

DISPLAY THIS CARD ON PRINCIPAL FRONTAGE OF WORK CITY OF PORTLAND

BUILDING INSPECTION PERMIT

Permit Number: 080784

Please Read
Application And
Notes, If Any,
Attached

This is to certify that DELTA AIR LINES INC D 852 CORP TAX/Gemni Ele

has permission to New fire alarm system - connected w/ p

AT 1001 WESTBROOK ST

PERMIT ISSUED
JUL 24
208 A001002

provided that the person or persons form or tion a cepting this permit shall comply with all
of the provisions of the Statutes of ine and of the ances of the City of Portland regulating
the construction, maintenance and 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 when permission proceed
before this building or part thereof is
occupied or service closed-in
24 HOUR NOTICE REQUIRED.

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

OTHER REQUIRED APPROVALS

Fire Dept. Craig Casper

Health Dept. _____

Appeal Board _____

Other _____

Department Name

[Signature]
7/24/08
Director - Building & Inspection Services

PENALTY FOR REMOVING THIS CARD

City of Portland, Maine - Building or Use Permit Application

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

Permit No: 08-0784	Issue Date:	CBL: 208 A001002
-----------------------	-------------	---------------------

Location of Construction: 1001 WESTBROOK ST	Owner Name: DELTA AIR LINES INC DEPT 85	Owner Address: PO BOX 45852	Phone:
Business Name:	Contractor Name: Gemni Electric	Contractor Address: 8 Priscilla Lane Auburn	Phone 6036447170
Lessee/Buyer's Name	Phone:	Permit Type: Fire Alarm System	Zone: AB

Past Use: Commercial - Parking Garage	Proposed Use: Commercial - Parking Garage - New fire alarm system - connected w/ permit# 080221	Permit Fee: \$550.00	Cost of Work: \$52,420.00	CEO District: 3
		FIRE DEPT: <input checked="" type="checkbox"/> Approved <input type="checkbox"/> Denied <i>See Conditions</i>	INSPECTION: Use Group: <i>U</i> Type: <i>Alarm</i> <i>NFPA / IBC 2003</i>	

Proposed Project Description: New fire alarm system - connected w/ permit# 080221	Signature: <i>Greg Carr</i>	Signature: <i>[Signature]</i>
PEDESTRIAN ACTIVITIES DISTRICT (P.A.D.)		
Action: <input type="checkbox"/> Approved <input type="checkbox"/> Approved w/Conditions <input type="checkbox"/> Denied		
Signature:		Date:

Permit Taken By: Idobson	Date Applied For: 06/20/2008	Zoning Approval
-----------------------------	---------------------------------	------------------------

<ol style="list-style-type: none"> This permit application does not preclude the Applicant(s) from meeting applicable State and Federal Rules. Building permits do not include plumbing, septic or electrical work. Building permits are void if work is not started within six (6) months of the date of issuance. False information may invalidate a building permit and stop all work.. 	Special Zone or Reviews <input type="checkbox"/> Shoreland <input type="checkbox"/> Wetland <input type="checkbox"/> Flood Zone <input type="checkbox"/> Subdivision <input type="checkbox"/> Site Plan Maj <input type="checkbox"/> Minor <input type="checkbox"/> MM <input type="checkbox"/> Date: <i>7/2/08</i>	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 District 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:
---	---	---	--

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 application 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

04/09/09 (Lored) MRO

City of Portland, Maine - Building or Use Permit

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

Permit No: 08-0784	Date Applied For: 06/20/2008	CBL: 208 A001002
------------------------------	--	----------------------------

Location of Construction: 1001 Westbrook St	Owner Name: DELTA AIR LINES INC DEPT 85	Owner Address: PO BOX 45852	Phone:
Business Name:	Contractor Name: Gemni Electric	Contractor Address: 8 Priscilla Lane Auburn	Phone (603) 644-7170
Lessee/Buyer's Name	Phone:	Permit Type: Fire Alarm System	

Proposed Use: Commercial - Parking Garage - New fire alarm system - connected w/ permit# 080221	Proposed Project Description: New fire alarm system - connected w/ permit# 080221
---	---

Dept: Zoning **Status:** Approved **Reviewer:** Marge Schmuckal **Approval Date:** 07/02/2008
Note: **Ok to Issue:**

Dept: Building **Status:** Approved with Conditions **Reviewer:** Tammy Munson **Approval Date:** 07/24/2008
Note: **Ok to Issue:**

- 1) All penetrations through rated assemblies must be protected by an approved firestop system installed in accordance with ASTM 814 or UL 1479, per IBC 2003 Section 712.
- 2) Fire Alarm systems shall be installed per Sec. 907 of the IBC 2003

Dept: Fire **Status:** Approved with Conditions **Reviewer:** Capt Greg Cass **Approval Date:** 07/09/2008
Note: **Ok to Issue:**

- 1) The Fire alarm and Sprinkler systems shall be reviewed by a licensed contractor[s] for code compliance. Compliance letters are required.
- 2) A single source supplier should be used for all through penetrations.
- 3) The fire alarm system shall comply with NFPA 72

Comments:

6/24/2008-ldobson: Called and left message for PDFs and the fee 550. Will send check



General Building Permit Application

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

Location/Address of Construction: <u>1001 WESTBROOK ST</u>		
Total Square Footage of Proposed Structure/Area		Square Footage of Lot
Tax Assessor's Chart, Block & Lot Chart# Block# Lot#	Applicant * must be owner, Lessee or Buyer* Name Address City, State & Zip	Telephone:
<u>208A-001002</u>		
Lessee/DBA (If Applicable)	Owner (if different from Applicant) Name Address City, State & Zip	Cost Of Work: \$ <u>52,470</u> C of O Fee: \$ _____ Total Fee: \$ <u>550</u>
Current legal use (i.e. single family) _____ If vacant, what was the previous use? _____ Proposed Specific use: _____ Is property part of a subdivision? _____ If yes, please name _____ Project description: _____	<u>Portland Jetport P.G.</u> <u>- Fire Alarm -</u>	
Contractor's name: <u>GEMINI ELECTRIC</u>		
Address: <u>8 PRISCILLA LANE</u>		
City, State & Zip: <u>AUBURN, N.H. 03032</u>	Telephone: <u>603 644-7170</u>	
Who should we contact when the permit is ready: <u>DARRON PIERSON</u>	Telephone: <u>603 644-7170</u>	
Mailing address: <u>GEMINI ELECTRIC 8 PRISCILLA LANE AUBURN, NH. 03032</u>		

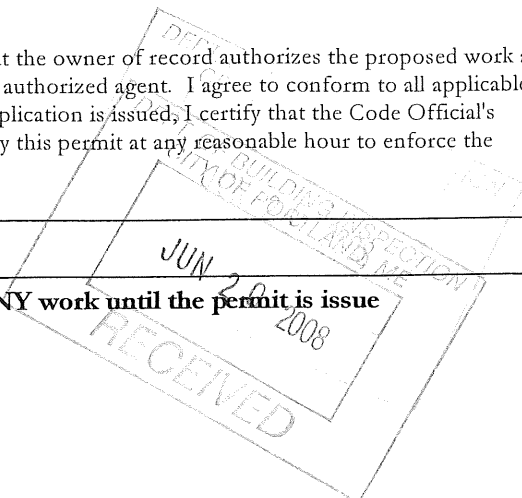
Please submit all of the information outlined on the applicable Checklist. Failure to do so will result in the automatic denial of your permit.

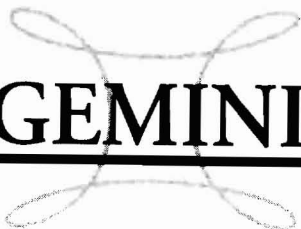
In order to be sure the City fully understands the full scope of the project, the Planning and Development Department may request additional information prior to the issuance of a permit. For further information or to download copies of this form and other applications visit the Inspections Division on-line at www.portlandmaine.gov, or stop by the Inspections Division office, room 315 City Hall or call 874-8703.

I hereby certify that I am the Owner of record of the named property, or that the owner of record authorizes the proposed work and that I have been authorized by the owner to make this application as his/her authorized agent. I agree to conform to all applicable laws of this jurisdiction. In addition, if a permit for work described in this application is issued, I certify that the Code Official's authorized representative shall have the authority to enter all areas covered by this permit at any reasonable hour to enforce the provisions of the codes applicable to this permit.

Signature: _____ Date: _____

This is not a permit; you may not commence ANY work until the permit is issued





GEMINI ELECTRIC, INC.

A Design Build Firm

Thursday, June 19, 2008

City of Portland, Maine
Department of Building Inspections
389 Congress Street
Portland, Maine 04101


Re: Portland Jetport Phase II Parking Garage Fire Alarm

To Whom it May Concern;

Please find your General Building Permit Application, fire alarm equipment cuts, and building plans enclosed. These are being sent you as part of the fire alarm permit application process as I understand it.

If you should require any further information please contact me at (603)644-7170.

Sincerely,



Darron T. Pierson
Project Manager
Gemini Electric, Inc.

JUN 20 2008



NORRIS, INC.

LOSS PREVENTION

BUILDING AUTOMATION

COMMUNICATIONS

SUBMITTAL PACKAGE

Project: Portland Jetport, Garage Expansion

System: Fire Alarm System, CCTV, Code Blue, & Scream Det.

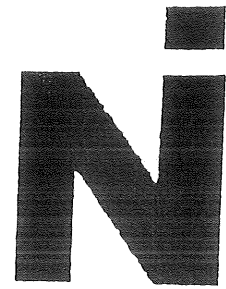
Submitted By: Norris Inc.
2257 West Broadway
South Portland, Maine 04106
Telephone: (800) 370-3473

Project Manager: Zach Davis

Electrical Contractor: Gemini Electric
8 Priscilla Lane
Auburn, NH. 03032

Date: April 17, 2008

NORRIS, INC.



LOSS PREVENTION - BUILDING AUTOMATION - COMMUNICATIONS

Company Profile

"We are extremely proud to represent the highest quality manufacturers integrating life safety, alarm and communication systems throughout northern New England."

-- Bradford Norris, President --

Mission Statement

Provide quality engineered systems, exceptional service.

Goal

Learn...Continually Improve...Exceed Expectations

Founded in 1979 Norris Inc. has grown to become Northern New England's leading integrated system contracting and supply company. Norris Inc. is an innovated proactive organization with extensive experience in integration interdisciplinary building management systems. Our local and national affiliations assure that your project will be done properly regardless of size representing leading manufacturers our comprehensive products provide outstanding quality reliability and performance... surpassing customer application requirements and exceeding the stringent requirements of Underwriters Laboratories, National Fire Protection Association and other codes. We maintain an exceptional level of quality and provide the highest levels of customer service. Our knowledgeable technical support will insure the great service you deserve. Whether your needs involve industrial, commercial, institutional, or educational applications, you can trust that Norris Inc. has the complete resources it takes to provide the right solution right away.

Applicant ID No: 238321-001
Service Center No 0
Expires: 31-MAR-2009

CERTIFICATE OF COMPLIANCE

THIS IS TO CERTIFY that the Alarm Service Company indicated below is included by Underwriters Laboratories Inc. (UL) in its Product Directories as eligible to use the UL Listing Mark in connection with Certificated Alarm Systems. The only evidence of compliance with UL's requirements is the issuance of a UL Certificate for the Alarm System and the Certificate is current under UL's Certificate Verification Service.

Listed Service From: **SCARBOROUGH, ME**

Alarm Service Company: (238321-001)

NORRIS INC
2257 W BROADWAY
SOUTH PORTLAND ME 04106

Service Center: (238321-001)

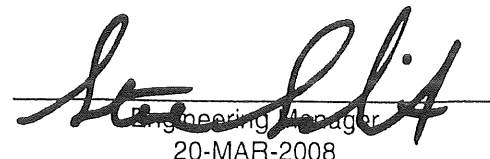
NORRIS INC
2257 W BROADWAY
SOUTH PORTLAND ME 04106

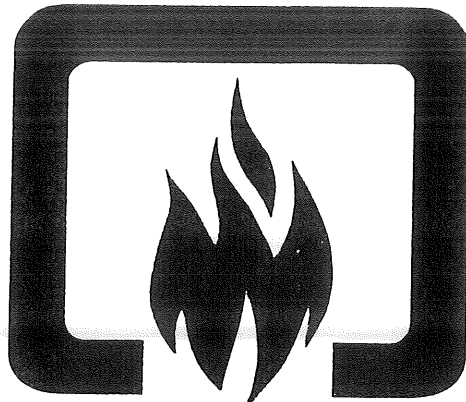
The Alarm Service Company is Listed in the following Certificate Service Categories:

<u>File - Vol No.</u>	<u>CCN</u>	<u>Listing Category</u>
S5129 - 1	UUJS	[Signal and Fire Alarm Equipment and Services] (Protective Signaling Services) Local, Auxiliary, Remote Station and Proprietary

***THIS CERTIFICATE EXPIRES ON 31-MAR-2009 ***

"LOOK FOR THE UL ALARM SYSTEM CERTIFICATE"


Engineering Manager
20-MAR-2008



NFPA[®]
INTERNATIONAL

NFPA recognizes

NORRIS INC

*as a member in good standing, entitled
to all rights and privileges of membership.*

Jim Shannon
James M. Shannon, President

January 22, 2003
Date of Issue

NSCA Membership Certificate

This is to certify that

Norris Inc

is an official member of the
National Systems Contractors Association
on this the

First of December

Nancy Emerson

Nancy Emerson
President

Chuck R. Wilson

Chuck Wilson
Executive Director



This is to certify that

NORRIS, INC.

is an authorized Engineered Systems Distributor for NOTIFIER

During the Year of 2008

Signed for and on behalf of NOTIFIER



Vice President Domestic Sales

Norris Inc

2257 West Broadway
South Portland, ME 04106

3612A1

4/16/2008 Page: 1
1-800-370-3473

**** SUBMITTAL ****

GEMINI ELECTRIC INC
Acct Payable: Tom Eden
8 PRISCILLA LANE
AUBURN, NH 03032

GEMINI 603-644-7170 Fax: 603-645-4099
Purchase Order #: D

: **Portland Jetport Garage expansion**

Qty Description

Fire Alarm --

- 1 Add to existing Control Panel
 - 1 Digitizer Master Box
 - 6 Intelligent Addressable Relay Module. Master Box
 - 10 Pullstation, red die cast, weatherproof, w/box (notifier key)
 - 10 Addressable Mini Module pull stations
 - 4 Intelligent Addressable Photo detector.
 - 4 Intelligent detector base, with flange.
 - 13 135 °F (57° C) fixed temperature.
 - 13 Addressable Mini Module heat detector
 - 3 Addressable Mini Module sprinkler
 - 2 Addressable Mini Module generator
 - 3 8.0 amps, 120 VAC remote charger power supply
 - 3 Class A (Style Z) NAC option module
 - 6 Battery 7 ah
 - 40 Strobe, 24 Vdc, 75 candela, Outdoor, (requires WPSBB-R), Wall Mo
 - 40 Backbox, Weather resistant for RSSWP.
 - 10 Horn Strobe, 24vdc, Multi Candela
 - 25 Weatherproof Horn Strobe, 24 Vdc, 75 candela, wall mount, red.
 - 25 Weather resistant back-box for ASWP.
 - 1 Key Box
 - 1 Recessed Knox Box
 - 1 Black Knox Box Color
 - 1 Knox Box without Tamper
 - 1 Hinged Door for Knox Box
- Portland Fire department meeting

Code Blue & Emergency Scream Detection

- 5 CB II-e Wall mount vandal resistant e-call station
- 21 CB IV-s Wall mount vandal resistant e-call station
- 21 Remote beacon/strobe assembly
- 5 TRANSFORMER 250W 120V
- 5 Transformer enclosure
- 10 SDR-C Sound detection relay card
- 1 10-PAC-C 10" card wall mount
- 1 PS3024 24vdc@ 1.2 a Reg P/S
- 10 202-000 Speaker remote w/o call bn

Norris Inc

2257 West Broadway
South Portland, ME 04106

3612A1

4/16/2008 Page: 2
1-800-370-3473

**** SUBMITTAL ****

Qty Description

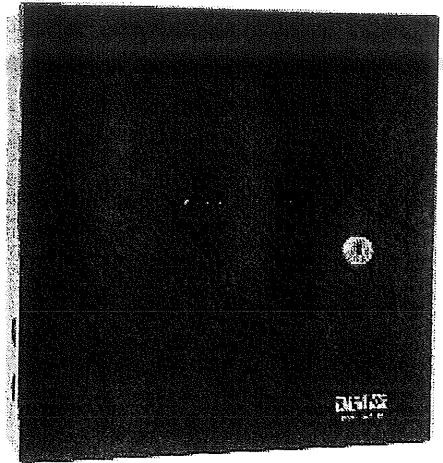
CCTV System --

- 11 Camera, Surf Mt Clr Dome DSS Col 3-9mm AI
- 1 Camera Power Supply, 24 VAC 7 AMP 16PTC RACK MT
- 1 16 Channel DVR with 500GB Storage
- 1 17in monitor, sxga input pc-only
- 1 19" Equipment Rack Enclosure with door, floor mount
- 2 19 inch rack chassis with 12 slots with power
- 10 Blank filler panel two slots
- 2 Fiber optic ethernet media converter, multi-mode
- 1 ST connectors, misc. material

DIGITIZE®

⇒ DET-6B/12B

- INDOOR MOUNTED SOLID STATE TELEGRAPH TRANSMITTER
- LOW POWER CONSUMPTION
- COMPLETELY PROGRAMMABLE TO MATCH EXISTING SYSTEMS NUMBER OF ROUNDS, TRANSMISSION SPEED, BOX NUMBER, ETC.
- AC OR DC POWERED
- SIX CHANNEL EOL WITH SEPARATE CODE FOR EACH CHANNEL
- OPEN OR CLOSE INDEX
- WATCHDOG TIMER FOR FAILURE DETECTION AND NOTIFICATION
- FORM C TROUBLE RELAY
- LOW BATTERY
- INTERNAL BUZZER FOR ALARM/TROUBLE
- PRIORITIZED BY ZONE AND ALARM/TROUBLE
- PRECODES
- DUAL SIX-ZONE VERSION (TOTAL 12 ZONES) AVAILABLE IN LARGER ENCLOSURE



DET-6B
(DET12B not pictured)

SYSTEM DESCRIPTION

The DET-6B is an indoor mounted six-zone solid state telegraph transmitter that employs a unique code for each zone. It includes a CAM lock, AC transformer, standby battery and built-in charger. The unit is housed in a steel enclosure suitable for indoor mounting.

Telegraph codes unique to each of the six zones for Trouble, Alarm and Secure, and Low Battery are transmitted over 100 milliampere circuit using positive non-interfering successive (PNIS) line current detection to avoid clashes between more than one transmitting box. Automatic ground return, a watchdog timer, and a jumper selected internal trouble buzzer assure continued main system operation and operator notification in the event of box failure. A built-in trouble relay output (Form C) and the ground and code relay (grounding, opening, or no effect on the 100 MA line) are activated by the watchdog timer ensuring reliable failure detection in the event of malfunction.

Transmission speed is adjustable to match that of mechanical boxes. Unit can be programmed to send any number of rounds (or no rounds) on alarm, trouble, secure and low battery.

Automatic switchover to battery power is performed upon AC power loss with a low battery code transmitted if power is not returned in approximately 50 hours. After transmitting a low battery code, the unit bypasses all input circuits to avoid spurious transmission of false alarms.

The DET-6B is field programmable with optional EPROM programmer and PC software. The DET-12B, a dual six-zone version (total of 12 zones), in a larger enclosure is also available.

