

DISPLAY THIS CARD ON PRINCIPAL FRONTAGE OF WORK



CITY OF PORTLAND BUILDING PERMIT

This is to certify that PROTECTION ONE
10 Manuel Dr, Portland, ME 04103

For installation at 165 READ ST
Americold

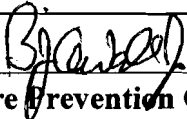
Job ID: 2011-09-2263-FAFS

CBL: 148 - - A - 003 - 001 - - - -

has permission to Upgrade fire alarm notification appliances
provided that the person or persons, firm or corporation accepting 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 the buildings and structures, and of the application on file in the department.

Notification of inspection and written permission procured before this building or part thereof is lathed or otherwise closed-in. 48 HOUR NOTICE IS REQUIRED.

A final inspection must be completed by owner before this building or part thereof is occupied. If a certificate of occupancy is required, it must be


Fire Prevention Officer

58

Code Enforcement Officer / Plan Reviewer

THIS CARD MUST BE POSTED ON THE STREET SIDE OF THE PROPERTY
PENALTY FOR REMOVING THIS CARD

BUILDING PERMIT INSPECTION PROCEDURES

Please call 874-8703 or 874-8693 (ONLY)

or email: buildinginspections@portlandmaine.gov

With the issuance of this permit, the owner, builder or their designee is required to provide adequate notice to the city of Portland Inspections Services for the following inspections. Appointments must be requested 48 to 72 hours in advance of the required inspection. The inspection date will need to be confirmed by this office.

- **Please read the conditions of approval that is attached to this permit!! Contact this office if you have any questions.**
- **Permits expire in 6 months. If the project is not started or ceases for 6 months.**
- **If the inspection requirements are not followed as stated below additional fees may be incurred due to the issuance of a "Stop Work Order" and subsequent release to continue.**

The project cannot move to the next phase prior to the required inspection and approval to continue, REGARDLESS OF THE NOTICE OF CIRCUMSTANCES.

IF THE PERMIT REQUIRES A CERTIFICATE OF OCCUPANCY, IT MUST BE PAID FOR AND ISSUED TO THE OWNER OR DESIGNEE BEFORE THE SPACE MAY BE OCCUPIED.



PORTLAND MAINE

Strengthening a Remarkable City, Building a Community for Life • www.portlandmaine.gov

Director of Planning and Urban Development
Penny St. Louis

Job ID: 2011-09-2263-FAFS
Upgrade fire alarm notification
appliances

For installation at:
165 READ ST
Americold

CBL: 148 - - A - 003 - 001 - - - -

Conditions of Approval:

This permit is to upgrade the fire alarm notification appliances only.

Installation 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.

In field installation shall be installed per code as conditions dictate.

Central Station monitoring for addressable fire alarm systems shall be by point.

All fire alarm records required by NFPA 72 should be stored in an approved cabinet located at the FACP labeled "FIRE ALARM RECORDS".

Installation of a Fire Alarm system requires a Knox Box to be installed per city ordinance.

The fire alarm system shall be certified by a master fire alarm company and have a new fire alarm inspection sticker.

System acceptance and commissioning must be coordinated with alarm and suppression system contractors and the Fire Department. Call 874-8703 to schedule.

Fire Alarm system shall be maintained. If system is to be off line over 4 hours a fire watch shall be in place. Dispatch notification required 874-8576.

City of Portland, Maine - Building or Use Permit Application

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

Job No: 2011-09-2263-FAFS	Date Applied: 9/15/2011	CBL: 148 - - A - 003 - 001 - - - - -	
Location of Construction: 165 READ STREET	Owner Name: URS Real Estate LP	Owner Address: 31 STATE ST - 9 th FLOOR BOSTON, MA 02109	Phone:
Business Name: Americold	Contractor Name: Protection One - Kevin Inman	Contractor Address: 10 Manuel Drive, Portland, ME 04103	Phone: 347-5316
Lessee/Buyer's Name:	Phone:	Permit Type: Fire Alarm	Zone: I-M
Past Use: Warehouse	Proposed Use: Same: Warehouse - to add fire alarm	Cost of Work: \$16,000.00	CEO District:
		Fire Dept: <input checked="" type="checkbox"/> Approved w/ conditions <input type="checkbox"/> Denied <input type="checkbox"/> N/A	Inspection: Use Group: Type:
Proposed Project Description: Fire Alarm		Signature: <i>[Signature]</i> (58)	
		Pedestrian Activities District (P.A.D.)	

Permit Taken By: Gayle	Zoning Approval
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<p>1. This permit application does not preclude the Applicant(s) from meeting applicable State and Federal Rules.</p> <p>2. Building Permits do not include plumbing, septic or electrical work.</p> <p>3. Building permits are void if work is not started within six (6) months of the date of issuance. False informatin may invalidate a building permit and stop all work.</p>	Special Zone or Reviews <input type="checkbox"/> Shoreland <input type="checkbox"/> Wetlands <input type="checkbox"/> Flood Zone <input type="checkbox"/> Subdivision <input type="checkbox"/> Site Plan <input type="checkbox"/> Maj <input type="checkbox"/> Min <input type="checkbox"/> MM Date: <i>[Signature]</i> 9/20/11	Zoning Appeal <input type="checkbox"/> Variance <input type="checkbox"/> Miscellaneous <input type="checkbox"/> Conditional Use <input type="checkbox"/> Interpretation <input type="checkbox"/> Approved <input type="checkbox"/> Denied Date:	Historic Preservation <input checked="" type="checkbox"/> Not in Dist or Landmark <input type="checkbox"/> Does not Require Review <input type="checkbox"/> Requires Review <input type="checkbox"/> Approved <input type="checkbox"/> Approved w/Conditions <input type="checkbox"/> Denied Date: <i>[Signature]</i>
	CERTIFICATION		

I hereby certify that I am the owner of record of the named property, or that the proposed work is authorized by the owner of record and that I have been authorized by the owner to make this application as his authorized agent and I agree to conform to all applicable laws of this jurisdiction. In addition, if a permit for work described in the appication is issued, I certify that the code official's authorized representative shall have the authority to enter all areas covered by such permit at any reasonable hour to enforce the provision of the code(s) applicable to such permit.

