



FIRE ALARM SYSTEM SUBMITTAL

SITE ADDRESS:



**PUYALLUP HIGH SCHOOL
GYM POOL BLDG
105 7TH STREET SW
PUYALLUP WA 98371**

PREPARED BY:

Red Hawk Fire Protection
801 Valley Avenue NW Suite D
Puyallup, WA 98371

RED HAWK FIRE PROTECTION JOB #10772

SUBMITTAL INCLUDES:

SCOPE OF WORK
EQUIPMENT DATA SHEETS
BATTERY CALCULATIONS
CERTIFICATIONS



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SCOPE OF WORK:

THIS INSTALLATION IS TO REMOVE RECALLED HEAT DETECTORS FROM THE GYMS AT PUYALLUP HIGH SCHOOL IN THE GYM POOL BUILDING AND REPLACE THEM WITH SMOKE BEAMS. THERE WILL BE EIGHT NEW SMOKE BEAMS INSTALLED. ONE IN EACH UPPER GYM AND 6 IN THE MAIN GYM. CONNECT NEW SMOKE BEAMS TO OPEN ZONE ON EXISTING SILENT KNIGHT 5208 FIRE ALARM PANEL. A NEW BOOSTER POWER SUPPLY WILL BE INSTALLED TO POWER THE NEW SMOKE BEAMS.



Tab 2 – Fire Alarm Control Panel Existing



**SILENT
KNIGHT**

by Honeywell

EXISTING

Model 5208 Fire Alarm Control Panel with Digital Communicator

**The Fire Alarm Control Designed to
Grow with Your Systems Needs,
Without The Growing Pains.**

The SK-5208 is a microprocessor based control panel with built-in UL listed communicator designed for applications requiring smoke detection, manual pull stations, and sprinkler supervision. It features an easy to read LCD display with programmable English readout and user friendly tactile keys. The basic unit offers 10 zones of initiation and is expandable up to 30 zones for larger applications. The SK-5208 has a complete line of supervised accessories that provide remote annunciation, auxiliary control zone expansion. Ideal for new and retrofit applications, the SK-5208 delivers the performance to handle your installation.

Features

- 10 zones, 8 Class B (Style B) and 2 Class A (Style D) or Class B (Style B) zones, expandable to 30 zones
- Supervised zone expanders and I/O modules can be mounted remotely from the main control panel
- Event History Buffer (150 events) with date/time stamp
- All zones are compatible with 2- or 4-wire detectors
- 8 selectable/programmable output patterns for notification appliance circuits
- Built-in Digital Alarm Communicator Transmitter (DACT)
- 4 Notification Appliance Circuits
- 4 programmable general purpose relays
- Programmable smoke verification, pre-alarm delay, cross zoning and enhanced verification mode features that can help minimize false alarms
- Programmable from the built-in control panel touchpad, remote annunciator, or Windows® SKSS downloading software
- Direct connect port for on-site up/downloading with Windows® SKSS downloading software
- Built-in walk test feature
- Single or dual interlock water releasing capability
- Plex door option combines a dead front cabinet door with a clear window, limiting access to the panel while providing single button operation of the reset and silence functions
- Programmable AC trouble relay

- Built-in synchronization for appliances from AMSECO®, Gentex®, Faraday, System Sensor®, and Wheelock®
- Programmable date settings for Daylight Saving Time
- Clock source setting options for 50 Hz, 60 Hz, or internal (uses the panel's internal clock)

Specifications

Operating Voltage:	24 VDC
Primary AC:	120 Vrms @ 60Hz, 2A
Total DC Load:	6 Amp
Current Draw:	
Standby:	140 mA
Alarm:	460 mA
Flush Mounting Dimensions:	
Height:	24.75" (62.9 cm)
Width:	14.5" (36.8 cm)
Depth:	3-7/16" (8.73 cm)
	with 5/8" protruding

Overall Dimensions:	
Height:	26-3/8" (67 cm)
Width:	17-3/16" (43.66 cm)
Total Depth:	4" (10.16 cm)
Operating Temp:	32° to 120° F (0° to 49° C)
Humidity:	10 - 93% noncondensing

Optional Accessories

- SK-5235 LCD Remote Annunciator
- SK-5217 10 Zone Expander (2 max. per system)
- SK-5280 Status Display Module (8 max. per system)
- 5220 Direct Connect Module
- 5824 Serial/Parallel Printer Interface Module
- SKSS Downloading Software



