## SEQUENCE OF OPERATIONS

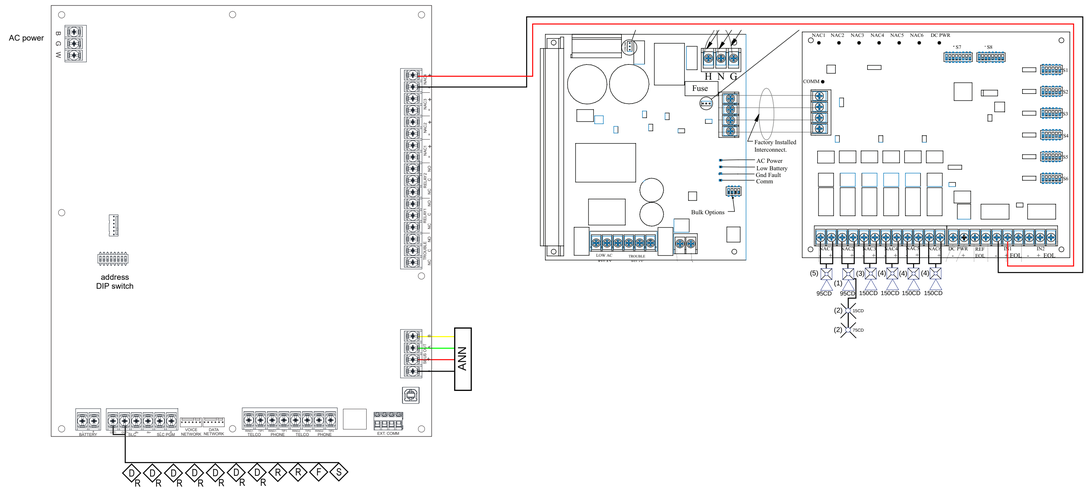
| FIRE ALARM SYSTEM MATRIX | BUILDING SYSTEM OUTPUTS | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | ACTUATE COMMON ALARM SIGNAL INDICATOR | ACTUATE AUDIBLE ALARM SYSTEM | ACTUATE COMMON SUPERVISORY SIGNAL INDICATOR | ACTUATE AUDIBLE SUPERVISORY SIGNAL | ACTUATE COMMON TROUBLE SIGNAL INDICATOR | ACTUATE AUDIBLE TROUBLE SIGNAL | ACTIVATE GENERAL EVACUATION SIGNAL | UNLOCK EXITS AND RELEASE DOOR HOLDERS | DISPLAY CHANGE OF STATUS | ACTIVATE EXTERNAL HORN/STROBE | TRANSMIT FIRE ALARM SIGNAL TO CENTRAL STATION | TRANSMIT SUPERVISORY SIGNAL TO CENTRAL STATION | TRANSMIT TROUBLE SIGNAL TO CENTRAL STATION | RETURN ELEVATOR TO 2ND FLOOR | RETURN ELEVATOR TO 1ST FLOOR |
| MANUAL FIRE ALARM PULL BOXES | X | X | | | | | X | X | X | X | X | | | | |
| AREA SMOKE AND CARBON MONOXIDE DETECTORS | X | X | | | | | X | X | X | X | X | | | | |
| BUILDING MULTI CRITERIA DETECTORS | X | X | | | | | X | X | X | X | X | | | | |
| DUCT SMOKE DETECTOR | | | X | X | | | X | | X | | | X | | | |
| FIRE ALARM A.C. POWER FAILURE | | | | | X | X | X | | X | | | | X | | |
| FIRE ALARM SYSTEM LOW BATTERY | | | | | X | X | X | | X | | | | X | | |
| OPEN CIRCUIT | | | | | X | X | X | | X | | | | X | | |
| GROUND FAULT | | | | | X | X | X | | X | | | | X | | |
| NOTIFICATION APPLIANCE CIRCUIT SHORT | | | | | X | X | | | X | | | | X | | |
| SPRINKLER WATER FLOW | X | X | | | | | X | | X | X | X | | | | |
| SPRINKLER TAMPER | | | X | X | | | X | | X | | | X | | | |
| | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | |

## *GENERAL NOTES*

1. WORK SHALL COMPLY WIH ALL APPLICABLE CODES.
2. AS BUILT DRAWINGS ALONG WITH ONE YEAR WARRANTY LETTER WILL BE FORWARDED TO THE APPROPRIATE PARTY UPON COMPLETION OF PROJECT.
3. 1" CONDUIT MUST BE PROVIED AT ALL NAC PANELS.
4. MINIMUM OF 1/2" SLEEVE MUST BE PROVIDED FOR ALL RTU 2000 CFM OR GREATER.

## FIRE ALARM SYMBOL LEGEND

| | | | |
|---|---|---|---|
| FACP | -FIRE ALARM CONTROL PANEL | H | -HEAT DETECTOR |
| NAC | -NAC PANEL | WF | -WATER FLOW MONITOR MODULE |
| | -CEILING MOUNT HORN-STROBE | T | -TAMPER MONITOR MODULE |
| | -CEILING MOUNT STROBE | DR | - RETURN DUCT DETECTOR |
| S | -PHOTO ELECTRIC SMOKE DETECOR. | R | -RELAY |
| P | -PULL-STATION | | -END OF LINE RESISTOR |
| ANN | -Remote Annunciator | MM | - MONITOR MODULE |




POTTER
The Symbol of Protection

***PSN-106***
***Battery & Voltage Drop Calculations***

| | | | |
|---|---|---|---|
| **Project Name:** | MIDWEST DISTRIBUTION | **Standby Hours:** | 24 |
| | | **Alarm Mins:** | 5 |
| **Installed By:** | APS | **Efficiency Factor:** | 20% |
| **Designed By:** | APS | | |
| **Date:** | 9/16/2023 | **NAC Source Voltage:** | 20.4 |
| **Model #:** | PSN-106 | **Max Panel Current (amps):** | 10 |
| **Panel ID:** | NAC | | |
| **Location:** | pump room | | |

*User assumes all responsibility to ensure the quantities and current draw values in this worksheet are accurate prior to submittal.*

| | Panel | | Standby (amps) | | Alarm (amps) | |
|---|---|---|---|---|---|---|
| Qty | Part # | Description | Each | Total | Each | Total |
| 1 | PSN-106 | NAC Power Expander | 0.075 | 0.075 | 0.075 | 0.075 |
| | | | **Panel Standby:** | **0.075** | **Panel Alarm:** | **0.075** |

| | NAC Circuits (See NAC Configuration below) | | | Standby (amps) | Alarm (amps) |
|---|---|---|---|---|---|
| Ckt | Use | Description | Class | Total | Total |
| 1 | Notification | CKT 1 | Class B | 0.00000 | 0.82000 |
| 2 | Notification | CKT 2 | Class B | 0.00000 | 0.46800 |
| 3 | Notification | CKT 3 | Class B | 0.00000 | 0.68400 |
| 4 | Unused | ckt 4 | Class B | 0.00000 | 0.91200 |
| 5 | Notification | CKT 5 | Class B | 0.00000 | 0.91200 |
| 6 | Notification | CKT 6 | Class B | 0.00000 | 0.91200 |
| AUX | | | | 0.00000 | 0.00000 |
| | | | **NAC Standby:** | **0.00000** | **NAC Alarm:** **4.70800** |

| Battery Calculation Summary | Standby (amps) | | Alarm (amps) |
|---|---|---|---|
| **Panel Current:** | 0.07500 | | 0.07500 |
| **NAC Circuit Current:** | 0.00000 | | 4.70800 |
| **Total Standby:** | **0.07500** | **Total Alarm:** | **4.78300** |
| **Standby Hours:** | 24 | **Alarm Mins:** | 5 |
| **AH Required:** | **1.80** | **AH Required:** | **0.40** |
| **Total Combined Standby & Alarm AmpHours Required:** | | | 2.20 |
| **Efficiency Factor:** | | | **20%** |
| **Required Battery AmpHours:** | | | **2.64** |
| **Battery AmpHours Provided:** | | | 7 |

POTTER

***NAC Circuit Configuration & Voltage Drop*** *MIDWEST DISTRIBUTION* *9/16/2023*

**NAC 1** MAX Circuit Current (amps): 3 Source Voltage Used (VDC): 20.4

**Class:** Class B **Usage:** Notification **Description:** CKT 1

| Wire Type | Ohms/1000ft | Length 1-Way | Actual Ohms | Max Load (amps) | Volts @ EOL | Min Volts Req'd |
|---|---|---|---|---|---|---|
| #14 Solid | 3.19 | 90 | 0.574 | 0.820 | 19.93 | 16 |

| | Circuit Devices | | Standby (amps) | | Alarm (amps) | |
|---|---|---|---|---|---|---|
| Qty | Lookup Type | Description | Each | Total | Each | Total |
| 5 | User Defined | SYSTEM SENSOR HORN-STROBE 95CD | 0.000000 | 0.000000 | 0.164000 | 0.820000 |
| | | | | **Total Standby:** | **0.00000** | **Total Alarm:** **0.82000** |

**NAC 2** MAX Circuit Current (amps): 3 Source Voltage Used (VDC): 20.4

**Class:** Class B **Usage:** Notification **Description:** CKT 2

| Wire Type | Ohms/1000ft | Length 1-Way | Actual Ohms | Max Load (amps) | Volts @ EOL | Min Volts Req'd |
|---|---|---|---|---|---|---|
| #14 Solid | 3.19 | 80 | 0.510 | 0.468 | 20.16 | 16 |

| | Circuit Devices | | Standby (amps) | | Alarm (amps) | |
|---|---|---|---|---|---|---|
| Qty | Lookup Type | Description | Each | Total | Each | Total |
| 2 | User Defined | SYSTEM SENSOR STROBE 15CD | 0.000000 | 0.000000 | 0.041000 | 0.082000 |
| 2 | User Defined | SYSTEM SENSOR STROBE 75CD | 0.000000 | 0.000000 | 0.111000 | 0.222000 |
| 1 | User Defined | SYSTEM SENSOR HORN-STROBE 95CD | 0.000000 | 0.000000 | 0.164000 | 0.164000 |
| | | | | **Total Standby:** | **0.00000** | **Total Alarm:** **0.46800** |

POTTER

***NAC Circuit Configuration & Voltage Drop (cont'd)*** *MIDWEST DISTRIBUTION* *9/16/2023*

**NAC 3** MAX Circuit Current (amps): 3 Source Voltage Used (VDC): 20.4

**Class:** Class B **Usage:** Notification **Description:** CKT 3

| Wire Type | Ohms/1000ft | Length 1-Way | Actual Ohms | Max Load (amps) | Volts @ EOL | Min Volts Req'd |
|---|---|---|---|---|---|---|
| #14 Solid | 3.19 | 200 | 1.276 | 0.684 | 19.53 | 16 |

| | Circuit Devices | | Standby (amps) | | Alarm (amps) | |
|---|---|---|---|---|---|---|
| Qty | Lookup Type | Description | Each | Total | Each | Total |
| 3 | User Defined | SYSTEM SENSOR HORN-STROBE 150CD | 0.000000 | 0.000000 | 0.228000 | 0.684000 |
| | | | | **Total Standby:** | **0.00000** | **Total Alarm:** **0.68400** |

**NAC 4** MAX Circuit Current (amps): 3 Source Voltage Used (VDC): 20.4

**Class:** Class B **Usage:** Unused **Description:** ckt 4

| Wire Type | Ohms/1000ft | Length 1-Way | Actual Ohms | Max Load (amps) | Volts @ EOL | Min Volts Req'd |
|---|---|---|---|---|---|---|
| #14 Solid | 3.19 | 185 | 1.180 | 0.912 | 19.32 | 16 |

| | Circuit Devices | | Standby (amps) | | Alarm (amps) | |
|---|---|---|---|---|---|---|
| Qty | Lookup Type | Description | Each | Total | Each | Total |
| 4 | User Defined | SYSTEM SENSOR HORN-STROBE 150CD | 0.000000 | 0.000000 | 0.228000 | 0.912000 |
| | | | | **Total Standby:** | **0.00000** | **Total Alarm:** **0.91200** |

POTTER

***NAC Circuit Configuration & Voltage Drop (cont'd)*** *MIDWEST DISTRIBUTION* *9/16/2023*

**NAC 5** MAX Circuit Current (amps): 3 Source Voltage Used (VDC): 20.4

**Class:** Class B **Usage:** Notification **Description:** CKT 5

| Wire Type | Ohms/1000ft | Length 1-Way | Actual Ohms | Max Load (amps) | Volts @ EOL | Min Volts Req'd |
|---|---|---|---|---|---|---|
| #14 Solid | 3.19 | 250 | 1.595 | 0.912 | 18.95 | 16 |

| | Circuit Devices | | Standby (amps) | | Alarm (amps) | |
|---|---|---|---|---|---|---|
| Qty | Lookup Type | Description | Each | Total | Each | Total |
| 4 | User Defined | SYSTEM SENSOR HORN-STROBE 150CD | 0.000000 | 0.000000 | 0.228000 | 0.912000 |
| | | User can add devices on the fly | | | | |
| | | to these bottom 5 rows | | | | |
| | | (No lookup function) | | | | |
| | | | | **Total Standby:** | **0.00000** | **Total Alarm:** **0.91200** |

**NAC 6** MAX Circuit Current (amps): 3 Source Voltage Used (VDC): 20.4

**Class:** Class B **Usage:** Notification **Description:** CKT 6

| Wire Type | Ohms/1000ft | Length 1-Way | Actual Ohms | Max Load (amps) | Volts @ EOL | Min Volts Req'd |
|---|---|---|---|---|---|---|
| #14 Solid | 3.19 | 285 | 1.818 | 0.912 | 18.74 | 16 |

| | Circuit Devices | | Standby (amps) | | Alarm (amps) | |
|---|---|---|---|---|---|---|
| Qty | Lookup Type | Description | Each | Total | Each | Total |
| 4 | User Defined | SYSTEM SENSOR HORN-STROBE 150CD | 0.000000 | 0.000000 | 0.228000 | 0.912000 |
| | | User can add devices on the fly | | | | |
| | | to these bottom 5 rows | | | | |
| | | (No lookup function) | | | | |
| | | | | **Total Standby:** | **0.00000** | **Total Alarm:** **0.91200** |

**AUX Power** MAX Circuit Current (amps): 3 Source Voltage Used (VDC): 20.4

**Usage:** **Description:**

| Wire Type | Ohms/1000ft | Length 1-Way | Actual Ohms | Max Load (amps) | Volts @ Last Device | Min Volts Req'd |
|---|---|---|---|---|---|---|
| #12 Solid | 2.01 | | 0.000 | 0.000 | 20.40 | 16 |

| | Circuit Devices | | Standby (amps) | | Alarm (amps) | |
|---|---|---|---|---|---|---|
| Qty | Lookup Type | Description | Each | Total | Each | Total |
| | | User can add devices on the fly | | | | |
| | | to these bottom 5 rows | | | | |
| | | (No lookup function) | | | | |


ANOTHER PROBLEM SOLVED – Est 2007 – UL LISTED

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E:tanastasio@apsinstallations.com
Spring Hill, Ks

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ARCHITECTURE
5719 LAWTON LOOP E. DR. #212
INDIANAPOLIS, IN 46216
O :: 317 . 288 . 0681
F :: 317 . 288 . 0753

SCANNELL PROPERTIES


CERTIFICATION



PROJECT INFORMATION

LEE'S SUMMIT LOGISTICS BUILDING B LOT 2

X CORNER OF
NE TUDOR RD & MAIN ST
LEE'S SUMMIT, MO 64086

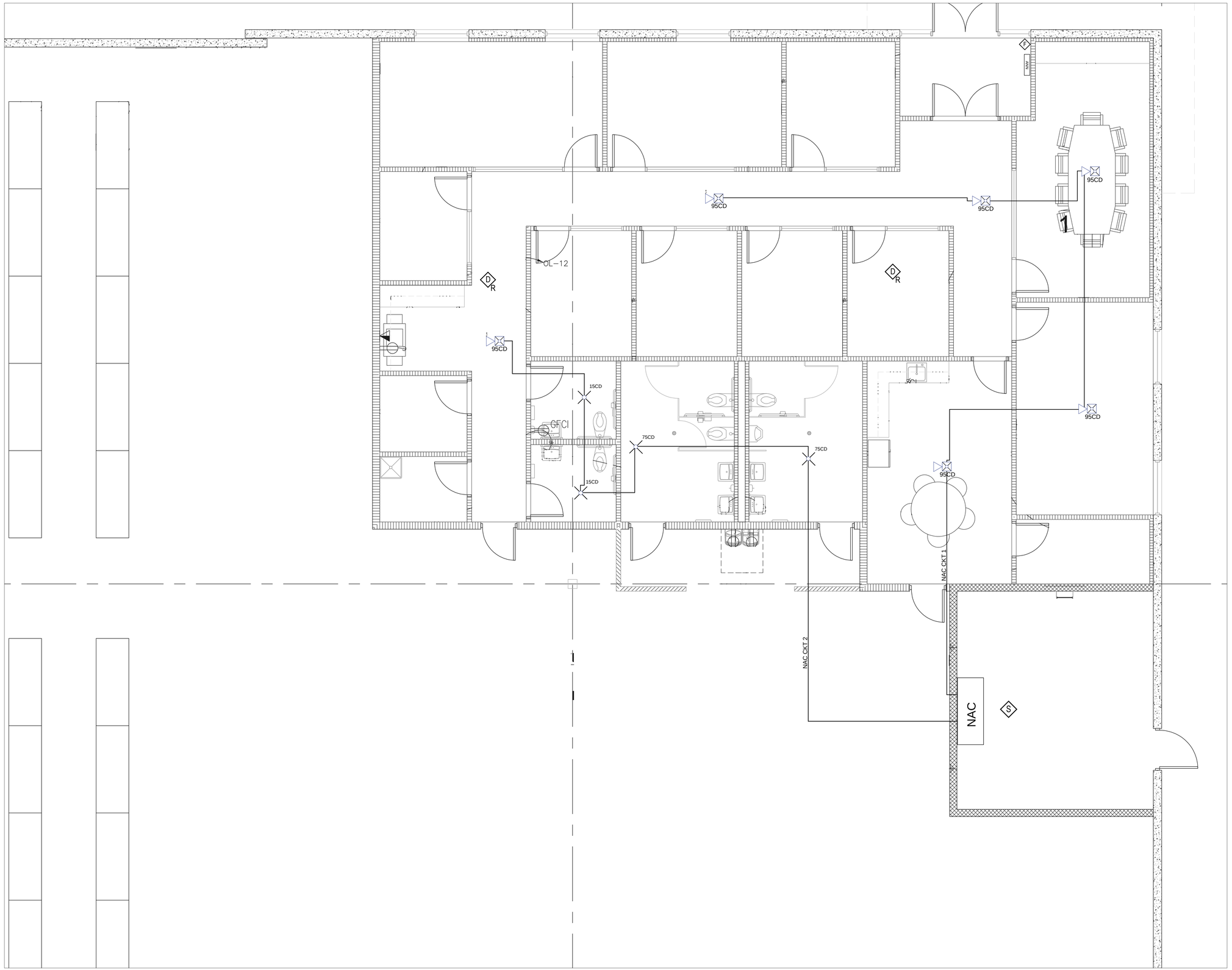
STATE OF MISSOURI – JOHN WILLIAM CARD – NUMBER E-14378 – PROFESSIONAL ENGINEER – 9/18/23

ISSUE DATES

| | |
|---|---|
| PERMIT SET | 08.29.23 |

220018
GENERAL INFORMATION

**FA.00**




1 OFFICE FIRE ALARM LAYOUT
1/4" = 1'


ANOTHER PROBLEM SOLVED
EST 2007
UL LISTED

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SCANNELL
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PROJECT INFORMATION

LEE'S SUMMIT LOGISTICS
BUILDING B LOT 2

X CORNER OF
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LEE'S SUMMIT, MO 64086

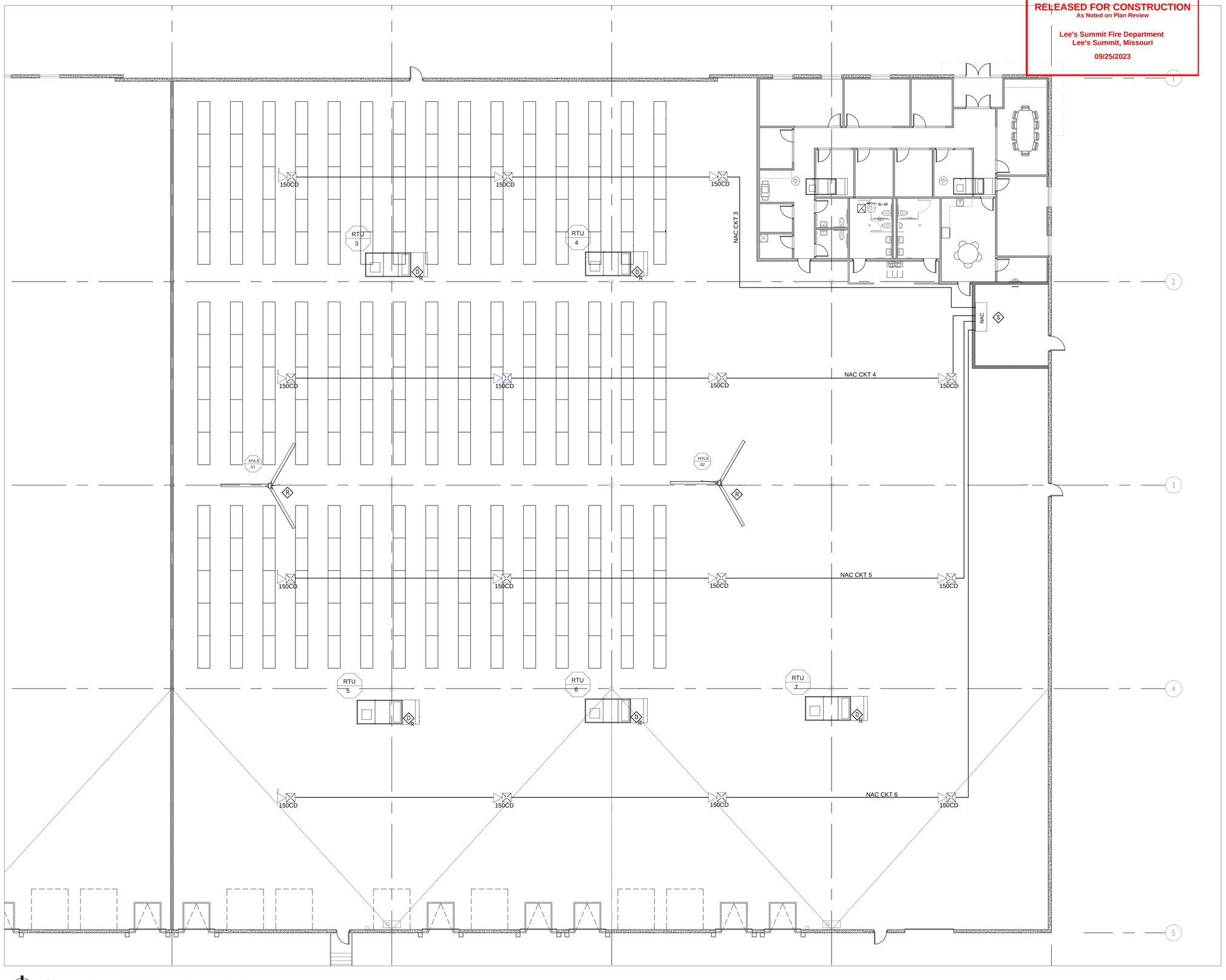
STATE OF MISSOURI
JOHN WILLIAM CASBARRO
NUMBER E-14378
PROFESSIONAL ENGINEER
9/18/23

ISSUE DATES

| | |
|---|---|
| PERMIT SET | 08.29.23 |

220018
OFFICE FIRE ALARM LAYOUT

**FA.01**




1 WAREHOUSE FIRE ALARM LAYOUT
3/32" = 1'

**RELEASED FOR CONSTRUCTION**
As Noted on Plan Review

Lee's Summit Fire Department
Lee's Summit, Missouri

09/25/2023


ANOTHER PROBLEM SOLVED
Est 2007 · UL LISTED

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SCANNELL
PROPERTIES


CERTIFICATION



PROJECT INFORMATION

LEE'S SUMMIT LOGISTICS
BUILDING B LOT 2

X CORNER OF
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LEE'S SUMMIT, MO 64086

STATE OF MISSOURI · JOHN WILLIAM CASBERGUE · NUMBER E-14374 · PROFESSIONAL ENGINEER
9/17/23

ISSUE DATES

| | |
|---|---|
| PERMIT SET | 08.29.23 |

220018

WAREHOUSE FIRE ALARM LAYOUT

**FA.02**

# Submittal Catalog

For

## LEE'S SUMMIT LOGISTICS
## BUILDING B LOT 2

X CORNER OF
NE TUDOR RD & MAIN ST
LEE'S SUMMIT, MO 64086

Prepared By:


19430 W 200th Terr, Spring Hill, Ks 66083

Tel: 816-918-9917

# Table of Contents

# 6808

## Addressable Fire Alarm Control Panel

The 6808 is an addressable fire alarm control panel (FACP) that is a direct replacement for the 5808 FACP. The 6808 can be configured to achieve a point capacity of 198 points. It has one built-in signaling line circuit (SLC), which can support 99 System Sensor® (SK) sensors and 99 SK modules or 127 Hochiki® (SD) devices per loop.

A common communications and annunciation link allows up to 17 panels to be connected via copper or fiber optic cable. A designated panel is configured as the communicator for all panels in the link for convenient single-point communications. It also has a built-in, dual-line POTS and IP communicator with additional cellular options available.

The 6808 system can be enhanced by adding modules such as the 6860 remote annunciator which also has four programmable function buttons to help automate tasks and reduce time spent at the panel.

SWIFT® wireless compatibility provides options for wireless detection through a Class A mesh network. It is ideal for hard-to-wire locations, buildings where new wiring is not allowed, or to provide an easy install fire system for new construction projects. SWIFT devices can be combined with other hard-wired 6808 compatible devices.

The 6808 also has a form-C trouble relay, two programmable form-C relays, along with powerful features such as drift compensation, pre-trouble maintenance alert, a built-in sensor test to comply with NFPA 72 calibration testing requirements, and calibration trouble alert.

