

Form # P 04

DISPLAY THIS CARD ON PRINCIPAL FRONTAGE OF WORK CITY OF PORTLAND

Please Read
Application And
Notes, If Any,
Attached

BU TION

PERMIT

Permit Number: 101215

PERMIT ISSUED

This is to certify that Unifirst Corporation Tax Dept/ Section

has permission to Install Fire Alarm system

AT 414 Riverside Ind Pkwy

CE 354 B002001

OCT 12

provided that the person or persons, firm or corporation accounting for this permit shall comply with all of the provisions of the Statutes of Maine and of the Ordinances of the City of Portland regulating the construction, maintenance and use of buildings and structures, and of the application on file in this department.

Apply to Public Works for street line and grade if nature of work requires such information.

Notification of inspection must be given and written permission procured before this building or part thereof is lathed or otherwise red-in. 24 HOURS NOTICE IS REQUIRED.

A certificate of occupancy must be procured by owner before this building or part thereof is occupied.

OTHER REQUIRED APPROVALS

Fire Dept. [Signature] (5)
Health Dept. _____
Appeal Board _____
Other _____

Department Name

[Signature] 10/12/10
Director - Building & Inspection Services

PENALTY FOR REMOVING THIS CARD



CITY OF PORTLAND, MAINE

Department of Building Inspections

Original Receipt

Apr 05 2010

Received from John Kington

Location of Work 430 Riverside St.

Cost of Construction \$ _____ Building Fee: _____

Permit Fee \$ _____ Site Fee: _____

Certificate of Occupancy Fee: _____

Total: _____

Building (IL) Plumbing (I5) _____ Electrical (I2) _____ Site Plan (U2) _____

Other File Room

CEB: _____

\$160.00

Check #: ABC

Total Collected \$ ~~570.00~~

**No work is to be started until permit issued.
Please keep original receipt for your records.**

Taken by: Hayle

WHITE - Applicant's Copy
YELLOW - Office Copy
PINK - Permit Copy

City of Portland, Maine - Building or Use Permit

389 Congress Street, 04101 Tel: (207) 874-8703, Fax: (207) 874-8716

Permit No: 10-1215	Date Applied For: 09/27/2010	CBL: 354 B002001
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Location of Construction: 414 Riverside Ind Pkwy	Owner Name: Unifirst Corporation Tax Dept	Owner Address: 68 Jonspin Road	Phone:
Business Name:	Contractor Name: Protection One	Contractor Address: 10 Manuel Drive Portland	Phone (207) 347-5316
Lessee/Buyer's Name	Phone:	Permit Type: Fire Alarm System	

Proposed Use: Commercial / Warehouse - Install Fire Alarm system	Proposed Project Description: Install Fire Alarm system
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Dept: Zoning **Status:** Approved with Conditions **Reviewer:** Ann Machado **Approval Date:** 09/30/2010

Note: **Ok to Issue:**

- 1) This permit is being approved on the basis of plans submitted. Any deviations shall require a separate approval before starting that work.

Dept: Building **Status:** Approved with Conditions **Reviewer:** Jeanine Bourke **Approval Date:** 10/12/2010

Note: **Ok to Issue:**

- 1) Separate permits are required for any electrical, plumbing, sprinkler, fire alarm HVAC systems, heating appliances, including pellet/wood stoves, commercial hood exhaust systems and fuel tanks. Separate plans may need to be submitted for approval as a part of this process.

Dept: Fire **Status:** Approved with Conditions **Reviewer:** Ben Wallace Jr. **Approval Date:** 10/06/2010

Note: **Ok to Issue:**

- 1) A smoke detector is required above all fire alarm control units and power extenders.
- 2) The fire alarm system shall comply with the City of Portland Standard for Signaling Systems for the Protection of Life and Property. All fire alarm installation and servicing companies shall have a Certificate of Fitness from the Fire Department.
- 3) Installation of a Fire Alarm system requires a Knox Box to be installed per city ordinance
- 4) Central Station monitoring for addressable fire alarm systems shall be by point.
- 5) As-built documents shall be submitted in pdf to the Building Inspections Office upon completion of job.
- 6) System acceptance and commissioning must be co-ordinated with alarm and suppression system contractors and the Fire Department. Call 874-8703 to schedule.
- 7) All fire alarm records required by NFPA 72 should be stored in an approved cabinet located at the FACP labeled "FIRE ALARM RECORDS". Records cabinet, FACP, annunciator(s), and pull stations shall be keyed alike.

PERMIT ISSUED

007 1 2

10 1215



Fire Alarm Permit

If you or the property owner owes real estate or property taxes or user charges on any property within the city, payment arrangements must be made before permits of any kind are accepted.

Installation address: 430 Riverside Ind Pkwy CBL: 320 A003

Exact location: (within structure) on wall outside of Maint office

Type of occupancy(s) (NFPA & ICC): Industrial

Building owner: Unifirst Corp

System Designer (point of contact): Kevin Bridgham
Must be

Designer phone: 207 347 5309 E-mail: Kevin.Bridgham@protectionone.com

Installing contractor: Protection One Certificate of Fitness No: _____

Contractor phone: 207 347 5309 E-mail: Kevin.Bridgham@protectionone.com

This is a new application: YES NO New AES Master Box: YES NO
(Include Master Box approval form)

Amendment to an existing permit: YES NO Permit no: 1003

The following documents shall be provided with this application:

- Floor plans
- Wiring diagram
- Annunciator details
- Input/ Output Matrix
- Equipment data sheets
- Electrical Permit Pulled (check alarm/com)
- Scope of Work
- 11 1/2 x 17s
- pdf copy (may be e-mailed)
- Designer qualifications
- Battery/ voltage drop calcs

COST OF WORK: \$13,500

PERMIT FEE: \$160
(\$10 PER \$1,000 + \$30 FOR THE FIRST \$1,000)

Master box approval only: YES NO
(If yes check New AES Master Box above)

The designer shall be the responsible party for this application. Download a new copy of this application at www.portlandmaine.gov/fire for every submittal. Submit all plans in electronic PDF in addition to readable 11 1/2 x 17s to the Building Inspections Department, 389 Congress Street, Room 315, Portland, Maine 04101.

Prior to acceptance of any fire alarm system, a complete commissioning and acceptance test must be coordinated with all fire system contractors and the Fire Department, and proper documentation of such test(s) provided.

All installation(s) must comply with the City of Portland Technical Standard for Signaling Systems for the Protection of Life and Property, available at www.portlandmaine.gov/fire.

Applicant signature: Kevin S. Bridgham Date: 9-27-10



IntelliKnight® 5808 Single Loop Addressable Fire Alarm Control System



The convenience of an addressable fire alarm control panel in a cost-effective easy to use package.

IntelliKnight Model 5808 is a 127 point class leading single loop addressable fire alarm control/communicator system. 5808 provides you with the revolutionary value and performance of addressable sensing technology combined with exclusive, built-in digital communication,

distributed intelligent power, easy to use interface. Powerful features such as drift compensation and maintenance alert are delivered in this powerful FACP from Silent Knight.

For more information about the IntelliKnight system, or to locate your nearest source, please call 1-800-446-6444, or in Minnesota, call 763-493-6435.

Description

5808 performs drift compensation and calibration checks on each of the sensors in the system.

The basic 5808 system can be enhanced by adding modules such as 5860 remote annunciator, 5824 serial/parallel printer interface module (for printing system reports), and 5496 intelligent power module. 5808 also features a powerful built-in dual line fire communicator that allows for reporting of all system activity to a remote monitoring location.

Features

- Up to 127 addressable points
- Up to 125 zones and 125 output groups
- Uses standard wire—no shielded or twisted pair required
- Built-in digital communicator
- Central station reporting by point or by zone
- Supports Class B (Style 4) and Class A (Style 6 or 7) configuration for SLC
- Distributed, intelligent power
- Drift compensation
- 13 pre-programmed output cadences, (including ANSI-3.41), and 4 programmable outputs
- Notification circuits can be configured as 2 Class A (Style Z) or 4 Class B (Style Y), or auxiliary power for resettable, constant, or door holder power
- Built-in annunciator with 80-character LCD display
- RS-485 bus provides communication to system accessories
- Built-in RS-232 and USB interface for programming via a PC
- Upload or download programming, event history, or detector status via remote or direct connection
- Improvements in SKSS deliver five times faster upload/downloads

- Built-in synchronization for appliances from AMSECO, Gentex®, Faraday, System Sensor®, and Wheelock®
- One Form C trouble relay rated at 2.5A at 27.4 VDC and two Form C programmable relays rated at 2.5A at 27.4 VDC
- Programmable date setting for Daylight Saving Time
- Plex-2 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

Electrical Specifications

Primary AC: 120 VRMS at 50/60 Hz, 2.75A

Total Accessory Load: 6A @ 27.4 VDC

Notification Power: 6A @ 27.4 VDC, power-limited

Standby Current: 170 mA

Alarm Current: 325 mA

Notification & Auxiliary Circuits: 3A @ 27.4 VDC per circuit, power-limited

Battery Charging Capacity: 7.0-35.0 AH

Battery Size: 18 AH max. allowed in FACP. Larger capacity batteries can be housed in an RBB accessory cabinet

Mechanical Specifications

Flush Mount Dimensions:
14.5" W x 24.75" H x 3.5" D
(36.8 W x 62.9 H x 8.73 D cm)

Overall Dimensions:
16" W x 26.4" H x 4.65" D
(40.6 W x 67 H x 11.8 D cm)

Weight: 28 lbs. (12.8 kg)

Color: Red

Telephone Requirements:



Model 5808

FCC Part 15 and Part 68 approved
Type of Jack: RJ31X (two required)

Approvals

NFPA 13, NFPA 15, NFPA 16, NFPA 70, & NFPA 72: Central Station; Remote Signalling; Local Protective Signalling Systems; Auxiliary Protected Premises Unit; & Water Deluge Releasing Service. Suitable for automatic, manual, waterflow, sprinkler supervisory (DACT non-coded) signalling services.

Other Approvals: UL Listed;
CSFM 7170-0559: 142;
MEA 429-92-E Vol. XIV



**SILENT
KNIGHT**

by Honeywell

SLC Detectors

SD505-APS

Addressable photoelectric smoke detector.

SD505-AIS

Addressable ionization smoke detector.

SD505-AHS

Absolute temperature heat detector that goes into alarm immediately if the temperature exceeds the programmable trip point. Trip point range from 135°F–150°F(0°C–37°C).

SD505-6AB

Six inch base for use with detector heads SD505-APS, SD505-AIS and SD505-AHS

SD505-4AB

Four inch base for use with detector heads SD505-APS, SD505-AIS, and SD505-AHS.

SD505-6SB

Six-inch sounder base for use with existing sensor and base. Operates in single and multi-station modes and/or as a system sounder. Requires 2 additional wires for power.

SD505-6IB

Short circuit isolator base for SD505-APS, SD505-AIS, and SD505-AHS detectors.

SD505-6RB

Six-inch relay base for use with existing sensor and base. Provides one Form C contact.

SD505-ADH

Duct housing that detects smoke in HVAC ducts.

SD505-ADHR

Duct detector base with relay. Provides Form C alarm contact. For use with SD505-APS and SD505-AIS sensors. Compatible with SD505-DTS remote test switch.

SD500-PS/SD500-PSDA

SD500-PS is a single action pull station and SD500-PSDA is a dual action pull station.

SLC Modules

Model SD500-AIM

Dry contact input module for use with normally open dry contacts. It features an indicator LED to show alarm status.

SD500-MIM

Mini dry contact input module is a small version of the SD500-AIM. For use with pull stations and other normally open dry contact inputs.

SD500-ANM

Addressable notification module providing a single Class A or Class B notification circuit on the SLC.

SD500-ARM

Addressable relay module that features two Form C output relays. Provides indicator LED to show output status.

SD500-SDM

Two-wire detector input module. Allows for the connection of conventional 2-wire detectors on the SLC loop. Requires two additional wires for power.

SD500-LIM

A short circuit isolator module for SLC devices. When a short occurs on the SLC loop, it is detected as a trouble, but all SLC devices protected by the isolator module continue to operate.

SD500-LED

An LED driver capable of driving 80 LEDs through the SLC loop. Up to 40 SD500-LEDs can be used per system.

S-BUS Accessories

5860/R Remote Fire Annunciator

Features the same 80 character backlit LCD display keypad and firefighter's key switch as the 5808. 5860 is gray and 5860R is red.

5496 Intelligent Power Module

A 6 amp notification power expander that provides four additional power-limited notification appliance circuit outputs.

5880 LED/IO Module

Features 40 LED outputs, 8 normally open dry contact inputs and one piezo output.



5865-3 and 5865-4 Remote LED Annunciator

Features 30 programmable LED (15 red and 15 yellow) outputs and a piezo sounder. The 5865-4 adds a silence and reset switch to the package

5883 Relay Board

Features 10 general purpose Form C relays. Used with 5880 module.

5824 Serial/Parallel Printer Interface Module

Provides one parallel and one RS-232 serial port for connecting a printer to 5808. Use to print a real-time log of system events, detector status reports, and event history.

Miscellaneous Accessories

5660 Silent Knight Software Suite

PC-base software for FACP programming. Upload and view panel account information, event history, and detector status.

5670 Silent Knight Software Suite

End-user facility management software allows viewing of detector status and event history via modem or direct connection.

Plex-2 Door

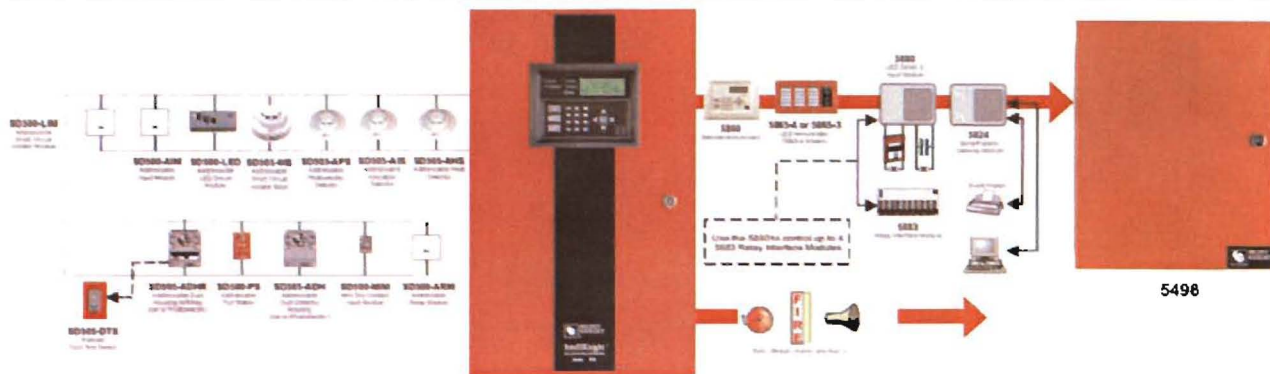
Dead front cabinet door with clear window to limit access to the FACP

RBB

Ramota Battery Box Accessory Cabinet Use if backup batteries are too large to fit into FACP cabinet. Dimensions: 16" W x 10" H x 6" D (406 mm W x 254 mm H x 152 mm D)

SD505-DTS

Remote test switch that provides remote key operated test function and annunciation of detector alarm with SD505-ADHR.



