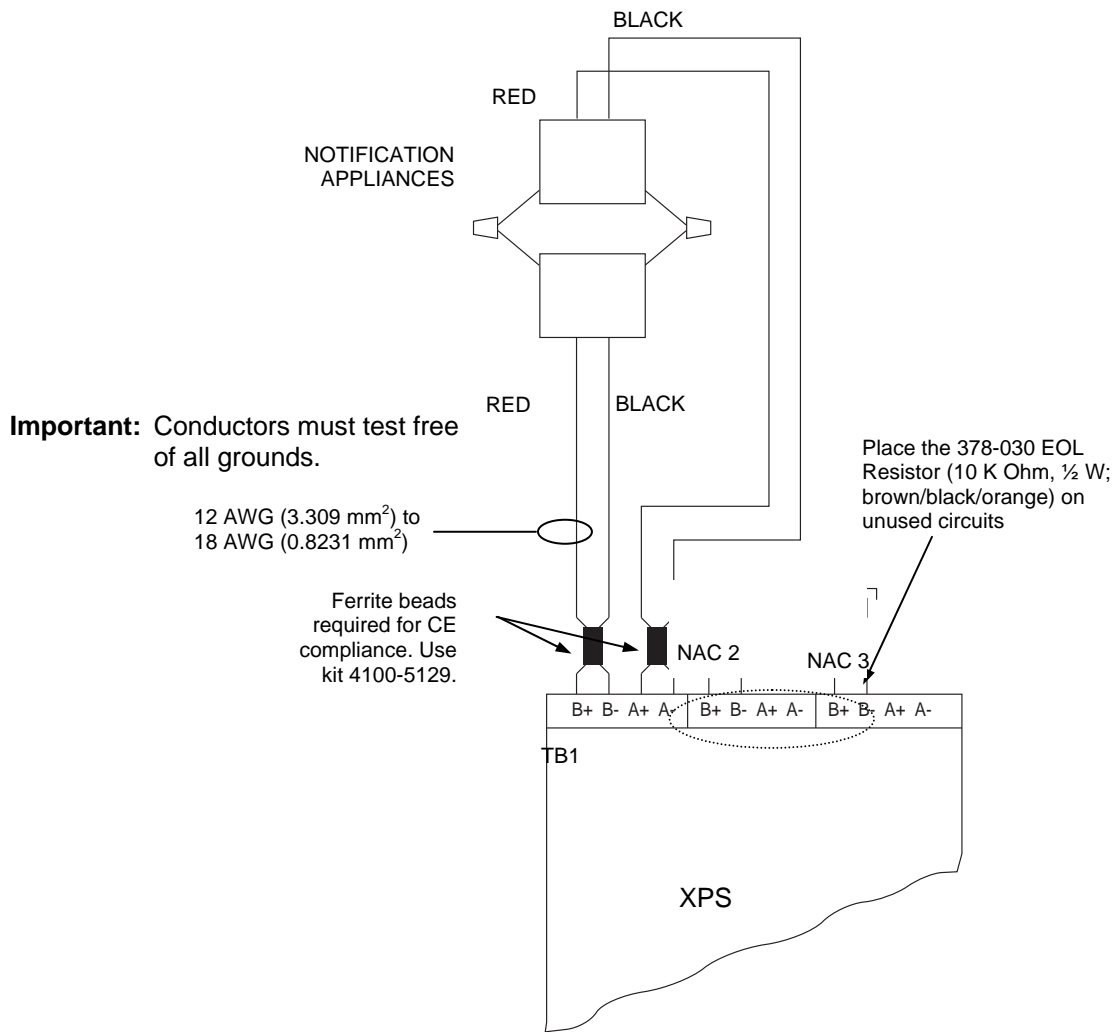


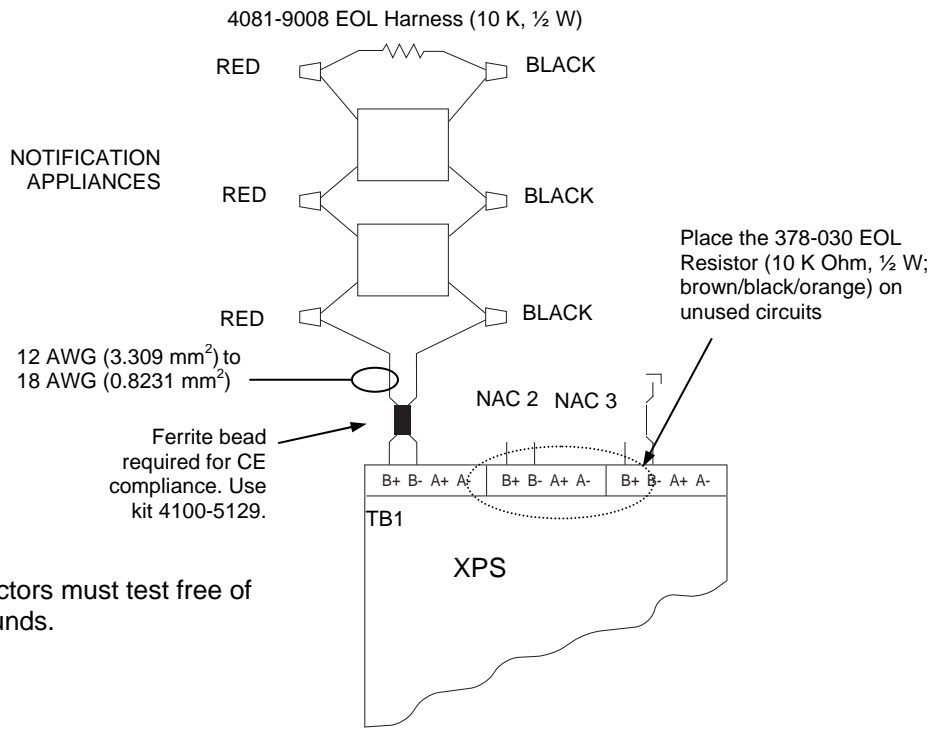
Figure 10. Class A Wiring

## Step 4. XPS Field Wiring, *Continued*

### Class B NAC Wiring

To connect the XPS to appliances using Class B wiring, read the following instructions and refer to Figure 11, below.