SIGNATURE OF APPLICANT	ADDRESS	DATE	PHONE
RESPONSIBLE PERSON IN CHARGE OF WORK, TITLE		DATE	PHONE

2011 09 2263



Fire Alarm Permit

in Q

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.

IRS Real Estate LP 31 State St - 9th Fl Boston, MA 02109
CBL: 148 A003

Installation address: 165 Read St

Exact location: (within structure) Front of building, right side of office looking in

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

Building owner: Americold

System Designer (point of contact): Kevin Inman

Designer phone: 207-332-1204 E-mail: kevininman@protection1.com

Installing contractor: Protection One Certificate of Fitness No: 1003

Contractor phone: 207-347-5316 E-mail: jasongervais@protection1.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: _____

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

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

COST OF WORK: 15,723 -

PERMIT FEE: 180.00
(\$10 PER \$1,000 + \$30 FOR THE FIRST \$1,000)

RECEIVED

SEP 15 2011

Dept. of Building Inspections
City of Portland Maine

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: [Signature] Date: 9-6-11



10 Manuel Drive
Portland, ME 04103
207.772.1171
www.Protection1.com

Scope of Work

Americold
165 Read St.
Portland, Me

Installation of Fire Alarm NAC circuits:

The purpose of this job is to install additional Notification devices to the existing Fire Alarm system.

The existing FACP is a Firelite MS10-UD-7. This is a conventional 10 zone panel. This work does not affect the existing initiating zones. This was approved per Captain Gautreau when Lieutenant Wallace was unavailable.

This will give Americold notification in their coolers, freezers and loading areas where currently none exists at this time.

This is a 3 story building with coolers and freezers on all 3 floors and offices on only the 2nd floor.

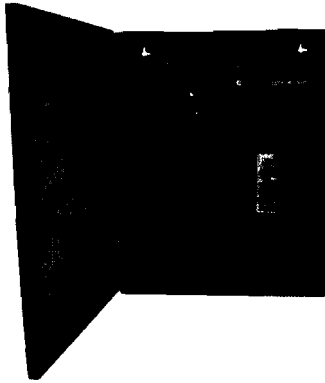
This system was designed to give the customer notification and aid in evacuation in the event of an alarm. Currently there are no notification devices in any of the coolers and freezers. There is a minimal amount of notification outside the office only at this time.



AL602ULADA, AL802ULADA, AL1002ULADA NAC Power Extenders

Rev. AL602/802/1002ULADA- L20E

Overview



- The AL602ULADA, AL802ULADA and AL1002ULADA are extremely cost effective voltage regulated remote NAC Power Extenders. They may be connected to any 12 or 24 volt Fire Alarm Control Panel (FACP). Primary applications include Notification Appliance Circuit (NAC) expansion (supports ADA requirements) and will provide auxiliary power to support system accessories.

AL602ULADA

- 24VDC or 12VDC rated @ 6.5 amp max.
- Two (2) Class A or four (4) Class B outputs.

AL602ULADAJ

- Larger enclosure.

AL802ULADA

- 24VDC or 12VDC rated @ 8 amp max.
- Two (2) Class A or four (4) Class B outputs.

AL802ULADAJ

- Larger enclosure.

AL1002ULADA

- 24VDC rated @ 10 amp max.
- Two (2) Class A or four (4) Class B outputs.

AL1002ULADAJ

- Larger enclosure.

Specifications

- Two (2) Class A or two (2) Class B FACP inputs.
- Two (2) NC dry contact trigger inputs (AL802ULADA and AL1002ULADA only)
- Two (2) Class A or four (4) Class B indicating circuits.
- Two (2) Class B outputs may be paralleled for more power on an indicating circuit.
- One (1) Aux. Power Output @ 1 amp supply current (w/battery back up).
- Signal Circuit Trouble Memory - facilitates quickly locating intermittent system trouble and eliminates costly and unnecessary service calls. LED's indicate a prior fault (short, open, ground) has occurred on one or more signaling circuit outputs.
- 2-wire Horn/Strobe Sync mode allows audible notification appliances (Horns) to be silenced while visual notification appliances (Strobes) continue to operate.
- Horn/Strobe sync protocols include: Gentex®, System Sensor®, Faraday, Amseco.
- Temporal Code 3 Mode.
- Steady Mode.
- Input to Output Follower Mode (maintains synchronization of notification appliance circuits).
- March Time.
- Compatible with 24VDC or 12VDC fire panels.
- Common trouble inputs and outputs.
- Ground fault detection.
- Input 115VAC.
- AC fail supervision (form "C" contacts).
- Low battery supervision (form "C" contacts).
- Battery presence supervision (form "C" contacts).
- Power supply, logic board, red enclosure, cam lock, transformer & battery leads.
- Enclosure:
 - Combination knockouts re 1/2" and 3/4"
 - Accommodates up to two (2) 12VDC/12AH batteries.