*6808*

The supports a variety of devices, including the 6860, 5860, and 6855 remote annunciators, 5824 serial parallel printer interface module (for printing system reports), the 5496 NAC expander, 5895XL power module, and SK or SD devices.

## FEATURES & BENEFITS

- Capable of providing up to 198 points to satisfy smaller installation needs
- Connect up to 17 panels on one site with convenient single-point access using the SK-NIC Network Interface Card. Connected panels can have mixed compatible FACP models
- Convenient field-upgradeable firmware
- Built-in dual path POTS and IP communications with optional cellular models available for reliable backup reporting
- 6860 annunciator with a 4 x 40 large display
- Four user-programmable buttons minimize time spent executing complex or routine tasks
- Built-in USB interface for convenient and quick programming
- Programmable date setting for automatic and convenient Daylight Saving Time changes
- JumpStart® auto programming reduces installation time
- 125 software zones and 125 output groups for flexible design options

### SIGNAL LINE CIRCUIT (SLC)

The 6808 SLC loop supports multiple device types, maintenance alerts, and a built-in sensor test to comply with NFPA 72 calibration testing requirements.

### INDICATOR LIGHTS

- **General Alarm (Red)**: Flashes if in alarm; solid when alarm is silenced
- **Supervisory (Yellow):** Flashes if a supervisory condition exists; solid when supervisory is silenced
- **System Troubles (Yellow)**: Flashes if a trouble condition exists; solid when trouble is silenced
- **System Silenced (Yellow)**: On when an alarm, trouble or supervisory condition has been silenced but not yet cleared
- **System Power (Green):** Flashes for AC failure; solid when power systems are normal

### USER INTERFACE

The 6808 built-in 4 x 20 annunciator with 80 character LCD display and large easy-to-use tactile touchpad can be used for system operation, programming and maintenance. It has five LEDs for alarm, supervisory, system trouble, system silenced and system power.

System operations include silencing alarms and troubles, resetting alarms and the display of alarm troubles and memory. The system's non-volatile event history buffer stores 1,000 events for viewing from the built-in or remote annunciator. System operations can be initiated with a mechanical firefighter's key or a valid 4- to 7-digit operator's code.

### PROGRAMMING

The 6808 system offers several options to simplify and speed-up programming. JumpStart® auto programming minimizes programming required to start a new system. The built-in keypad, or the 6860, 5860 or 6855 remote annunciators give you on-site access to current system programming. Programming can also be accomplished using the Windows®-based Honeywell Fire Software Suite (HFSS) program.

### SOFTWARE TOOLS

**SKST:** Silent Knight Selection Tool provides the installer or design architect with a Windows® software system configuration tool to create a detailed Bill of Material (BOM) and battery calculations.

**HFSS:** Honeywell Fire Software Suite provides communication and panel programming, detector status, event history and additional data. Requires a PC running Microsoft® Windows®.

### ADDITIONAL INFORMATION

Twisted-unshielded pair wire is recommended.

The 6808 also has 13 preset notification cadence patterns (including ANSI 3.41).

### AGENCY LISTINGS AND APPROVALS

**NPFA 13, NFPA 15, NFPA 16, NFPA 70, NFPA 72:** Central station; remote Signaling; Local Protective Signaling Systems; Auxiliary Protected Premises Unit; Water Deluge releasing service. Suitable for automatic, manual, waterflow, sprinkler supervisory (DACT non-coded) signaling services

- **UL Listed:** S2766
- **CSFM:** 7165-0559:0502
- **FDNY:** COA# 6246
- **FM** approved

### ORDERING INFORMATION

6808: Addressable Fire Alarm Control Panel. (Red cabinet).

### COMPATIBLE ANNUNCIATORS

**6860:** 4x40 LCD remote fire annunciator (4 lines and up to 160 characters) per system; four programmable buttons

**5860:** 4x20 LCD remote fire annunciator. 5860 is gray; 5860R is red

**6855:** 4x20 LCD remote fire annunciator

**5865-3 or 5865-4:** LED annunciators can display up to 30 LEDs (15 red and 15 yellow). The 5865-4 has key switches for silence and reset, and a system trouble LED.

**5880:** LED / IO module has 40 programmable LED outputs and eight supervised dry contact inputs which are useful for custom applications. You can use up to eight 5880 modules on one control panel for maximum flexibility. Its compact size allows mounting inside the annunciator, or in an accessory cabinet.

### 6808 COMPATIBLE DEVICES AND ACCESSORIES

See the data sheets listed below for a complete listing of the SK, SD or SWIFT devices.
53623: SK Devices Data Sheet
53624: SD Devices Data Sheet
350614, 350616 & 350618: SWIFT wireless devices
For a complete and current listing of compatible devices and accessories, visit **www.silentknight.com.**
**Important:** You cannot mix SK and SD devices in the same fire alarm system.

## SK COMPATIBLE ADDRESSABLE DEVICES

**SK-ACCLIMATE:** Multi criteria photoelectric smoke detector with thermal 135°F fixed temperature

**SK-BEAM:** Reflected beam smoke detector without test feature

**SK-BEAM-T:** Reflected beam smoke detector with test feature

**SK-CONTROL:** Supervised control module

**SK-CONTROL-6:** Six circuit supervised control module

**SK-DUCT:** Photoelectric duct smoke detector with extended air speed range

**SK-FIRE-CO:** Four criteria fire and carbon monoxide detector

**SK-HEAT:** Fixed thermal detector (135°F)

**SK-HEAT-W:** Fixed thermal detector (135°F), white

**SK-HEAT-ROR:** Fixed rate of rise detector (135°F)

**SK-HEAT-ROR-W:** Fixed rate of rise detector (135°F), white

**SK-HEAT-HT:** Fixed high temperature thermal detector (190°F)

**SK-HEAT-HT-W:** Fixed high temperature thermal detector (190°F), white

**SK-ISO:** Fault isolator module

**SK-MINIMON:** Mini monitor module

**SK-MONITOR:** Monitor module

**SK-MONITOR-2:** Dual input monitor module

**SK-MON-10:** 10 input monitor module

**SK-PHOTO:** Photoelectric smoke detector

**SK-PHOTO-W:** Photoelectric smoke detector, white

**SK-PHOTO-T:** Photoelectric smoke detector with thermal (135°F fixed temperature)

**SK-PHOTO-T-W:** Photoelectric smoke detector with thermal (135°F fixed temperature), white

**SK-PHOTOR:** Photoelectric detector with remote test capability

**SK-PHOTO-R-W:** Photoelectric detector with remote test capability, white

**SK-PULL-SA:** Addressable single action pull station

**SK-PULL-DA:** Addressable dual action pull station

**SK-RELAY:** Addressable relay module

**SK-RELAY-6:** Addressable Six relay control module

**SK-RELAYMON-2:** Addressable Dual relay/monitor module

**SK-ZONE:** Addressable zone interface module

**SK-ZONE-6:** Six zone interface module

**B300-6(-IV):** 6" base for SK-W Series

**B210LP:** 6" mounting base

**B501(-BL,-IV,-WHITE):** 4"flangeless base

**B501:** 4" Flangeless mounting base

**B200S(-IV,-WH):** Intelligent sounder base

**B200S:** Intelligent sounder base

**B200S-LF(-IV,-WH):** Low-Frequency intelligent sounder base

**B200S-LF:** Low-frequency intelligent sounder base

**B224RB(-IV,-WH):** Relay base

**B224RB:** Relay base

**B224BI(-IV,-WH):** Isolator base

**B224BI:** Isolator base

## SD COMPATIBLE ADDRESSABLE DEVICES

**SD505-6AB:** Addressable 6" base

**SD505-6IB:** Addressable 6" short circuit isolator base

**SD505-6RB:** Addressable 6" relay base

**SD505-6SB:** Addressable 6" sounder base

**SD500-AIM:** Addressable input module (switch input)

**SD500-ANM:** Addressable notification module

**SD500-ARM:** Addressable relay module

**SD505-DTS-K:** Remote test switch and LED indicator for the SD505-DUCTR

**SD505-DUCT:** Addressable Duct Smoke Detector.

**SD505-DUCTR:** Addressable Duct Detector housing with relay base.

**SD505-HEAT:** Absolute temperature heat detector. Trip point range from 135°F–150°F (0°C–37°C).

**SD500-LIM:** Addressable Line isolator module

**SD500-MIM:** Addressable Mini input monitor module (switch input)

**SD505-PHOTO:** Photoelectric smoke detector

**SD500-PS/-PSDA:** Addressable Single or dual action pull station

**SD500-SDM:** Addressable smoke detector module

## AUDIBLE/VISIBLE DEVICES

These AV devices are all 2-wire. Color: "R" indicates red; "W" denotes white. For a complete listing of Silent Knight AV devices go to **www.silentknight.com**.

**CHSRL/CHSWL:** Wall chime/strobe

**CHSCRL/CHSCWL:** Ceiling chime/strobe

**CHRL/CHWL:** Wall chime

**HRL/HWL:** Wall horn

**P2RL/P2WL:** Wall horn/strobe

**PC2RL/PC2WL:** Ceiling horn/strobe

**SRL/SWL:** Wall strobe

**SCRL/SCWL:** Ceiling strobe

**SPSCRL/SPSCWL:** Ceiling speaker/strobe

**SPSRL/SPSWL:** Wall speaker/strobe

**SPRL/SPWL:** Wall speaker

**SPCRL/SPCWL:** Ceiling speaker

## SWIFT WIRELESS DEVICES

*SWIFT is only compatible with System Sensor (SK) devices. It is not compatible with Hochiki (SD) devices.*

**WSK-WGI:** Wireless Gateway

**WSK-PHOTO:** Wireless Photoelectric smoke detector

**WSK-PHOTO-T:** Wireless Multi-criteria photoelectric smoke detector with thermal detection (135°F fixed temperature) and B510W 4" base

**WSK-HEAT:** Wireless Heat, (135°F fixed temperature) and B510W 4" base

**WSK-HEAT-ROR:** Wireless heat, ROR (135°F fixed temperature) and B510W 4" base

**WSK-MONITOR:** Wireless monitor module

**WSK-RELAY:** Wireless relay module

**W-USB:** SWIFT Tools USB transceiver used for communication with SWIFT devices

## SBUS ACCESSORIES

**5496:** A 6 amp notification power expander with four power-limited notification appliance circuit outputs.

**5883:** Relay Interface. Provides 10 Form C relays.

**5824:** Serial/Parallel Printer Interface Module for printer connection.

**5895XL:** Power Supply with six Flexput™ circuits, and two Form C relays. Max. 16 per system.

**5815RMK:** Remote mounting kit. Dimensions: 10 3/8"W x 10-3/16"H x 3"D

## COMMUNICATION OPTIONS

**CELL-CAB-SK:** Cellular communicator, metal enclosure with lock/key*

**CELL-MOD:** Cellular communicator, plastic enclosure*

*Sole path, powered by panel.

**IPGSM-4G:** Dual path fire alarm communicator, cellular and/or IP (primary or backup, selectable)

**SK-IP-2:** Remote reporting via the Internet. Requires a VisorAlarm® receiver at the central station

## MISC. ACCESSORIES

**SK-NIC:** Network Interface Card. Provides a common communications link for the 6808.

**SK-NIC-KIT:** Installation Accessory Kit

**SK-FML:** Fiber-Optic Multi Mode, transmitter and receiver

**SK-FSL:** Fiber-Optic Single Mode

**RBB:** Remote battery box accessory cabinet for batteries that are too large to fit in the FACP cabinet. Dimensions: 16" W x 10" H x 6" D (406mm W x 254mm H x 152mm D).

**SK-SCK:** Seismic Compliance Kit used to securely fasten batteries to the fire panel.

# **6808** Technical Specifications

### PHYSICAL

**Overall Dimensions:** 16.36"W x 26.37"H x 3.91"D
**Shipping Weight:** 32 lbs.
**Color:** Red

### ENVIRONMENTAL

**Operating Temperature:** 32°F to 120°F (0°C to 49°C)
**Humidity:** 0 to 93% relative humidity (non-condensing)

### ELECTRICAL

**6808 Primary AC:** 120 VAC @ 60Hz, 3.3A Total Accessory Load: 6A @ 27.4VDC power-limited
**Standby Current:** 190mA
**Alarm Current:** 250mA
**Battery Charging Capacity:** 7 to 35AH
**Battery Size:** 7AH to 18AH max. allowed in control panel cabinet. Larger capacity batteries can be housed in RBB accessory cabinet.

### NOTIFICATION APPLIANCE CIRCUITS (NACs)

**Four programmable circuits which can be programmed individually as:**
**NACs:** 3A @ 27.4VDC per circuit, power-limited (with a maximum current of 6A)
**Auxiliary Power Circuits:** 3A @ 27.4VDC per circuit, power-limited

Supports Class B (Style 4) and Class A (Style 6 or 7) configuration for the SLC

**WIRING:** See the product manual for wiring details



This document is not intended to be used for installation purposes. We try to keep our product information up-to date and accurate. We cannot cover all specific applications or anticipate all requirements. All specifications are subject to change without notice.

For Technical Support, call 800-446-6444.

**Honeywell Silent Knight**
12 Clintonville Road
Northford, CT 06472
800-328-0103

351608 | B | 09/18

# PSN-106, PSN-64, PSB-10

# Installation, Operation, and Instruction Manual


POTTER
The Symbol of Protection

POTTER ELECTRIC SIGNAL COMPANY, LLC
St. Louis, MO
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www.pottersignal.com

Manual #5403590–Rev. A
12/09

# Contents

# Section 1: PSN-106
# Installation, Operation, and Instruction Manual

## Notification Power Supplies

(All specifications subject to revision.)

## ⚠ WARNING

The fire alarm system employing this power supply must be designed by people trained and competent in the design and layout of fire alarm systems. The system shall be designed and installed in accordance with all local and national codes and ordinances as well as the approval of the Authority Having Jurisdiction. Only trained, qualified and competent individuals should install, program and/or service the POTTER FIRE POWER SUPPLY. Competent people would be aware of these warnings, limitations, and requirements.

High voltage electrocution hazard. Do not handle live AC wiring or work on the device while AC power is active.

This manual is designed to help with the specification, installation, and programming of the POTTER FIRE POWER SUPPLY. It is imperative that this manual be completely read and understood before the installation or programming of the power supply. Save this manual for future reference.

## General Description

The Potter PSN series of power supplies is designed to provide the power and flexibility needed for the most demanding fire system installations. The PSN-106 is a 10 Amp 24Vdc switch mode power supply design which is up to 50% more efficient than linear mode supplies the PSN series is your best choice for powering fire system notification appliances and accessories. New and retrofit construction requirements for ADA compliance are easily accomplished with ample power for additional notification appliances along with the ability to synchronize the notification appliances using built in sync generation for Potter, System Sensor ®, Gentex® and Wheelock ® notification appliances. The PSN series goes even further to make retrofits easier with the advanced QuadraSync feature which allows notification appliances from different manufacturers to sync with each other. You also have the option to monitor an existing circuit by placing a reference resistor of the same value on the power supply and continuing to monitor the circuit without changing the field EOL.

## System Features

- Input voltage: 120/240VAC 50/60Hz
- Output voltage 24VDC @ 10A
- Six class “B” Style "Y" notification circuits on the PSN-106
  - Rated at 3 amps max each
  - Can be configured as up to three class “A” Style "Z" notification circuits
- Supervised Battery Charger: 27.3 @ 1A (supports 7-55 Ahr batteries)
- Integrated battery cut-off circuitry to protect batteries from deep discharge
- Two Trouble Relays (5A at 30VDC)
  - General System Trouble (programmable for AC delay via dip-switch)
  - Low AC Trouble
- Diagnostic LED’s
  - Status LED’s for Active NAC and NAC trouble conditions
  - Status LED’s for Earth Fault (Amber), AC (Green), Battery Fault (Amber)
  - Trouble Memory feature captures troubles which have previously restored.
- Synchronized notification appliance circuits
  - Potter
  - Wheelock®
  - Gentex®
  - System Sensor®
- Configurable output circuits (D.I.P. switch sets options for each circuit)
  - ANSI temporal-coded
  - Constant Power
  - Door-Holder Power
- Separate DC Power Output (3A)
- Two Trigger Inputs (Class A, Style Z or Class B, Style Y)
- Reference EOL terminals, allows 2K – 27K EOL value to be used
- QuadraSync panel wide synchronization of same or multiple brands.
- PassThru mode copies input signals to output (can be used in conjunction with QuadraSync

## Mounting Instructions

The standard mounting is a surface mount cabinet. The unit must be securely attached to a permanent partition using suitable fasteners. Five mounting holes are provided to accept ¼ inch diameter screws maximum. There are seven knock outs provided.

## Operating Instructions

*Alarm Condition*

Notification Appliance Circuit:
Alarm devices operate in unison with the Trigger inputs from the main Fire Alarm Control Panel (FACP). When activated by the corresponding trigger input the associated Notification Appliance Circuit (NAC) will reverse polarity from a supervision state to the alarm state and supply power to the associated notification appliances until the trigger is removed. Each activated NAC will also power the L.E.D. associated with it, the L.E.D. will follow the steady or pulsing state of the NAC. The alarm-activated outputs are reset through the operation of the reset function of the Main FACP.

*Trouble Condition*

**NOTICE**

If the trouble memory feature has been enabled the L.E.D. will provide two brief pulses every second to indicate a trouble condition has occurred but is now restored. This can be useful when troubleshooting brief trouble conditions that come and go over a period of time

Notification Appliance Circuit:
If a trouble occurs on a NAC the associated L.E.D. will flash at a 50% rate to indicate a trouble condition, the trouble relay will also activate during a trouble condition of this type. When the trouble condition has been restored the L.E.D. and trouble relay will return to their normal state. (See notice.)

DC Power Circuit:
If a trouble occurs on the DC Power output the DC L.E.D. will flash at a 50% rate to indicate a trouble condition, the trouble relay will also activate during a trouble condition of this type. When the trouble condition has been restored the L.E.D. and trouble relay will return to their normal state. (See notice.)

AC:
When the Power supply detects the A.C. power input has fallen below an acceptable level the AC Power L.E.D. will flash at a 50% rate to indicate a trouble condition, the trouble relay will also activate during a trouble condition of this type and after a programmed delay the Low AC relay will also activate. When the trouble condition has been restored the L.E.D. and trouble relays will return to their normal state. (See notice.)

Low Battery:
When the Power supply detects the Battery is no longer functioning properly the Low Battery L.E.D. will flash at a 50% rate to indicate a trouble condition, the trouble relay will also activate during a trouble condition of this type. When the trouble condition has been restored the L.E.D. and trouble relay will return to their normal state. (See notice.)

Ground Fault:
When the Power supply detects a ground Fault condition which indicates a short between the Power Supply ground and the Earth Ground circuits the Ground Fault L.E.D. will flash at a 50% rate to indicate a trouble condition, the trouble relay will also activate during a trouble condition of this type. When the trouble condition has been restored the L.E.D. and trouble relay will return to their normal state. (See notice.)

Communication Trouble:
If the Bulk Power Supply and Control Board lose communication with each other the Comm L.E.D. will flash at a 50% rate to indicate a trouble condition, the trouble relay will also activate during a trouble condition of this type. When the trouble condition has been restored the L.E.D. and trouble relay will return to their normal state. (See notice.)

*Standby Operation*

Notification Appliance Circuit:
When in standby operation the NAC will be in the reversed supervision polarity and the associated L.E.D. will be off. Exception: When the NAC is programmed to be an DC Power Output the associated L.E.D. will be on during normal standby operation.

DC Power Circuit:
When in standby operation the DC Power will be on and the DC Power L.E.D. will be illuminated.

AC:
When in normal operation the AC Power L.E.D. will be on steady.

Low Battery:
When in normal operation the Low Battery L.E.D. will be off.

Ground Fault:
When in normal operation the Ground Fault L.E.D. will be off

Communication
When in normal operation the Comm L.E.D. will flash occasionally to indicate normal communication traffic is occurring.

### *Testing and Maintenance*

System Testing should be performed periodically to insure proper operation.
Test the indicating circuits by initiating an alarm or test at the Main FACP.
Test for proper operation by actuating the notification appliance circuit the PSN-106 is monitoring.
Standby batteries and AC transfer are tested by interrupting the AC power line while an alarm condition exists.

## Battery Maintenance

The PSN-106 should be tested at least once a year for proper operation as follows:

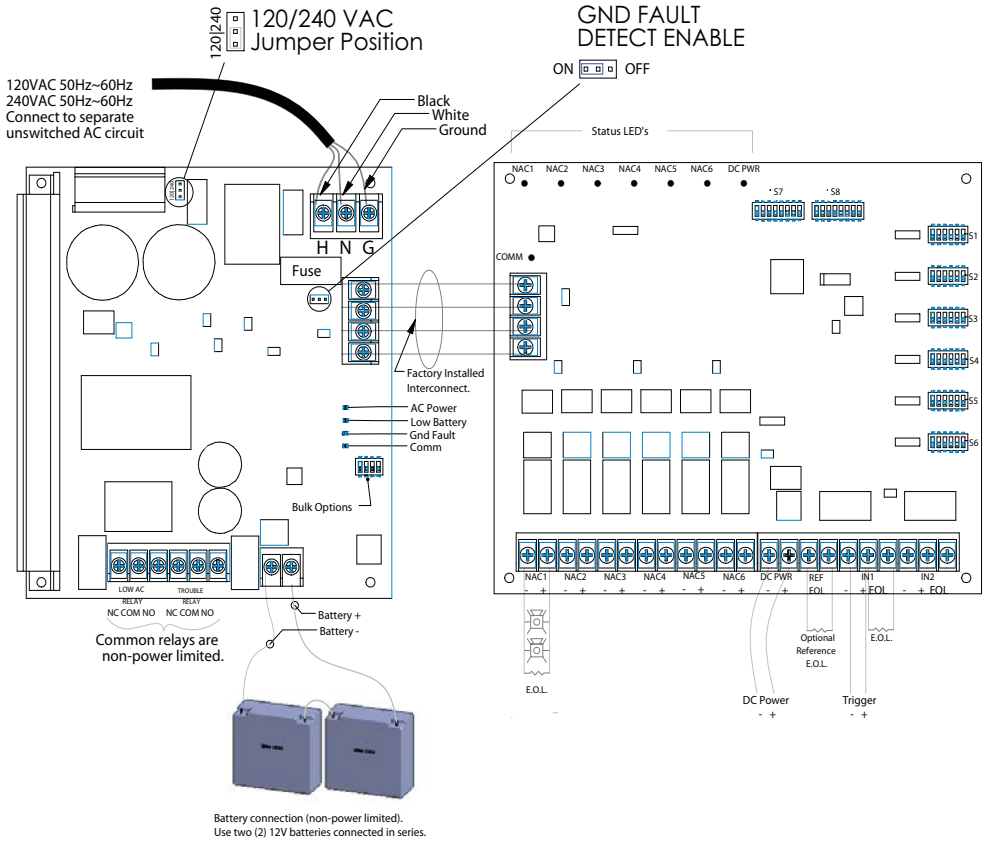
*Output Voltage Test*: Under normal load conditions, the DC output voltage should be checked for proper voltage level. Refer to the Power Supply Output Specifications Chart).
*Battery Test*: Under normal load conditions, check that the battery is fully charged. Check specific voltage both at the battery terminal and at the board terminals marked [+BAT-] to ensure there is no break in the battery connection wires.
Note: Maximum charging current is 1 Amp.
Note: Expected battery life is 5 years; however it is recommended changing batteries in 4 years or less if needed.

## Electrical Operating Characteristics

| | |
|---|---|
| Input Voltage | 120 VAC @ 5.1 Amps or 240 VAC @ 2.5 Amps (Jumper selected) 50/60 Hz |
| Input Trigger | 8 VDC to 33 VDC (15 ma) filtered or full wave rectified. Polarity reversal or continuous voltage |
| Output Voltage | 24 VDC @ 10 Amps |
| Notification Outputs | 24 VDC 3.0 Amps Maximum, Polarity Reversal |
| DC Power | 3.0 Amps |
| Total System Current | PSN-106 = 10 Amps<br>(total system load from all output circuits must not exceed 10 amps total_ |

The system uses a "Sealed Lead Acid" or "Gel-Cell" type of battery with a capacity of from 7 to 55 amp-hours. Fuse must be replaced with same size and rating (8A-250VAC, Time Lag).

## Notification Power Supply




Primary AC
120VAC 50Hz~60Hz, 5.1AMP
Min Low AC Detect 97VAC
240VAC 50~60Hz 2.5AMP
Min Low AC Detect 190VAC

Common Relays
3A @ 125VAC (Resistive)
3A @ 30VDC (Resistive)

Battery Charging
27.3VDC @ 1A
Low Battery Detect @20.4VDC

Earth Fault to Any Terminal
0 Ohms

Notification Appliance Circuits 1-6
24VDC @3A Power Limited
Regulated
Synchronization supported on NAC 1-6

DC Power Circuit
20.4VDC - 27.3VDC @3A Power Limited
Special Application RSG-DH1224
Listed Door Holder

Fuse Specification
8A-250VAC Time-Lag

Note: Total current draw from NAC 1-6 and DC Power must not exceed 10 amps.

F.C.C.
This device has been verified to comply with FCC Rules Part 15, Class A Operation is subject to the following conditions:
1. This device may not cause radio interference.
2. This device must accept any interference received including any that may cause undesired operation.

Requirements
System must be fully tested after installation.
Intended for indoor use in dry locations only.
Separation of power limited wiring from non-power limited wiring must be at least 1/4".