This document is not intended to be used for installation purposes. We try to keep our product information up-to-date and accurate. We cannot cover all specific applications or anticipate all requirements. All specifications are subject to change without notice. For more information, contact Silent Knight 7550 Meridian Circle Suite 100, Maple Grove, Mn 55369-4927. Phone: (800) 328-0103, Fax: (763) 493-6475.

MADE IN AMERICA

FORM# 350386 Rev. D 04/06

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**SILENT
KNIGHT**

by Honeywell

SK-Heat, SK-Heat-HT and SK-Heat-ROR

Addressable thermal heat and rate-of-rise detectors

The SK-Heat, SK-Heat-HT, and SK-Heat-ROR are plug in thermal detectors, with integral communication, that provide features that surpass conventional detectors. These thermal detectors are for use with Silent Knight IntelliKnight series Fire Alarm Control Panels (FACPs).

IntelliKnight heat detectors are an essential component in virtually any IntelliKnight installation. The IntelliKnight panel recognizes each detector by its specific address, so precious seconds are not wasted in determining location of an alarm.

Description

SK-Heat, SK-Heat-HT and SK-Heat-ROR are intelligent sensors that utilize a state-of-the-art thermistor sensing circuit for fast response. Sensitivity is continuously monitored and reported to the FACP. Point ID capability allows each detector's address to be set with rotary address switches, providing exact detector locations for selective maintenance when chamber contamination reaches unacceptable levels.

SK-Heat is a fixed temperature thermal detector that uses a thermistor sensing circuit to produce 135°F (57°C) fixed thermal detection.

SK-Heat-HT is a high temperature detector that provides fixed temperature alarm at 190°F. SK-Heat-ROR is a fixed temperature and rate-of-rise thermal detector that uses a thermistor sensing circuit to produce 135°F (57°C) thermal protection.

Features

- Sleek, low-profile design
- Reliable analog communications for trouble-free operation
- Age resistant polymer housing
- Innovative thermistor sensing circuit
- Superior EMI resistance for reliability

- Variety of mounting options to meet any application
- Dual LED indicators for 360° visibility
- Detector transmits signal to indicate maintenance is required
- Plug-in mounting provides ease of installation
- Optional remote LED annunciator (System Sensor® PN RA100Z)
- Tamper-proof feature available on mounting bases
- Rotary address switches for fast installation
- UL Listed

Specifications

Physical

Height: 2.0" (51 mm)
Diameter: 6.1" (155 mm) installed in B210LP base
Shipping Weight: 4.8 oz (137 g)

Electrical

Operating Voltage: 15 to 32 Volts DC Peak
Standby Current: 300µA @ 24 VDC

LED Current: 6.5 mA @ 24 VDC

Environmental

Operating Temperature

SK-Heat & SK-Heat-ROR:
-4° – 100°F (-20°C – 38°C)
SK-Heat-HT: -4° – 150°F
(-20°C – 66°C)

Humidity: 10% – 93%



SK-Heat (base included)

noncondensing

Thermal Ratings

SK-Heat: Fixed temperature setpoint 135°F (57°C)

SK-Heat-HT: High temperature heat 190°F (88°C)

SK-Heat-ROR: Rate-of-rise detection 15°F/min (8.3°C/min)

Compatibility

The SK-Heat, SK-Heat-HT and SK-Heat-ROR are compatible with the following IntelliKnight FACP's:

5700
5808
5820XL

The SK-Heat, SK-Heat-HT and SK-Heat-ROR are compatible with the following detector bases:

B210LP	(included) 6" base
B501	2 wire base
B224BI	Isolator base
B224RB	Relay base
B200SR	Sounder base

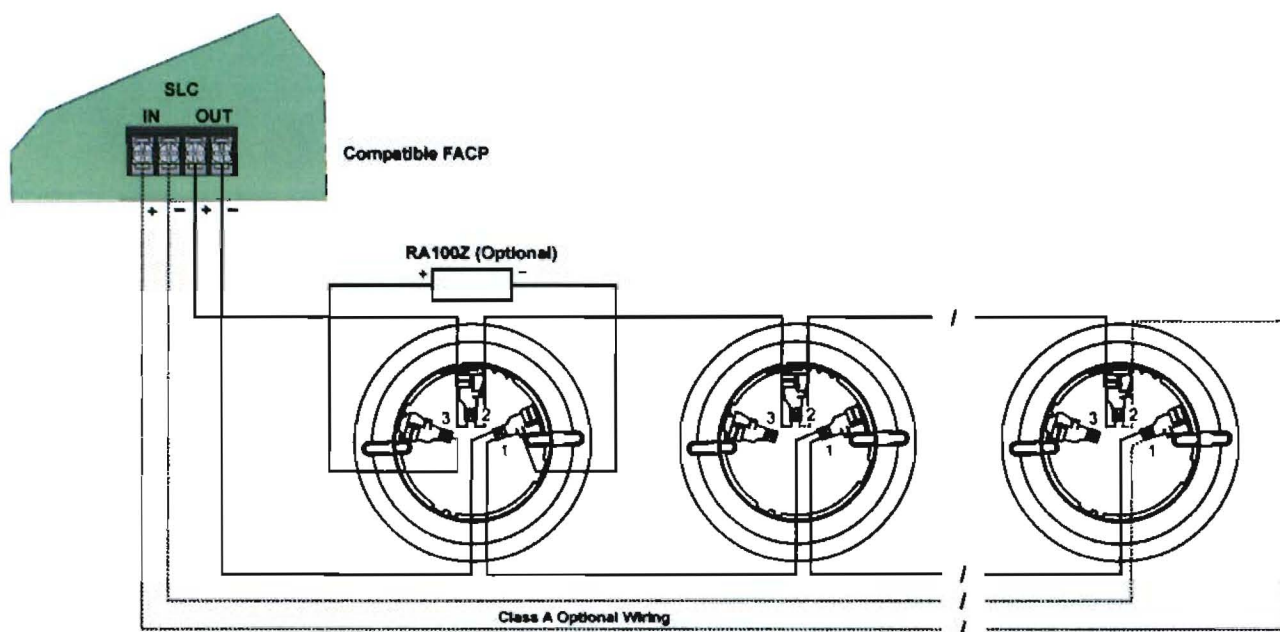
Model SK-Heat, SK-Heat-HT, SK-Heat ROR Addressable Thermal and Rate-of-Rise Thermal Detectors

Engineering Specifications

The contractor shall furnish and install where indicated on the plans, Intelligent Thermal Sensor Silent Knight Model SK-Heat, SK-Heat-HT or SK-Heat-ROR. The base included shall be B210LP.

The Heat detector shall have a flashing status LED for visual supervision. When the detector is actuated, the flashing LED will latch on steady at full brilliance. The detector may be reset by actuating the control panel reset switch.

The vandal-resistant, security locking feature shall be used in those areas as indicated on the drawing. The locking feature shall be field removable when not required. Voltage and RF/transient suppression techniques shall be employed to minimize false alarm potential.



Wiring SK-Series Detector Mounting Bases

Accessories

RA100Z - Remote LED Annunciator.

RMK400 - Recessed Mounting Kit Provides low profile for use with B501.

XR2B - Detector Removal Tool. A removal and re- placement tool for SK plug-in detectors. Includes the T55-127-000.

M02-04-01 - Replacement Test Magnet.

M02-09-00 - Test Magnet with Telescoping Handle.

XP-4 - Extension Pole for XR2B. Extends from 5 – 15 ft.

T55-127-000 - Detector Removal Head.

BCK-200B - Black Detector Kit For SK-series detectors

* Unless otherwise noted, specifications apply to all SK thermal detectors.



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MADE IN AMERICA

FORM# 350120 Rev B1
© 2010 Honeywell International Inc.

SK-Heat, SK-Heat-ROR, and SK-Heat-HT Intelligent Plug-In Temperature Sensors

12 Clintonville Road, Northford, CT 06472
203.484.7161; Fax: 203.484.7118
www.silentknight.com

SPECIFICATIONS

Diameter:	6.1" (155mm) installed in B210LP; 4.1" (104mm) installed in B501
Height:	2.0" (51mm)
Weight:	4.8 ounces (137 gm)
Installation Temperature:	-4°F to 100°F (-20°C to 38°C), SK-Heat and SK-Heat-ROR; -4°F to 150°F (-20°C to 66°C), SK-Heat-HT
Operating Humidity Range:	10% to 93% Relative Humidity, Non-condensing
Mounting:	B210LP flanged base; B501 flange less base
Voltage Range:	15 to 32 Volts DC Peak
Standby Current:	300 µA @ 24 VDC
LED Current:	6.5 mA @ 24 VDC
Fixed Temperature Rating:	135°F (57°C) SK-Heat and SK-Heat-ROR; 190°F (88°C) SK-Heat-HT
Rate-of-Rise Detection:	Responds to greater than 15°F/minute; SK-Heat-ROR

This sensor must be installed in compliance with the control panel system installation manual. The installation must meet the requirements of the Authority Having Jurisdiction (AHJ). Sensors offer maximum performance when installed in compliance with the National Fire Protection Association (NFPA); see NFPA 72.

Before installing sensors, please read the system wiring and installation manual thoroughly. This manual provides detailed information on sensor spacing, placement, zoning, and special applications. Copies of these manuals are available from Silent Knight

GENERAL DESCRIPTION

Models SK-Heat, SK-Heat-ROR and SK-Heat-HT are intelligent sensors that utilize a state-of-the-art thermistor sensing circuit for fast response. These sensors are designed to provide open area protection with 50 foot spacing capability as approved by UL 521. Model SK-Heat is a fixed temperature sensor with 135° F fixed temperature alarm. SK-Heat-ROR is a rate-of-rise temperature sensor with 135° F fixed temperature alarm. Model SK-Heat-HT is a high temperature sensor with 190° F fixed temperature alarm.

Two LEDs on each sensor light to provide a local, visible sensor indication. Remote LED annunciator capability is available as an optional accessory (Part No. RA400Z/RA100Z).

Models SK-Heat, SK-Heat-ROR, and SK-Heat-HT require compatible addressable communications to function properly. Connect these sensors to listed-compatible control panels only.

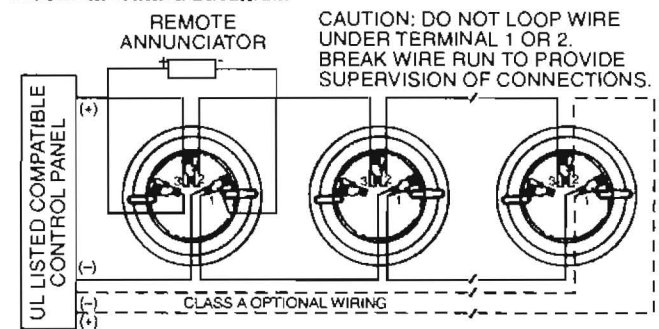
WIRING GUIDE

All wiring must be installed in compliance with the National Electrical Code, applicable local codes and the Authority Having Jurisdiction. Proper wire gauges should be used. The installation wires should be color coded to limit wiring mistakes and ease system troubleshooting. Improper connections will prevent a system from responding properly in the event of a fire.

Remove power from the communication line before installing sensors.

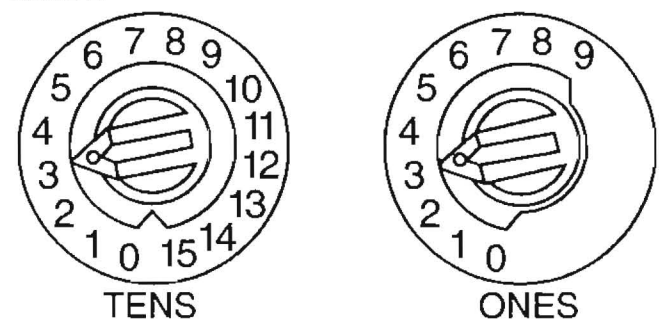
1. Wire the sensor base (supplied separately) per the wiring diagram, see Figure 1.
2. Set the desired address on the sensor address switches, see Figure 2.
3. Install the sensor into the sensor base. Push the sensor into the base while turning it clockwise to secure it in place
4. After all sensors have been installed, apply power to the control unit and activate the communication line.
5. Test the sensor(s) as described in the TESTING section of this manual

FIGURE 1. WIRING DIAGRAM:



C0129-00

FIGURE 2:



C0162-00

TAMPER RESISTANCE

The sensor base includes a tamper proof feature which when activated prevents removal of the sensor without the use of a tool. See the installation instruction manual for the sensor base for details in using this feature.

TESTING

Before testing, notify the proper authorities that the system is undergoing maintenance, and will temporarily be out of service. Disable the system to prevent unwanted alarms.

All sensors must be tested after installation and periodically thereafter. Testing methods must satisfy the Authority Having Jurisdiction (AHJ). Sensors offer maximum performance when tested and maintained in compliance with NFPA 72.

A. Test Magnet (Model No. M02-04 - optional)

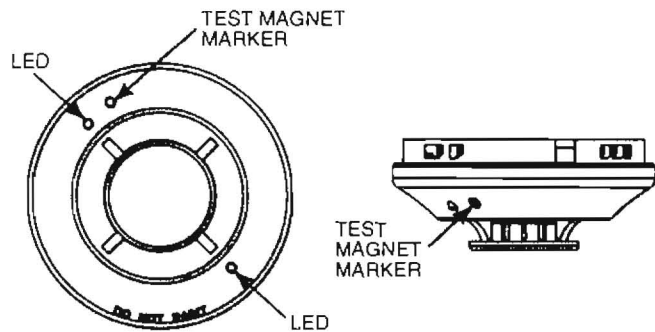
1. Place the optional test magnet against the cover in the magnet test area, as shown in Figure 3, to activate the test feature (part number K200-07-00).
2. The LEDs should latch on within 10 seconds, indicating alarm and annunciating the panel.
3. Reset the detector at the system control panel.

B. Direct Heat Method (Hair dryer of 1000–1500 watts)

1. From the side of the detector, direct the heat toward the sensor. Hold the heat source about 6 inches (15 cm) away to prevent damage to the cover during testing.
2. The LEDs on the detector should light when the temperature at the detector reaches the alarm setpoint. If the LEDs fail to light, check the power to the detector and the wiring in the detector base.
3. Reset the detector at the system control panel.

Detectors that fail these tests should be cleaned as described under MAINTENANCE and retested. If the detectors still fail these tests, they should be returned for repair.

FIGURE 3. VIEWS SHOWING POSITION OF TEST MAGNET:



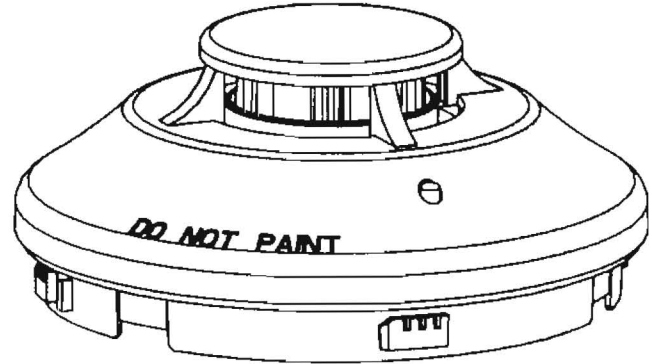
C0152-00

MAINTENANCE

NOTE: Before cleaning notify the proper authorities that the system is undergoing maintenance, and therefore the system will temporarily be out of service. Disable the loop or system undergoing maintenance to prevent unwanted alarms.

It is recommended that the sensor be removed from its mounting base for easier cleaning and that sensors be cleaned at least once a year. Use a vacuum cleaner to remove dust from the sensing chamber.