Agency Approvals



UL Listed Control Units and Accessories for Fire Alarm Systems (UL 864),
UL Listed Standard for Safety for Fire Protective Signaling Systems (UL 1481).



California State Fire Marshal Approved.



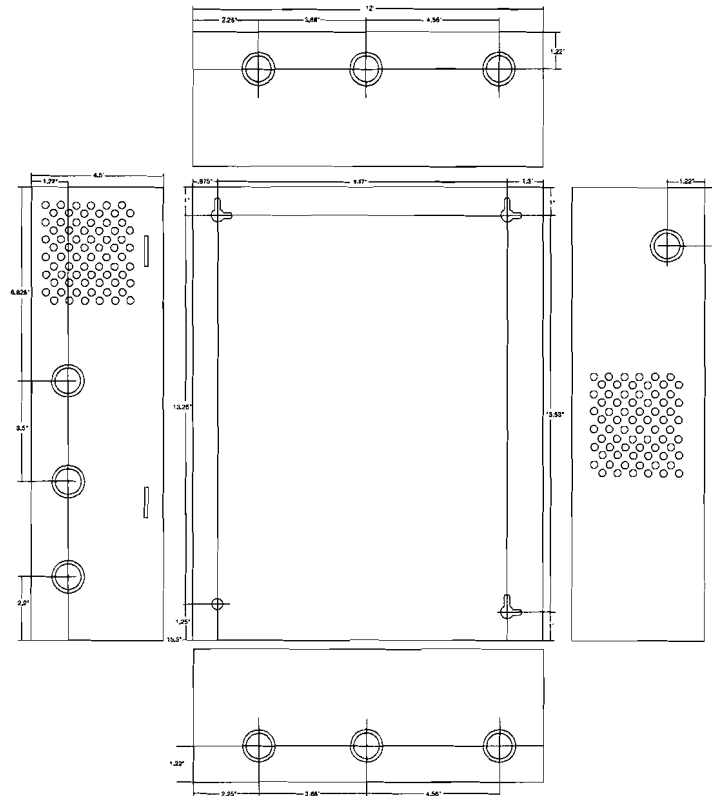
ME A NYC Department of Buildings Approved.



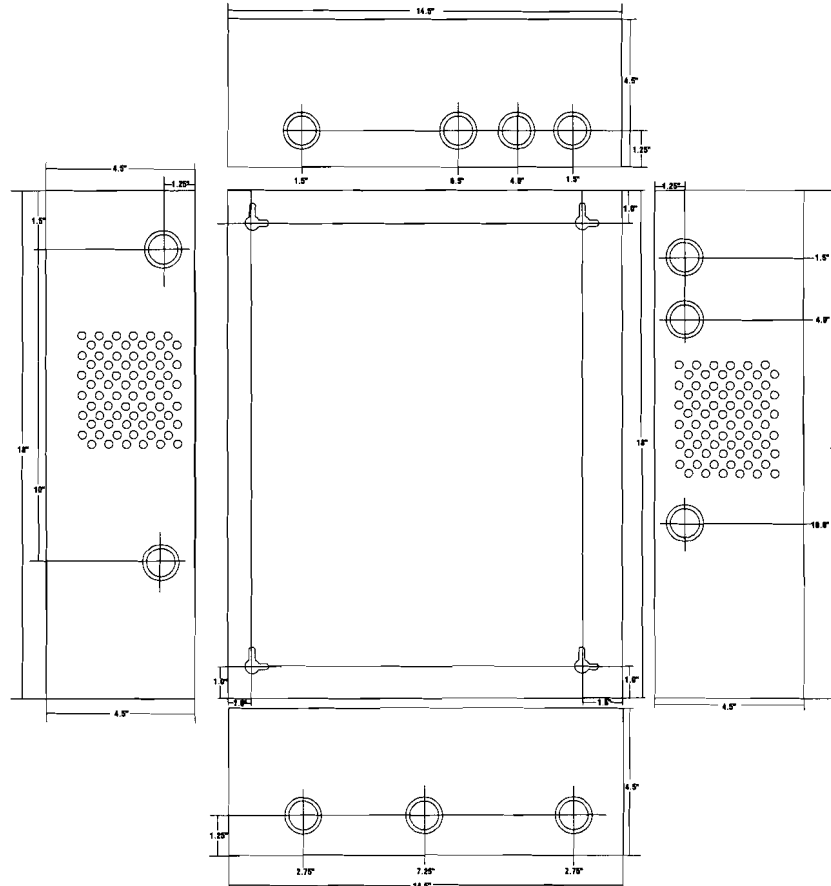
Factory Mutual Approved.