1. Use NAC1, NAC2, or NAC3 to route wire (between 12 [3.309 mm<sup>2</sup>] and 18 AWG [0.8231 mm<sup>2</sup>]) from “B+” and “B-” on the XPS to the first appliance.
2. Route wire to the next appliance as shown in the figure. Repeat for each appliance.
3. Route wire from the last appliance to the EOLR harness (10K ohm, 1/2W: P/N 733-894, PID# 4081-9008).
4. Repeat steps 1 through 3 for each NAC output you want to use.
5. Leave the 10 K, ½ W, brown/black/orange resistor (378-030) on each unused circuit. The circuit must connect “B+” to “B-” terminals.



**Important:** Conductors must test free of all grounds.

Figure 11. Class B Wiring

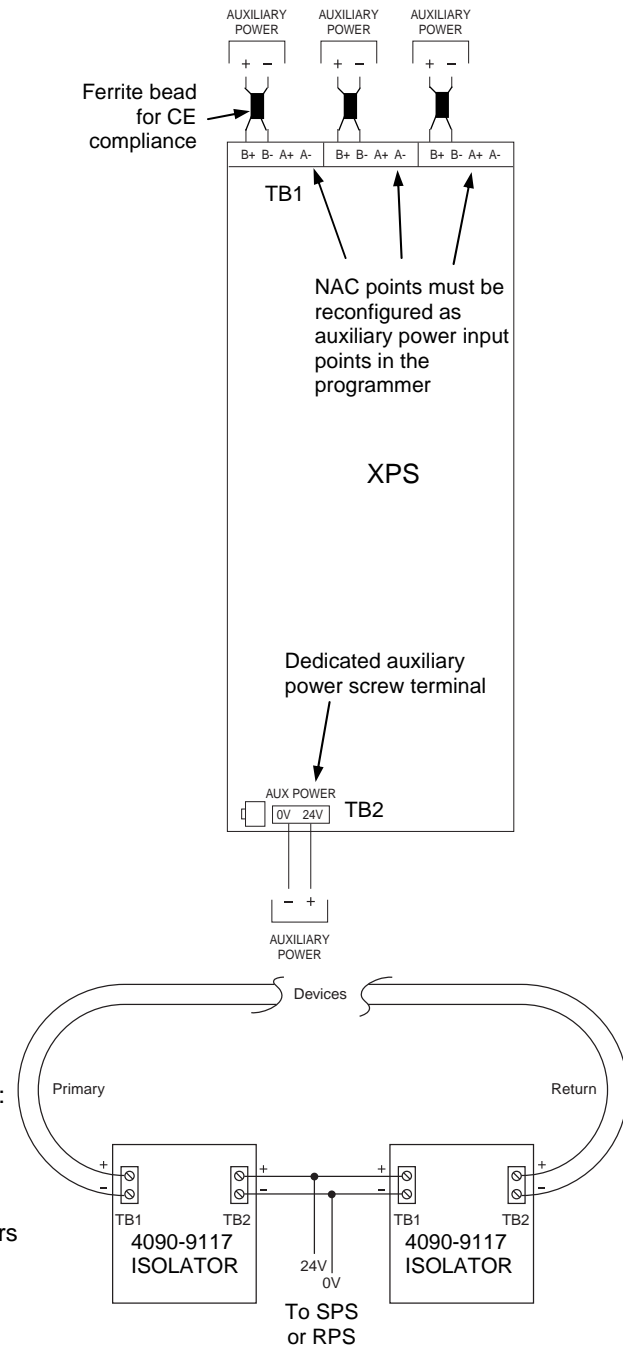
## Step 4. XPS Field Wiring, *Continued*

### Auxiliary Power Wiring

The XPS can receive auxiliary power appliances via the dedicated auxiliary power tap (TB2). If additional power is needed, any of the three NAC outputs can be used as auxiliary power inputs.

Figure 12, below, shows how the XPS should be wired for auxiliary power at any given terminal.