FIGURE 4:



C0151-00

FM CLASSIFICATION

RTI ratings are for installations which must comply with FM 3210

- | | |
|------------------|---------|
| SK-Heat RTI: | FAST |
| SK-Heat-ROR RTI: | V2-FAST |
| SK-Heat-HT RTI: | QUICK |

Please refer to insert for the Limitations of Fire Alarm Systems

FCC STATEMENT

This device complies with part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

NOTE: This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.



SK-Photo and SK-Photo-T



Intelligent Photoelectric Smoke Sensors

The SK-Photo is a photoelectric smoke detector and the SK-Photo-T is a photoelectric smoke detector with thermal. These plug-in smoke detectors, with integral communication, provide features that surpass conventional detectors and are for use with Silent Knight IntelliKnight Fire Alarm Control Panels (FACPs).

For more information about the IntelliKnight system, or to locate your nearest source, please call 800-328-0103 or in Connecticut, call (203) 484-7161.

Description

SK-Photo and SK-Photo-T are plug-in type smoke sensors that combine a photoelectric sensing chamber with addressable analog communications. Point ID capability allows each detector's address to be set with rotary address switches, providing exact detector locations for selective maintenance when chamber contamination reaches unacceptable levels.

SK-Photo and SK-Photo-T have a unique optical sensing chamber that is engineered to sense smoke produced by a wide range of combustion sources. In the SK-Photo-T, dual electronic thermistors add 135°F (57°C) thermal technology to maximize detection.

Features

- Sleek, low-profile design
- Base included
- Reliable analog communications for trouble-free operation
- Age resistant polymer housing
- Dual electronic thermistor design on the SK-Photo-T
- Superior EMI resistance for reliability
- Simple field cleaning for code compliance
- Variety of mounting options to meet any application
- Dual LED indicators for 360° visibility
- Detector transmits signal to indicate maintenance is required
- Optional remote LED annunciator (System Sensor® PN RA100Z)

- Plug-in mounting provides ease of installation
- Tamper-proof feature available on mounting bases
- Listed for use in duct applications
- Rotary address switches for fast installation
- UL Listed
- FM Approved

Specifications

Physical

Height: 2.0" (5.0 cm)
Diameter: 4.1" (10.4 cm)
Shipping Weight: 5.2 oz. (147 g)

Electrical

Operating Voltage: 15–32 VDC
Standby Current:
300 µA @ 24 VDC Maximum
Alarm Current: 6.5 mA @ 24 VDC max
(with LED on)

Environmental

Operating Temperature
SK-Photo: 32° – 120°F (0°C – 49°C)
SK-Photo-T: 32° – 100°F (0°C – 38°C)
Humidity: 10% – 93% non-condensing

Other Ratings

SK-Photo-T Thermal: Fixed
temperature set point 135°F (57°C)
Velocity: 0 – 4000 fpm (0 – 20 m/sec)
SK-Photo Insect Screen Hole Size:
0.016" (0.41 mm) nominal



SK-Photo (Base included)

Compatibility

The SK-Photo and SK-Photo-T are compatible with the following IntelliKnight FACPs:

5700
5808
5820XL

SK-Photo and SK-Photo-T are compatible with the following detector bases:

B210LP	(included) 6" base
B501	2 wire base
B501BHT-2	Temporal base
B224RB	Relay base
B224BI	Isolator base
B501BH-2	Sounder base



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by Honeywell

Model SK-Photo and SK-Photo-T Intelligent Photoelectric Smoke Sensors



Engineering Specifications

The contractor shall furnish and install where indicated on the plans, Intelligent photoelectric smoke sensors Silent Knight SK-Photo or SK-Photo-T with thermal. The combination detector head, and twist-lock base, shall be UL listed and compatible with Silent Knight's IntelliKnight fire control panels.

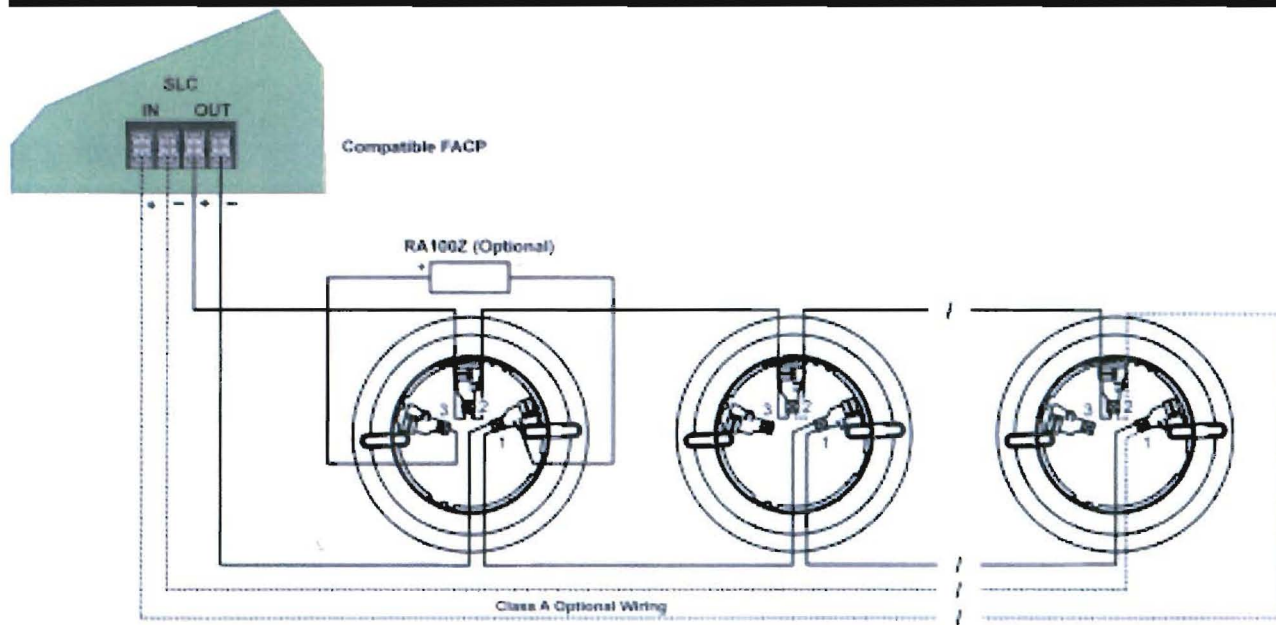
The base shall permit direct interchange with SK-Photo or SK-Photo-T. Base shall be the appropriate twist-lock base part number B210LP (included).

The smoke detector shall have a flashing status LED for visual supervision. When the detector is actuated, the flashing LED will latch on steady. The detector may be reset by actuating the control panel reset switch.

The calibration of the detector shall be capable of being selected and measured by the control panel without the need for external test apparatus.

The vandal-resistant, security locking feature shall be used in those areas as indicated on the drawing. The locking feature shall be field selectable as required.

The SK-Photo shall automatically perform a functional test of the detector. The test method shall simulate effects of products of combustion in the chamber to ensure testing of detector circuits.



Wiring SK-Series Detector Mounting Bases



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SILENT KNIGHT

by Honeywell

SK-Pull-SA and SK-Pull-DA

Intelligent Pull Stations

The SK-Pull-SA and SK-Pull-DA are a single action or dual action addressable fire alarm pull station for use with Silent Knight's IntelliKnight fire control panel. Extremely easy to operate, the SK-Pull-DA and SK-Pull-SA provide a fast and practical means of manually initiating a fire alarm signal. The IntelliKnight panel recognizes each manual pull station by its specific address saving precious seconds in determining the location of an alarm.

For more information about the IntelliKnight system, or to locate your nearest source, please call 1-800-328-0103.

Description

The SK-Pull-SA is a single action pull station requiring only one motion to activate the station. The SK-Pull-DA is a dual action pull station requiring two motions to activate the station. Both pull stations are designed to work with Silent Knight IntelliKnight series fire alarm control panels (FACPs).

Features

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



SK-Pull-SA



SK-Pull-DA

Compatibility

The SK-Pull-SA and SK-Pull-DA are compatible with the following IntelliKnight FACP's:

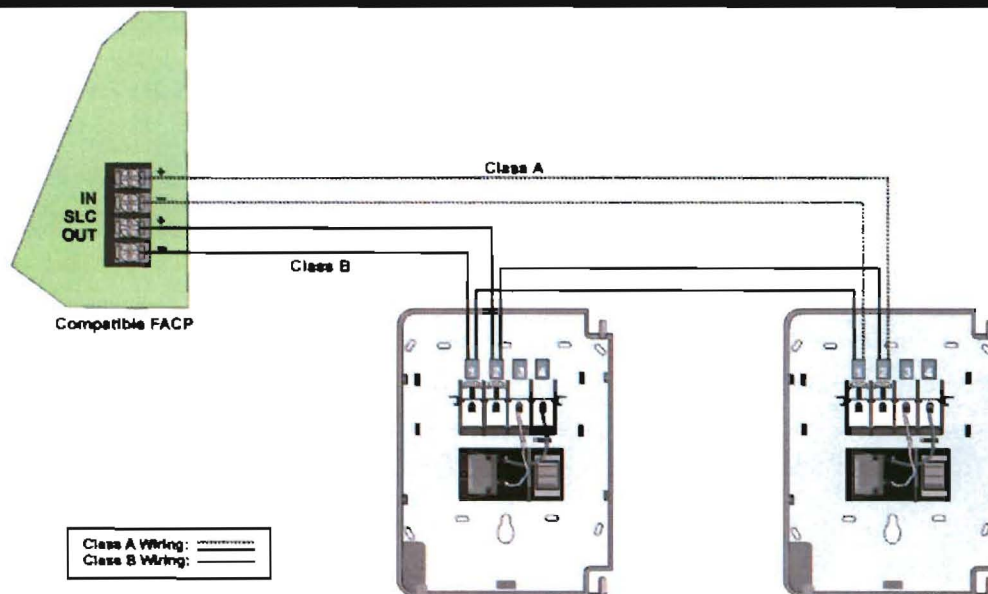
5600
5700
5808
5820XL

Model SK-Pull-DA and SK-Pull-SA

Engineering Specifications

The contractor shall furnish and install where indicated on the plans, Addressable Pull Stations, Silent Knight model SK-Pull-SA single action pull station or SK-Pull-DA, dual action pull station.

SK-Pull-DA or SK-Pull-SA meet the ADAAG controls and operating mechanisms guidelines, and the ADA requirements for a 5 lb. maximum pull force to activate the pull station.



Wiring SK-Pull-SA & SK-Pull-DA Pull Stations

Specifications

Physical

Height: 5.5" (14 cm)

Width: 4" (10.2 cm)

Depth: 5.4 oz. (3.7 cm)

Housing Material: LEXAN polycarbonate resin

Bi-Colored LED:

Blinking Green: Normal

Steady Red: Alarm

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

Electrical

Operating Voltage: 15–32 VDC

Average Operating Current (LED flashing): 300 μ A

Wire Gauge: Up to 12 AWG (3.1 mm²)

Environmental

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

Humidity: 10% – 93% non-condensing

Accessories

BG-TR

Optional trim ring.

SB-I/O

Surface backbox



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SK-Monitor

Intelligent Monitor Module

The SK-Monitor module provides an interface to contact devices, such as security contacts, waterflow switches, or pull stations.

For more information about the IntelliKnight system, or to locate your nearest source, please call 1-800-328-0103.

Description

The SK-Monitor is an addressable monitor module for use with Silent Knight IntelliKnight series fire alarm control panels (FACPs). The SK-Monitor is intended for use in intelligent, two-wire systems, where individual address of each module is selected using the built-in rotary switches.

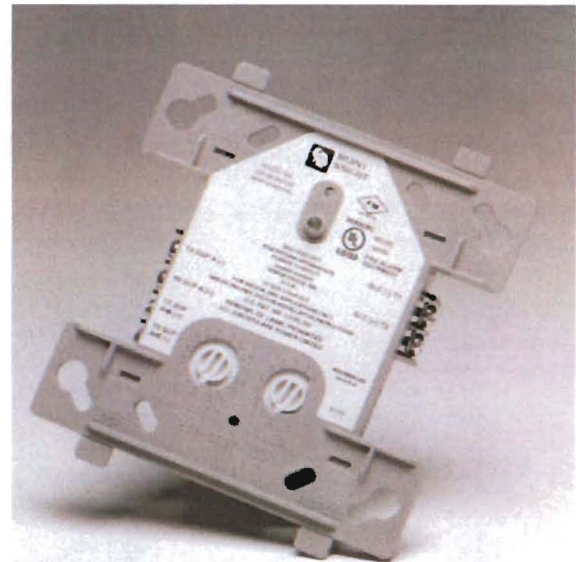
The SK-Monitor supports Class A supervised or Class B supervised wiring to the load device. Conventional 4-wire smoke detectors can be monitored for alarm and trouble conditions.

Features

- Single contact monitor
- Support for Class A and Class B wiring
- Fully supervised
- Panel controlled status LED that flashes green in normal state and is solid red in alarm
- Attractive ivory cover plate
- Rotary address switches for fast installation
- SEMS screws for easy wiring
- UL Listed

Installation

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



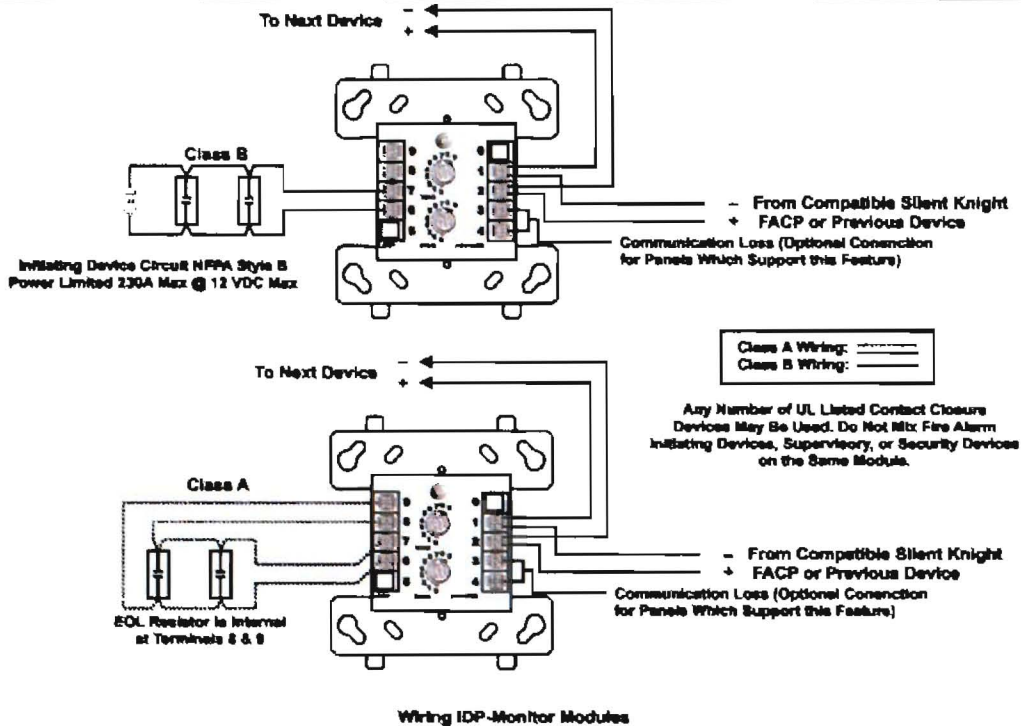
SK-Monitor

Compatibility

The SK-Monitor is compatible with the following IntelliKnight FACP's:

5700
5808
5820XL

Model SK-Monitor Intelligent Monitor Module



Specifications

Physical

Height: 4.5" (11.4 cm)

Width: 4" (10.2 cm)

Depth: 1.25" (3 cm)

Shipping Weight: 6.3 oz (196 g)

Electrical

Operating Voltage: 15 – 32 VDC

Current Draw (LED on): 5.0 mA max

Operating Current (LED flashing): 375 μ A

Standby Current:

400 μ A max @ 24 VDC (one communication every 5 sec with 47K EOL)

550 μ A max @ 24 VDC (one communication every 5 sec with EOL <1K)

5.5 mA (with LED latched on)

LED Current: 5.5 mA (with LED latched on) End-of-Line Resistance: 47K \square

Initiating Device Circuit Wiring Resistance: 1,500 \square max

SLC Loop Resistance: 40 \square max.

