



Portland, Maine Yes. Life's good here.



Permitting and Inspections Department
Michael A. Russell, MS, Director

Fire Alarm Permit Application

Construction Address: 2 Portland Square, portion of second floor office area		
Total Square Footage of Proposed Structure: 3800 area		
Tax Assessor's Chart, Block & Lot Chart# Block# Lot# <input type="text"/> <input type="text"/> <input type="text"/>		Applicant Name: Guardian Systems of Maine
Cost of Work: \$ 4995.00		Address: 320 Presumpscot Street, Portland, Maine 04103
Lessee/Owner Name (if different): North River Company		Phone: 207-536-4800
Address: 14 Maine Street, Brunswick, Maine		Email: rich@guardiansystemsmaine.com
Phone: 207-725-9500		Contractor Name (if different): All Phase Electric
Email:		Address: 73 Industrial Park Road, Saco, Maine
Current use (i.e. single family):		Phone: 207-284-8946
If vacant, what was the previous use? Office		Email:
Proposed specific use: Office		
Is property part of a subdivision? If yes, name: No		
Project description: Renovate fire alarm system in one area only		
Life Safety Code Occupancy Classification: Business		
Is this new work or a renovation to an existing system? renovation		
Is the top occupiable floor of the building greater than 75 feet above the lowest level of Fire Department access (high-rise)? yes		
Name of company providing programming and certification of system*: Guardian Systems of Maine		
Electrical permit #: 202002554		
Will a master box be installed? <input type="radio"/> Yes <input checked="" type="radio"/> No If yes, complete all items for approval):		
AES approved installing contractor:		
Documentation of AES approval:		
Property Owner:		
Property Owner Billing Address:		
Property common name:		
E-911 address for protected premises:		
Emergency contact phone:		Additional emergency contact phone:
Number of stories protected:		
Is the building protected by a supervised, automatic sprinkler system? <input checked="" type="radio"/> Yes <input type="radio"/> No		
Name of person to contact when the permit is ready: Beth Kilbride		
Address: 320 Presumpscot St		
City, State & Zip: Portland, Me 04103		
Email Address: beth@cascobayelectric.com		Phone: 207-221-3331

*For a list of approved fire alarm companies, see www.portlandmaine.gov/1486/Approved-Fire-Alarm-Companies
389 Congress Street, Room 315/Portland Maine 04101/www.portlandmaine.gov/tel: 207-874-8703/fax: 207-874-8716



CITY OF PORTLAND ELECTRICAL PERMIT

To the Electrical Inspector, Portland Maine:
The undersigned hereby applies for a permit to make electrical installations in accordance with the laws of Maine, the City of Portland's Electrical Ordinances, National Electric Code and the following specifications:



PERMIT ID: ELEC2020-02554
ISSUE DATE: 3/19/2020
ADDRESS: 2 PORTLAND SQ
CBL: 038 B002001

CMP Work Order #:
Applicant: All Phase Electric, Inc
Phone #: 2072848946

Meter Make/Model:
Owner:
Phone #:

OUTLETS:	100	Receptacles	12	Switches	0	Smoke Detectors
FIXTURES:	0	Incandescent	0	Fluorescent	0	Strips
SERVICES:						
TEMPORARY SERVICES						
METERS:	0					
MOTORS:	0					
RESID/COMMER:	0	Electric Units				
HEATING:	0	Oil/Gas Units		Interior		Exterior
APPLICANCES:	0	Ranges	0	Cook Tops	0	Wall Ovens
	0	Insta-hot	0	Water Heaters	0	Fans
	0	Dryers	0	Disposals	0	Dishwashers
	0	Compactors	0	Spas	0	Washing Machines
MISC:	0	Air Cond (Window)	0	Alarms/Commer	11	Emergency Lights
	0	Air Cond (Central)	0	Alarms/Resid	0	Pools
	0	HVAC	0	Heavy Duty (CRKT)	0	Thermostat
	0	Signs	0	EMS	0	Emer Generators
	0	Alterations	0			
PANELS:	0	Service	0	Remote	0	Main
TRANSFORMERS:	0	0-25 Kva	0	26-200 Kva	0	Over 200 Kva

DESCRIPTION OF WORK: ELECTRICAL WIRING FOR THE 3000 sf 2ND FLOOR OFFICE SUITE.
GOES WITH BUILDING PERMIT 2020-01290

CONTRACTOR INFORMATION

Name: All Phase Electric, Inc **Telephone:** 2072848946 **License Number:** MS60018941
Address: **Email:**

Applicant Signature: /S/MICHELLE OUELLETTE

Features

- 24VDC tamperproof selectable candela options of 15, 30, 60, 75, and 110
- Speaker voltage 25 or 70.7 VRMs standard, field selectable
- Field selectable power taps: 1/8W, 1/4W, 1/2W, 1W, 2W, 4W
- Xenon strobe maintains constant flash rate (1Hz)
- High quality dBA output (intelligible)
- Frequency range 400-4000 Hz
- Screw Terminals, separate in/out wiring (18-12 gauge)
- Tamperproof grill
- Faceplate available in red or off-white
- Product includes a 5 year warranty



7320-0328:0207

Application

The Potter SPKSTR-24WLP is a wall mount, low profile, field adjustable speaker/strobe designed to meet code requirements for audio, visual, and voice communications. The SPKSTR-24WLP Series are quality speaker products offering dependable evacuation signaling, visual alarms, or a combination of both.

Description

The SPKSTR-24WLP has high output tamperproof candela selections of 15, 30, 75, 95, and 115. The SPKSTR-24WLP provides a 25 or 70.7 VRMs speaker with field selectable power taps of 1/8W, 1/4W, 1/2W, 1W, 2W, or 4W. The SPKSTR-24WLP strobes can be synchronized using the Potter AVSM Synchronization Control Module, FACP, or power supplies that produce a Gentex Synchronization Protocol.

The SPKSTR-24WLP can be mounted to a 4" X 2 1/8" deep back box without an extension ring or Potter SPKRBB surface back box.

The SPKSTR-24WLP is constructed of high textured plastic.

Product Listings

- ANSI/UL 1638, ANSI/UL1971 and ANSI/UL 1480
- CSFM 7320-0328:0207

Product Compliance

- Americans with Disabilities Act (ADA)
- NFPA 72
- IBC/IFC/IRC

Technical Specifications

Speaker Operating Voltage	25VRMs or 70.7VRMs
Strobe Operating Voltage	16-33VDC
Synchronization Module	Potter AVSM
Environmental Limitations	32°F to 120°F Indoor Only
Unit Dimensions	6.1" (15.494cm) square X 1.88" (4.7752cm) deep
Back Box	4" X 2 1/8" deep box or Potter SPKRBB surface back box
Shipping Weight	1.5 lbs.

SPKSTR-24CLP Product Strobe Current Ratings					
Candela	15 cd	30 cd	60 cd	75 cd	110 cd
24 VDC	55 mA	63 mA	88 mA	112 mA	136 mA
UL Max	78 mA	96 mA	137 mA	180 mA	224 mA

Speaker dBA @ 10 ft.		
Input Watts	25 Volts	70.7 Volts
1/8	74.6 dBA	73.7 dBA
1/4	77.7 dBA	76.7 dBA
1/2	80.5 dBA	79.6 dBA
1	83.1 dBA	82.5 dBA
2	85.6 dBA	85.4 dBA
4	87.9 dBA	87.9 dBA

NOTE:

- Potter does not recommend using a coded or pulsing signaling circuit with any of our strobe products.

Low Profile Evacuation Speakers		
Model Number	Description	Stock Number
SPKSTR-24WLPR	Speaker/Strobe Red	4890210
SPKSTR-24WLPW	Speaker/Strobe White	4890211
SPKSTR-24WLPPR	Speaker/Strobe Plain Red	4890212
SPKSTR-24WLPPW	Speaker/Strobe Plain White	4890213

Model Designations

- P** = Plain (No Lettering)
- W** = Off-White Faceplate
- R** = Red Faceplate

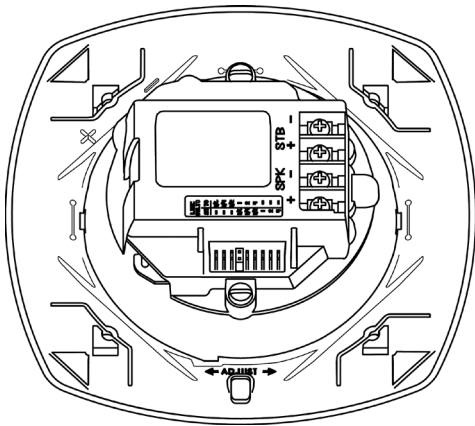
Plain units are non-returnable

Architect and Engineering Specifications

The fire alarm speaker shall be Potter SPKSTR-24WLP or equivalent. The speaker shall be capable of producing alarm tones or voice on all 25 or 70.7 VRMs audio systems. The speaker shall provide incremental tap settings of 1/8, 1/4, 1/2, 1, 2, or 4 watts. Minimum dBA ratings at 1/4 watt shall be 76.7 dBA and at 4 watts 87.9dBA. Tap settings shall be adjustable with field selectable jumper pins. The speaker shall also have an optional visual signal capability.

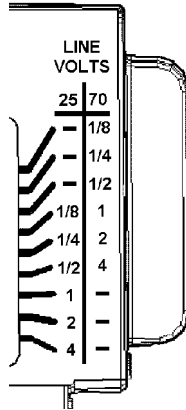
The visual signal shall have a 1 Hz flash rate regardless of input voltage. All field wiring connections shall be made via separate in-out terminal connections and the speaker or speaker strobe shall be ANSI/UL, CSFM listed and comply with all local, state and federal fire alarm codes/standards.

SPKSTR-24WLP Candela Selection



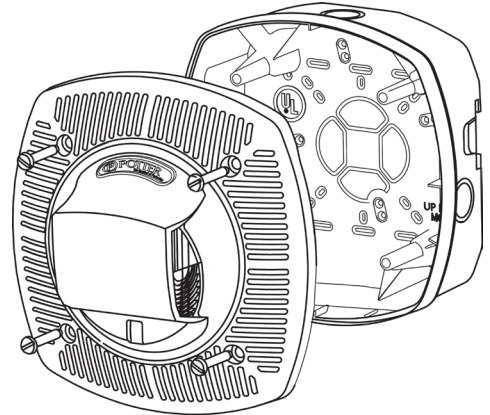
Adjust candela setting by turning dial with screwdriver. Candela selection is displayed on front of unit.

Power Tap Selection



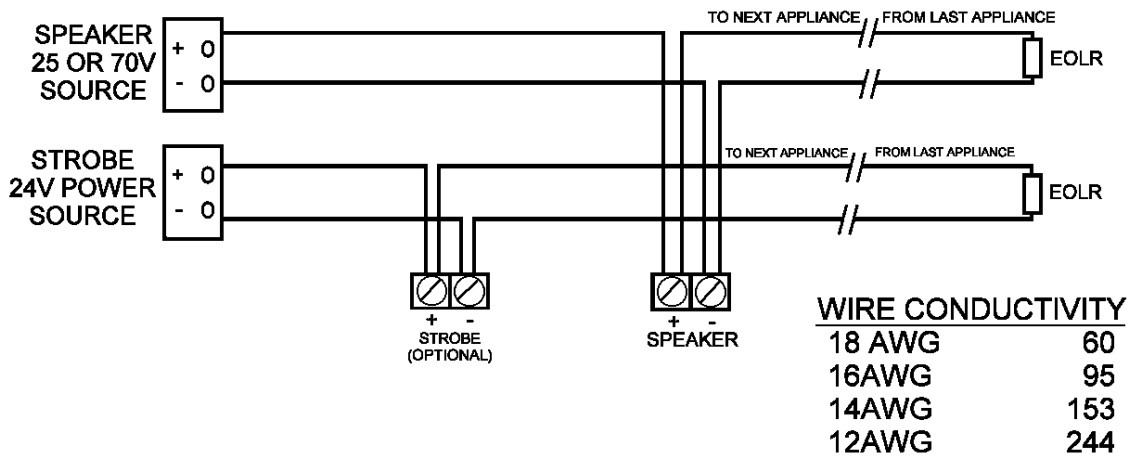
Adjust Power taps using needle nose pliers.

Mounting Diagram



Mounts to a standard 4" square X 2 1/8" back box or Potter SPKRBB surface back box.

Wiring Diagram



NOTE: DO NOT USE LOOPED WIRE UNDER TERMINALS. BREAK WIRE RUN TO PROVIDE SUPERVISION OF CONNECTION.

- **MAX WIRE DISTANCE - $\frac{\text{PANEL VOLTAGE} - \text{DEVICE MINIMUM VOLTAGE}}{\text{TOTAL CURRENT DRAW}}$ - X WIRE CONDUCTIVITY**
- **CAUTION: APPLIES ONLY TO REGULATED SUPPLIES.**
- **NOTICE: POWER IS SUPPLIED TO DEVICES WHEN CONTROL PANEL IS LATCHED.**

DURACELL® SLA Batteries ULTRA

General Purpose
Backup and deep cycle applications

Duracell® Ultra SLA technology offers high-density power that outperforms traditional lead acid batteries. The Absorbed Glass Mat (AGM) construction is designed for efficient gas recombination and allows for maintenance-free operation. Duracell® Ultra SLA batteries maintain their high capacity with a design that is resistant to damage caused by deep discharge. Every Duracell® Ultra SLA battery is inspected to ensure the highest standards in materials and fabrication.



Reviewed for Code Compliance
Permitting and Inspections
Department
April 27, 2020



50-150
Cycles at 100% Discharge



**SPILL
PROOF**
GUARANTEE

Features:

- Duracell® Ultra SLA GEL batteries contain a proprietary grid alloy formula combined with advanced plate curing techniques to provide maximum performance.
- Duracell® Ultra batteries contain a unique electrolyte formula with a special sub-colloid additive for higher reliability and longer life.
- Will achieve more life cycles than standard AGM and Deep Cycle batteries.
- The unique construction and sealing techniques of these batteries are guaranteed to give you leak-proof operation.
- Heavy-duty lead calcium tin alloy grids provide an extra margin of performance and service life in cyclic applications, even after repeated over-discharges.
- Quality Assurance Engineers monitor and control the entire production process.
- Recycling of used SLA batteries available.
- Delivery available.