SK-5208

- Plex-2 Door Option
- SK-SCK Seismic Compliance Kit

Listings and Approvals

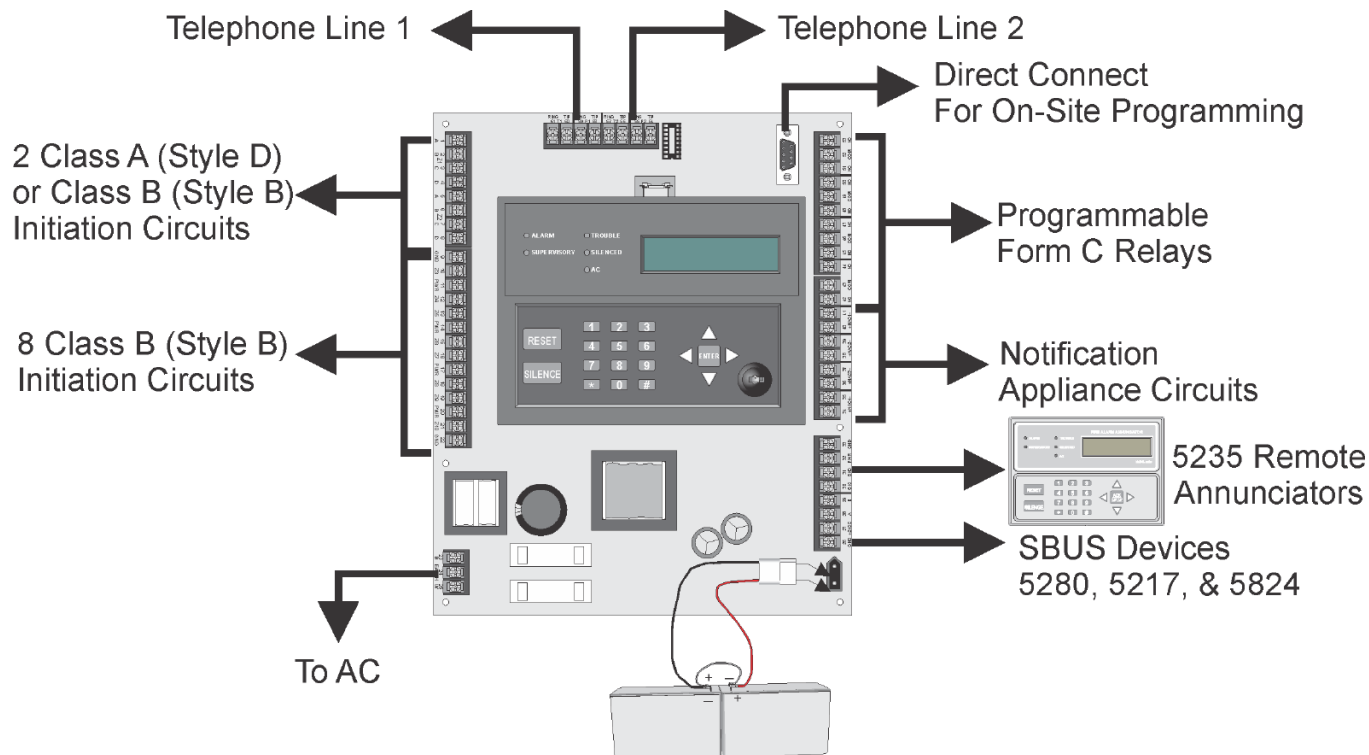
- UL Listed
- CSFM Listed
- MEA approval 429-92-E Vol. XIII
- OSHPD (CA) OSP-0065-10

Model 5208

Fire Alarm Control Panel with Digital Communicator

Engineering Specification

The system shall contain a fire alarm control panel to supervise and operate heat and smoke detection devices, manual fire alarm devices, alarm notification devices and visual annunciators. The system shall also be capable of monitoring for sprinkler supervisory and water flow conditions. The system must have a built in UL listed fire communicator that can be enabled/disabled as needed on a per job basis. In addition, the system will sound alarms locally for purpose of evacuation.





Tab 3– BOOSTER POWER SUPPLY - NEW



Tab 4 – SMOKE BEAM DETECTORS (NEW)

Features

- PSN-64 has 6 amps regulated with 4 outputs
- PSN-106 has 10 amps regulated with 6 outputs
- May be configured as up to three class "A" Style "Z" notification circuits
- 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.
- Quadrasync feature synchronizes strobes from AMSECO, Gentex, Cooper-Wheelock and System Sensor.
- Configurable output circuits (DIP switch sets options for each circuit)
- Reference EOL allows 2K – 27K EOL value to be used
- Pass Thru mode allows the outputs to match the input signal from FACP



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 power supply 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.