Use of Lightning Protection is recommended on both DET-6B and DET-12B.

SPECIFICATIONS

DIMENSIONS:

DET6B - 12.0 in. x 3.5 in. x 11.5 in.
 DET12B - 15.0 in. x 4.0 in. x 13.5 in.

POWER:

115 VAC, 50/60 Hertz
 16-24 VAC 50/60 Hertz with no step down transformer
 24 VDC or 12 VDC (separate terminals)
 120 MA standby, 170 MA operating

INPUT RESISTANCE:

Up to 7,000 Ohms based on EOL value selected (see Table 1)

INPUT CHANNEL ACTIVATION:

6 or 12 Channels EOL resistor (5.6 K)
 Low Battery Detection

OPERATING CONTROL:

None - All functions are set in EPROM

VISIBLE LED INDICATORS:

Main Power - Green
 Trouble - Red
 Watchdog - Red
 On Line - Red (transmitting)

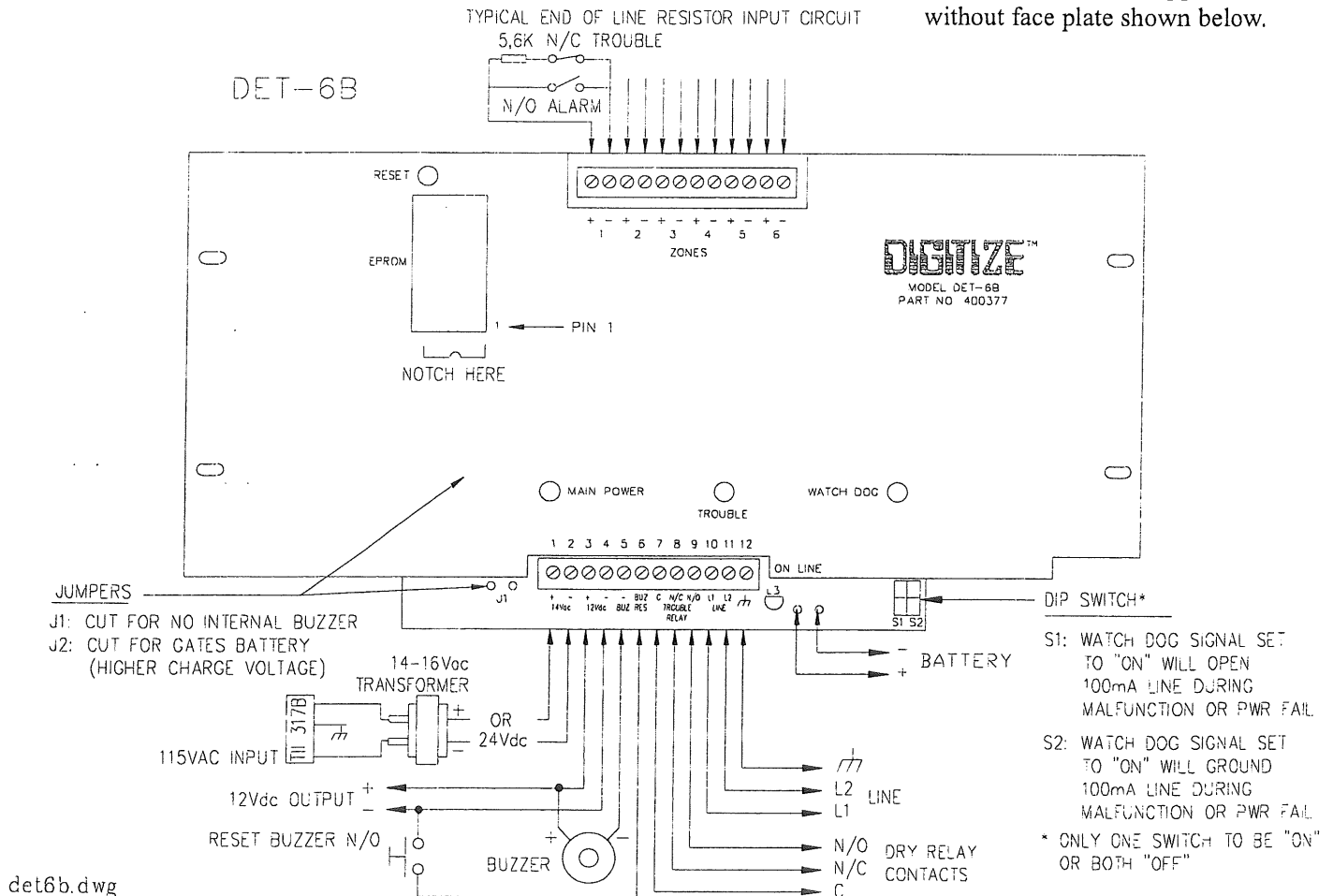
OUTPUT:

1 - 10 Telegraph Codes, program each zone
 Open or Ground Telegraph Line on Failure (or local failure)
 Form C Trouble Relay

ORDERING INFORMATION:

450247-0000 - DET-6B, 6-Zone
 425106-0000 - DET-6B, Dual Line, 6-Zone
 425173-0001 - DET-12B, 12 Zone
 900435-0001 - Lightning Protection, (recommended)
 450404-0001 - Master Trip PC Board
 450423-0003 - Factory Programmed Chip for DET-6B
 010001-0021 - DET-PROG, PC Software with Programmer

NOTE: DET12B is shipped in enclosure without face plate shown below.





April 5, 2004

DN-6724 • H-230

FCM and FRM Series Control and Relay Modules with FlashScan®

Section: Intelligent/Addressable Devices

GENERAL

FCM-1 Control Module — The FCM-1 Addressable Control Module provides NOTIFIER intelligent control panels a circuit for Notification Appliances (horns, strobes, speakers, etc.) or to monitor a telephone circuit. Addressability allows the FCM to be activated, either manually or through panel programming, on a select (zone or area of coverage) basis.

FRM-1 Relay Module — The FRM-1 Addressable Relay Module provides the system with a dry-contact output for activating a variety of auxiliary devices, such as fans, dampers, control equipment, etc. Addressability allows the dry contact to be activated, either manually or through panel programming, on a select basis.

FlashScan® (U.S. Patent 5,539,389) is a new communication protocol developed by NOTIFIER Engineering that greatly enhances the speed of communication between analog intelligent devices. Intelligent devices communicate in a grouped fashion. If one of the devices within the group has new information, the panel CPU stops the group poll and concentrates on single points. The net effect is response speed **greater than five times** that of other designs.

FEATURES

- Built-in type identification automatically identifies these devices to the control panel.
- Internal circuitry and relay powered directly by two-wire SLC loop. The FCM module requires power (for horns, strobes, etc.), audio (for speakers), or a telephone riser (for handsets). Internal relay feature available on FlashScan® systems only.
- Integral LED "blinks" green each time a communication is received from the control panel and turns on in steady red when activated.
- LED blink may be deselected globally (affects all devices).
- High noise immunity (EMF/RFI).
- The FCM may be used to switch 24-volt NAC power, audio (up to 70.7 V_{RMS}) or telephone.
- Wide viewing angle of LED.
- SEMS screws with clamping plates for wiring ease.
- Direct-dial entry of address 01– 159 for FlashScan®, 01 – 99 on traditional systems.
- Speaker, audible/visual, and telephone applications may be wired for Class B or A (Style Y or Z).

APPLICATIONS

The FCM is used to switch 24 VDC audible/visual power, high-level audio (speakers), or control telephone devices. The

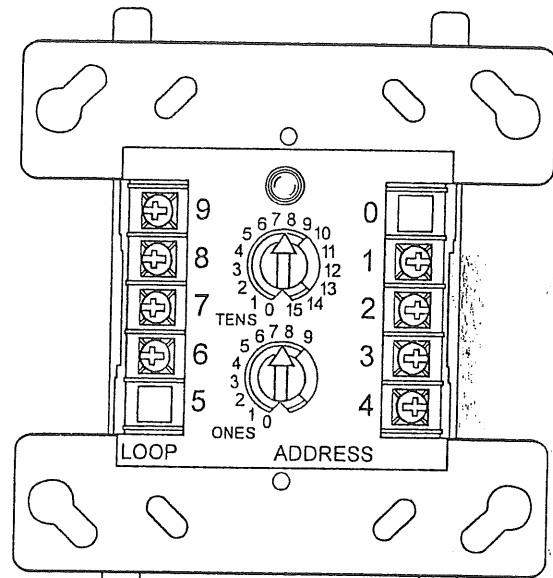
FlashScan® is a registered trademark of NOTIFIER. **Noryl®** is a registered trademark of GE Plastics, a subsidiary of General Electric Company.



California State Fire Marshal
7300-0028:202



MARYLAND State Fire Marshal
Permit #2020



FCM-1 Module
(See wiring diagram Fig. 5 for FRM-1)

FRM may be programmed to operate dry contacts for door holders, Air Handling Unit shutdown, etc., and to reset four-wire smoke detector power.

CONSTRUCTION

- The face plate is made of off-white Noryl®.
- Controls include two rotary switches for direct-dial entry of address (01-159).
- The FCM is configured for a single Class B (Style Y) or Class A (Style Z) Notification Appliance Circuit.
- The FRM provides two Form-C dry contacts that switch together.

OPERATION

Each FCM or FRM uses one of 159 possible module addresses on a SLC loop. It responds to regular polls from the control panel and reports its type and status, including the open/normal/short status of its Notification Appliance Circuit

NOTIFIER® is a Honeywell company.

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 NOTIFIER. Phone: (203) 484-7161 FAX: (203) 484-7118



12 Clintonville Road, Northford, Connecticut 06472



(NAC). The LED blinks with each poll received. On command, it activates its internal relay. The FCM supervises Class B (Style Y) or Class A (Style Z) notification or control circuits.

Upon code command from the panel, the FCM will disconnect the supervision and connect the external power supply in the proper polarity across the load device. The disconnection of the supervision provides a positive indication to the panel that the control relay actually turned ON. The external power supply is always relay isolated from the communication loop so that a trouble condition on the external power supply will never interfere with the rest of the system.

Rotary switches set a unique address for each module. The address may be set before or after mounting. The built-in TYPE CODE (not settable) will identify the module to the control panel, so as to differentiate between a module and a sensor address.

SPECIFICATIONS for FCM

Normal operating voltage: 15 to 32 VDC.

Maximum current draw: 6.5 mA (LED on).

Average operating current: 350 μ A direct poll (CLIP mode), 375 μ A group poll (FlashScan® mode) with LED flashing.

External supply voltage (between Terminals T3 and T4): maximum 80 volts (RMS or DC).

Drain on external supply: 2 mA maximum (using internal EOL relay).

EOL resistance: 47K ohms.

Temperature range: 32°F to 120°F (0°C to 49°C).

Humidity range: 10% to 93% non-condensing.

Dimensions: 4.5" (114.3 mm) high x 4" (101.6 mm) wide x 1.25" (31.75 mm) deep. Mounts to a 4" (101.6 mm) square x 2.125" (53.975 mm) deep box.

SPECIFICATIONS for FRM

Normal operating voltage: 15 to 32 VDC.

Maximum current draw: 6.5 mA (LED on).

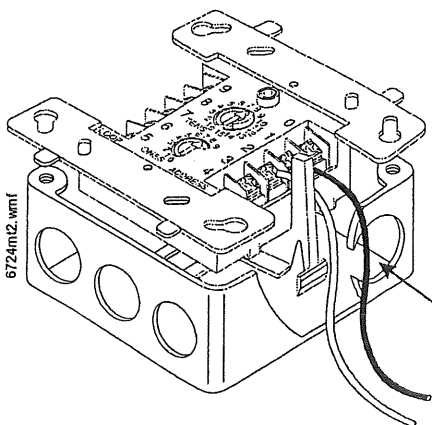
Average operating current: 230 μ A direct poll (CLIP mode), 255 μ A group poll (FlashScan® mode) with LED flashing.

EOL resistance: not used.

Temperature range: 32°F to 120°F (0°C to 49°C).

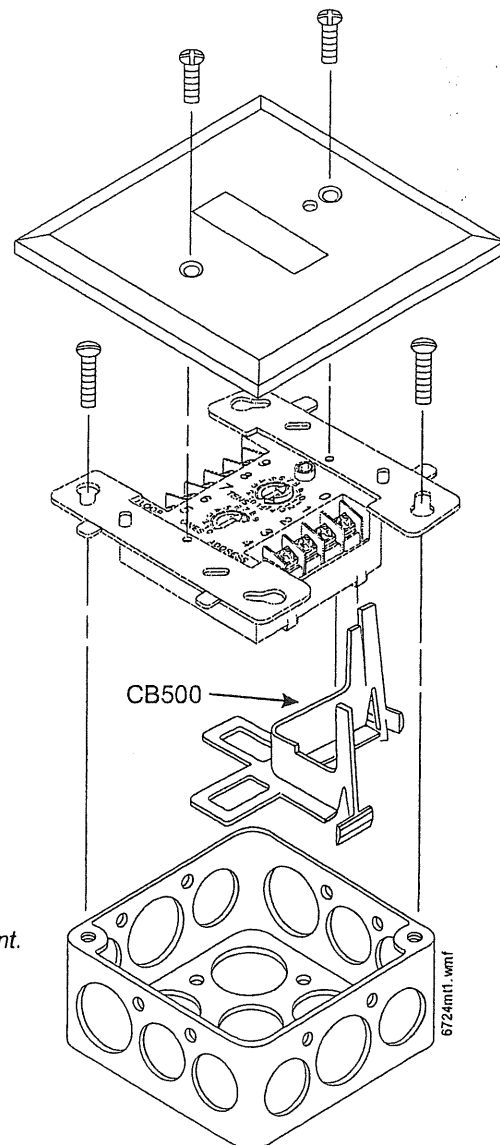
Humidity range: 10% to 93% non-condensing.

Dimensions: 4.5" (114.3 mm) high x 4" (101.6 mm) wide x 1.25" (31.75 mm) deep. Mounts to a 4" (101.6 mm) square x 2.125" (53.975 mm) deep box.



MOUNTING DIAGRAMS

Note CB500 Module Barrier, which creates isolated quadrant.



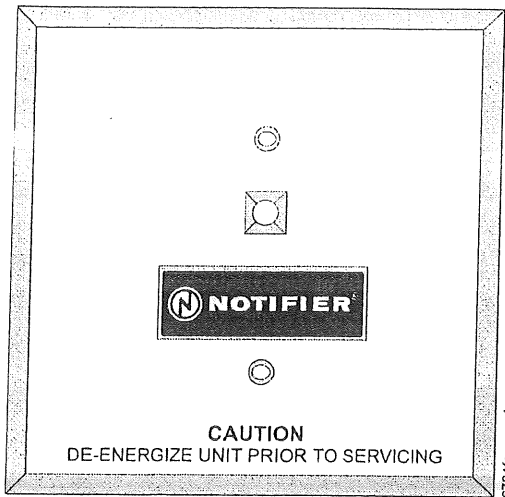
RELAY CONTACT RATINGS for both FCM and FRM models

Load Description	Application	Maximum Voltage	Current Rating
Resistive	Non-Coded	30 VDC	3.0 A
Resistive	Coded	30 VDC	2.0 A
Resistive	Non-Coded	110 VDC	0.9 A
Resistive	Non-Coded	125 VAC	0.9 A
Inductive (L/R = 5 ms)	Coded	30 VDC	0.5 A
Inductive (L/R = 2 ms)	Coded	30 VDC	1.0 A
Inductive (PF = 0.35)	Non-Coded	125 VAC	0.5 A

6724rate.tbl

PRODUCT LINE INFORMATION

- FCM-1** Intelligent Addressable Control Module.
- FRM-1** Intelligent Addressable Relay Module.
- A2143-20** Capacitor, required for Class A (Style Z) operation of speakers.
- SMB500** Optional Surface-Mount Backbox.
- CB500** Control Module Barrier — required by UL for separating power-limited and non-power limited wiring in the same junction box as FCM-1.



◀ The Face Plate

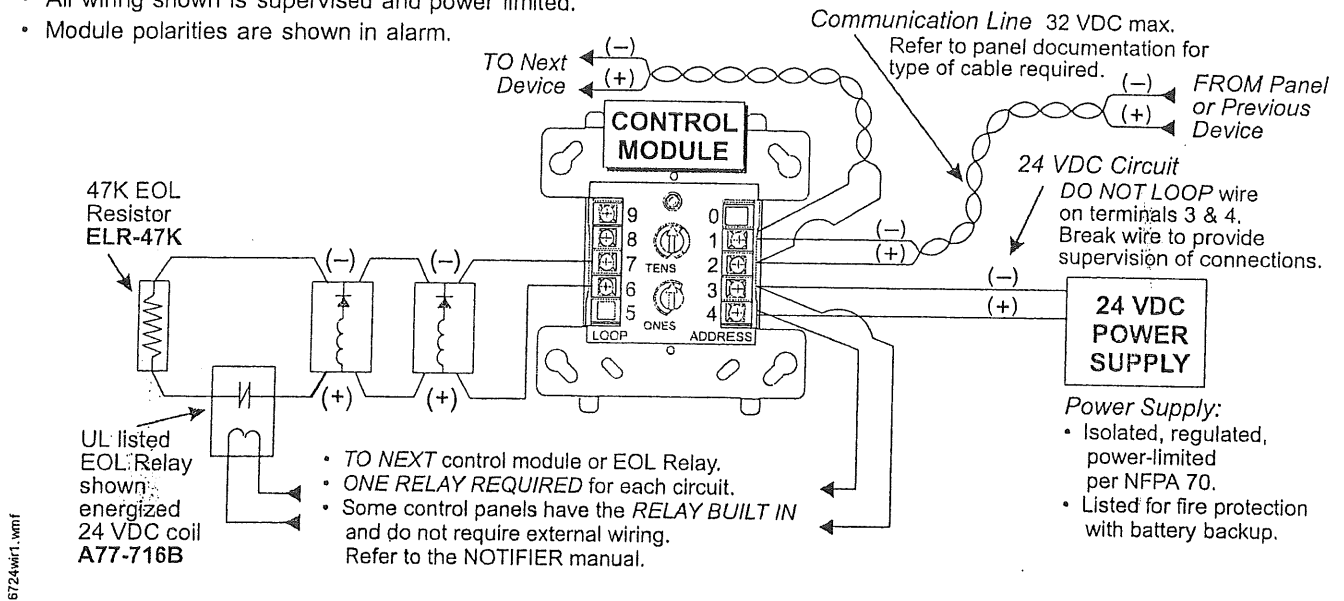
▼ WIRING DIAGRAMS

The following wiring diagrams are provided:

- 1) FCM-1: Typical notification appliance circuit configuration, NFPA Style Y.
- 2) FCM-1: Typical fault-tolerant notification appliance circuit configuration, NFPA Style Z.
- 3) FCM-1: Typical wiring for speaker supervision and switching, NFPA Style Y.
- 4) FCM-1: Typical fault-tolerant wiring for speaker supervision and switching, NFPA Style Z.
- 5) FRM-1: Relay module wiring diagram.