CASE
Quantities
AVAILABLE

Sealed
**Lead
Acid**



Maintenance Free



Spill Proof
Design



1 Year
Warranty



Stringent Quality
Control

DURACELL® SLA Batteries ULTRA



Reviewed for Code Compliance
Permitting and Inspections
Department
Approved
05/27/2020

PROJECT NAME: _____

CATALOG # _____

FIXTURE TYPE _____

NOTES _____

General Purpose

Battery	Volts	Capacity Ah (20Hrs)	Dimensions (LxWxH Inches)			Terminal Type	Group Size	Weight (Lbs.)
DURA12-0.8WL	12V	0.8	3.78	0.98	2.4	WL	-	0.77
DURA12-1.3F	12V	1.3	3.82	1.69	2.28	F1, T1	-	1.37
DURA12-2.3F	12V	2.3	6.97	1.38	2.64	F1, T1	-	2.04
DURA12-2.9F	12V	2.9	3.11	2.2	3.9	F1, T1	-	2.36
DURA12-3.3F	12V	3.3	5.28	2.64	2.63	F1, T1	-	3.18
DURA12-3.3F2	12V	3.3	-	-	-	-	-	-
RAYA12-4F	12V	4	3.54	2.76	4.21	F1, T1	-	-
DURA12-5F	12V	5	3.54	2.76	4.21	F1, T1	-	-
DURA12-5F2	12V	5	3.56	2.77	3.94	F2, T2	-	-
DURA12-5.1A	12V	5.1	5.51	1.89	4.21	F1, T1	-	4.6
DURA12-5.5F	12V	5.5	3.54	2.76	3.98	-	-	-
RAYA12-7F	12V	7	5.95	2.56	3.94	F1, T1	-	-
DURA12-7F	12V	7	5.94	2.56	3.94	F1, T1	-	-
DURA12-7F2	12V	7	5.94	2.56	3.7	F2, T2	-	-
DURA12-8F	12V	8	5.94	2.56	3.94	F1, T1	-	-
DURA12-8F2	12V	8	5.94	2.56	3.94	F2, T2	-	-
DURA12-9NB	12V	9	5.95	2.56	3.9	NB, J	-	-
DURA12-9F2	12V	9	5.95	2.56	3.94	F2, T2	-	-
DURA12-10F2	12V	10	5.95	2.54	4.38	F2, T2	-	7.5
DURA12-11NB	12V	11	5.28	3.15	6.5	-	-	10.1
DURA12-12F2	12V	12	5.94	3.9	3.98	F2, T2	-	-
DURA12-12F	12V	12	5.94	3.86	3.86	F1, T1	-	-
DURA12-14F2	12V	14	5.94	3.86	3.98	F2, T2	-	8.91
DURA12-18F2	12V	18	7.13	3.03	6.57	F2, T2	-	-
DURA12-18NB	12V	18	7.13	3.03	6.57	NB, J	-	12.43
DURA12-26NB	12V	26	6.5	6.93	4.92	NB, J	-	20.7
DURA12-35C	12V	35	7.72	5.16	6.5	C	-	27.3
DURA12-44C/FR	12V	46	7.8	6.54	6.85	C	-	38
DURA12-55C/FR	12V	55	9.02	5.43	8.35	-	-	42.1
DURA12-80C/FR	12V	80	10.24	6.65	8.46	C	-	-
DURA12-100C/FR	12V	100	12.09	6.65	8.46	C	-	74.6
DURA12-140C/FR	12V	140	13.43	6.81	11.3	C	-	108
DURA4-4.5F2	4V	4.5	1.85	1.85	3.98	F2, T2	-	1.4
DURA6-1.3F	6V	1.3	3.82	0.94	2.28	F1, T1	-	0.715
DURA6-2ST	6V	2	1.69	1.45	2.99	ST	-	0.75
DURA6-2.9F	6V	2.9	2.6	1.46	3.82	F1, T1	-	1.26
DURA6-3.3F	6V	3.3	5.28	1.34	2.64	F1, T1	-	1.65
RAYA6-4F	6V	4	2.76	1.85	4.13	F1, T1	-	-
DURA6-5SP	6V	5	2.6	2.6	4.53	SP	-	2.09
DURA6-5F	6V	5	2.76	1.85	4.21	F1, T1	-	-
DURA6-7.2F	6V	7.2	5.94	1.34	3.68	F1, T1	-	2.43
DURA6-8.2F	6V	8.2	3.9	2.24	4.53	F1, T1,	-	3.8
DURA6-10F	6V	10	5.94	1.97	3.98	F1, T1	-	4.851
DURA6-12F	6V	12	5.94	1.97	3.98	F1, T1	-	-
DURA6-12F2	6V	12	5.94	1.97	3.98	F2, T2	-	4.602
RAYA6-14T2	6V	14	4.25	2.8	5.51	H	-	6.24
DURA6-14A	6V	14	4.25	2.8	5.51	F1 (-) F2 (+), T1 (-) T2 (+), FP	-	6.16
DURA6-42F2	6V	42	6.25	3.37	6.37	F2, T2	-	16.64
DURA6-42NB	6V	42	6.34	3.43	6.42	NB, J	-	16.62
DURA6-200C	6V	200	12.05	6.65	8.63	C	-	-
DURA8-3.2F	8V	3.2	5.28	1.44	2.48	F1, T1	-	1.65

Visit batteriesplus.com for warranty information

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NO EXCUSES!



E120V-GT

Hybrid Surge Protection Device

Safety and performance is what Eclips is all about. While there are many varying criteria to be considered for surge protective devices (SPD), if the design engineer neglects the importance there can be serious implications for the client and equipment.

Every piece of electrical equipment is designed to operate at a specified nominal voltage. Typically equipment is designed to handle minor variations. However external sources such as lightning, motors, and short circuits cause wild and damaging variations.

Critical systems wired to your electrical service like Fire Alarm Control Panels (FACP), Mass Notification systems, amplifiers, motors, pumps (HVAC), power boosters and many more must require appropriate levels surge protection. The E120 series is an ideal choice for your 120V AC applications. because it has the robustness not only to absorb a spike, but to clamp long enough to trip the branch circuit breaker and still be functional for additional surges.

The number one cause of destruction, degradation and downtime of critical electrical equipment is from power surges and lightning strikes.

The E120V-GT device is an ideal solution to protect equipment. UL listed it maintains system integrity and protects against transients introduced into / onto electrical lines via poor atmospheric and utility conditions as well as internally generated inductive loads and transient TVSS. It reduces system downtime associated with power surges and lightning strikes. Prevents destruction and degradation of electrical components in the system. Fix your nuisance and non-billable service calls as a result of transients and poor power quality and show your customer you care about system integrity.



Standard Features:

- Available in 120 VAC
- UL Listed 1449 3rd Edition Type 2 & 3 2X to open circuit breaker @5000A
- Includes lockout & labels per NFPA 72 2013 10.6.5.2
- Surface or conduit mounting
- Diagnostic indicator light
- Self restoring
- 3 Wire device (18" length)



**ISO 9001
REGISTERED
COMPANY**



RU® - Uses UL Recognized Components



Space Age Electronics, Inc.
www.1SAE.com
800.486.1723 Toll Free
508.485.0966 Local
508.485.4740 Fax

Specifications:

All 120volt AC equipment will have Transient Voltage Surge Suppression (TVSS) protection manufactured by Space Age Electronics, Inc., part number E120V-GT ECLIPS Brand. The Unit shall be UL listed to standard 1449 rev 3. The unit will be labeled clearly with indelible ink. Mounting can be conduit mounted with a 3/4" pipe threaded nipple to secure in panel, or surface panel mount with 2 external mounting holes. The unit shall have thermal fuses to protect against fire in short circuit conditions. The E120V will have 18" long, 14 gauge wires (3x) ground wire must be green. The enclosure will be a non dielectric material UL94 QMFZ2/8 grade material providing UV protection. The unit shall provide visual indication (LED) that unit is protecting and functioning.

Specifications - Performance:

Short Circuit Current Rating (SCCR) : 5KA
 Maximum Surge Current (8x20µs) : 25,000 Amps
 Enclosure Material : UL94 QMFZ2/8 (green)
 Energy Dissipation Joules : 500 Joules
 VPR=700(L – N) 700 (L – G) 600 (N – G)
 Capacitance : < 2,000 pf
 Clamping Response Time : < 5 nanoseconds
 Current : Non-Load Bearing
 Max Operating Voltage (MCOV) : 140 volts AC, 50/60 Hz
 Clamping Voltage : 230 Volts RMS
 Design : Thermally Fused Hybrid
 Operation Indicators : LED
 Survivability : UL rated X2 @5000
 Amps to open Series external circuit breaker

Specifications - Operating:

Service Voltage : 120 Single Phase
 Circuits Protected : L-N L-G N-G
 Connection Type : Hardwired
 Installation Configuration : Parallel

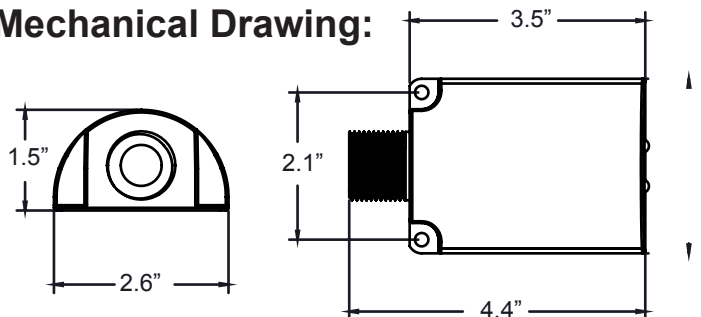
Specifications - Physical:

Weight : 5.2oz
 Dimensions : 2.75" x 1.55" x 4" long
 Operation Temperature : -40 to +85° C

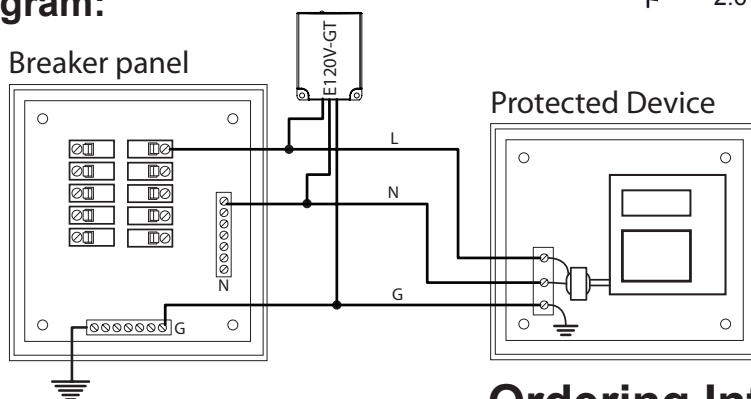
Specifications - Compliance:

UL Listed : 1449 Third Edition - VZCA
 File Number : E319370 Vol. 1 Sec. 1

Mechanical Drawing:



Wiring Diagram:



Ordering Information:

Part #	Description
E120V-GT	120V Hybrid Surge Protective Device
ELOCK-FA	Circuit Lockout Kit

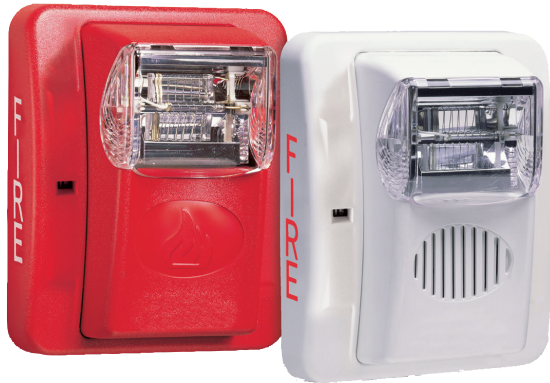


Space Age Electronics, Inc.
 www.1SAE.com
 800.486.1723 Toll Free
 508.485.0966 Local
 508.485.4740 Fax

No Excuses, Just Solutions!



S-24 & HS-24 SELECTABLE CANDELA STROBE & HORN/STROBES



Features

- 24VDC units have field selectable candela options of 15, 30, 60, 75, & 110
- Super-Slide® Bracket - Ease of Supervision Testing
- Checkmate® - Instant Voltage Verification
- Synchronize strobe and/or horn with AVSM Control Module
- Prewire entire system, install mounting bracket, then install signals
- Documented lower installation and operating costs
- Input terminals accept 12 to 18 AWG
- Switch selection for high or low dBA
- Switch for chime, whoop, mechanical and 2400Hz tone
- Tamperproof re-entrant style grill
- Switch for continuous or temporal 3 tone (not available on whoop tone)
- Surface mount with the AVBB (Surface Mount Back Box)
- Silence audible while visual appliance will remain flashing (for use in accepted jurisdictions)
- Faceplate available in red or off-white

Operating Temperature

- 32°F to 120°F (0°C to 49°C). The HS and S Series are **not** listed for outdoor use.

Unit Dimensions

- 5" (12.7 cm) high x 4.5" (11.43 cm) wide x 2.5" (6.35 cm) deep



Description

The S-24/HS-24 Series is a low profile strobe and horn/strobe combination that offers dependable audible and visual alarms and the absolute lowest current available.

The S-24 & HS-24 Series 24VDC offers tamperproof field selectable candela options of 15, 30, 60, 75, and 110 candela.

The Strobe and Horn/Strobe offers a continuous or sync temporal three in 2400Hz and mechanical tone, a chime and whoop tone. All tones are easy for the professional to change in the field by the use of switches.

The S-24 & HS-24 Series has a minimal operating current and has a minimum flash rate of 1Hz regardless of input voltage.

This Series is shipped with a standard 4" metal mounting plate which incorporates the popular Super-Slide® feature that allows the installer to easily test for supervision. The product also features a locking mechanism which secures the product to the bracket without any screws showing.

The S-24/HS-24 also features the patented Checkmate® - Instant Voltage Verification feature which allows the installer to check the voltage drop draw and match it to the blueprint.

The S-24 & HS-24 Series appliances are ANSI/UL 464 and ANSI/UL 1971, listed for use with fire protective systems and are warranted for three years from date of purchase.



S-24 & HS-24 SELECTABLE CANDELA STROBE & HORN/STROBES

Tone Switch Locations

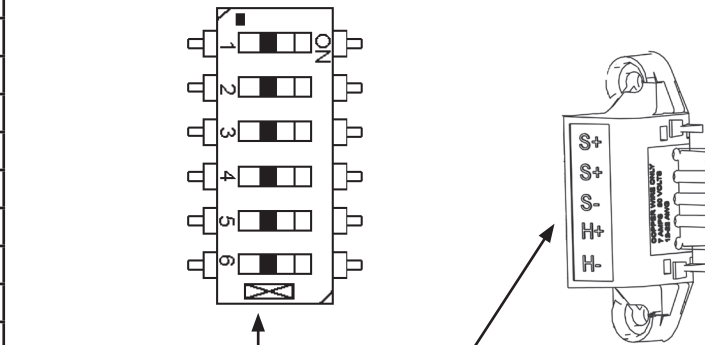
TONE	SWITCH POSITION		
	3	4	5
Mechanical Temporal 3	ON	ON	ON
Mechanical - Continuous	OFF	ON	ON
2400Hz - Temporal 3	ON	OFF	ON
2400Hz - Continuous	OFF	OFF	ON
Chime - Temporal 3	ON	ON	OFF
Chime - Continuous	OFF	ON	OFF
Whoop	ON	OFF	OFF
Whoop	OFF	OFF	OFF

NOTE:

- Switch Positions 1 and 2 in the OFF position to select isolated horn and strobe power inputs
- Switch Position 6 ON = HIGH dBA
- Switch Position 6 OFF = LOW dBA

Super Slide® Mounting Bracket

Allows the installer to pre-wire the system, test for system supervision, remove the signal head until occupancy, switch out signals without changing mounting brackets and has locking edge connector for snap-in-place installation.



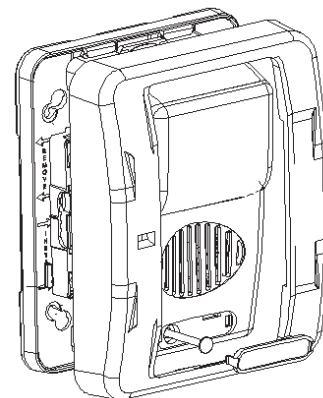
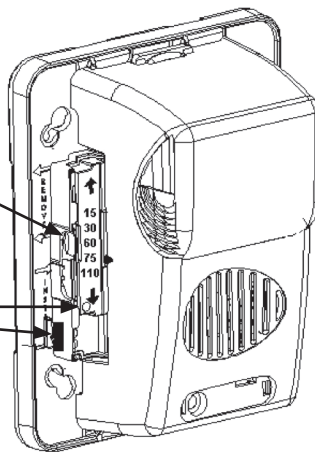
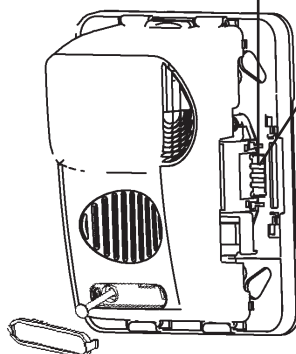
Checkmate® Instant Voltage Verification

It is often necessary to confirm the voltage drop along a line of devices. The access holes are provided in the back of the terminal block to allow the voltage to be measured directly without removing the device. Typically, this would be done at the end of line to confirm design criteria. Most measurements will be taken using the S+ and S- locations although access is provided to other locations.

NOTE: Care should be taken to not short the test probes.

Candela selection slider switch. Depress center and slide switch to desire brightness level.

Break off pin and insert into hole at the bottom of the selector to lock candela setting. Signal must be removed from bracket and pin pushed forward from backside out of hole to change candela.



To remove bezel, grip both sides of bezel and pull in a downward and outward motion.