Environmental

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

Humidity: 10% – 93% non-condensing

Ordering Information

SK-Monitor Monitoring Module

Accessories

SMB500 4" Square Surface Mount Electrical Box



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Phone: (800) 328-0103, Fax: (203)484-7118. www.silentknight.com

MADE IN AMERICA

FORM# 350131 Rev B
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5860 Remote Annunciator



Bring the power to control an IntelliKnight fire alarm control panel to every area within your facility.

Now you can operate and program your IntelliKnight system from up to eight locations throughout your facility. The 5860 remote annunciator provides the same advanced, easy-to-use interface found on the IntelliKnight panel's built-in annunciator. The 80-character display and

ergonomically designed keypad allow for simple and error-free system operation. All operations—including reset, silence, detector status checking, fire drill, and programming—are identical.

Access to the system is through a firefighter's key or an access code. For security, a special installation code is needed for programming functions. The 5860 connects to the IntelliKnight panel via the RS-485 system bus. Wire runs can be up to 6000 feet from the panel.

For more information about the IntelliKnight system, or to locate your nearest source, please call 1-800-446-6444, or in Minnesota, call 763-493-6435.

Description

Features include an 80-character backlit LCD providing easy-to-understand system messages. The annunciator is ergonomically designed with over-sized buttons for the most frequently used features, like Reset and Silence.

In addition to status messages displayed on the LCD, there are five LEDs for alarm, supervisory, trouble, silence, and AC power status.

The annunciator is available in gray to match virtually any decor and red for applications where the annunciator must stand out. The annunciator enclosure can be surface or flush mounted. A trim ring kit is available for surface mounting.

Features

- 80-character backlit LCD display (4 lines with 20 characters on each line)
- Tactile and audible feedback
- Accepts user codes or fire fighter's key
- Larger keypad buttons for system reset and silence
- Install up to eight 5860s per FACP

- Available in red or light gray
- Support for simultaneous use of multiple 5860s
- RS-485 interface to panel
- Operation and appearance is identical to 5860 built-in annunciator
- On-board piezo sounder audibly indicates alarms, troubles, and supervisories
- Five status LEDs for alarm, supervisory, trouble, silence and AC power conditions
- Wiring lengths up to 6000 ft. from the FACP (depending on wire gauge and number of devices on SBUS)
- UL listed, complies with NFPA 72
- CSFM approved

Electrical Specifications

Operating Voltage: 24 VDC
Standby Current: 20 mA max
Alarm Current: 25 mA

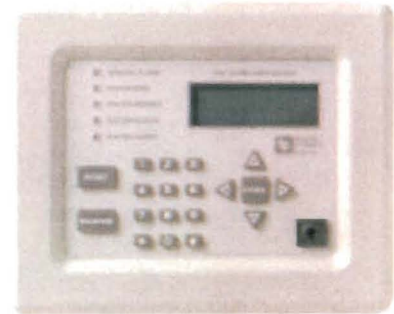
Wiring Distance: 6,000 max. from FACP (depending on wire gauge and number of devices on the SBUS)

Max Per System: 8

Mechanical Specifications

Physical 9.1" W x 7.4" H x 1.5" D
(23.1 W x 18.8 H x 3.8 D cm)

Shipping Weight: 2.8 lbs (1.3 kg)



5860

Color

5860R: Red
5860: Gray

Environmental

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

Humidity: 10% – 93% non-condensing

Approvals

NFPA 72; UL Listed;
CSFM 7170-0559: 135;
MEA 429-92-E Vol. IX;
FM Approved



**SILENT
KNIGHT**

by Honeywell

5860 Remote Annunciator



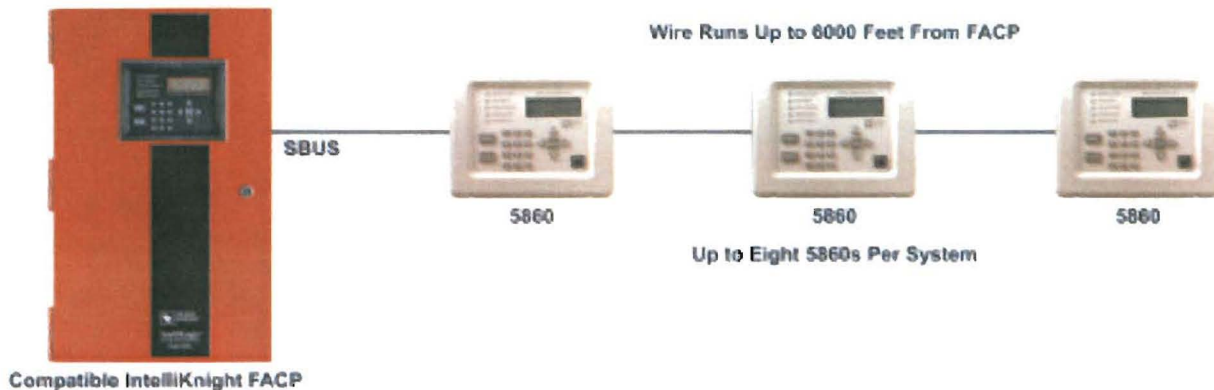
Engineering Specifications

The main control must have a built-in annunciator and must support up to eight remote annunciators. Remote annunciators shall have the same control and display layout so as to match the appearance of the built-in annunciator. Remote annunciators shall be available in two colors, red or light gray.

Remote annunciators shall have identical functionality and operation as the built-in annunciator. All annunciators must have an 80-character LCD display and must feature five LEDs for: General Alarm, Supervisory, System Trouble, System Silence, and System Power.

All controls and programming keys are silicone mechanical type with tactile and audible feedback. Keys have a travel of .040 inches. No membrane style buttons will be permissible.

The annunciator must be able to silence and reset alarms through the use of a code entered on the annunciator keypad or by using a firefighter's key. The annunciator must have two levels of user codes that will limit the operating system programming to authorized individuals. The control panel must allow all annunciators to accommodate multiple user input simultaneously.



Compatibility

IntelliKnight 5820XL FACP

IntelliKnight 5808 FACP

IntelliKnight 5700 FACP

Ordering Information

5680R Remote Annunciator

Four line LCD annunciator with 20 characters per line. Red

5680 Remote Annunciator.

Four line LCD annunciator with 20 characters per line. Gray.

Accessories

5860TR Red Trim Ring

For surface mounting.

5860TG Gray Trim Ring

For surface mounting.



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MADE IN AMERICA

FORM# 350224 Rev C, 05/06

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Selectable-Output Horns, Strobes, and Horn Strobes

SpectrAlert® Advance selectable-output horns, strobes, and horn strobes are rich with features guaranteed to cut installation times and maximize profits.



SPECTRAlert
ADVANCE
from System Sensor

Features

- Plug-in design with minimal intrusion into the back box
- Tamper-resistant construction
- Automatic selection of 12- or 24-volt operation at 15 and 15/75 candela
- Field-selectable candela settings on wall and ceiling units: 15, 15/75, 30, 75, 95, 110, 115, 135, 150, 177, and 185
- Horn rated at 88+ dBA at 16 volts
- Rotary switch for horn tone and three volume selections
- Universal mounting plate for wall and ceiling units
- Mounting plate shorting spring checks wiring continuity before device installation
- Electrically compatible with existing SpectrAlert products
- Compatible with MDL sync module

The SpectrAlert Advance series offers the most versatile and easy-to-use line of horns, strobes, and horn strobes in the industry. With white and red plastic housings, wall and ceiling mounting options, and plain and FIRE-printed devices, SpectrAlert Advance can meet virtually any application requirement.

Like the entire SpectrAlert Advance product line, horns, strobes, and horn strobes include a variety of features that increase their application versatility while simplifying installation. All devices feature plug-in designs with minimal intrusion into the back box, which make installations fast and foolproof while virtually eliminating costly and time-consuming ground faults. Furthermore, a universal mounting plate with an onboard shorting spring tests wiring continuity before the device is installed, protecting devices from damage.

In addition, field-selectable candela settings, automatic selection of 12- or 24-volt operation, and a rotary switch for horn tones with three volume selections enables installers to easily adapt devices to suit a wide range of application requirements.

Agency Listings



S4011 (chimes, horn strobes, horns)
S5512 (strobes)



3023572



ME4452-05-E



7125-1653.186 (indoor strobes)
7125-1653.188 (horn strobes,
chime strobes)
7135-1653.189 (horns, chimes)

SpectrAlert Advance Specifications

Architect/Engineer Specifications

General

SpectrAlert Advance horns, strobes, and horn strobes shall mount to a standard 4 × 4 × 1½-inch back box, 4-inch octagon back box, or double-gang back box. Two-wire products shall also mount to a single-gang 2 × 4 × 1⅞-inch back box. A universal mounting plate shall be used for mounting ceiling and wall products. The notification appliance circuit wiring shall terminate at the universal mounting plate. Also, SpectrAlert Advance products, when used with the Sync-Circuit™ Module accessory, shall be powered from a non-coded notification appliance circuit output and shall operate on a nominal 12 or 24 volts. When used with the Sync-Circuit Module, 12-volt-rated notification appliance circuit outputs shall operate between 9 and 17.5 volts; 24-volt-rated notification appliance circuit outputs shall operate between 17 and 33 volts. Indoor SpectrAlert Advance products shall operate between 32 and 120 degrees Fahrenheit from a regulated DC or full-wave rectified unfiltered power supply. Strobes and horn strobes shall have field-selectable candela settings including 15, 15/75, 30, 75, 95, 110, 115, 135, 150, 177, and 185.

Strobe

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

Horn Strobe Combination

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

Synchronization Module

The module shall be a System Sensor Sync-Circuit model MDL listed to UL 464 and shall be approved for fire protective service. The module shall synchronize SpectrAlert strobes at 1 Hz and horns at temporal three. Also, while operating the strobes, the module shall silence the horns on horn strobe models over a single pair of wires. The module shall mount to a 4⅞ × 4⅞ × 2⅞-inch back box. The module shall also control two Style Y (class B) circuits or one Style Z (class A) circuit. The module shall synchronize multiple zones. Daisy chaining two or more synchronization modules together will synchronize all the zones they control. The module shall not operate on a coded power supply.

Physical/Electrical Specifications

Standard Operating Temperature	32°F to 120°F (0°C to 49°C)
Humidity Range	10 to 93% non-condensing
Strobe Flash Rate	1 flash per second
Nominal Voltage	Regulated 12 DC/FWR or regulated 24 DC/FWR ¹
Operating Voltage Range ²	8 to 17.5 V (12 V nominal) or 16 to 33 V (24 V nominal)
Input Terminal Wire Gauge	12 to 18 AWG
Ceiling-Mount Dimensions (including lens)	6.8" diameter × 2.5" high (173 mm diameter × 64 mm high)
Wall-Mount Dimensions (including lens)	5.6" L × 4.7" W × 2.5" D (142 mm L × 119 mm W × 64 mm D)
Horn Dimensions	5.6" L × 4.7" W × 1.3" D (142 mm L × 119 mm W × 33 mm D)
Wall-Mount Back Box Skirt Dimensions (BBS-2, BBSW-2)	5.9" L × 5.0" W × 2.2" D (151 mm L × 128 mm W × 56 mm D)
Ceiling-Mount Back Box Skirt Dimensions (BBSC-2, BBSCW-2)	7.1" diameter × 2.2" high (180 mm diameter × 57 mm high)
Wall-Mount Trim Ring Dimensions (sold as a 5 pack) (TR-HS, TRW-HS)	5.7" L × 4.8" W × 0.35" D (145 mm L × 122 mm W × 9 mm D)
Ceiling-Mount Trim Ring Dimensions (sold as a 5 pack) (TRC-HS, TRCW-HS)	6.9" diameter × 0.35" high (175 mm diameter × 9 mm high)

Notes:

1. Full Wave Rectified (FWR) voltage is a non-regulated, time-varying power source that is used on some power supply and panel outputs.
2. P, S, PC, and SC products will operate at 12 V nominal only for 15 and 15/75 cd.

UL Current Draw Data

UL Max. Strobe Current Draw (mA RMS)						UL Max. Horn Current Draw (mA RMS)					
	Candela	8–17.5 Volts		16–33 Volts		Sound Pattern	dB	8–17.5 Volts		16–33 Volts	
		DC	FWR	DC	FWR			DC	FWR	DC	FWR
Standard	15	123	128	66	71	Temporal	High	57	55	69	75
Candela Range	15/75	142	148	77	81	Temporal	Medium	44	49	58	69
	30	NA	NA	94	96	Temporal	Low	38	44	44	48
	75	NA	NA	158	153	Non-temporal	High	57	56	69	75
	95	NA	NA	181	176	Non-temporal	Medium	42	50	50	69
	110	NA	NA	202	195	Non-temporal	Low	41	44	50	50
	115	NA	NA	210	205	Coded	High	57	55	69	75
High	135	NA	NA	228	207	Coded	Medium	44	51	56	69
Candela Range	150	NA	NA	246	220	Coded	Low	40	46	52	50
	177	NA	NA	281	251						
	185	NA	NA	286	258						

UL Max. Current Draw (mA RMS), 2-Wire Horn Strobe, Standard Candela Range (15–115 cd)											
DC Input	8–17.5 Volts			16–33 Volts			30	75	95	110	115
	15	15/75	15	15/75	15	15/75					
Temporal High	137	147	79	90	107	176	194	212	218		
Temporal Medium	132	144	69	80	97	157	182	201	210		
Temporal Low	132	143	66	77	93	154	179	198	207		
Non-Temporal High	141	152	91	100	116	176	201	221	229		
Non-Temporal Medium	133	145	75	85	102	163	187	207	216		
Non-Temporal Low	131	144	68	79	96	156	182	201	210		
FWR Input											
Temporal High	136	155	88	97	112	168	190	210	218		
Temporal Medium	129	152	78	88	103	160	184	202	206		
Temporal Low	129	151	76	86	101	160	184	194	201		
Non-Temporal High	142	161	103	112	126	181	203	221	229		
Non-Temporal Medium	134	155	85	95	110	166	189	208	216		
Non-Temporal Low	132	154	80	90	105	161	184	202	211		