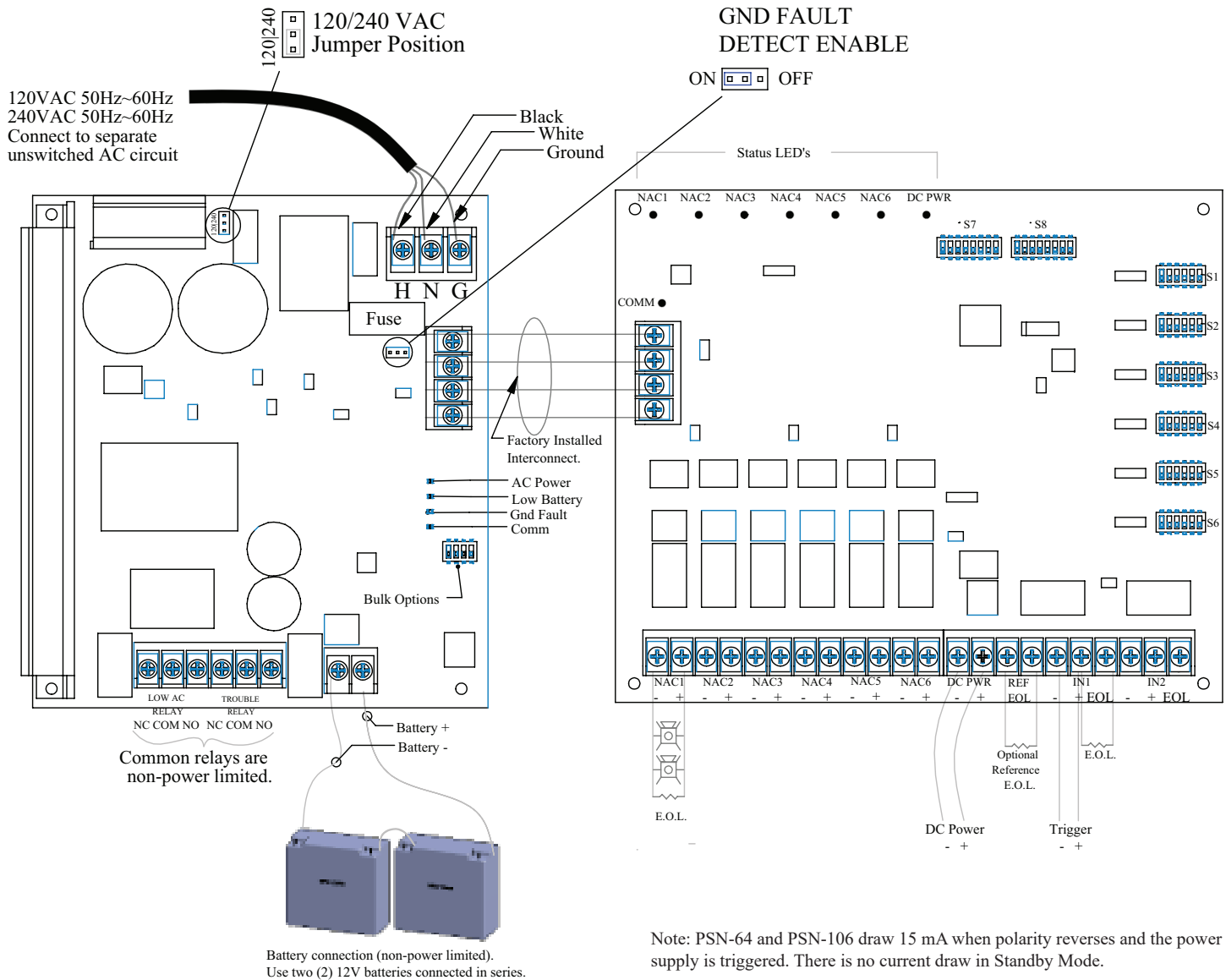
The power supply offers an industry leading Quadrasync function that allows for multiple strobe circuits of different brands to be synchronized to flash at the same time. The power supply can have four different brands each connected to its own circuit and all the strobes flash together. Each output can independently be configured to provide one of four synchronizations or steady power. This provides unequivocal flexibility in new and retrofit installations. The power supply can be configured to synchronize AMSECO®, Gentex®, Wheelock® and System Sensor® strobe devices. Each output can be configured to the same sync protocol or set independently. In addition, the power supply has an input Pass Thru mode which allows the outputs to follow the input signal from a non-supported synchronization protocol. The power supply 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 indicators providing the installer the ability to correct any possible 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 pinpoint the exact circuit where a trouble 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.

Technical Specifications

Size (H x W x D)	16 1/8" W x 16 3/4" W x 3 1/2" D
Enclosure	Eighteen (18) gauge sheet steel with hinged, locked door
Power Input	120VAC @ 60Hz 220/240VAC @ 50Hz 5.1 Amps @ 120 VAC 2.5 Amps @ 240 VAC
Current	75mA Standby & Alarm (no external load)
Input Voltage Trigger	15mA @ 8 – 33 VDC
Terminals	18-12 AWG
Temperature	32° F to 120°F (0°C to 49°C) with a maximum humidity of 93% non-condensing
NAC Output	3 Amp max per NAC, Regulated
Battery Charging	27.3 @ 1A, can support 7 – 55Ah batteries

PSN-106 Wiring Diagram



Note: PSN-64 and PSN-106 draw 15 mA when polarity reverses and the power supply is triggered. There is no current draw in Standby Mode.

Ordering Information

Model	Description	Stock No.
PSN-106	10 A Power Supply, 6 NAC Circuits, Red Enclosure	3006437
PSN-106B	10 A Power Supply, 6 NAC Circuits, Black Enclosure	3006446
PSN-64	6 A Power Supply, 4 NAC Circuits, Red Enclosure	3006436

Engineering Specifications

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 18AH 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), 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 overtime. 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 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.



OSI-R-SS, OSI-RA-SS Conventional Reflective Imaging Beam Smoke Detector

This conventional, single-ended beam smoke detector is easy to install – only one side needs to be wired.

Features

- Combined transmitter/receiver unit
- Wide 12° field of view
- Fast, easy, and intuitive beam alignment indicated by directional LED cross-hair arrows
- Long range coverage of 5-100 m (16-328 ft) is standard; no separate long-range kit required
- Highly resistant to building movement; tolerates +/- 1° movement
- Resistant to strong light sources; does not alarm when saturated by sunlight
- Resistant to solid object intrusion
- Automatic sensitivity threshold level setting
- 50° horizontal and 20° vertical beam adjustment
- Built-in imager heater is standard
- Remote test station capable for electronic simulated smoke test from ground level
- Standby, fault and alarm LED indicators visible from the front and bottom
- Automatic drift compensation
- Paintable housing/cover
- Removable plug-in terminal blocks
- Optional heater kit available for the reflector

Agency Listings



OSI-R-SS is a 4-wire conventional reflector-type linear optical beam smoke detector for use in fire alarm systems. The beam operates primarily on the principle of light obscuration using an infrared beam. Optical beam smoke detectors are uniquely suited to protecting buildings with large open areas with high ceilings such as a warehouse or atrium. The OSI-R-SS detector is a combined transmitter/receiver unit that can be directly connected to a conventional detector circuit.