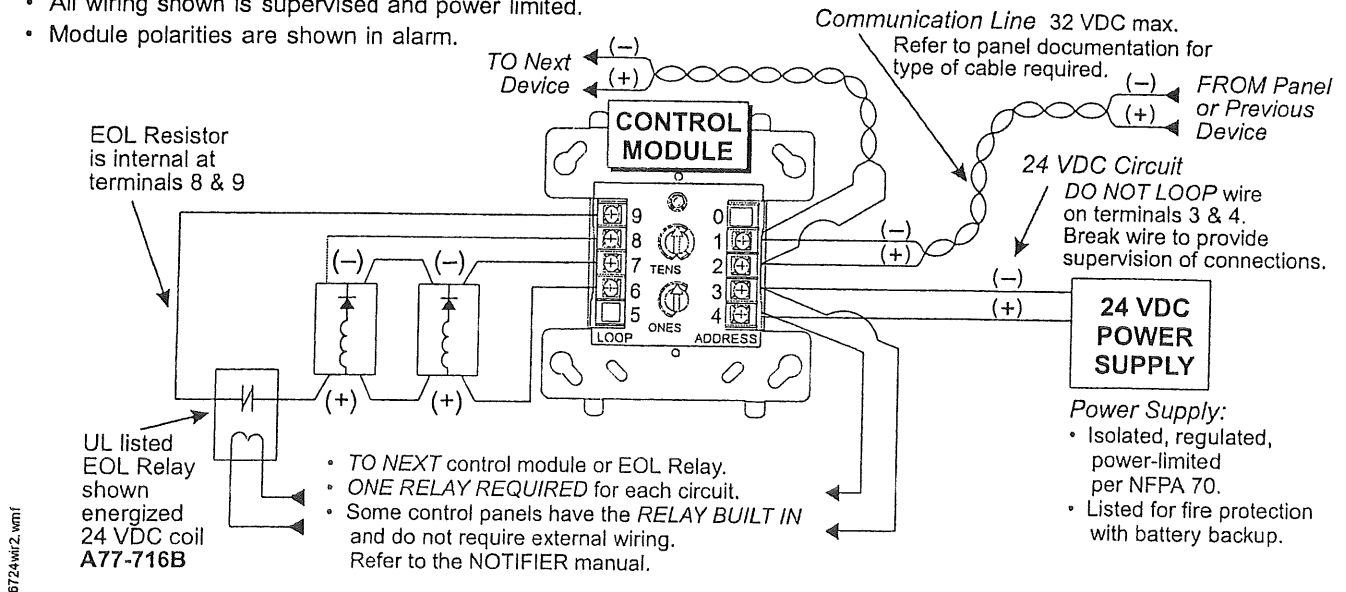
▼ Fig. 1 FCM-1: Typical notification appliance circuit configuration, NFPA Style Y.

- Connect modules to Listed compatible NOTIFIER control panels only.
- All wiring shown is supervised and power limited.
- Module polarities are shown in alarm.



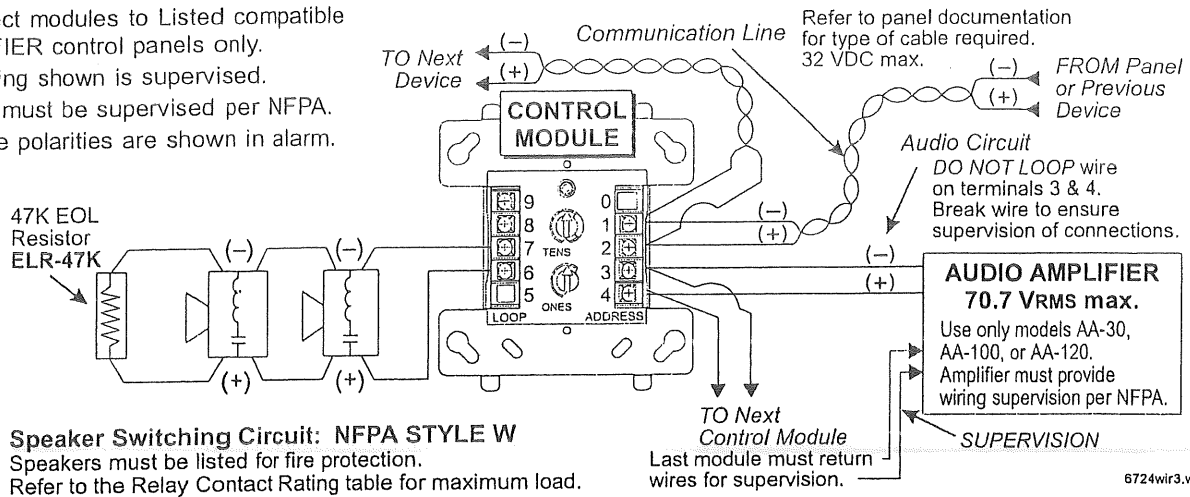
▼ Fig. 2 FCM-1: Typical fault-tolerant notification appliance circuit configuration, NFPA Style Z.

- Connect modules to Listed compatible NOTIFIER control panels only.
- All wiring shown is supervised and power limited.
- Module polarities are shown in alarm.



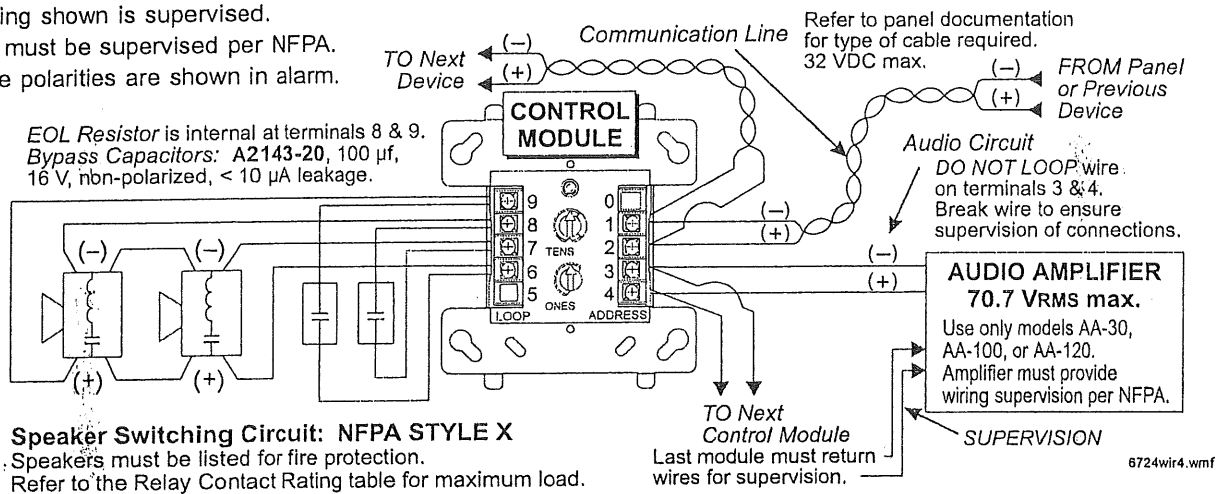
▼ **Fig. 3 FCM-1: Typical wiring for speaker supervision and switching, NFPA Style Y.**

- Connect modules to Listed compatible NOTIFIER control panels only.
- All wiring shown is supervised.
- Wires must be supervised per NFPA.
- Module polarities are shown in alarm.



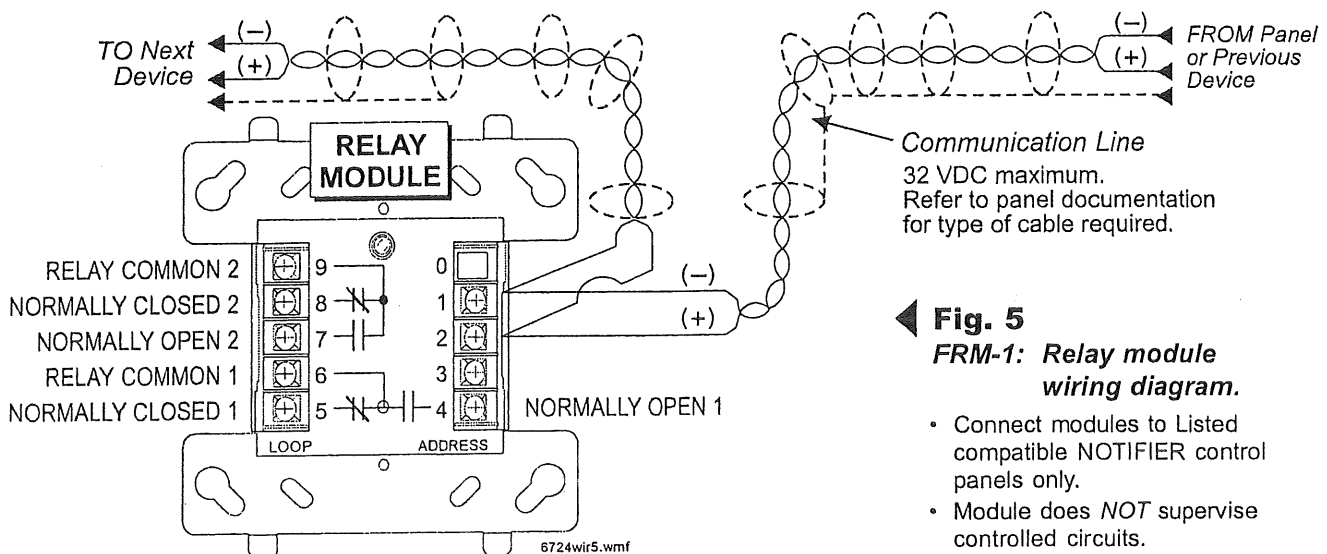
▼ **Fig. 4 FCM-1: Typical fault-tolerant wiring for speaker supervision and switching, NFPA Style Z.**

- Connect modules to Listed compatible NOTIFIER control panels only.
- All wiring shown is supervised.
- Wires must be supervised per NFPA.
- Module polarities are shown in alarm.



NOTE regarding AUDIO AMPLIFIER in Figures 3 & 4 above:

- 1) Audio circuit wiring must be twisted-pair as a minimum. See NOTIFIER installation manual for detailed information.



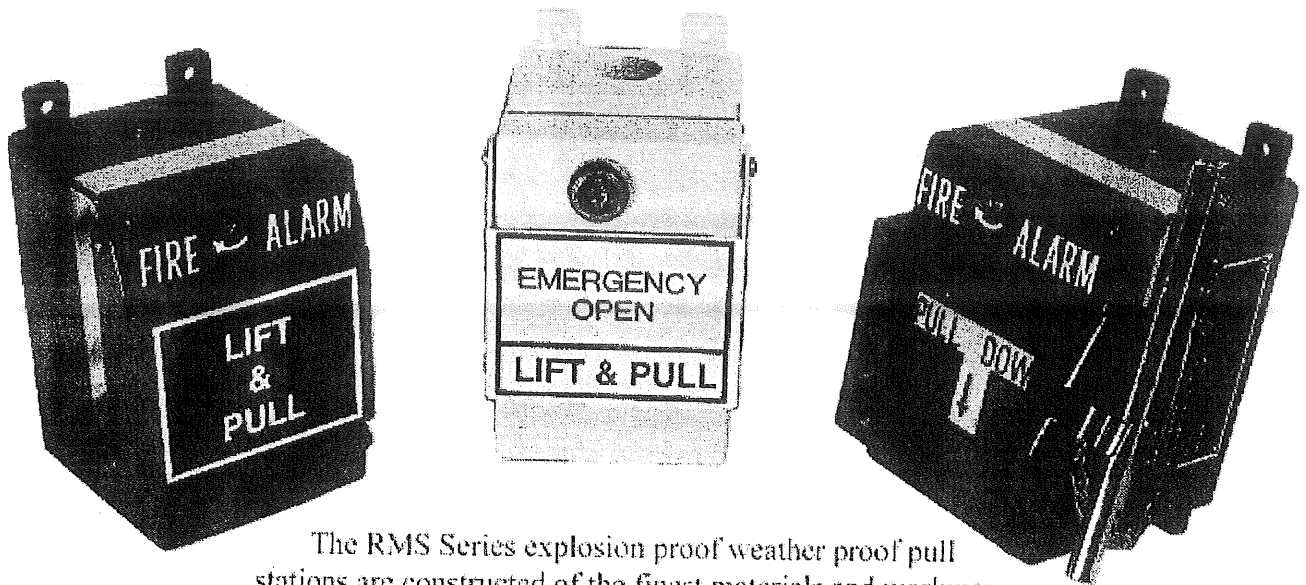
◀ **Fig. 5 FRM-1: Relay module wiring diagram.**

- Connect modules to Listed compatible NOTIFIER control panels only.
- Module does **NOT** supervise controlled circuits.

Hazardous Locations

Explosion Proof, Weather Proof - Manual Pull Stations

⇒ RMS-EXWP



The RMS Series explosion proof weather proof pull stations are constructed of the finest materials and workmanship available. Made of high-strength metal die-cast alloy, the RMS series explosion proof weather proof pull stations come standard options similar devices offer separately. With a UL rating of class I group B (hydrogen) C & D, class II groups E, F, G, class III and an outdoor rating of type 4X, these stations offer unmatched placement flexibility. Terminal block connections, D.P.D.T. contacts @ 10 amps, meets most electrical requirements indoors or out.

Having a "conventional" pull station design, they offer easy identification. Optionally offered is a key lock reset (different key codes available), lift and pull dual station cover, and break glass adapter with solid brass hammer and chain. (Break glass adapter cover design allows glass to fall out before activating).

The different RMS series pull stations are also offered in special colors: Orange, Yellow, Blue etc. with any information (in any language) silk screened on the dual action lift and pull cover or engraved directly to the station allowing the device to be custom tailored for each and every application including private labeling.

Standard Features:

- UL rating Class I group B, C, D.
Class II group E, F, G.
Class III.
Type 4X outdoor.
- D.P.D.T. switch rated @ 10 amps.
- Terminal block connections.
- Metal construction.
- Mounting hardware & instructions.

Optional Features:

- Key lock reset (optional key codes).
- Color finishes (Orange, Yellow, Blue etc.).
- Dual action lift and pull cover.
- Custom silk screening or engraving (in any language).
- Private Labeling.
- Extension back box (junction).

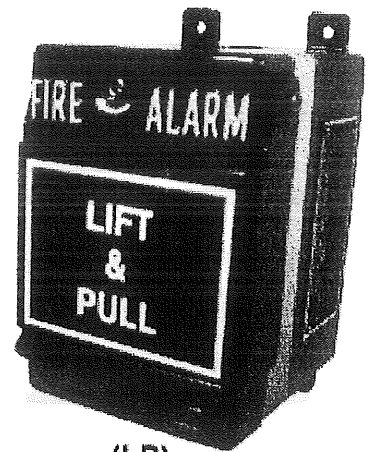
MADE IN THE U.S.A.



(LP)



(LP)



(LP)

Any color or wording available!

ELECTRICAL SPECIFICATIONS:

Contacts: D.P.D.T. (double pole double throw).
 Contact Rating: 10 amps @ 125/250 VAC.
 Wire AWG: 12 to 22 AWG.
 Wiring: Terminal black connections (6-32 w/sem plate).

RATING:

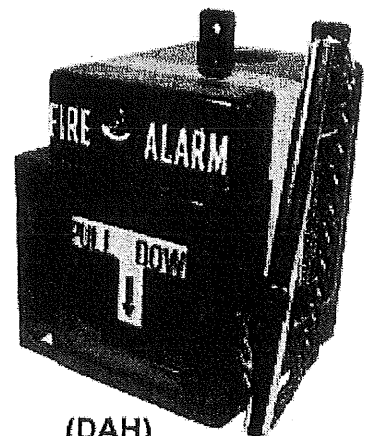
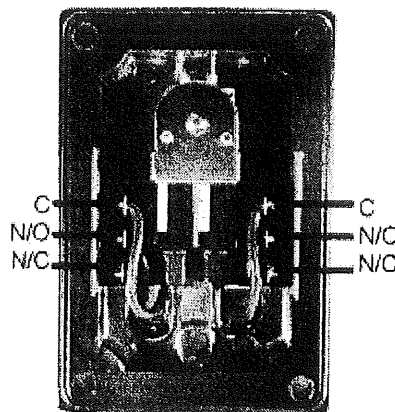
Class	Group
I	B, C, D
II	E, F, G
III	

Type 4X (outdoor).

ACCESSORIES:

LP Lift and Pull (dual action).
 DAH Break glass adapter (dual action).
 KL Key lock reset (specify key code).
 EXBB Extension Back Box.

Note: (LP and DAH options readily install to all basic units).



(DAH)



(KO)

OPTIONS:

- Custom Colors (specify color).
- Custom silk screening (Lp and DAH glass plate).
- Custom engraving of station (specify wording and location).
- Key operated (high security), (KO).
- Private Labeling

ORDERING INFORMATION:

RMS-EXWP -- (KL) -- (LP) -- (Special Processing)

Basic Station

Options

- (KL) Key Lock Reset.
 - (KO) Key Operated (note: KO version approved for indoor use only).
 - (LP) Lift and Pull
 - (DAH) Break Glass Adapter.
- Special Processing: Silk Screening, Color Option, Engraving etc.

MADE IN THE U.S.A.

NOTIFIER[®] by Honeywell

January 5, 2006

DN-6720 • H-220

FMM-1, FMM-101, FZM-1, FDM-1 Monitor Modules with FlashScan[®]

Section: Intelligent/Addressable Devices

GENERAL

Four different monitor modules are available for NOTIFIER intelligent controls to suit a variety of applications. Monitor modules are used to supervise a circuit of dry-contact input devices, such as conventional heat detectors and pull stations, or monitor and power a circuit of two-wire smoke detectors (FZM-1).

FMM-1 — is a standard-sized module (typically mounts to a 4" [10.16 cm] square box) that supervises either a Class A (Style D) or Class B (Style B) circuit of dry-contact input devices.

⇒ **FMM-101** — is a miniature monitor module (a mere 1.3" (3.302 cm) H x 2.75" (6.985 cm) W x 0.5" (1.270 cm) D) used to supervise a Class B (Style B) circuit. Its compact design allows the FMM-101 to often be mounted in a single-gang box behind the device it's monitoring.

FZM-1 — is a standard-sized module used to monitor and supervise compatible two-wire, 24 volt, smoke detectors on a Class A (Style D) or Class B (Style B) circuit.

FDM-1 — is a standard-sized dual monitor module used to monitor and supervise two independent two-wire initiating device circuits (IDCs) at two separate, consecutive addresses in intelligent, two-wire systems.

FlashScan[®] (U.S. Patent 5,539,389) is a new communication protocol developed by NOTIFIER Engineering that greatly enhances the speed of communication between analog intelligent devices. Intelligent devices communicate in a grouped fashion. If one of the devices within the group has new information, the panel CPU stops the group poll and concentrates on single points. The net effect is response speed **greater than five times** that of other designs.

FMM-1 MONITOR MODULE

- Built-in type identification automatically identifies this device as a monitor module to the control panel.
- Powered directly by two-wire SLC loop. No additional power required.
- High noise (EMF/RFI) immunity.
- SEMS screws with clamping plates for ease of wiring.
- Direct-dial entry of address: 01 – 159 on FlashScan systems, 01 – 99 on CLIP systems.
- LED flashes green during normal operation (this is a programmable option) and latches on steady red to indicate alarm.

The **FMM-1 Monitor Module** is intended for use in intelligent, two-wire systems, where the individual address of each module is selected using the built-in rotary switches. It provides either a two-wire or four-wire fault-tolerant Initiating Device Circuit (IDC) for normally-open-contact fire alarm and supervisory devices. The module has a panel-controlled LED indicator. The FMM-1 can be used to replace MMX-1 modules in existing systems.