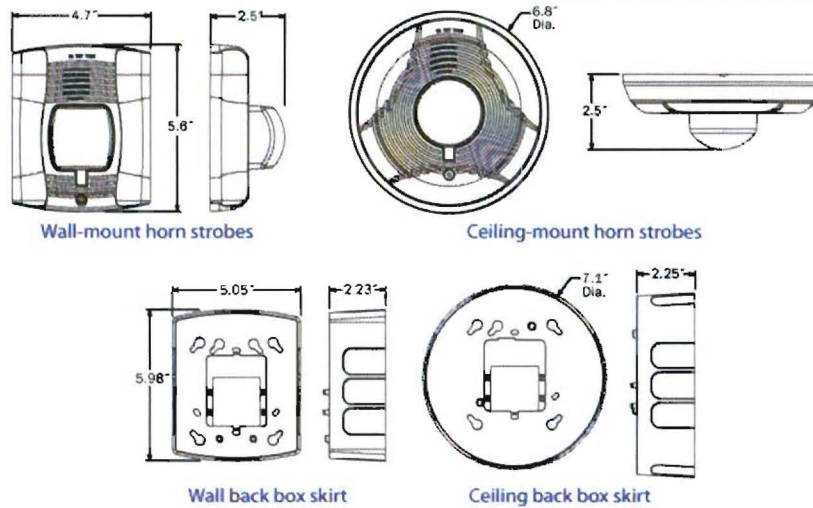
UL Max. Current Draw (mA RMS), 2-Wire Horn Strobe, High Candela Range (135–185 cd)										
DC Input	16–33 Volts				FWR Input	16–33 Volts				
	135	150	177	185		135	150	177	185	
Temporal High	245	259	290	297	Temporal High	215	231	258	265	
Temporal Medium	235	253	288	297	Temporal Medium	209	224	250	258	
Temporal Low	232	251	282	292	Temporal Low	207	221	248	256	
Non-Temporal High	255	270	303	309	Non-Temporal High	233	248	275	281	
Non-Temporal Medium	242	259	293	299	Non-Temporal Medium	219	232	262	267	
Non-Temporal Low	238	254	291	295	Non-Temporal Low	214	229	256	262	

Horn Tones and Sound Output Data

Horn and Horn Strobe Output (dBA)										
Switch Position	Sound Pattern	dB	8–17.5 Volts		16–33 Volts		24-Volt Nominal			
			DC	FWR	DC	FWR	Reverberant		Anechoic	
							DC	FWR	DC	FWR
1	Temporal	High	78	78	84	84	88	88	99	98
2	Temporal	Medium	74	74	80	80	86	86	96	96
3	Temporal	Low	71	73	76	76	83	80	94	89
4	Non-Temporal	High	82	82	88	88	93	92	100	100
5	Non-Temporal	Medium	78	78	85	85	90	90	98	98
6	Non-Temporal	Low	75	75	81	81	88	84	96	92
7 [†]	Coded	High	82	82	88	88	93	92	101	101
8 [†]	Coded	Medium	78	78	85	85	90	90	97	98
9 [†]	Coded	Low	75	75	81	81	88	85	96	92

[†]Settings 7, 8, and 9 are not available on 2-wire horn strobe.

SpectrAlert Advance Dimensions



SpectrAlert Advance Ordering Information

Model	Description
Wall Horn Strobes	
P2R*†	2-Wire Horn Strobe, Standard cd*, Red
P2RH*	2-Wire Horn Strobe, High cd, Red
P2W*	2-Wire Horn Strobe, Standard cd, White
P2WH*	2-Wire Horn Strobe, High cd, White
P4R*	4-Wire Horn Strobe, Standard cd, Red
P4RH	4-Wire Horn Strobe, High cd, Red
P4W	4-Wire Horn Strobe, Standard cd, White
Wall Strobes	
SR*†	Strobe, Standard cd, Red
SRH*†	Strobe, High cd, Red
SW*	Strobe, Standard cd, White
SWH*	Strobe, High cd, White
Ceiling Horn Strobes	
PC2R*	2-Wire Horn Strobe, Standard cd, Red
PC2RH	2-Wire Horn Strobe, High cd, Red
PC2W*†	2-Wire Horn Strobe, Standard cd, White
PC2WH*	2-Wire Horn Strobe, High cd, White
PC4R	4-Wire Horn Strobe, Standard cd, Red
PC4RH	4-Wire Horn Strobe, High cd, Red
PC4W	4-Wire Horn Strobe, Standard cd, White

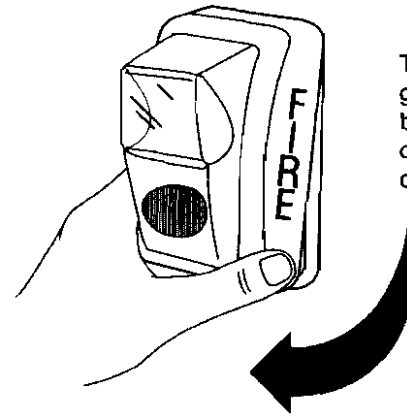
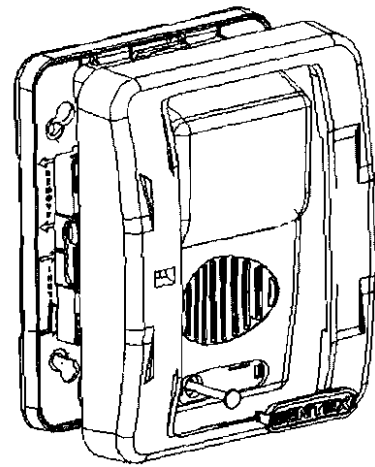
Model	Description
Ceiling Strobes	
SCR	Strobe, Standard cd, Red
SCRH	Strobe, High cd, Red
SCW*	Strobe, Standard cd, White
SCWH	Strobe, High cd, White
Horns	
HR	Horn, Red
HW	Horn, White
Accessories	
BBS-2	Back Box Skirt, Wall, Red
BBSW-2	Back Box Skirt, Wall, White
BBSC-2	Back Box Skirt, Ceiling, Red
BBSCW-2	Back Box Skirt, Ceiling, White
TR-HS	Trim Ring, Wall, Red
TRW-HS	Trim Ring, Wall White
TRC-HS	Trim Ring, Ceiling, Red
TRCW-HS	Trim Ring, Ceiling, White

Notes:

* Add "-P" to model number for plain housing (no "FIRE" marking on cover), e.g., P2R-P.

† Add "-SP" to model number for "FUEGO" marking on cover, e.g., P2R-SP.

‡ "Standard cd" refers to strobes that include 15, 15/75, 30, 75, 95, 110, and 115 candela settings. "High cd" refers to strobes that include 135, 150, 177, and 185 candela settings.



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

WARNING

THIS APPLIANCE WILL NOT OPERATE WITHOUT ELECTRICAL POWER. AS FIRES FREQUENTLY CAUSE POWER INTERRUPTIONS, GENTEX SUGGESTS YOU DISCUSS FURTHER SAFEGUARDS WITH YOUR LOCAL FIRE PROTECTION SPECIALIST.

V. CHECKOUT AND TROUBLESHOOTING

- Supply power to the system control panel. The auxiliary signaling appliances in the system should not be activated.
- If the signal is activated:
 - Check all smoke and fire detectors in the system to make sure they have not been activated.
 - Check all wiring connections to make sure the signal detection circuits are not reversed or shorted together. Check wire color codes and traces.
 - Verify that the jumpers and switches are properly set on both the control module and signal appliance. If the jumper on the AVSM is removed, the horns will not produce any sound unless there is an input to the H+ and H- terminals on the control module.
- To test the signal appliances, trip the auxiliary panel or activate the alarm circuit at the main control panel or activate one of the fire detection units in the system. All auxiliary signals should be activated.
- An operational test on this product should be conducted in accordance with National Standards or at a minimum annually and more often if dictated by local and state codes or authorities having jurisdiction.

NOTE: These testing procedures and troubleshooting instructions are generalized. Please refer to the system control panel operating instructions for proper operation of the panel and fire detection system.

SIGNALING APPLIANCE LIMITATION:

Your horn and horn/strobe meet or exceed the current audibility requirements of Underwriters Laboratories. However, if the appliance is located outside a bedroom it may not wake up a sound sleeper, especially if the room door is closed or only partially open.

VI. TO RETURN AN APPLIANCE

Should you experience problems with your appliance, proceed as follows:

- Turn off electrical power to the auxiliary alarm circuit.
- Remove the bezel, nameplate, then mounting screw and slide signal off from bracket
- Replace unit that was removed to restore wiring supervision and to eliminate system trouble alert.
- Carefully pack the defective unit (the manufacturer cannot be responsible for consequential damage due to shipping or mis-handling). Include your return address and complete details as to the nature of the difficulties being experienced and date of installation.
- Return to: Gentex Corporation, 10985 Chicago Dr., Zeeland MI 49464. Prior to returning, call the Gentex field service dept. @ 1-800-436-8391 or e-mail FP_RMA@gentex.com to obtain a RMA Number from our return department.

LIMITED WARRANTY

For a period of 36 months from the date of purchase or a maximum of 42 months from the date of manufacture, Gentex warrants to you the original purchaser that your appliance will be free from defects in workmanship, materials and construction under normal use and service. If a defect in workmanship, materials and construction should cause your appliance to become inoperative within the warranty period, Gentex will repair your appliance or furnish you with a new or rebuilt appliance without charge to you except for postage required to return the appliance to us. Gentex will not reimburse you for repairs or replacement parts provided by other parties. Your repaired or replacement appliance will be returned to you free of charge and it will be covered under the warranty for the balance of the warranty period.

The warranty is void if our inspection of your appliance shows that the damage or failure was caused by abuse, misuse, abnormal use, faulty installation, improper maintenance or repairs other than those performed by us.

ANY WARRANTIES IMPLIED UNDER ANY STATE LAW INCLUDING IMPLIED WARRANTIES OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE APPLY ONLY FOR THE WARRANTY PERIOD SPECIFIED ABOVE. PLEASE NOTE THAT SOME STATES DO NOT ALLOW LIMITATION ON HOW LONG AN IMPLIED WARRANTY LASTS. SO THE ABOVE LIMITATION MAY NOT APPLY TO YOU. GENTEX WILL NOT BE LIABLE FOR ANY LOSS, DAMAGE, INCIDENTAL OR CONSEQUENTIAL DAMAGES OF ANY KIND ARISING IN CONNECTION WITH THE SALE, USE OR REPAIR OF THIS APPLIANCE. THE MAXIMUM LIABILITY OF GENTEX SHALL NOT IN ANY CASE EXCEED THE PURCHASE PRICE PAID BY YOU FOR THE APPLIANCE. PLEASE NOTE THAT SOME STATES DO NOT ALLOW THE EXCLUSION OR LIMITATION OF INCIDENTAL OR CONSEQUENTIAL DAMAGES, SO THE ABOVE LIMITATION OR EXCLUSION MAY NOT APPLY TO YOU.

If a defect in workmanship, materials or construction should cause your appliance to become inoperable within the warranty period, you must return the appliance to Gentex postage prepaid. You must prove to the satisfaction of Gentex the date of purchase of your appliance. Warranty service may only be performed by Gentex personnel at Gentex's facilities in Zeeland, Michigan. You must also pack the appliance to minimize the risk of it being damaged in transit. You must also enclose a return address. Appliances returned for warranty service should be sent to: Gentex Corporation, 10985 Chicago Dr., Zeeland MI 49464. If we receive an appliance in a damaged condition as the result of shipping, we will notify you and you must seek a claim with the shipper.

THIS WARRANTY GIVES YOU SPECIFIC LEGAL RIGHTS AND YOU MAY ALSO HAVE OTHER RIGHTS WHICH VARY FROM STATE TO STATE.

Important Notice:

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**GENTEX CORPORATION GEC, GES & GEH SERIES
GEC3 & GES3 SERIES**



A Smarter Vision®

UL1971 COMPLIANT
CAN/ULC S526-M87 COMPLIANT

VISIBLE AND/OR AUDIBLE SIGNALING APPLIANCES

I. INTRODUCTION

The Gentex models GEC/GES/GEH (horn/strobe, strobe and horn) and Gentex models GEC3/GES3 (horn/strobe and strobe) are high quality audible and/or visible signaling appliances. The high intensity strobe utilizes a Xenon flash tube that generates a high-intensity flash visible from all angles. This appliance is intended to provide a visible, audible or audible/visible, depending on the model, notification signal for the purpose of life safety and property protection.

The GEC3 and GES3 are provided with a slider switch which allows for candela selection at the installation site. The intensities which can be selected are 15Cd, 30Cd, 60Cd, 75Cd, or 110Cd. The GEC and GES are fixed candela units, the candela intensities which can be ordered, are 15Cd, 30Cd, 60Cd, 75Cd, 110Cd, 177Cd and 15/75Cd. This appliance is ideal for any occupancy that requires notification appliances per the applicable building or fire code or wherever dependable alarms are required. The strobe is listed in compliance with UL 1971, Signaling Appliances for the Hearing Impaired and CAN/ULC S526-M87 Visible Signal Devices for Fire Alarm Systems (15/75Cd model is additionally listed in compliance with UL1638).

II. LOCATION

This appliance is intended for use in Fire Alarm Systems and is to be installed in accordance with this manual, the recommendation of the local authorities having jurisdiction, and other NFPA documents that provide standards on notification appliances for protective signaling systems. The GEC/GES/GEH and GEC3/GES3 are intended for indoor installations only. This appliance is not listed for outdoor or drip proof applications.

Wall mounted strobe and horn/strobe appliances shall have their entire lens at heights above the finished floor of not less than 80 in. (2m) and not greater than 96 in. (2.4m)**. Spacing shall be in accordance with Table A. If a room configuration is not square, the room size that will entirely encompass the room or subdivide the room into multiple squares shall be used. Wall mounted horn only appliances shall have their tops above the finished floors at heights of not less than 90 in. (2.30m) and below the finished ceilings at heights of not less than 6 in. (152mm). Different mounting heights shall be permitted by the AHJ provided the sound pressure level requirements of NFPA 72 are met.

Table A

Room Spacing for Wall-Mounted Visible Appliances per NFPA 72, 2007 Edition				
Maximum Room Size		Minimum Required Light Output (Effective Intensity, Cd)		
Meters	Feet	One Light per Room	Two Lights per Room (Located on Opposite Walls)	Four Lights per Room (One Light per Wall)
6.10 x 6.10	20 x 20	15	NA	NA
8.53 x 8.53	28 x 28	30	Unknown	NA
9.14 x 9.14	30 x 30	34	15	NA
12.2 x 12.2	40 x 40	60	30	15
13.7 x 13.7	45 x 45	75	Unknown	19
15.2 x 15.2	50 x 50	94	60	30
16.5 x 16.5	54 x 54	110	Unknown	30
16.8 x 16.8	55 x 55	115	Unknown	28
18.3 x 18.3	60 x 60	135	95	30
19.2 x 19.2	63 x 63	150	Unknown	37
20.7 x 20.7	68 x 68	177	Unknown	43
21.3 x 21.3	70 x 70	184	95	60
24.4 x 24.4	80 x 80	240	135	60
27.4 x 27.4	90 x 90	304	185	95
30.5 x 30.5	100 x 100	375	240	95
33.5 x 33.5	110 x 110	455	240	135
36.6 x 36.6	120 x 120	540	305	135
39.6 x 39.6	130 x 130	635	375	185

NA = Not allowable.

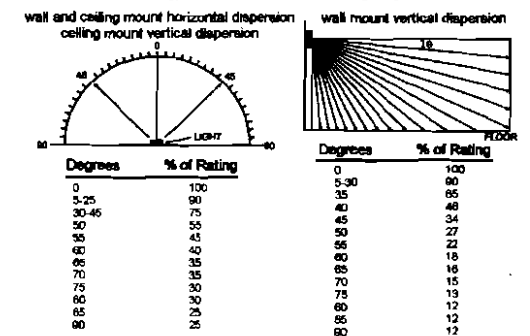
NOTE: The visual signal must be in the direct viewing area of the occupant in order to be seen.