- All wiring is 18 AWG (0.8231 mm<sup>2</sup>) (minimum) to 12 AWG (3.309 mm<sup>2</sup>) (maximum).
- All wiring is power-limited.
- Auxiliary power may be taken from the dedicated auxiliary power tap or from an unused NAC.
- If auxiliary power is taken from NAC terminals, the NAC must be configured as an auxiliary power point type in the Panel Programmer.
- Programming may be required for dedicated auxiliary outputs.
- Remove end-of-line resistors from circuits used for auxiliary power.
- External wiring is not supervised unless an end-of-line relay is wired coil to auxiliary power, and Normally Open contacts are monitored by a system power point. Relay current must be considered as part of the load.
- All wiring that leaves the building requires overvoltage protection. Install module 2081-9044 (3 A) or 2081-9028 (¼ A) inside a UL Listed electrical box wherever wire enters or exits the building. A maximum of four 2081-9044 Modules may be connected to one channel. When using the 2081-9044, the maximum alarm current is reduced to ¼ A for that part of the circuit downstream of the module.
- CE compliant systems require ferrite beads. Use kit 4100-5129.
- All auxiliary power taps are rated at 2 A. The total auxiliary power current available is 5 A. The overall total current available is 9 A, including NAC, auxiliary, and card power. Current used for card power by modules plugged into the PDI, and an current from aux. 24 V, must be deducted from the 9 A available current.
- Voltage rating: 24 VDC (nominal), 2 V P-P ripple (maximum). The following devices connect to 2 A aux power:
  - 2088-series relays and door holders
  - 2098-series four-wire smoke detectors
  - 2190-series monitor and signal ZAMs
  - 4090-series IDNet ZAMs
  - 4098-series four-wire smoke detectors and duct detectors
  - 2190-9039 Printer
  - 4190-9050/9051 4-20 mA ZAMs
  - 4603-9101 LCD Annunciator
- Resettable 24 V is obtained from any aux power point by programming the point as type "resettable 24 V". Refer to the Programming Manual for details.



Class A aux power wiring requires the use of 4090-9117 IDNet Power Isolators, as shown above.

**Figure 12. Auxiliary Power Wiring**

## Step 5. Installing the XNAC

### Overview

The 4100-5115 Expansion NAC Module (XNAC) is an option board that provides three NACs in addition to the three NACs already on the XPS. The XNAC plugs onto the XPS.

If you are not installing an XNAC, skip this section and continue on to “Step 6: Troubleshooting.”

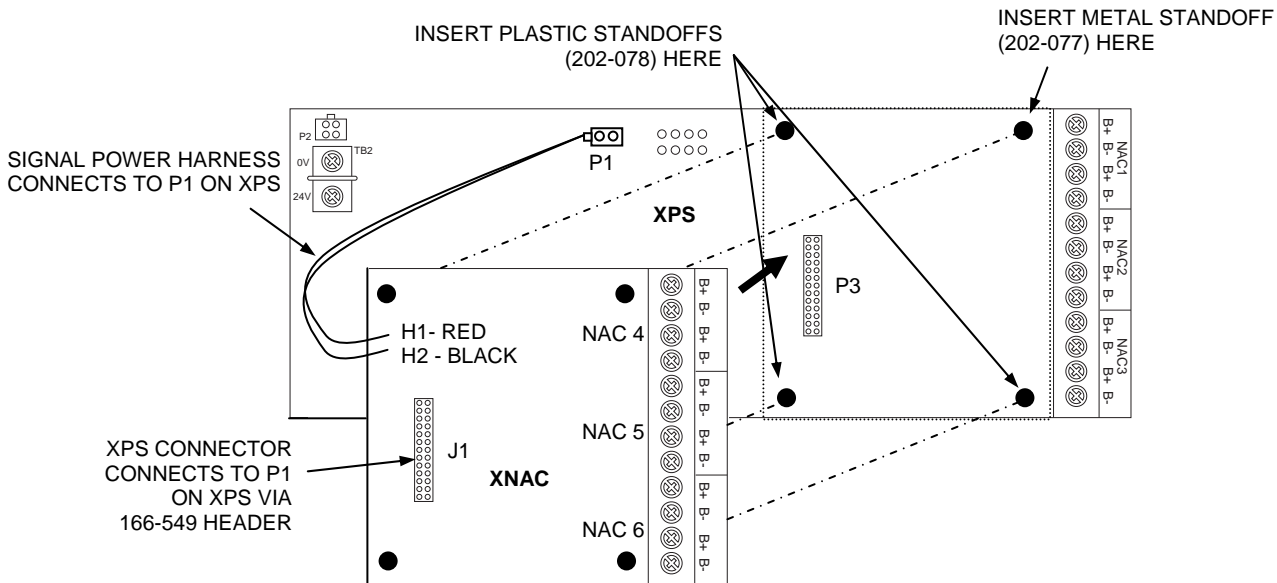
### The XNAC

The XNAC has three NACs, each rated at 3 A. As on the XPS, there is one status LED for each NAC.

### Mounting the XNAC

The XNAC mounts to the top of the XPS as shown in the instructions and Figure 13, below.

**Note:** The XNAC cannot be installed on an XPS that is mounted to a 4100-2301 Expansion Bay that is used in a non-4100U/4100ES back box (a back box with PID series 2975-91 xx).



**Figure 13. Mounting the XNAC**

1. Insert plastic standoffs (202-078) and a metal standoff (202-077) to the XPS as shown in Figure 12.
2. Plug J1 on the XNAC into P3 on the XPS using a header (166-549). The holes on the edges of the XNAC should be aligned with the tops of the standoffs.
3. Secure the XNAC to the standoffs using four screws.
4. Connect the XNAC’s signal power harness to P1 on the XPS.

### Wiring the XNAC

The XNAC uses the same wiring rules as TB1 on the XPS. Refer to “Step 4. XPS Field Wiring” to wire the XNAC to notification appliances. Note that the XNAC cannot be used for auxiliary power.

## Step 6. Troubleshooting

---

**Overview**

This section describes the messages that may appear on the 4100 display when using the XPS. Trouble messages appear on the left as titles, and possible causes are listed to the right in the text.