For proper operation the voltage drop to the farthest connected device must not exceed 3 volts. This can be calculated using the following formula:

(Alarm Current of Notification Appliances)

x (Wire Resistance)

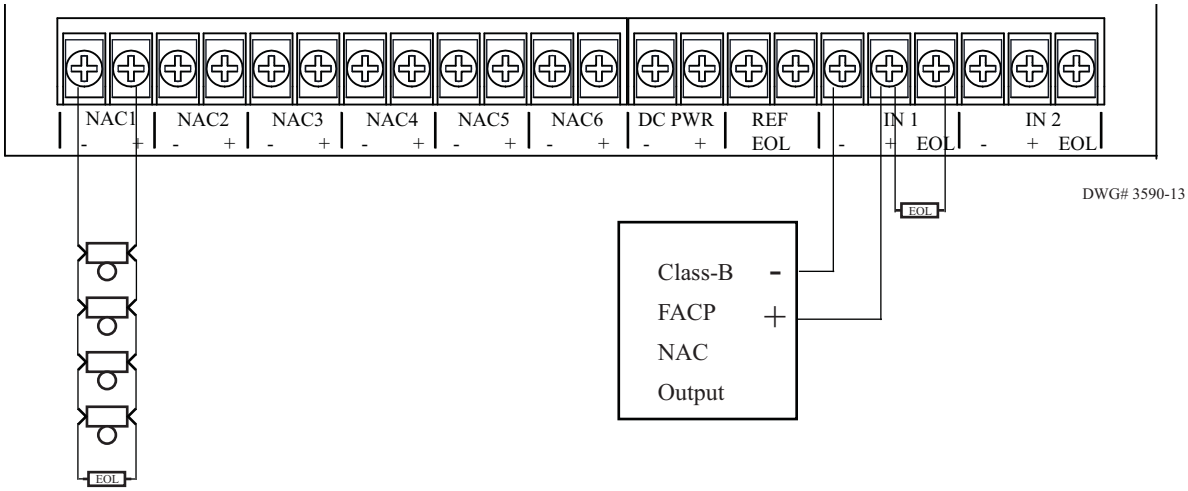
< 3 volts

Install in accordance with installation manual Part Number 5403590 Rev A, NFPA 70, and NFPA 72

## Wiring Options

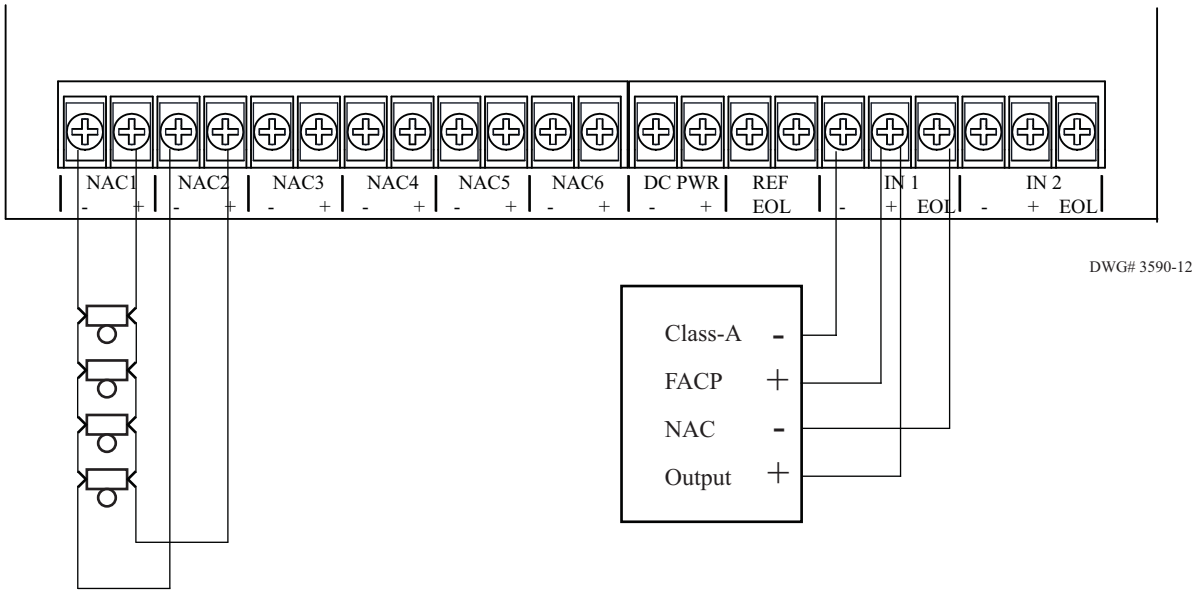
*Class B Trigger and Class B Notification Circuit Trigger*

Class B Style Y Trigger and Class B Style Y Notification Circuit Trigger inputs IN1 & IN2 can be connected to a Class B Style Y NAC trigger circuit as shown below. The PSN-106 provides 6 Class B Style Y NAC circuits, each rated for 3 amps. Each NAC circuit is individually selectable for Class A Style Z/ Class B Style Y operation, refer to the Dip Switch Programming for information on dip switch programming.



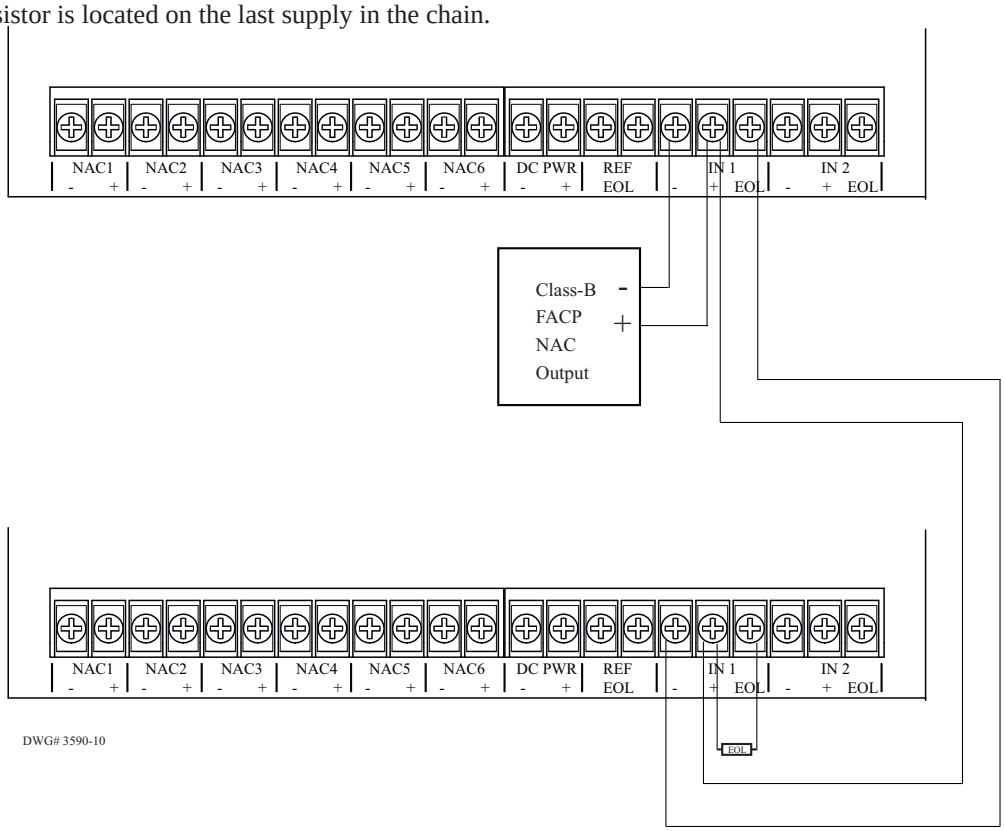

*Class A Trigger and Class A Notification Circuit*

Trigger inputs IN1 & IN2 can be connected to a class A NAC trigger circuit as shown below. The PSN-106 provides 3 Class A NAC circuits, each rated for 3 amps. Each NAC circuit is individually selectable for Class A/B operation, refer to the Dip Switch Programming section for information on dip switch programming.



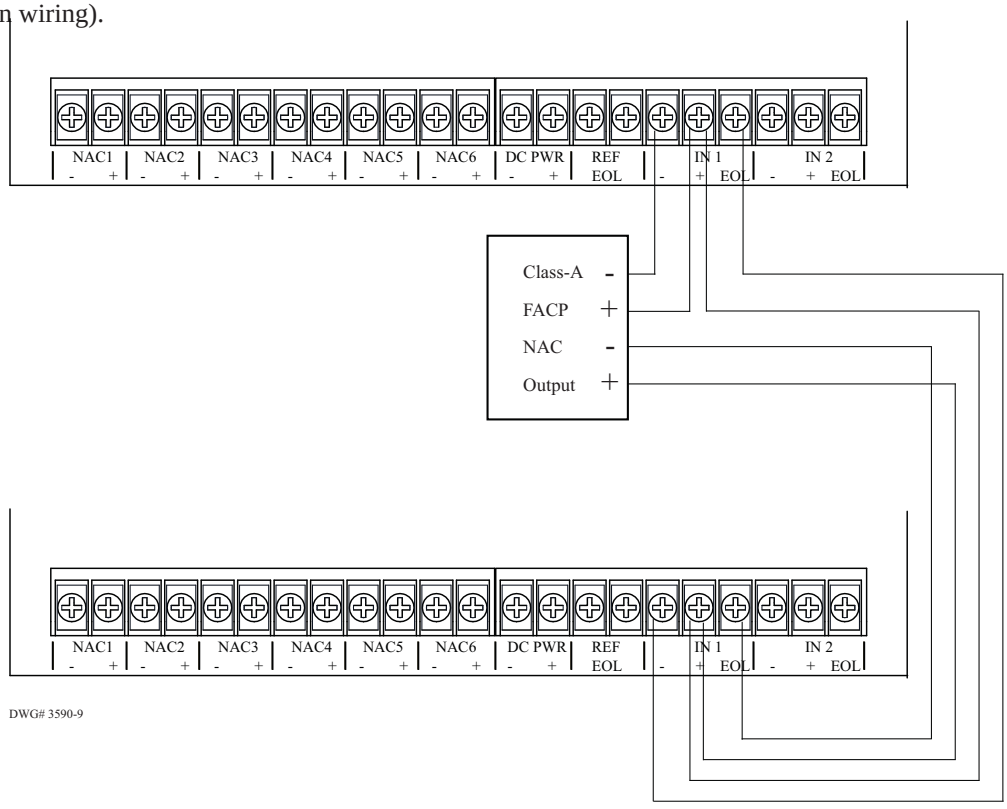
*Class B - Multiple Supply Trigger*

A single Class B Style Y trigger can be used to activate multiple supplies as shown below. The minimum wire gauge between supplies is 18 AWG. A maximum wiring distance of 10,000 feet is allowed from the triggering FACP and the last supply in the chain.The EOL resistor is located on the last supply in the chain.



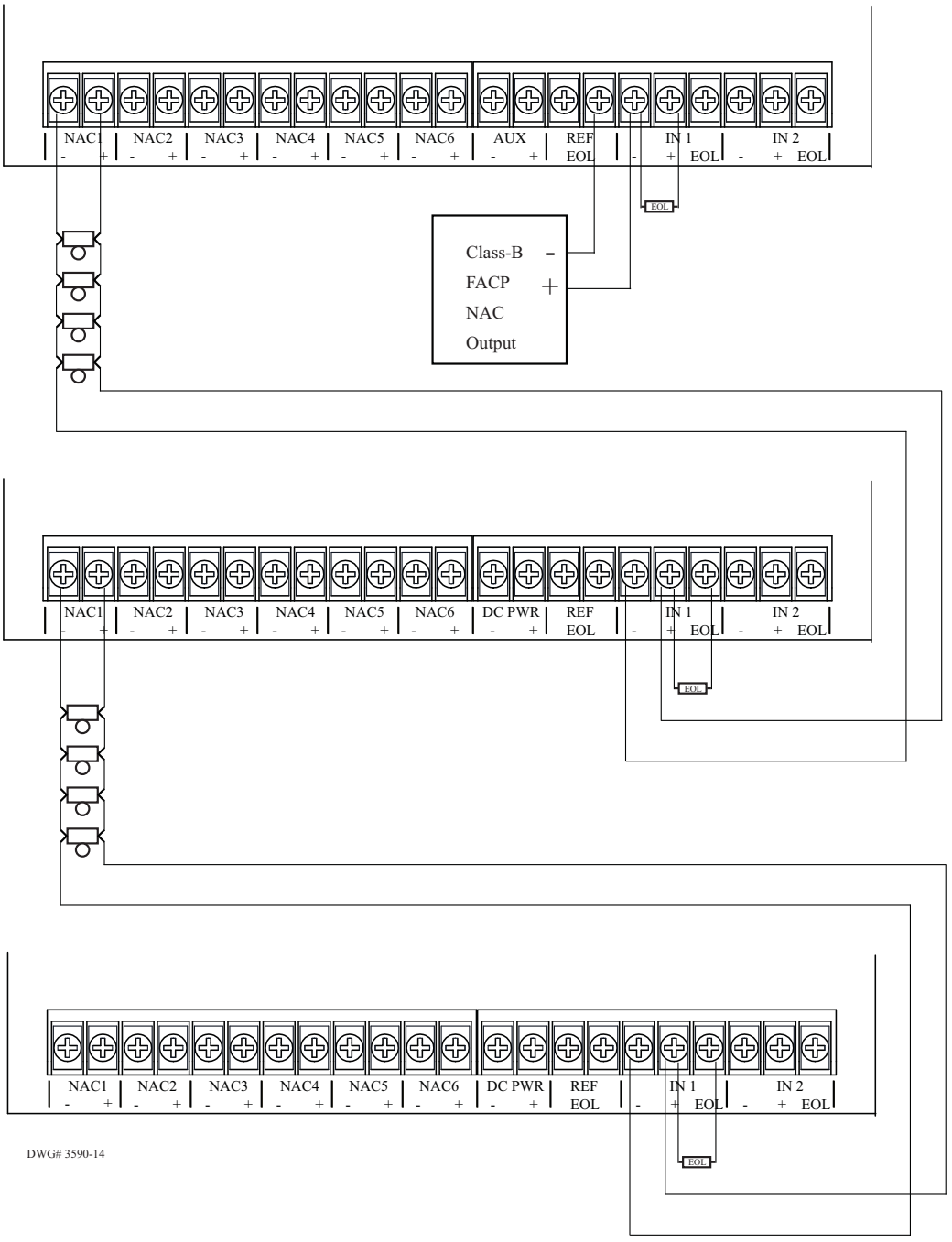

*Class A - Multiple Supply Trigger*

A single Class A Style Z trigger can be used to activate multiple supplies as shown below. The minimum wire gauge between supplies is 18 AWG. A total wiring distance of 10,000 feet is allowed from the triggering FACP to the last supply in the chain (including the return wiring).



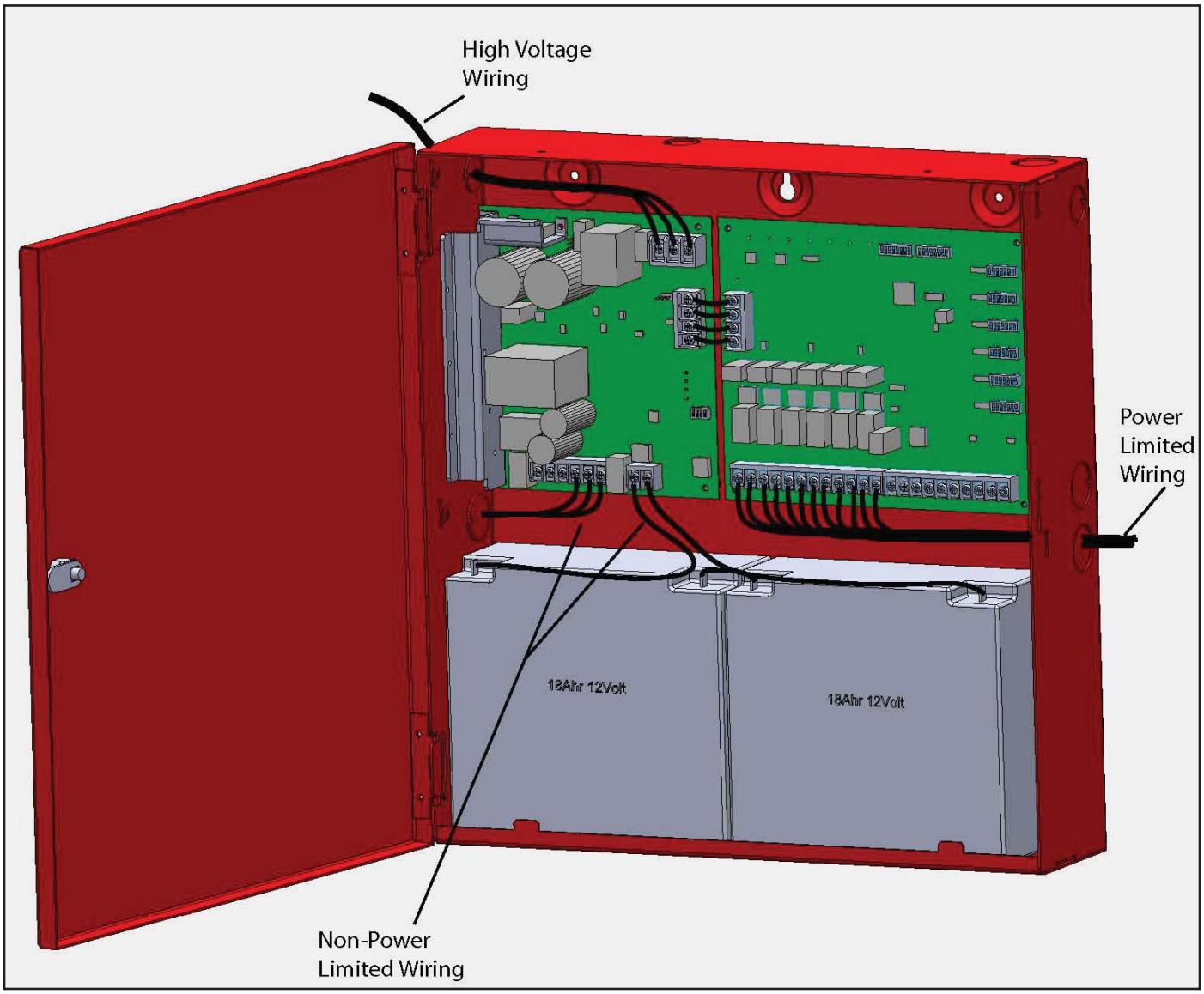
*Pass Thru Mode*

The NAC output of the PSN-106 can be used to trigger additional supplies. Up to 3 supplies maximum can be configured in this manner. Full system synchronization is maintained. The minimum wire gauge between supplies is 18 AWG. A maximum wiring distance of 10,000 feet is allowed between each supply.



## Wire Routing

A minimum of ¼ inch separation must be maintained between Power Limited, Non-Power Limited, and High Voltage wiring. See illustration for suggested wire routing




## Reference EOL

The PSN-106 uses a standard 5.1k EOL resistor (Potter part number 3005013).

In retrofit applications where a value other than 5.1k is already in use, a reference EOL input is provided. Simply connect a matching EOL resistor to the reference EOL input. All NAC wiring will then be supervised based on this value. Any EOL value from 2.0k to 27k can be used.

If no reference EOL is connected, 5.1k is assumed.

## Dip Switch Programming

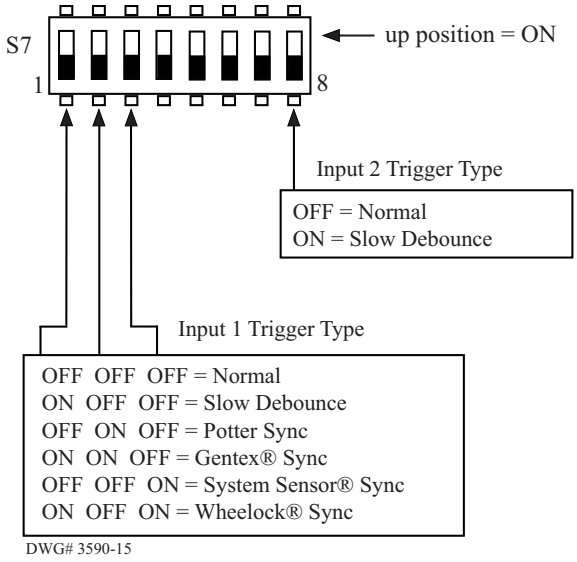
**⚠ WARNING**

Remove power before servicing or changing DIP switch programming selections

*Input Trigger Type*

(Selects the behavior of trigger inputs.)

- Normal Trigger: Trigger input is sampled at a high rate. Used for simple DC triggers, as well as for sync follow and pass-thru mode. A NAC configured as constant output will follow triggered and immediately activate.
- Slow Debounce (Slow Trigger): Allows a non-standard trigger signal to be used for activation. The slower response allows the outputs to remain active when the trigger signal is changing. This trigger will operate with ANSI Temporal Code 3.
- Synchronization Triggers (Potter, Gentex®, Wheelock®, System Sensor®): Used with QuadraSync to maintain synchronization of devices from different manufacturers.

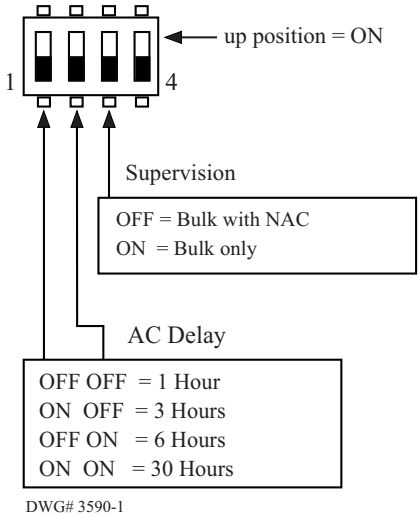



*Bulk Supply Options*

AC Report Delay:
Selects number of hours to delay before activating the general trouble relay in response to a low AC condition. Note that the Low AC relay is activated immediately.

Supervision:
This should always be in the OFF position to allow supervision of the wiring between the 24 VDC bulk supply board and the NAC control board.

NAC control board global options



*Class A/B Selection*

Each pair of NACs can be individually configured for class A/B operation. When class A is selected, the individual NAC options for the first NAC in the pair will apply. For example, is the circuit pair 1&2 is programmed for class A operation, then only the individual NAC option dip switch for circuit 1 will be used.

*Door Holder AC Dropout delay*

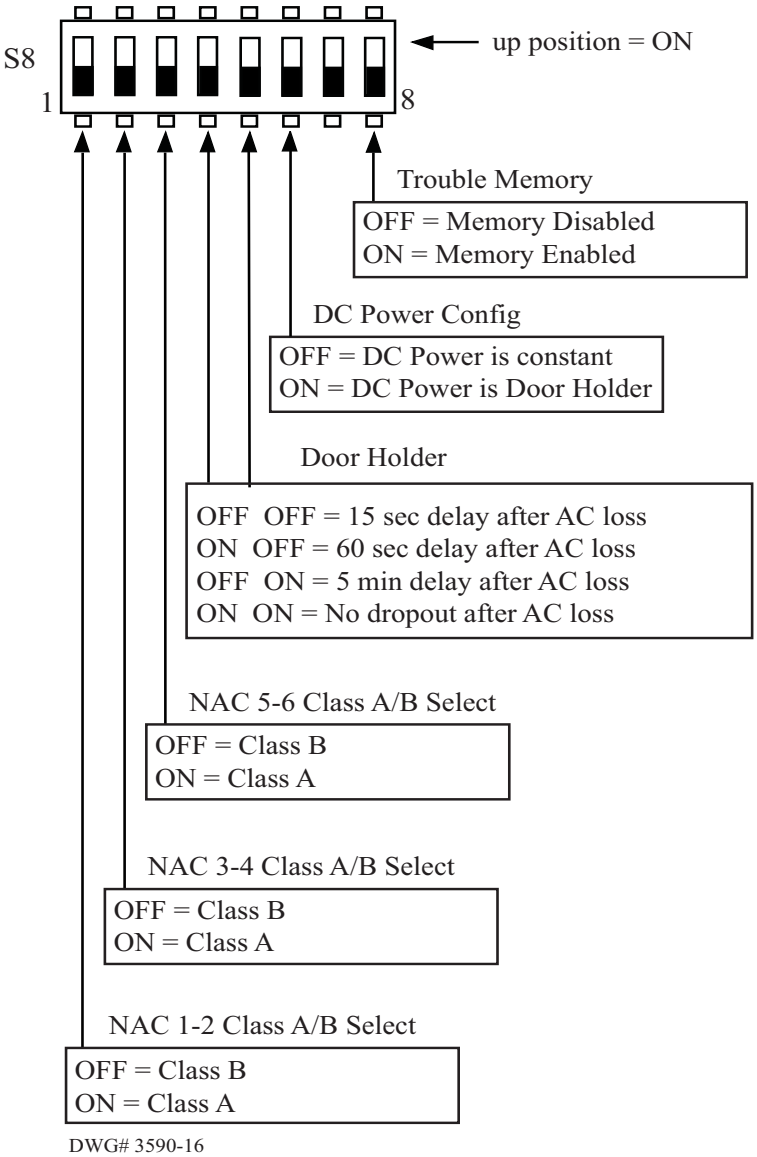
If the DC power output is used as door holder power, it can be configured to drop out in response to a low AC condition in order to minimize standby current. To minimize nuisance conditions a selectable AC dropout delay is provided. If "No doorholder dropout on AC Loss" is selected, door holder power will drop out in response to an alarm condition only.

*DC Power Output is Door Holder*

Specifies whether the DC power output will act as door holder power. If selected, the DC power will drop out in response to an alarm condition and optionally a low AC condition.

*Trouble Memory Enabled*

When enabled, any trouble conditions will be stored in memory after the condition has been corrected. Stored trouble conditions are indicated on the LED associated with the original trouble condition.