Enclosure Dimensions

AL602ULADA, AL802ULADA and AL1002ULADA: 15.5"H x 12"W x 4.5"D



AL602ULADAJ, AL802ULADAJ and AL1002ULADAJ: 18"H x 14.5"W x 4.625"D





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

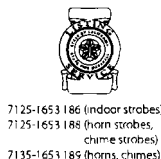
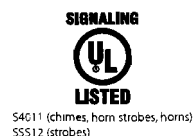
- Plug-in design with minimal intrusion into the back box
- Tamper-resistant construction
- Automatic selection of 12- or 24-volt operation at 15 and 15/75 candela
- Field-selectable candela settings on wall and ceiling units: 15, 15/75, 30, 75, 95, 110, 115, 135, 150, 177, and 185
- Horn rated at 88+ 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



SpectrAlert Advance Specifications

Architect/Engineer Specifications

General

SpectrAlert Advance horns, strobes, and horn strobes shall mount to a standard 4 x 4 x 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 x 4 x 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 x 4⅞ x 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 Range²	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 x 2.5" high (173 mm diameter x 64 mm high)
Wall-Mount Dimensions (including lens)	5.6" L x 4.7" W x 2.5" D (142 mm L x 119 mm W x 64 mm D)
Horn Dimensions	5.6" L x 4.7" W x 1.3" D (142 mm L x 119 mm W x 33 mm D)
Wall-Mount Back Box Skirt Dimensions (BBS-2, BBSW-2)	5.9" L x 5.0" W x 2.2" D (151 mm L x 128 mm W x 56 mm D)
Ceiling-Mount Back Box Skirt Dimensions (BBSC-2, BBSCW-2)	7.1" diameter x 2.2" high (180 mm diameter x 57 mm high)
Wall-Mount Trim Ring Dimensions (sold as a 5 pack) (TR-HS, TRW-HS)	5.7" L x 4.8" W x 0.35" D (145 mm L x 122 mm W x 9 mm D)
Ceiling-Mount Trim Ring Dimensions (sold as a 5 pack) (TRC-HS, TRCW-HS)	6.9" diameter x 0.35" high (175 mm diameter x 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 12V 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	60	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						
	15	15/75	15	15/75	30	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	

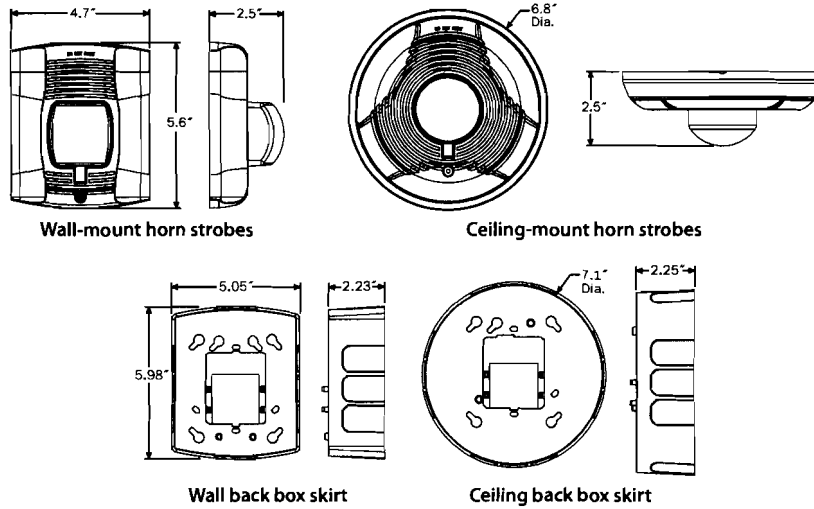
UL Max. Current Draw (mA RMS), 2-Wire Horn Strobe, High Candela Range (135-185 cd)										
DC Input	16-33 Volts				FWR Input	16-33 Volts				
	135	150	177	185		135	150	177	185	
Temporal High	245	259	290	297	Temporal High	215	231	258	265	
Temporal Medium	235	253	288	297	Temporal Medium	209	224	250	258	
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	DC	FWR	Reverberant	Anechoic		
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.



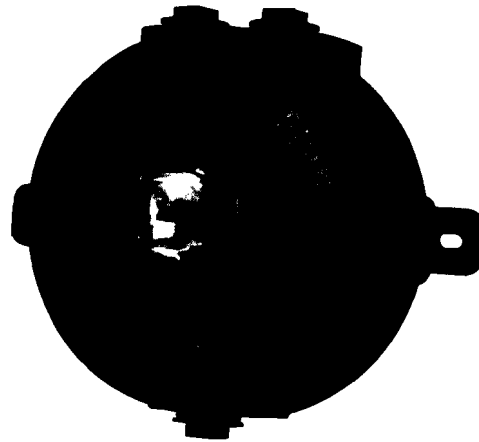
3825 Ohio Avenue • St. Charles, IL 60174
Phone: 800-SENSOR2 • Fax: 630-377-6495

©2009 System Sensor
Product specifications subject to change without notice. Visit systemsensorm.com for current product information, including the latest version of this data sheet.
A05-0395-007 - 4/09 - #2132



Outdoor Selectable-Output Strobes and Horn Strobes for Ceiling Applications

SpectrAlert® Advance outdoor audible visible products are rich with features that cut installation times and maximize profits.



SPECTRAlert
ADVANCE
from System Sensor

Features

- Weatherproof per NEMA 4X, IP56
- Listed to UL 1638 (strobe) and UL 464 (horn)
- Compatible with System Sensor synchronization protocol and legacy SpectrAlert products
- Field-selectable candela settings: 15, 15/75, 30, 75, 95, 110, 115, 135, 150, 177, and 185
- Automatic selection of 12- or 24-volt operation at 15 and 15/75 candela
- Rotary switch for horn tone and three volume selections
- Horn rated at 88+ dBA at 16 volts
- Rated from -40°F to 151°F
- Universal mounting plate with an onboard shorting spring that tests wiring continuity before devices are installed
- Plug-in design with minimal intrusion into the back box
- Tamper-resistant construction

SpectrAlert Advance offers the broadest line of outdoor horns, strobes, and horn strobes in the industry. With white or red plastic housings, wall or ceiling mounting options, and plain or FIRE-printed devices, SpectrAlert Advance can meet virtually any application requirement, including indoor, outdoor, wet, and dry applications in temperatures from -40°F to 151°F.