---

**No Communications with Master**

For communications to work, the XPS requires a 0V connection to the PDM. Be sure to attach a fast-on connector to the PC board and also ensure that the fuse in the black battery lead is intact.

---

**AC Power Loss**

Voltage has fallen below an acceptable level. A problem may exist in the wiring, in the power distribution module, or into dedicated AC power.

---

**Battery Not Connected/  
Battery Depleted**

The battery is not connected or is depleted. The precise status of the battery is given by the SPS. These modules report "Low Battery." This trouble is merely to indicate a wiring problem to the XPS (blown fuse, not connected, etc.).

---

**Expansion NAC Card Configuration Mismatch**

Either the XNAC card is missing even though the XPS was configured to have one, or there is an unconfigured XNAC card physically installed.

---

**NAC Miswired Trouble**

This Trouble is active when a NAC-to-NAC short is detected. The NACs that are shorted are also indicated. Any combination of NACs 1 through 6 can be miswired together. The panel displays up to 4 mis-wiring faults.

# Connecting Additional Power to Motherboards

The XPS can be used to supply motherboards with an additional 24 V. Use Figure 14, below, to connect 24 V from the XPS to motherboards in the system.

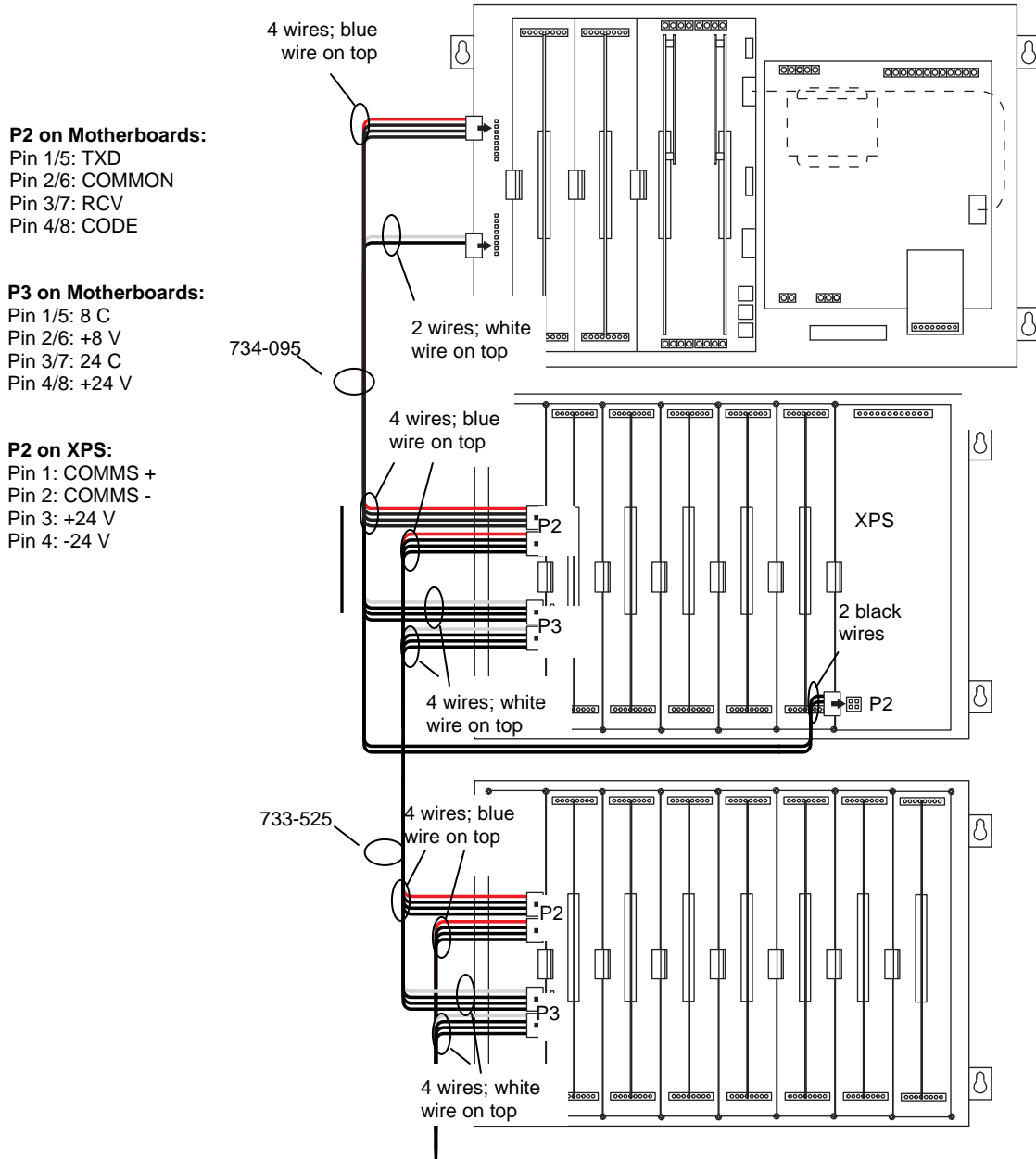


Figure 14. Additional 24 V Power Wiring

**Table 5****Table 5. Special Application NAC Compatible Notification Appliances & Accessories**

<b>P/N</b>	<b>DESCRIPTION</b>
4904-9168	V/O 15CD RED FREE-RUN TNA
4904-9171	V/O 15CD WHITE FREE-RUN TNA
4904-9176	V/O 24VDC 15CD RED VER F/S
4904-9177	V/O 24VDC 15CD WHT VER F/S
4904-9178	V/O 24VDC 15CD RED HORIZ F/S
4904-9183	V/O 24VDC 15CD RED CEIL F/S
4904-9331	V/O 15CD RED SYNC TNA
4904-9342	V/O 15CD WHITE SYNC TNA
4904-9345	V/O 24VDC 15CD WHT PLAIN F/S
4904-9174	V/O 24VDC 30CD RED VER F/S
4904-9180	V/O 24VDC 30CD RED HORIZ F/S
4904-9184	V/O 24VDC 30CD RED CEIL F/S
4904-9346	V/O 24VDC 30CD WHT PLAIN F/S
4904-9169	V/O 75CD RED FREE-RUN TNA
4904-9172	V/O 75CD WHITE FREE-RUN TNA
4904-9332	V/O 75CD RED SYNC TNA
4904-9343	V/O 75CD WHITE SYNC TNA
4904-9170	V/O 110CD RED FREE-RUN TNA
4904-9173	V/O 110CD WHITE FREE-RUN TNA
4904-9175	V/O 24VDC 110CD RED VER F/S
4904-9181	V/O 24VDC 110CD WHT VER F/S
4904-9182	V/O 24VDC 110CD RED HOR F/S
4904-9185	V/O 24VDC 110CD RED CEIL F/S
4904-9333	V/O 110CD RED SYNC TNA
4904-9344	V/O 110CD WHITE SYNC TNA
4906-9101	V/O 15/30/75/110cd W/M RED TNA