S-24 & HS-24 SELECTABLE CANDELA STROBE & HORN/STROBES

S-24 24 VDC Selectable Candela, Low Profile Evacuation Strobe

Model Number	Part Number	Nominal Voltage	Candela (ANSI/UL 1971)
S-24WR	4890010	24 VDC	15, 30, 60, 75, 110
S-24WW	4890011	24 VDC	15, 30, 60, 75, 110

HS-24 24 VDC Selectable Candela, Low Profile Evacuation Horn/Strobe

Model Number	Part Number	Nominal Voltage	Candela (ANSI/UL 1971)	Reverberant dBA at 10 ft., per ANSI/UL 464	In Anechoic Room dBA at 10 ft.
HS-24WR	4890030	24 VDC	15, 30, 60, 75, 110	62-82	100
HS-24WW	4890031	24 VDC	15, 30, 60, 75, 110	62-82	100

S-24 & HS-24 Product Strobe Current Ratings (mA)

	24 VDC (16-33 Volts)	
Candela	24 VDC	UL Max ¹
15 cd	30 mA	42 mA
30 cd	35 mA	58 mA
60 cd	66 mA	97 mA
75 cd	80 mA	116 mA
110 cd	103 mA	161 mA

Model Designations:

W = Wall Mount

R = Red Faceplate

W = White Faceplate

All units are available in plain (no lettering).

Plain units are non-returnable.

ALERT bezel available for order.

ALERT bezel available for order.

S-24 & HS-24 Product Horn Current Ratings

Horn Mode	Horn Decibel Levels		Horn Current Ratings
	Minimum SPL at 10 ft., per ANSI/UL 464 (HIGH)	Minimum SPL at 10 ft., per ANSI/UL 464 (LOW)	Regulated 24 VDC Max. Operating @ High Setting (mA)
Temp 3 2400 Hz	78 dBA	71* dBA	28 mA
Temp 3 Mechanical	76 dBA	70* dBA	25 mA
Temp 3 Chime	70* dBA	66* dBA	15 mA
Continuous 2400 Hz	81 dBA	74* dBA	28 mA
Continuous Mechanical	80 dBA	72* dBA	25 mA
Continuous Chime	70* dBA	66* dBA	15 mA
Whoop	82 dBA	69* dBA	56 mA

NOTES:

- For nominal and peak current across ANSI/UL regulated voltage range for filtered DC power and unfiltered (FWR [Full Wave Rectified]) power, see installation manual.
- Potter does not recommend using a coded or pulsing signaling circuit with any of our strobe products.
- The sound output for the temporal 3 tone is rated lower since the time the horn is off is averaged into the sound output rating. While the horn is producing a tone in the temporal 3 mode its sound pressure is the same as the continuous mode.
- * Operating the horn in this mode at this voltage will result in not meeting the minimum ANSI/UL 464 reverberant sound level required for public mode fire protection service. These settings are acceptable only for private mode fire alarm use. Use the high dBA setting for public mode application (not applicable when using the chime tone. The chime tone is always private mode).



S-24 & HS-24 SELECTABLE CANDELA STROBE & HORN/STROBES

Architect & Engineering Specifications

The audible and/or visible signal shall be Potter S-24 strobe and Potter HS-24 horn/strobe Series or approved equal and shall be listed by Underwriters Laboratories, Inc. per ANSI/UL 1971 and/or ANSI/UL 464. The notification appliance shall also be listed with Factory Mutual Listing Service (FM) and the California State Fire Marshal (CSFM).

The notification appliance (combination audible/visible) shall produce a peak sound output of 100dBA or greater at 24VDC as measured in an anechoic chamber. The signaling appliance shall also have the capability to silence the audible signal while leaving the visible signal energized with the use of a single pair of power wires. Additionally, the user shall be able to select either continuous or temporal tone output with the temporal signal having the ability to be synchronized.

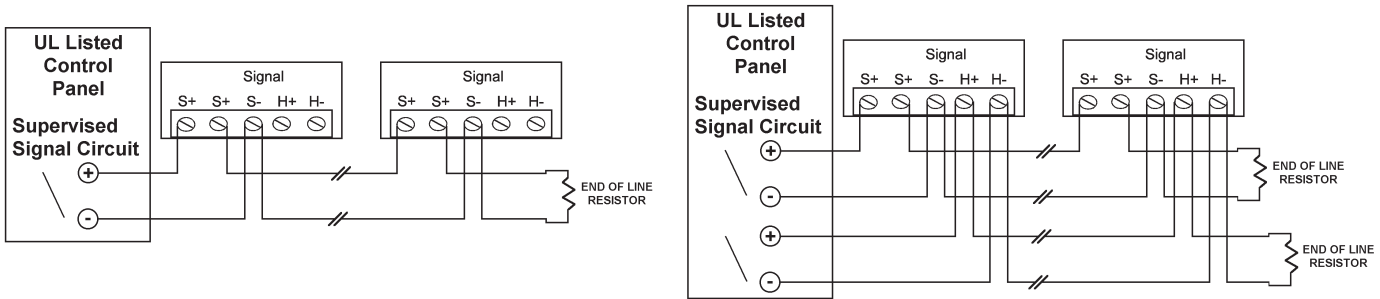
Unit shall be capable of being installed so that any unauthorized attempt to change the candela setting will result in a trouble signal at the fire alarm control panel.

The audible/visible and visible signaling appliance shall also maintain a minimum flash rate of 1Hz or up to 2Hz regardless of power input voltage. The strobe appliance shall have an operating current of 42mA or less at 24VDC for the 15Cd strobe circuit.

The appliance shall be polarized to allow for electrical supervision of the system wiring. The unit shall be provided with a mounting bracket with terminals and barriers for input/output wiring and be able to mount to a single gang or double gang box or double workbox without the use of an adapter plate. The unit shall have an input voltage range of 16-33 volts with either direct current or full wave rectified power for 24VDC models.

The appliance shall be capable of testing supervision without disconnecting wires, verify voltage without removing unit and be capable of mounting to a surface back box.

Conventional Wiring Diagrams for Emergency Notification Evacuation Series



NOTES:

- All strobes are designed to flash as specified with continuous applied voltage. Strobes should not be used on coded or pulsing signaling circuits. However, use of the Potter AVSM control module or Gentex synchronization protocol is permitted to synchronize the strobe, horn, and/or mute the horn.
- **FOR SYNCHRONIZATION WIRING INFORMATION, REFERENCE AVSM CONTROL MODULE DATA SHEET (8830050) AND/OR AVSM CONTROL MODULE MANUAL FOR SYNCHRONIZATION MODULE WIRING DIAGRAMS. AVSM CONTROL MODULE DATA SHEET AND MANUAL CAN BE OBTAINED AT <http://pottersignal.com> OR CALL POTTER ELECTRIC AT 1-800-325-3936.**



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BE IT KNOWN THAT

Richard W. Brobst, Jr

IS HEREBY AWARDED CERTIFICATION AT
LEVEL IV

IN FIRE PROTECTION ENGINEERING TECHNOLOGY
FIRE ALARM SYSTEMS

**BASED UPON SUCCESSFUL DEMONSTRATION OF REQUISITE KNOWLEDGE,
EXPERIENCE AND WORK PERFORMANCE AS SET FORTH BY THIS INSTITUTE.**

Certification Valid through October 1, 2020

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PSN-106, PSN-64, PSB-10

Installation, Operation, and Instruction Manual



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Contents

Section 1: PSN-106 PSN-106:1

General Description PSN-106:3

System Features PSN-106:3

Mounting Instructions PSN-106:3

Operating Instructions PSN-106:3

 Alarm Condition PSN-106:3

 Trouble Condition PSN-106:4

 Standby Operation PSN-106:4

 Testing and Maintenance PSN-106:5

Battery Maintenance PSN-106:5

Electrical Operating Characteristics PSN-106:5

Notification Power Supply PSN-106:6

Wiring Options PSN-106:7

 Class B Trigger and Class B Notification Circuit Trigger PSN-106:7

 Class A Trigger and Class A Notification Circuit PSN-106:7

 Class B - Multiple Supply Trigger PSN-106:8

 Class A - Multiple Supply Trigger PSN-106:8

 Pass Thru Mode PSN-106:9

Wire Routing PSN-106:10

Reference EOL PSN-106:10

Dip Switch Programming PSN-106:11

 Input Trigger Type PSN-106:11

 Bulk Supply Options PSN-106:11

 Class A/B Selection PSN-106:12

 Door Holder AC Dropout delay PSN-106:12

 DC Output is Door Holder PSN-106:12

 Trouble Memory Enabled PSN-106:12

Individual NAC Options PSN-106:13

Battery Calculation Worksheet PSN-106:15

Section 2: PSN-64 PSN-64:1

General Description PSN-64:3

System Features PSN-64:3

Mounting Instructions PSN-64:3

Operating Instructions PSN-64:3

 Alarm Condition PSN-64:3

 Standby Operation PSN-64:4

 Trouble Condition PSN-64:4

 Testing and Maintenance PSN-64:5

Battery Maintenance PSN-64:5

Electrical Operating Characteristics PSN-64:5

Notification Power Supply PSN-64:6

Wiring Options PSN-64:7

 Class A Trigger and Class A Notification Circuit PSN-64:7

 Class B - Multiple Supply Trigger PSN-64:8

 Class A - Multiple Supply Trigger PSN-64:8

 Pass Thru Mode PSN-64:9

Wire Routing PSN-64:10

Reference EOL PSN-64:10

Dip Switch Programming PSN-64:11

 Input Trigger Type PSN-64:11

 Bulk Supply Options PSN-64:11

 Class A/B Selection PSN-64:12

 Door Holder AC Dropout delay PSN-64:12

 DC Output is Door Holder PSN-64:12

 Trouble Memory Enabled PSN-64:12

Individual NAC Options PSN-64:13

Battery Calculation Worksheet PSN-64:15

Section 3: PSB-10	PSB-10:1
General Description	PSB-10:3
Product Features	PSB-10:3
Mounting Instructions	PSB-10:3
Operating Instructions	PSB-10:3
Normal Operation	PSB-10:3
Trouble Condition	PSB-10:3
Testing and Maintenance	PSB-10:4
Battery Maintenance	PSB-10:4
Electrical Operating Characteristics	PSB-10:4
Wire Routing	PSB-10:5
Dip Switch Programming	PSB-10:6
Indicator LED Behavior	PSB-10:6
Bulk Power Supply	PSB-10:7
Battery Calculation Worksheet	PSB-10:8



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



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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.



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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.

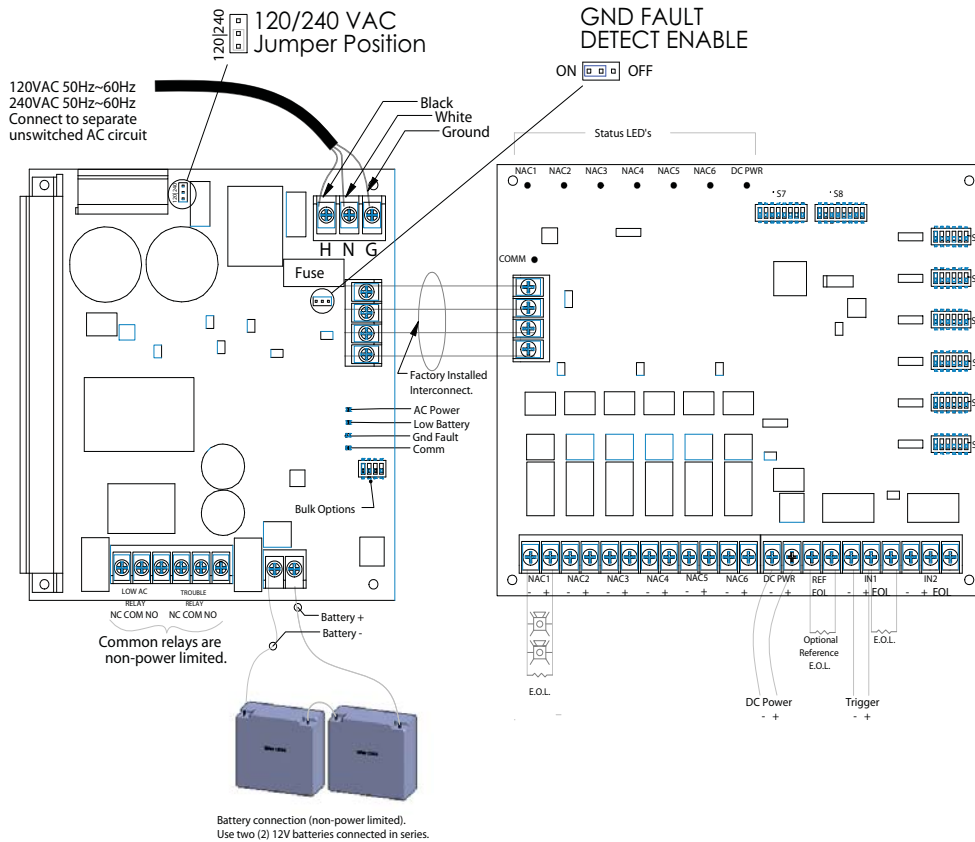
Electrical Operating Characteristics

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 (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:

$$\frac{\text{(Alarm Current of Notification Appliances)}}{\text{x (Wire Resistance)}} < 3 \text{ volts}$$

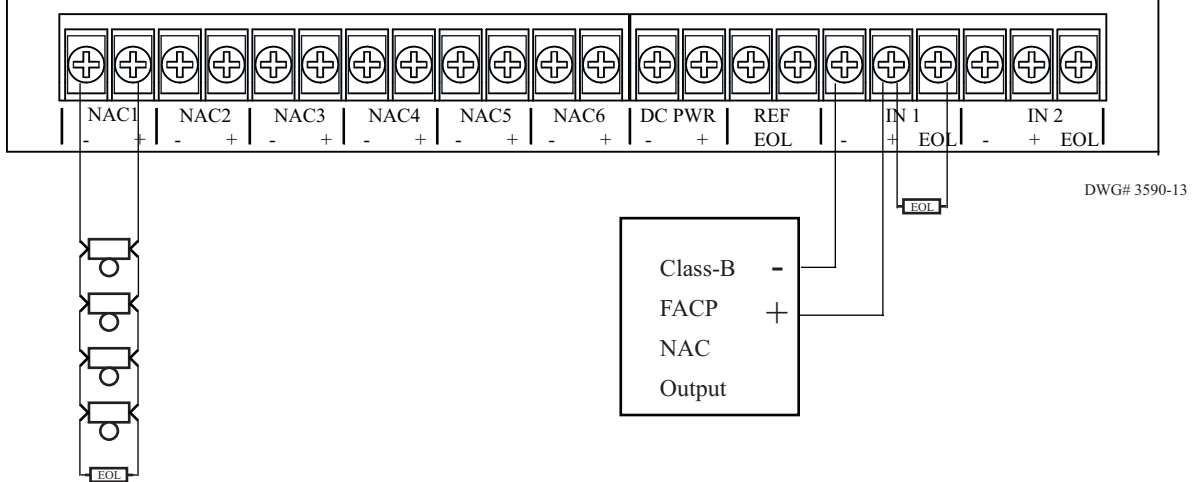
Install in accordance with installation manual Part Number 5403590 Rev A, NFPA 70, and NFPA 72



Wiring Options

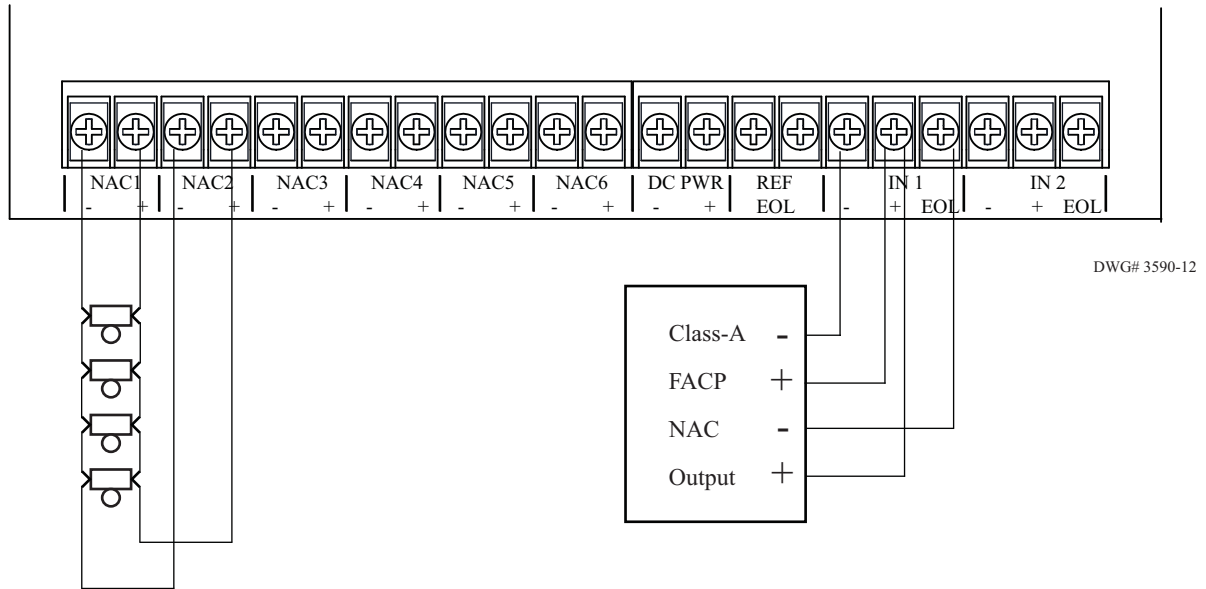
Class B Trigger and Class B Notification Circuit Trigger