California
State Fire
Marshal
7300-0028:202

U.S. Coast Guard

161.002/23/3 (AFP-200:

FMM-1/-101, FZM-1)

161.002/42/1

(NFS-640: FMM-1/-101)

03/60011 (E1)

(FMM-1/-101, FZM-1)

94/60004/E2

(AFP200:

except FDM-1)

02/60007

(NFS-640: FDM-1)

MEA

143-01-E (FDM-1)

317-01-E

(FMM-1/-101)

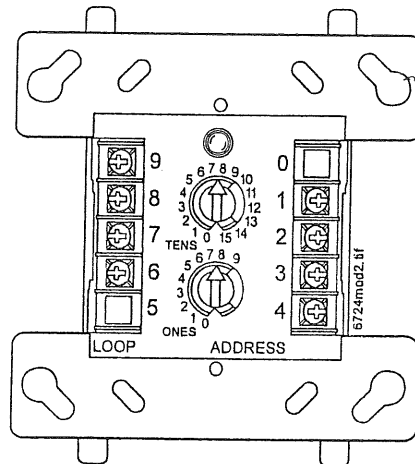
345-02-E

(FMM-1/-101)

457-99-E (FZM-1,

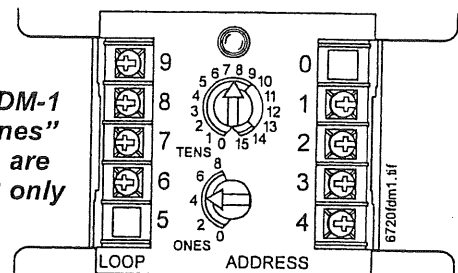
FMM-1/-101)

447-99-E



**FMM-1
and
FZM-1**

detail of FDM-1
— note "ones"
addresses are
0, 2, 4, 6, 8 only



FMM-1 Applications — Use to monitor a zone of four-wire smoke detectors, manual fire alarm pull stations, waterflow devices, or other normally-open dry-contact alarm activation devices. May also be used to monitor normally-open supervisory devices with **special supervisory indication** at the control panel. Monitored circuit may be wired as an NFPA Style B (Class B) or Style D (Class A) Initiating Device Circuit. A 47K ohm End-of-Line Resistor (provided) terminates the Style B circuit. No resistor is required for supervision of the Style D circuit. Maximum IDC loop length is 2,500 ft./762 m (20 ohms maximum).

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 NOTIFIER. Phone: (203) 484-7161 FAX: (203) 484-7118

NOTIFIER[®]
by Honeywell

12 Clintonville Road, Northford, Connecticut 06472

ISO 9001
CERTIFIED
ENGINEERING & MANUFACTURING
QUALITY SYSTEMS

FMM-1 Operation — Each FMM-1 uses one of 159 available module addresses on an SLC loop. It responds to regular polls from the control panel and reports its type and the status (open/normal/short) of its Initiating Device Circuit (IDC). A **flashing LED** indicates that the module is in communication with the control panel. The LED latches steady on alarm (subject to **current limitations** on the loop).

FMM-1 Specifications

Nominal operating voltage: 15 to 32 VDC.

Maximum current draw: 5.1 mA (LED on).

Maximum operating current: 375 μ A (LED flashing).

EOL resistance: 47K ohms.

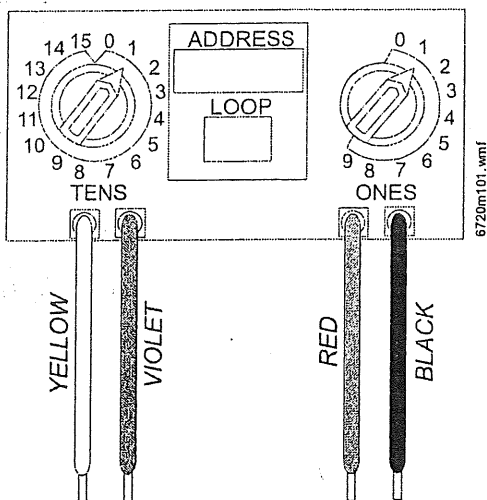
Temperature range: 32°F to 120°F (0°C to 49°C).

Humidity range: 10% to 93% noncondensing.

Dimensions: 4.5" (11.43 cm) high x 4" (10.16 cm) wide x 1.25" (3.175 cm) deep. Mounts to a 4" (10.16 cm) square x 2.125" (5.398 cm) deep box.

FMM-101 MINI MONITOR MODULE

- Built-in type identification automatically identifies this device as a monitor module to the panel.
- Powered directly by two-wire FACP. No additional power required.
- High noise (EMF/RFI) immunity.
- Tinned, stripped leads for ease of wiring.
- Direct-dial entry of address: 01 – 159 on FlashScan systems, 01 – 99 on CLIP systems.



The **FMM-101 Mini Monitor Module** can be installed in a single-gang junction directly behind the monitored unit. Its small size and light weight allow it to be installed without rigid mounting. The FMM-101 is intended for use in intelligent, two-wire systems where the individual address of each module is selected using rotary switches. It provides a two-wire initiating device circuit for normally-open-contact fire alarm and security devices. The FMM-101 can be used to replace MMX-101 module in existing systems.

FMM-101 Applications — Use to monitor a single device or a zone of four-wire smoke detectors, manual fire alarm pull stations, waterflow devices, or other normally-open dry-contact devices. May also be used to monitor normally-open supervisory devices with special supervisory indication at the control panel. Monitored circuit/device is wired as an NFPA Style B (Class B) Initiating Device Circuit. A 47K ohm End-of-Line Resistor (provided) terminates the circuit.

FMM-101 Operation — Each FMM-101 uses one of 159 available module addresses on an SLC loop. It responds to regular polls from the control panel and reports its type and

the status (open/normal/short) of its Initiating Device Circuit (IDC).

FMM-101 Specifications

Nominal operating voltage: 15 to 32 VDC.

Maximum operating current: 375 μ A.

EOL resistance: 47K ohms.

Temperature range: 32°F to 120°F (0°C to 49°C).

Humidity range: 10% to 93% noncondensing.

Dimensions: 1.3" (3.302 cm) high x 2.75" (6.985 cm) wide x 0.5" (1.270 cm) deep.

Wire length: 6" (15.24 cm) minimum.

FZM-1 INTERFACE MODULE

- Supports compatible two-wire smoke detectors.
- Supervises IDC wiring and connection of external power source.
- High noise (EMF/RFI) immunity.
- SEMS screws with clamping plates for ease of wiring.
- Direct-dial entry of address: 01 – 159 on FlashScan systems, 01 – 99 on CLIP systems.
- LED flashes during normal operation (this is a programmable option).
- LED latches steady to indicate alarm on command from control panel.

The **FZM-1 Interface Module** is intended for use in intelligent, addressable systems, where the individual address of each module is selected using built-in rotary switches. This module allows intelligent panels to interface and monitor two-wire conventional smoke detectors. It transmits the status (normal, open, or alarm) of one full zone of conventional detectors back to the control panel. All two-wire detectors being monitored must be UL compatible with the module. The FZM-1 has a panel-controlled LED indicator and can be used to replace MMX-2 modules in existing systems.

FZM-1 Applications — Use the FZM-1 to monitor a zone of two-wire smoke detectors. The monitored circuit may be wired as an NFPA Style B (Class B) or Style D (Class A) Initiating Device Circuit. A 3.9 K ohm End-of-Line Resistor (provided) terminates the end of the Style B or D (class B or A) circuit (maximum IDC loop resistance is 25 ohms). Install ELR across terminals 8 and 9 for Style D application.

FZM-1 Operation — Each FZM-1 uses one of 159 available module addresses on an SLC loop. It responds to regular polls from the control panel and reports its type and the status (open/normal/short) of its Initiating Device Circuit (IDC). A flashing LED indicates that the module is in communication with the control panel. The LED latches steady on alarm (subject to current limitations on the loop).

FZM-1 Specifications

Nominal operating voltage: 15 to 32 VDC.

Maximum current draw: 5.1 mA (LED on).

Maximum operating current: 255 μ A (LED flashing).

EOL resistance: 3.9K ohms.

External supply voltage (between Terminals T3 and T4):

DC voltage: 18 to 28 volts power limited. **Ripple voltage:** 0.1 V_{RMS} maximum. **Current:** 90 mA per module maximum.

Temperature range: 32°F to 120°F (0°C to 49°C).

Humidity range: 10% to 93% noncondensing.

Dimensions: 4.5" (11.43 cm) high x 4" (10.16 cm) wide x 1.25" (3.175 cm) deep. Mounts to a 4" (10.16 cm) square x 2.125" (5.398 cm) deep box.

FDM-1 DUAL MONITOR MODULE

The FDM-1 Dual Monitor Module is intended for use in intelligent, two-wire systems. It provides two independent two-wire initiating device circuits (IDCs) at two separate, consecutive addresses. It is capable of monitoring normally open contact fire alarm and supervisory devices; or either normally open or normally closed security devices. The module has a single panel-controlled LED. **NOTE: The FDM-1 provides two Class B (Style Y) IDC circuits ONLY. Class A (Style Z) IDC circuits are NOT supported in any application.**

FDM-1 Specifications

Normal operating voltage range: 15 to 32 VDC.

Maximum current draw: 5.7 mA (LED on).

Maximum operating current: 750 μ A (LED flashing).

EOL resistance: 47K ohms.

Maximum IDC wiring resistance: 1,500 ohms.

Temperature range: 32° to 120°F (0° to 49°C).

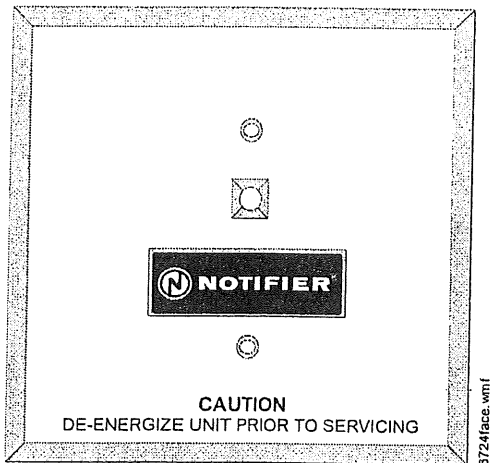
Humidity range: 10% to 93% (non-condensing).

Dimensions: 4.5" (11.43 cm) high x 4" (10.16 cm) wide x 2.125" (5.398 cm) deep.

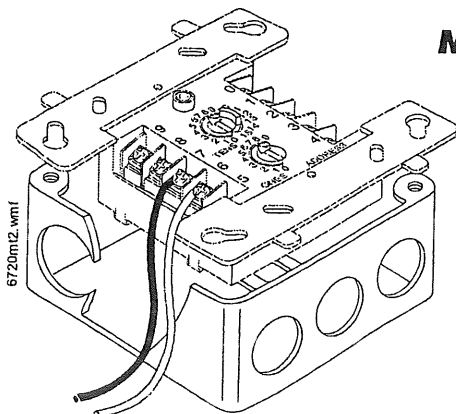
FDM-1 Automatic Addressing — The FDM-1 automatically assigns itself to two addressable points, starting with the original address. For example, if the FDM-1 is set to address "56", then it will automatically assign itself to addresses "56" and "57". **NOTE: "ones" addresses on the FDM-1 are 0, 2, 4, 6, or 8 only.** Terminals 6 and 7 use the first address, and terminals 8 and 9 use the second address.

CAUTION!

Avoid duplicating addresses on the system.



Face Plate for FMM-1, FZM-1, and FDM-1



MOUNTING DIAGRAMS for standard-sized modules

INSTALLATION

FMM-1, FDM-1, and FZM-1 modules mount directly to a standard 4" (10.16 cm) square, 2.125" (5.398 cm) deep, electrical box. They may also be mounted to the SMB500 surface-mount box. Mounting hardware and installation instructions are provided with each module. All wiring must conform to applicable local codes, ordinances, and regulations. These modules are intended for power-limited wiring only.

The FMM-101 module is intended to be wired and mounted without rigid connections inside a standard electrical box. All wiring must conform to applicable local codes, ordinances, and regulations.

PRODUCT LINE INFORMATION

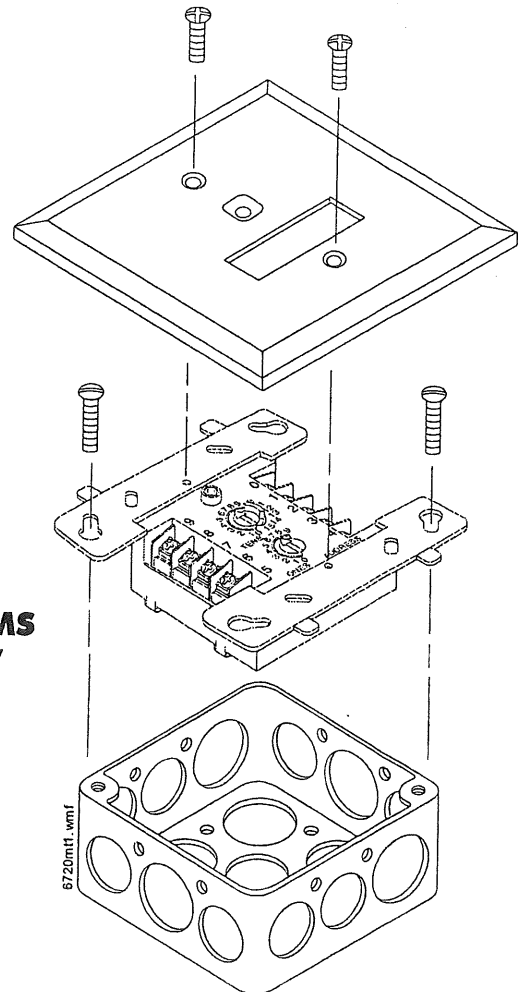
FMM-1	Monitor module.
FMM-101	Monitor module, miniature.
FZM-1	Monitor module, two-wire detectors
FDM-1	Monitor module, dual, two independent Class B circuits.
SMB500	Optional surface-mount backbox.

ARCHITECTS'/ENGINEERS' SPECIFICATIONS

Specifications of these and all NOTIFIER products are available from NOTIFIER.

FlashScan® and NOTIFIER® is a registered trademark of Honeywell International Inc.

©2005 Honeywell International Inc. All rights reserved. Unauthorized use of this document is strictly prohibited.



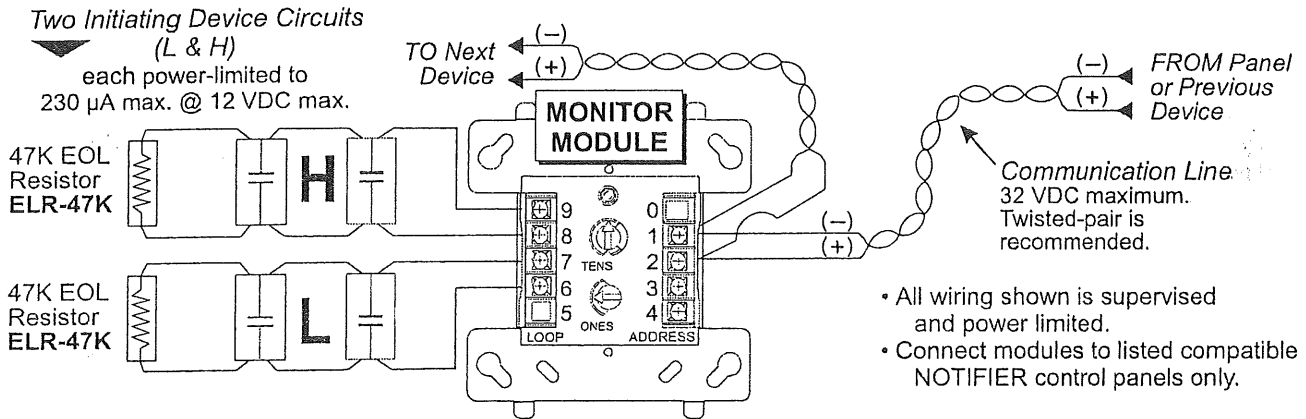
WIRING DIAGRAMS

The following wiring diagrams are included:

- 1) FDM-1, typical dual two-wire Style B initiating device circuit configuration.
- 2) FMM-101, typical two-wire Style B initiating device circuit configuration.
- 3) FMM-1, typical two-wire initiating circuit configuration, NFPA Style B.
- 4) FMM-1, typical four-wire fault-tolerant initiating circuit configuration, NFPA Style D.
- 5) FMM-1, typical two-wire initiating circuit configuration for security systems (with alarm versus short capability).
- 6) FZM-1, interface two-wire conventional detectors, NFPA Style B.
- 7) FZM-1, interface two-wire conventional detectors, NFPA Style D.
- 8) FRM-1, relay control module used to disconnect a power supply.

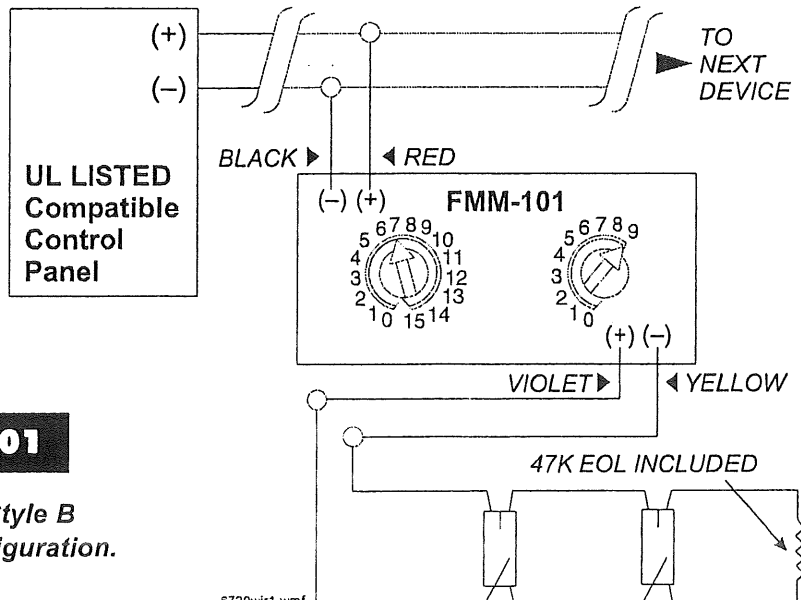
WIRING DIAGRAM: FDM-1

Fig. 1 FDM-1: Typical dual two-wire Style B initiating device circuit configuration.



- ANY NUMBER of UL Listed contact closure devices may be used.
- DO NOT MIX fire alarm initiating, supervisory, or security devices on the same circuit.
- Install contact closure devices per manufacturer's installation instructions.

6822wir1.wmf



WIRING DIAGRAM: FMM-101

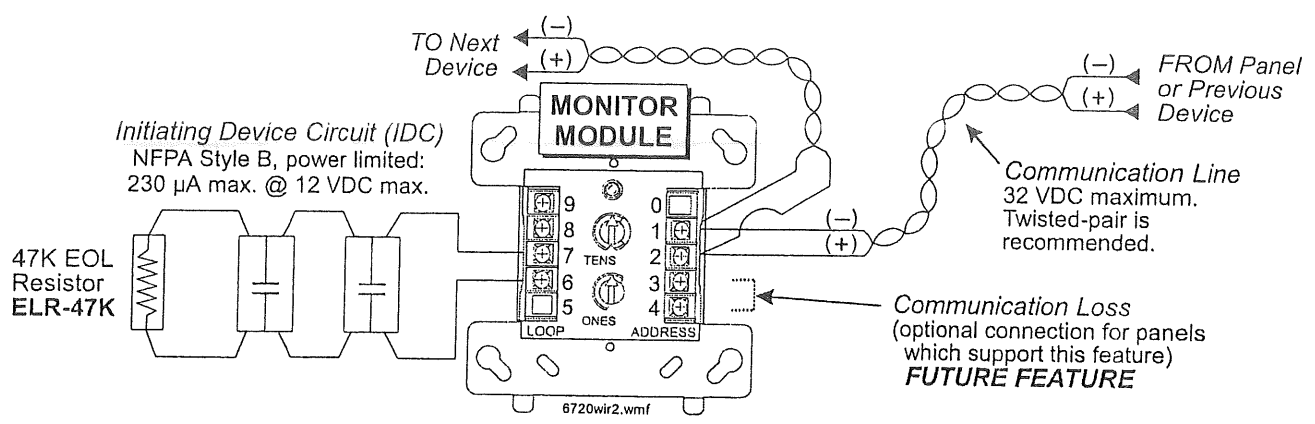
Fig. 2 FMM-101: Typical two-wire Style B initiating device circuit configuration.