Like the entire SpectrAlert Advance line, outdoor strobes and horn strobes for ceiling applications include a variety of features that increase application flexibility and simplify installation. First, field-selectable settings, including candela, automatic selection of 12- or 24-volt operation, horn tones, and three volume options enable installers to easily adapt devices to meet requirements.

Next, SpectrAlert Advance devices use a universal mounting plate for both wall and ceiling applications. This mounting plate includes an onboard shorting spring that ensures wiring continuity before devices are installed, so installers can verify proper wiring without mounting the devices and exposing them to potential construction damage. Once the plates are mounted, all SpectrAlert Advance devices utilize a plug-in design with a single captured screw to speed installation and virtually eliminate costly ground faults.

Outdoor devices ship with weatherproof plastic back boxes (metal back boxes are available separately) that accommodate in-and-out wiring for daisy chaining devices. Plastic back boxes feature removable side flanges and improved resistance to saltwater corrosion. Knock-outs located on the back eliminate the need to drill holes for screw-in mounting. Plastic and metal weatherproof back boxes come with 3/4-inch top and bottom conduit entries and 3/4-inch knock-outs at the back. A screw-in NPT plug with an O-ring gasket for a watertight seal is included with each back box.

Agency Listings

SIGNALING



S4011 (chimes, horn strobes, horns)
S3593 (outdoor and alert strobes)



MEA
approved
MEA452-05-E



7300-1653 187 (outdoor strobes)
7125-1653 188 (horn strobes,
chime strobes)
7135-1653 189 (horns, chimes)

SpectrAlert Advance Outdoor Horn, Strobe, and Horn Strobe Specifications

Architect/Engineer Specifications

General

SpectrAlert Advance outdoor horns, strobes, and horn strobes shall mount to a weatherproof 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. Outdoor SpectrAlert Advance products shall operate between –40 and 151 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. The strobe must be installed with its weatherproof back box in order to remain outdoor approved per UL. The strobe shall be suitable for use in wet environments.

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 shall be set by a multiple position switch. On four-wire products, the strobe shall be powered independently of the sounder. The horn or horn strobe models shall operate on a coded or non-coded power supply. The horn strobe must be installed with its weatherproof back box in order to remain outdoor approved per UL. The horn strobe shall be suitable for use in wet environments.

Physical/Electrical Specifications

Operating Temperature	–40°F to 151°F (–40°C to 66°C)
Strobe Flash Rate	1 flash per second
Nominal Voltage	Regulated 12 DC/FWR or regulated 24 DC/FWR ¹
Operating Voltage Range²	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)
Horn Dimensions	5.6" L × 4.7" W × 1.3" D (142 mm L × 119 mm W × 33 mm D)
Ceiling-Mount Weatherproof Back Box Dimensions (SA-WBBC)	7.1" diameter × 2.0" high (180 mm diameter × 51 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)					
	Candela	8-17.5 Volts		16-33 Volts	
		DC	FWR	DC	FWR
Standard Candela Range	15	123	128	66	71
	15/75	142	148	77	81
	30	NA	NA	94	96
	75	NA	NA	158	153
	95	NA	NA	181	176
	110	NA	NA	202	195
	115	NA	NA	210	205
High Candela Range	135	NA	NA	228	207
	150	NA	NA	246	220
	177	NA	NA	281	251
	185	NA	NA	286	258

UL Max. Horn Current Draw (mA RMS)					
Sound Pattern	dB	8-17.5 Volts		16-33 Volts	
		DC	FWR	DC	FWR
Temporal	High	57	55	69	75
Temporal	Medium	44	49	58	69
Temporal	Low	38	44	44	48
Non-Temporal	High	57	56	69	75
Non-Temporal	Medium	42	50	60	69
Non-Temporal	Low	41	44	50	50
Coded	High	57	55	69	75
Coded	Medium	44	51	56	69
Coded	Low	40	46	52	50

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						
	15	15/75	30	15	15/75	30	75	95	110	115
Temporal High	137	147	107	79	90	116	176	194	212	218
Temporal Medium	132	144	103	69	80	103	157	182	201	210
Temporal Low	132	143	101	66	77	101	154	179	198	207
Non-Temporal High	141	152	112	91	100	116	176	201	221	229
Non-Temporal Medium	133	145	102	75	85	102	163	187	207	216
Non-Temporal Low	131	144	96	68	79	96	156	182	201	210
FWR Input										
Temporal High	136	155	112	88	97	112	168	190	210	218
Temporal Medium	129	152	103	78	88	103	160	184	202	206
Temporal Low	129	151	101	76	86	101	160	184	194	201
Non-Temporal High	142	161	112	103	112	126	181	203	221	229
Non-Temporal Medium	134	155	110	85	95	110	166	189	208	216
Non-Temporal Low	132	154	105	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	

Candela Derating

For K series products used at low temperatures, listed candela ratings must be reduced in accordance with this table.