WARNING: Strobe light can not be seen when objects such as doors, furniture or walls block strobe light.

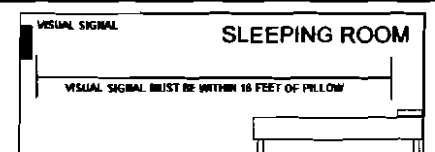
NOTE: Visual signals for the hearing impaired are only one method of alerting the hearing impaired. Visual signals may not be the preferred method for notifying all hearing impaired individuals.

NOTE: The strobe light must be seen by the sleeping person. If the person has head turned or otherwise unable to be alerted by visual, the strobe will not be effective.

LIGHT OUTPUT IN PERCENTAGE WHEN MEASURED FROM THE FOLLOWING DIRECTIONS - PER UL1971



CAUTION: Strobe light must be installed within 16 feet of the pillow when used in a sleeping area.



****Effective Intensity Requirements for Sleeping Areas**

Visible Notification Appliance	
Distance from Ceiling to Top of Lens	Intensity
greater than or equal to 24"	110cd
less than 24"	177cd

III. MOUNTING, ROUGH-IN BOX AND RUN WIRING

This unit is designed for mounting to most single gang boxes, 4" square outlet boxes, 2-gang masonry boxes or non-metallic 2-gang switch boxes. Conduit entrance to boxes should be selected to insure sufficient wiring clearance.

- Mount a box for each remote signaling appliance. Screw bracket onto box. Insert signal into bracket and slide to the right firmly into the terminal block receptacle. Place housing over mounted assembly and screw together with single screw at the bottom of the signal. Cover screw with plastic tab.
- Run a minimum 18 gauge insulated 2 or more conductor cable.

Attention: Wiring should be connected to mounting bracket prior to mounting signal. Incoming positive power lead must be broken and each lead is to be inserted into each of the top two terminals. If two power runs are made to the signal, one for the strobe and one for the horn, only one of the runs must have its positive lead broken and placed under the two separate top terminals. A barrier is provided to prevent both leads from being placed under the same terminal.

Strobe Current Ratings				
GEC/GES Series Available Candela	GEC3/GES3 Series Available Candela	Strobe Candela	Regulated 24VDC Max. Operating Current(mA)	Unregulated 24VFWR Max. Operating Current (mA)
◆	◆	15	78	113
◆	◆	15/75	96	135
◆	◆	30	96	135
◆	◆	60	137	186
◆	◆	75	180	245
◆	◆	110	224	313
◆	◆	177	288	364

Horn Current Ratings Over Input Voltage Range of 16-33V				
Horn Mode	Minimum dBA at 10Ft. Per UL464 (HIGH)	Minimum dBA at 10Ft. Per UL464 (LOW)	Regulated 24VDC Max. Operating at HIGH Setting(mA)	Unregulated 24VFWR Max. Operating at HIGH Setting(mA)
Temp 3 2400Hz	78	71*	28	48
Temp 3 Mechanical	76	70*	25	44
Temp 3 Chime	70*	66*	15	30
Continuous 2400Hz	81	74*	28	48
Continuous Mechanical	80	72*	25	44
Continuous Chime	70*	66*	15	30
Whoop	82	69*	56	62

NOTE: - DC Voltage Range Limits: 16-33V. FWR Voltage Range Limits: 16-33V. This product was only tested to the stated voltage range(s); do not apply 80% and 110% of this range for system operation.
 - The three pulse temporal pattern is to be used for evacuation use only.
 - The sound output for the temporal 3 tone is rated lower since the time the horn is off is averaged into the sound out put rating. While the horn is producing a tone in the temporal 3 mode its sound pressure is the same as the continuous mode. Units have been tested to 0°C, 49°C and 93% humidity and are rated 20-30VDC/FWR -20%, +10% per CAN/ULC S526-M87. The 15/75 cd model is rated 15cd per UL 1971 and CAN/ULC S526-M87.

*Operating the horn in this mode at this voltage will result in not meeting the minimum UL reverberant sound level required for public mode fire protection service. These settings are acceptable only for private mode fire alarm signaling use. Use the high dBA setting for public mode applications (the chime tone is always private mode).

IV. WIRING

Wiring for independent synchronized strobes and horn.

Using this method you may:

- Use only two wires to synchronize the temporal horn and strobe with the ability to mute the horn (place switches 1 and 2 up on the GEC) (see Figure 1).
- Mute the horn only when the temporal horn option has been selected.

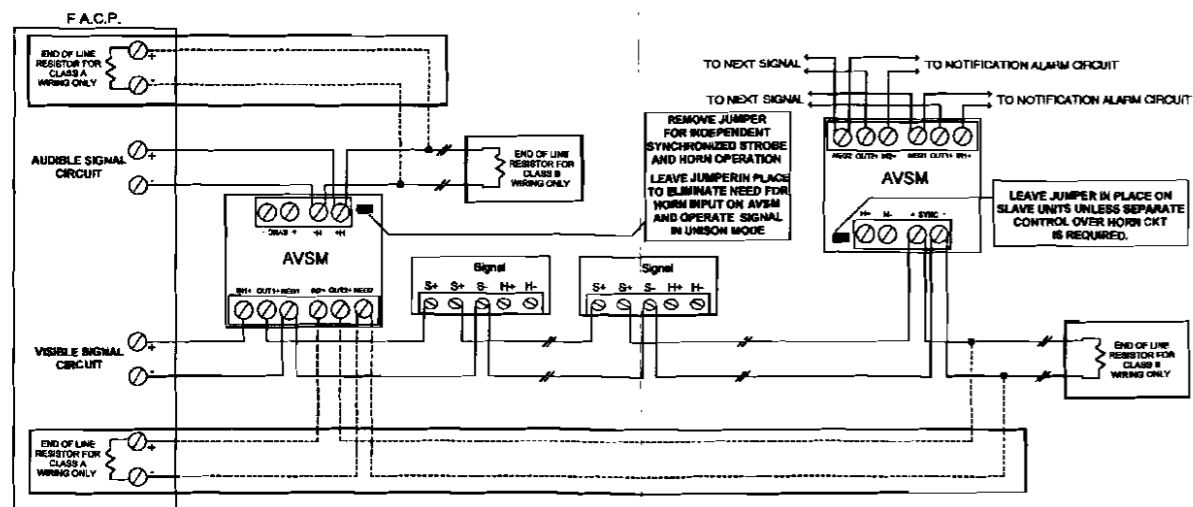
Wiring for synchronized parallel (unison) horn/strobe operation.

Using this method you may:

- Use only two wires to synchronize the temporal horn and strobe **without** the ability to mute the horn (place switches 1 and 2 up on the GEC) (see Figure 1).
- Choose either temporal or continuous horn with the temporal horn synchronized.
- Also wire the control module (AVSM) to only the strobe input power terminals, set the horn to continuous mode and power it from a coded source.

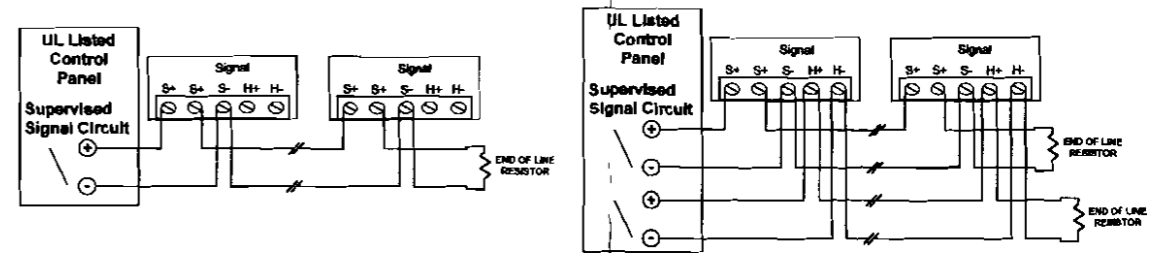
NOTE: For this option, switches 1 and 2 on the GEC (see Figure 1) must be down to isolate power to the audible and visible portion of the circuit.

NOTE: All strobes are designed to flash as specified with continuous applied voltage. This appliance is not recommended for use on coded or pulsing signaling circuits. However, use of the AVSM control module is permitted to synchronize the strobe and/or mute the horn.



Conventional Method:

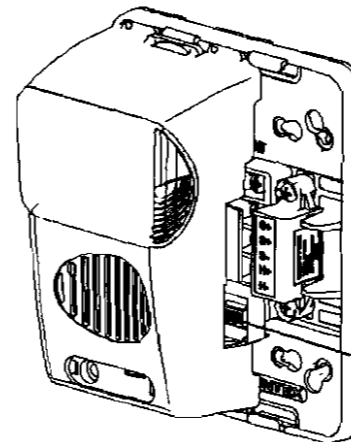
You may connect both the strobe and the horn directly from a source of rated power without the use of a control module. However, the horns and strobe lights will NOT be synchronized. Place switches 1 and 2 up on the GEC (see Figure 1) to power both the audible and visible from a single pair of power wires. If you wish to power the horn and strobe from independent sources of power, place switches 1 and 2 down on the GEC and connect power to the appropriate terminals.



CAUTION: When using only a single power source to energize the strobe and horn (switches 1 and 2 up), the in/out wiring must be under the S+ and S- terminals only. Failure to do so may result in damage to your signal. For the horn only (GEH) and strobe only (GES), only the top three terminals are to be used. **NOTE:** INSTALLATION IN CANADA - All Canadian installations should be in accordance with the Canadian Standard for the Installation of Fire Alarm Systems- CAN/ULC S524-01 the Canadian Electrical Code, Part 1.

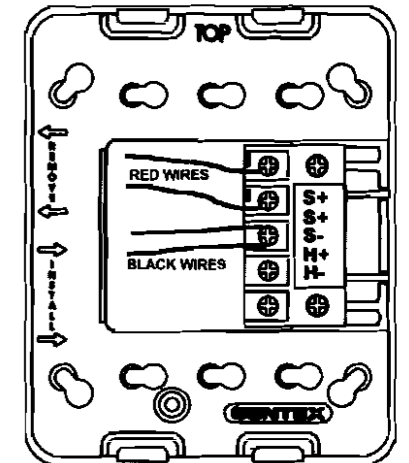
Figure 1

	SWITCH POSITION		
	3	4	5
Mechanical-Temp	ON	ON	ON
Mechanical-Cont.	OFF	ON	ON
Hi-Temp	ON	OFF	ON
Hi-Cont.	OFF	OFF	ON
Chime-Temp	ON	ON	OFF
Chime-Cont.	OFF	ON	OFF
Whoop	ON	OFF	OFF
Whoop	OFF	OFF	OFF

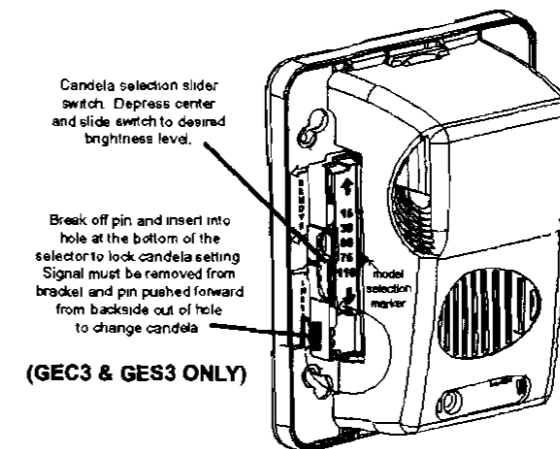
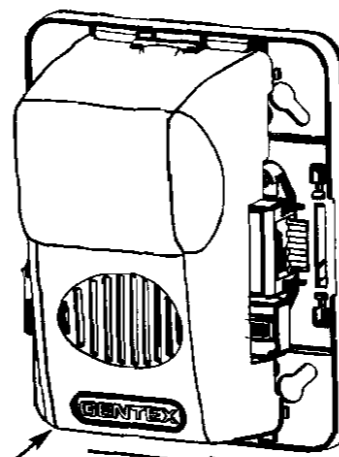


Switch positions 1 and 2 in the Off position to select isolated horn and strobe power inputs.

Switch Position 6
ON > HIGH dB
OFF > LOW dB



CAUTION: A jumper card is provided to test for correct wiring in the supervisory mode only. DO NOT pass alarm current through the jumper.



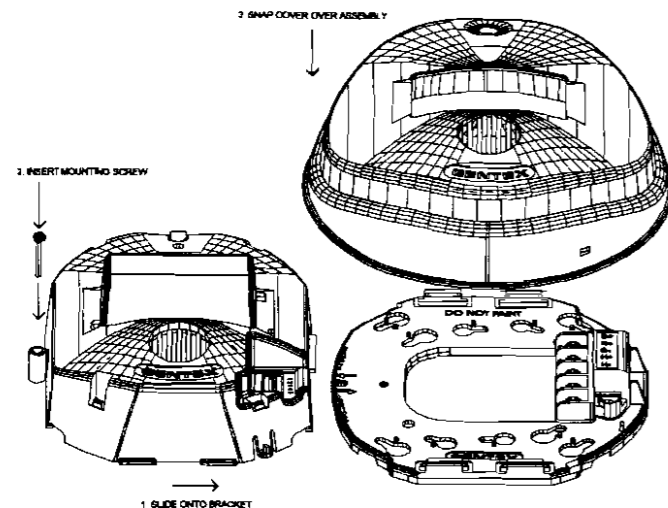
Candela selection slider switch. Depress center and slide switch to desired brightness level.

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.

(GEC3 & GES3 ONLY)

The Gentex Super-Slide® Mounting Bracket allows the installer to pre-wire the system, test for system supervision, remove the signal head until occupancy, switch out Gentex 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 the 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.



V. CHECKOUT AND TROUBLESHOOTING

1. Supply power to the system control panel. The auxiliary signaling appliances in the system should not be activated.
2. If the signal is activated:
 - Check all smoke and fire detectors in the system to make sure they have not been activated.
 - Check all wiring connections to make sure the signal detection circuits are not reversed or shorted together. Check wire color codes and traces.
 - Verify that the jumpers and switches are properly set on both the control module and signal appliance. If the jumper on the AVSM is removed, the horns will not produce any sound unless there is an input to the H+ and H- terminals on the control module.
3. To test the signal appliances, trip the auxiliary panel or activate the alarm circuit at the main control panel or activate one of the fire detection units in the system. All auxiliary signals should be activated.
4. An operational test on this product should be conducted in accordance with National Standards or at a minimum annually and more often if dictated by local and state codes or authorities having jurisdiction.

NOTE: These testing procedures and troubleshooting instructions are generalized. Please refer to the system control panel operating instructions for proper operation of the panel and fire detection system.

SIGNALING APPLIANCE LIMITATION:

Your horn and horn/strobe meet or exceed the current audibility requirements of Underwriters Laboratories. However, if the appliance is located outside a bedroom it may not wake up a sound sleeper, especially if the room door is closed or only partially open.



WARNING

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VI. TO RETURN AN APPLIANCE

Should you experience problems with your appliance, proceed as follows:

1. Turn off electrical power to the auxiliary alarm circuit.
2. Remove mounting screw and slide signal off from bracket.
3. Replace unit that was removed to restore wiring supervision and to eliminate system trouble alert.
4. Carefully pack the defective unit (the manufacturer cannot be responsible for consequential damage due to shipping or mis-handling). Include your return address and complete details as to the nature of the difficulties being experienced and date of installation.
5. Return to: Gentex Corporation, 10985 Chicago Dr., Zeeland MI 49464. Prior to returning, call the Gentex field service department at 1-800-436-8391 or e-mail FP_RMA@gentex.com to obtain a RMA number.