6720wir1.wmf

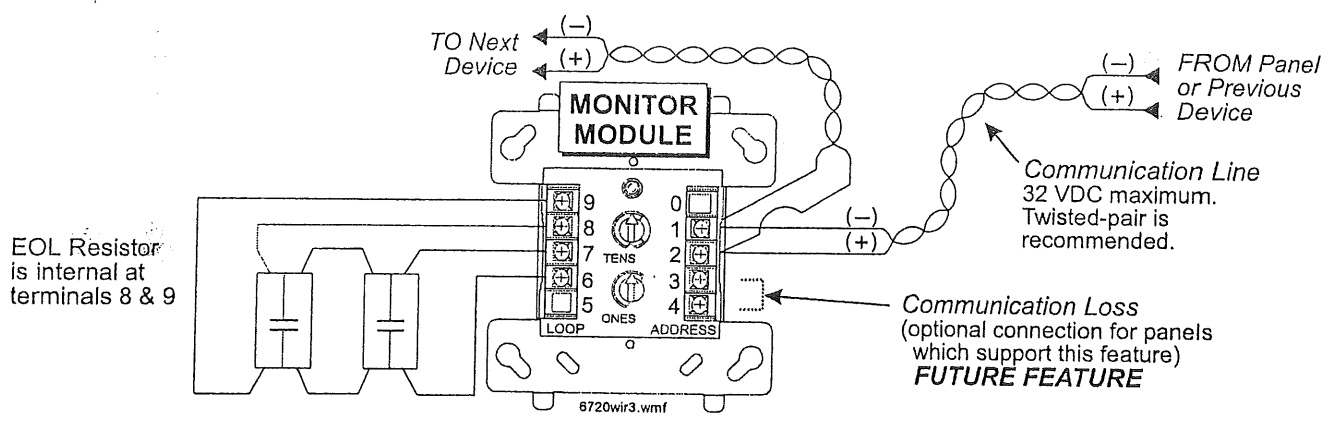
WIRING DIAGRAMS THIS PAGE: FMM-1

- Connect modules to listed compatible NOTIFIER control panels only.
- All wiring shown is supervised and power limited.
- Install contact closure devices per manufacturers' installation instructions.
- Any number of UL-listed contact closure devices may be used.
- **DO NOT MIX** fire alarm initiating, supervisory, or security devices on the same circuit.

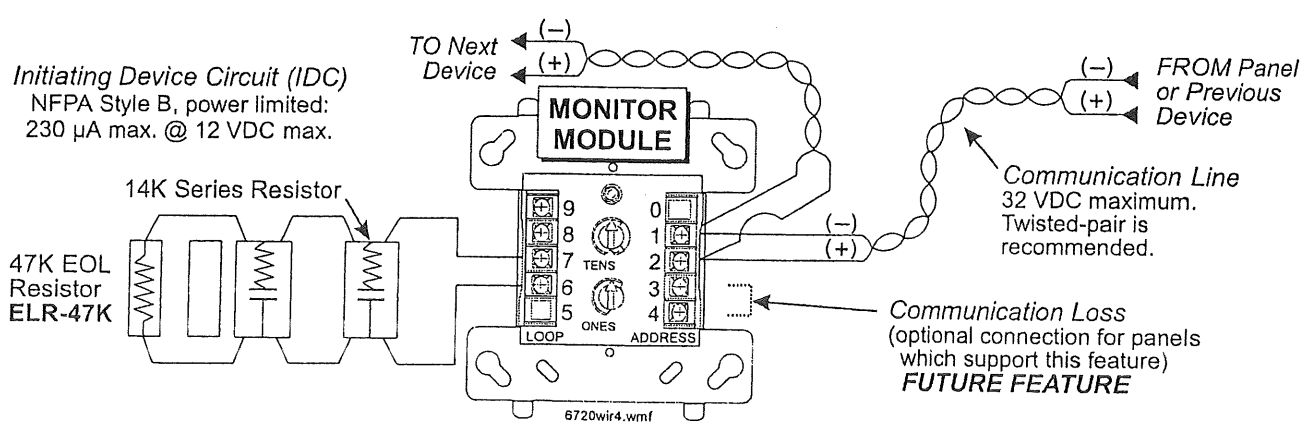
▼ **Fig. 3 FMM-1: Typical two-wire initiating device circuit configuration, NFPA Style B.**



▼ **Fig. 4 FMM-1: Typical four-wire fault-tolerant initiating circuit configuration, NFPA Style D.**



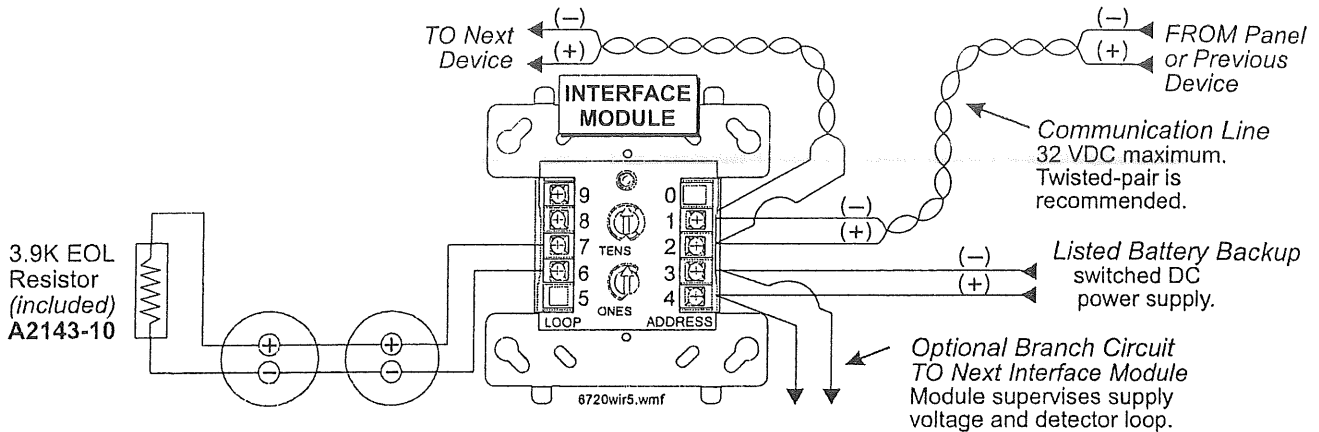
▼ **Fig. 5 FMM-1: Typical two-wire initiating circuit configuration for security systems (with alarm versus short capability).**



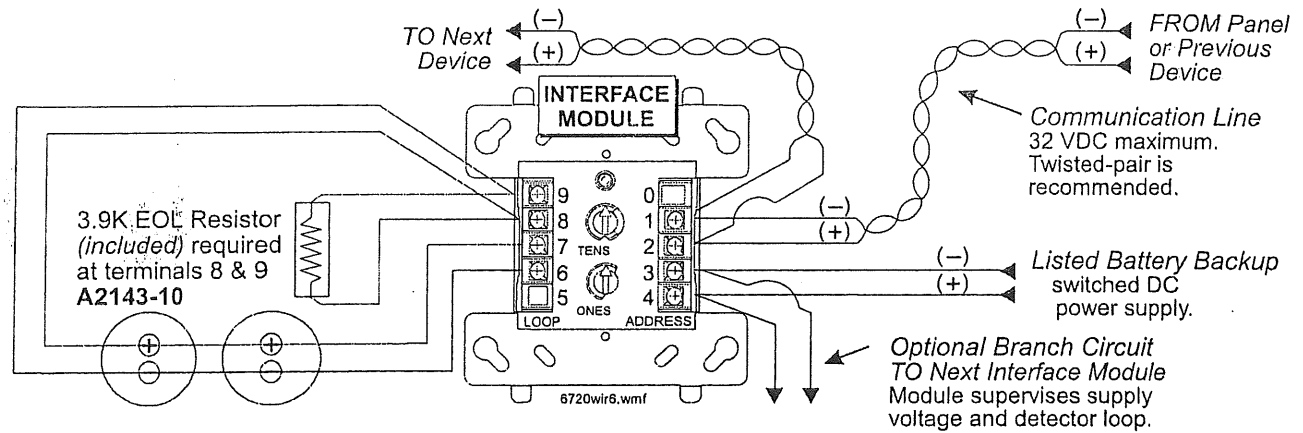
**WIRING
DIAGRAMS
THIS PAGE:
FZM-1, FRM-1**

- Connect modules to listed compatible control panels only.
- Terminal wiring must be power limited.
- **DO NOT MIX** fire alarm initiating, supervisory, or security devices on the same circuit.
- **DO NOT LOOP** wire under terminals. Break wire run to provide supervision of connections.
- Detectors must be UL listed compatible with module.
- Install detectors per manufacturers' installation instructions.
- Power to the interface module must be externally switched to reset the detectors. An FRM-1 relay control module can be used to switch power from a standard power supply; see Fig. 7 below.

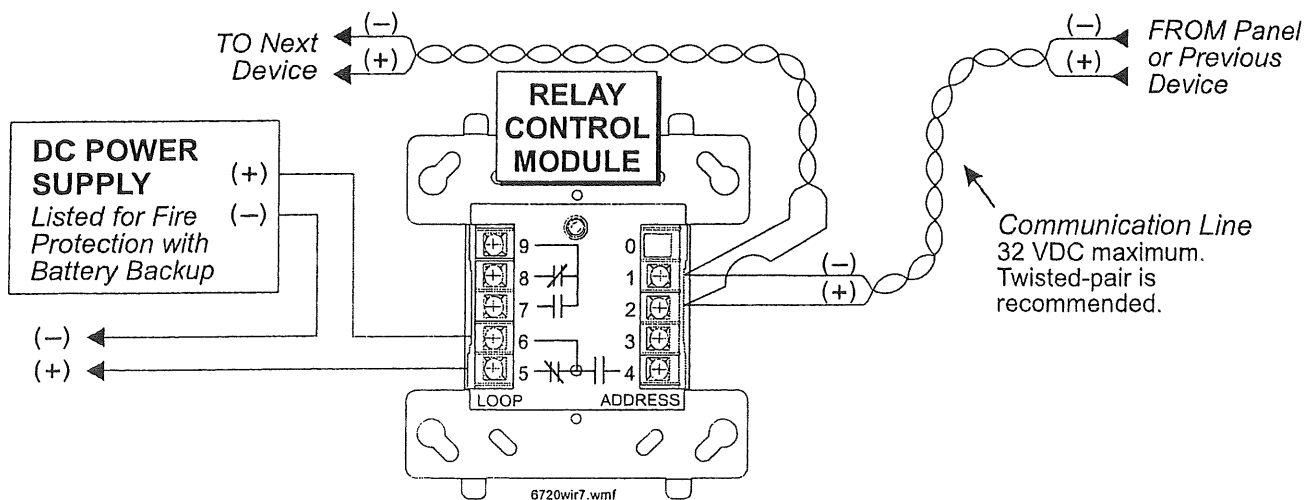
▼ **Fig. 6 FZM-1: Interface two-wire conventional detectors, NFPA Style B.**



▼ **Fig. 7 FZM-1: Interface two-wire conventional detectors, NFPA Style D.**



▼ **Fig. 8 FRM-1: Relay control module used to disconnect a power supply.**



➔ FSP-851 and FSP-851T

Intelligent Plug-In Photoelectric Smoke Detectors with FlashScan®

 **NOTIFIER**®
by Honeywell

Intelligent/Addressable Devices

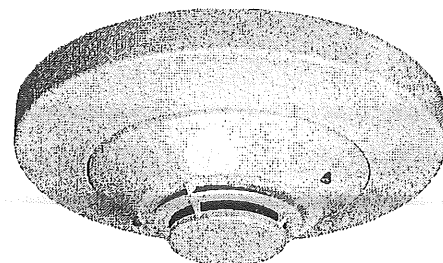
General

Notifier 851 Series intelligent plug-in smoke detectors with integral communication provide features that surpass conventional detectors. Detector sensitivity can be programmed in the control panel software. Sensitivity is continuously monitored and reported to the panel. Point ID capability allows each detector's address to be set with decade address switches, providing exact detector location for selective maintenance when chamber contamination reaches an unacceptable level. The FSP-851 photoelectric detector's unique optical sensing chamber is engineered to sense smoke produced by a wide range of combustion sources. Dual electronic thermistors add 135°F (57°C) fixed-temperature thermal sensing on the FSP-851T. FSP-851 and FSP-851T detectors are compatible with all Notifier intelligent Fire Alarm Control Panels (FACP).

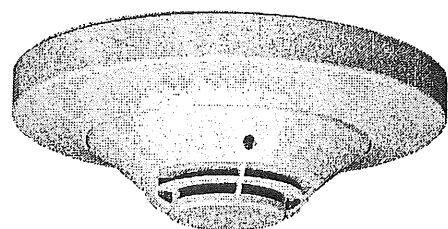
FlashScan® (U.S. Patent 5,539,389) is a communication protocol developed by Notifier engineering that greatly enhances the speed of communication between analog intelligent devices. Intelligent devices communicate in a grouped fashion. If one of the devices in the group has new information, the panel's CPU stops the group poll and concentrates on single points. The net effect is response speed **greater than five times** that of earlier designs.

Features

- Sleek, low-profile design.
- Addressable-analog communication.
- Stable communication technique with noise immunity.
- Low standby current.
- Two-wire SLC connection.
- FlashScan (NFS-640, NFS-3030) and classic CLIP systems (AFP-100, AFP-200, AFP-300, AFP-400, NFS-640, AM2020/AFP1010, NFS-3030) compatible.
- Rotary, decimal addressing (1-99 on current classic systems, 1-159 on FlashScan systems).
- Optional remote, single-gang LED accessory (RA400Z).
- Dual LED design provides 360° viewing angle.
- Visible bi-color LEDs blink green every time the detector is addressed, and illuminate steady red on alarm.
- Remote test feature from the panel.
- Walk test with address display (an address on 121 will blink the detector LED: 12-[pause]-1 (*FlashScan systems only*)).
- Built-in functional test switch activated by external magnet.
- Built-in tamper-resistant feature.
- Sealed against back pressure.
- Constructed of off-white Bayblend®, designed to commercial standards, and offers an attractive appearance.
- 94-5V plastic flammability rating.
- SEMS screws for wiring of the separate base.
- Optional relay, isolator, and sounder bases.
- Backward compatible.



FSP-851 with B710LP base



FSP-851T with B710LP base

Specification

Size: 2.1" (5.3cm) high x 4.1" (10.4cm) diameter installed in B501 base, 6.1" (15.5cm) diameter installed in B710LP base.

Shipping Weight: 5.2oz. (147g).

Operating Temperature: FSP-851, 0°C to 49°C (32°F to 120°F); FSP-851T, 0°C to 38°C (32°F to 100°F). Low temperature signal for FSP-851T at 45°F +/- 10°F (7.22°C +/- 5.54°C).

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

Relative Humidity: 10%-93% noncondensing.

Thermal Ratings: Fixed-temperature setpoint 135°F (57°C).

DETECTOR SPACING AND APPLICATIONS

Notifier recommends spacing detectors in compliance with NFPA 72. In low airflow applications with smooth ceiling, space detectors 30 feet (9.144m) for ceiling heights 10 feet (3.148m) and higher. For specific information regarding detector spacing, placement, and special applications refer to NFPA 72. *System Smoke Detector Application Guide*, document A05-1003, is available at systemsensor.com

FSP-851 and FSP-851T are listed for use in ducts, but they are *NOT* listed for use inside duct smoke detector housings. See *Duct Application Smoke Detector Guide*, document A05-1004, available at systemsensor.com, for details on pendant-mount applications.

ELECTRICAL SPECIFICATIONS

Voltage Range: 15-32 volts DC peak.

Standby Current (max. avg.): 250 μ A @ 24VDC (with no communication enabled); 360 μ A @ 24VDC (one communication every five minutes with LED enabled).

LED Current (max.): 6.5mA @ 24VDC ('ON').

BASES AVAILABLE

B710LP: 6.1" (15.5cm) diameter.

B501: 4.1" (10.4cm) diameter.

B501BH or B501BHT: Sounder base assembly. Includes B501 base.

B224RB Relay Base: *Screw Terminals*, up to 14AWG (2.0mm²); *Relay Type*, Form-C; *Rating*, 2.0A @ 30VDC resistive, 0.3A @ 110VDC inductive, 1.0A @ 30VDC inductive; *Dimensions*, 6.2" (15.748cm) x 1.2" (3.048cm) x 1.2" (3.048cm).

B224BI Isolator Base: *Dimensions*, 6.2" (15.748cm) x 1.2" (3.048cm) x 1.2" (3.048cm); *Maximum*, 25 devices between isolator bases.

Installation

FSP-851 plug-in detectors use a separate base to simplify installation, service, and maintenance. A special tool allows maintenance personnel to plug in and remove detectors without using a ladder.

Mount base on an electrical backbox which is at least 1.5" (3.81cm) deep. Suitable mounting base boxes include:

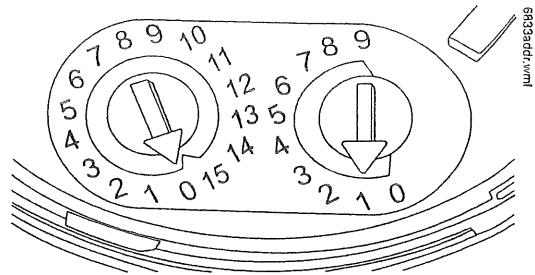
- 4.0" (10.16cm) square box.
- 3.5" (8.89cm) or 4.0" (10.16cm) octagonal box.
- Single-gang box (except relay or isolator base).
- With B501BH or B501BHT base, use a 4.0" (10.16cm) square box.
- With B224RB or B224BI base, use a 3.5" (8.89cm) octagonal box, or a 4.0" (10.16cm) octagonal or square box.

NOTE: 1) Because of inherent supervision provided by the SLC loop, end-of-line resistors are not required. Wiring "T-taps" or branches are permitted for style 4 (Class "B") wiring. 2) When using relay or sounder bases, consult data sheet DN-2243 (ISO-X) for device limitations between isolator modules and isolator bases.

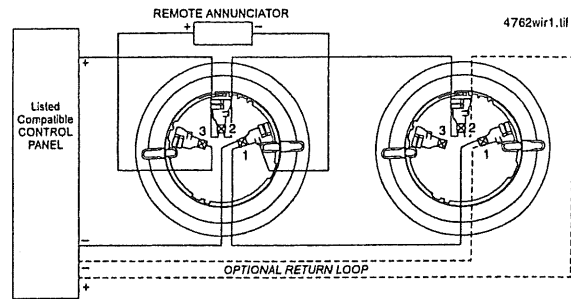
Agency Listings and Approvals

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

- **UL Listed:** S1115
- **ULC Listed:** CS915 (FSP-962A, FSP-851TA)
- **MEA Listed:** 225-02-E
- **FM Approved**
- **CSFM:** 7272-0028:206
- **Maryland State Fire Marshal:** Permit # 2122
- **BSMI:** CI313066760036
- **CCCF:** Certif. # 2004081801000017 (FSP-851T)
Certif. # 2004081801000016 (FSP-851)
- **Lloyd's Register:** 03/60011



Address Dial on back of Detector



Wiring Diagram

Product Line Information

NOTE: "A" suffix indicates ULC listed model.