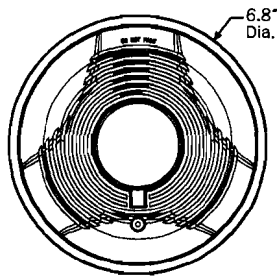
Strobe Output (cd)	
Listed Candela	Candela rating at -40°F
15	Do not use below 32°F
15/75	
30	
75	
95	44
110	70
115	110
135	115
150	135
177	150
185	177

Horn Tones and Sound Output Data

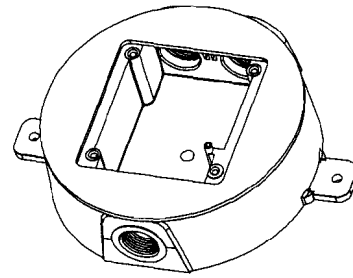
Horn and Horn Strobe Output (dBA)											
Switch Position	Sound Pattern	dB	8-17.5 Volts		16-33 Volts		24-Volt Nominal				
			DC	FWR	DC	FWR	Reverberant		Anechoic		
1	Temporal	High	78	78	84	84	88	88	99	98	
2	Temporal	Medium	74	74	80	80	86	86	96	96	
3	Temporal	Low	71	73	76	76	83	80	94	89	
4	Non-Temporal	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.

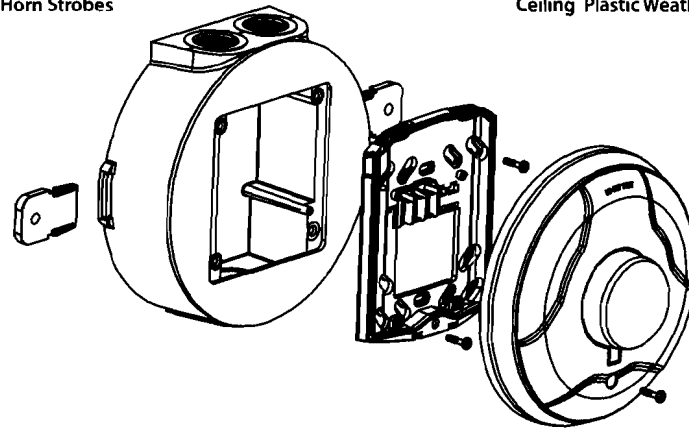
SpectrAlert Advance Diagrams



Ceiling-Mount Horn Strobes



Ceiling Plastic Weatherproof Back Box



Ceiling-Mount Horn Strobe with Plastic Weatherproof Back Box

SpectrAlert Advance Ordering Information

Model	Description
Ceiling Horn Strobes	
PC2RK	2-Wire Horn Strobe, Standard cd, Red, Outdoor (includes plastic outdoor back box)
PC2RHK	2-Wire Horn Strobe, High cd, Red, Outdoor (includes plastic outdoor back box)
PC2WK	2-Wire, Horn Strobe, Standard cd, White, Outdoor (includes plastic outdoor back box)
PC2WHK	2-Wire, Horn Strobe High cd, White, Outdoor (includes plastic outdoor back box)
PC4WK	4-Wire, Horn Strobe, Standard cd, White, Outdoor (includes plastic outdoor back box)
PC4WHK	4-Wire, Horn Strobe, High cd, White, Outdoor (includes plastic outdoor back box)
Ceiling Strobes	
SCRK	Strobe, Standard cd, Red, Outdoor (includes plastic outdoor back box)
SCRHK	Strobe, High cd, Red, Outdoor (includes plastic outdoor back box)
SCWK	Strobe, Standard cd, White, Outdoor (includes plastic outdoor back box)
SCWHK	Strobe, High cd, White, Outdoor (includes plastic outdoor back box)
Accessories	
SA-WBBC	Red Separate Ship, Ceiling-Mount, Outdoor Back Box, Metal
SA-WBBCW	White Separate Ship, Ceiling-Mount, Outdoor Back Box, Metal

Notes:

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.

When replacing standard outdoor units, both the device and back box must be replaced.



3825 Ohio Avenue • St. Charles, IL 60174
Phone: 800-SENSOR2 • Fax: 630-377-6495

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AVDS01100-6/11 • #2812

MS-10UD-7 Battery Calculations

Note 1: You can edit all current draws and are fully responsible for verifying these calculations.

Note 2: You only need to make entries in the yellow cells.

Device Type	Primary Non-Alarm (Amps)			Primary Alarm (Amps)			Secondary Non-Alarm (Amps)					
	Qty	Current Draw	Total	Qty	Current Draw	Total	Qty	Current Draw	Total			
1. System												
Main Circuit Board	1	x	0.08500	0.08500	1	x	0.17500	0.17500	1	x	0.08500	0.08500
4XTMF	1	x	0.00500	0.00500	1	x	0.01100	0.01100	1	x	0.00500	0.00500
CAC-5X	0	x	0.00100		0	x	0.00100		0	x	0.00100	
IPDACT	0	x	0.10000		0	x	0.30000		0	x	0.10000	
2. Annunciators												
ANN-80	0	x	0.03700		0	x	0.04000		0	x	0.01500	
ANN-RLY	1	x	0.01500	0.01500	1	x	0.07500	0.07500	1	x	0.01500	0.01500
ANN-I/O	0	x	0.03500		0	x	0.20000		0	x	0.03500	
ANN-I/O LEDs	0	x	0.00000		0	x	0.01000		0	x	0.00000	
ANN-S/PG	0	x	0.04500		0	x	0.04500		0	x	0.04500	
ANN-LED	0	x	0.02800		0	x	0.06800		0	x	0.02800	
3. Resettable Power												
2-wire Detector Heads	0	x	0.00000		0	x	0.00000		0	x	0.00000	
4-Wire Detector Heads	0	x	0.00000		0	x	0.00000		0	x	0.00000	
Power SuperVision Relays	1	x	0.02500	0.02500	1	x	0.02500	0.02500	1	x	0.02500	0.02500
4. Notification Appliances												
NAC #1				1	x	1.58300	1.58300					
NAC #2				1	x	0.96100	0.96100					
NAC #3				1	x	0.91500	0.91500					
NAC #4				0	x	0.00000						
TB9 (Non)Resettable (Term 1+2)	0	x	0.00000		0	x	0.00000		0	x	0.00000	
TB9 Resettable (Term 3+4)	0	x	0.00000		0	x	0.00000		0	x	0.00000	
Sum each column for totals	Total Current			0.13000	Total Current			3.74500	Total Current			0.13000

MS-10UD-7 Secondary Battery Calculations

Note: You can edit all current draws and are fully responsible for verifying these calculations. Only enter values in yellow cells.