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For a period of 36 months from the date of purchase or a maximum of 42 months from the date of manufacture, Gentex warrants to you the original purchaser that your appliance will be free from defects in workmanship, materials and construction under normal use and service. If a defect in workmanship, materials and construction should cause your appliance to become inoperative within the warranty period, Gentex will repair your appliance or furnish you with a new or rebuilt appliance without charge to you except for postage required to return the appliance to us. Gentex will not reimburse you for repairs or replacement parts provided by other parties. Your repair or replacement appliance will be returned to you free of charge and it will be covered under the warranty for the balance of the warranty period. The warranty is void if our inspection of your appliance shows that the damage or failure was caused by abuse, misuse, abnormal usage, faulty installation, improper maintenance or repairs other than those performed by us.

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GENTEX CORPORATION

A Smarter Vision®

GCS24 & GCC24 SERIES

UL 1971 & UL 464 COMPLIANT

GCSA24, GCCA24, GCSB24, GCCB24, GCSG24, GCCG24, GCSR24 & GCCR24 Series

UL 1638 & UL 464 COMPLIANT

Selectable Candela Ceiling Horn/Strobe & Strobe

SIGNALING



I. INTRODUCTION

The Gentex Model GCS24/GCC24/GCSA24/GCCA24/GCSB24/GCCB24/GCSG24/GCCG24/GCSR24/GCCR24, horn/strobe and strobe, is a high quality audible/visible or visible signaling appliance intended for ceiling applications. The high intensity strobe utilizes a Xenon flash tube that generates a high-intensity flash visible from all angles. This appliance is intended to provide a visible or audible/visible, depending on the model, notification signal for the purpose of life safety and property protection. This appliance is ideal for any occupancy that requires notification appliances per the applicable building or fire code or wherever dependable alarms are required. The GCS24/GCC24 strobe is listed in compliance with UL 1971, Signaling Appliances for the Hearing Impaired. The GCSA24/GCCA24/GCSB24/GCCB24/GCSG24/GCCG24/GCSR24/GCCR24 strobe is listed in compliance with UL 1638, Visual Signaling Appliances - Private Mode Emergency and General Signaling.

II. LOCATION

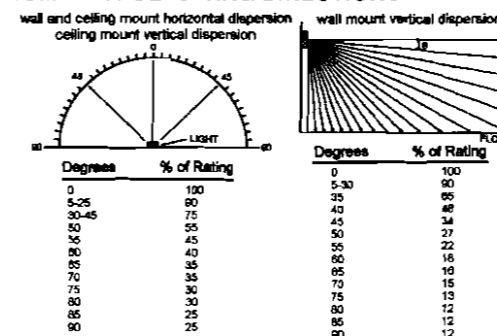
This appliance is intended for use in Fire Alarm Systems and is to be installed in accordance with this manual, the recommendation of the local authorities having jurisdiction, and other NFPA documents that provide standards on notification appliances for protective signaling systems. The GCS24/GCC24/GCSA24/GCCA24/GCSB24/GCCB24/GCSG24/GCCG24/GCSR24/GCCR24 is intended for indoor installations only. This appliance is not listed for outdoor or drip proof applications. Spacing for the GCC24/GCS24 shall be in accordance with Table A. If a room configuration is not square, the room size that will entirely encompass the room or subdivide the room into multiple squares shall be used.

GCS24/GCC24 PRODUCT INFORMATION

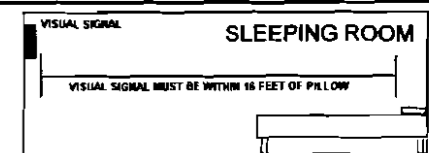
Table A

Room Spacing for Ceiling-Mounted Visible Appliances per NFPA 72, 2007 Edition		Minimum Required Light Output (Effective Intensity, Cd; One Light)		
Maximum Room Size		Maximum Ceiling Height		
Meters	Feet	10 Foot Ceiling	20 Foot Ceiling	30 Foot Ceiling
6.10 x 6.10	20 x 20	15	30	55
9.14 x 9.14	30 x 30	30	45	75
13.4 x 13.4	44 x 44	75	75	NA
15.2 x 15.2	50 x 50	95	95	95

LIGHT OUTPUT IN PERCENTAGE WHEN MEASURED FROM THE FOLLOWING DIRECTIONS - PER UL1971



CAUTION: Strobe light must be installed within 16 feet of the pillow when used in a sleeping area.



WARNING! The visual signal must be in the direct viewing area of the occupant in order to be seen.

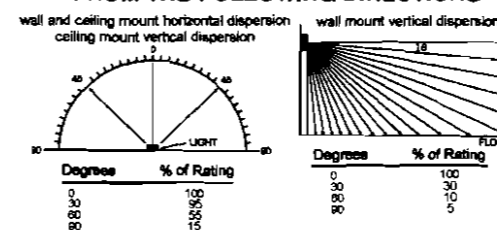
WARNING! Strobe light can not be seen when objects such as doors, furniture or walls block strobe light.

NOTICE: Visual signals for the hearing impaired are only one method of alerting the hearing impaired. Visual signals may not be the preferred method for notifying all hearing impaired individuals.

NOTICE: The strobe light must be seen by the sleeping person. If the person has head turned or otherwise unable to be alerted by visual, the strobe will not be effective.

GCSA24/GCCA24/GCSB24/GCCB24/GCSG24/GCCG24/GCSR24/GCCR24 PRODUCT INFORMATION

LIGHT OUTPUT IN PERCENTAGE WHEN MEASURED FROM THE FOLLOWING DIRECTIONS



Models	Color Lens
GCSA/GCCA	Amber
GCSB/GCCB	Blue
GCSG/GCCG	Green
GCSR/GCCR	Red

III. MOUNTING, ROUGH-IN BOX AND RUN WIRING

This unit is designed for mounting to most single gang boxes, 4" square outlet boxes, 2-gang masonry boxes or non-metallic 2-gang switch boxes. Conduit entrance to boxes should be selected to insure sufficient wiring clearance.

1. Mount a box for each remote signaling appliance. Screw bracket onto box. Insert signal into bracket and slide to the right firmly into the terminal block receptacle. Insert mounting screw as shown and tighten. Cover assembly with the plastic housing.
2. Run a minimum 18 gauge insulated 2 or more conductor cable.

Attention: Wiring should be connected to mounting bracket prior to mounting signal. Incoming positive power lead must be broken and each lead is to be inserted into each of the top two terminals. If two power runs are made to the signal, one for the strobe and one for the horn, only one of the runs must have its positive lead broken and placed under the two separate top terminals. A barrier is provided to prevent both leads from being placed under the same terminal.

CLEAR Lens Strobe Current Ratings		
Use with GCS24/GCC24 Products		
Candela	Regulated 24VDC Max. Operating Current (mA)	Unregulated 24VFWR Max. Operating Current (mA)
15	120	190
30	120	191
75	200	277
95	220	298
115	290	418
150	321	427

RED Lens Strobe Current Ratings		
Use with GCSR24/GCCR24 Products		
Candela	Regulated 24VDC Max. Operating Current (mA)	Unregulated 24VFWR Max. Operating Current (mA)
15	124	192
30	124	192
75	212	290
95	283	394
115	313	414

AMBER, BLUE & GREEN Lens Strobe Current Ratings		
Use with GCSA24/GCCA24/GCSB24/GCCB24/GCSG24/GCCG24 Products		
Candela	Regulated 24VDC Max. Operating Current (mA)	Unregulated 24VFWR Max. Operating Current (mA)
15	124	192
30	124	192
75	139	219
95	205	286
115	212	290

Horn Current Ratings				
Horn Mode	Minimum dBA @ 10Ft. Per UL464 (HIGH)	Minimum dBA @ 10Ft. Per UL464 (LOW)	Regulated 24VDC Max. Operating @ High Setting (mA)	Unregulated 24VFWR Max. Operating @ High Setting (mA)
Temp 3 2400 Hz	83	75	23	45
Temp 3 Mechanical	81	73*	22	43
Continuous 2400 Hz	86	78	23	45
Continuous Mechanical	84	76	22	43

NOTE: - DC Voltage Range Limits: 16-33V. FWR Voltage Range Limits: 16-33V. This product was only tested to the stated voltage range(s); do not apply 80% and 110% of this range for system operation.
 - The three pulse temporal pattern is to be used for evacuation use only.
 - 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. Units have been tested to 0°C, 49°C and 93% humidity.

*Operating the horn in this mode at this voltage will result in not meeting the minimum UL reverberant sound level required for public mode fire protection service. These settings are acceptable only for private mode fire alarm signaling use. Use the high dBA setting for public mode applications (the chime tone is always private mode).

IV. WIRING

Wiring for independent synchronized strobes and horn.

Using this method you may:

- Use only two wires to synchronize the temporal horn and strobe with the ability to mute the horn (place switches 1 and 2 up on the GCC24/GCCA24/GCCB24/GCCG24/GCCR24).

- Mute the horn only when the temporal horn option has been selected.

Wiring for synchronized parallel (unison) horn/strobe operation.

Using this method you may:

- Use only two wires to synchronize the temporal horn and strobe **without** the ability to mute the horn (place switches 1 and 2 up on the GCC24/GCCA24/GCCB24/GCCG24/GCCR24).

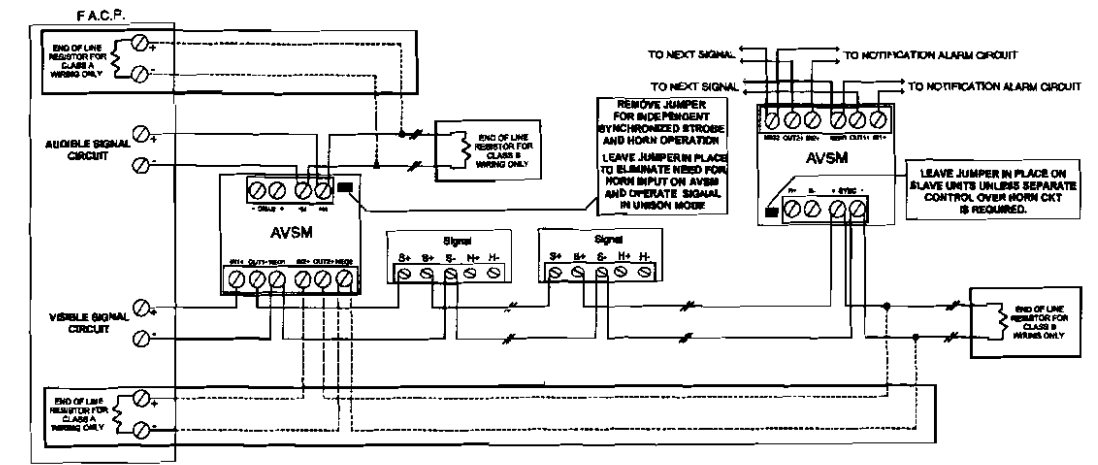
- Choose either temporal or continuous horn with the temporal horn synchronized.
- Also wire the control module (AVSM) to only the strobe input power terminals, set the horn to continuous mode and power it from a coded source.

NOTE: For this option, switches 1 and 2 on the GCC24/GCCA24/GCCB24/GCCG24/GCCR24 (Figure 1) must be down to isolate power to the audible and visible portion of the circuit.

NOTE: All strobes are designed to flash as specified with continuous applied voltage. This appliance is not recommended for use on coded or pulsing signaling circuits. However, use of the AVSM control module is permitted to synchronize the strobe and/or mute the horn.

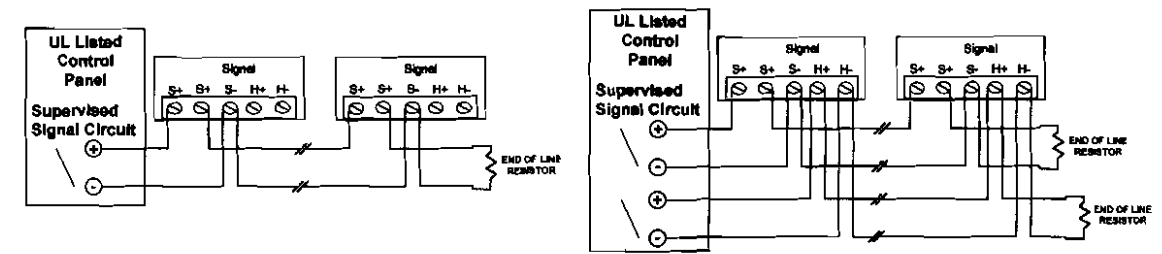
MAX. WIRE DISTANCE (IN FEET)		TOTAL CURRENT DRAW	
WIRE	CONDUCTIVITY		
18AWG	60		
16AWG	95		
14AWG	153		
12AWG	244		

Includes wire to and from appliance. **CAUTION:** Applies only to regulated supplies. Assumes all appliances are at the end of wire run (worst case).



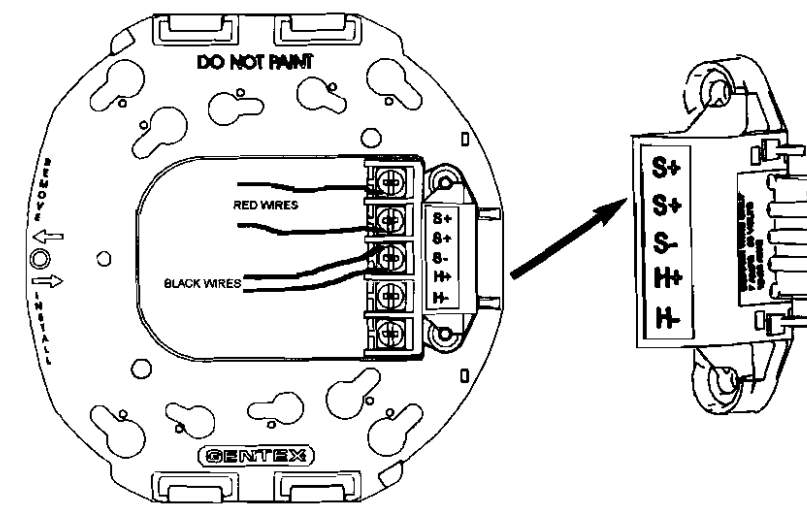
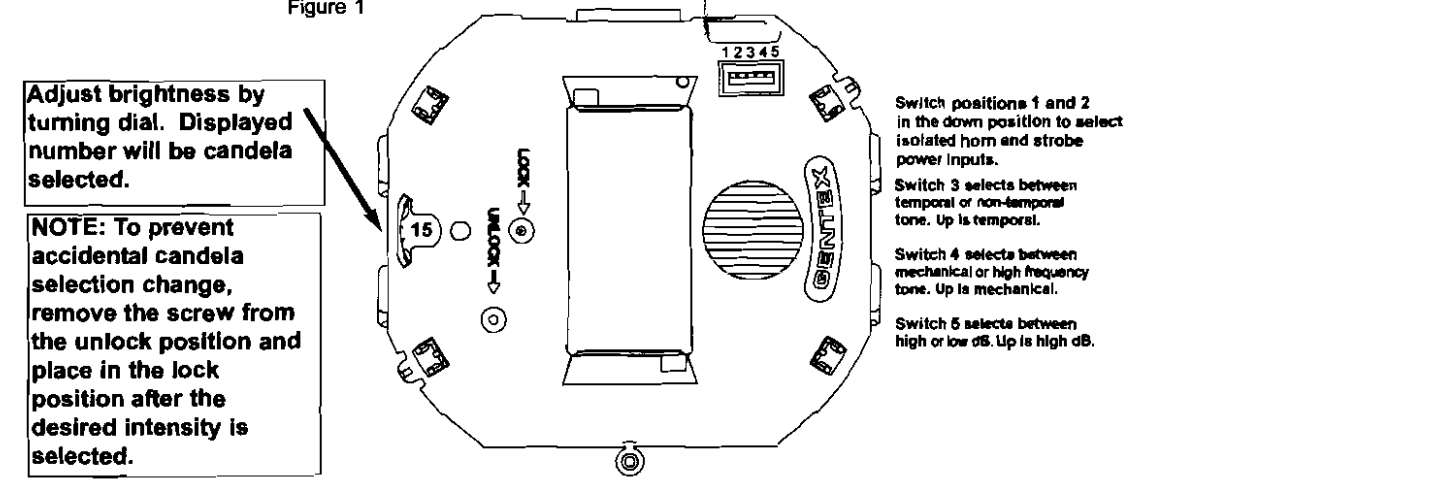
Conventional Method:

You may connect both the strobe and the horn directly from a source of rated power without the use of a control module. However, the horns and strobe lights will NOT be synchronized. Place switches 1 and 2 up on the GCC24/GCCA24/GCCB24/GCCG24/GCCR24 (Figure 1) to power both the audible and visible from a single pair of power wires. If you wish to power the horn and strobe from independent sources of power, place switches 1 and 2 down on the GCC24/GCCA24/GCCB24/GCCG24/GCCR24 and connect power to the appropriate terminals.