FSP-851:Low-profile intelligent photoelectric sensor. Must be mounted to one of the bases listed below.

FSP-851A:Same as FSP-851 but with ULC listing.

FSP-851T:Same as FSP-851 but includes a built-in 135°F (57°C) fixed-temperature thermal device.

FSP-851TA:Same as FSP-851T but with ULC listing.

BASES

B710LPBP:Standard U.S. low-profile base, pkg. of 10.

B710LPA:Standard U.S. low-profile base, ULC listing.

B501BP:Standard European flangeless base, pkg. of 10.

B501A:Standard European flangeless base, ULC listing.

B501BH(A):Sounder base, includes B501(A) base.

B501BHT(A):Same as B501BH(A), but includes temporal sounder.

B224RB(A):Intelligent relay base.

B224BI(A):Intelligent isolator base. Isolates SLC from loop shorts.

ACCESSORIES

F110:Retrofit replacement flange for older style bases. Converts old high profile base for use with FlashScan detectors.

RA400Z(A):Remote LED annunciator. 3-32VDC. Fits U.S. single-gang electrical box. *Supported by B710LP(A) and B501(A) bases only.*

SMK400:Surface mounting kit provides for entry of surface wiring conduit. *For use with B501(A) base only.*

RMK400:Recessed mounting kit. *For use with B501(A) base only.*

SMB600:Surface mounting kit for use with B710LP(A).

BCK-200B:Black detector covers, box of 10. For use with FSP-851 only.

M02-04-01:Test magnet.

M02-09-00:Test magnet with telescope stick.

XR2B:Detector removal tool. Allows installation and/or removal of FlashScan Series detector heads from base in high ceiling installations.

T55-127-000:Detector removal tool without pole.

XP-4:Extension pole for XR2B. Comes in three 5-ft. sections.

DETECTOR GUARDS

NOTE: Some guards listed below may not be applicable to FPS models.

SDG-773:Smoke detector guard; cover is 7.0" (17.78cm) square x 3.0" (7.62cm) deep. This guard is mechanically compatible with FSP-751. It is UL-compatibility listed with the FSP-851 (file UL S5515).

STI 9601:Low-profile, flush-mount smoke detector guard, wire.*

STI 9602:Low-profile, surface-mount, smoke detector guard, wire.*

STI 9609:High-profile, flush-mount, smoke detector guard, wire.*

STI 9605:High Profile, surface-mount, smoke detector guard, wire.*

STI 9604:Flush-mount, heat detector guard, wire.*

STI 9610:Surface-mount, heat detector guard, wire.*

STI-8200-SS:Flush-mount stainless steel smoke detector guard (compatibility pending).

STI-8230-SS:Surface mount stainless steel smoke detector guard (compatibility pending).

** For dimensions and additional information on STI Steel Web Stoppers, see data sheet DN-4936.*

Notifier® and FlashScan® are registered trademarks of Honeywell International Inc. Bayblend® is a registered trademark of Bayer Corporation. ©2007 by Honeywell International Inc. All rights reserved. Unauthorized use of this document is strictly prohibited.



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.



Made in the U.S.A.

Intelligent Bases

B224BI(A), B224RB(A), B501(A), B501BH(A), B501BH-2(A), B501BHT(A), B501BHT-2(A), B710LP(A), Mounting Kits, and Accessories

NOTIFIER[®]
by Honeywell

Intelligent Addressable Detectors

General

Intelligent FlashScan® and CLIP mounting bases and kits provide a variety of ways to install NOTIFIER detectors in any application. Intelligent detectors can be mounted in either flanged or flangeless bases depending on junction box selection (see *Junction Box Selection Guide*). Across this product line, detectors plug in easily to the base with SEMS screws; and models employ various 12 to 22 AWG wire ranges.

Relay, isolator, and sounder bases can be used to meet local code requirements. Relay bases provide one Form-C contact relay for control of auxiliary functions such as door closure and elevator recall. Isolator bases allow loops to continue to operate under fault conditions and automatically restore when the fault is removed. Sounder bases are available in temporal and non-temporal pattern versions depending on whether the signal is to be used for evacuation purposes.

The **RMK400 recessed mounting kit** provides the most aesthetically pleasing installation. Surface mounting boxes are available when flush mounting isn't possible.

Specifications

Diameter: For B501: 4.1" (104 mm). For B224BI, B224RB, B710LP: 6.1" (155 mm). For B501BH, B501BH-2, B501BHT, B501BHT-2: 6.0" (152 mm).

Wire gauge: for B224BI, B224RB: 14 to 24 AWG. For B710LP, B501, B501BH, B501BH-2, B501BHT, B501BHT-2: 12 to 18 AWG.

Temperature range: For B224BI, B224RB, B501BH, B501BH-2, B501BHT, B501BHT-2: 32°F to 120°F (0°C to 49°C). For B501 and B710LP, 32°F to 150°F (0°C to 66°C).

Humidity range: 10% to 93% RH, non-condensing.

System temperature and humidity ranges: This system meets NFPA requirements for operation at 0°C to 49°C (32°F to 120°F); and at a relative humidity (noncondensing) of 85% at 30°C (86°F) per NFPA, and 93% ± 2% at 32°C ± 2°C (89.6°F ± 1.1°F) per UL. However, the useful life of the system's standby batteries and the electronic components may be adversely affected by extreme temperature ranges and humidity. Therefore, it is recommended that this system and all peripherals be installed in an environment with a nominal room temperature of 15°C to 27°C (60°F to 80°F).

Electrical Ratings

FOR B224RB, B224BI:

Operating voltage: 15 to 32 VDC (powered by SLC).

Standby ratings: <500 µA maximum @ 24 VDC.

Set time (B224RB only): short delay 55 to 90 msec; long delay 6 to 9 seconds.

Reset time (B224RB only): 20 msec maximum.

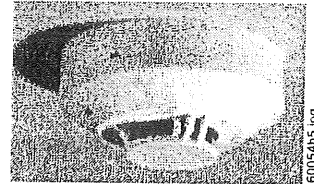
Relay characteristics (B224RB only): two-coil latching relay; one Form-C contact; ratings (UL/CSA): 0.9 A @ 125 VAC, 0.9 A @ 110 VDC, and 3.0 A @ 30 VDC.

FOR B501BH, B501BH-2, B501BHT, B501BHT-2:

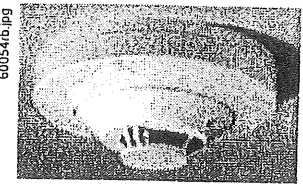
External supply voltage: 17 to 32 VDC.

Standby current: 1.0 mA maximum.

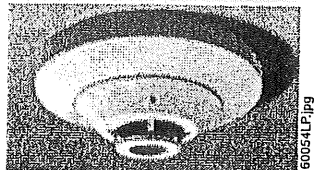
Alarm current: 15 mA maximum.



Flangeless Mounting Base



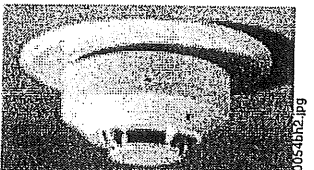
Relay Base



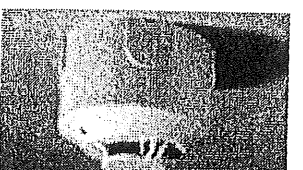
Flanged Mounting Base



Recessed Mounting



Standard Sounder Base



Flangeless Surface Mounting

Maximum ripple voltage: 10% of supply voltage.

Startup capacitance: 200 µF.

Set time: for B501BH and B501BHT, 6 to 15 seconds. For B501BH-2 and B501BHT-2, 0.75 to 5.7 seconds.

Sound output: greater than 90 dBA measured in anechoic room at 10 feet (3.048 m), 24 volts. 85 dBA minimum in UL reverberant room.

Recessed Mounting Kit

The RMK400 can be used with drywall or suspended ceilings. The aesthetically pleasing design can be used with standard junction boxes — suitable for use with 4.0" (10.16 cm) octagonal, 50 mm, and 60 mm junction boxes connected to flexible conduit. Note that junction boxes are not included in the kit. As an application example, with the B501 base, the RMK400 provides a simple installation solution in applications that demand a lower-profile smoke detector.

Agency Listings and Approvals

The listings and approvals below apply to intelligent bases as noted. In some cases, certain modules or applications may not be listed by certain approval agencies, or listing may be in process. Consult factory for latest listing status.

Listing information to be provided in upcoming edits. Consult panel manuals for lists of compatible UL-Listed devices. All bases have been previously listed for use with various panels.

Product Line Information

INTELLIGENT BASES

B501: Flangeless mounting base.

B501A: Flangeless mounting base, ULC Listed.

B710LP: Flanged mounting base.
B710LPA: Flanged mounting base, ULC UL Listed.
B501BH: Standard sounder base.
B501BHA: Standard sounder base, ULC Listed.
B501BHT: Temporal tone sounder base.
B501BHTA: Temporal tone sounder base, ULC Listed.
B501BH-2: Standard sounder base, UL 864 9th edition compliant.
B501BH-2A: Standard sounder base, UL 864 9th edition compliant, ULC Listed.
B501BHT-2: Temporal tone sounder base, UL 864 9th edition compliant.
B501BHT-2A: Temporal tone sounder base, UL 864 9th edition compliant, ULC Listed.
B224RB: Relay base.
B224RBA: Relay base, ULC Listed.

B224BI: Isolator base.
B224BIA: Isolator base, ULC Listed.

MOUNTING KITS AND ACCESSORIES

RMK400: Recessed mounting kit.
SMK400: Surface mounting kit, flangeless.
SMB600: Surface mounting kit, flanged.
F110: Retrofit flange for B501B, B524.
RA400Z: Remote LED annunciator.
RA400ZA: Remote LED annunciator, ULC Listed.
M02-04-01: Detector test magnet.
M02-09-00: Test magnet with telescoping handle.
XR2B: Detector removal tool (*T55-127-000 included*).
XP-4: Extension pole for XR2B (*5 to 15 ft/1.524 to 4.572 m*).
T55-127-000: Detector removal head.
BCK-200B: Black detector kit.

Junction Box Selection Guide



Base Models	Single-Gang	3.5" Oct.	4.0" Oct.	4.0" Sq.	4.0" Sq. with 3.0" mud ring	50 mm	60 mm	70 mm	75 mm
B501	No	Yes	No	No	Yes	Yes	Yes	Yes	No
B710LP	Yes	Yes	Yes	Yes	Yes	No	No	No	No
B224RB	No	Yes	Yes	Yes	No	No	Yes	Yes	Yes
B224BI	No	Yes	Yes	Yes	No	No	No	Yes	Yes
B501BH, B501BH-2	No	No	No	Yes	No	No	No	No	No
B501BHT, B501BHT-2	No	No	No	Yes	No	No	No	No	No

NOTE: Box depth contingent on base and wire size.
 Refer to National Electric Code or applicable local codes for appropriate recommendations.

FlashScan®, NOTIFIER® and System Sensor® are registered trademarks of Honeywell International Inc.
 ©2006 by Honeywell International Inc. All rights reserved. Unauthorized use of this document is strictly prohibited.



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.



February 24, 2004

DN-6931 • I-304

5600 Series Mechanical Heat Detectors

Section: Conventional Initiating Devices

GENERAL

System Sensor's 5600 Series mechanical heat detectors offer a low-cost option for property protection against fire and for non-life-safety installations, where smoke detectors are inappropriate.

Multiple configurations. The 5600 Series offers a full line of configurations to accommodate a broad range of applications. Both single- and dual-circuit models are offered, each available for low- and high-temperature ratings with either fixed-temperature or combination fixed-temperature/rate-of-rise (ROR) activation. The ROR element of the fixed/ROR models is restorable, to accommodate field-testing the unit.

Installation flexibility. To satisfy a variety of installations, the 5600 Series easily mounts to single-gang and octagonal backboxes. These models also accommodate 4" (101.6 mm) square backboxes when used with a plaster ring. The mounting bracket is reversible to allow for flush- and surface-mount backbox installations.

Visual identification. The 5600 Series provides clear markings on the exterior of the unit to ensure that the proper detector is being used. Alphanumeric characters identify the activation method, as well as the temperature rating, in degrees Fahrenheit and Celsius. Fixed temperature models are identified "FX", while combination fixed/rate-of-rise units are marked "FX/ROR". The 5600 Series also provides a collector as a post-activation indicator. Once the detector has been activated, the collector drops from the unit to allow easy identification of the specific unit in alarm.

FEATURES

- Multiple configurations available:
 - Fixed-temperature (non-resettable) or combination fixed (non-resettable)/rate-of-rise (self-restoring).
 - Low-temperature and high-temperature ratings.
 - Single-circuit and dual-circuit.
- Easy-to-read alphanumeric identification of detector type and temperature rating.
- External collector provides visual indication of activation.
- Reversible mounting bracket for flush- and surface-mount installations.
- Flexible mounting capabilities: single-gang, 3.5" or 4" octagonal, 4" (101.6 mm) square with plaster ring.
- Easy-to-use terminal screws provide a more positive wiring connection.
- Low-profile design to coordinate with room aesthetics.

SPECIFICATIONS

Physical Specifications:

Maximum installation temperature:

For models 5601, 5603, 5621, 5623: 100°F (38°C).

For models 5602, 5604, 5622, 5624: 150°F (65.6°C).



LISTED
S2101

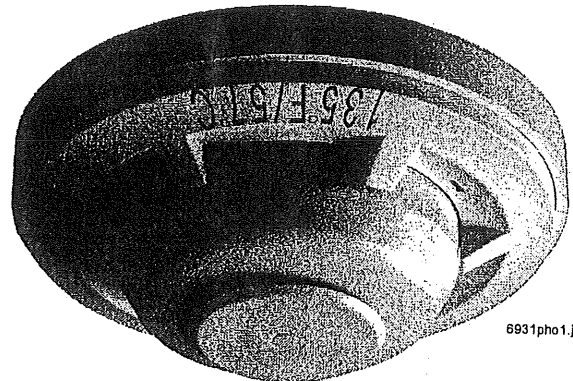


CS360
Vol. 4



California
State Fire
Marshal
7270-1209:227

MEA
199-03-E



6931ph01.jpg

Alarm temperature:

For models 5601, 5603, 5621, 5623: 135°F (57°C).

For models 5602, 5604, 5622, 5624: 194°F (90°C).

Rate-of-rise threshold: 15°F (8.3°C) per minute (models 5601, 5602, 5621, 5622 only).

Operating humidity range: 5% to 95% RH noncondensing.

Input terminals: non-polarized, accept 14 to 22 AWG (2.0 to 0.33 mm²).

Dimensions: diameter with mounting bracket: 4.57" (116 mm); height with mounting bracket: 1.69" (43 mm).

Weight: 6 oz. (170 grams).

Mounting options: 3.5" (88.9 mm) octagonal backbox; 4" (101.6 mm) octagonal backbox; single-gang backbox; 4" (101.6 mm) square backbox with a square-to-round plaster ring.

Electrical Specifications:

Operating Voltage	Contact Ratings (Resistive)
6 – 125 VAC	3.0 A
6 – 28 VDC	1.0 A
125 VDC	0.3 A
250 VDC	0.1 A

6931elec.tbl

NOTIFIER® is a Honeywell company.

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 NOTIFIER. Phone: (203) 484-7161 FAX: (203) 484-7118



12 Clintonville Road, Northford, Connecticut 06472



ARCHITECTURAL AND ENGINEERING SPECIFICATIONS

Mechanical heat detector shall be a System Sensor 5600 Series model number _____, Listed to Underwriters Laboratories UL 521 for Heat Detectors for Fire Protective Signaling Systems. The detector shall be either a single-circuit or a dual-circuit type, normally open. The detector shall be rated for activation at either 135°F (57°C) or 194°F (90°C), and shall activate by means of a fixed-temperature thermal sensor, or a combination fixed-temperature/rate-of-rise thermal sensor. The rate-of-rise element shall be activated by a rapid rise in temperature, approximately 15°F (8.3°C) per minute. The detector shall include a reversible mounting bracket for

mounting to 3.5-inch (88.9 mm) octagonal, 4-inch (101.6 mm) octagonal, single gang, and 4-inch (101.6 mm) square backboxes with a square-to-round plaster ring. Wiring connections shall be made by means of SEMS screws that shall accommodate 14 – 22 AWG wire. The detector shall contain alphanumeric markings on the exterior of the housing to identify its temperature rating and activation method. The rate-of-rise element of combination fixed-temperature/rate-of-rise models shall be restorable, to allow for field-testing. The detectors shall include an external collector that shall drop upon activation to identify the unit in alarm.

ORDERING INFORMATION

Model	Circuit	Temperature Rating	Activation	UL Protected Spacing, 10' (3.048 m) Ceiling*
5601	Single	135°F (57°C)	Fixed-Temperature/Rate-of-Rise	50 ft. x 50 ft. (15.24 m x 15.24 m)
5602	Single	194°F (90°C)	Fixed-Temperature/Rate-of-Rise	50 ft. x 50 ft. (15.24 m x 15.24 m)
5603	Single	135°F (57°C)	Fixed-Temperature	25 ft. x 25 ft. (7.62 m x 7.62 m)
5604	Single	194°F (90°C)	Fixed-Temperature	25 ft. x 25 ft. (7.62 m x 7.62 m)
5621	Dual	135°F (57°C)	Fixed-Temperature/Rate-of-Rise	50 ft. x 50 ft. (15.24 m x 15.24 m)
5622	Dual	194°F (90°C)	Fixed-Temperature/Rate-of-Rise	50 ft. x 50 ft. (15.24 m x 15.24 m)
5623	Dual	135°F (57°C)	Fixed-Temperature	25 ft. x 25 ft. (7.62 m x 7.62 m)
5624	Dual	194°F (90°C)	Fixed-Temperature	25 ft. x 25 ft. (7.62 m x 7.62 m)

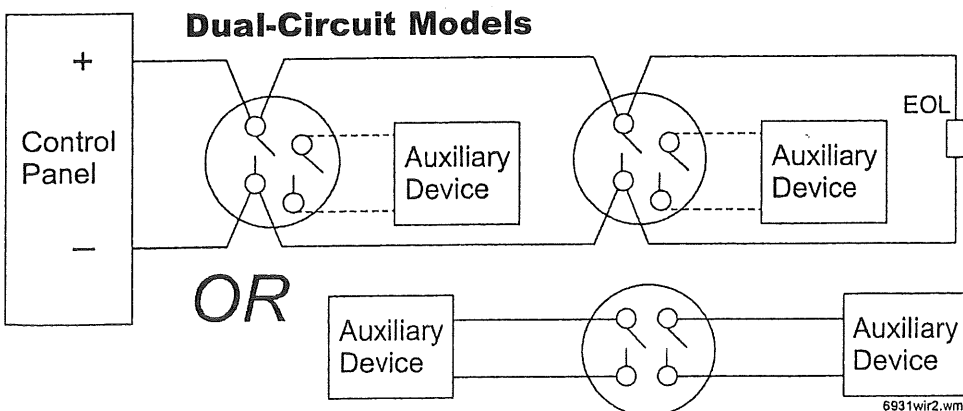
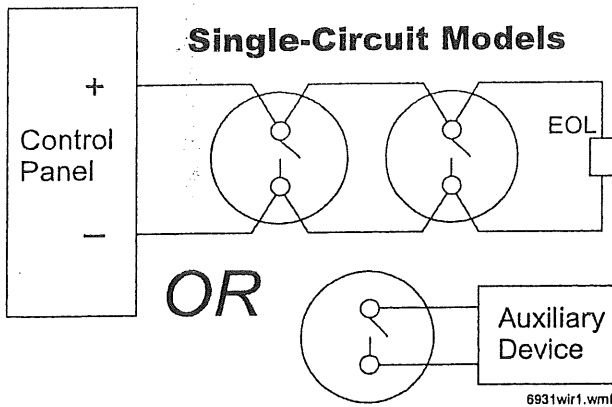
*NOTE: Refer to NFPA 72 guidelines for spacing reductions when ceiling heights exceed 10 feet (3.048 m).