4906-9103	V/O 15/30/75/110cd W/M WHT TNA
4906-9102	V/O 15/30/75/110cd C/M RED TNA
4906-9104	V/O 15/30/75/110cd C/M WHT TNA
4906-9105	V/O WEATHERPROOF W/M RED
4906-9106	V/O WEATHERPROOF W/M WHT
4906-9113	V/O WEATHERPROOF W/M (CAN) RED
4906-9109	HiCandela W/M V/O, RED
4906-9110	HiCandela C/M V/O, WHITE
4906-9111	HiCandela W/M V/O, WHITE
4906-9112	HiCandela C/M V/O, RED

*Continued on next page*

**Table 5, continued**

<b>P/N (cont)</b>	<b>DESCRIPTION(cont)</b>
4903-9356	S/V 15CD RED 25/70V TNA
4903-9359	S/V 15CD WHITE 25/70V TNA
4903-9150	S/V 24VDC 15CD RED HORIZ F/S
4903-9153	S/V 24VDC 15CD RED VER F/S
4903-9193	S/V 24VDC 15CD WHT HORIZ F/S
4903-9196	S/V15CD RND
4903-9148	S/V 24VDC 30CD RED HORIZ F/S
4903-9194	S/V 24VDC 30CD WHT HORIZ F/S
4903-9197	S/V, 30CD, RND TNA
4903-9357	S/V 75CD RED 25/70V TNA
4903-9360	S/V 75CD WHITE 25/70V TNA
4903-9358	S/V 110CD RED 25/70V TNA
4903-9361	S/V 110CD WHITE 25/70V TNA
4903-9198	S/V 110CD, RND TNA
4906-9151	S/V 15/30/75/110cd W/M RED TNA
4906-9153	S/V 15/30/75/110cd W/M WHT TNA
4906-9154	S/V 15/30/75/110cd C/M WHT TNA
4901-9820	HORN 24VDC RED TNA
4901-9822	HORN 24VDC RED
4009-9201	NAC EXTENDER 120VAC, IDNET
4009-9301	NAC EXTENDER, 240VAC, IDNET
4009-9401	4009 T/A ADDR CONTROLLER
4903-9252	A/V 24VDC 15CD RED HOR F/S
4903-9253	A/V 24VDC 30CD RED HOR F/S
4903-9254	A/V 24V 110CD RED HOR F/S
4903-9255	A/V 24VDC 15CD RED VER F/S

*Continued on next page*



**Table 5, continued**

<b>P/N (cont)</b>	<b>DESCRIPTION (cont)</b>
4903-9256	A/V 24V 110CD RED VER F/S
4903-9257	A/V 24VDC 15CD WHT HOR F/S
4903-9258	A/V 24VDC 30CD WHT HOR F/S
4903-9417	A/V 15CD RED SYNC TNA
4903-9418	A/V 75CD RED SYNC TNA
4903-9419	A/V 110CD RED SYNC TNA
4903-9425	A/V 15CD RED STD TNA
4903-9426	A/V 75CD RED STD TNA
4903-9427	A/V 110CD RED STD TNA
4903-9428	A/V 15CD WHITE SYNC TNA
4903-9429	A/V 75CD WHITE SYNC TNA
4903-9430	A/V 110CD WHITE SYNC TNA
4903-9431	A/V 15CD WHITE STD TNA
4903-9432	A/V 75CD WHITE STD TNA
4903-9433	A/V 110CD WHITE STD TNA
4906-9127	A/V 15/30/75/110cd W/M RED
4906-9129	A/V 15/30/75/110cd W/M WHT
4906-9128	A/V 15/30/75/110cd C/M RED
4906-9130	A/V 15/30/75/110cd C/M WHT
4906-9131	A/V WEATHERPROOF W/M RED
4906-9132	A/V WEATHERPROOF W/M WHT
4906-9143	A/V WEATHERPROOF W/M (CAN) RED
4906-9139	HiCandela W/M A/V, RED
4906-9140	HiCandela C/M A/V, RED
4906-9141	HiCandela W/M A/V, WHITE
4906-9142	HiCandela C/M A/V, WHITE
4905-9815	SMARTSYNC ADAPTER, TNA
4905-9938	SMARTSYNC CTL MODULE
4090-9005	SRP
4090-9006	SRP w/ENCLOSURE