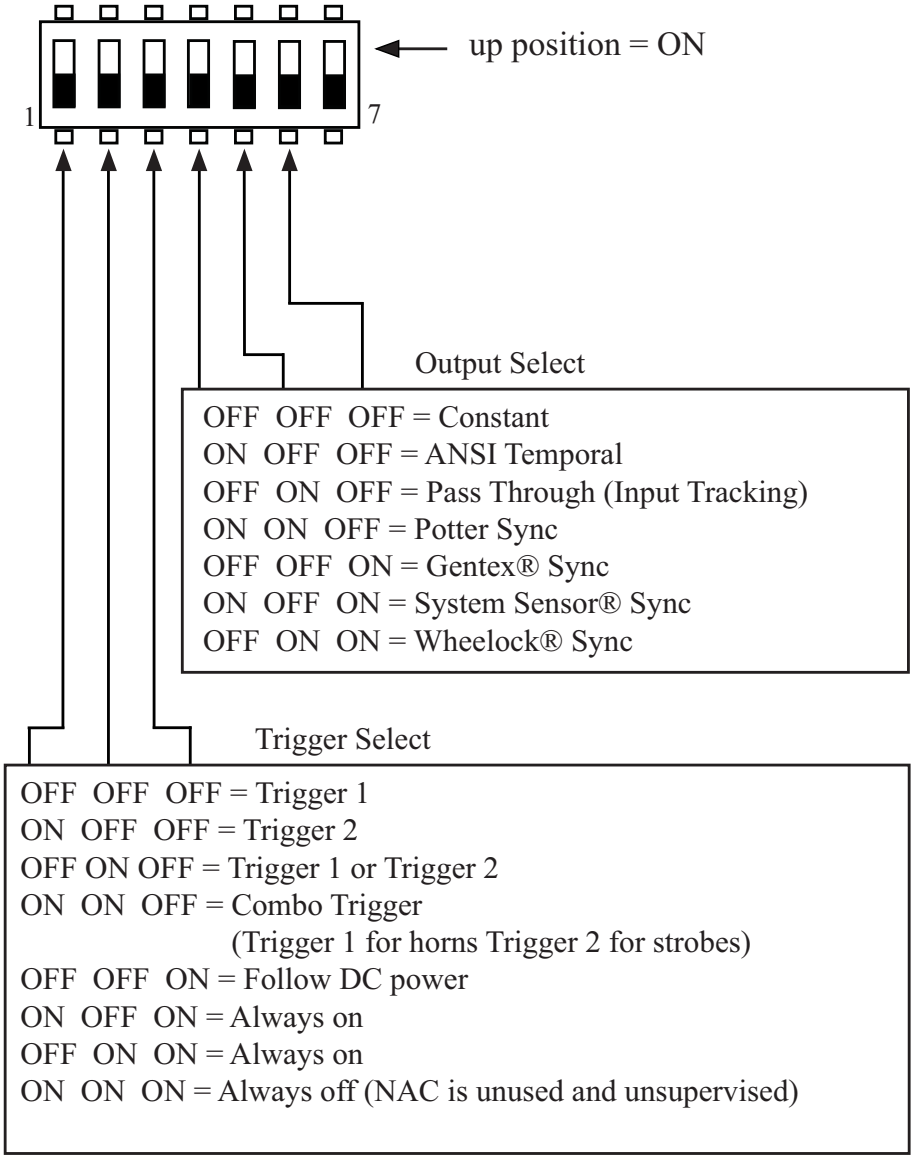



DWG# 3590-16

## Individual NAC Options

Conditions for activating each NAC are individually programmed.
Trigger Selection: specifies which trigger input(s) to respond to.

- Trigger 1: NAC will activate when Trigger 1 is activated
- Trigger 2: NAC will activate when Trigger 2 is activated
- Trigger 1 or Trigger 2: NAC will activate when either Trigger 1 or Trigger 2 is activated.
- Combo: Can be used to separately control horns & strobes when used with one of the supported synchronization protocols. If Trigger 1 is present, both horns and strobes will be activated. If only Trigger 2 is present, horns will be disabled, and strobes will be activated.
- Follow DC Power: When selected, the NAC will exactly follow the activation/deactivation of the DC power output. Can be used to create additional door-holder power circuits.
- Always ON: Used to create a constant ON power output.
- Unused: NAC circuit will be unused .
- Output Selection: Specifies the output pattern to be generated when the output is activated.




DWG# 3590-11

## Indicator LED Behavior

The NAC control board contains an indicator LED for each NAC circuit and a comm LED:

- NAC Led: Fast Flashing = NAC trouble (EOL missing, EOL shorted, or current limit condition)
- NAC Led: Solid or Pattern = NAC active. LED will follow pattern of NAC
- Comm: Used only to indicate supervision activity between bulk and control boards.

If the trouble memory option is enabled (Trouble Memory dip switch option on) the LEDs indicate if any previous trouble conditions are stored in memory.

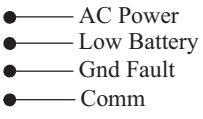
> Example: Suppose Trouble Memory is enabled and a NAC circuit EOL is detected as missing. While the EOL is missing, the LED associated with the NAC will flash continuously to indicate the trouble. If the EOL is replaced and the trouble condition is no longer present, the LED will begin issuing the trouble memory flash. This flash indicates that a trouble existed previously, but is no longer present. The trouble memory indication consists of two short flashes issued once per second.

Clear/reset Trouble Memory by setting the Trouble Memory dip switch off, and then back on to enable the feature.


DWG# 3590-17

The bulk supply board contains four indicator LEDs:

- AC Power: ON = AC Present, OFF = AC not present).
- Low Battery: Fast Flashing = Low battery condition. ON = Battery Charger Failure
- Earth Ground Fault: Flashing = Earth fault detected.
- Comm: Used only to indicate supervision activity between bulk and control boards (about one per second).




DWG# 3590-18

## Battery Calculation Worksheet

Standby current for the PSN-106 is 75 milli-amps.

**Secondary Power Supply Requirements Table**

| Service Use | Standby Time | Alarm Time |
|---|---|---|
| NFPA 72<br>• Central Station (PPU)<br>• Local | <br>24 hours<br>24 hours | <br>5 minutes<br>5 minutes |

**Calculation Table**

| 1 | 2 | 3 | 4 | 5 | 6 |
|---|---|---|---|---|---|
| Module/Device | Quantity | Standby mA Per Unit | Total Standby Current | Alarm mA Per Unit | Total Alarm Current |
| PSN-106 | 1 | 75 | 75 | 75 | 75 |
| | | | | | |
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| | | | |
|---|---|---|---|
| Total mA | | Total mA | |
| Convert to A | x 0.001 | Convert to A | x 0.001 |
| (* Refer to Maximum allowable standby current)Total A | | Total A | |
| Multiply by hours | x ___ | 5 min/12 or 10 min/6 | ÷ ___ |
| Total Standby AH | | Total Alarm AH | |
| | | + Total Standby AH | |
| | | Total AH | |
| *Use a battery with a higher AH rating than Required AH* | | Efficiency Factor | ÷ 0.85 |
| | | Required AH | |

*** Maximum Allowable Standby Current (24-hour standby time)**

| Battery Size | UL 24-hour | ULC 24-hour |
|---|---|---|
| 7 AH | .213 Amps | .213 Amps |
| 18 AH | .603 Amps | .603 Amps |
| 33 AH | 1.134 Amps | .603 Amps |
| 55 AH | 1.913 Amps | .603 Amps |

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# Section 2: PSN-64
# Installation, Operation, and Instruction Manual

## Notification Power Supplies

(All specifications subject to revision.)

## ⚠ WARNING

The fire alarm system employing this power supply must be designed by people trained and competent in the design and layout of fire alarm systems. The system shall be designed and installed in accordance with all local and national codes and ordinances as well as the approval of the Authority Having Jurisdiction. Only trained, qualified and competent individuals should install, program and/or service the POTTER FIRE POWER SUPPLY. Competent people would be aware of these warnings, limitations, and requirements.

High voltage electrocution hazard. Do not handle live AC wiring or work on the device while AC power is active.

This manual is designed to help with the specification, installation, and programming of the POTTER FIRE POWER SUPPLY. It is imperative that this manual be completely read and understood before the installation or programming of the power supply. Save this manual for future reference.

## General Description

The Potter PSN series of power supplies is designed to provide the power and flexibility needed for the most demanding fire system installations. The PSN-64 is a 6 Amp 24VDC switch mode power supply design which is up to 50% more efficient than linear mode supplies the PSN series is your best choice for powering fire system notification appliances and accessories. New and retrofit construction requirements for ADA compliance are easily accomplished with ample power for additional notification appliances along with the ability to synchronize the notification appliances using built in sync generation for Potter, System Sensor ®, Gentex® and Wheelock ® notification appliances. The PSN series goes even further to make retrofits easier with the advanced QuadraSync feature which allows notification appliances from different manufacturers to sync with each other. You also have the option to monitor an existing circuit by placing a reference resistor of the same value on the power supply and continuing to monitor the circuit without changing the field EOL.

## System Features

- Input voltage: 120/240VAC 50/60Hz
- Output voltage 24VDC @ 6A
- Four class “B” initiating circuits on the PSN-64
  - Rated at 3 amps max each
  - Can be configured as up to two class “A” Style "Z" notification circuits
- Supervised Battery Charger: 27.3 @ 1A (supports 7-55 Ahr batteries)
- Integrated battery cut-off circuitry to protect batteries from deep discharge
- Two Trouble Relays (5A at 30VDC)
  - General System Trouble (programmable for AC delay via dip-switch)
  - Low AC Trouble
- Diagnostic LED’s
  - Status LED’s for Active NAC and NAC trouble conditions
  - Status LED’s for Earth Fault (Amber), AC (Green), Battery Fault (Amber)
  - Trouble Memory feature captures troubles which have previously restored.
- Synchronized notification appliance circuits
  - Potter
  - Wheelock®
  - Gentex®
  - System Sensor®
- Configurable output circuits (D.I.P. switch sets options for each circuit)
  - ANSI temporal-coded
  - Constant Power
  - Door-Holder Power
- Separate DC Power Output (3A)
- Two Trigger Inputs (Class A, Style Z or Class B, Style Y)
- Reference EOL terminals, allows 2K – 27K EOL value to be used
- QuadraSync panel wide synchronization of same or multiple brands.
- PassThru mode copies input signals to output (can be used in conjunction with QuadraSync

## Mounting Instructions

The standard mounting is a surface mount cabinet. The unit must be securely attached to a permanent partition using suitable fasteners. Five mounting holes are provided to accept ¼ inch diameter screws maximum. There are seven knockouts provided.

## Operating Instructions

*Alarm Condition*

Notification Appliance Circuit:
Alarm devices operate in unison with the Trigger inputs from the main Fire Alarm Control Panel (FACP). When activated by the corresponding trigger input the associated Notification Appliance Circuit (NAC) will reverse polarity from a supervision state to the alarm state and supply power to the associated notification appliances until the trigger is removed. Each activated NAC will also power the L.E.D. associated with it, the L.E.D. will follow the steady or pulsing state of the NAC. The alarm-activated outputs are reset through the operation of the reset function of the Main FACP.

*Trouble Condition*

**NOTICE**

If the trouble memory feature has been enabled the L.E.D. will provide two brief pulses every second to indicate a trouble condition has occurred but is now restored. This can be useful when troubleshooting brief trouble conditions that come and go over a period of time.

Notification Appliance Circuit:
If a trouble occurs on a NAC the associated L.E.D. will flash at a 50% rate to indicate a trouble condition, the trouble relay will also activate during a trouble condition of this type. When the trouble condition has been restored the L.E.D. and trouble relay will return to their normal state. (See notice.)

DC Power Circuit:
If a trouble occurs on the DC Power output the DC Power L.E.D. will flash at a 50% rate to indicate a trouble condition, the trouble relay will also activate during a trouble condition of this type. When the trouble condition has been restored the L.E.D. and trouble relay will return to their normal state. (See notice.)

AC:
When the Power supply detects the A.C. power input has fallen below an acceptable level the AC Power L.E.D. will flash at a 50% rate to indicate a trouble condition, the trouble relay will also activate during a trouble condition of this type and after a programmed delay the Low AC relay will also activate. When the trouble condition has been restored the L.E.D. and trouble relays will return to their normal state. (See notice.)

Low Battery:
When the Power supply detects the Battery is no longer functioning properly the Low Battery L.E.D. will flash at a 50% rate to indicate a trouble condition, the trouble relay will also activate during a trouble condition of this type. When the trouble condition has been restored the L.E.D. and trouble relay will return to their normal state. (See notice.)

Ground Fault:
When the Power supply detects a ground Fault condition which indicates a short between the Power Supply ground and the Earth Ground circuits the Ground Fault L.E.D. will flash at a 50% rate to indicate a trouble condition, the trouble relay will also activate during a trouble condition of this type. When the trouble condition has been restored the L.E.D. and trouble relay will return to their normal state. (See notice.)

Communication Trouble:
If the Bulk Power Supply and Control Board loose communication with each other the Comm L.E.D. will flash at a 50% rate to indicate a trouble condition, the trouble relay will also activate during a trouble condition of this type. When the trouble condition has been restored the L.E.D. and trouble relay will return to their normal state. (See notice.)

*Standby Operation*

Notification Appliance Circuit:
When in standby operation the NAC will be in the reversed supervision polarity and the associated L.E.D. will be off.
Exception: When the NAC is programmed to be an DC Power Output the associated L.E.D. will be on during normal standby operation.

DC Power Circuit:
When in standby operation the DC Power Circuit will be on and the DC Power L.E.D. will be illuminated.

AC:
When in normal operation the AC Power L.E.D. will be on steady.

Low Battery:
When in normal operation the Low Battery L.E.D. will be off.

Ground Fault:
When in normal operation the Ground Fault L.E.D. will be off

Communication
When in normal operation the Comm L.E.D. will flash occasionally to indicate normal communication traffic is occurring.

*Testing and Maintenance*

System Testing should be performed periodically to insure proper operation.
Test the indicating circuits by initiating an alarm or test at the Main FACP.
Test for proper operation by actuating the notification appliance circuit the PSN-64 is monitoring.
Standby batteries and AC transfer are tested by interrupting the AC power line while an alarm condition exists.

## Battery Maintenance

The PSN-64 should be tested at least once a year for proper operation as follows:

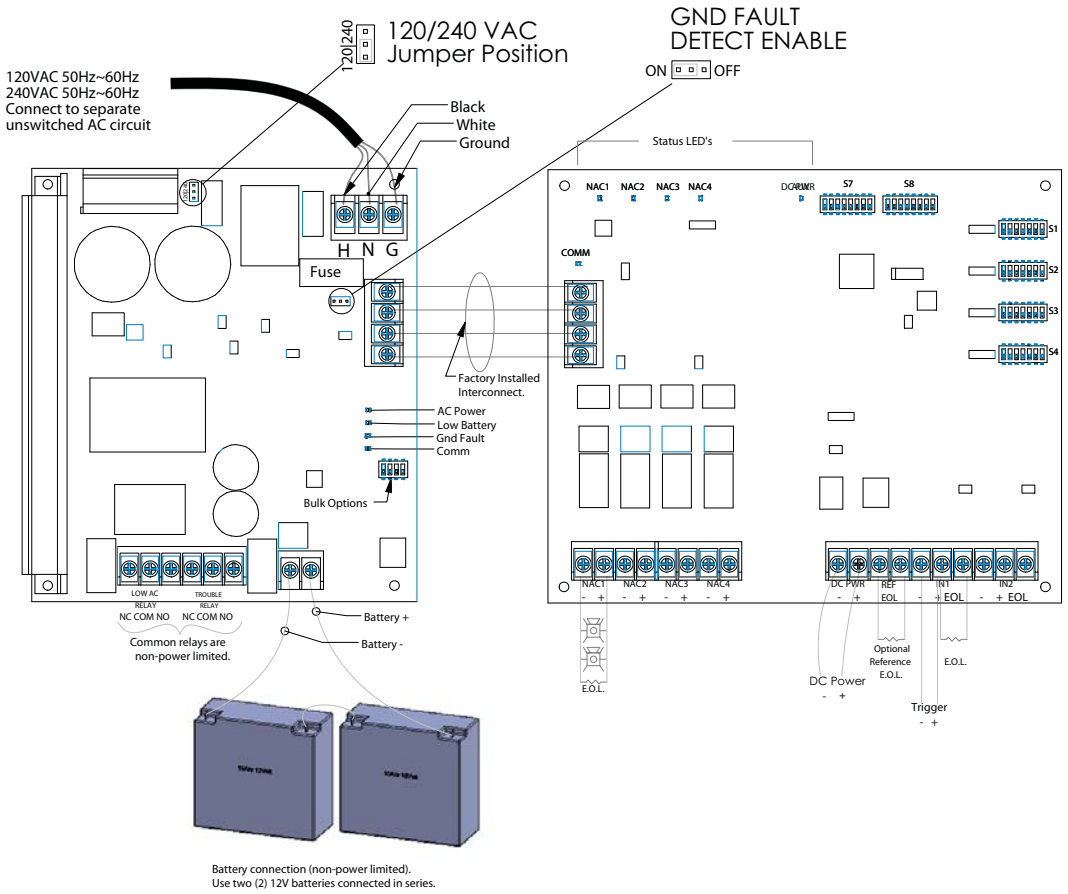
*Output Voltage Test*: Under normal load conditions, the DC Power output voltage should be checked for proper voltage level. Refer to the Power Supply Output Specifications Chart).
*Battery Test*: Under normal load conditions, check that the battery is fully charged. Check specific voltage both at the battery terminal and at the board terminals marked [+BAT-] to ensure there is no break in the battery connection wires.
Note: Maximum charging current is 1 amp.
Note: Expected battery life is 5 years; however it is recommended changing batteries in 4 years or less if needed.

## Electrical Operating Characteristics

| | |
|---|---|
| Input Voltage | 120 VAC @ 5.1 Amps or 240 VAC @ 2.5 Amps (Jumper selected) 50/60 Hz |
| Input Trigger | 8 VDC to 33 VDC (15 ma) filtered or full wave rectified. Polarity reversal or continuous voltage |
| Output Voltage | 24 VDC @ 6 Amps |
| Notification Outputs | 24 VDC 3.0 Amps Maximum, Polarity Reversal |
| DC Power | 3.0 Amps |
| **Total System Current** | PSN-64 = 6 Amps<br>(total system load from all output circuits must not exceed 6 amps total) |

The system uses a "Sealed Lead Acid" or "Gel-Cell" type of battery with a capacity of from 7 to 55 amp-hours. Fuse must be replaced with same size and rating (8A-250VAC, Time Lag).

## Notification Power Supply




Primary AC
120VAC 50Hz~60Hz, 5.1AMP
Min Low AC Detect 97VAC
240VAC 50~60Hz 2.5AMP
Min Low AC Detect 190VAC

Common Relays
3A @ 125VAC (Resistive)
3A @ 30VDC (Resistive)

Battery Charging
27.3VDC @ 1 A
Low Battery Detect @20.4VDC

Earth Fault to Any Terminal
0 Ohms

Notification Appliance Circuits 1-4
27.3VDC @3A Power Limited
Regulated
Synchronization supported on NAC 1-4

DC Power Circuit
20.4VDC - 27.3VDC @3A Power Limited
Special Application RSG-DH1224
Listed Door Holder

Fuse Specification
8A-250VAC Time-Lag

Note: Total current draw from NAC 1-4 and DC Power must not exceed 6 amps.

F.C.C.
This device has been verified to comply with FCC Rules Part 15, Class A Operation is subject to the following conditions:
1. This device may not cause radio interference.
2. This device must accept any interference received including any that may cause undesired operation.

Requirements
System must be fully tested after installation.
Intended for indoor use in dry locations only.
Separation of power limited wiring from non-power limited wiring must be at least 1/4".

For proper operation the voltage drop to the farthest connected device must not exceed 3 volts. This can be calculated using the following formula:

(Alarm Current of Notification Appliances)

x (Wire Resistance)

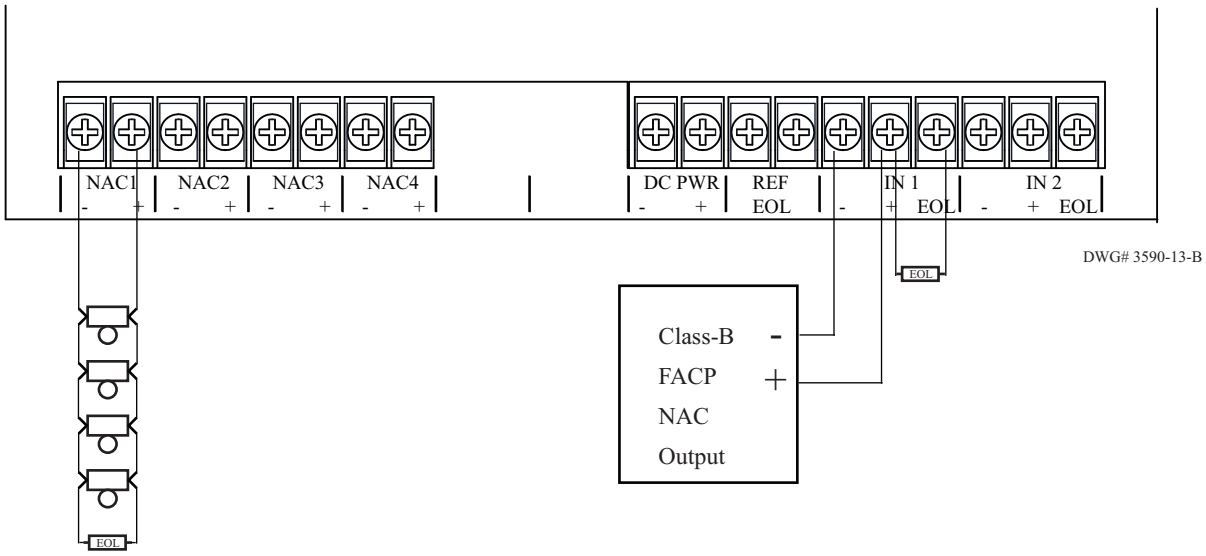
< 3 volts

Install in accordance with installation manual Part Number 5403590 Rev A, NFPA 70, and NFPA 72

## Wiring Options

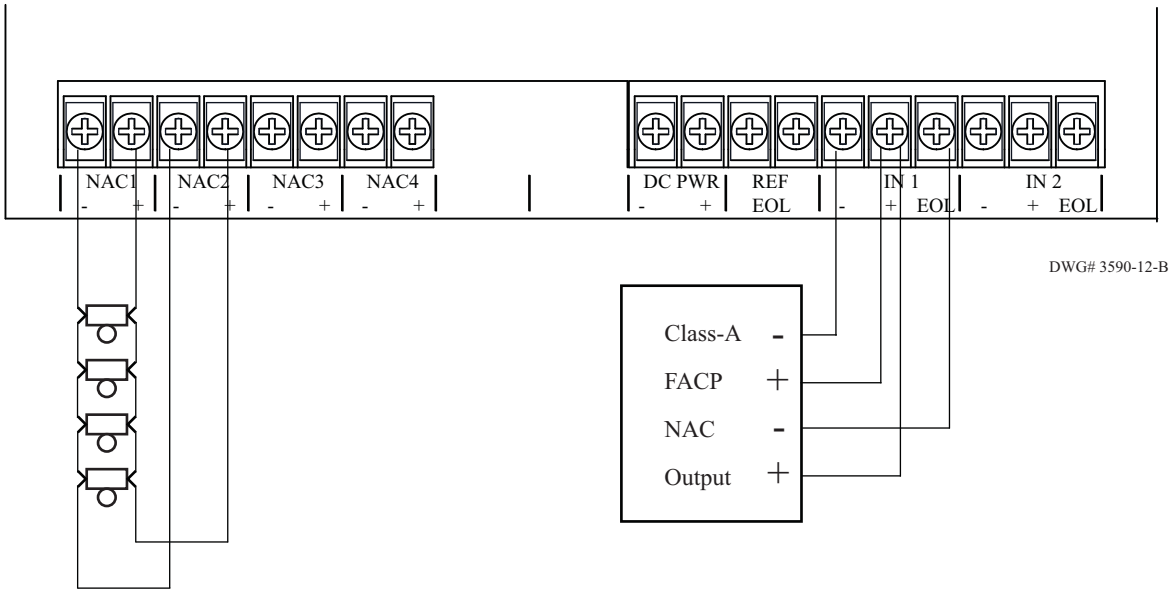
*Class B Trigger and Class B Notification Circuit Trigger*

Class B Style Y Trigger and Class B Style Y Notification Circuit Trigger inputs IN1 & IN2 can be connected to a Class B Style Y NAC trigger circuit as shown below. The PSN-64 provides 4 Class B Style Y NAC circuits, each rated for 3 amps. The PSN-64 provides 4 Class B Style Y NAC circuits, each rated at 3 amps. Each NAC circuit is individually selectable for Class A Style Z/ Class B Style Y operation, refer to the Dip Switch Programming section for information on dip switch programming.



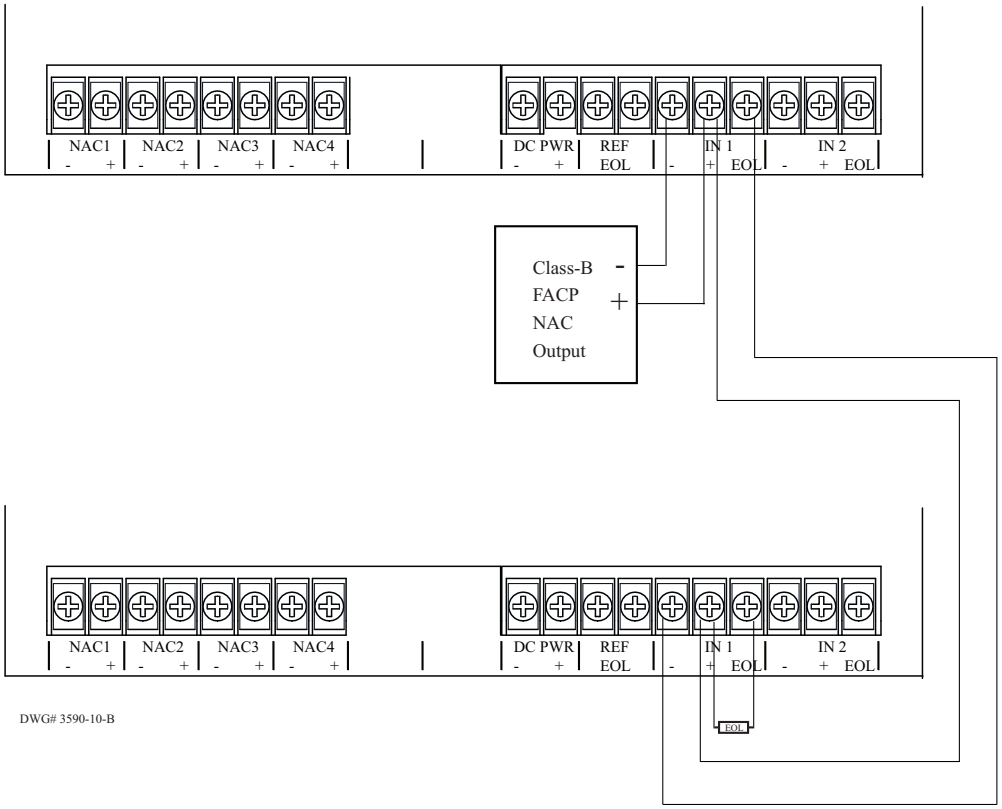

*Class A Trigger and Class A Notification Circuit*

Trigger inputs IN1 & IN2 can be connected to a class A NAC trigger circuit as shown below. The PSN-64 provides 3 Class A Style Z NAC circuits, each rated for 3 amps. The PSN-64 provides 4 Class B Style Y NAC circuits, each rated at 3 amps. Each NAC circuit is individually selectable for Class A Style Z/Class B Style Y operation, refer to the Dip Switch Programming section for information on dip switch programming.