Fast and Easy Alignment

Aligning the imager to the reflector is extremely intuitive, fast, and accurate. Both the infrared transmitter and the CMOS imager are contained in a moveable “eyeball” – an adjustable lens assembly that can move +/- 20° in the vertical direction and 50° in the horizontal direction.

Four LED arrows indicate the direction to move the lens, guiding the user to find the imager's perfect alignment with the reflector. Once the optimum alignment is found, indicated by all green arrows, the lens is locked with a slide lever. A paintable cover is then placed over the front to secure the lever in locked position.

Resistant to Building Movement

The infrared transmitter and receiver imager generates a beam of light towards a high-efficiency reflector. The reflector returns the beam to the receiver where the received signal is analysed. The change in the strength of the received signal when smoke enters the area between the unit and the reflector is used to determine the alarm condition. The receiver imager has a wide 12° field of view that automatically tracks the reflector in case of building movement or movement of its support structure. It is virtually impossible for the receiver to lose sight of the reflector from its field of view without structural damage being caused to the building. As a result of this operation, OSI-R-SS is highly resistant to building movement, eliminating the number one cause of false alarms and/or faults with traditional beam detectors.

Resistant to Sunlight

Optical filtering, high-speed image acquisition and intelligent software algorithms provide the OSI-R-SS system with higher levels of stability and greater resistance to high level lighting variability. This provides better resistance to sunlight in its field of view, helping to prevent false alarms when saturated by sunlight, reflected sunlight or any other very bright light sources. The worst-case scenario is for the detector to go into a trouble condition unlike other traditional beam detectors which go into alarm.

Resistant to Foreign Object Intrusion

Advanced smoke imaging techniques allow the detector to avoid false alarms from partial and sudden blockage from foreign object intrusion.

Time-saving Automatic Sensitivity Setting

Unique in the market, the sensitivity of the detector is selected and set automatically at the optimum sensitivity based on the size of the reflector measured in the field of view.

Drift Compensation

The detector incorporates automatic drift compensation, whereby the

detector will adjust its detection thresholds in line with any long-term signal reduction of the beam caused by dust or other contamination of the optical surfaces.

Equipped with Built-in Imager Heater

The imager ships standard with an internal heating option to prevent condensation on the optical surface. (External power supply required.)

Specifications

Physical/Operating Specifications	
Dimensions (Detector)	Height 6" (152.4 mm); Width 10" (254 mm); Depth 4.5" (114.3 mm)
Dimensions (Reflector)	Height 9.06" (230 mm); Width 7.87" (200 mm)
Weight (Installed)	2.48 lbs (1.12 kg)
Weight (Shipping):	3.91 lbs (1.77 kg)
Wire Gauge for Terminals	14 AWG (2.08 mm ²)
Electrical Specifications: OSI-R-SS, OSI-RA-SS	
Operating Voltage Range	10.2 to 32 VDC (12 or 24VDC nominal)
Maximum Standby Current	7 mA @ 32 VDC 11 mA @ 24 VDC 20 mA @ 12 VDC 50 mA @ 10.2 VDC
Maximum Alarm Current (LED on)	11 mA @ 32 VDC 15 mA @ 24 VDC 24 mA @ 12 VDC 54 mA @ 10.2 VDC
Environmental Specifications	
Operating Humidity Range	0 to 95% Relative Humidity, Non-condensing
Operating Temperature Range	UL-Listed for use from 32°F to 100°F (0°C to 37.8°C) Application Temperature Range: -20°C to +55°C (-4°F to 131°F)
Operational Specifications	
Protection Range	16 ft to 328 ft (5 m to 100 m)
Adjustment Angle	20 degrees vertical, 50 degrees horizontal
Sensitivity Levels	Level 1 25%, Level 2 30%, Level 3 40%, Level 4 50%
Fault Condition (Trouble)	Long-term drift reference out of 20% range, beam blockage or detector out of alignment, imager saturated.
Alignment Aid	LED directional arrows
Alarm Indicator	Local red LED and remote output
Trouble Indicator	Local yellow LED and remote trouble output
Normal Indicator	Local flashing green LED
Test/Reset Features	Local alarm test switch, local alarm reset switch, Remote test and reset switch (Compatible with RTS151 and RTS151KEY(-A) test stations), Uses OSID-R test filter.
Smoke Detector Spacing	On smooth ceilings, 30-60 feet between projected beams and not more than one-half that spacing between a projected beam and a sidewall. Other spacing may be used depending on the ceiling height, airflow characteristics, and response requirements. See NFPA 72 (S524 in Canadian applications).