CAUTION: When using only a single power source to energize the strobe and horn (switches 1 and 2 up), the In/out wiring must be under the S+ and S- terminals only. Failure to do so may result in damage to your signal.

Figure 1



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 the 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.

CAUTION: A jumper card is provided to test for correct wiring in the supervisory mode only. DO NOT pass alarm current through the jumper.

Altronix 802 Battery Calculation Work Sheet

Device	Number of Devices	Current per Device	Stand-by Current	Alarm Current
AL802ULADA (Current draw from battery)	1	Stand-by: 90mA Alarm: 175mA	90mA	175mA
A	AL802 Current		90mA	175mA
Aux. Devices		<i>Refer to device manual for current ratings.</i>		
not used		Alarm/Stand-by		
not used		Alarm/Stand-by		
not used		Alarm/Stand-by		
not used		Alarm/Stand-by		
not used		Alarm/Stand-by		
B	Auxiliary Devices Current (must not exceed 1 amp)			
Notification Appliance Devices		<i>Refer to device manual for current ratings.</i>		
Gentex GEC3-24 30CD H/S	1	Alarm: 123mA		123mA
Gentex GCC24 150CD H/S	3	Alarm: 477mA		1431mA
Gentex GCC24 30CD H/S	1	Alarm: 153mA		153mA
Gentex GES24 15CD STR	3	Alarm: 78mA		234mA
Gentex GCC24 75CD H/S	4	Alarm: 295mA		1180mA
C	Notification Appliances Current must not exceed 8 amp (10000mA)			
D	Total alarm current			3121mA
E	Total current ratings converted to amperes (line D X .001)		.09A	3.12A
F	Number of standby hours (24 for NFPA 72, Chater 1, 1-5.2.5)		24hr	
G	Multiply lines E and F. Total stand-by AH		2.16AH	
H	Alarm Sounding period in hours. (For example, 5 minutes = .0833 hours.)			5min.
I	Multiply lines E and H.			0.26AH
J	Add lines G and I.		2.42AH	
K	Multiply line J by 1.20 (20% extra insurance to meet desired performance) Total ampere - hours required		2.9	

Units are capable of recharging 40AH battery max. If total ampere - hour required exceeds 40AH, decrease AUX current to provide enough stand-by time for the application.



5808
Unifirst

5808 CTRL Panel	0.170	0.325
Photo, Photo-T	0.002	0.002
Ion	0.000	0.000
Heat, Heat-HT	0.000	0.000
Heat ROR	0.000	0.000
Beam, Beam-T	0.000	0.000
Duct	0.000	0.000
Acclimate	0.000	0.000
Control	0.000	0.000
Control-6	0.000	0.000
Monitor, Minimon	0.004	0.004
Monitor-2	0.000	0.000
Monitor-10	0.000	0.000
Pull-SA, Pull-DA	0.003	0.003
Relay	0.000	0.000
Relay-6	0.000	0.000
Zone	0.000	0.000
Zone-6	0.000	0.000
Isolator Module	0.000	0.000
Isolator Base	0.000	0.000
Sounder Base	0.000	0.000
Relay Base	0.000	0.000
Magnetic Remote Test	0.000	0.000
Key Activated Test	0.000	0.000
Remote LED	0.000	0.000
LCD Remote Annunc	0.020	0.025
Serial/Parallel Module	0.000	0.000
Power Expander	0.000	0.000
Power Expander	0.000	0.000
LED Annunciator (4G)	0.000	0.000
LED Annunciator (3G)	0.000	0.000
LED Driver Module	0.000	0.000
Relay Module	0.000	0.000
Notification Appl Circuit	0.000	1.048
Notification Appl Circuit	0.000	1.058
Notification Appl Circuit	0.000	1.282
Notification Appl Circuit	0.000	1.432
	0.200	5.180

#14 Solid	0	0.00%
#14 Solid	0	0.00%
#14 Solid	0	0.00%
#14 Solid	0	0.00%

Command Shortcuts

Configure Circuits

Print Page

Protection One
 10 Manuel Drive
 Portland, ME, 04103
 207-347-5316 Phone
 207-772-7355 Fax

Project Name: Univirst
 Project Number: 100643309
 Designer:
 Date: 9/20/10

Circuit Devices

Circuit Number	Circuit Name	Qty.	Device	Current Each (Amps)	Current Total (Amps)
1	Nac 1	1	Gentex GEC3-24 110Cd Horn/Strobe	0.251	0.251
		2	Gentex GCC24 75Cd Horn/Strobe	0.295	0.590
		1	Gentex GEC3-24 75Cd Horn/Strobe	0.207	0.207
		Total Circuit Current:			
2	Nac 2	2	Gentex GES3-24 15Cd Strobe	0.078	0.156
		2	Gentex GEC3-24 15Cd Horn/Strobe	0.105	0.210
		1	Gentex GES3-24 30Cd Strobe	0.096	0.096
		1	Gentex GEC3-24 60Cd Horn/Strobe	0.164	0.164
		1	Gentex GES3-24 60Cd Strobe	0.137	0.137
		1	Gentex GCC24 75Cd Horn/Strobe	0.295	0.295
Total Circuit Current:				1.068	
3	Nac 3	2	Gentex GCC24 150Cd Horn/Strobe	0.477	0.954
		2	Gentex GEC3-24 60Cd Horn/Strobe	0.164	0.328
Total Circuit Current:				1.282	
4	Nac 4	3	Gentex GCC24 150Cd Horn/Strobe	0.477	1.431
Total Circuit Current:				1.431	
5	Nac 5 Existing NACU	3	Gentex GCC24 150Cd Horn/Strobe	0.477	1.431
Total Circuit Current:				1.431	
6	Nac 6 Existing NACU	4	Gentex GCC24 75Cd Horn/Strobe	0.295	1.180
Total Circuit Current:				1.180	
7	Nac 7 Existing NACU	1	Gentex GEC3-24 30Cd Horn/Strobe	0.123	0.123
		1	Gentex GCC24 30Cd Horn/Strobe	0.153	0.153
		3	Gentex GES24-15 Strobe	0.078	0.234
Total Circuit Current:				0.510	

Protection One

10 Manuel Drive
Portland, ME, 04103
207-347-5316 Phone
207-772-7355 Fax

Project Name: Univirst
Project Number: 100643309
Designer:
Date: 9/20/10

Circuit Summary

Circuit Number	Circuit Name	Supply Voltage (VDC)	Alarm Current	Wire Type	Ohms / 1000 ft.	Length (Feet)	Total Resistance (Ohms)	Voltage Last Device
1	Nac 1	20.4	1.048	#14AWG Solid	3.19	200	1.28	19.06
2	Nac 2	20.4	1.058	#14AWG Solid	3.19	400	2.55	17.70
3	Nac 3	20.4	1.282	#14AWG Solid	3.19	180	1.15	18.93
4	Nac 4	20.4	1.431	#14AWG Solid	3.19	240	1.53	18.21
5	Nac 5 Existing NACU	20.4	1.431	#14AWG Solid	3.19	315	2.01	17.52
6	Nac 6 Existing NACU	20.4	1.180	#14AWG Solid	3.19	550	3.51	16.26
7	Nac 7 Existing NACU	20.4	0.510	#14AWG Solid	3.19	400	2.55	19.10

Notes:

- 1.) Wire resistance is taken from Chapter 9 Table 8 of the National Electric Code (NFPA70). Resistance shown is calculated at 75 degrees Centigrade (167 degrees Fahrenheit)
- 2.) Formula used for calculation:
Total Resistance = (Length x 2) / 1000 x Ohms Per 1000 Ft.
Voltage Last Device = Supply Voltage - (Alarm Current x Total Resistance)
- 3.) Calculations are based on average current draw of devices using a regulated power supply only.

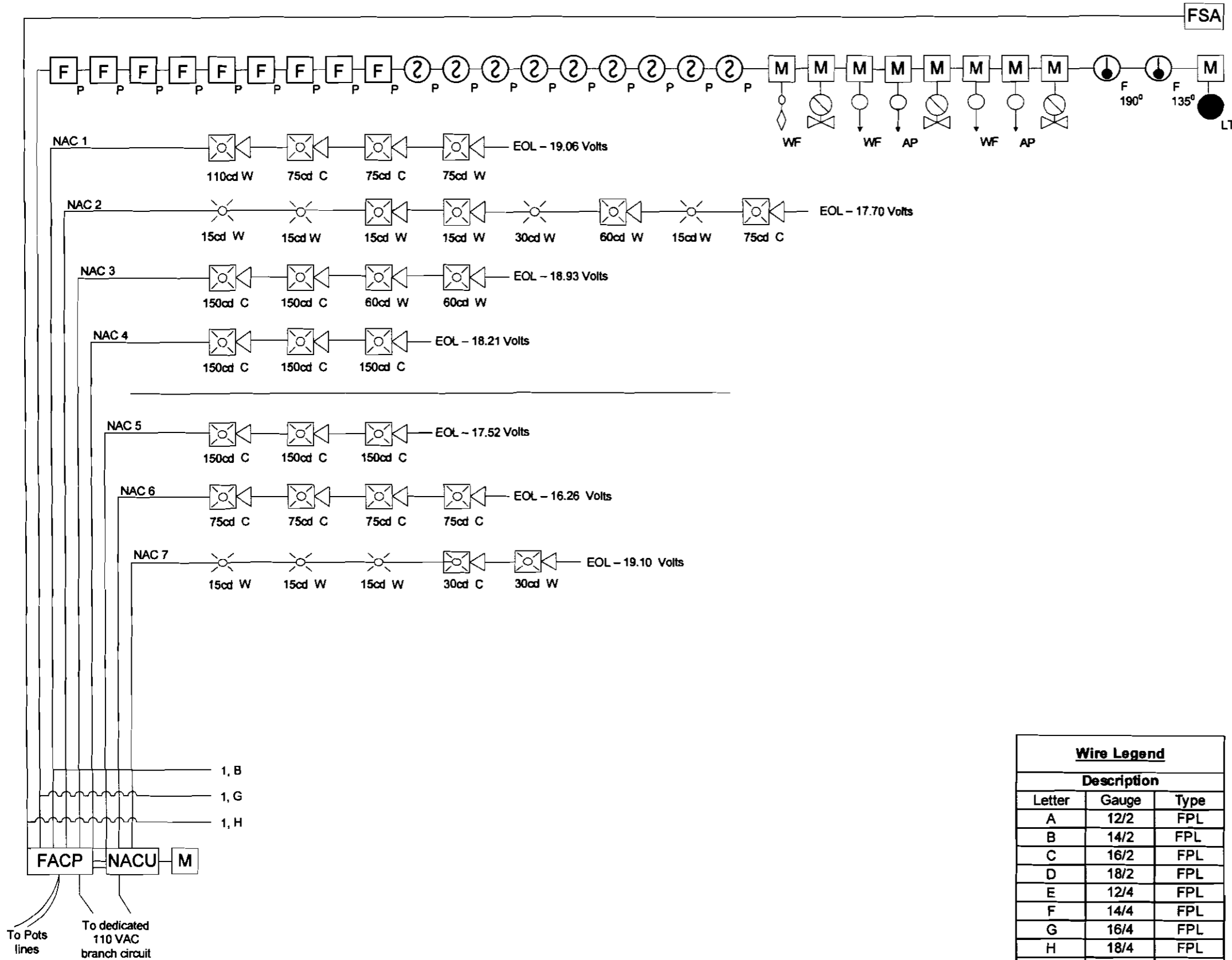
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E	Total current ratings converted to amperes (line D X .001)			.09A 3.12A
F	Number of standby hours (24 for NFPA 72, Chater 1, 1-5.2.5)			24hr
G	Multiply lines E and F.		Total stand-by AH	2.16AH
H	Alarm Sounding period in hours. (For example, 5 minutes = .0833 hours.)			5min.
I	Multiply lines E and H.			0.26AH
J	Add lines G and I.			2.42AH
K	Multiply line J by 1.20 (20% extra insurance to meet desired performance)			2.9
K	Total ampere - hours required			2.9

Units are capable of recharging 40AH battery max. If total ampere - hour required exceeds 40AH, decrease AUX current to provide enough stand-by time for the application.

Unifirst Fire Alarm System

Fire System Riser	9/20/10	Job# 100643309
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Protection One

John Kempton	9/23/2010
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Parts List

Symbol	Qty	Part No.	Description
FACP	1	5808	Silent Knight 5808 Addressable FACP
NACU	1	AL802ULADA	Existing Altronix H/S Power Supply
FSA	1	5860	Silent Knight FACP Annunciator
P	9	SK-Pull-DA	Silent Knight Addressable Pull Station
2 _P	9	SK-Photo	Silent Knight Addressable Smoke
WF (Gate Valve)	3	-NA-	Existing Gate Valve Tamper Device
WF (Waterflow)	1	-NA-	Existing Waterflow Device
AP	1	-NA-	Existing Pressure Switch High/Low Air
WF (Pressure Switch)	1	-NA-	Existing Pressure Switch Waterflow
LT	1	TS-300	Temperature Alert
F	1	SK-Heat-HT	Silent Knight Fixed Temp. Heat
M	10	SK-Monitor	Silent Knight Monitor Module
C	16	GCC24	Gentex Ceiling Multi-Candela H/S
W	10	GEC3-24	Gentex Wall Multi-Candela H/S
W (Strobe)	7	GES24	Gentex Multi-Candela Strobe

Wire Legend

Description		
Letter	Gauge	Type
A	12/2	FPL
B	14/2	FPL
C	16/2	FPL
D	18/2	FPL
E	12/4	FPL
F	14/4	FPL
G	16/4	FPL
H	18/4	FPL
I	18/6	FPL