**Table 6****Table 6. Cooper Wheelock appliances**

COOPER WHEELOCK APPLIANCES Compatible with 4100U/4100ES XPS Wheelock Protocol for Special Applications	
SYNCHRONIZING HORN STROBES	
AS-241575W	AS Series Horn Strobe. 24V, 15/75Cd, Wall Mount
AS-24MCW	AS Series Horn Strobe. 24V, Multi-Cd, Wall Mount
AS-24MCC	AS Series Horn Strobe. 24V, Multi-Cd, Ceiling Mount
AS-24MCWH	AS Series Horn Strobe. 24V, Multi-High-Cd, Wall Mount
AS-24MCCH	AS Series Horn Strobe. 24V, Multi-High-Cd, Ceiling Mount
ASWP-2475W, ASWP-2475C	AS Series WP Horn Strobe. 24V, 30Cd, Wall or Ceiling Mount
ASWP-24MCWH	AS Series WP Horn Strobe. 24V, Multi-High-Cd, Wall Mount
ASWP-24MCCH	AS Series WP Horn Strobe. 24V, Multi-High-Cd, Ceiling Mount
ASA-24MCW, ASB-24MCW	AS Series Horn Strobe. 24V, Multi-Cd, Wall Mount. Amber/Blue
ASA-24MCC, ASB-24MCC	AS Series Horn Strobe. 24V, Multi-Cd, Ceiling Mount. Amber/Blue
HS4-241575W	HS4 Series Horn Strobe. 24V, 15/75Cd, Wall Mount
HS4-24MCW	HS4 Series Horn Strobe. 24V, Multi-Cd, Wall Mount
HS4-24MCWH	HS4 Series Horn Strobe. 24V, Multi-High-Cd, Wall Mount
HS4-24MCC	HS4 Series Horn Strobe. 24V, Multi-Cd, Ceiling Mount
HSR	HN STR, Red, 2-Wire, Wall, 12/24V, 3dB, 8Cd, 5Mount
HSW	HN STR, White, 2-Wire, Wall, 12/24V, 3dB, 8Cd, 5Mount
HSRS	HN STR, Silver Red, 2-Wire, Wall, 12/24V, 3dB, 8Cd, 5Mount
HSWS	HN STR, Silver White, 2-Wire, Wall, 12/24V, 3dB, 8Cd, 5Mount
HSRC	HN STR, Red, 2-Wire, Ceiling Mount, 12/24V, 3dB, 8Cd, 5Mount
HSWC	HN STR, White, 2-Wire, Ceiling Mount, 12/24V, 3dB, 8Cd, 5Mount
HSRCS	HN STR, Silver Red, 2-Wire, Ceiling Mount, 12/24V, 3dB, 8Cd, 5Mount
HSWCS	HN STR, Silver White, 2-Wire, Ceiling Mount, 12/24V, 3dB, 8Cd, 5Mount
NS-241575W	NS Series Horn Strobe. 24V, 15/75Cd, Wall Mount
NS-24MCW	NS Series Horn Strobe. 24V, Multi-Cd, Wall Mount
NS-24MCC	NS Series Horn Strobe. 24V, Multi-Cd, Ceiling Mount
NS-24MCCH	NS Series Horn Strobe. 24V, Multi-High-Cd, Ceiling Mount
ZNS-MCW	ZNS Series Horn Strobe. 24V, Multi-Cd, Wall Mount
ZNS-MCWH	ZNS Series Horn Strobe. 24V, Multi-High-Cd, Wall Mount
ZNS-24MCC	ZNS Series Horn Strobe. 24V, Multi-Cd, Ceiling Mount
ZNS-24MCCH	ZNS Series Horn Strobe. 24V, Multi-High-Cd, Ceiling Mount
SYNCHRONIZING STROBES	
RSS-241575W	RSS Series Strobe. 24V, 15/75Cd, Wall Mount
RSSP-241575W	RSSP Series Strobe. 12V or 24V, 15/75Cd, Wall Mount
RSS-24MCW, RSSP-24MCW	RSS/RSSP Series Strobe. 24V, Multi-Cd, Wall Mount
RSS-24MCWH, RSSP-24MCWH	RSS/RSSP Series Strobe. 24V, Multi-High-Cd, Wall Mount
RSS-24MCC, RSS-24MCCR	RSS Series Strobe. 24V, Multi-Cd, Ceiling Mount (R=Round)
RSS-24MCCH, RSS-24MCCHR	RSS Series Strobe. 24V, Multi-High-Cd, Ceiling Mount (R=Round)
RSSR-2415W, RSSR-2415C	RSS Series Strobe. 24V, 15Cd, Red, Wall or Ceiling Mount
RSSR-2475W, RSSR-2475C	RSS Series Strobe. 24V, 75Cd, Red, Wall or Ceiling Mount
RSSR-24110C	RSS Series Strobe. 24V, 110Cd, Red, Ceiling Mount
RSSA-24110W, RSSB-24110W,	
RSSG-24110W, RSSR-24110W	RSS Series Strobe. 24V, 110Cd, Wall Mount. Amber/Blue/Green/Red.