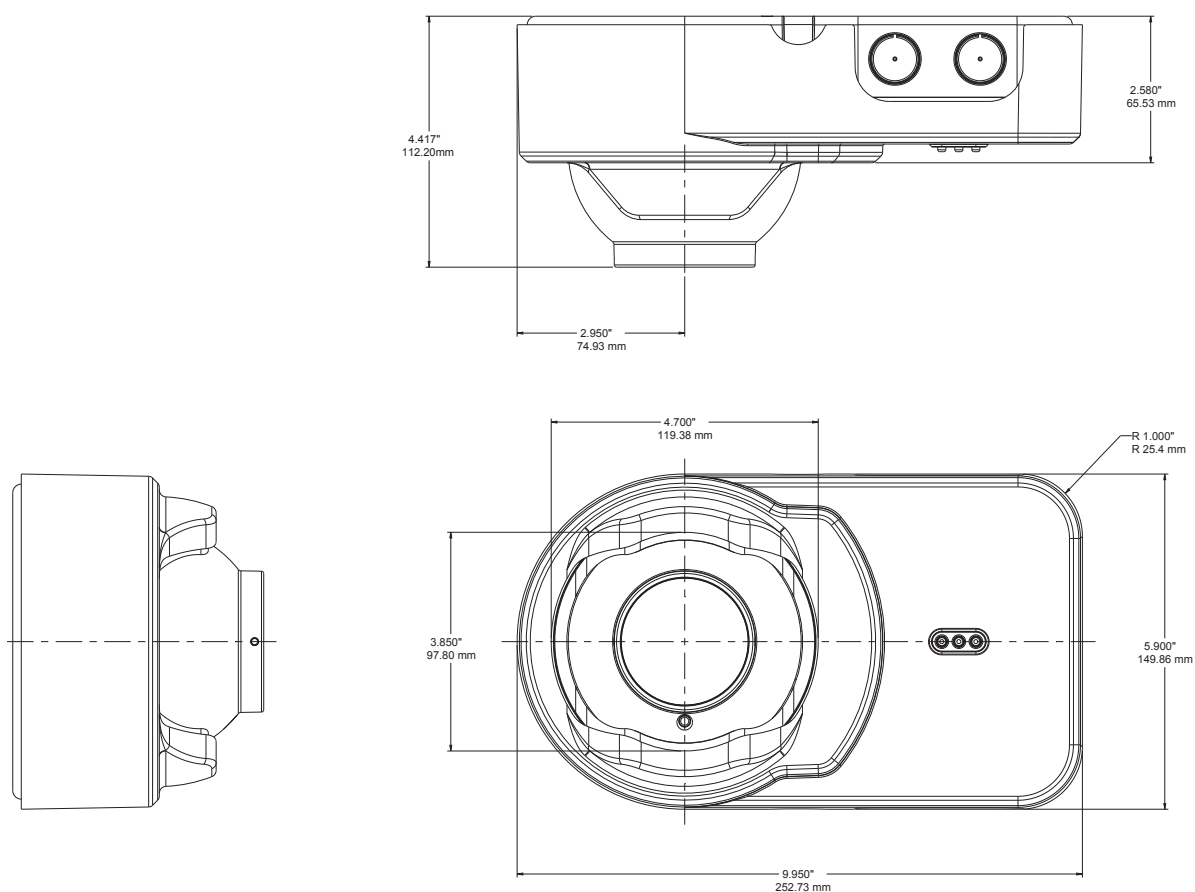
Electrical Specifications: BEAMHKR

Voltage Range	15 to 32 V
Maximum Current	450 mA Max at 32 V
Power Consumption	7.7 W @ 24 V 15 W @ 32 V

Electrical Specifications: RTS151KEY(-A)

Voltage Range	10.2 to 32 VDC
Current Range	9 mA Min to 11 mA Max

Dimensions



C20151-00

Ordering Information

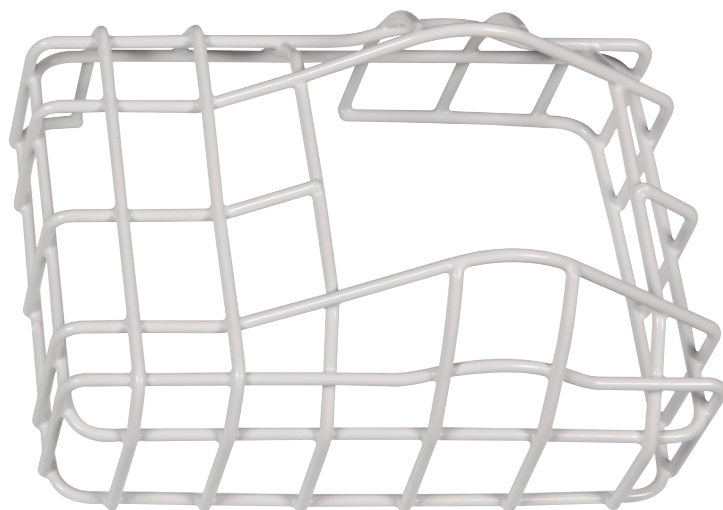
Part No.	Description
OSI-R-SS	Conventional imaging beam smoke detector including reflector, UL listed
OSI-RA-SS	Conventional imaging beam smoke detector including reflector, ULC listed
OSP-002	Laser alignment tool
OSP-004	Test filter, 10-pack
RTS151	Remote test station
RTS151KEY	Test and reset station with key lock, flush mount, UL listed
RTS151KEY-A	Test and reset station with key lock, flush mount, ULC listed
BEAMHKR	Heater kit for the reflector
6500-MMK	Multi-mount accessory for ceiling or wall mounting with additional mounting adjustment



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Phone: 800-SENSOR2 • Fax: 630-377-6495

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Product specifications subject to change without notice. Visit systemsensor.com
for current product information, including the latest version of this data sheet.
BMDS904-01 • 1/16/2019

STI BEAM SMOKE DAMAGE STOPPER®



STI-9845



STI-9706

PRODUCT OVERVIEW

Offered to protect the vital sensor units of projected beam type smoke detectors in large areas (such as gymnasiums, warehouses and auditoriums). STI Beam Smoke Damage Stoppers are designed to protect both transmitter and receiver sensors. Installation is simple with anchors and screws provided.