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

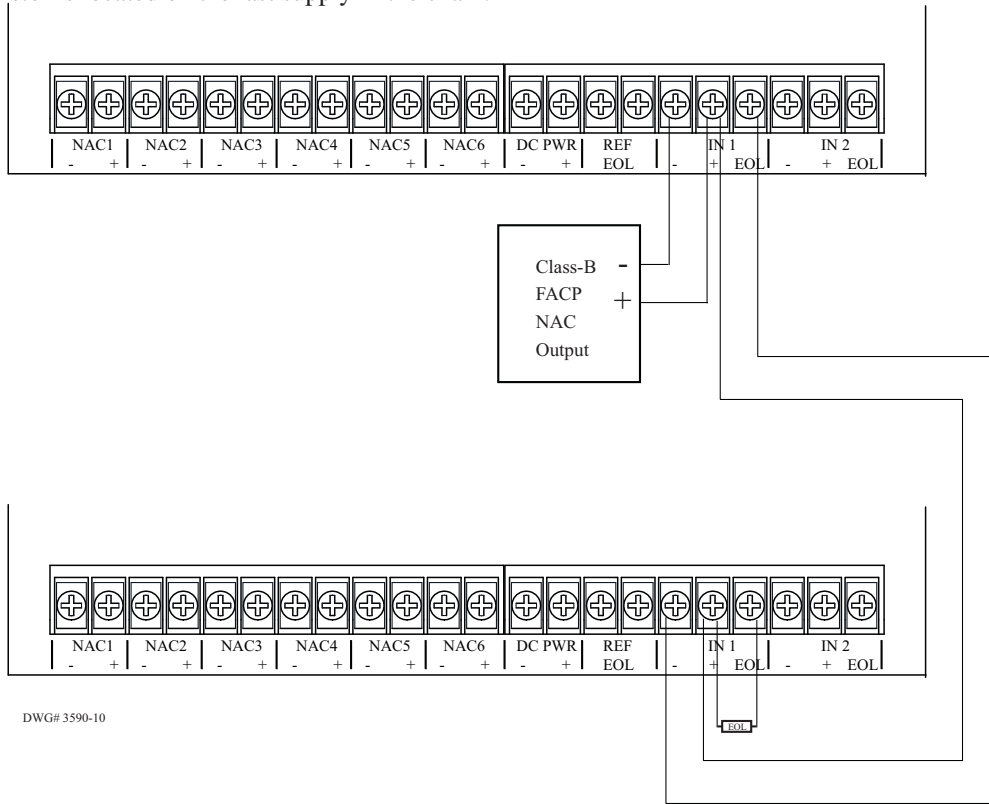
Trigger inputs IN1 & IN2 can be connected to a class A NAC trigger circuit as shown below. The PSN-106 provides 3 Class A NAC circuits, each rated for 3 amps. Each NAC circuit is individually selectable for Class A/B operation, refer to the Dip Switch Programming section for information on dip switch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





Class B - Multiple Supply Trigger

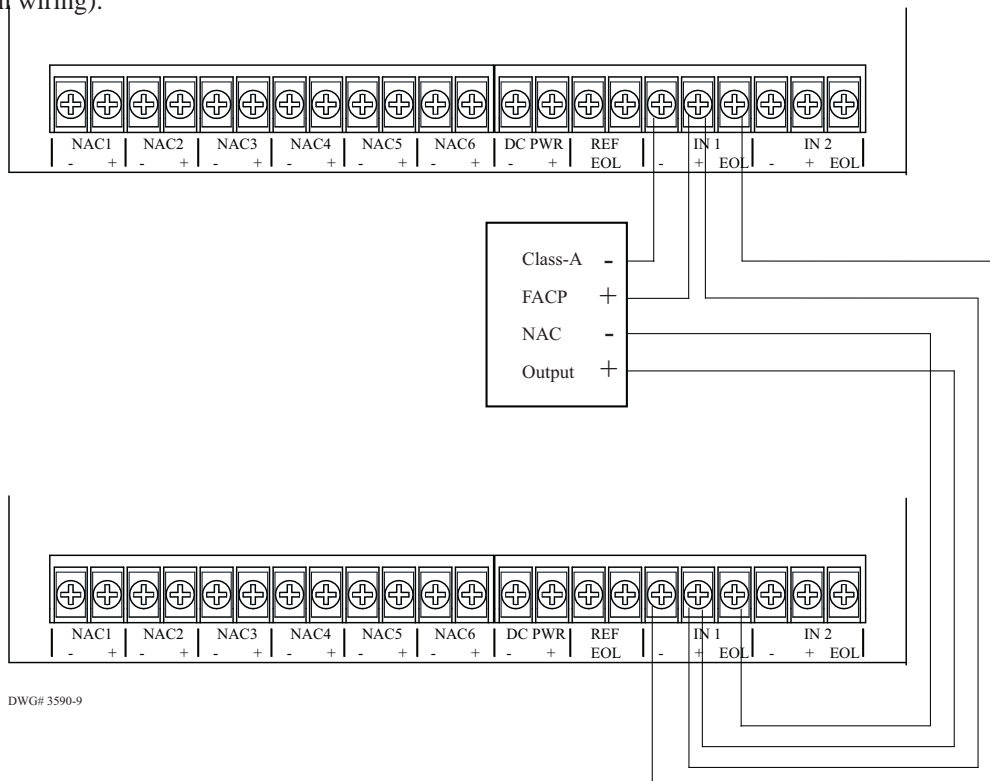
A single Class B Style Y trigger can be used to activate multiple supplies as shown below. The minimum wire gauge between supplies is 18 AWG. A maximum wiring distance of 10,000 feet is allowed from the triggering FACP and the last supply in the chain. The EOL resistor is located on the last supply in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



DWG# 3590-10

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).

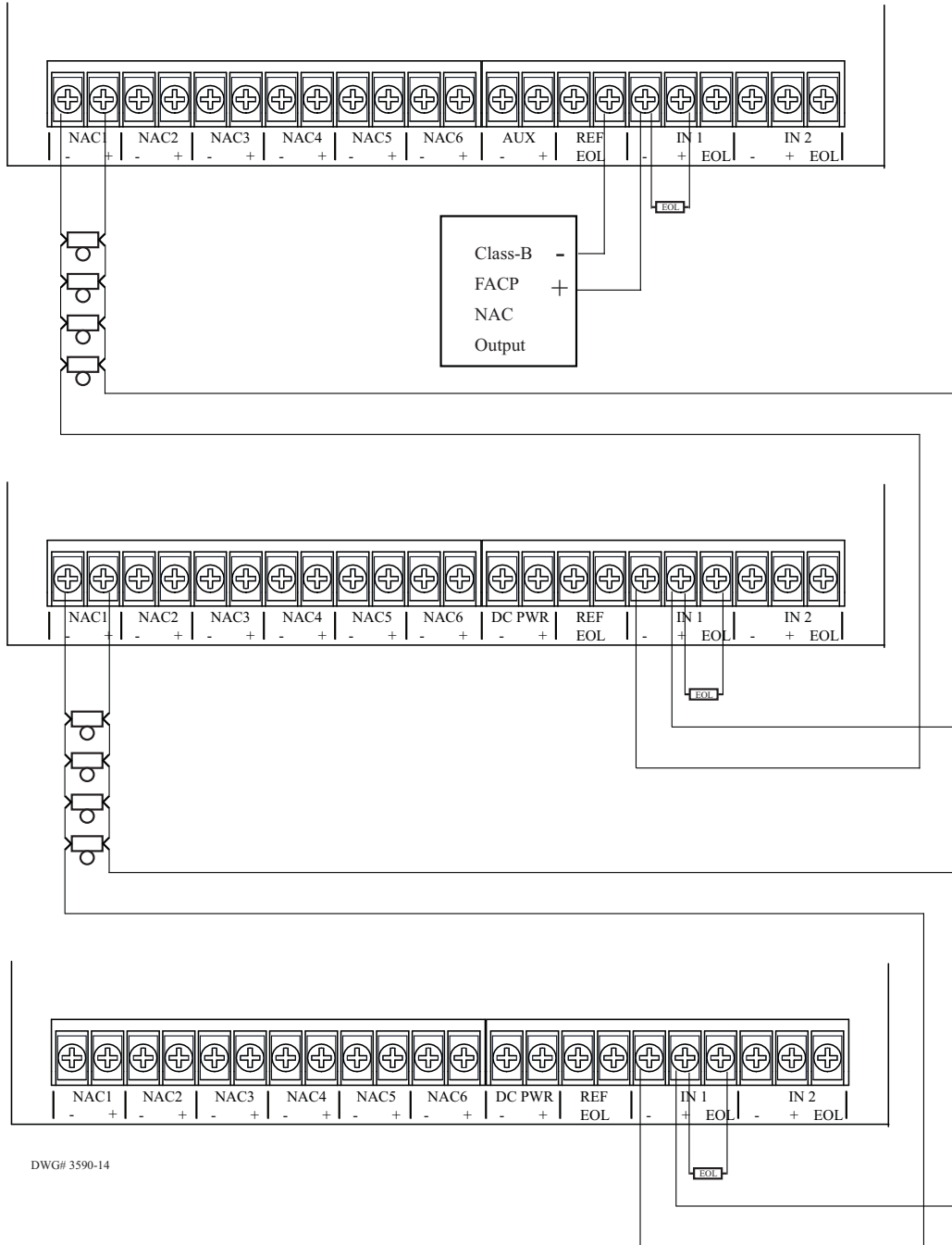


DWG# 3590-9



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.

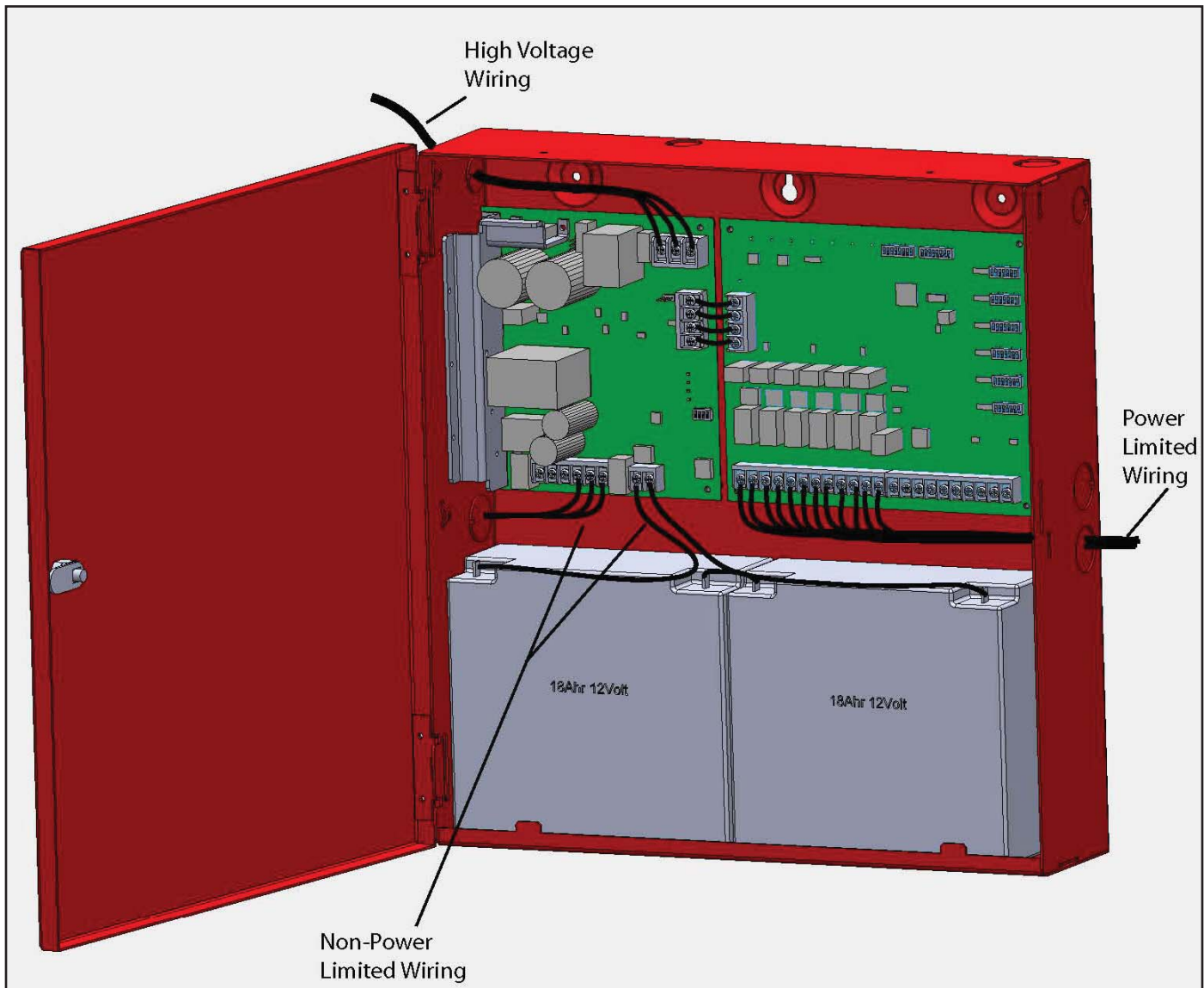


DWG# 3590-14



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

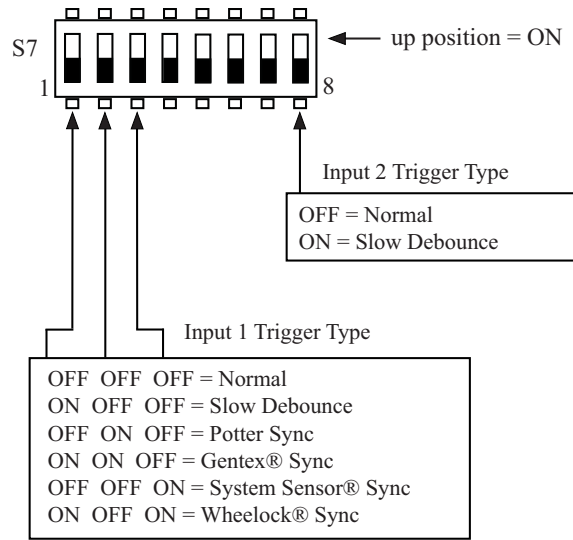
⚠ WARNING

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.