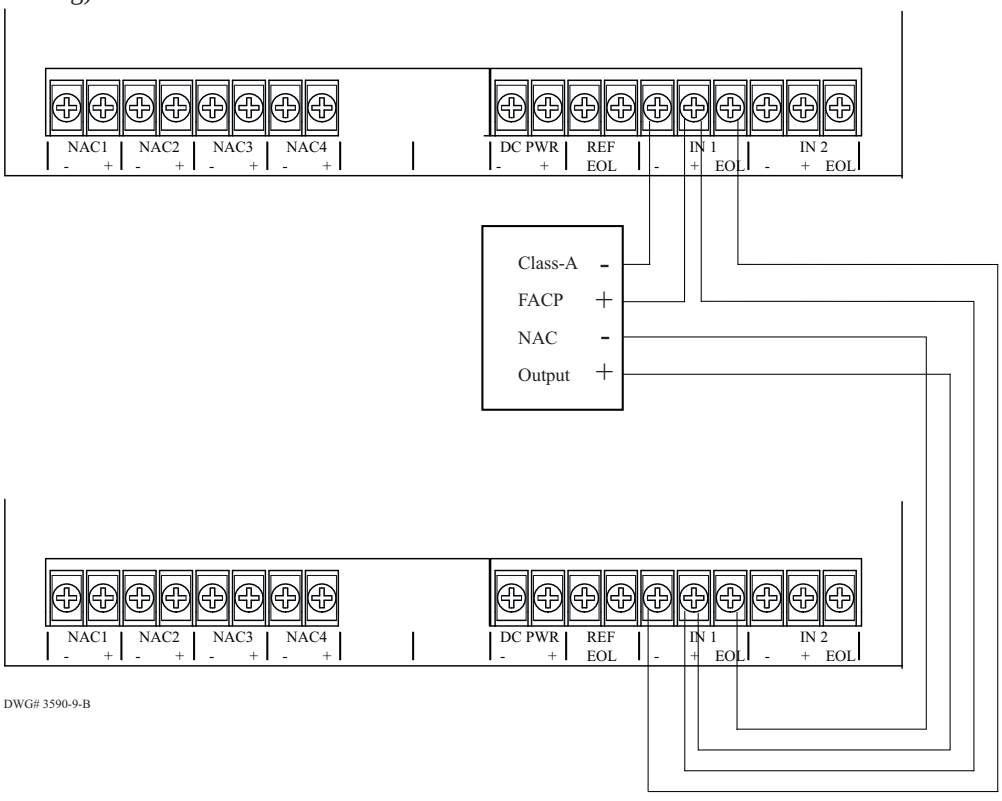
*Class B - Multiple Supply Trigger*

A single Class B Style Y trigger can be used to activate multiple supplies as shown below. The EOL resistor is located on the last supply in the chain. The minimum wire gauge between supplies is 18 AWG. A maximum wiring distance of 10,000 feet is allowed from the triggering FACP and the last supply in the chain.



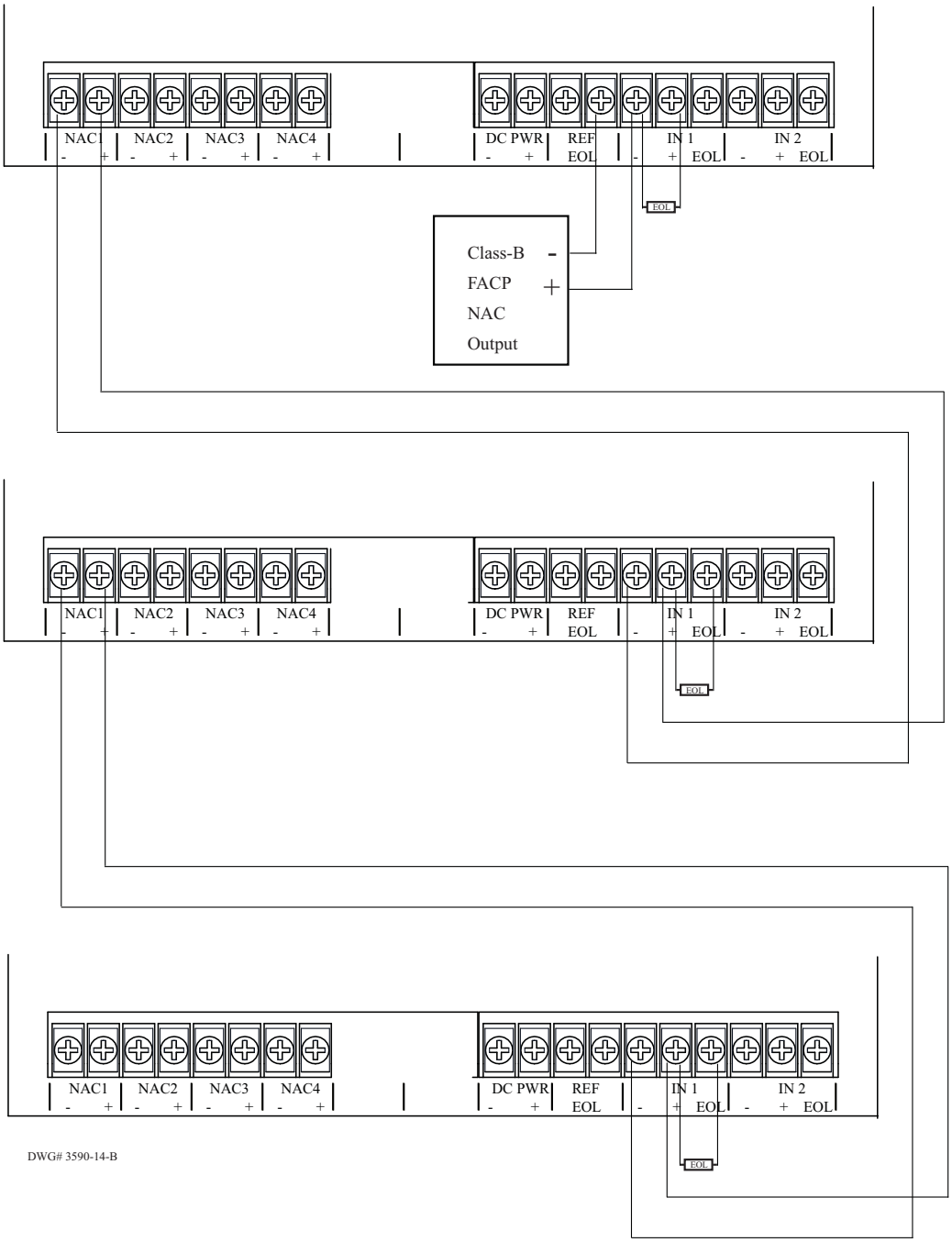

*Class A - Multiple Supply Trigger*

A single Class A Style Z trigger can be used to activate multiple supplies as shown below. The minimum wire gauge between supplies is 18 AWG. A total wiring distance of 10,000 feet is allowed from the triggering FACP to the last supply in the chain (including the return wiring).



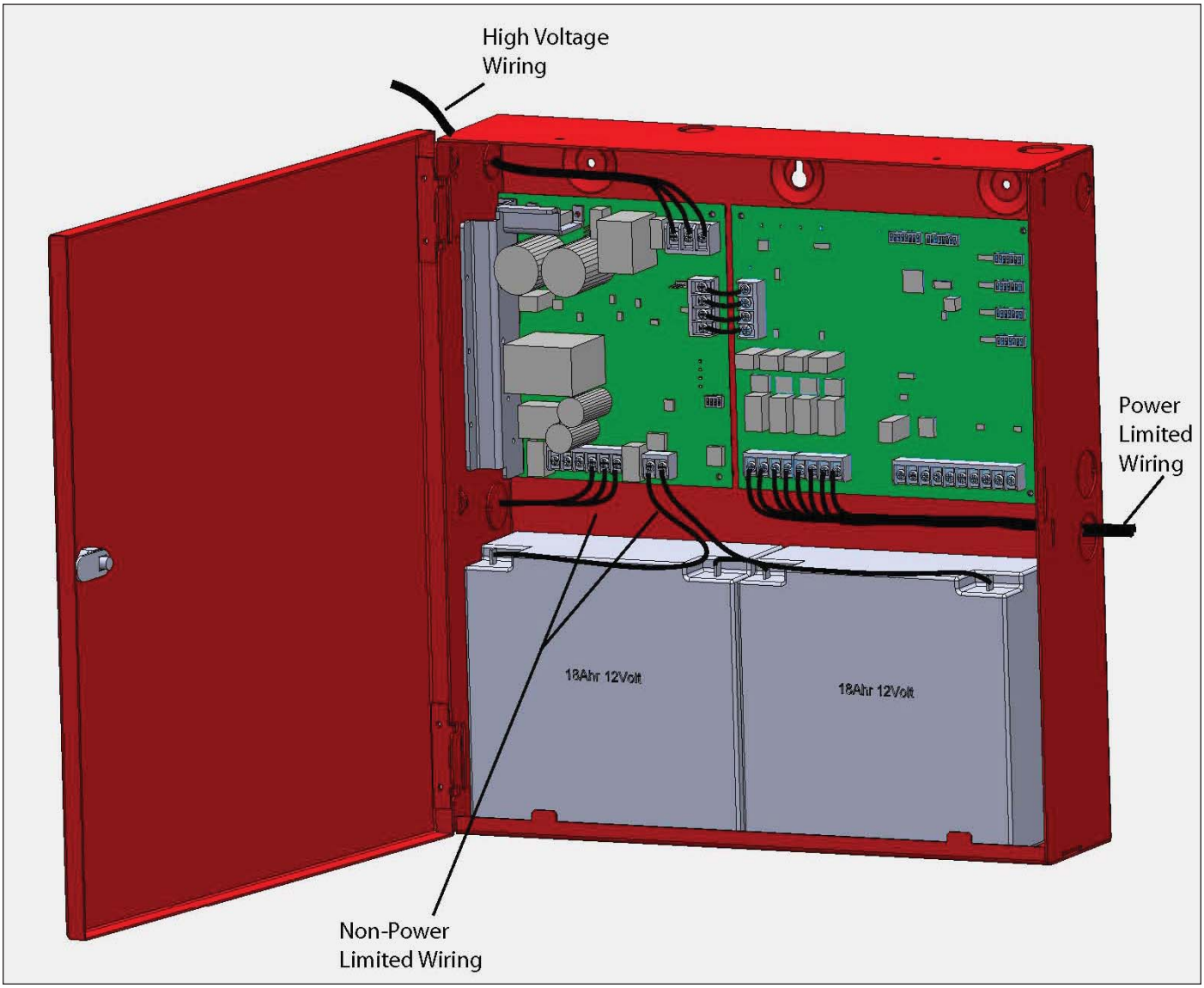
*Pass Thru Mode*

The NAC output of the PSN-64 can be used to trigger additional supplies. Up to 3 supplies maximum can be configured in this manner. Full system synchronization is maintained. The minimum wire gauge between supplies is 18 AWG. A maximum wiring distance of 10,000 feet is allowed between each supply.



## Wire Routing

A minimum of ¼ inch separation must be maintained between Power Limited, Non-Power Limited, and High Voltage wiring. See illustration for suggested wire routing




## Reference EOL

The PSN-64 uses a standard 5.1k EOL resistor (Potter part number 3005013).

In retrofit applications where a value other than 5.1k is already in use, a reference EOL input is provided. Simply connect a matching EOL resistor to the reference EOL input. All NAC wiring will then be supervised based on this value. Any EOL value from 2.0k to 27k can be used.

If no reference EOL is connected, 5.1k is assumed.

## Dip Switch Programming

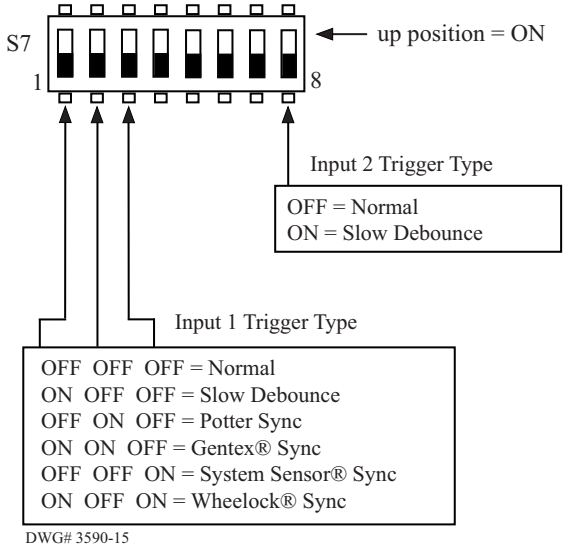
**⚠ WARNING**

Remove power before servicing or changing DIP switch programming selections

*Input Trigger Type*

(Selects the behavior of trigger inputs.)

- Normal Trigger: Trigger input is sampled at a high rate. Used for simple DC Power triggers, as well as for sync follow and pass-thru mode. A NAC configured as constant output will follow triggered and immediately activate.
- Slow Debounce (Slow Trigger): Allows a non-standard trigger signal to be used for activation. The slower response allows the outputs to remain active when the trigger signal is changing. This trigger will operate with ANSI Temporal Code 3.
- Synchronization Triggers (Potter, Gentex®, Wheelock®, System Sensor®): Used with QuadraSync to maintain synchronization of devices from different manufacturers.

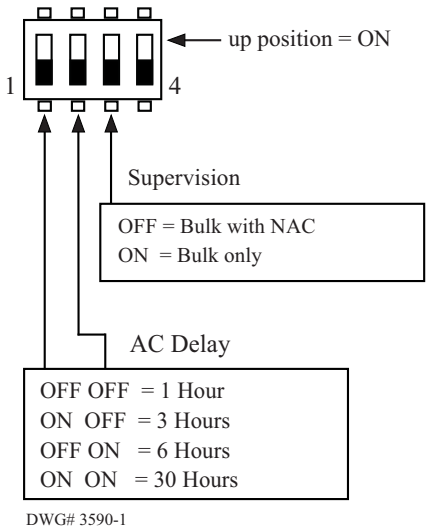



*Bulk Supply Options*

AC Report Delay:
Selects number of hours to delay before activating the general trouble relay in response to a low AC condition. Note that the Low AC relay is activated immediately.

Supervision:
This should always be in the OFF position to allow supervision of the wiring between the 24 VDC bulk supply board and the NAC control board.

NAC control board global options



*Class A/B Selection*

Each pair of NACs can be individually configured for class A/B operation. When class A is selected, the individual NAC options for the first NAC in the pair will apply. For example, is the circuit pair 1&2 is programmed for class A operation, then only the individual NAC option dip switch for circuit 1 will be used.

*Door Holder AC Dropout delay*

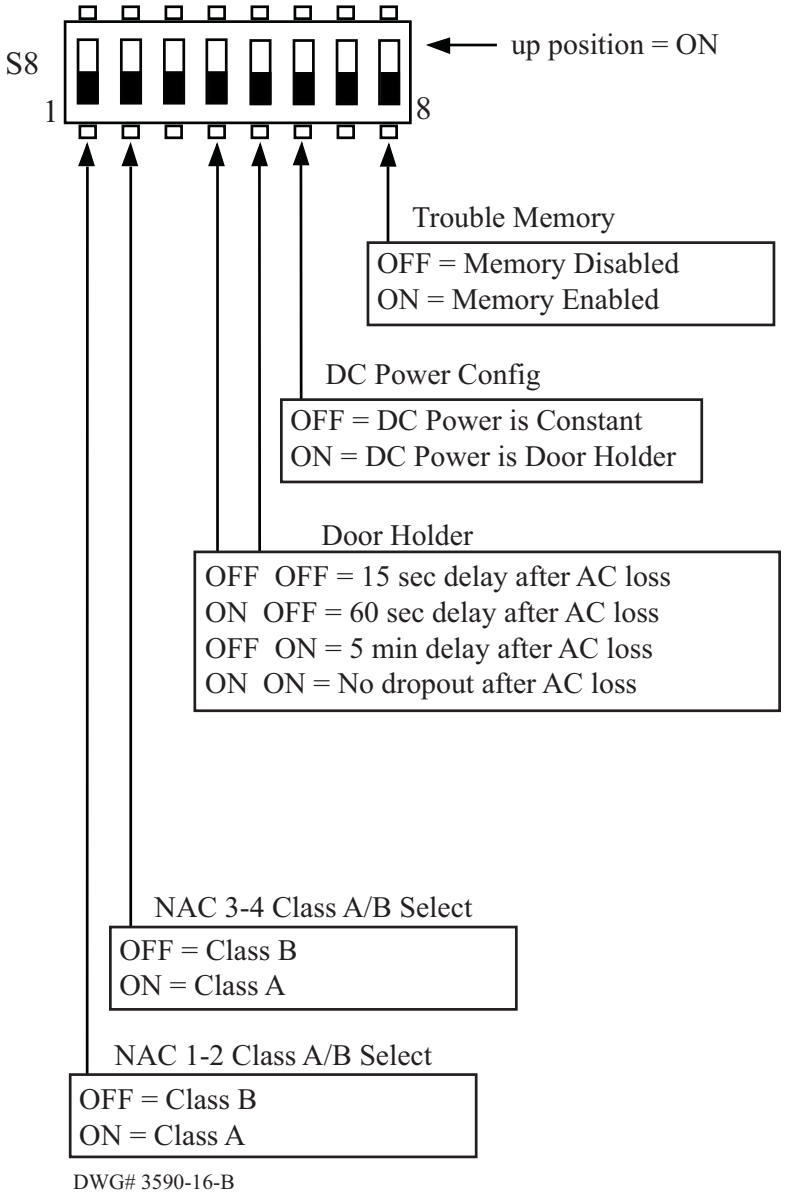
If the DC power output is used as door holder power, it can be configured to drop out in response to a low AC condition in order to minimize standby current. To minimize nuisance conditions a selectable AC dropout delay is provided. If "No doorholder dropout on AC Loss" is selected, door holder power will drop out in response to an alarm condition only.

*DC Output is Door Holder*

Specifies whether the DC power output will act as door holder power. If selected, the DC power will drop out in response to an alarm condition and optionally a low AC condition.

*Trouble Memory Enabled*

When enabled, any trouble conditions will be stored in memory after the condition has been corrected. Stored trouble conditions are indicated on the LED associated with the original trouble condition.

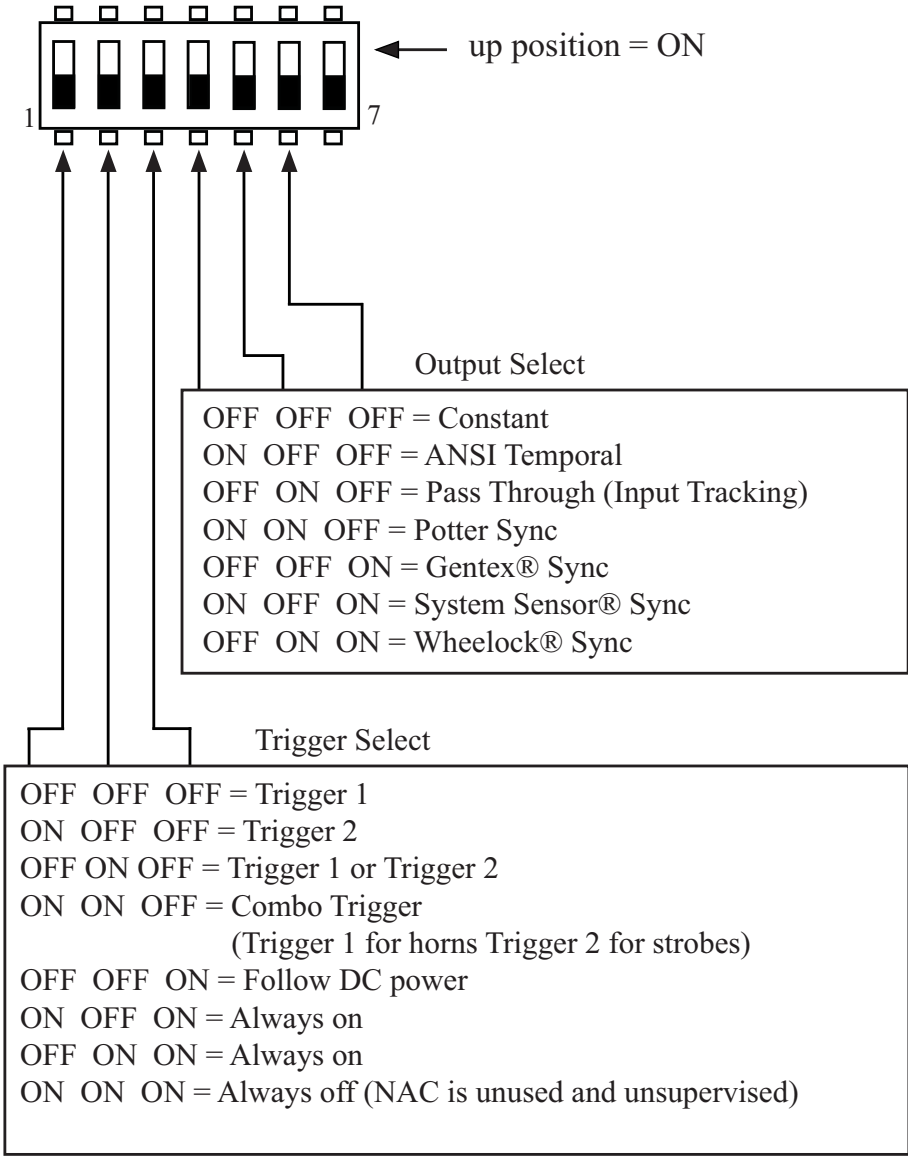



DWG# 3590-16-B

## Individual NAC Options

Conditions for activating each NAC are individually programmed.
Trigger Selection: specifies which trigger input(s) to respond to.

- Trigger 1: NAC will activate when Trigger 1 is activated
- Trigger 2: NAC will activate when Trigger 2 is activated
- Trigger 1 or Trigger 2: NAC will activate when either Trigger 1 or Trigger 2 is activated.
- Combo: Can be used to separately control horns & strobes when used with one of the supported synchronization protocols. If Trigger 1 is present, both horns and strobes will be activated. If only Trigger 2 is present, horns will be disabled, and strobes will be activated.
- Follow DC Power: When selected, the NAC will exactly follow the activation/deactivation of the DC power output. Can be used to create additional door-holder power circuits.
- Always ON: Used to create a constant ON power output.
- Unused: NAC circuit will be unused .
- Output Selection: Specifies the output pattern to be generated when the output is activated.




DWG# 3590-11

## Indicator LED Behavior

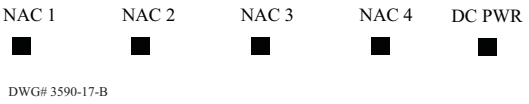
The NAC control board contains an indicator LED for each NAC circuit and a comm LED:

- NAC Led: Fast Flashing = NAC trouble (EOL missing, EOL shorted, or current limit condition)
- NAC Led: Solid or Pattern = NAC active. LED will follow pattern of NAC
- Comm: Used only to indicate supervision activity between bulk and control boards.

If the trouble memory option is enabled (Trouble Memory dip switch option on) the LEDs indicate if any previous trouble conditions are stored in memory.

> Example: Suppose Trouble Memory is enabled and a NAC circuit EOL is detected as missing. While the EOL is missing, the LED associated with the NAC will flash continuously to indicate the trouble. If the EOL is replaced and the trouble condition is no longer present, the LED will begin issuing the trouble memory flash. This flash indicates that a trouble existed previously, but is no longer present. The trouble memory indication consists of two short flashes issued once per second.

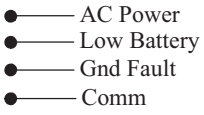
Clear/reset Trouble Memory by setting the Trouble Memory dip switch off, and then back on to enable the feature.




DWG# 3590-17-B

The bulk supply board contains four indicator LEDs:

- AC Power: ON = AC Present, OFF = AC not present).
- Low Battery: Fast Flashing = Low battery condition. ON = Battery Charger Failure
- Earth Ground Fault: Flashing = Earth fault detected.
- Comm: Used only to indicate supervision activity between bulk and control boards (about one per second).




DWG# 3590-18

## Battery Calculation Worksheet

Standby current for the PSN-64 is 75 milli-amps.

**Secondary Power Supply Requirements Table**

| Service Use | Standby Time | Alarm Time |
|---|---|---|
| NFPA 72<br>• Central Station (PPU)<br>• Local | <br>24 hours<br>24 hours | <br>5 minutes<br>5 minutes |

**Calculation Table**

| 1 | 2 | 3 | 4 | 5 | 6 |
|---|---|---|---|---|---|
| Module/Device | Quantity | Standby mA Per Unit | Total Standby Current | Alarm mA Per Unit | Total Alarm Current |
| PSN-64 | 1 | 75 | 75 | 75 | 75 |
| | | | | | |
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| | | | |
|---|---|---|---|
| Total mA | | Total mA | |
| Convert to A | x 0.001 | Convert to A | x 0.001 |
| (* Refer to Maximum allowable standby current)Total A | | Total A | |
| Multiply by hours | x ___ | 5 min/12 or 10 min/6 | ÷ ___ |
| Total Standby AH | | Total Alarm AH | |
| | | + Total Standby AH | |
| | | Total AH | |
| | | Efficiency Factor | ÷ 0.85 |
| *Use a battery with a higher AH rating than Required AH* | | Required AH | |

*** Maximum Allowable Standby Current (24-hour standby time)**

| Battery Size | UL 24-hour | ULC 24-hour |
|---|---|---|
| 7 AH | .213 Amps | .213 Amps |
| 18 AH | .603 Amps | .603 Amps |
| 33 AH | 1.134 Amps | .603 Amps |
| 55 AH | 1.913 Amps | .603 Amps |

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# Section 3: PSB-10
# Installation, Operation, and Instruction Manual

## Bulk Power Supplies

(All specifications subject to revision.)