*Continued on next page*

**Table 6, continued**

RSSA-24MCC, RSSB-24MCC,	
RSSG-24MCC, RSSR-24MCC	RSS Series Strobe. 24V, Multi-Cd, Ceiling Mount. Amber/Blue/Green/Red.
RSSA-24MCCH, RSSB-24MCCH,	
RSSG-24MCCH, RSSR-24MCCH	RSS Series Strobe. 24V, Multi-High-Cd, Ceiling Mount. Amber/Blue/Green/Red.
RSSPA-24MCC	RSSP Series Strobe. 24V, Multi-Cd, Ceiling Mount. Amber
RSSWPA-2475W	RSS Series WP Strobe. 24V, Wall Mount. Amber
RSSWPA-24MCCH,	
RSSWPB-24MCCH,	
RSSWPG-24MCCH,	
RSSWPR-24MCCH	RSS Series WP Strobe. 24V, Multi-High-Cd, Ceiling Mount. Amber/Blue/Green/Red.
RSSWP-2475W, RSSWP-2475C	RSS Series WP Strobe. 24V, 30Cd, Wall or Ceiling Mount
RSSWP-24MCWH	RSS Series WP Strobe. 24V, Multi-High-Cd, Wall Mount
RSSWP-24MCCH	RSS Series WP Strobe. 24V, Multi-High-Cd, Ceiling Mount
STR	STR, Red, 2-Wire, Wall 12/24V, 8Cd, 5 Mount
STW	STR, White, 2-Wire, Wall 12/24V, 8Cd, 5 Mount
STRS	STR, Silver Red, 2-Wire, Wall 12/24V, 8Cd, 5 Mount
STWS	STR, Silver White, 2-Wire, Wall 12/24V, 8Cd, 5 Mount
STRC	STR, Red, 2-Wire, Ceiling Mount, 12/24V, 8Cd, 5 Mount
STWC	STR, White, 2-Wire, Ceiling Mount, 12/24V, 8Cd, 5 Mount
STRCS	STR, Silver Red, 2-Wire, Ceiling Mount, 12/24V, 8Cd, 5 Mount
STWCS	STR, Silver White, 2-Wire, Ceiling Mount, 12/24V, 8Cd, 5 Mount
ZRS-MCW	ZRS Series Strobe. 24V, Multi-Cd, Wall Mount
ZRS-MCWH	ZRS Series Strobe. 24V, Multi-High-Cd, Wall Mount
ZRS-24MCC	ZRS Series Strobe. 24V, Multi-Cd, Ceiling Mount
ZRS-24MCCH	ZRS Series Strobe. 24V, Multi-High-Cd, Ceiling Mount
APPLIANCES WITH SYNCHRONIZING STROBES	
(Only Strobe portion compatible with 4008 Wheelock Protocol for Special Applications)	
AMT-241575W,	
AMT-241575W-NYC	AMT Series Multi-Tone Horn Strobe. 24V, 15/75Cd, Wall Mount
AMT-24MCW	AMT Series Multi-Tone Horn Strobe. 24V, Multi-Cd, Wall Mount
MT-241575W	MT Series MT Horn Strobe. 24V, 15/75Cd, Wall Mount.
MT-24MCW	MT Series Multi-Tone Horn Strobe. 24V, Multi-Cd, Wall Mount
MTWP-2475W, MTWP-2475C	MTWP Series MT Horn Strobe. 24V, 30Cd, Wall or Ceiling Mount
MTWP-24MCWH	MTWP Series MT Horn Strobe. 24V, Multi-High-Cd, Wall Mount
MTWP-24MCCH	MTWP Series MT Horn Strobe. 24V, Multi-High-Cd, Ceiling Mount
MTWPA-2475W, MTWPB-2475W	
MTWPG-2475W, MTWPR-2475W	MTWP Series Multi-Tone Horn Strobe. 24V, Wall Mount. Amber/Blue/Green/Red
MTA-24MCCH, MTB-24MCCH,	
MTG-24MCCH, MTR-24MCCH	MT Series Multi-Tone Horn Strobe. 24V, Multi-High-Cd, Wall Mount. Amber/Blue/Green/Red