DWG# 3590-15

Bulk Supply Options

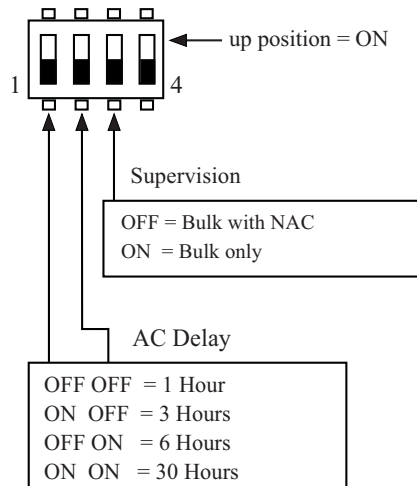
AC Report Delay:

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



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, if 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

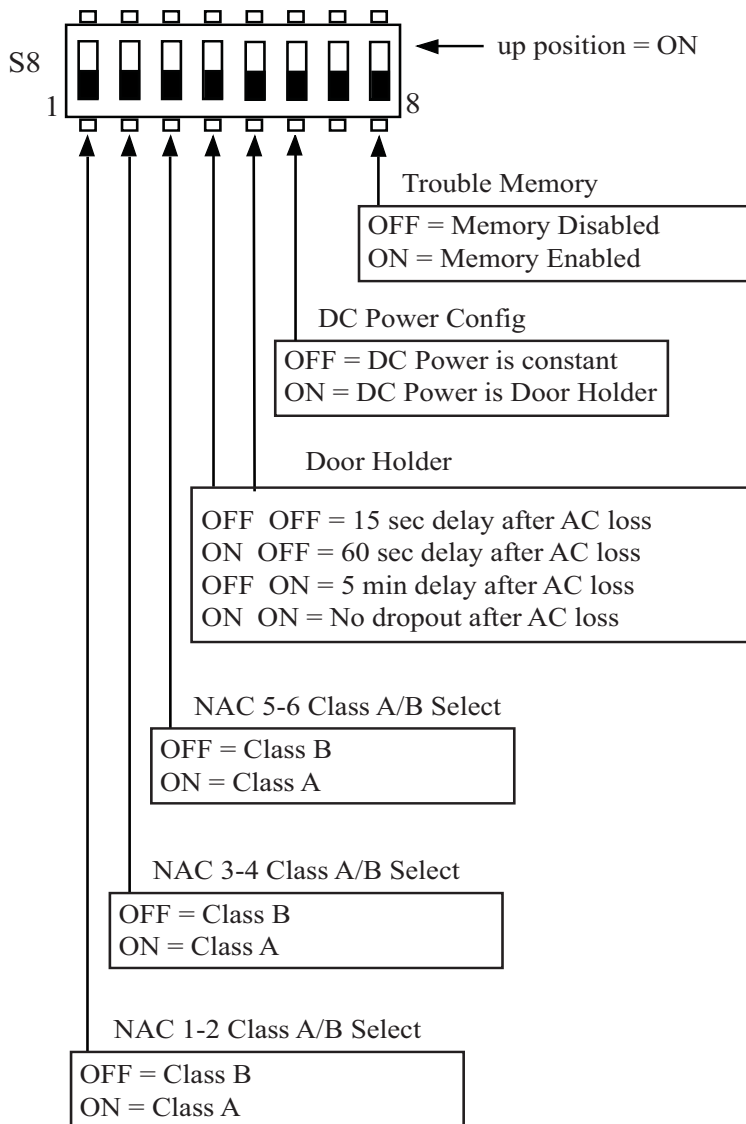
If the DC power output is used as door holder power, it can be configured to drop out in response to a low AC condition in order to minimize standby current. To minimize nuisance conditions a selectable AC dropout delay is provided. If “No doorholder dropout on AC Loss” is selected, door holder power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

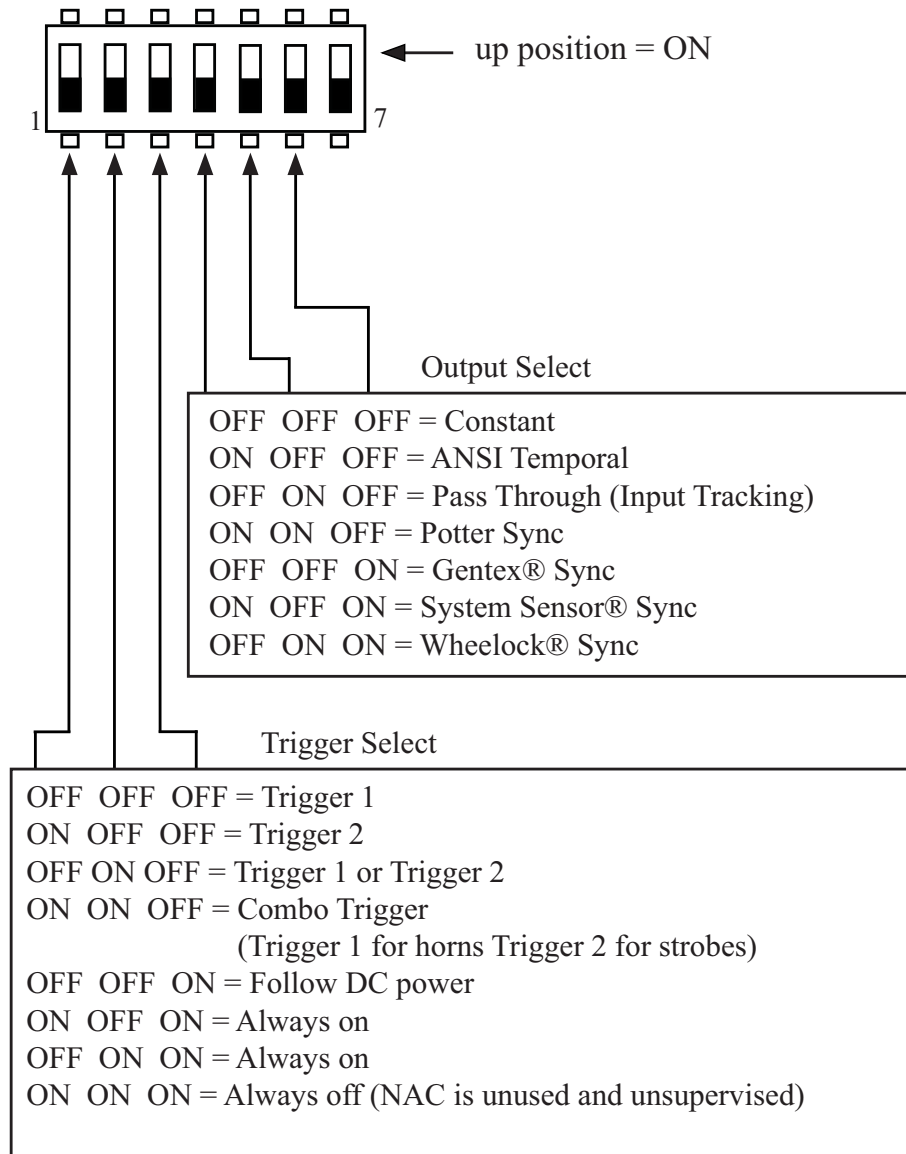


Individual NAC Options

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

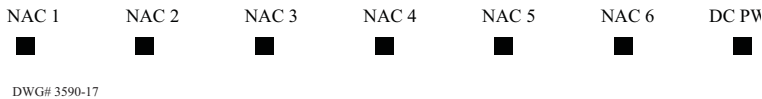
The NAC control board contains an indicator LED for each NAC circuit and a comm LED:

- 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.



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).

- — AC Power
- — Low Battery
- — Gnd Fault
- — Comm

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 <ul style="list-style-type: none"> Central Station (PPU) Local 	24 hours 24 hours	5 minutes 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
Total mA				Total mA	
Convert to A			x 0.001	Convert to A	
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	
				Required AH	

(* Refer to Maximum allowable standby current) Total A

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



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



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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.



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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.

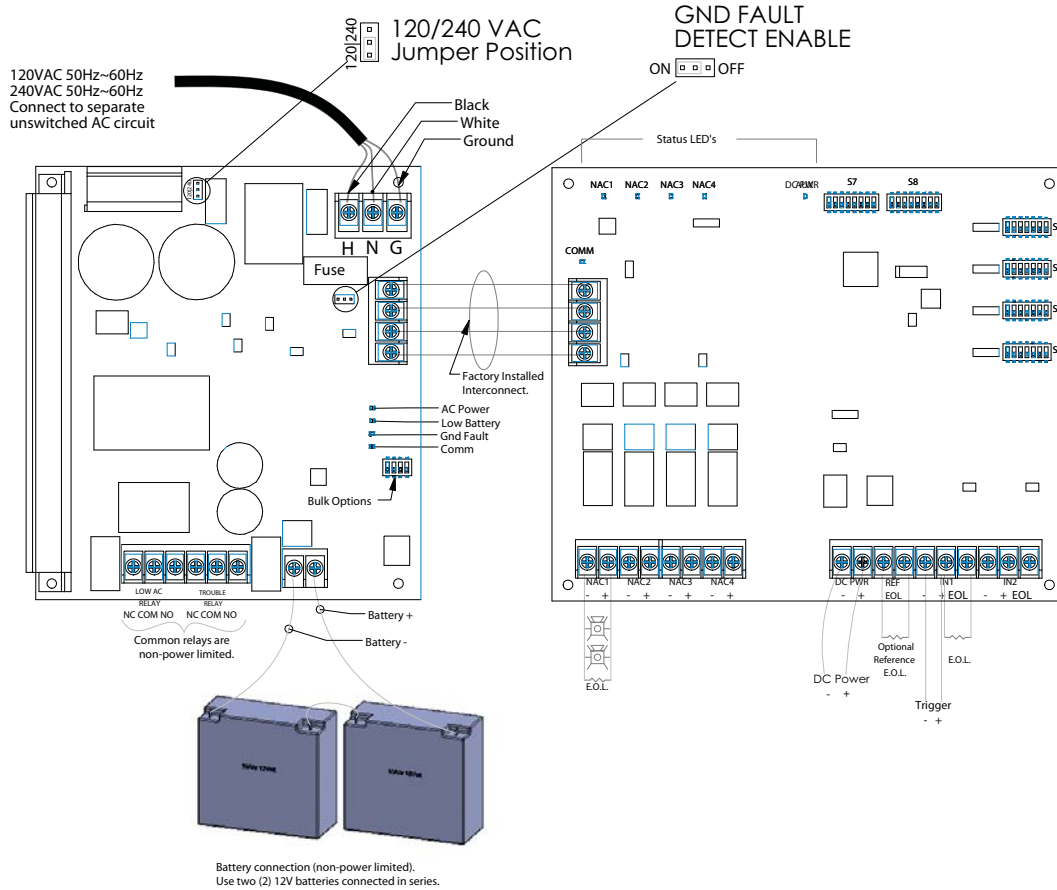
Electrical Operating Characteristics

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 (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:

$$\frac{\text{(Alarm Current of Notification Appliances)} \times \text{(Wire Resistance)}}{2} < 3 \text{ volts}$$

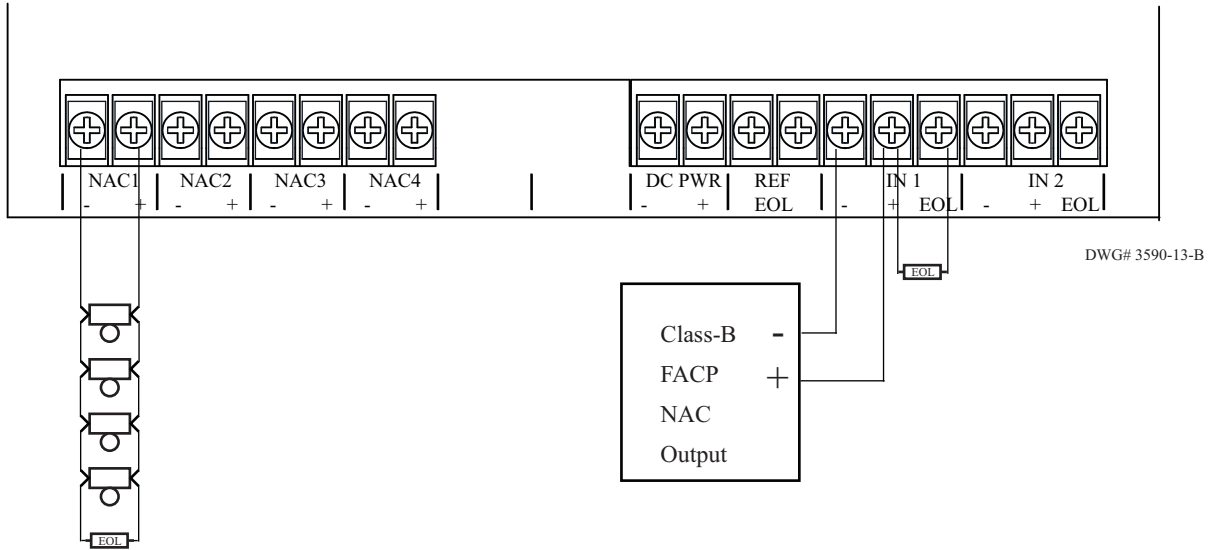
Install in accordance with installation manual Part Number 5403590 Rev A, NFPA 70, and NFPA 72



Wiring Options

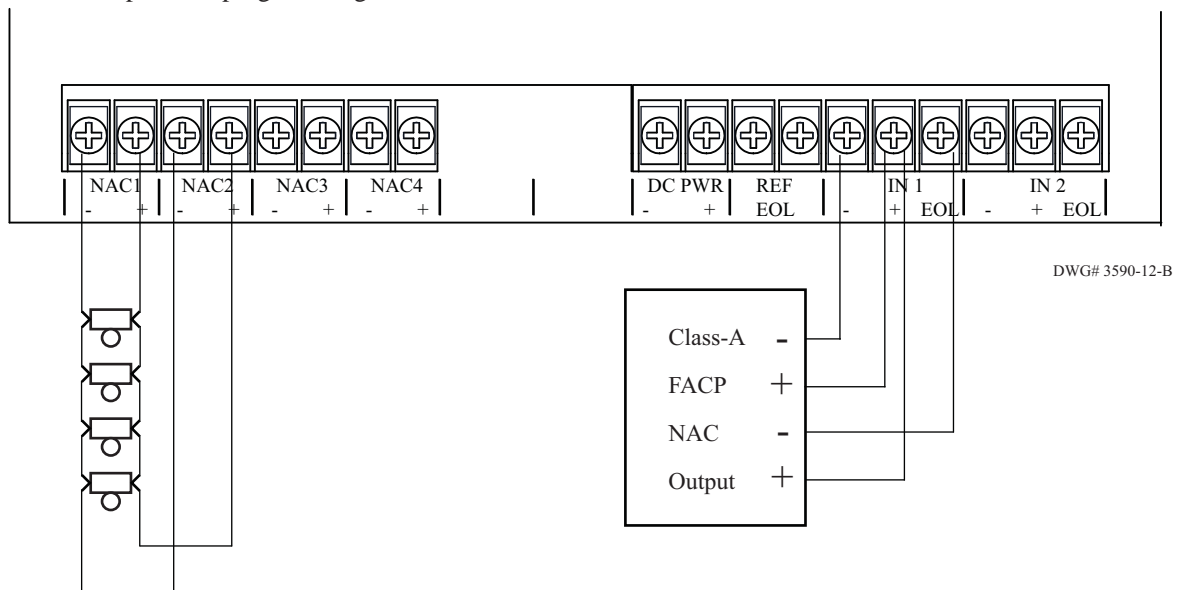
Class B Trigger and Class B Notification Circuit Trigger