## ⚠ WARNING

The fire alarm system employing this power supply must be designed by people trained and competent in the design and layout of fire alarm systems. The system shall be designed and installed in accordance with all local and national codes and ordinances as well as the approval of the Authority Having Jurisdiction. Only trained, qualified and competent individuals should install, program and/or service the POTTER FIRE POWER SUPPLY. Competent people would be aware of these warnings, limitations, and requirements.

High voltage electrocution hazard. Do not handle live AC wiring or work on the device while AC power is active.

This manual is designed to help with the specification, installation, and programming of the POTTER FIRE POWER SUPPLY. It is imperative that this manual be completely read and understood before the installation or programming of the power supply. Save this manual for future reference.

## General Description

The Potter PSB series of Bulk power supplies provides continuous power to devices which require 24VDC power. The PSB supply features an efficient switch mode power supply design which is up to 50% more efficient than linear mode supplies. The PSB is used whenever power is needed to power a device which requires up to 10 amps continuously (PSB-10), which is best accomplished by mounting the PSB near the load being serviced, this minimizes voltage drops caused by long cable lengths. Backup power is provided via batteries which can range in size from 7-55 Ahr (17Ahr in cabinet, larger batteries require accessory battery box). Battery integrity is monitored via the built in charger which features a low battery cut-off circuit to protect against damage to the batteries during deep discharge.

## Product Features

- Input voltage: 120/240VAC 50/60Hz
- Output voltage 27.3VDC @10A
- Supervised Battery Charger: 27.3 @ 1A (supports 7-55 Ahr batteries)
- Integrated battery cut-off circuitry to protect batteries from deep discharge
- Two Common Trouble Relays (5A at 30VDC)
  - General System Trouble (programmable for AC delay via dip-switch)
  - Low AC Trouble
- Diagnostic LED's
  - Status LED's for Active NAC and NAC trouble conditions
  - Status LED's for Earth Fault (Amber), AC (Green), Battery Fault (Amber)
- Trouble Memory feature captures troubles which have previously restored.

## Mounting Instructions

The standard mounting is a surface mount cabinet. The unit must be securely attached to a permanent partition using suitable fasteners. Five mounting holes are provided to accept ¼ inch diameter screws maximum. There are seven knockouts provided.

## Operating Instructions

*Normal Operation*

The PSB-10 provides constant power to the devices which are connected to it. In the event of a loss of AC the PSB-10 will switch to battery backup and indicate a trouble condition.

*Trouble Condition*

**NOTICE**

If the trouble memory feature has been enabled the L.E.D. will provide two brief pulses every second to indicate a trouble condition has occurred but is now restored. This can be useful when troubleshooting brief trouble conditions that come and go over a period of time.

AC:
When the Power supply detects the A.C. power input has fallen below an acceptable level the AC Power L.E.D. will flash at a 50% rate to indicate a trouble condition, the trouble relay will also activate during a trouble condition of this type and after a programmed delay the Low AC relay will also activate. When the trouble condition has been restored the L.E.D. and trouble relays will return to their normal state. (See notice.)

Low Battery:
When the Power supply detects the Battery is no longer functioning properly the Low Battery L.E.D. will flash at a 50% rate to indicate a trouble condition, the trouble relay will also activate during a trouble condition of this type. When the trouble condition has been restored the L.E.D. and trouble relay will return to their normal state. (See notice.)

Ground Fault:
When the Power supply detects a ground Fault condition which indicates a short between the Power Supply ground and the Earth Ground circuits the Ground Fault L.E.D. will flash at a 50% rate to indicate a trouble condition, the trouble relay will also activate during a trouble condition of this type. When the trouble condition has been restored the L.E.D. and trouble relay will return to their normal state. (See notice.)

### *Testing and Maintenance*

System Testing should be performed periodically to insure proper operation.
Standby batteries and AC transfer are tested by interrupting the AC power line while an alarm condition exists.

## Battery Maintenance

The PSB-10 should be tested at least once a year for proper operation as follows:

*Output Voltage Test*: Under normal load conditions, the DC output voltage should be checked for proper voltage level. Refer to the Power Supply Output Specifications Chart).

*Battery Test*: Under normal load conditions, check that the battery is fully charged. Check specific voltage both at the battery terminal and at the board terminals marked [+BAT-] to ensure there is no break in the battery connection wires.
Note: Maximum charging current is 1 amp.
Note: Expected battery life is 5 years; however it is recommended changing batteries in 4 years or less if needed.

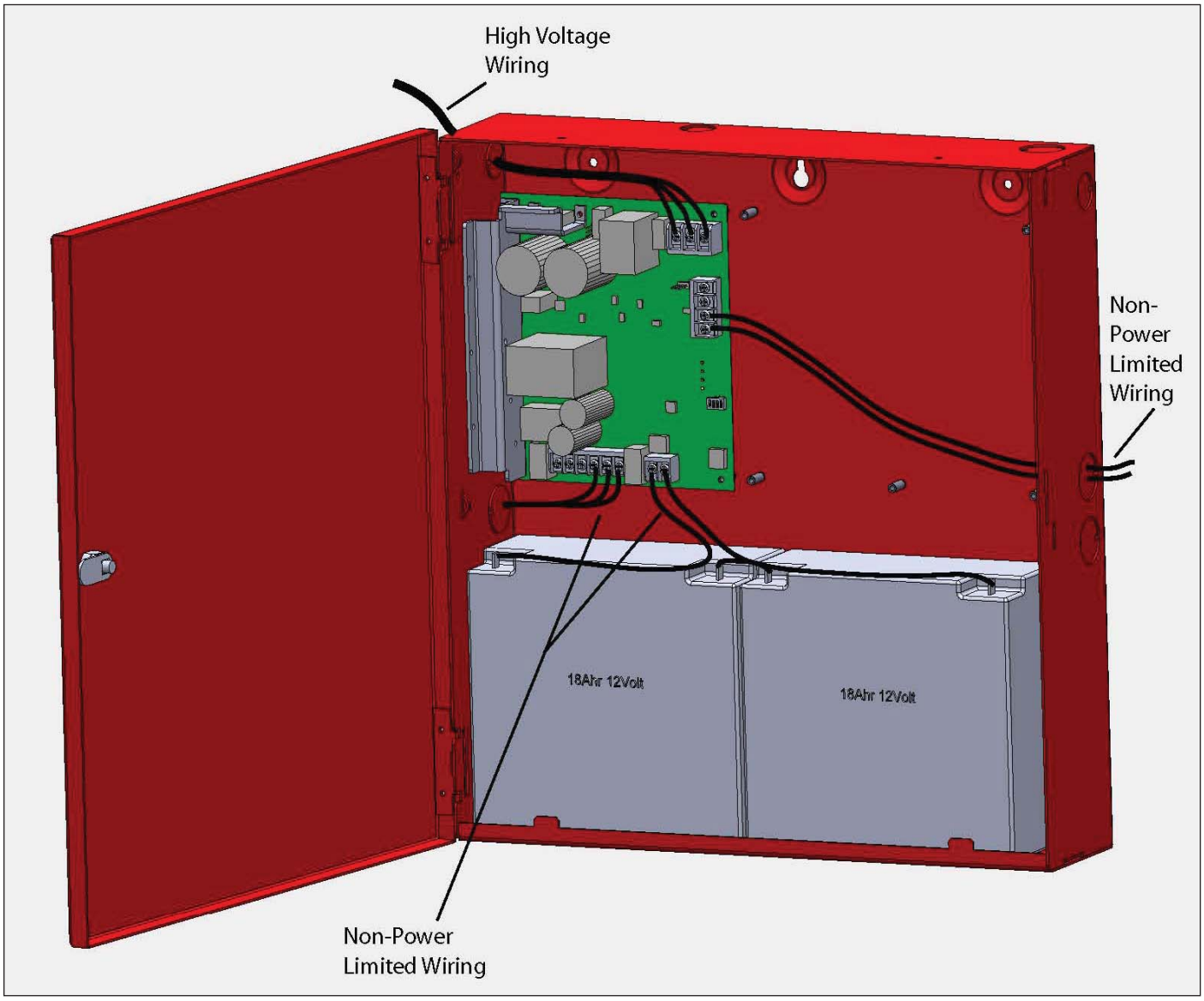
## Electrical Operating Characteristics

| | |
|---|---|
| Input Voltage | 120 VAC @ 5.1 Amps or 240 VAC @ 2.5 Amps (Jumper selected) 50/60 Hz |
| Output Voltage | 24 VDC @ 10 Amps |
| Total System Current | PSB-10 = 10 Amps |

The system uses a "Sealed Lead Acid" or "Gel-Cell" type of battery with a capacity of from 7 to 55 amp-hours. Fuse must be replaced with same size and rating (8A-250VAC, Time Lag).

## Wire Routing

A minimum of ¼ inch separation must be maintained between Power Limited, Non-Power Limited, and High Voltage wiring. See illustration for suggested wire routing




**Note:** The output of the bulk power supply is not power limited. All field wiring must be a minimum of 18 AWG and installed in conduit. All wiring connections must be made within 20 feet (6.1 meters) of the bulk supply.

## Dip Switch Programming

**WARNING**

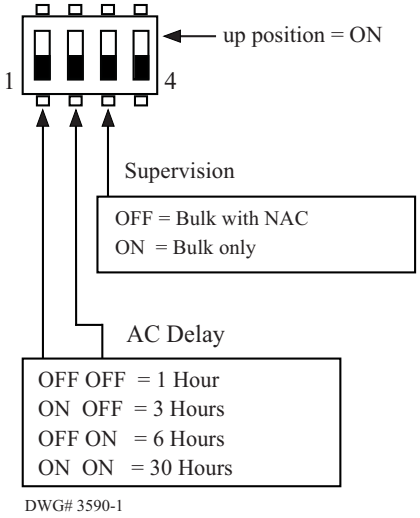
Remove power before servicing or changing DIP switch programming selections

*Bulk Supply Options*

AC Report Delay:
Selects number of hours to delay before activating the general trouble relay in response to a low AC condition. Note that the Low AC relay is activated immediately.

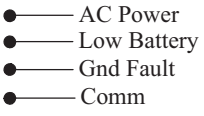
Supervision:
This should always be in the OFF position to allow supervision of the wiring between the 24 VDC bulk supply board and the NAC control board.

NAC control board global options




DWG# 3590-1

## Indicator LED Behavior

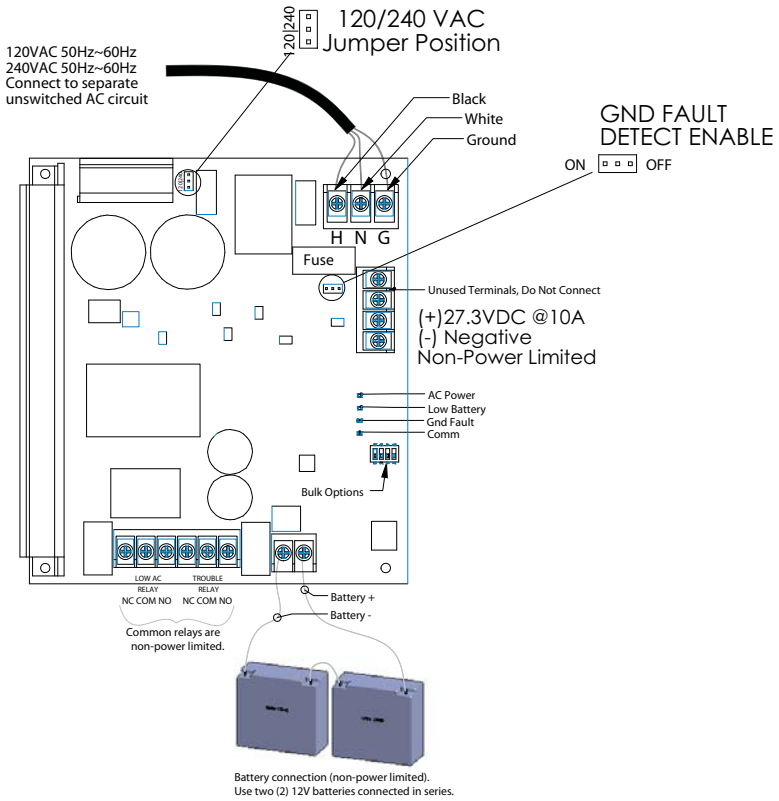



DWG# 3590-18

The bulk supply board contains four indicator LEDs:

- AC Power: ON = AC Present, OFF = AC not present).
- Low Battery: Fast Flashing = Low battery condition. ON = Battery Charger Failure
- Earth Ground Fault: Flashing = Earth fault detected.
- Comm: Not Used

## Bulk Power Supply




Primary AC
120VAC 50Hz~60Hz, 5.1AMP
Min Low AC Detect 97VAC
240VAC 50~60Hz 2.5AMP
Min Low AC Detect 190VAC

Common Relays
3A @ 125VAC (Resistive)
3A @ 30VDC (Resistive)

Battery Charging
27.3VDC @ .75A
Low Battery Detect @20.4VDC

Earth Fault to Any Terminal
0 Ohms

Output Power
20.4VDC-27.3VDC @10A Non-Power Limited
Special Application RSG-DH1224
Listed Door Holder

Fuse Specification
8A-250VAC Time-Lag

F.C.C.
This device has been verified to comply with FCC Rules Part 15, Class A Operation is subject to the following conditions:
1. This device may not cause radio interference.
2. This device must accept any interference received including any that may cause undesired operation.

Requirements
System must be fully tested after installation.
Intended for indoor use in dry locations only.
Separation of power limited wiring from non-power limited wiring must be at least ¼".

Install in accordance with installation manual Part Number 5403590 Rev A, NFPA 70, and NFPA 72

## Battery Calculation Worksheet

Standby current for both the PSB-10 is 30 milli-amps.

### Secondary Power Supply Requirements Table

| Service Use | Standby Time | |
|---|---|---|
| NFPA 72<br>• Central Station (PPU)<br>• Local | <br>24 hours<br>24 hours | |

### Calculation Table

| 1 | 2 | 3 | 4 |
|---|---|---|---|
| Module/Device | Quantity | mA Per Unit | Total Current |
| PSB-10 | 1 | 30 | 30 |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |

| | |
|---|---|
| Total mA | |
| Convert to A | x 0.001 |
| (* Refer to Maximum allowable standby current)Total A | |
| Multiply by hours | x ___ |
| Total AH | |
| Efficiency Factor | ÷ 0.85 |
| Required AH | |

*Use a battery with a higher AH rating than Required AH*

*** Maximum Allowable Standby Current (24-hour standby time)**

| Battery Size | UL 24-hour | ULC 24-hour |
|---|---|---|
| 7 AH | .213 Amps | .213 Amps |
| 18 AH | .603 Amps | .603 Amps |
| 33 AH | 1.134 Amps | .603 Amps |
| 55 AH | 1.913 Amps | .603 Amps |

# WARRANTY INFORMATION

The essential purpose of any sale or contract for sale of any of the products listed in the POTTER catalog or price list is the furnishing of that product. It is expressly understood that in furnishing said product, POTTER does not agree to insure the Purchaser against any losses the Purchaser may incur, even if resulting from the malfunction of said product.

POTTER warrants that the equipment herein shall conform to said descriptions as to all affirmation of fact and shall be free from defects of manufacture, labeling and packaging for a period of one (1), one and one half (1.5), three (3), or five (5) year'(s), depending on the product, from the invoice date to the original purchaser, provided that representative samples are returned to POTTER for inspection. The product warranty period is stated on the exterior of the product package. Upon a determination by POTTER that a product is not as warranted, POTTER shall, at its exclusive option, replace or repair said defective product or parts thereof at its own expense except that Purchaser shall pay all shipping, insurance and similar charges incurred in connection with the replacement of the defective product or parts thereof. This Warranty is void in the case of abuse, misuse, abnormal usage, faulty installation or repair by unauthorized persons, or if for any other reason POTTER determines that said product is not operating properly as a result of causes other than defective manufacture, labeling or packaging.

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**Potter Electric Signal Company, LLC**
**St. Louis, MO • 314-595-6900 • 800-325-3936**

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# SK-PHOTO-W SERIES

## Addressable Photoelectric Smoke Detectors

**The Silent Knight® SK-PHOTO-W Series feature a modern design and expanded color options support a variety of contemporary aesthetic demands. In addition, each detector is constructed for exceptional installation and maintenance efficiency.**

The SK-PHOTO-W Series intelligent plug-in smoke detectors are designed for both performance and aesthetics, and are direct replacements for the SK-PHOTO Series detectors. A new modern, sleek, contemporary design and enhanced optical sensing chamber is engineered to sense smoke produced by a wide range of combustion sources in accordance with more stringent code standards. The SK-PHOTO-W Series detector sensitivity can be programmed in the control panel software. Sensitivity is continuously monitored and reported to the panel. Point ID capability allows each detector's address to be set with rotary, decimal address switches, providing exact detector location for selective maintenance when chamber contamination reaches an unacceptable level. Dual electronic thermistors add 135°F (57°C) fixed temperature thermal sensing on the SK-PHOTO-T-W. The SK-PHOTO-R-W is a remote test capable detector for use with DNR Series duct detector housings.

## FEATURES AND BENEFITS

- Designed to meet UL 1268 7th Edition
- Sleek and stylish contemporary design
- Stable communication technique with noise immunity
- Addressable by device
- Rotary, decimal addressing (Refer to the Silent Knight panel manuals for device capacity)
- Two-wire SLC connection
- LEDs blink every time the unit is polled
- 360°-field viewing angle of the visual alarm indicators (two bi-color LEDs); LEDs blink green in Normal condition and turn on steady red in Alarm
- Integral communications and built-in device-type identification
- Remote test feature from the panel
- Built-in functional test switch activated by external magnet
- Walk test with address display (an address of 121 will blink the detector LED 12-(pause)-1)
- Low standby current
- Built-in tamper-resistant feature
- Designed for direct-surface or electrical-box mounting
- Sealed against back pressure
- Plugs into separate base for ease of installation and maintenance
- Expanded color options
- SEMS screws for wiring of the separate base
- Optional remote, single-gang LED accessory
- Optional sounder, relay, and isolator bases

Honeywell
SILENT KNIGHT

## INSTALLATION

The SK-PHOTO-W Series plug-in intelligent thermal detectors use a separate base to simplify installation, service, and maintenance. Installation instructions are shipped with each detector.

Mount base (all base types) on an electrical backbox which is at least 1.5" (3.81 cm) deep. For a chart of compatible junction boxes, see SK-61045.

**Note:** Because of the inherent supervision provided by the SLC loop, end-of-line resistors are not required. Wiring "T-taps" or branches are permitted for Style 4 (Class "B") wiring.

**Note:** When using relay or sounder bases, consult the SK-ISO installation sheet I56-3627 for device limitations between isolator modules and isolator bases.

## OPERATION

Each SK-PHOTO-W Series detector uses one of the panel's addresses (total limit is panel dependent) on the Signaling Line Circuit (SLC). It responds to regular polls from the control panel and reports its type and the status. If it receives a test command from the panel (or a local magnet test), it stimulates its electronics and reports an alarm. It blinks its LEDs when polled and turns the LEDs on when commanded by the panel. The SK-PHOTO-W Series offers features and performance that represent the latest in smoke detector technology.

## PRODUCT LINE INFORMATION

**Note:** "-IV" suffix indicates ivory color.

**SK-PHOTO-W:** White, low-profile photoelectric sensor

**SK-PHOTO-T-W:** White, same as SK-PHOTO-W but includes a built-in 135°F (57°C) fixed-temperature thermal device

**SK-PHOTO-R-W:** White, low-profile intelligent photoelectric sensor, remote test capable, for use with DNR/DNRW

**B300-6:** White, standard flanged low-profile mounting base

**B300-6-BP:** Bulk pack of B300-6, package contains 10

**B300-6-IV:** Ivory, standard flanged low-profile mounting base

**B501-WHITE:** White, standard European flangeless mounting base

**B501-BL:** Black, standard European flangeless mounting base

**B501-IV:** Ivory, standard European flangeless mounting base

**B501-WHITE-BP:** Bulk pack of B501-WHITE, contains 10

**B200S-WH:** White, Intelligent, programmable sounder base

**B200S-IV:** Ivory, Intelligent, programmable sounder base

**B200SR-WH:** White, Intelligent sounder base for retrofit applications

**B200SR-IV:** Ivory, Intelligent sounder base for retrofit applications

**B200S-LF-WH:** White, Low Frequency Intelligent, programmable sounder base

**B200S-LF-IV:** Ivory, Low Frequency Intelligent, programmable sounder base

**B200SR-LF-WH:** White, Low Frequency Intelligent sounder base for retrofit applications

**B200SR-LF-IV:** Ivory, Low Frequency Intelligent sounder base for retrofit applications

**B224RB-WH:** White, plug-in System Sensor® relay base

**B224RB-IV:** Ivory, plug-in System Sensor relay base

**B224BI-WH:** White, plug-in System Sensor isolator detector base

**B224BI-IV:** Ivory, plug-in System Sensor isolator detector base

## ACCESSORIES

**TR300:** White, replacement flange for B210LP or B300-6 bases

**TR300-IV:** Ivory, replacement flange for B210LP or B300-6 bases

**RA100Z(A):** Remote 3 – 32 VDC LED annunciator, mounts to a U.S. single-gang electrical box, for use with B501 and B300-6 bases only

**M02-04-00:** Test magnet

**M02-09-00:** Test magnet with telescoping handle

**CK300:** White, detector color kit, pack of 10

**CK300-IV:** Ivory, detector color kit, pack of 10

**CK300-BL:** Black, detector color kit, pack of 10

# SK-PHOTO-W SERIES TECHNICAL SPECIFICATIONS

## PHYSICAL/ENVIRONMENTAL

**Sensitivity:**

- UL Applications: 0.5% to 4.0% per foot obscuration.
- ULC Applications: 0.5% to 3.5% per foot obscuration

**Size:** 2.0" (5.3 cm) high; base determines diameter

- **B300-6:** 6.1" (15.6 cm) diameter
- **B501:** 4" (10.2 cm) diameter

For a complete list of detector bases, see SK-61045.

**Shipping weight:** 3.4 oz. (95 g)

**Operating temperature range:**

- SK-PHOTO-W: 32°F to 122°F (0°C to 50°C)
- SK-PHOTO-T-W: 32°F to 100°F(0°C to 38°C)
- SK-PHOTO-R-W installed in a DNR/DNRW: -4°F to 158°F (-20°C to 70°C)

**UL/ULC Listed Velocity Range:** 0-4000 ft/min. (1219.2 m/min.), suitable for installation in ducts

**Relative humidity:** 10% – 93% non-condensing

**Thermal ratings:** fixed-temperature set point 135°F (57°C), rate-of-rise detection 15°F (8.3°C) per minute, high temperature heat 190°F (88°C)

## ELECTRICAL SPECIFICATIONS

**Voltage range:** 15 - 32 volts DC peak

**Standby current (max. avg.):** 200µA @ 24 VDC (one communication every 5 seconds with LED enabled)

**Max current:** 4.5 mA @ 24 VDC ("ON")

## DETECTOR SPACING AND APPLICATIONS

Silent Knight recommends spacing detectors in compliance with NFPA 72. In low airflow applications with smooth ceiling, space detectors 30 feet (9.1m). For specific information regarding detector spacing, placement, and special applications refer to NFPA 72. A *System Smoke Detector Application Guide*, document A05-1003, is available at www.systemsensor.com.

## AGENCY LISTINGS AND APPROVALS

These listings and approvals apply to the modules specified in this document.In some cases, certain modules or applications may not be listed by certain approval agencies, or listing may be in process. *Consult factory for latest listing status.*

- **UL Listed:** S6173
- **FM Approved**
- **CSFM:** 7272-0559:0512



Country of origin: Mexico

**Honeywell Silent Knight**
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203.484.7161
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351634 | B | 07/19

# SK-PULL-SA / SK-PULL-DA

## Intelligent Pull Stations

The SK-PULL-SA is a single action pull station requiring only one motion to activate the station. The SK-PULL-DA is a dual action pull station requiring two motions to active the station. The SK-PULL-SA and SK-PULL-DA are for use with Honeywell Silent Knight Series fire control panel (FACP).

Extremely easy to operate, the SK-PULL-DA and SK-PULL-SA provide a fast and practical means of manually initiating a fire alarm signal. The FACP recognizes each manual pull station by its specific address saving precious seconds in determining the location of an alarm.

### INSTALLATION

The SK-PULL-SA and SK-PULL-DA can be surface mounted to an SB-I/O surface back box or semi-flush mounted on a standard single-gang with a minimum depth of 2.13"(5.40 cm) or double gang or 4" (10.61 cm) square electrical box. You can also use the optional (System Sensor® PN BG-TR) trim ring if the station is being semi-flush mounted.