BACKED BY A THREE YEAR GUARANTEE

Beam Smoke Damage Stoppers are backed by a three year guarantee against breakage in normal use. They are constructed of 9-gauge, welded steel wire coated with a tough, corrosion resistant polyester shell.

KEY FEATURES

General Information

- Protection against misalignment and false fire alarms.
- For use in controlled environment (not intended for outdoor use).
- Three year guarantee against breakage in normal use.

Design

- Designed to protect both transmitter and receiver units (sold individually).

Construction

- Super tough construction of 9-gauge coated steel wire makes guards extremely difficult to break.
- Coated with a tough, corrosion resistant polyester shell.

Installation

- Fast and easy installation.

STI Beam Smoke Damage Stopper®

Dimensions and Technical Information

MODELS AVAILABLE

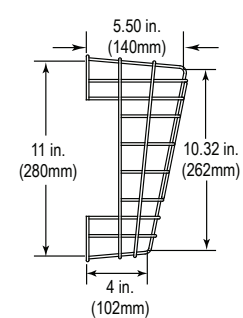
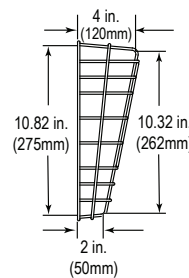
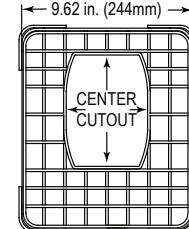
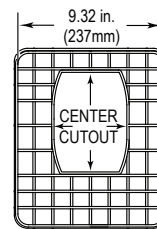
STI-9623	Beam Smoke Damage Stopper for DS240 & DS241
STI-9624	Beam Smoke Damage Stopper for Fireray 50/100 R
STI-9706	Beam Smoke Damage Stopper - flush mount for System Sensor 1224
STI-9707	Beam Smoke Damage Stopper - surface mount
STI-9845	Smoke Detector Damage Stopper®
STI-9846	Smoke Detector Damage Stopper
KIT-82	Tamper resistant stainless steel screws, #8 x 1 1/2 in. snake eye
KIT-19038	5/16 in. hex drive tamper bit for tamper resistant screws

APPROVALS AND WARRANTY

WARRANTY

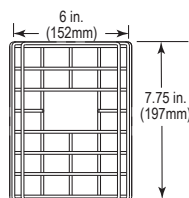
Three year guarantee against breakage in normal use.

MODEL	HEIGHT	WIDTH	DEPTH
STI-9623	7.75 in. (196mm)	6 in. (152mm)	6 in. (152mm)
STI-9624	8.875 in. (225mm)	5.5 in. (140mm)	4.75 in. (120mm)
STI-9706	10.82 in. (275mm)	9.32 in. (237mm)	4 in. (102mm)
STI-9707	11 in. (280mm)	9.62 in. (244mm)	5.5 in. (140mm)
STI-9845	6.57 in. (167mm)	9.2 in. (234 mm)	4.1 in. (104 mm)
STI-9846	7.6 in. (193mm)	11.6 in. (295mm)	5.6 in. (141mm)

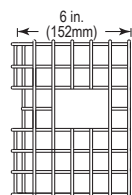


STI-9706

STI-9707

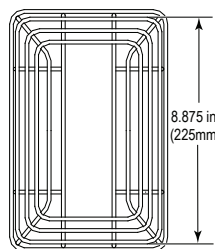
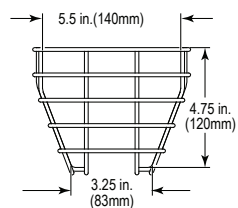


FRONT VIEW

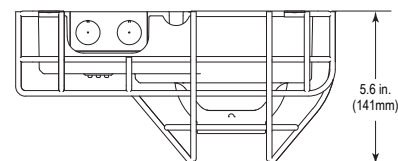
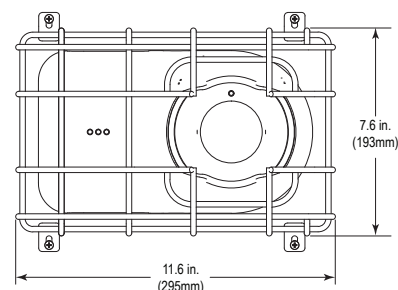


SIDE VIEW

STI-9623



STI-9624



STI-9846



Safety Technology International

2306 Airport Road info@sti-usa.com
Waterford, MI www.sti-global.com
48327, USA Tel: 248-673-9898

Taylor House info@sti-emea.com
34 Sherwood Rd., Bromsgrove, www.sti-global.com
Worcs., B60 3DR, England Tel: +44 (0) 1527 520 999

Unit 7A Lockheed Avenue
Airport Business Park
Waterford X91 HWF2 Ireland



Tab 5– SYSTEM BATTERIES NEW

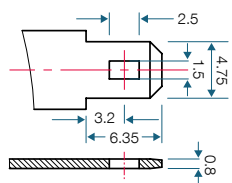


PS-1270 12V 7.0 AH @ 20-hr. 12V 6.5 AH @ 10-hr.