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

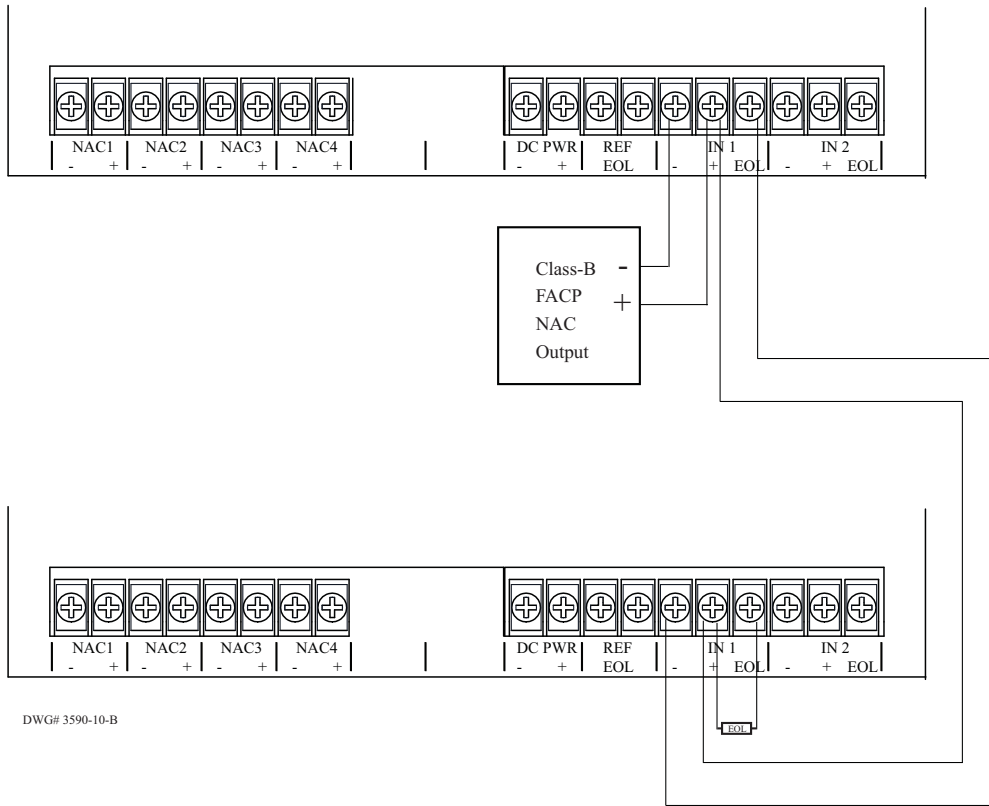
Trigger inputs IN1 & IN2 can be connected to a class A NAC trigger circuit as shown below. The PSN-64 provides 3 Class A Style Z NAC circuits, each rated for 3 amps. The PSN-64 provides 4 Class B Style Y NAC circuits, each rated at 3 amps. Each NAC circuit is individually selectable for Class A Style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





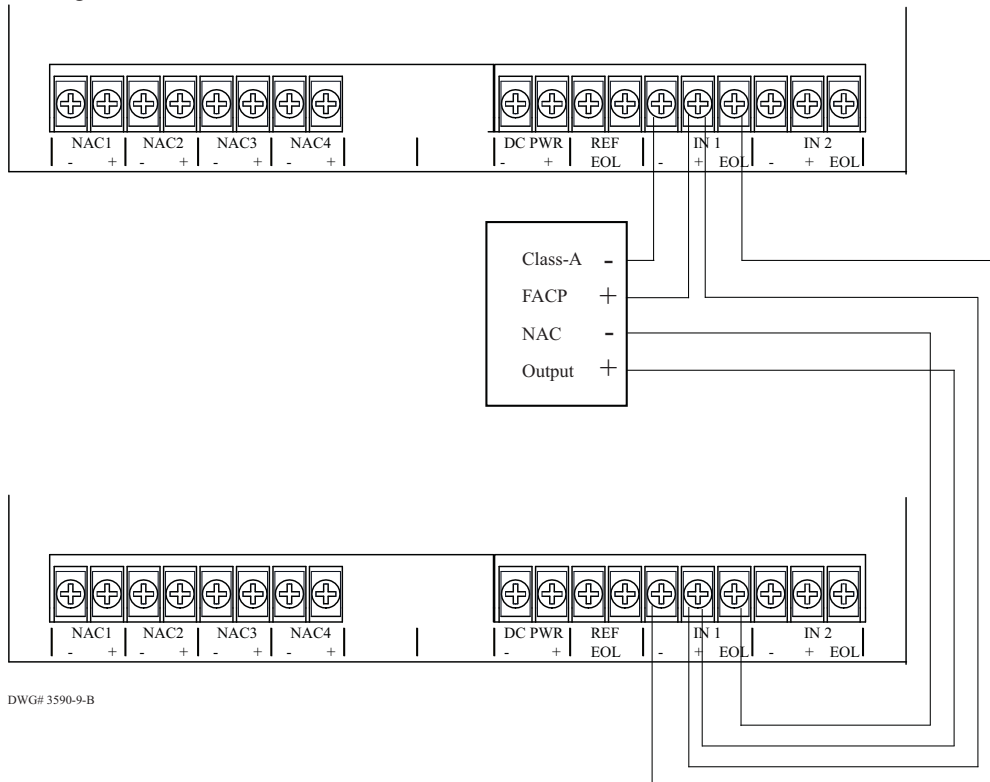
Class B - Multiple Supply Trigger

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

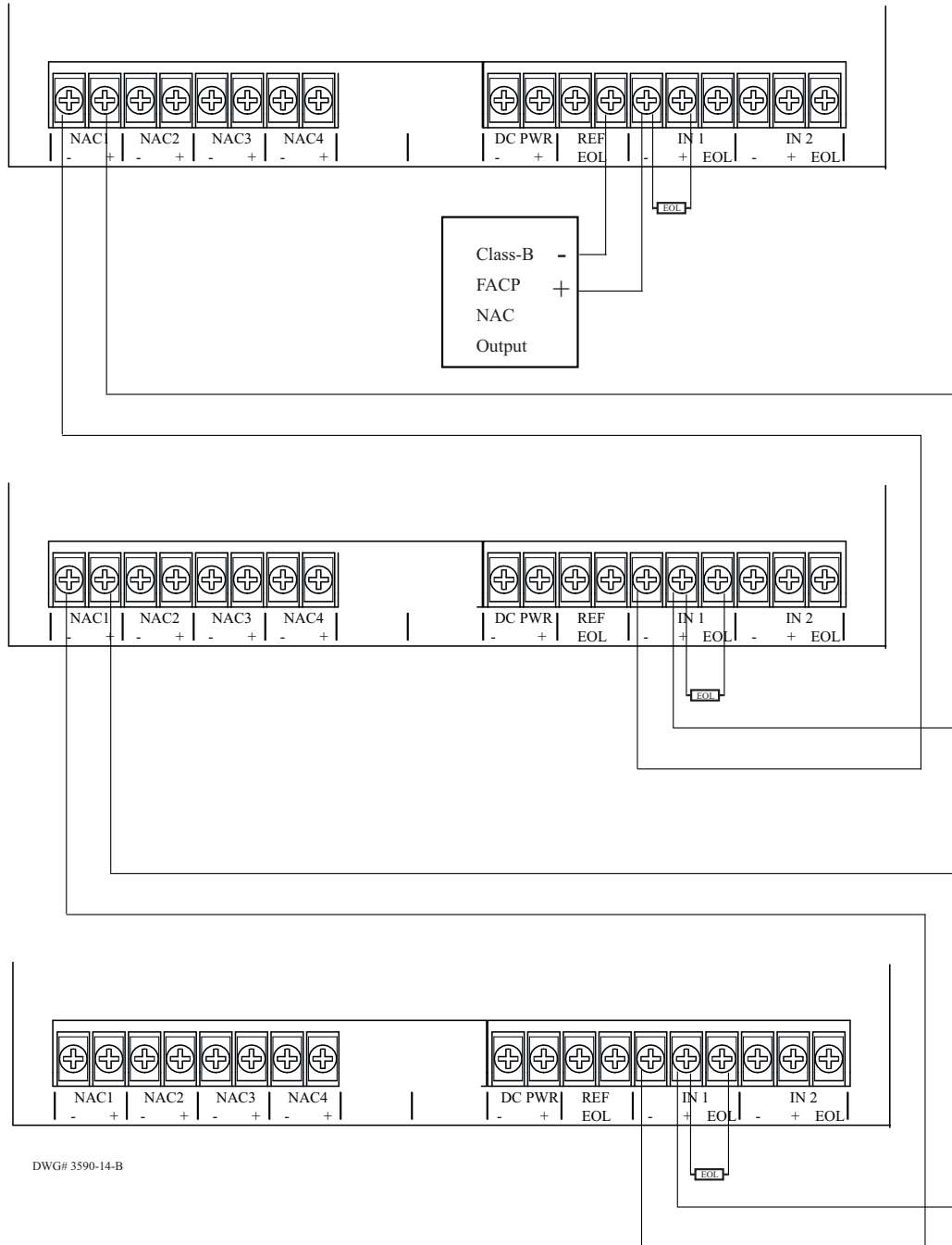
A single Class A Style Z trigger can be used to activate multiple supplies as shown below. The minimum wire gauge between supplies is 18 AWG. A total wiring distance of 10,000 feet is allowed from the triggering FACP to the last supply in the chain (including the return wiring).





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.

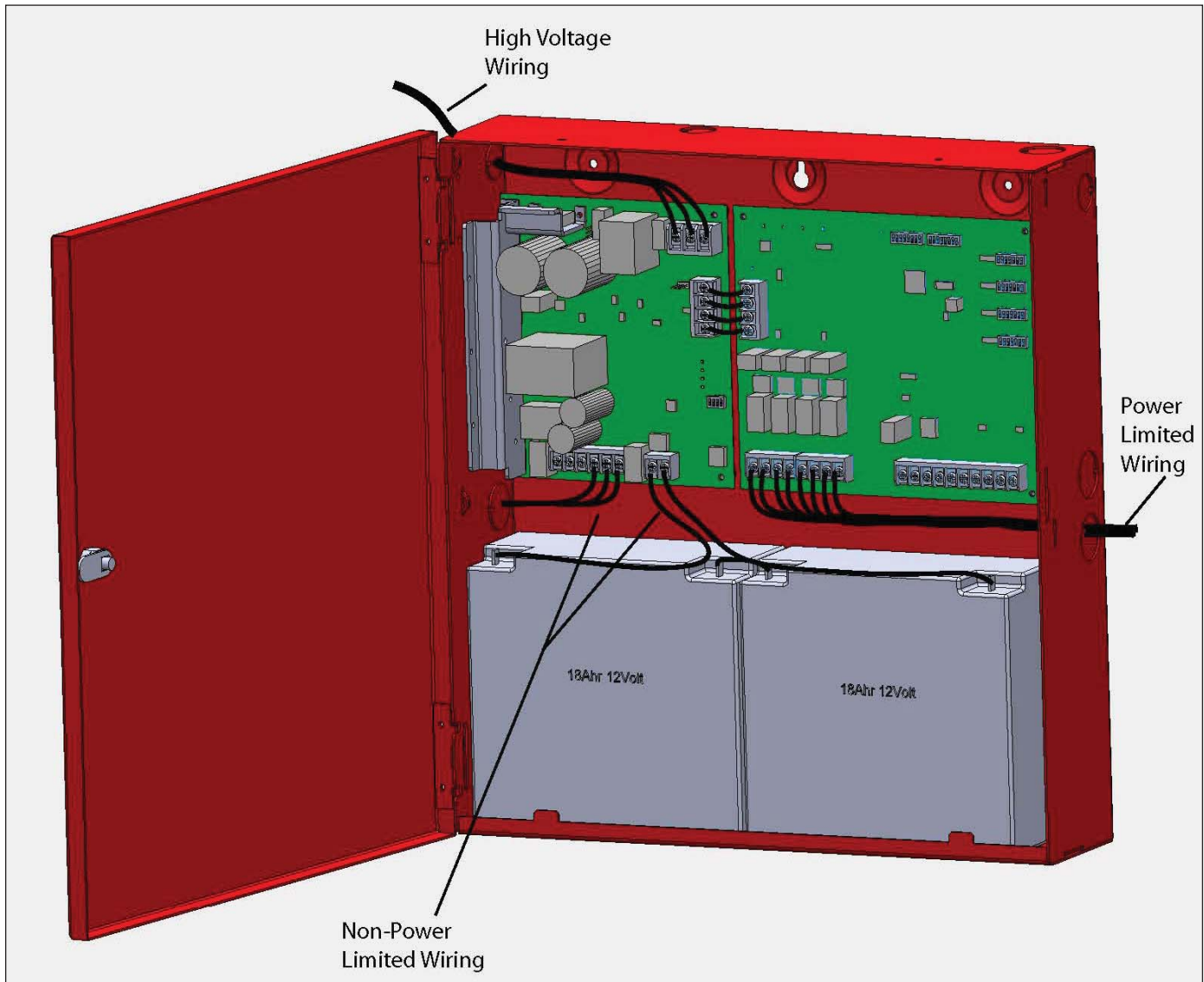


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Wire Routing

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

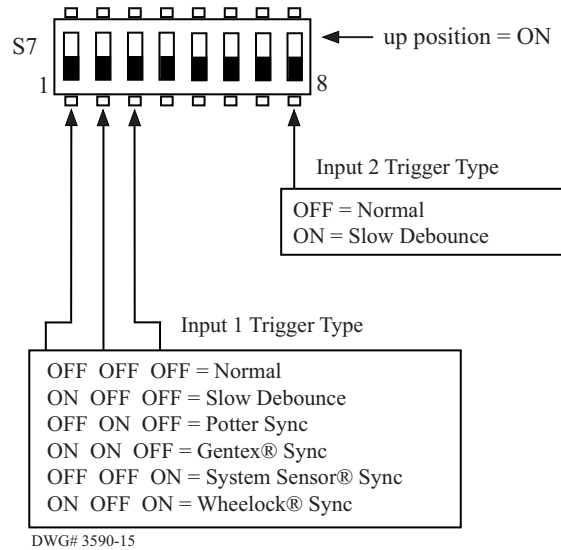
WARNING

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.



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Bulk Supply Options

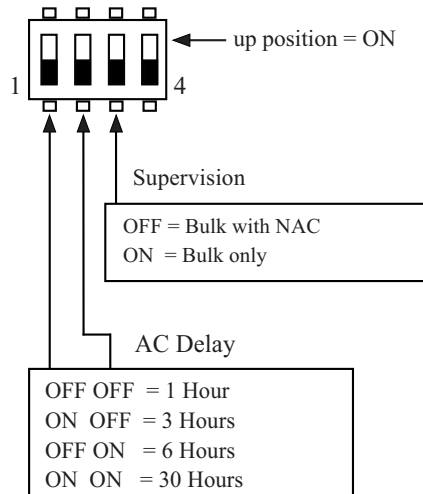
AC Report Delay:

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



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, if 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

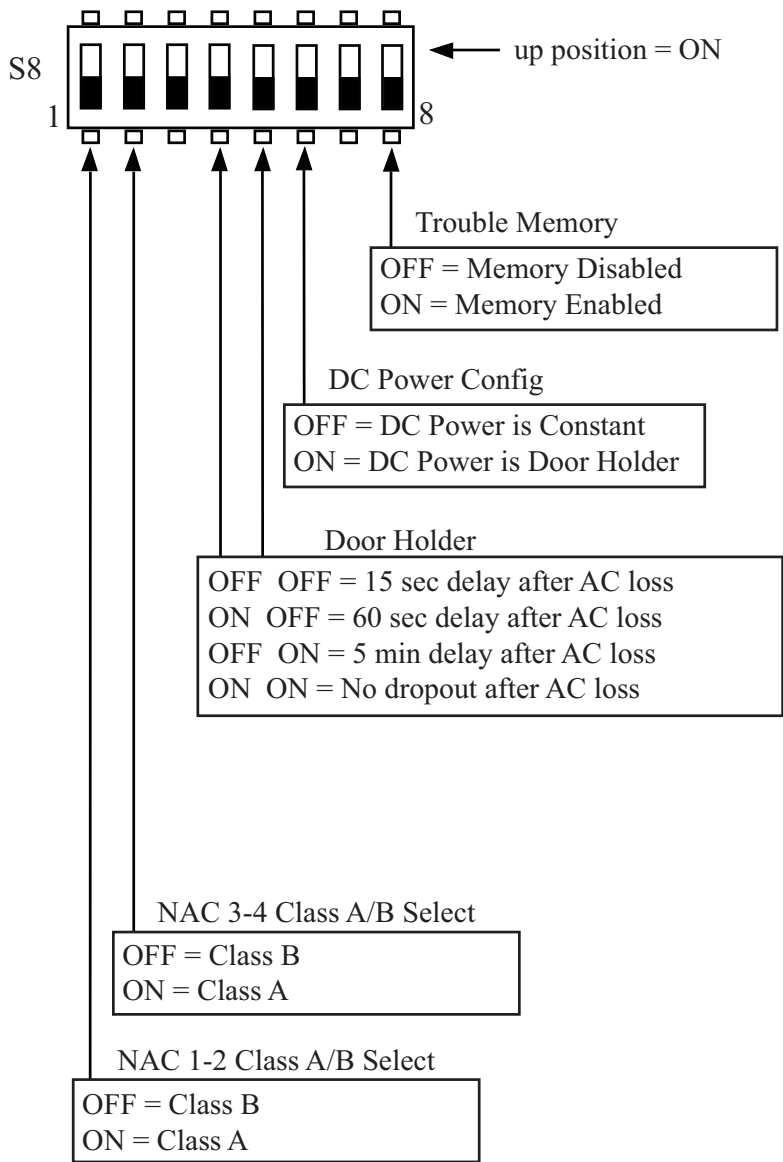
If the DC power output is used as door holder power, it can be configured to drop out in response to a low AC condition in order to minimize standby current. To minimize nuisance conditions a selectable AC dropout delay is provided. If “No doorholder dropout on AC Loss” is selected, door holder power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