6931ordr.tbl

Previous	ORDER	Previous	ORDER
HD-601	5601	HD-621	5621
HD-602	5602	HD-622	5622
HD-603	5603	HD-623	5623
HD-604	5604	HD-624	5624

6931ref.tbl

WIRING DIAGRAMS





July 20, 2004

DN-6927 • E-30

FCPS-24S6 and FCPS-24S8 6-Amp and 8-Amp 24-Volt Remote Power Supplies

Section: Power Supplies

GENERAL

The **FCPS-24S6** (6-amp) and **FCPS-24S8** (8-amp) are compact, cost-effective remote power supplies with battery charger. The FCPS-24S6/-24S8 may be connected to any 12- or 24-volt Fire Alarm Control Panel (FACP) or may be used as a stand-alone supply. Primary applications include Notification Appliance (bell) Circuit (NAC) expansion (to support ADA requirements and NAC synchronization) or auxiliary power to support 24-volt system accessories. The FCPS-24S6/-24S8 provides **regulated** and **filtered** 24 VDC power to four notification appliance circuits configured as either four Class B (Style Y) or Class A (Style Z, with **ZNAC-4** option module). Alternately, the four outputs may be configured as all non-resettable, all resettable, or two non-resettable and two resettable. The FCPS-24S6/-24S8 also contains a battery charger capable of charging up to 18 AH batteries.

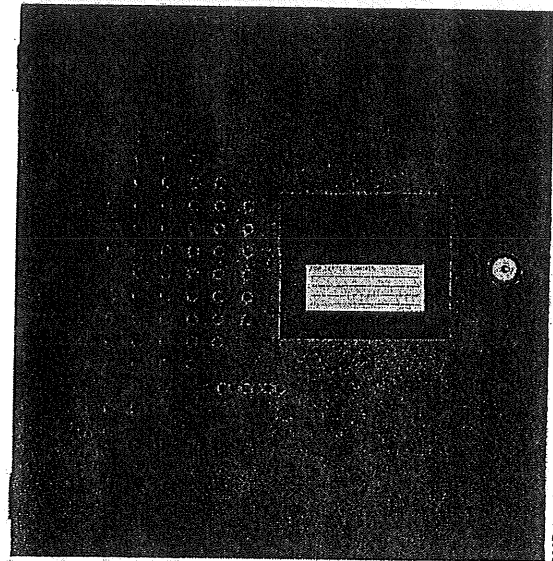
FEATURES

- UL-Listed NAC synchronization using System Sensor, Wheelock, or Gentex "Commander²" appliances.
- Cascadable for up to ten power supplies (four for Gentex with strobe timing maintained).
- Operates as a "sync follower" or as a "sync generator" (default). See note on page 2.
- Contains two fully-isolated input/control circuits — triggered from FACP NAC (NAC expander mode) or jumpered permanently "ON" (stand-alone mode).
- Four Class B (Style Y) or four Class A (Style Z, with ZNAC-4 module) NACs.
- 6-amp (FCPS-24S6) or 8-amp (FCPS-24S8) full load output, with 3 amps maximum/circuit, in NAC expander mode (UL 864).
- 4-amp (FCPS-24S6) or 6-amp (FCPS-24S8) continuous output in stand-alone mode (UL 1481).
- Compatible with coded inputs; signals passed through.
- Optional power-supervision relay (**A77-716B**).
- In stand-alone mode, output power circuits may be configured as: resettable (reset line from FACP required), non-resettable, or a mix of two and two.
- Fully *regulated* and *filtered* power output — optimal for powering four-wire smoke detectors, annunciators, and other system peripherals requiring regulated/filtered power.
- Power-limiting technology meets UL power-limiting requirements.
- Form-C normally-closed trouble relay.
- Fully supervised power supply, battery, and NACs.
- Selectable earth fault detection.
- AC trouble report selectable for immediate or 8-hour delay.
- Works with virtually any UL 864 fire alarm control which utilizes an industry-standard reverse-polarity notification circuit (including unfiltered and unregulated bell power).
- Requires input trigger voltage of 9.0 – 32 VDC.
- Self-contained in compact, locking cabinet — 15" (38.1 cm) high x 14.5" (36.83 cm) wide x 2.75" (6.985 cm) deep.
- Includes integral battery charger capable of charging up to 18 AH batteries. Cabinet capable of housing 7.0 AH batteries.



California State Fire Marshal
7315-0028:225

MEA
299-02-E



6927/phot. pg

- Battery charger may be disabled via DIP switch for applications requiring larger batteries.
- Fixed, clamp-type terminal blocks accommodate up to 12 AWG (3.1 mm²) wire.

STANDARDS and CODES

The FCPS-24S6/-24S8 complies with the following standards:

- **NFPA 72** National Fire Alarm Code.
- **UL 864** Standard for Control Units for Fire Alarm Systems (*NAC expander mode*).
- **UL 1481** Power Supplies for Fire Alarm Systems (*stand-alone mode*).

SPECIFICATIONS

Primary (AC) power:

- FCPS-24S6/-24S8: 120 VAC, 60 Hz, 3.2 A maximum.
- Wire size: minimum #14 AWG (2.0 mm²) with 600 V insulation.

Control input circuit:

- Trigger input voltage: 9 to 32 VDC.
- Trigger current: 2.0 mA (16 – 32 V). Per input: 1.0 mA (9 – 16 V).

Trouble contact rating: 5 amps at 24 VDC.

NOTIFIER® is a Honeywell company.

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 NOTIFIER. Phone: (203) 484-7161 FAX: (203) 484-7118



12 Clintonville Road, Northford, Connecticut 06472



Auxiliary power output: specific application power 500 mA maximum.

Output circuits:

- +24 VDC filtered, regulated.
- 3.0 amps maximum for any one circuit.
- Total continuous current for all outputs (stand-alone mode):
for **FCPS-24S6**: 4.0 amps maximum; for **FCPS-24S8**: 6.0 amps maximum.
- Total short-term current for all outputs (NAC expander mode):
for **FCPS-24S6**: 6.0 amps maximum; for **FCPS-24S8**: 8.0 amps maximum.

Secondary power (battery) charging circuit:

- Supports lead-acid batteries only.
- Float-charge voltage: 27.6 VDC.
- Maximum charge current: 1.5 amps
- Maximum battery capacity: 18 AH.

APPLICATIONS

Example 1: Expand notification appliance power an additional 6.0 amps (FCPS-24S6) or 8.0 amps (FCPS-24S8). Use up to four Class B (Style Y) outputs or four Class A (Style Z) outputs (using ZNAC-4). For example, the FACP notification appliance circuits will activate the FCPS when reverse-polarity activation occurs. Trouble conditions on the FCPS are sensed by the FACP through the notification appliance circuit.

Example 2: Use the FCPS to expand auxiliary regulated 24-volt system power up to 4.0 amps (FCPS-24S6) or up to 6.0 amps (FCPS-24S8). Both resettable and non-resettable power options are available. Resettable outputs are created by connecting the resettable output from the FACP to one or both of the FCPS inputs.

Example 3: Use addressable control modules to activate the FCPS instead of activating it through the FACP notification appliance circuits. This typically allows for mounting the FCPS at greater distances* away from the FACP while expanding system architecture in various applications.

For example, an addressable control module is used to activate the FCPS, and an addressable monitor module is used to sense FCPS trouble conditions. Local auxiliary power output from the FCPS provides power to the addressable control module.

*Addressable FACP's are capable of locating control and monitor modules at distances of up to 10,000 feet (3048 meters).

AGENCY LISTINGS AND APPROVALS

See the first page of this data sheet for listing agencies and file numbers. These listings and approvals apply to the FCPS-24S6 and the FCPS-24S8. In some cases, certain modules or applications may not be listed by certain approval agencies, or listing may be in process. Consult factory for latest listing status.

SYNC FOLLOWER/GENERATOR NOTE

In some installations, it is necessary to synchronize the flash timing of all strobes in the system for ADA compliance. Strobes accomplish this by monitoring very short timing pulses on the NAC power which are created by the FACP. When installed at the end of a NAC wire run, the FCPS-24S6/-24S8 can track (i.e., "follow") the strobe synchronization timing pulses on the existing NAC wire run. This maintains the overall system flash timing of the additional strobes attached to the FCPS.

When the FCPS-24S6/-24S8 is configured (via DIP switch settings) as a "sync follower," the FCPS's NAC outputs track the strobe synchronization pulses present at the FCPS's sync input terminal. The pulses originate from an upstream FACP or other power supply.

When the FCPS-24S6/-24S8 is configured (via DIP switch settings) as a "sync generator," the FCPS's sync input terminals are not used. Rather, the FCPS is the originator of the strobe synchronization pulses on the FCPS's NAC outputs. In "sync generator" mode, the sync type (System Sensor, Wheelock, or Gentex) is selectable via DIP switch settings.

PRODUCT LINE INFORMATION

FCPS-24S6: 6.0 amp, 120 VAC remote charger power supply. Includes main printed circuit board, transformers, enclosure (15" [38.1 cm] high x 14.5" [36.83 cm] wide x 2.75" [6.985 cm] deep), and installation instructions.

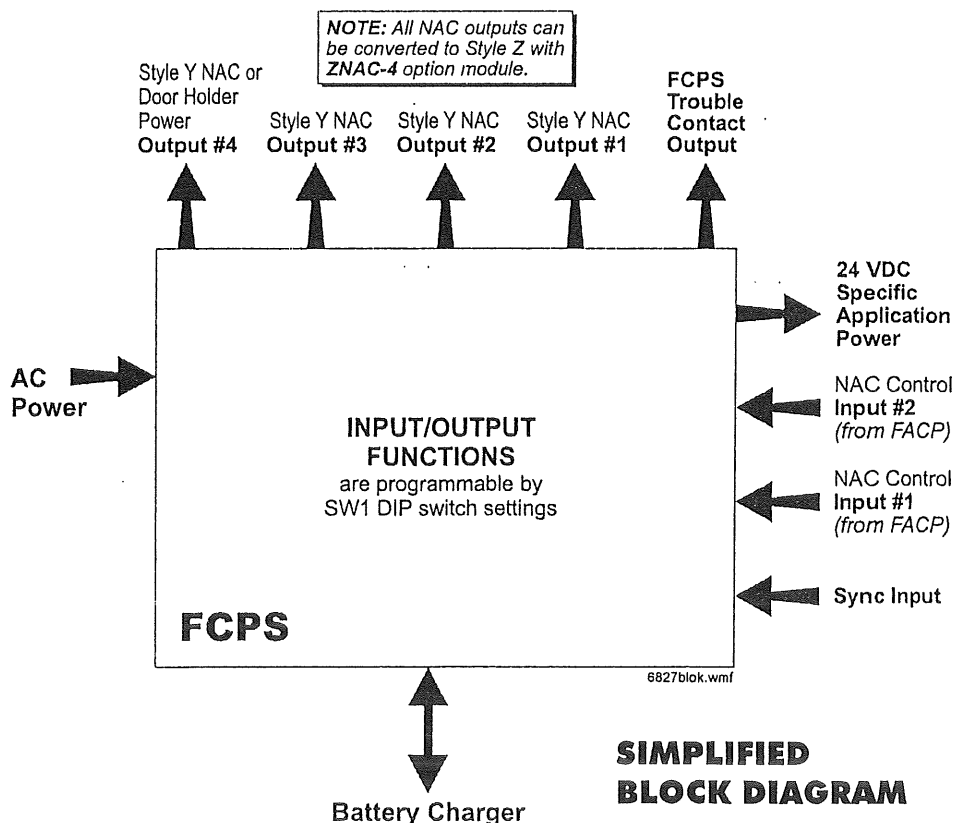
FCPS-24S8: 8.0 amp, 120 VAC remote charger power supply. Includes main printed circuit board, transformers, enclosure (15" [38.1 cm] high x 14.5" [36.83 cm] wide x 2.75" [6.985 cm] deep), and installation instructions.

ZNAC-4: Class A (Style Z) NAC option module.

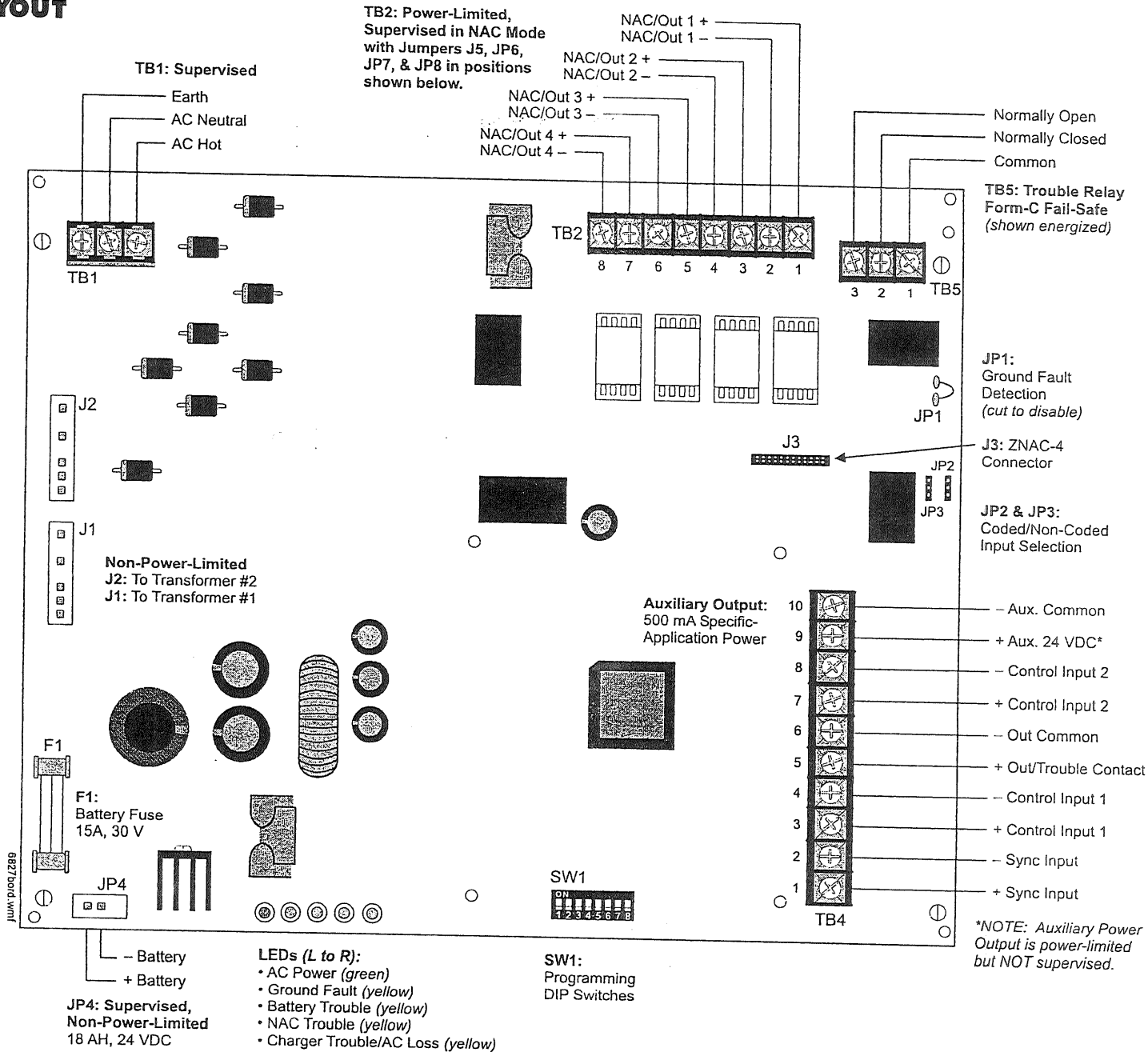
A77-716B: 12/24 VDC end-of-line relay for monitoring four-wire smoke detector power.

BAT-1270: Battery, 12 volt, 7.0 AH (two required, see BAT Series data sheet DN-6933).

PS-1270: Battery, 12 volt, 7.0 AH (two required, see PS Series data sheet DN-1109).



BOARD LAYOUT





July 7, 2000

DN-1109 • E-200

PS Series Batteries

Section: Power Supplies

GENERAL

Power-Sonic PS Series batteries provide secondary power for the whole series of NOTIFIER fire alarm control panels.

FEATURES

- Provide secondary power for control panels.
- Gelled electrolyte.
- Sealed and maintenance-free.
- Overcharge protected.
- Extended shelf life.
- Easy handling with leakproof construction.
- Ruggedly constructed, high-impact case (ABS, polystyrene, or polypropylene depending on model).
- Long service life.
- Compact design.

CAPACITY

Battery capacity, expressed in ampere-hours (AH), is the product of a discharge current and the length of time that the current is discharged. Batteries are rated according to their performance during 20 hours of discharge at a constant current.

The rated capacity of a battery is determined by subjecting it to a constant discharge current for 20 hours at 68°F (20°). After 20 hours the voltage across the terminals is measured. The discharge current which causes a reading of 1.72 volts per cell (5.16 V on a 6 V battery and 10.32 V on a 12 V battery) is called the rated current. This current multiplied by 20 is the rated capacity of the battery.

APPLICATIONS

Use the PS Series batteries to provide backup power for control panels. Select batteries based on current requirements for your system and the capacity of its charger. These batteries can be used over a temperature range of -76°F to +140°F (-60°C to +60°C).

CONSTRUCTION

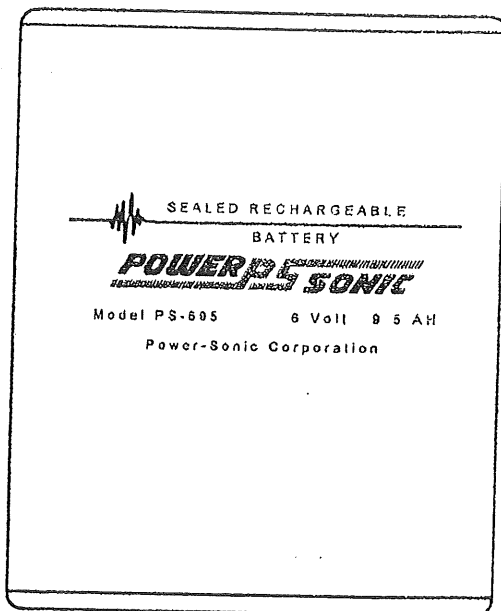
The sealed construction of the Power-Sonic battery allows trouble-free, safe operation in any position. There is no need to add electrolyte, as gases generated during overcharge are recombined in a unique "Oxygen Cycle." The battery is sealed, leakproof, and maintenance-free. The case is of high-impact materials with high resistance to chemicals and flammability.