*Continued on next page*

**Table 6** *continued*

MTWPA-24MCCH,	
MTWPB-24MCCH,	
MTWPG-24MCCH,	
MTWPR-24MCCH	MTWP Series Multi-Tone Horn Strobe. 24V, Multi-High-Cd, Wall Mount. Amber/Blue/Green/Red
ET70WP-2475W, ET70WP-2475C	ET70WP Series Speaker Strobe. 24V, 30Cd, Wall or Ceiling Mount
ET70WP-24185W	ET70WP Series Speaker Strobe. 24V, 185Cd, Wall Mount
ET70WP-24177C	ET70WP Series Speaker Strobe. 24V, 177Cd, Ceiling Mount
ET70WPA-2475	ET70WP Series Speaker Strobe. 24V, Wall or Ceiling Mt. Amber
CH70-241575W	CH70 Series Chime Strobe. 24V, 15/75Cd, Wall Mount
CH70-24MCW	CH70 Series Chime Strobe. 24V, Multi-Cd, Wall Mount
CH90-24MCC	CH90 Series Chime Strobe. 24V, Multi-Cd, Ceiling Mount
CH70-24MCWH	CH70 Series Chime Strobe. 24V, Multi-High-Cd, Wall Mount
CH90-24MCCH	CH90 Series Chime Strobe. 24V, Multi-High-Cd, Ceiling Mount
E50-241575W	E50 Series Speaker Strobe. 24V, 15/75Cd, Wall Mount
E50-24MCW	E50 Series Speaker Strobe. 24V, Multi-Cd, Wall Mount
E50-24MCWH	E50 Series Speaker Strobe. 24V, Multi-High-Cd, Wall Mount
E50A-24MCC, E50B-24MCC	E50 Series Speaker Strobe. 24V, Multi-Cd, Ceiling Mt. Amber/Blue
E60-24MCW	E60 Series Speaker Strobe. 24V, Multi-Cd, Wall Mount
E60-24MCWH	E60 Series Speaker Strobe. 24V, Multi-High-Cd, Wall Mount
E60-24MCC	E60 Series Speaker Strobe. 24V, Multi-Cd, Ceiling Mount
E60-24MCCH	E60 Series Speaker Strobe. 24V, Multi-High-Cd, Ceiling Mount
E70-241575W	E70 Series Speaker Strobe. 24V, 15/75Cd, Wall Mount
E70-24MCW	E70 Series Speaker Strobe. 24V, Multi-Cd, Wall Mount
E70-24MCWH	E70 Series Speaker Strobe. 24V, Multi-High-Cd, Wall Mount
E70-24MCC, E90-24MCC	E70/E90 Series Speaker Strobe. 24V, Multi-Cd, Ceiling Mount
E90-24MCCH	E90 Series Speaker Strobe. 24V, Multi-High-Cd, Ceiling Mount
E60A-24MCC, E70A-24MCC, E70B-24MCC, E90A-24MCC,	
E90B-24MCC	E60/E70/E90 Series Speaker Strobe. 24V, Multi-Cd, Ceiling Mount. Amber/Blue
ET70-241575W, ET90-241575W	ET70/ET90 Series Speaker Strobe. 24V, 15/75Cd, Wall Mount
ET70-24MCW	ET70 Series Speaker Strobe. 24V, Multi-Cd, Wall Mount
ET70-24MCWH	ET70 Series Speaker Strobe. 24V, Multi-High-Cd, Wall Mount
ET70-24MCC, ET90-24MCC	ET70/ET90 Series Speaker Strobe. 24V, Multi-Cd, Ceiling Mount

*Continued on next page*

**Table 6** *continued*

ET70WPG-2475, ET70WPG-2475	
ET70WPG-2475 , ET70WPB-247	
ET70WPG-2475W, ET70WPR-247 (Only Strobe portion compatible with 4008 Wheelock Protocol for Special Applications)	ET70WP Series Speaker Strobe. 24V, Wall or Ceiling Mt. Green, Blue, Red
ET90-24MCCH	ET90 Series Speaker Strobe. 24V, Multi-High-Cd, Ceiling Mount
ET80-241575W	ET80 Series Speaker Strobe. 24V, 15/75Cd, Wall Mount
ET80-24MCW	ET80 Series Speaker Strobe. 24V, Multi-Cd, Wall Mount
ET80-24MCWH	ET80 Series Speaker Strobe. 24V, Multi-High-Cd, Wall Mount
S8-24MCC	S8 Series Speaker Strobe. 24V, Multi-Cd, Ceiling Mount
S8-24MCCH	S8 Series Speaker Strobe. 24V, Multi-High-Cd, Ceiling Mount
SA-S70-24MCW	SA-S70 Series Amp-Speaker Strobe. 24V, Multi-Cd, Wall Mount
SA-S90-24MCC	SA-S90 Series Amp-Speaker Strobe. 24V, Multi-Cd, Ceiling Mount
<b>SYNCHRONIZING HORNS</b>	
AH-24	AH Series Horn. 24V
AH-24WP	AH Series Weatherproof Horn. 12V or 24V
HNR	Horn, Red, 2-Wire, Wall, 12/24V, 3dB, 5 Mount
HNW	Horn, White, 2-Wire, Wall, 12/24V, 3dB, 5 Mount
HNRS	Horn, Silver Red, 2-Wire, Wall, 12/24V, 3dB, 5 Mount
HNWS	Horn, Silver White, 2-Wire, Wall, 12/24V, 3dB, 5 Mount
HNRC	Horn, Red, 2-Wire, Ceiling Mount, 12/24V, 3dB, 5 Mount
HNWC	Horn, White, 2-Wire, Ceiling Mount, 12/24V, 3dB, 5 Mount
HNRCs	Horn, Silver Red, 2-Wire, Ceiling Mount, 12/24V, 3dB, 5 Mount
HNWCS	Horn, Silver White, 2-Wire, Ceiling Mount, 12/24V, 3dB, 5 Mount
HS-24	HS Series Horn. 24V
MIZ-24S	MIZ Series Horn. 24V
NH-12/24, NH-12/24R	NH Series Horn. 12/24V (R=Round)
ZNH	ZNH Series Horn. 12/24V
<b>CODED AUDIBLE APPLIANCES</b>	
AMT-12/24, AMT-12/24-NYC	AMT Series Multi-Tone Horn. 12/24V, Wall or Ceiling Mount
CH70, CH90	CH70/CH90 Series Chime. 24V, Wall or Ceiling Mount
CSX10-24-DC, CSXG10-24-DC	CSX Series Bell. 24V, Wall Mount
MT-12/24, MT4-12/24	MT Series Multi-Tone Horn. 12/24V, Wall or Ceiling Mount
<b>NON-SYNCHRONIZING APPLIANCES</b>	
MB-G6-24, MB-G10-24	MB Series Bell. 24V, Wall Mount