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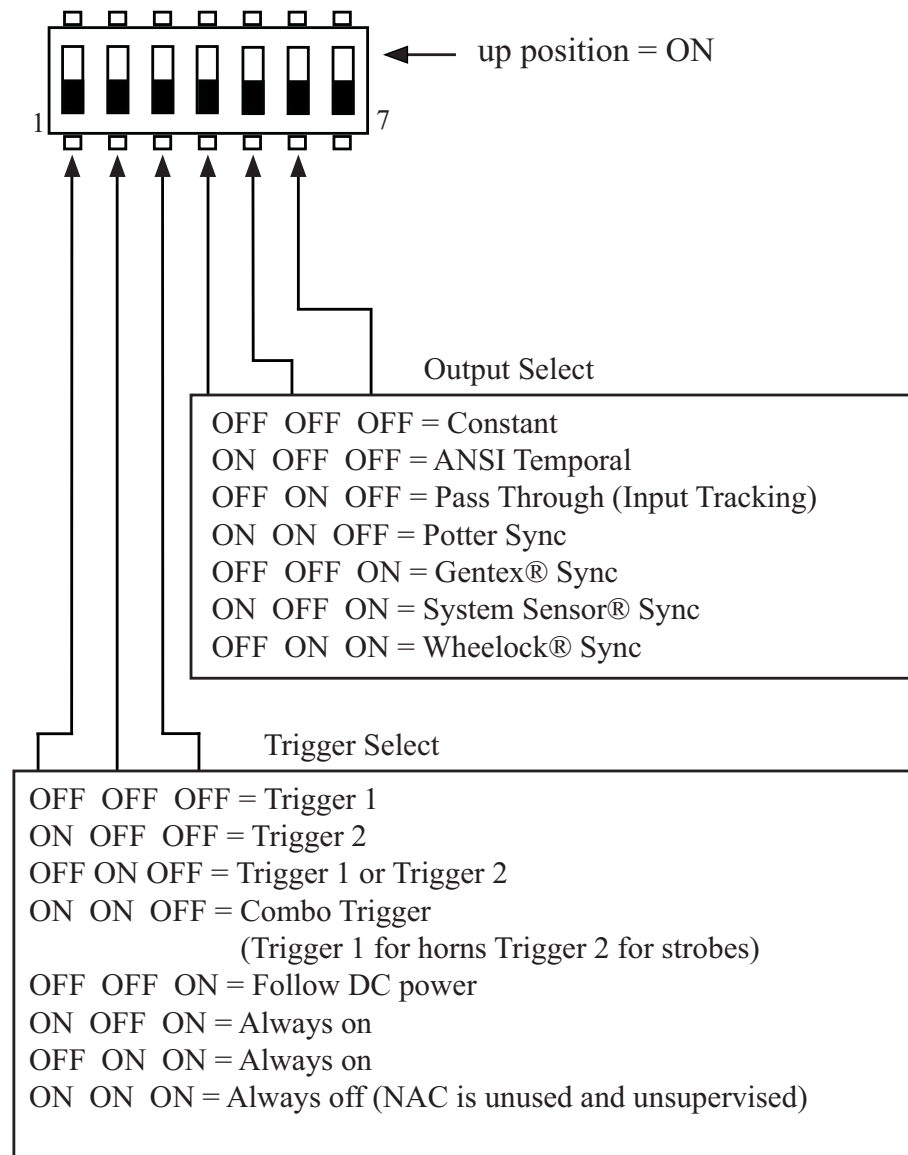


Individual NAC Options

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

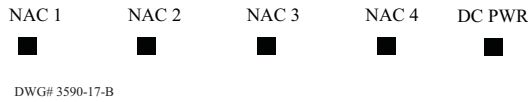
The NAC control board contains an indicator LED for each NAC circuit and a comm LED:

- **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.



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).

- — AC Power
- — Low Battery
- — Gnd Fault
- — Comm

DWG# 3590-18



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



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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.



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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

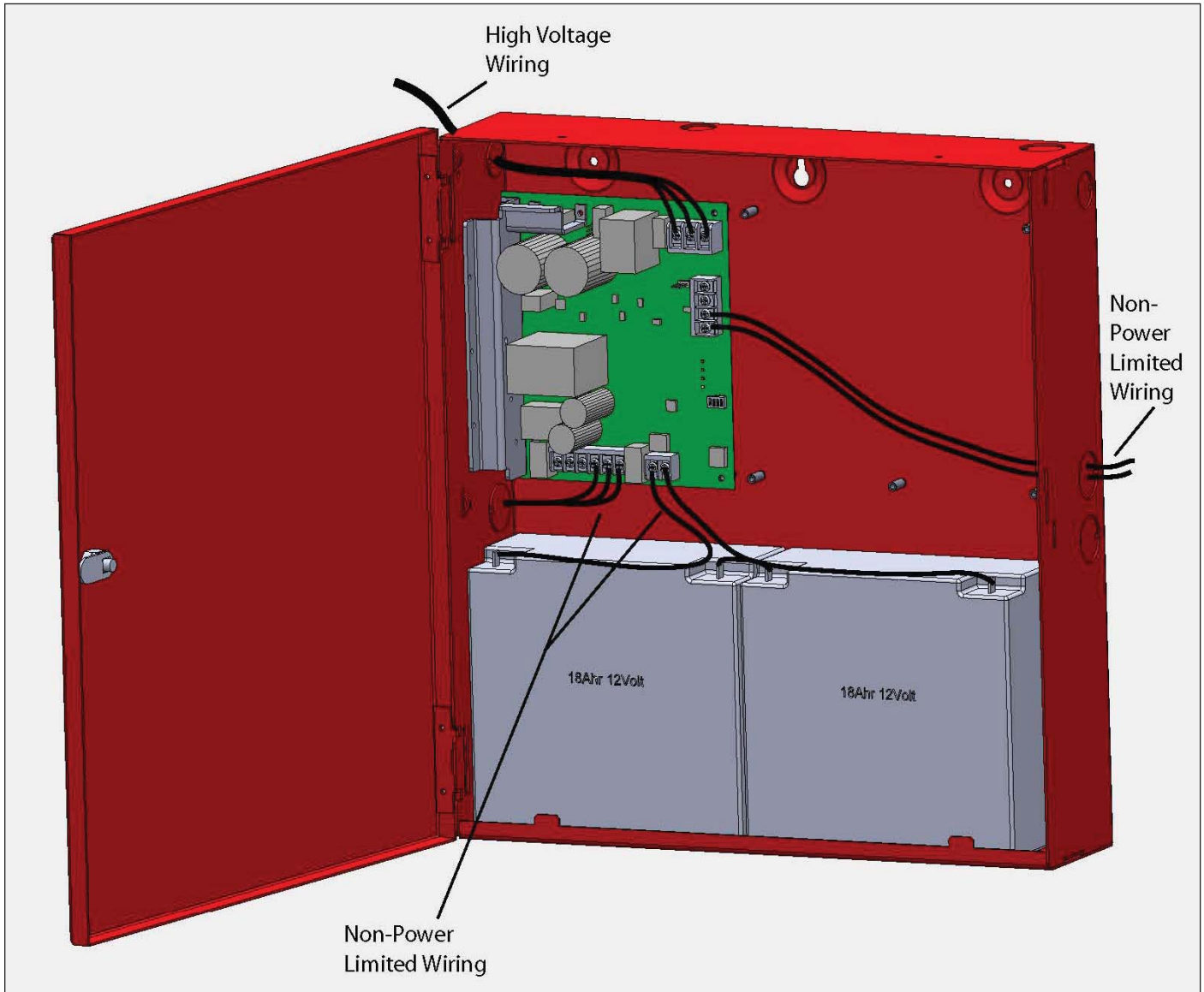
Input Voltage	120 VAC @ 5.1 Amps or 240 VAC @ 2.5 Amps (Jumper selected) 50/60 Hz
Output Voltage	24 VDC @ 10 Amps
Total System Current	PSB-10 = 10 Amps

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

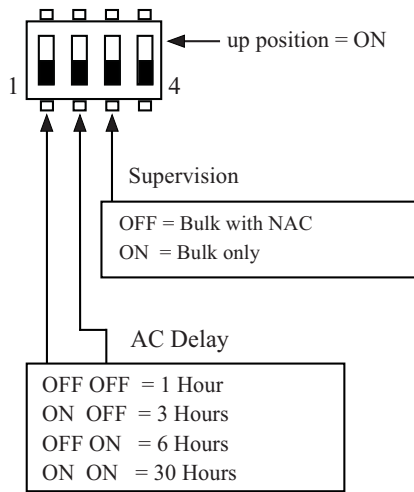
AC Report Delay:

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

The bulk supply board contains four indicator LEDs:

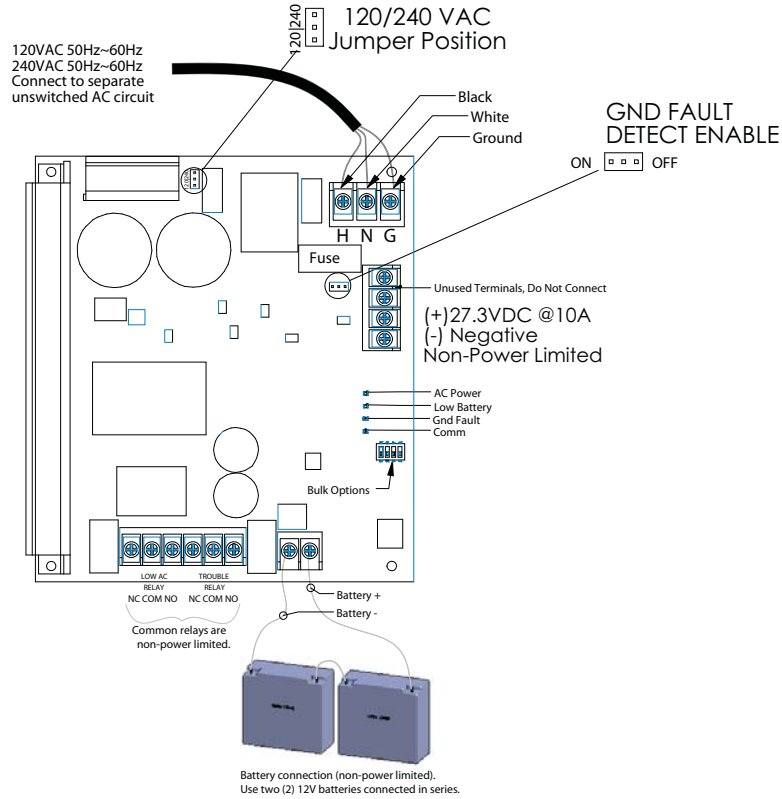
- AC Power: ON = AC Present, OFF = AC not present).
- Low Battery: Fast Flashing = Low battery condition. ON = Battery Charger Failure
- Earth Ground Fault: Flashing = Earth fault detected.
- Comm: Not Used

- — AC Power
- — Low Battery
- — Gnd Fault
- — Comm

DWG# 3590-18



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 1/4".

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 <ul style="list-style-type: none"> • Central Station (PPU) • Local 	24 hours 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.

The Aforesaid Warranty Is Expressly Made In Lieu Of Any Other Warranties, Expressed Or Implied, It Being Understood That All Such Other Warranties, Expressed Or Implied, Including The Warranties Of Merchantability And Fitness For Particular Purpose Are Hereby Expressly Excluded. In No Event Shall Potter Be Liable To Purchaser For Any Direct, Collateral, Incidental Or Consequential Damages In Connection With Purchaser's Use Of Any Of The Products Listed Herein, Or For Any Other Cause Whatsoever Relating To The Said Products. Neither Potter Nor Its Representatives Shall Be Liable To The Purchaser Or Anyone Else For Any Liability, Claim, Loss, Damage Or Expense Of Any Kind, Or Direct Collateral, Incidental Or Consequential Damages Relative To Or Arising From Or Caused Directly Or Indirectly By Said Products Or The Use Thereof Or Any Deficiency, Defect Or Inadequacy Of The Said Products. It Is Expressly Agreed That Purchaser's Exclusive Remedy For Any Cause Of Action Relating To The Purchase And/or Use Of Any Of The Products Listed Herein From Potter Shall Be For Damages, And Potter's Liability For Any And All Losses Or Damages Resulting From Any Cause Whatsoever, Including Negligence, Or Other Fault, Shall In No Event Exceed The Purchase Price Of The Product In Respect To Which The Claim Is Made, Or At The Election Of Potter, The Restoration Or Replacement Or Repair Of Such Product.

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



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Reviewed for Code Compliance
Permitting and Inspections
Department
Approved for Construction
05/27/2020



Reviewed for Code Compliance
Permitting and Inspections
Department

Approved: 05/27/2020



patent pending



7315-0328-0189

Product includes a 5 year warranty

Dimensions: 16 1/8"W x 16 3/4"H x 3 1/2"D

Stock Number: 3006436 PSN-64 Red Enclosure
3006437 PSN-106 Red Enclosure
3006446 PSN-106 Black Enclosure

Description

The PSN series of notification power supplies offers reliable notification power with unprecedented versatility. The power supplies offer either 6 or 10 amps of continuous power through 4 or 6 outputs respectively. Each output is rated at 3 amps and it may be used continuously without any derating.

The power supply operates on either 120 VAC or 220 VAC power input and has a regulated 24 VDC output. In addition, the panel can charge up to 55 AH batteries and leads the industry in housing up to 18 AH batteries. The cabinet is constructed out of 18 gauge cold rolled steel and has a durable red powder coat finish. In addition, a key lock is provided for securing the door. Ample electrical knockouts are provided on the sides and the top, allowing the installer options for running wires and maintaining the correct separations.

The power supply offers an industry leading Quadrasync function that allows for multiple strobe circuits of different brands to be synchronized to flash at the same time. The panel can have four different brands each connected to its own circuit and all of the strobes flash together.

Each output can independently be configured to provide one of four synchronizations or steady power. This provides unequivocal flexibility in new and retrofit installations. The panel can be configured to synchronize Potter/AMSECO®, Gentex®, Wheelock® and System

UL, cUL, CSFM Listed

- PSN-64 has 6 amps regulated with 4 Outputs
- PSN-106 has 10 amps regulated with 6 Outputs
- Outputs Rated at 3 amps maximum each
- May be configured as up to three class "A" Style "Z" notification circuits
- 3 amp, 24 VDC programmable output power
- Supervised Battery Charger: 27.3 @ 1A (supports 7-55 AH batteries)
- Easy to install cabinet with leveling mounts and key lock
- Wiring knockouts provided on sides and top of cabinet
- Two Trouble Relays (5A at 30VDC)
 - General System Trouble (programmable for AC delay)
 - Low AC Trouble with optional delay settings
- 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/AMSECO®, Wheelock®, Gentex®, System Sensor®
- Configurable output circuits (DIP switch sets options for each circuit)
- 15 mA at 8-33 VDC input trigger
- Reference EOL allows 2K – 27K EOL value to be used
- Quadrasync provides panel wide synchronization of same or multiple brands
- PassThru mode allows the Outputs to match the Input Signal

Electrical Specs:

- 120/240 VAC 50-60 Hz input
- 5.1 Amps @ 120 VAC or 2.5 Amps @ 240 VAC
- Battery Standby Current 75 mA
- Alarm Standby Current 75 mA (no external load)
- Terminals support 12 - 18 AWG wire.

Sensor® strobe devices. Each output can be configured the same sync protocol or set independently.