Rechargeable Sealed Lead Acid Battery
PS – General Purpose Series

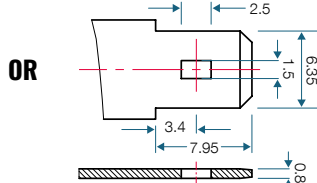
TERMINALS: (mm)

F1: Quick disconnect tabs,
0.187" x 0.032" – Mate with
AMP. INC. FASTON "187" series



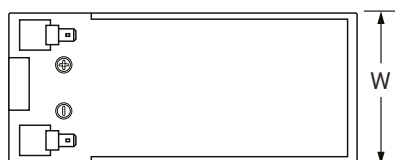
Torque – Not Applicable

F2: Quick disconnect tabs,
0.250" x 0.032" – Mate with
AMP. INC FASTON "250" series

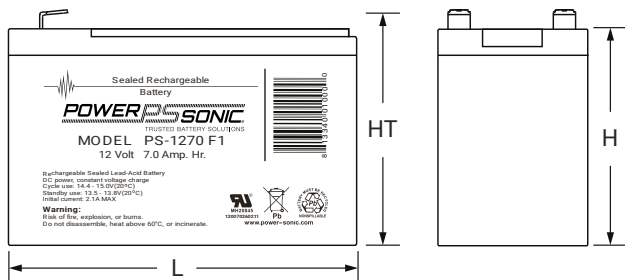


Torque – Not Applicable

DIMENSIONS: inch (mm)



L: 5.95 (151)
W: 2.56 (65)
H: 3.70 (94)
HT: 3.86 (98)
Tolerances are +/- 0.04 in.
(+/- 1mm) and +/- 0.08 in.
(+/- 2mm) for height
dimensions. All data subject
to change without notice.



CORPORATE HEADQUARTERS (USA AND INTERNATIONAL EXCLUDING EMEA)

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Essex SS11 8YQ
T: +44 (0)1268 560686
F: +44 (0)1268 560902
E: salesEMEA@power-sonic.com

FEATURES

- Absorbent Glass Mat (AGM) technology for superior performance
- Valve regulated, maintenance free spill proof construction
- Power/volume ratio yielding excellent energy density
- Rugged vibration and impact resistant ABS case and cover
- Gas recombination technology
- 5 year design life

APPROVALS

- Approved for transport by air. D.O.T., I.A.T.A., F.A.A. and C.A.B. certified
- U.L. recognized
- ISO9001:2015 – Quality management systems

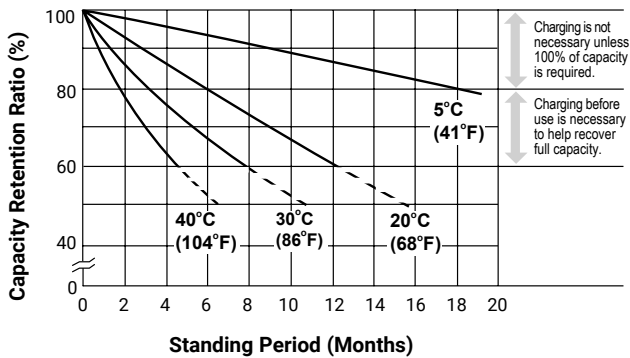
PERFORMANCE SPECIFICATIONS

Nominal Voltage	12 volts (6 cells)
Nominal Capacity	
20-hr. (350mA to 10.50 volts)	7.00 AH
10-hr. (650mA to 10.50 volts)	6.50 AH
5-hr. (1.2A to 10.20 volts)	6.00 AH
1-hr. (4.5A to 9.00 volts)	4.50 AH
Approximate Weight	4.80 lbs. (2.18 kg)
Internal Resistance (approx.)	23.0 milliohms
Max Short-Duration Discharge Current (10 Sec.)	70.0 amperes
Shelf Life (% of nominal capacity at 68°F (20°C))	
1 Month	97%
3 Month	91%
6 Month	83%
Operating Temperature Range	
Charge	5°F (-15°C) to 122°F (50°C)
Discharge	-4°F (-20°C) to 140°F (60°C)
Case	ABS Plastic
Power Sonic Chargers	PSC-12800A-C PSC-121000-PC

PS-1270 12V 7.0 AH @ 20-hr. 12V 6.5 AH @ 10-hr.

Rechargeable Sealed Lead Acid Battery
PS – General Purpose Series

SHELF LIFE & STORAGE



CHARGING

Cycle Applications: Apply constant voltage charge at 2.35v/c – 2.45v/c (14.1 – 14.7v for 12v Monobloc) at 20°C. Initial charging current should be set at less than 0.25C Amps. Switch to float charge to avoid overcharging.

“Float” or “Stand-By” Service: Apply constant voltage charge of 2.25v/c – 2.30v/c (13.5 to 13.8 volts for 12v Monobloc at 20°C. When held at this voltage, the battery will seek its own current level and maintain itself in a fully charged condition.

Temperature Compensation: Charging Voltage for both Cyclic and Standby applications should be regulated in relation to ambient temperature. As temperature rises charging voltage should be reduced to prevent overcharge and increased as temperature falls to avoid undercharge.