Secondary Non-Alarm Load (Amps)	0.130 A	x	Required Standby Time	24 Hours	=	3.12 AH
			Required Alarm Time	5 Minutes		
Secondary Alarm Load (Amps)	3.745 A	x	0.084	=	0.31 AH	
Standby and Alarm Load Subtotal						3.43 AH
Derating Factor						x 1.2
Total Ampere Hours Required						4.12 AH

Battery Check

The batteries can be housed in the MS-10UD-7 cabinet

An external battery charger is not required for this system

Current Draw Check

NAC#1 current is within the limitations of the circuit.

NAC#2 current is within the limitations of the circuit.

NAC#3 current is within the limitations of the circuit.

NAC#4 current is within the limitations of the circuit.

TB9 (Non)Resettable Power (Terminals 1+2) is within the limitations of the circuit.

TB9 Resettable Power (Terminals 3+4) is within the limitations of the circuit.

The standby current is within the limitations of the panel.

The alarm current is within output limitations of the panel.



Circuit Information

Panel Name: 802 #1
 Circuit Name: NAC #2 Under Mezz, M...
 Starting Voltage: Starting Voltage = 20.4

(1) amp circuit
 Class B @ 14 AWG
 DC 24 - volt Supply

Type and Model	Candela	Current (Amps)	Tone and Volume	Dist from last device	Dist from source (ft)	12	14	16	18
Horn/Strobe PC2RK	75	0.157	Temporal, Medium	50	50	20.210	20.099	19.921	19.638
Horn/Strobe PC2RK	75	0.157	Temporal, Medium	50	100	20.052	19.848	19.522	19.003
Horn/Strobe PC2RK	75	0.157	Temporal, Medium	96	196	19.810	19.463	18.908	18.027
Horn/Strobe PC2RK	75	0.157	Temporal, Medium	50	246	19.715	19.313	18.668	17.646
Strobe SCRK	75	0.158		128	374	19.553	19.055	18.259	16.994
Horn/Strobe PC2RK	75	0.157	Temporal, Medium	50	424	19.521	19.005	18.179	16.867
Total current/amps 0.943	Total Dist:424		voltage drop			0.879	1.395	2.221	3.533



Circuit Information

Panel Name: 802 #1
 Circuit Name: NAC #3 Rooms 12 & 12A
 Starting Voltage: Starting Voltage = 20.4

(1) amp circuit
 Class B @ 14 AWG
 DC 24 - volt Supply

Type and Model	Candela	Current (Amps)	Tone and Volume	Dist from last device	Dist from source (ft)	12	14	16	18
Horn/Strobe PC2RK	75	0.157	Temporal, Medium	120	120	20.097	19.919	19.634	19.182
Horn/Strobe PC2RK	75	0.157	Temporal, Medium	120	240	19.870	19.559	19.060	18.269
Horn/Strobe PC2RK	75	0.157	Temporal, Medium	120	360	19.718	19.318	18.677	17.660
Horn/Strobe PC2RK	75	0.157	Temporal, Medium	120	480	19.643	19.198	18.486	17.355
Total current/amps 0.628	Total Dist:480		voltage drop			0.757	1.202	1.914	3.045



Circuit Information

Panel Name: 802 #1
 Circuit Name: NAC #4 Room 9 & Ope...
 Starting Voltage: Starting Voltage = 20.4

(1) amp circuit
 Class B @ 14 AWG
 DC 24 - volt Supply

Type and Model	Candela	Current (Amps)	Tone and Volume	Dist from last device	Dist from source (ft)	12	14	16	18
Horn/Strobe PC2RK	75	0.157	Temporal, Medium	150	150	20.021	19.798	19.441	18.875
Horn/Strobe PC2RK	75	0.157	Temporal, Medium	80	230	19.869	19.557	19.058	18.265
Strobe SCRK	75	0.158		120	350	19.717	19.316	18.674	17.654
Horn/Strobe PC2RK	75	0.157	Temporal, Medium	100	450	19.654	19.216	18.514	17.401
Total current/amps 0.629	Total Dist:450		voltage drop			0.746	1.184	1.886	2.999



Circuit Information

Panel Name: 802 #2
 Circuit Name: NAC #1 RM 10, 10A & 1
 Starting Voltage: Starting Voltage = 20.4