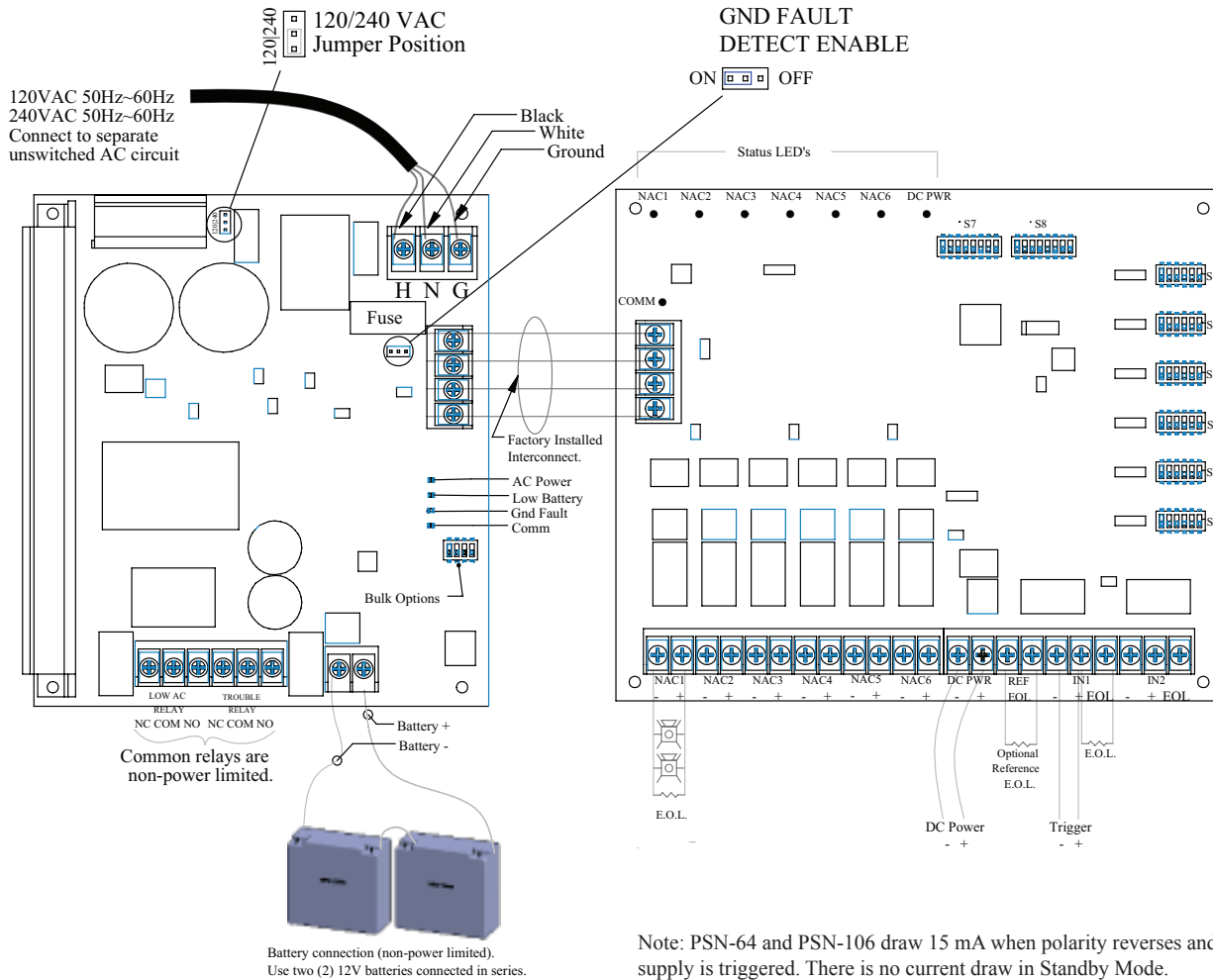
In addition, the panel has an input PassThru mode allows the outputs to follow the input signal and sync up the input flash. The panel will recognize the type of input being supplied and pass this through to the outputs with the same pattern. This input pass through can be selected on each output independently.

The power supply contains simple dipswitch programming and LED indications providing the installer indications of the operation and the ability to correct any faults. A Trouble Memory is provided to allow an installer to review past troubles and make the necessary repairs. Each output has an LED to pin point the exact circuit where a problem may have occurred. Relays are provided for monitoring the general system and AC failure.

Each output can be independently configured for various applications and installations. Each output can be independently configured for Class A or Class B operation, constant power, ANSI Temporal Code 3, Single, Multiple or Combo Inputs or Door Holder Power.



PSN-106 Wiring Diagram



Engineering Specification

The contractor shall supply and install the Potter PSN power supply. The power supply shall operate on either 120 or 240 VAC input. The panel shall be capable of continuous load power without any degradation to the main supply or the distribution board. The cabinet shall be capable of housing up to 18 AH batteries and the panel shall be capable of charging up to 55 AH batteries in an external cabinet.

The panel shall have dip switches for simplistic configuration of the system and LEDs to provide visual indication to the installer of the status of the system. The dip switches shall allow for AC power delay selection, Class A/B operation per output, Door Holder Power options, constant auxiliary power, trigger input type, ANSI Code 3 Temporal Code, Pass Thru (input tracking), Potter/AMSECO® sync, Gentex® Sync, System Sensor® Sync or Wheelock® sync. The LEDs shall provide indication of communication between the power supply and distribution circuit

assemblies. The LEDs shall have distinct flash patterns to provide further indication of the troubles present. The panel shall have selectable Trouble Memory to provide the installer an indication that a past trouble existed on a circuit for diagnostic purposes.

Each output of the power supply shall be capable of 3 amps of continuous power without degradation over time. The power supply shall provide for multiple circuits of strobe appliances. The power supply shall synchronize the flashes of any of the above listed strobe appliances on a per circuit basis. Up to four different strobe circuits may be connected and all of the strobes shall flash in unison as required by UL 864. In addition to this Quadrasync feature, the panel shall allow any of the four above mentioned sync patterns as an input and pass this signal through and synchronize the outputs to match the input flash pattern.



PSN-106
Battery & Voltage Drop
Calculations

Project Name: Standby Hours:
 Alarm Mins:
 Installed By: Batt Efficiency %:
 Designed By:
 Date: NAC Source Voltage:

Model #: PSN-106

Max Panel Current (amps): 10

Panel ID:

Location:

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

Qty	Panel Part #	Description	Standby (amps)		Alarm (amps)	
			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

Ckt	NAC Circuits (See NAC Configuration below) Use	Description	Standby (amps)		Alarm (amps)	
			Total		Total	
1			0.00000		3.00000	
2			0.00000		0.00000	
3			0.00000		0.00000	
4			0.00000		0.00000	
5			0.00000		0.00000	
6			0.00000		0.00000	
NAC Standby:			0.00000		NAC Alarm:	3.00000

Battery Calculation Summary		Standby (amps)		Alarm (amps)	
	Panel Current:	0.07500		0.07500	
	NAC Circuit Current:	0.00000		3.00000	
	Total Standby:	0.075000		Total Alarm:	3.07500
	Standby Hours:	24		Alarm Mins:	5
	AH Required:	1.80		AH Required:	0.26
	Total Combined Standby & Alarm AmpHours Required:				2.06
				Efficiency Factor:	85%
	Required Battery AmpHours:				2.42
	Battery AmpHours Provided:				7



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 Department
 Approved: 05/27/2020

NAC Circuit Configuration & Voltage Drop (cont'd)

NAC 3 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 @ EOL	Min Volts Req'd
#14 Solid	2.5		0.000	0.000	20.40	16

Qty	Lookup Type	Circuit Devices Desc	Standby (amps)		Alarm (amps)	
			Each	Total	Each	Total
		User can add devices on the fly to these bottom 5 rows (No lookup function)				
Total Standby:				0.00000	Total Alarm:	0.00000

NAC 4 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 @ EOL	Min Volts Req'd
#14 Solid	2.5		0.000	0.000	20.40	16

Qty	Lookup Type	Circuit Devices Desc	Standby (amps)		Alarm (amps)	
			Each	Total	Each	Total
		User can add devices on the fly to these bottom 5 rows (No lookup function)				
Total Standby:				0.00000	Total Alarm:	0.00000

NAC Circuit Configuration & Voltage Drop (cont'd)

NAC 5 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 @ EOL	Min Volts Req'd
#14 Solid	2.5		0.000	0.000	20.40	16

Qty	Lookup Type	Circuit Devices Desc	Standby (amps)		Alarm (amps)	
			Each	Total	Each	Total
		User can add devices on the fly to these bottom 5 rows (No lookup function)				
			Total Standby:	0.00000	Total Alarm:	0.00000

NAC 6 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 @ EOL	Min Volts Req'd
#14 Solid	2.5		0.000	0.000	20.40	16

Qty	Lookup Type	Circuit Devices Desc	Standby (amps)		Alarm (amps)	
			Each	Total	Each	Total
		User can add devices on the fly to these bottom 5 rows (No lookup function)				
			Total Standby:	0.00000	Total Alarm:	0.00000



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Approved for Conditions
05/27/2020

Guardian Systems of Maine
320 Presumpscot St., Unit #2
Portland, ME 04103
207-536-4800 office

Two Portland Square Device List

Quantity	Item	Description
1	PSN-106	NAC power supply
2	Bat 12-7	Battery 12 volts, 7 amp/hours
10	SPK-STRB	Speaker Strobe
2	S-24WR	Strobe only, wall mount, red
2		Existing pull stations; reinstalled

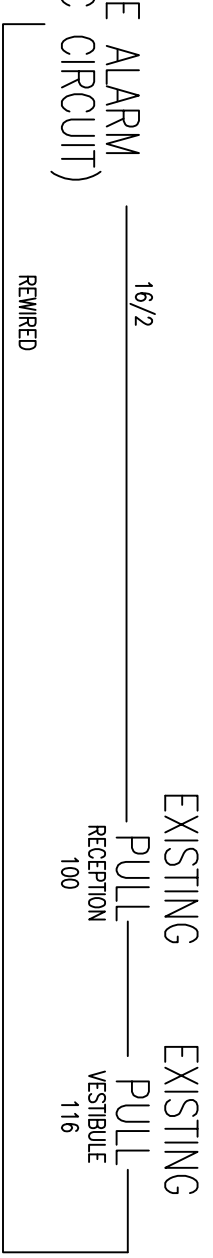


(1) GENERAL NOTES:
 A. FIRE ALARM SYSTEM WIRING SHALL COMPLY WITH THE NATIONAL ELECTRICAL CODE, APPLICABLE STATE AND LOCAL CODES, AND SHALL BE COORDINATED WITH THE LOCAL AUTHORITY HAVING JURISDICTION.
 B. CAUTION: DO NOT CONNECT ANY POWER TO THE CONTROL PANEL (BATTERIES OR 120V AC) UNTIL ALL OTHER FIELD WIRING IS TESTED AND CONNECTED.
 C. DO NOT INSTALL FIRE ALARM CONTROL PANEL, NAC, POWER SUPPLY PANEL, SMOKE DETECTORS OR ANY ADDRESSABLE DEVICES IN UNHEATED SPACES.
 D. DO NOT INSTALL ANY AC CURRENT-CARRYING CONDUCTORS CLOSE TO OR IN THE SAME RACEWAY WITH FIRE ALARM SYSTEM CONDUCTORS.
 E. SOLID LINES REPRESENT CONNECTIONS TO BE MADE BY THE SYSTEM INSTALLER.
 F. ALL RELAYS ARE SHOWN IN NORMAL SUPERVISORY CONDITION. ALL RELAYS ARE FORM "C" TYPE.

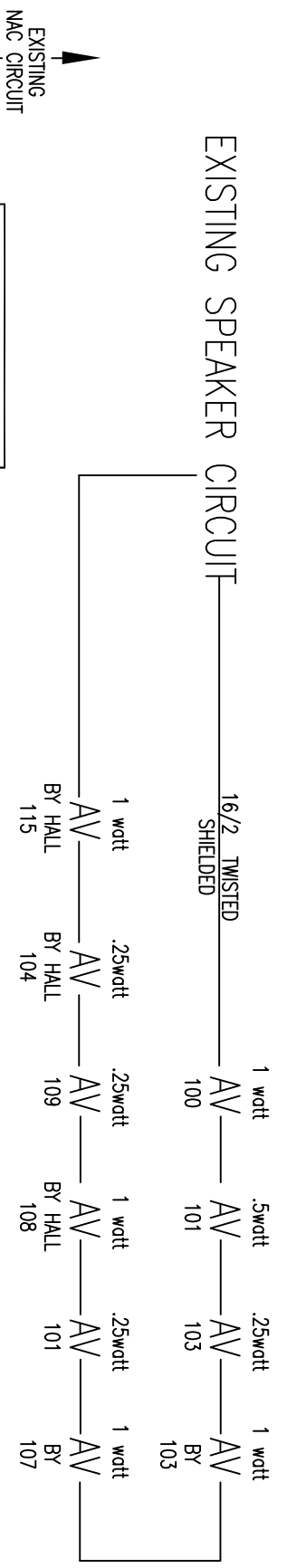
(2) INSTALLATION NOTES
 A. SMOKE DETECTORS SHALL NOT BE MOUNTED ANY CLOSER THAN 3' FROM ANY AIR DUCT OPENINGS.
 B. ELEVATOR LOBBY SMOKE DETECTORS SHALL BE MOUNTED WITHIN 10' OF THE ELEVATOR DOOR.
 C. MANUAL PULL STATIONS SHALL BE MOUNTED PER ADA REQUIREMENTS: 48" AFF OR 42" AFF TO COMPLY WITH SIDE/FRONT REACH REQUIREMENTS.
 D. WALL MOUNTED HORN/STROBES & STROBES SHALL BE MOUNTED 6" FROM CEILING, OR 96" TO 90" AFF TO THE CENTER OF STROBE.
 E. HORN/STROBES & STROBES SHALL BE MOUNTED 15' FROM THE CORNER OF THE WALL. IF THIS IS NOT POSSIBLE, DEVICE SHALL BE CENTERED ON THAT WALL.
 F. CEILING MOUNTED HALLWAY DEVICES SHALL BE LOCATED IN A SYMMETRICAL MANNER DOWN CENTER OF HALLWAY WHEN POSSIBLE.
 G. MONITORING REQUIRES TWO FAIRPOINT PHONE LINES UNLESS OTHER ARRANGEMENTS HAVE BEEN MADE.

(3) SEE INTIMATION CIRCUITS AND NAC CIRCUITS FOR INTEGRATION OF BOTH SLIC AND NAC CIRCUITS
 (4) ALL CABLING IS 14/2 FOR THE NAC CIRCUITS UNLESS OTHERWISE SHOWN
 (5) ALL CABLING IS 16/2 FOR THE SLIC CIRCUITS UNLESS OTHERWISE SHOWN
 (6)
 AC = ALARM CONTROL MODULE
 R = AMN = ADDRESSABLE RELAY MODULE
 AV = AUDIO VISUAL DEVICE (SET TO 15cd UNLESS NOTED OTHERWISE)
 B = EXTERROR BEACON
 CO = CO DETECTOR
 D = DUAL MODULE
 DUCT=DUCT DETECTOR
 F = FLOW
 FACP = MAIN FIRE PANEL
 H = HEAT DETECTOR
 I = ISOLATION MODULES
 T.S = TWISTED SHIELDED
 S/CO = SMOKE/CO DETECTOR
 RL = REMOTE LIGHT
 F = FIRE EXTINGUISHER MONITORING
 K = KNOX BOX
 LA = LOW AIR
 MM = MINI MODULE
 P = PULL STATION
 PS = PRESSURE SWITCH
 RI = REMOTE INDICATOR
 S = SMOKE
 SA = SMOKE WITH AUDIBLE BASE
 T = TAMPER
 TS = TEST SWITCH
 V = VISUAL DEVICE ONLY (SET TO 15cd UNLESS NOTED OTHERWISE)
 MH = MINI HORN
 RRS = REMOTE TEST MODULE
 PS = PULL STATION
 CL = CORRIDOR LIGHT
 CO = CO DETECTOR (MAY REQUIRE 24 VDC POWER)
 SCM = INPUT MODULE

EXISTING FIRE ALARM INPUT CABLE (IDC CIRCUIT)



EXISTING SPEAKER CIRCUIT



NAC POWER SUPPLY