**SK-PULL-SA**


**SK-PULL-DA**

## FEATURES & BENEFITS

- Installer can open station without causing an alarm condition
- Dual-color LED is visible through handle of station blinks green to indicate normal operation and remains steady red in an alarm condition
- Key operated test and reset lock using lock plate actuator
- Key matches compatible FACP locks
- Meets ADA requirement for 5 lbs maximum pull force to active
- Meets the Americans with Disabilities Act Accessibility Guidelines (ADAAG) controls and operating mechanisms guidelines (Section 4.1.3[13])
- Shell, door, and handle molded from durable LEXAN®
- Reliable analog communications for trouble-free operation
- Braille text on station handle
- Rotary address switches for fast installation
- Handle latches in down position and the word Activated appears, clearly indicating the station has been pulled
- UL Listed, including UL 38, Standard of Manually Actuated Signaling System
- CSFM Listed
- MEA Listed

# SK-PULL-SA / SK-PULL-DA Technical Specifications

## PHYSICAL

**Dimensions:** 5.5" H x 4" W x 1.45" D (14 x 10.2 x 3.7cm)

**Housing Material:** LEXAN polycarbonate resin

**Bi-Colored LED:**

**Blinking Green:** Normal

**Steady Red:** Alarm

**Switch:** Single pole, single throw (SPST) normally open (N/O) switch which closes upon activation of the pull station

## ELECTRICAL

**Operating Voltage:** 15 – 32VDC

**SLC Standby and Alarm Current:** 350µA

**Wire Gauge:** Up to 12AWG (3.1 $mm^2$)

## ENVIRONMENTAL

**Operating Temperature:** 32°F – 120°F (0°C – 49°C)

**Humidity:** 10% – 93% non-condensing

## ORDERING INFORMATION

**SK-Pull-SA:** Single Action Pull Station

**SK-Pull-DA:** Dual Action Pull Station

## ACCESSORIES

**BG-TR:** Optional trim ring.

**SB-I/O:** Surface backbox, indoor/outdoor.

* Unless otherwise noted, specifications apply to SK-Pull-SA and SK-Pull-DA

## COMPATIBILITY

**The SK-PULL-SA AND SK-PULL-DA are compatible with the following Honeywell Silent Knight fire alarm control panels:**

**6820:** Addressable fire alarm control panel

**6820EVS:** Addressable fire alarm control panel with an emergency voice system.

**6808:** Addressable fire alarm control panel

**6700:** Addressable fire alarm control panel

**5700:** Addressable fire alarm control panel

**5808:** Addressable fire alarm control panel

**5820XL:** Addressable fire alarm control panel

**5820XL-EVS:** Addressable fire alarm control panel with an emergency voice system

For a complete listing of all compliance approvals and certifications, please visit www.silentknight.com.



This document is not intended to be used for installation purposes. We try to keep our product information up-to date and accurate. We cannot cover all specific applications or anticipate all requirements. All specifications are subject to change without notice.

For Technical Support, call 800-446-6444.

**For more information**

Learn more about Honeywell Silent Knight and other products by visiting www.silentknight.com

**Honeywell Silent Knight**
12 Clintonville Road
Northford, CT 06472
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Doc 350135 | Rev E | 11/17

# SK-MINIMON

## Intelligent Mini Monitor Module

The SK-MINIMON is an addressable monitor modules for use with the Honeywell Silent Knight fire alarm control panels (FACPs). The SK-MINIMON acts as an interface to contact devices, such as waterflow switches and pull stations. The SK-MINIMON supports Class B supervised wiring to the load device. Conventional 4-wire smoke detectors can be monitored for alarm and trouble conditions

The SK-MINIMON can be mounted in a single gang junction box directly behind the monitored device. Its small size and light weight allow it to be installed without rigid mounting requirements.

**SK-MINIMON**

### INSTALLATION

The SK-MINIMON can be mounted in a single gang junction box directly behind the monitored device. Its small size and light weight allow it to be installed without rigid mounting requirements.

## FEATURES & BENEFITS

- Single contact monitor
- SK-Minimon support for Class B (Style B) contact monitor wiring
- Small and lightweight size allows for flexible mounting options
- Rotary address switches for fast installation
- UL Listed
- CSFM Listed
- FM Approved

# SK-MINIMON Technical Specifications

## PHYSICAL

**Dimensions:** 2.75" W x 1.3" H x 0.5" D
**Weight:** 1.2 oz (37 g)

## ELECTRICAL

**Operating Voltage:** 15 – 32VDC
**SLC Standby and Alarm Current:** 350 µA
**End-of-Line Resistance:** 47K Ω
**Initiating device circuit wiring resistance:** 1,500Ω max
**SLC loop resistance:** 40Ω max
**Wire Length:** 6" min.

## ENVIRONMENTAL

**Operating Temperature:** 32°F – 120°F (0°C – 49°C)
**Humidity:** 10% – 93% non-condensing

## ORDERING INFORMATION

**SK-MINIMON:** Mini monitoring module

## COMPATIBILITY

**The SK-MINIMON is compatible with the following Honeywell Silent Knight fire alarm control panels:**

**6820:** Addressable fire alarm control panel
**6820EVS:** Addressable fire alarm control panel with an emergency voice system.
**6808:** Addressable fire alarm control panel
**6700:** Addressable fire alarm control panel
**5700:** Addressable fire alarm control panel
**5808:** Addressable fire alarm control panel
**5820XL:** Addressable fire alarm control panel
**5820XL-EVS:** Addressable fire alarm control panel with an emergency voice system

For a complete listing of all compliance approvals and certifications, please visit www.silentknight.com.



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Doc 350133 | Rev G | 11/17

# SK-DUCT

## Intelligent Air Duct Smoke Detector

The SK-DUCT Intelligent air duct smoke detector is used with SK-PHOTOR (included) for detecting smoke and products of combustion present in air moving through an HVAC air handling system. When smoke is detected in a duct, the unit communicates the condition to the Honeywell Silent Knight control panel. The panel, in turn, depending on programming and wiring, turns off fans, blowers, and other devices. The duct housing allows for mounting of SK-RELAY addressable relay module.

The Model SK-DUCT Air Duct Smoke Detector utilizes photoelectric technology for the detection of smoke. It provides early detection of smoke and products of combustion present in air moving through HVAC ducts in Commercial and Industrial applications.

The SK-DUCT is in a heavy duty gray steel back box with a clear cover. It features a pivoting housing that fits both square and rectangular footprints capable of mounting to a round or rectangular duct. It installs quickly and easily.

The unit senses smoke in the most challenging conditions, operating in airflow speeds of 100 to 4000 feet per minute, temperatures of -4°F to 158°F, and a humidity range of 0 to 95 percent (non-condensing).

**SK-DUCT**

## FEATURES & BENEFITS

- Versatile mounting options: square or rectangular configuration
- New Cover tamper signal
- LED alarm indication and communication on sensor head
- Detects and limits the spread of smoke
- Rugged steel back box with clear plastic cover
- Easy to clean
- Large terminal connection screws
- Transparent cover for convenient visual inspection
- Patented sampling tube installs from front or back of the detector with no tools required
- Available space within housing to accommodate mounting of relay module
- UL listed

# SK-DUCT Technical Specifications

## PHYSICAL

**(Rectangular):** 14.38" (37 cm) L X 5" (12.7 cm) W X 2.5" (6.6 cm) D

**(Square):** 7.75" (19.7cm) L x 9"(22.9cm) W x 2.5" D (6.35cm)

**Weight:** 1.6lb (0.73kg)

## ELECTRICAL (using SK-Photo or SK-PhotoR)

**Operating Voltage:** 15–32 VDC

**Standby Current:** 300 µA @ 24 VDC max.

**Alarm Current:** 6.5 mA @ 24 VDC max (with LED on)

## ENVIRONMENTAL

**Operating Temperature:** -4°F – 158°F (-20°C – 70°C)

**Humidity:** 0% – 95% (non-condensing)

## AIR VELOCITY

**100 to 4000 ft/min:** (0.5 – 20.3 m/sec.)

## ORDERING INFORMATION

**SK-DUCT:** Intelligent non-relay duct smoke detector

**SK-PHOTO:** Addressable Photo Detector

**SK-PHOTOR:** Addressable Photo Detector with remote test capability (included with SK-Duct)

**SK-RELAY:** Addressable Relay Module, must be added if relay function is required, (fits in housing)

## ACCESSORIES

**DST1:** Metal Sampling Tube Duct Width up to 1'

**DST1.5:** Metal Sampling Tube Duct Widths 1' - 2'

**DST3:** Metal Sampling Tube Duct Widths 2' – 4'

**DST5:** Metal Sampling Tube Duct Widths 4' – 8'

**DST10:** Metal Sampling Tube Duct Widths 8' – 12'

**DH400OE-1:** Weatherproof Enclosure

**ETX:** Metal Exhaust Tube Duct width 1'

**RA100Z:** Remote LED Annunciator

**DCOIL:** Duct accessory coil, required if using with SK-PHOTO and not SK-PHOTOR (included) with SK-DUCT

**RTS151:** Magnetic Remote Test station

**RTS151KEY:** Key-Activated Remote Test station M02-04-00 Test Magnet P48-21-00 Replacement End Cap for Metal Sampling Tube

**APA151:** Remote annunciator with piezo alarm

## IMPORTANT NOTES:

- The use of either RTS151 or RTS151KEY requires the installation of an accessory coil, DCOIL, sold separately. Please refer to the SK-DUCT installation instructions for more information
- The RTS151/RTS151KEY test coil circuit requires an external 24VDC power supply which must be UL listed.

| ACCESSORY CURRENT LOADS AT 24VDC | | |
|---|---|---|
| Device | Standby | Alarm |
| RA100Z | 0mA | 12mA Max. |
| RTS151 | 0mA | 12mA Max |
| RTS151KEY | 12mA | 12mA Max |

## COMPATIBILITY

**The SK-DUCT is compatible with the following Honeywell Silent Knight fire alarm control panels:**

**6820:** Addressable fire alarm control panel

**6820EVS:** Addressable fire alarm control panel with an emergency mass notification system.

**6808:** Addressable fire alarm control panel

**6700:** Addressable fire alarm control panel

**5700:** Addressable fire alarm control panel

**5808:** Addressable fire alarm control panel

**5820XL:** Addressable fire alarm control panel

**5820XL-EVS:** Addressable fire alarm control panel with an emergency mass notification system.

For a complete listing of all compliance approvals and certifications, please visit www.silentknight.com.



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Doc 350122 | Rev F | 11/17

# SK-RELAY

## Intelligent Relay Module

The SK-RELAY is an addressable relay module for use with Honeywell Silent Knight Series fire alarm control panels (FACPs). The SK-RELAY allows a Silent Knight FACP to switch discrete contacts by code command. The relay contains two isolated sets of Form C contacts, which operate as a DPDT switch. No supervision is provided for the notification appliance circuit.

The SK-RELAY contacts can be used for virtually any normally open or normally closed application. Each SK-RELAY is programmed with a unique signaling line circuit (SLC) loop address. When an event occurs that controls the SK-RELAY, the relay is triggered by the FACP.


**SK-RELAY**

### INSTALLATION

The SK-RELAY mounts directly into a 4" square electrical box. The box must have a minimum depth of 2-1/8". A surface mount electrical box (System Sensor® PN SMB500) is available from Silent Knight.

## FEATURES & BENEFITS

- Two sets of Form C contacts
- Rotary address switches for fast installation
- Contacts are rated for a variety of amps (see Specifications)
- Panel controlled status LED that flashes green in normal state and is solid red in alarm
- Relay programming is completely flexible–can be mapped to zone conditions
- Polling LED visible through the cover plate
- SEMS screws for easy wiring
- UL Listed

# SK-RELAY Technical Specifications

**PHYSICAL**
4.675" H x 4.275" W x 1.4" D
**Shipping Weight:** 6.3 oz (196 g)

**ELECTRICAL**
**Operating Voltage:** 15 – 32 VDC
**End-of-Line Resistance:** Not used
**SLC Standby & Alarm Current:** .255mA max @ 24VDC (one communication every 5 sec with LED enabled)

**ENVIRONMENTAL**
**Operating Temperature:** 32°F – 120°F (0°C – 49°C)
**Humidity:** 10% – 93% non-condensing

**RELAY CONTACT RATINGS**
3.0A @ 30VDC resistive
0.9A @ 110VDC resistive
0.9A @ 125VAC resistive
0.5A @ 125VAC inductive (PF = .35)
0.7A @ 75VAC inductive (PF = .35)

**ORDERING INFORMATION**
**SK-RELAY:** Relay Module

**ACCESSORIES**.
**SMB500:** 4" Square Surface Mount Electrical Box
**CB500 :**Module Barrier

**COMPATIBILITY**
**The SK-RELAY is compatible with the following Honeywell Silent Knight fire alarm control panels:**
**6820:** Addressable fire alarm control panel
**6820EVS:** Addressable fire alarm control panel with an emergency mass notification system.
**6808:** Addressable fire alarm control panel
**6700:** Addressable fire alarm control panel
**5700:** Addressable fire alarm control panel
**5808:** Addressable fire alarm control panel
**5820XL:** Addressable fire alarm control panel
**5820XL-EVS:** Addressable fire alarm control panel with an emergency mass notification system.

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Doc 350127| Rev G| 11/17

**INSTALLATION AND MAINTENANCE INSTRUCTIONS**

# Selectable Output Horn Strobes, Chime Strobes and Strobes – Ceiling Mount

SYSTEM SENSOR®
3825 Ohio Avenue, St. Charles, Illinois 60174
800/736-7672, FAX: 630/377-6495
www.systemsensor.com

For use with the following models:
Ceiling Mount Horn Strobes: PC2RL, PC2WL
Ceiling Mount Chime Strobes: CHSCRL, CHSCWL
Ceiling Mount Strobes: SCRL, SCWL, SCWL-CLR-ALERT

| PRODUCT SPECIFICATIONS | |
|---|---|
| Standard Operating Temperature: | 32°F to 120°F (0°C to 49°C) |
| Humidity Range: | 10 to 93% Non-condensing |
| Strobe Flash Rate | 1 flash per second |
| Nominal Voltage: | Regulated 12VDC or regulated 24DC/FWR |
| Operating Voltage Range: | 8 to 17.5V (12V nominal) or 16 to 33V (24V nominal) |
| Operating Voltage with MDL3 Sync Module: | 8.5 to 17.5V (12V nominal) or 16.5 to 33V (24V nominal) |
| Input terminal wire gauge: | 12 to 18 AWG |

| DIMENSIONS FOR PRODUCTS AND ACCESSORIES | | |
|---|---|---|
| CEILING PRODUCTS | Diameter | Depth |
| Strobe, Chime Strobe and Horn Strobe | 6.83" (173.5mm) | 2.47" (62.7mm) |
| Strobe, Chime Strobe, and Horn Strobe with SBBCRL/WL Surface Mount Back Box | 6.92" (175.8mm) | 2.50" (63.5mm) |

| MOUNTING BOX OPTIONS |
|---|
| 2-Wire Indoor Products |
| 4" x 4" x 1½", Single Gang, Double Gang, 4" Octagon, SBBCRL/WL (ceiling) |

**NOTICE:** This manual shall be left with the owner/user of this equipment.

## BEFORE INSTALLING

Please read the System Sensor Audible Visible Application Reference Guide, which provides detailed information on notification devices, wiring and special applications. Copies of this manual are available from System Sensor. NFPA 72 and NEMA guidelines should be observed.

**Important:** The notification appliance used must be tested and maintained following NFPA 72 requirements.

## GENERAL DESCRIPTION

System Sensor series of notification appliances offer a wide range of audible and visible devices for life safety notification. Our 2-wire horn strobes, chime strobes and strobes come with 8 field selectable tone and volume combinations and 7 field selectable candela settings. Intended for indoor applications and approved for ceiling mount installations.

2-wire horn strobes and strobes are public mode notification appliances intended to alert occupants of a life safety event. The 2-wire chime strobe is a private mode notification appliance. The horn is listed to ANSI/UL 464 requirements (public mode) and the strobe is listed to ANSI/UL 1638 (public mode). 2-wire chime strobe is a private mode notification appliances intended to alert trained personnel to investigate a life safety event and take appropriate actions. The chime portion of the chime strobe is listed to ANSI/UL 464 (private mode) and the strobe portion is listed to ANSI/UL 1638 (private mode).

System Sensor strobes are designed to be used in 12 VDC, 24VDC, or 24V FWR (full wave rectified) systems. System Sensor AV devices can be activated by a compatible fire alarm control panel or power supply. Refer to the appropriate fire alarm control panel manufacturer or power supply for more information.

System Sensor ceiling 2-wire horn strobes, 2-wire chime strobes, and strobes are electrically backward compatible with the previous generation, since 1996, of notification appliances. They come enabled with System Sensor synchronization protocol which requires connections to a power supply capable of generating the System Sensor synchronization pulses, a FACP NAC output configured to System Sensor synchronization protocol, or the use of MDL3 module to generate the synchronization protocol.

## FIRE ALARM SYSTEM CONSIDERATIONS

The National Fire Alarm and Signaling Code, NFPA 72, requires that all notification appliances, used for building evacuation installed after July 1, 1996, produce temporal coded signals. Signals other than those used for evacuation purposes do not have to produce the temporal coded signal. System Sensor recommends spacing notification appliances in compliance with NFPA 72.

## SYSTEM DESIGN

The system designer must make sure that the total current draw by the devices on the loop does not exceed the current capability of the panel supply, and that the last device on the circuit is operated within its rated voltage. The current draw information for making these calculations can be found in the tables within the manual. For convenience and accuracy, use the voltage drop calculator on the System Sensor website (www.systemsensor.com).

When calculating the voltage available to the last device, it is necessary to consider the voltage due to the resistance of the wire. The thicker the wire, the smaller the voltage drop. Wire resistance tables can be obtained from electrical handbooks. Note that if Class A wiring is installed, the wire length may be up to twice as long as it would be for circuits that are not fault tolerant. The total number of strobes on a single NAC must not exceed 69 for 24 volt applications.

## AVAILABLE TONES

System Sensor offers a wide variety of tones for your life safety needs, including temporal 3 pattern (½ second on, ½ second off, ½ second on, ½ second off, ½ second on, 1½ off and repeat) which is specified by ANSI and NFPA 72 for standard emergency evacuation signaling.

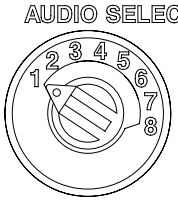
To select the tone, turn the rotary switch on the back of the product to the desired setting. (See Figure 1.) Available horn settings can be found in Table 1. Available chime settings can be found in Table 2.

## AVAILABLE CANDELA SETTINGS

System Sensor offers a wide range of candela settings for your life safety needs. In order to select your candela output, adjust the slide switch on the rear of the product to the desired candela setting on the selector switch. (See Figure 2.)

The candela setting can also be verified by looking into the small window on the front of the unit. See Table 3 for candela settings for ceiling products. All products meet the light output profiles specified in the appropriate UL Standards. (See Figures 3 to 5.)

**FIGURE 1. AUDIO SELECTOR**




A0518.00

**FIGURE 2. CANDELA SELECTOR**


A0486-00

**TABLE 1. HORN TONES**

| Pos | Tone | Volume Setting |
|---|---|---|
| 1 | Temporal | High |
| 2 | Temporal | Low |
| 3 | Non-Temporal | High |
| 4 | Non-Temporal | Low |
| 5 | 3.1 KHz Temporal | High |
| 6 | 3.1 KHz Temporal | Low |
| 7 | 3.1 KHz Non-Temporal | High |
| 8 | 3.1 KHz Non-Temporal | Low |

**TABLE 2. CHIME TONES**

| Pos | Tone | Volume Setting |
|---|---|---|
| 1 | 1 Second Chime | High |
| 2 | 1 Second Chime | Low |
| 3 | ¼ Second Chime | High |
| 4 | ¼ Second Chime | Low |
| 5 | Temporal Chime | High |
| 6 | Temporal Chime | Low |
| 7 | 5 Second Whoop | High |
| 8 | 5 Second Whoop | Low |

**TABLE 3. CEILING-MOUNT STROBE CURRENT DRAW (mA)**

| Candela | 8-17.5 Volts | 16-33 Volts | |
|---|---|---|---|
| | DC | DC | FWR |
| 15 | 87 | 41 | 60 |
| 30 | 153 | 63 | 86 |
| 75 | - | 111 | 142 |
| 95 | - | 134 | 164 |
| 115 | - | 158 | 191 |
| 150 | - | 189 | 228 |
| 177 | - | 226 | 264 |

**NOTE:** Products set at 15 and 30 candela automatically work on either 12V or 24V power supplies. The products are not listed for 12V DC operation when set to any other candela settings.

**CURRENT DRAW AND AUDIBILITY RATINGS**

For the horn strobe, the current draw and audibility ratings for each setting is listed in Table 4. For the chime strobe, the current draw and audibility ratings for each setting is listed in Table 5. For the strobe, the current draw for each setting is listed in Table 3.

**FIGURE 3. LIGHT OUTPUT - VERTICAL DISPERSION, CEILING TO WALLS TO FLOOR**

| Degrees* | Percent of Rating |
|---|---|
| 0 | 100 |
| 5-25 | 90 |
| 30-45 | 75 |
| 50 | 55 |
| 60 | 45 |
| 65 | 35 |
| 70 | 35 |
| 75 | 30 |
| 80 | 30 |
| 85 | 25 |
| 90 | 25 |

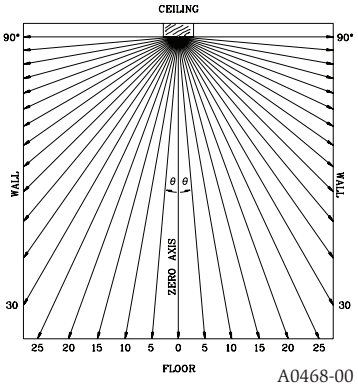



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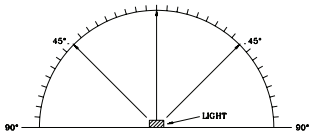
**FIGURE 4. LIGHT OUTPUT – HORIZONTAL DISPERSION**

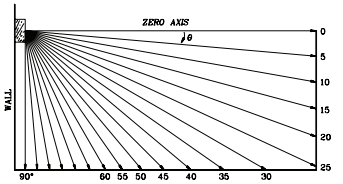
| Degrees* | Percent of Rating |
|---|---|
| 0 | 100 |
| 5-25 | 90 |
| 30-45 | 75 |
| 50 | 55 |
| 55 | 45 |
| 60 | 40 |
| 65 | 35 |
| 70 | 35 |
| 75 | 30 |
| 80 | 30 |
| 85 | 25 |
| 90 | 25 |
| Compound 45 to the left | 24 |
| Compound 45 to the right | 24 |




A0467-00

**FIGURE 5. VERTICAL DISPERSION, WALL TO FLOOR**

| Degrees* | Percent of Rating |
|---|---|
| 0 | 100 |
| 5-30 | 90 |
| 35 | 65 |
| 40 | 46 |
| 45 | 34 |
| 50 | 27 |
| 55 | 22 |
| 60 | 18 |
| 65 | 16 |
| 70 | 15 |
| 75 | 13 |
| 80 | 12 |
| 85 | 12 |
| 90 | 12 |

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*Tolerance of ±1 degree is permitted.

**TABLE 4. CEILING--MOUNT HORN STROBE CURRENT DRAW (mA) AND SOUND OUTPUT (dBA)**

| | | | Current draw (mA) | | | | | | | | | | | | | | | | Sound Output (dBA) | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Pos | Tone | Volume Setting | 8-17.5 VDC | | 16-33 VDC | | | | | | | 16-33 FWR | | | | | | | 8-17.5 V | 16-33 V | |
| | | | 15 | 30 | 15 | 30 | 75 | 95 | 115 | 150 | 177 | 15 | 30 | 75 | 95 | 115 | 150 | 177 | DC | DC | FWR |
| 1 | Temporal | High | 103 | 167 | 71 | 90 | 143 | 165 | 187 | 217 | 254 | 107 | 135 | 179 | 198 | 223 | 254 | 286 | 84 | 89 | 89 |
| 2 | Temporal | Low | 96 | 165 | 54 | 71 | 137 | 161 | 185 | 211 | 249 | 78 | 101 | 151 | 172 | 199 | 229 | 262 | 75 | 83 | 83 |
| 3 | Non-Temporal | High | 106 | 173 | 71 | 90 | 141 | 165 | 187 | 230 | 273 | 107 | 135 | 179 | 198 | 223 | 254 | 286 | 85 | 90 | 90 |
| 4 | Non-Temporal | Low | 95 | 166 | 54 | 71 | 124 | 161 | 170 | 216 | 258 | 78 | 101 | 151 | 172 | 199 | 229 | 262 | 76 | 84 | 84 |
| 5 | 3.1 KHz Temporal | High | 111 | 164 | 69 | 94 | 147 | 163 | 184 | 229 | 257 | 108 | 135 | 179 | 200 | 225 | 255 | 289 | 83 | 88 | 88 |
| 6 | 3.1 KHz Temporal | Low | 103 | 163 | 54 | 88 | 143 | 155 | 185 | 212 | 252 | 79 | 101 | 150 | 171 | 196 | 229 | 260 | 76 | 82 | 82 |
| 7 | 3.1 KHz Non-Temporal | High | 111 | 172 | 69 | 94 | 144 | 164 | 202 | 229 | 271 | 108 | 135 | 179 | 200 | 225 | 255 | 289 | 84 | 89 | 89 |
| 8 | 3.1 KHz Non-Temporal | Low | 103 | 169 | 54 | 88 | 131 | 155 | 187 | 217 | 259 | 79 | 101 | 150 | 171 | 196 | 229 | 260 | 77 | 83 | 83 |

**NOTE:** Products set at 15 and 30 candela automatically work on either 12V or 24V power supplies. The products are not listed for 12VDC operation when set to any other candela settings.

## WIRING AND MOUNTING

All wiring must be installed in compliance with the National Electric Code and the local codes as well as the authority having jurisdiction. Wiring must not be of such length or wire size which would cause the notification appliance to operate outside of its published specifications. Improper connections can prevent the system from alerting occupants in the event of an emergency.

Wire sizes up to 12 AWG (2.5 mm²) may be used with the mounting plate. The mounting plate ships with the terminals set for 12 AWG wiring.

Make wire connections by stripping about 3/8"of insulation from the end of the wire. Then slide the bare end of the wire under the appropriate clamping plate and tighten the clamping plate screw. We provide a wire strip guide. See Figure 6 for wiring terminals and strip guide reference.

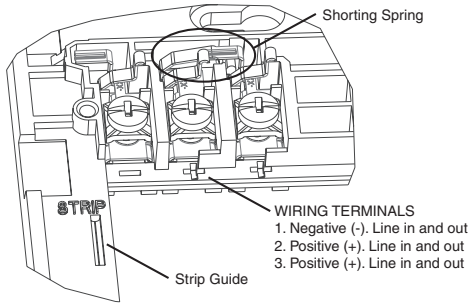
**⚠CAUTION**

Factory finish should not be altered: Do not paint!