(1) amp circuit
 Class B @ 14 AWG
 DC 24 - volt Supply

Type and Model	Candela	Current (Amps)	Tone and Volume	Dist from last device	Dist from source (ft)	12	14	16	18
Horn/Strobe PC2RK	75	0.157	Temporal, Medium	150	150	19.831	19.498	18.963	18.114
Horn/Strobe PC2RK	75	0.157	Temporal, Medium	100	250	19.515	18.996	18.164	16.844
Horn/Strobe PC2RK	75	0.157	Temporal, Medium	100	350	19.263	18.595	17.525	*
Horn/Strobe PC2RK	75	0.157	Temporal, Medium	120	470	19.035	18.233	16.950	*
Strobe SCRK	75	0.158		60	530	18.959	18.113	16.758	*
Horn/Strobe PC2RK	75	0.157	Temporal, Medium	60	590	18.921	18.053	16.662	*
Total current/amps 0.943	Total Dist:590		voltage drop			1.479	2.347	3.738	*



Circuit Information

Panel Name: 802 #2
 Circuit Name: NAC #2 Cooler #4,5,& 6
 Starting Voltage: Starting Voltage = 20.4

(1) amp circuit
 Class B @ 14 AWG
 DC 24 - volt Supply

Type and Model	Candela	Current (Amps)	Tone and Volume	Dist from last device	Dist from source (ft)	12	14	16	18
Horn/Strobe PC2RK	75	0.157	Temporal, Medium	170	170	20.078	19.889	19.586	19.106
Horn/Strobe PC2RK	75	0.157	Temporal, Medium	85	255	19.971	19.719	19.315	18.675
Horn/Strobe PC2RK	75	0.157	Temporal, Medium	85	340	19.917	19.634	19.180	18.459
Total current/amps 0.471	Total Dist:340		voltage drop			0.483	0.766	1.220	1.941



Circuit Information

Panel Name: 802 #2
 Circuit Name: NAC #3 Hallways, Bath...
 Starting Voltage: Starting Voltage = 20.4

(1) amp circuit
 Class B @ 14 AWG
 DC 24 - volt Supply

Type and Model	Candela	Current (Amps)	Tone and Volume	Dist from last device	Dist from source (ft)	12	14	16	18
Horn/Strobe PC2R	75	0.157	Temporal, Medium	50	50	20.210	20.098	19.919	19.636
Strobe SCR	75	0.158		50	100	20.051	19.847	19.519	18.998
Strobe SCR	75	0.158		50	150	19.924	19.645	19.198	18.488
Strobe SCR	75	0.158		50	200	19.829	19.494	18.958	18.106
Horn/Strobe PC2R	75	0.157	Temporal, Medium	80	280	19.728	19.334	18.702	17.699
Strobe SCR	75	0.158		100	380	19.665	19.233	18.541	17.444
Total current/amps 0.946	Total Dist:380		voltage drop			0.735	1.167	1.859	2.956



Circuit Information

Panel Name: Fire Panel Fire Lite MS10
 Circuit Name: NAC #1 Blueberry Buildi...
 Starting Voltage: Starting Voltage = 20.4

(1) amp circuit
 Class B @ 14 AWG
 DC 24 - volt Supply

Type and Model	Candela	Current (Amps)	Tone and Volume	Dist from last device	Dist from source (ft)	12	14	16	18
Horn/Strobe P2R	95	0.182	Temporal, Medium	200	200	19.669	19.240	18.553	17.462
Horn/Strobe P2R	95	0.182	Temporal, Medium	35	235	19.567	19.078	18.294	17.051
Strobe SCR	95	0.181		35	270	19.490	18.956	18.101	16.743
Horn/Strobe PC2R	95	0.182	Temporal, Medium	40	310	19.432	18.863	17.953	16.507
Horn/Strobe PC2R	95	0.182	Temporal, Medium	40	350	19.402	18.817	17.879	16.390
Total current/amps 0.909	Total Dist: 350		voltage drop			0.998	1.583	2.521	4.010



Circuit Information

Panel Name: Fire Panel Fire Lite MS10
 Circuit Name: NAC #2 Main Floor Hall...
 Starting Voltage: Starting Voltage = 20.4

(1) amp circuit
 Class B @ 14 AWG
 DC 24 - volt Supply

Type and Model	Candela	Current (Amps)	Tone and Volume	Dist from last device	Dist from source (ft)	12	14	16	18
Strobe SCR	15	0.066		30	30	20.308	20.254	20.168	20.031
Strobe SCR	15	0.066		30	60	20.224	20.121	19.956	19.694
Horn/Strobe PC2R	75	0.157	Temporal, Medium	30	90	20.149	20.001	19.764	19.389
Horn/Strobe PC2R	75	0.157	Temporal, Medium	100	190	19.959	19.700	19.285	18.626
Strobe SCR	75	0.158		80	270	19.858	19.539	19.029	18.219
Horn/Strobe PC2R	75	0.157	Temporal, Medium	100	370	19.794	19.439	18.869	17.965
Total current/amps 0.761	Total Dist:370		voltage drop			0.606	0.961	1.531	2.435



Circuit Information

Panel Name: Fire Panel Fire Lite MS10
 Circuit Name: NAC #3 Carshed
 Starting Voltage: Starting Voltage = 20.4

(1) amp circuit
 Class B @ 14 AWG
 DC 24 - volt Supply

Type and Model	Candela	Current (Amps)	Tone and Volume	Dist from last device	Dist from source (ft)	12	14	16	18
Strobe SCR	75	0.158		210	210	20.001	19.766	19.391	18.795
Horn/Strobe PC2R	75	0.157	Temporal, Medium	90	300	19.887	19.585	19.103	18.337
Strobe SCR	75	0.158		100	400	19.823	19.485	18.942	18.081
Total current/amps 0.473	Total Dist:400		voltage drop			0.577	0.915	1.458	2.319