For further charging information including temperature compensation factors, see Power Sonic Technical Manual/ Power Sonic Charger specifications.

APPLICATIONS

- General purpose
- Medical
- Emergency lighting
- Fire and security

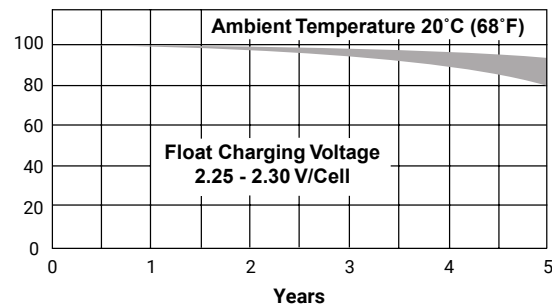
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LIFE CHARACTERISTICS IN STAND-BY USE



CHARGERS

Power Sonic offers a wide range of chargers suitable for batteries with a variety of capacities.

Please refer to our website for more information on our switch mode and transformer type chargers.

Please contact our technical department for advice if you have difficulty in locating a suitable charger.

FURTHER INFORMATION

Please refer to our website www.power-sonic.com for a complete range of useful downloads, such as product catalogs, material safety data sheets (MSDS), ISO certification, etc.





Tab 6– BATTERY CALCULATIONS



PSN-106

**Battery & Voltage Drop
Calculations**

Project Name:	PHS GYM POOL	Standby Hours:	24
		Alarm Mins:	5
Installed By:	RED HAWK FIRE PROTECTION	Efficiency Factor:	20%
Designed By:	RED HAWK FIRE PROTECTION		
Date:	11/11/2025	NAC Source Voltage:	20.4

Model #: PSN-106

Max Panel Current (amps): 10

Panel ID:

Location: AT FACP

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

NAC Circuits (See NAC Configuration below)				Standby (amps)		Alarm (amps)	
Ckt	Use	Description	Class	Total		Total	
1	Aux Power	SMOKE BEAM POWER	Class B	0.00000		0.00000	
2			Class B	0.00000		0.00000	
3			Class B	0.00000		0.00000	
4			Class B	0.00000		0.00000	
5			Class B	0.00000		0.00000	
6			Class B	0.00000		0.00000	
AUX	Aux Power	SMOKE BEAM POWER		0.08800		0.12000	
NAC Standby:				0.08800		NAC Alarm:	0.12000

Battery Calculation Summary			Standby (amps)		Alarm (amps)	
Panel Current:			0.07500		0.07500	
NAC Circuit Current:			0.08800		0.12000	
Total Standby:			0.163000		Total Alarm:	0.19500
Standby Hours:			24		Alarm Mins:	5
AH Required:			3.92		AH Required:	0.02
Total Combined Standby & Alarm AmpHours Required:					3.94	
					Efficiency Factor:	20%
					Required Battery AmpHours:	4.73
					Battery AmpHours Provided:	8

NAC 1		MAX Circuit Current (amps): 3	Source Voltage Used (VDC): 20.4
Class:	Class B	Usage:	Aux Power
		Description:	SMOKE BEAM POWER

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

Circuit Devices			Standby (amps)		Alarm (amps)	
Qty	Lookup Type	Description	Each	Total	Each	Total
Total Standby:				0.00000	Total Alarm:	0.00000

NAC 2		MAX Circuit Current (amps): 3	Source Voltage Used (VDC): 20.4
Class:	Class B	Usage:	
		Description:	

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

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

NAC 3		MAX Circuit Current (amps): 3	Source Voltage Used (VDC): 20.4
Class:	Class B	Usage:	

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

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

NAC 4		MAX Circuit Current (amps): 3	Source Voltage Used (VDC): 20.4
Class:	Class B	Usage:	

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

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

NAC Circuit Configuration & Voltage Drop (cont'd)

PHS GYM POOL

11/11/2025

NAC 5		MAX Circuit Current (amps): 3	Source Voltage Used (VDC): 20.4
Class:	Class B	Usage:	
Description:			

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

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

NAC 6		MAX Circuit Current (amps): 3	Source Voltage Used (VDC): 20.4
Class:	Class B	Usage:	
Description:			

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

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

AUX Power		MAX Circuit Current (amps): 3	Source Voltage Used (VDC): 20.4
Usage:	Aux Power	Description:	SMOKE BEAM POWER

Wire Type	Ohms/1000ft	Length 1-Way	Actual Ohms	Max Load (amps)	Volts @ Last Device	Min Volts Req'd
#16 Stranded	5.29		0.000	0.120	20.40	16

Circuit Devices			Standby (amps)		Alarm (amps)	
Qty	Lookup Type	Description	Each	Total	Each	Total
8	OSI-R-SS	SMOKE BEAM	0.011000	0.088000	0.015000	0.120000
Total Standby:				0.08800	Total Alarm:	0.12000



Tab 7– CERTIFICATIONS



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IN ENGINEERING TECHNOLOGIES®**

Brandon E Myer

Fire Alarm Systems Level II

CERT NO. 143587 VALID THROUGH 12/1/2025



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IS HEREBY AWARDED THE FOLLOWING CERTIFICATION

Fire Alarm Systems Level III

Certification Number **149662**

Valid Through **2025-03-01**

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