**⚠CAUTION**

Do not over tighten mounting plate screws; this may cause mounting plate to flex.

**FIGURE 6. WIRING TERMINALS, SHORTING SPRING, AND STRIP GUIDE**

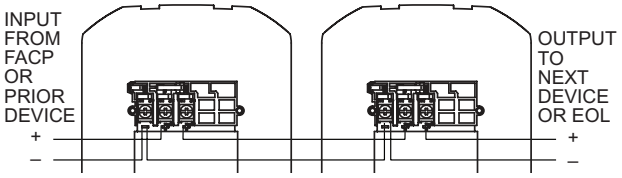



A0475-01

## SYSTEM WIRING

The 2-wire horn strobe, chime strobe and strobe only require two wires for power and supervision. (See Figure 7.) Please consult your FACP manufacturer or power supply manufacturer for specific wiring configurations and special cases.

**FIGURE 7. 2-WIRE CIRCUIT**

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## SHORTING SPRING FEATURE

System Sensor notification appliances come with a shorting spring that is provided between terminals 2 and 3 of the mounting plate to enable system continuity checks after the system has been wired, but prior to installation of the final product. (See Figure 6.) This spring will automatically disengage when the product is installed, to enable supervision of the final system.

## MOUNTING AND REMOVING APPLIANCE

1. Attach mounting plate to junction box using two of the provided Philips head screws. (See Figure 8.)

2. Connect field wiring according to terminal designations. (See Figures 6 and 7.)

3. If the product is not to be installed at this point, use the protective dust cover to prevent contamination of the wiring terminals on the mounting plate.

4. To attach product to mounting plate:

a. Remove the protective dust cover.

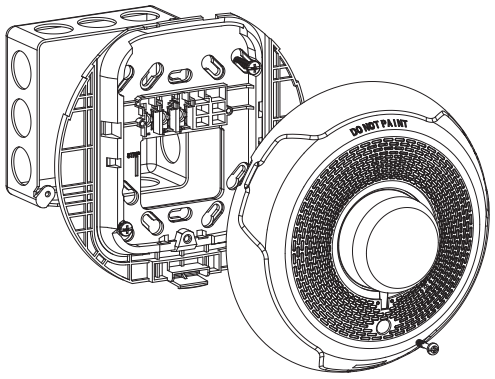
b. Hook the tabs on the top of the product housing into the grooves on mounting plate.

c. Pivot the product into position to engage the terminals on the mounting plate. Make sure that the tabs on the back of the product housing fully engage with the mounting plate.

d. Hold product in place with one hand, and secure product by tightening the single mounting screw in the front of the product housing.

*Ceiling Models only:* To remove product from the mounting plate, loosen the captive mounting screw and press the locking button.

**FIGURE 8. MOUNTING**




A0492-01

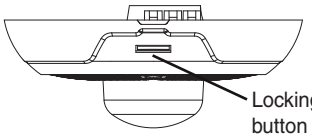



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**TABLE 5. CEILING-MOUNT CHIME STROBE CURRENT DRAW (mA) AND SOUND OUTPUT (dBA)**

| Pos | Chime Tone | Volume Setting | Current draw (mA) | | | | | | | | | | | | | | | | Sound Output (dBA) | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | 8-17.5 VDC | | 16-33 VDC | | | | | | | 16-33 FWR | | | | | | | 8-17.5 V | 16-33 V | |
| | | | 15 | 30 | 15 | 30 | 75 | 95 | 115 | 150 | 177 | 15 | 30 | 75 | 95 | 115 | 150 | 177 | DC | DC | FWR |
| 1 | 1 Second | High | 96 | 165 | 47 | 69 | 117 | 137 | 165 | 202 | 238 | 63 | 90 | 147 | 169 | 184 | 212 | 245 | 61 | 62 | 62 |
| 2 | 1 Second | Low | 93 | 162 | 47 | 68 | 116 | 137 | 165 | 200 | 238 | 63 | 88 | 147 | 169 | 183 | 212 | 244 | 56 | 55 | 55 |
| 3 | ¼ Second | High | 94 | 161 | 48 | 70 | 117 | 138 | 166 | 202 | 237 | 65 | 90 | 149 | 170 | 184 | 213 | 246 | 67 | 70 | 70 |
| 4 | ¼ Second | Low | 93 | 157 | 48 | 69 | 116 | 137 | 164 | 199 | 236 | 64 | 89 | 148 | 168 | 184 | 216 | 244 | 61 | 61 | 61 |
| 5 | Temporal | High | 93 | 163 | 48 | 70 | 116 | 138 | 165 | 199 | 238 | 64 | 89 | 148 | 169 | 184 | 212 | 245 | 64 | 66 | 66 |
| 6 | Temporal | Low | 92 | 160 | 47 | 69 | 116 | 136 | 164 | 198 | 237 | 63 | 88 | 147 | 169 | 183 | 212 | 245 | 59 | 60 | 60 |
| 7 | 5 Second Whoop | High | 98 | 169 | 54 | 77 | 124 | 146 | 173 | 206 | 245 | 75 | 100 | 155 | 178 | 193 | 221 | 255 | 76 | 78 | 78 |
| 8 | 5 Second Whoop | Low | 95 | 166 | 49 | 71 | 117 | 144 | 168 | 202 | 239 | 68 | 91 | 148 | 170 | 186 | 217 | 248 | 62 | 64 | 64 |

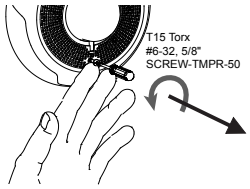
**NOTE:** Products set at 15 and 30 candela automatically work on either 12V or 24V power supplies. The products are not listed for 12VDC operation when set to any other candela settings.

### TAMPER SCREW

For tamper resistance, the standard captive screw may be replaced with a Torx screw (sold separately).

1. To remove the captive screw, back out the screw and apply pressure to the back of the screw until it disengages from the housing. Replace with Torx screw. (See Figure 9.)

**FIGURE 9. TAMPER SCREW**




A0493-01

### INSTALLING A SURFACE MOUNT BACK BOX

1. The ceiling surface mount back box may be secured directly to the wall or ceiling. Use of grounding bracket with ground screw is optional. (See Figure 10.)

2. The ceiling mount box can be used on ceiling horn strobe, chime strobe, strobe as well as ceiling speaker and speaker strobe models. Use the STR cut-outs for ceiling horn strobe, chime strobe and strobe installation needs. (See Figure 11.)

3. Threaded knockout holes are provided for the sides of the box for ¾ inch and ½ inch conduit adapter. Knockout holes in the back of the box can be used for ¾ inch and ½ inch rear entry.

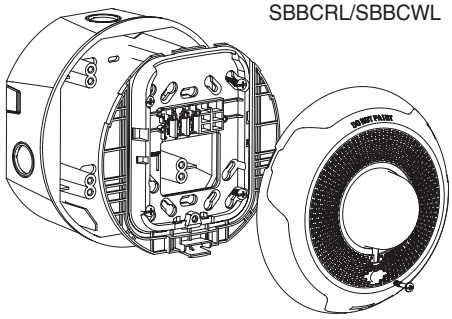
4. To remove the ¾ inch knockout, place the blade of a flat-head screwdriver along the outer edge and work your way around the knockout as you strike the screwdriver. (See Figure 12.)

**NOTE: Use caution not to strike the knockout near the top edge of the surface mount back box.**

5. V500 and V700 raceway knockouts are also provided. Use V500 for low profile applications and V700 for high profile applications.

6. To remove the knockout, turn pliers up. (See Figure 12.)

**FIGURE 10. SURFACE MOUNTING ON CEILING**




A0494-02

**FIGURE 11. CUT-OUTS FOR SPEAKER (SPK) AND STROBE (STR)**

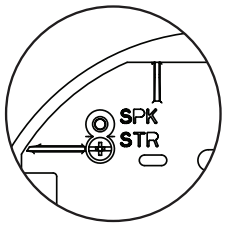



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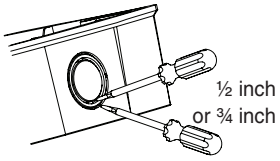
**FIGURE 12. KNOCKOUT AND V500/V700 REMOVAL FOR SURFACE MOUNT BACK BOX**

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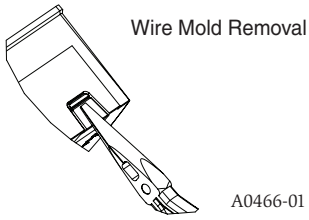



A0466-01

**⚠WARNING**

### THE LIMITATIONS OF HORN/STROBES

**The horn and/or strobe will not work without power.** The horn/strobe gets its power from the fire/security panel monitoring the alarm system. If power is cut off for any reason, the horn/strobe will not provide the desired audio or visual warning.

**The horn may not be heard.** The loudness of the horn meets (or exceeds) current Underwriters Laboratories' standards. However, the horn may not alert a sound sleeper or one who has recently used drugs or has been drinking alcoholic beverages. The horn may not be heard if it is placed on a different floor from the person in hazard or if placed too far away to be heard over the ambient noise such as traffic, air conditioners, machinery or music appliances that may prevent alert persons from hearing the alarm. The horn may not be heard by persons who are hearing impaired.

**NOTE:** Strobes must be powered continuously for horn operation.

**The signal strobe may not be seen.** The electronic visual warning signal uses an extremely reliable xenon flash tube. It flashes at least once every second. The strobe must not be installed in direct sunlight or areas of high light intensity (over 60 foot candles) where the visual flash might be disregarded or not seen. The strobe may not be seen by the visually impaired.

**The signal strobe may cause seizures.** Individuals who have positive photoic response to visual stimuli with seizures, such as persons with epilepsy, should avoid prolonged exposure to environments in which strobe signals, including this strobe, are activated.

**The signal strobe cannot operate from coded power supplies.** Coded power supplies produce interrupted power. The strobe must have an uninterrupted source of power in order to operate correctly. System Sensor recommends that the horn and signal strobe always be used in combination so that the risks from any of the above limitations are minimized.

### FCC STATEMENT

System Sensor Strobes and Horn/Strobes have been tested and found to comply with the limits for a Class B 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.

### SUPPLEMENTAL INFORMATION

For the latest Warranty information, please go to:
http://www.systemsensor.com/en-us/Documents/E56-4000.pdf

For Limitations of Fire Alarm Systems, please go to:
http://www.systemsensor.com/en-us/Documents/I56-1558.pdf

*Speakers only:* For the latest Important Assembly Information, please go to:
http://www.systemsensor.com/en-us/Documents/I56-6556.pdf

Warranty

Limitations of Fire Alarm Systems

Speakers Only: Assembly Information

# Indoor Selectable-Output Horns, Strobes, and Horn Strobes for Wall Applications

*System Sensor L-Series audible visible notification products are rich with features guaranteed to cut installation times and maximize profits with lower current draw and modern aesthetics.*


## Features

- Updated Modern Aesthetics
- Small profile devices for Horns and Horn Strobes
- Plug-in design with minimal intrusion into the back box
- Tamper-resistant construction
- Automatic selection of 12- or 24-volt operation at 15 and 30 candela
- Field-selectable candela settings on wall units: 15, 30, 75, 95, 110, 135, and 185
- Horn rated at 88+ dBA at 16 volts
- Rotary switch for horn tone and two volume selections
- Mounting plate for all standard and all compact wall units
- Mounting plate shorting spring checks wiring continuity before device installation
- Electrically compatible with legacy SpectrAlert and SpectrAlert Advance devices
- Compatible with MDL3 sync module
- Strobes and Horn Strobes listed for wall mounting only
- Horns listed for wall or ceiling use

## Agency Listings

SIGNALING UL LISTED
S5512
S4011

FM APPROVED
FM approved except for ALERT models 3057383, 3057072

7125-1653:0504
7135-1653:0503

**The System Sensor L-Series** offers the most versatile and easy-to-use line of horns, strobes, and horn strobes in the industry with lower current draws and modern aesthetics. With white and red plastic housings, standard and compact devices, and plain, FIRE, and FUEGO-printed devices, System Sensor L-Series can meet virtually any application requirement.

The L-Series line of wall-mount horns, strobes, and horn strobes include a variety of features that increase their application versatility while simplifying installation. All devices feature plug-in designs with minimal intrusion into the back box, making installations fast and foolproof while virtually eliminating costly and time-consuming ground faults.

To further simplify installation and protect devices from construction damage, the L-Series utilizes a universal mounting plate for all models with an onboard shorting spring, so installers can test wiring continuity before the device is installed.

Installers can also easily adapt devices to a suit a wide range of application requirements using field-selectable candela settings, automatic selection of 12- or 24-volt operation, and a rotary switch for horn tones with two volume selections.

# L-Series Specifications

## Architect/Engineer Specifications

### General

L-Series standard horns, strobes, and horn strobes shall mount to a standard 2 x 4 x 1 7/8-inch back box, 4 × 4 × 1½-inch back box, 4-inch octagon back box, or double-gang back box. L-Series compact products shall mount to a single-gang 2 × 4 × 1 7/8-inch back box. A universal mounting plate shall be used for mounting ceiling and wall products for all standard models and a separate universal mounting plate shall be used for mounting wall compact models. The notification appliance circuit wiring shall terminate at the universal mounting plate. Also, L-Series products, when used with the Sync•Circuit™ Module accessory, shall be powered from a non-coded notification appliance circuit output and shall operate on a nominal 12 or 24 volts. When used with the Sync•Circuit Module, 12-volt-rated notification appliance circuit outputs shall operate between 8.5 and 17.5 volts; 24-volt-rated notification appliance circuit outputs shall operate between 16.5 and 33 volts. Indoor L-Series products shall operate between 32 and 120 degrees Fahrenheit from a regulated DC or full-wave rectified unfiltered power supply. Strobes and horn strobes shall have field-selectable candela settings including 15, 30, 75, 95, 110, 135, and 185.

### Strobe

The strobe shall be a System Sensor L-Series Model _____ listed to UL 1971 and shall be approved for fire protective service. The strobe shall be wired as a primary-signaling notification appliance and comply with the Americans with Disabilities Act requirements for visible signaling appliances, flashing at 1 Hz over the strobe's entire operating voltage range. The strobe light shall consist of a xenon flash tube and associated lens/reflector system.

### Horn Strobe Combination

The horn strobe shall be a System Sensor L-Series Model _____ listed to UL 1971 and UL 464 and shall be approved for fire protective service. The horn strobe shall be wired as a primary-signaling notification appliance and comply with the Americans with Disabilities Act requirements for visible signaling appliances, flashing at 1 Hz over the strobe's entire operating voltage range. The strobe light shall consist of a xenon flash tube and associated lens/reflector system. The horn shall have two audibility options and an option to switch between a temporal three pattern and a non-temporal (continuous) pattern. These options are set by a multiple position switch. The horn on horn strobe models shall operate on a coded or non-coded power supply.

### Synchronization Module

The module shall be a System Sensor Sync•Circuit model MDL3 listed to UL 464 and shall be approved for fire protective service. The module shall synchronize Strobes at 1 Hz and horns at temporal three. Also, while operating the strobes, the module shall silence the horns on horn strobe models over a single pair of wires. The module shall mount to a 4 11/16 × 4 11/16 × 2 1/8-inch back box. The module shall also control two Style Y (class B) circuits or one Style Z (class A) circuit. The module shall synchronize multiple zones. Daisy chaining two or more synchronization modules together will synchronize all the zones they control. The module shall not operate on a coded power supply.

## Physical/Electrical Specifications

| | |
|---|---|
| **Standard Operating Temperature** | 32°F to 120°F (0°C to 49°C) |
| **Humidity Range** | 10 to 93% non-condensing |
| **Strobe Flash Rate** | 1 flash per second |
| **Nominal Voltage** | Regulated 12 DC or regulated 24 DC/FWR[1] |
| **Operating Voltage Range[2]** | 8 to 17.5 V (12 V nominal) or 16 to 33 V (24 V nominal) |
| **Operating Voltage Range MDL3 Sync Module** | 8.5 to 17.5 V (12 V nominal) or 16.5 to 33 V (24 V nominal) |
| **Input Terminal Wire Gauge** | 12 to 18 AWG |
| **Wall-Mount Dimensions (including lens)** | 5.6˝L × 4.7˝W × 1.91˝D (143 mm L × 119 mm W × 49 mm D) |
| **Compact Wall-Mount Dimensions (including lens)** | 5.26" L x 3.46" W x 1.91" D (133 mm L x 88 mm W x 49 mm D) |
| **Horn Dimensions** | 5.6˝L × 4.7˝W × 1.25˝D (143 mm L × 119 mm W × 32 mm D) |
| **Compact Horn Dimensions** | 5.25" L x 3.45" W x 1.25" D (133 mm L x 88 mm W x 32 mm D) |

1. Full Wave Rectified (FWR) voltage is a non-regulated, time-varying power source that is used on some power supply and panel outputs.
2. Strobe products will operate at 12 V nominal only for 15 cd and 30 cd.

## UL Current Draw Data

**UL Max. Strobe Current Draw (mA RMS)**

| | | 8–17.5 Volts | 16–33 Volts | |
|---|---|---|---|---|
| | Candela | DC | DC | FWR |
| Candela Range | 15 | 88 | 43 | 60 |
| | 30 | 143 | 63 | 83 |
| | 75 | N/A | 107 | 136 |
| | 95 | N/A | 121 | 155 |
| | 110 | N/A | 148 | 179 |
| | 135 | N/A | 172 | 209 |
| | 185 | N/A | 222 | 257 |

**UL Max. Horn Current Draw (mA RMS)**

| | | 8–17.5 Volts | 16–33 Volts | |
|---|---|---|---|---|
| Sound Pattern | dB | DC | DC | FWR |
| Temporal | High | 39 | 44 | 54 |
| Temporal | Low | 28 | 32 | 54 |
| Non-Temporal | High | 43 | 47 | 54 |
| Non-Temporal | Low | 29 | 32 | 54 |
| 3.1 KHz Temporal | High | 39 | 41 | 54 |
| 3.1 KHz Temporal | Low | 29 | 32 | 54 |
| 3.1 KHz Non-Temporal | High | 42 | 43 | 54 |
| 3.1 KHz Non-Temporal | Low | 28 | 29 | 54 |
| Coded | High | 43 | 47 | 54 |
| 3.1 KHz Coded | High | 42 | 43 | 54 |

**UL Max. Current Draw (mA RMS), Wall Horn Strobe, Candela Range (15–185 cd)**

| | 8–17.5 Volts | | 16–33 Volts | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| DC Input | 15cd | 30cd | 15cd | 30cd | 75cd | 95cd | 110cd | 135cd | 185cd |
| Temporal High | 98 | 158 | 54 | 74 | 121 | 142 | 162 | 196 | 245 |
| Temporal Low | 93 | 154 | 44 | 65 | 111 | 133 | 157 | 184 | 235 |
| Non-Temporal High | 106 | 166 | 73 | 94 | 139 | 160 | 182 | 211 | 262 |
| Non-Temportal Low | 93 | 156 | 51 | 71 | 119 | 139 | 162 | 190 | 239 |
| 3.1K Temporal High | 93 | 156 | 53 | 73 | 119 | 140 | 164 | 190 | 242 |
| 3.1K Temporal Low | 91 | 154 | 45 | 66 | 112 | 133 | 160 | 185 | 235 |
| 3.1K Non-Temporal High | 99 | 162 | 69 | 90 | 135 | 157 | 175 | 208 | 261 |
| 3.1K Non-Temporal Low | 93 | 156 | 52 | 72 | 119 | 138 | 162 | 192 | 242 |
| | 16–33 Volts | | | | | | | | |
| FWR Input | 15cd | 30cd | 75cd | 95cd | 110cd | 135cd | 185cd | | |
| Temporal High | 83 | 107 | 156 | 177 | 198 | 234 | 287 | | |
| Temporal Low | 68 | 91 | 145 | 165 | 185 | 223 | 271 | | |
| Non-Temporal High | 111 | 135 | 185 | 207 | 230 | 264 | 316 | | |
| Non-Temportal Low | 79 | 104 | 157 | 175 | 197 | 235 | 283 | | |
| 3.1K Temporal High | 81 | 105 | 155 | 177 | 196 | 234 | 284 | | |
| 3.1K Temporal Low | 68 | 90 | 145 | 166 | 186 | 222 | 276 | | |
| 3.1K Non-Temporal High | 104 | 131 | 177 | 204 | 230 | 264 | 326 | | |
| 3.1K Non-Temporal Low | 77 | 102 | 156 | 177 | 199 | 234 | 291 | | |

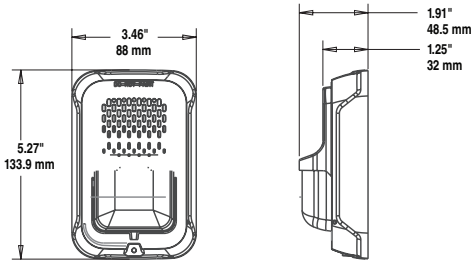
## Horn Tones and Sound Output Data

**Horn and Horn Strobe Output (dBA)**

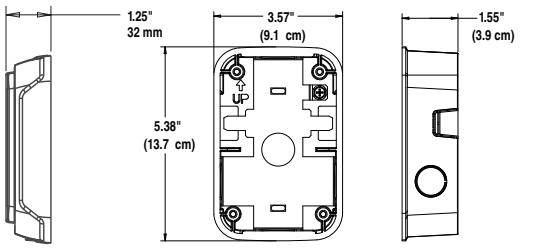
| | | | 8–17.5 Volts | 16–33 Volts | |
|---|---|---|---|---|---|
| Switch Position | Sound Pattern | dB | DC | DC | FWR |
| 1 | Temporal | High | 84 | 89 | 89 |
| 2 | Temporal | Low | 75 | 83 | 83 |
| 3 | Non-Temporal | High | 85 | 90 | 90 |
| 4 | Non-Temporal | Low | 76 | 84 | 84 |
| 5 | 3.1 KHz Temporal | High | 83 | 88 | 88 |
| 6 | 3.1 KHz Temporal | Low | 76 | 82 | 82 |
| 7 | 3.1 KHz Non-Temporal | High | 84 | 89 | 89 |
| 8 | 3.1 KHz Non-Temporal | Low | 77 | 83 | 83 |
| 9* | Coded | High | 85 | 90 | 90 |
| 10* | 3.1 KHz Coded | High | 84 | 89 | 89 |

* Settings 9 and 10 are not available on 2-wire horn strobes. Temporal coding must be provided by the NAC. If the NAC voltage is held constant, the horn output remains constantly on.

## L-Series Dimensions

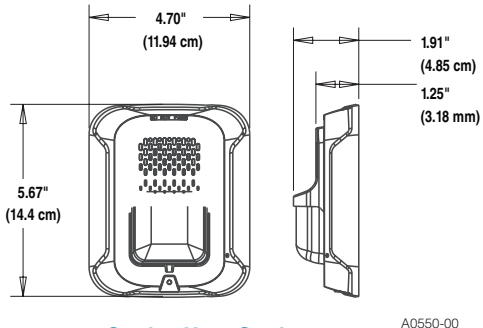



**Compact Strobe, Horn Strobe**

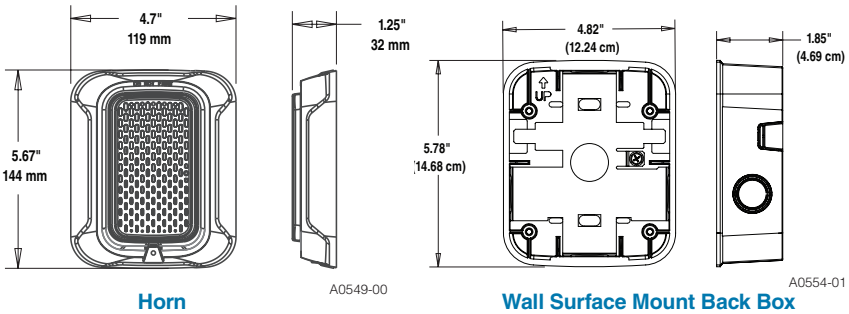



**Compact Horn**

**Compact Wall Surface Mount Back Box**
**SBBGRL, SBBGWL**




**Strobe, Horn Strobe**




**Horn**

**Wall Surface Mount Back Box**
**SBBRL/SBBWL**

## L-Series Ordering Information

| Model | Description |
|---|---|
| **Wall Horn Strobes** | |
| P2RL | 2-Wire, Horn Strobe, Red |
| P2WL | 2-Wire, Horn Strobe, White |
| P2GRL | 2-Wire, Compact Horn Strobe, Red |
| P2GWL | 2-Wire, Comp 2 fils act Horn Strobe, White |
| P2RL-P | 2-Wire, Horn Strobe, Red, Plain |
| P2WL-P | 2-Wire, Horn Strobe, White, Plain |
| P2RL-SP | 2-Wire, Horn Strobe, Red, FUEGO |
| P2WL-SP | 2-Wire, Horn Strobe, White, FUEGO |
| P4RL | 4-Wire, Horn Strobe, Red |
| P4WL | 4-Wire, Horn Strobe, White |
| **Wall Strobes** | |
| SRL | Strobe, Red |
| SWL | Strobe, White |
| SGRL | Compact Strobe, Red |
| SGWL | Compact Strobe, White |
| SRL-P | Strobe, Red, Plain |
| SWL-P | Strobe, White, Plain |
| SRL-SP | Strobe, Red, FUEGO |
| SWL-CLR-ALERT | Strobe, White, ALERT |

| Model | Description |
|---|---|
| **Horns*** | |
| HRL* | Horn, Red |
| HWL* | Horn, White |
| HGRL* | Compact Horn, Red |
| HGWL* | Compact Horn, White |
| **Accessories** | |
| TR-2 | Universal Wall Trim Ring Red |
| TR-2W | Universal Wall Trim Ring White |
| SBBRL | Wall Surface Mount Back Box, Red |
| SBBWL | Wall Surface Mount Back Box, White |
| SBBGRL | Compact Wall Surface Mount Back Box, Red |
| SBBGWL | Compact Wall Surface Mount Back Box, White |

**Notes:**
All -P models have a plain housing (no “FIRE” marking on cover).
All -SP models have “FUEGO” marking on cover.
All -ALERT models have “ALERT” marking on cover.
*Horn-only models are listed for wall or ceiling use.

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