INSTALLATION

All panels have space reserved for batteries. See the appropriate panel installation manual for battery size restrictions. Typical interconnection diagrams are shown in the literature accompanying each control panel.



LISTED
MH14328 (S)



The PS-695 Battery

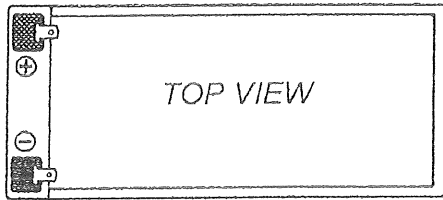
This document is not intended to be used for installation purposes. We try to keep our product information up-to-date and accurate. We cannot cover all specific applications or anticipate all requirements. All specifications are subject to change without notice. For more information, contact NOTIFIER. Phone: (203) 484-7161 FAX: (203) 484-7118



NOTIFIER

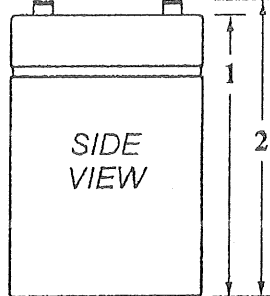
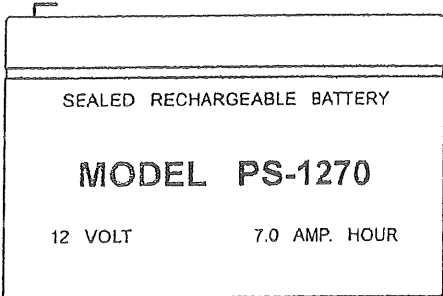
One Fire-Lite Place, Northford, Connecticut 06472

ISO 9001
CERTIFIED
ENGINEERING & MANUFACTURING



HEIGHT 1 BELOW
3.70 ± 0.08 inches
(94 ± 2 mm)

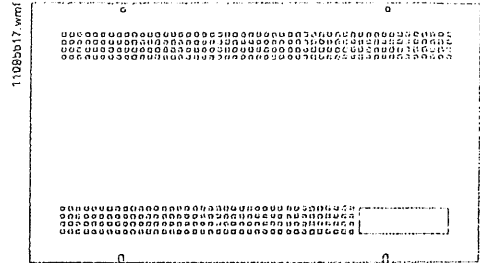
HEIGHT 2 BELOW
3.86 ± 0.08 inches
(96 ± 2 mm)



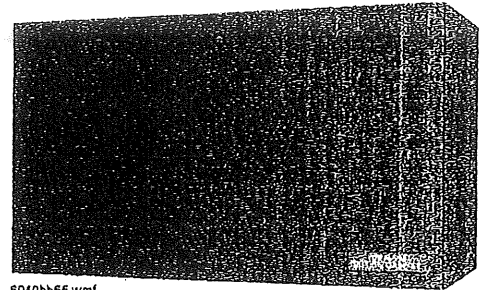
5.94 ± 0.04 inches
(151 ± 1 mm)

2.56 ± 0.04 inches
(65 ± 1 mm)

1109dm1.tif



BB-17: Optional Battery Backbox
14-1/2" W x 8-1/4" H x 4-3/4" D
(mm: 368.3 W x 209.55 H x 120.65 D)
For remote mounting of two 12-volt PS-12180 batteries.



6040bb55.wmf

BB-55: Optional Battery Backbox
See CHG-120 data sheet for details.

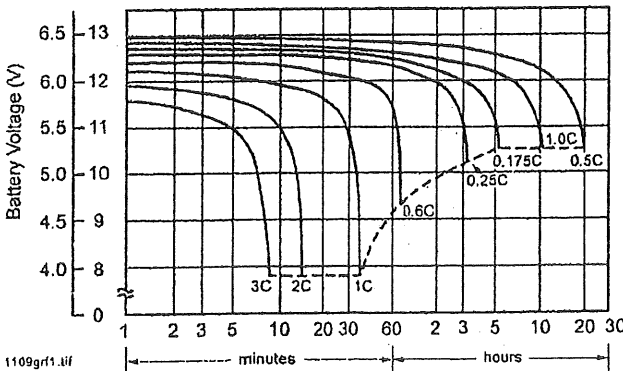
ENGINEERING SPECIFICATIONS

The fire control panel shall be equipped with secondary power provided by gelled-electrolyte batteries. The batteries shall be maintenance-free and shall be capable of powering the system in a manner and for a length of time determined by the governing regulations and the authority having jurisdiction.

MODEL	Nominal Voltage V	Nominal Capacity @ 20 hr. rate A.H.	Discharge Current @ 20 hr. rate mA	DIMENSIONS									
				Width		Depth		Height		Height over terminal		Weight	
				in.	mm.	in.	mm.	in.	mm.	in.	mm.	lbs.	kg.
PS-695	6	9.5	475	4.26	108	2.75	70	5.54	141	5.54	141	4.9	2.2
PS-1250	12	5.0	250	3.54	90	2.76	70	4.02	102	4.21	107	4.1	1.9
PS-1270	12	7.0	325	5.94	151	2.56	65	3.70	94	3.86	98	5.7	2.6
PS-12120	12	12	600	5.94	151	3.86	98	3.70	94	3.86	98	8.8	4.0
PS-12180	12	18	875	7.13	181	2.99	76	6.57	167	6.57	167	12.8	5.8
PS-12250	12	25	1300	6.89	175	6.54	166	4.92	125	4.92	125	18.7	8.5
PS-12550	12	55	3000	10.25	260	6.60	168	8.20	208	9.45	240	39.7	18.0
PS-121000	12	100	5000	12.00	305	6.60	168	8.20	208	9.45	240	65.7	29.8

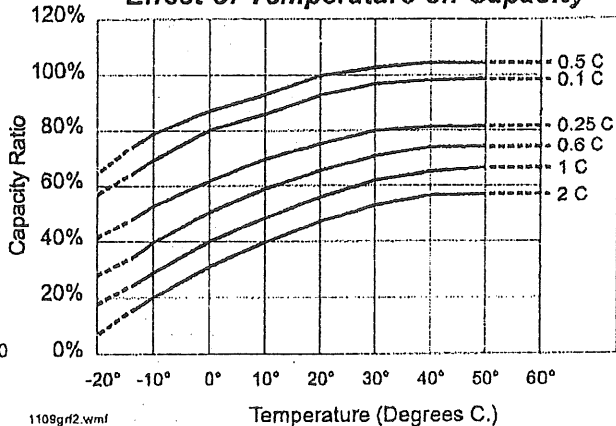
1109t1.tif

Characteristic Discharge Curves



1109gr1.tif

Effect of Temperature on Capacity



1109gr2.wmf



March 30, 2004

DN-5765 • J-120

Wheelock RSS and RSSP Series Single- and Multi-Candela Strobes and Strobe Plates

Section: Audio/Visual Devices

GENERAL

Wheelock's patented Series RSS Strobe Appliances and Series RSSP Strobe Plates have lower current draw while maintaining outstanding performance, reliability and cost effectiveness. These versatile appliances will satisfy virtually all requirements for indoor, wall or ceiling mount applications.

Strobe options for wall mount models include 15/75 or Wheelock's Patented MCW multi-candela strobe with field selectable candela settings of 15/30/75/110cd, Ceiling mount models include the patented MCC multi-candela ceiling strobe with field selectable intensities of 15/30/75/95cd or the high intensity MCCH strobe with field selectable 115/177cd.

All models may be synchronized when used in conjunction with the Wheelock **SM**, **DSM** Sync Modules or a Power Supplies with Wheelock's Patented Sync Protocol. Synchronized strobes can eliminate possible restrictions on the number of strobes in the field of view. Wheelock's synchronized strobes offer an easy way to comply with ADA recommendations concerning photosensitive epilepsy as well as meeting the requirements of NFPA 72.

Wheelock's Series RSS Strobes employ a Patented Integral Strobe Mounting Plate that can be mounted to a single gang, double gang, 4" square, 100mm European backboxes or the SHBB surface backbox. If the flush backbox has side or top space between it and the finished wall, the NATP (Notification Appliance Trimplate) may be used. It provides an additional .65" of trim for the Appliance. An attractive cover plate is provided for a clean, finished appearance on all models.

The Series RSSP Multi-Candela Strobe Plates are a cost effective way to retrofit required wall strobe appliances to bells, horns, chimes, multitones or speakers and easily mounts to standard 4" backboxes or for surface mount use with Wheelock's SBL2 surface backbox.

FEATURES

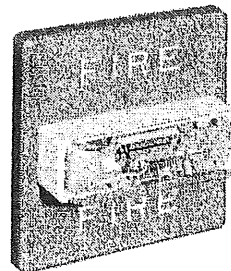
- Wall mount Multi-Candela models are available with Field Selectable Candela Settings of 15/30/ 75/110cd or 135/185cd. Single Candela models are available in 15/75cd
- Ceiling mount Multi-Candela models are available with field selectable candela settings of 15/30/75/95cd or 115/177cd.
- Strobes produce 1 flash per second over the regulated voltage range
- 12 and 24 VDC models with wide UL "Regulated Voltage" using filtered (DC) or unfiltered VRMS input voltage
- Synchronize with Wheelock SM, DSM or Power Supplies with built-in sync protocol



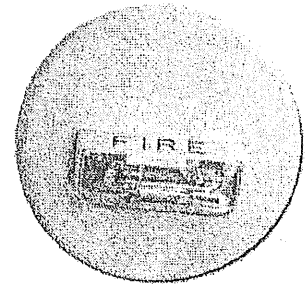
California State Fire Marshal
7125-0785:141



151-92-E Vol. XIX, XX
Vol. XXIV (RSS-24MCW-FR, -FW)



Series RSS



RSS Round



Multi-Candela Indicator
(bottom of Strobe Lens)



Series RSSP

- ADA/NFPA/UFC/ANSI compliant. Meets OSHA 29 Part 1910.165

GENERAL NOTES

- RSS/RSSP Series strobe products are listed under UL 1971 for indoor use with a temperature range of 32°F to 120°F (0°C to 49°C) and maximum humidity of 93% (± 2%).
- "Regulated voltage range" is the newest terminology used by UL to identify the voltage range. Prior to this change, UL used the terminology "Listed voltage range."

NOTIFIER® is a Honeywell company.

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 NOTIFIER. Phone: (203) 484-7161 FAX: (203) 484-7118



12 Clintonville Road, Northford, Connecticut 06472



! WARNING!

PLEASE READ THESE SPECIFICATIONS AND ASSOCIATED INSTALLATION INSTRUCTIONS CAREFULLY BEFORE USING, SPECIFYING OR APPLYING THIS PRODUCT. FAILURE TO COMPLY WITH ANY OF THE FOLLOWING INSTRUCTIONS, CAUTIONS AND WARNINGS COULD RESULT IN IMPROPER APPLICATION, INSTALLATION AND/OR OPERATION OF THESE PRODUCTS IN AN EMERGENCY SITUATION, WHICH COULD RESULT IN PROPERTY DAMAGE, AND SERIOUS INJURY OR DEATH TO YOU AND/OR OTHERS.

NOTE: Due to continuous development of our products, specifications and offerings are subject to change without notice in accordance with Wheelock, Inc. standard terms and conditions.

MODEL NUMBERS OFFERED BY NOTIFIER

MODEL	WALL/CEILING MOUNT	NON-SYNC	SYNC W/ SM, DSM	STROBE CANDELA	12/24 VDC	# MODEL COLOR RED/WHITE	MOUNTING OPTIONS ***	SQUARE OR ROUND	AGENCY APPROVALS				
									UL	MEA	CSFM	FM	BFP
RSS-24MCW-FR	Wall	X	X	15/30/75/110	24	Red	B,D,E,F,G,H,J,N,O,R,X	Square	X	X	X	X	X
RSS-24MCW-FW	Wall	X	X	15/30/75/110	24	White	B,D,E,F,G,H,J,N,O,R,X	Square	X	X	X	X	X
RSS-24 1575W-FR	Wall	X	X	15 (75 on Axis)	24	Red	B,D,E,F,G,H,J,N,O,R,X	Square	X	X	X	X	X
RSS-12 1575W-FR	Wall	X	X	15 (75 on Axis)	12	Red	B,D,E,F,G,H,J,N,O,R,X	Square	X	X	X	X	X
RSS-24MCC-FR	Ceiling	X	X	15/30/75/95	24	Red	B,D,E,F,G,H,J,N,O,R,X	Square	X	*	X	*	*
RSS-24MCC-FW	Ceiling	X	X	15/30/75/95	24	White	B,D,E,F,G,H,J,N,O,R,X	Square	X	*	X	*	*
RSS-24MCCR-FW	Ceiling	X	X	15/30/75/95	24	White	B,D,E,F,G,H,J,N,O,R,X	Round	X	*	X	*	*
RSS-24MCCH-FW	Ceiling	X	X	115/ 177	24	White	B,D,E,F,G,H,J,N,O,R,X	Square	X	*	*	*	*
RSS-24MCCH-FR	Ceiling	X	X	115/ 177	24	Red	B,D,E,F,G,H,J,N,O,R,X	Square	X	*	*	*	*
RSS-24MCCR-FW	Ceiling	X	X	115/ 177	24	White	B,D,E,F,G,H,J,N,O,R,X	Round	X	*	*	*	*
RSSWP-2475W-FR*	Wall	X	X	75 @ -31°F	24	Red	B,D,E,F,G,H,J,N,O,R,X	Square	X	X	X	X	*

***Refer to Notifier data sheet DN-6111 for mounting options.

Table 1: Average RMS Current*

RSS/RSSP 24VDC Models	RSS/RSS - Wall Mount					RSS - Ceiling Mount						
	241575W	24MCW				24MCC				24MCCH		
	1575cd	15cd	30cd	75cd	110cd	15cd	30cd	75cd	95cd	115cd	177cd	
16 vdc	0.101	0.062	0.102	0.192	0.265	0.068	0.112	0.211	0.292	0.300	0.420	
24 vdc	0.064	0.41	0.065	0.116	0.155	0.045	0.072	0.128	0.171	0.195	0.270	
33 vdc	0.047	0.032	0.047	0.081	0.107	0.035	0.052	0.089	0.118	0.145	0.190	

RSS/RSSP 24 VDC Models	RSS/RSSP Wall Mount 121575W
8 vdc	0.336
12 vdc	0.179
17.5 vdc	0.136

*Average RMS Current is per UL average RMS method and Average Mean Current is per UL average mean method. 12 volt models use average mean current.

For rated In Rush and Peak current across the UL listed voltage range for both filtered DC and unfiltered VRMS (FWR), see installation instructions.

SYNC MODULES/POWER SUPPLY

MODEL NUMBER	ORDER CODE	INPUT VOLTAGE (VDC)	AVERAGE MEAN CURRENT @ 24 VDC	MOUNTING OPTIONS
SM-12/24-R	6369	24	.028	W
DSM-12/24-R	6374	24	.035	W

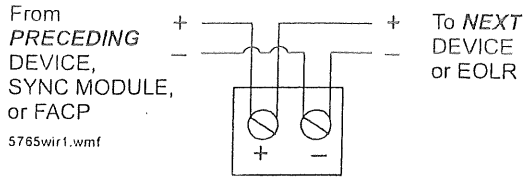
NOTES:
SM Sync Module is rated for 3.0 amperes @ 24 VDC.
DSM Sync Module is rated for 3.0 amperes per circuit. The maximum number of interconnected DSM modules is twenty (20).

Table 2: Audibles/Speakers for RSSP Strobe Plate

Product	Series
Multitone Appliances	AMT, MT
Horns	AH, NH, HS
Motor Bells	MB-G6/G10
Speakers	ET-1010/1080, E70, ET70
Chimes	CH70

WIRING DIAGRAMS

FIGURE 1: RSS/RSSP device.

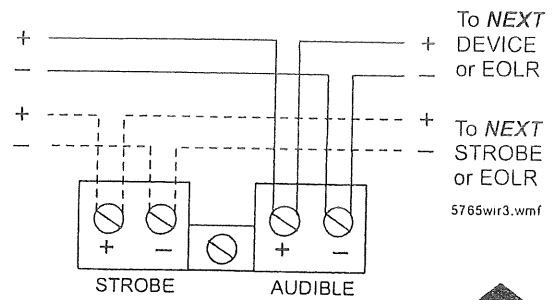


5765wir1.wmf

From PRECEDING DEVICE or FACP



From PRECEDING STROBE, SYNC MODULE, or FACP



To NEXT DEVICE or EOLR

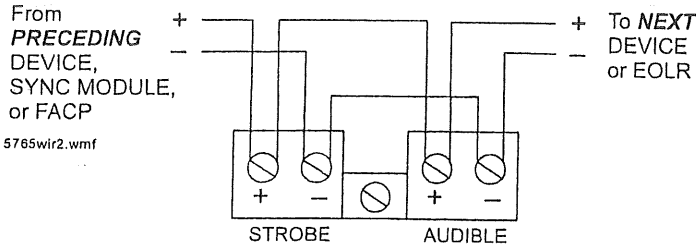
To NEXT STROBE or EOLR

5765wir3.wmf

FIGURE 2: Strobe/plate assembly with audible and visible operating in unison.

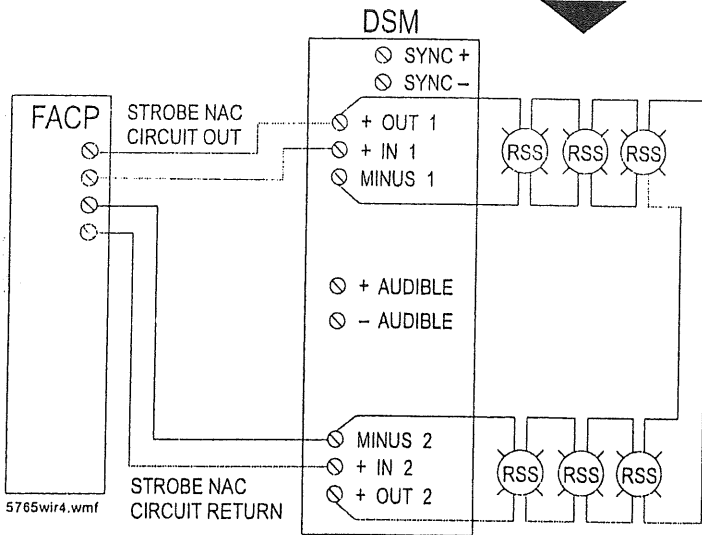


FIGURE 3: Strobe/plate assembly with audible and visible operating independently.



5765wir2.wmf

FIGURE 4: RSS/RSSP devices synchronized with DSM Module; single Class "A" NAC circuit.



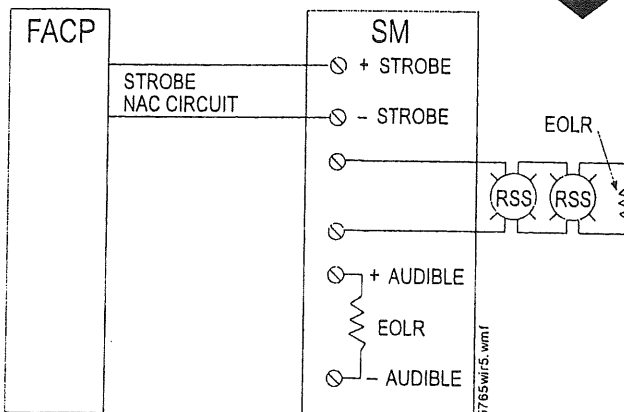
5765wir4.wmf

For details on using SM or DSM: Sync Modules Installation instructions #P83123 (for SM) or #P83177 (for DSM).

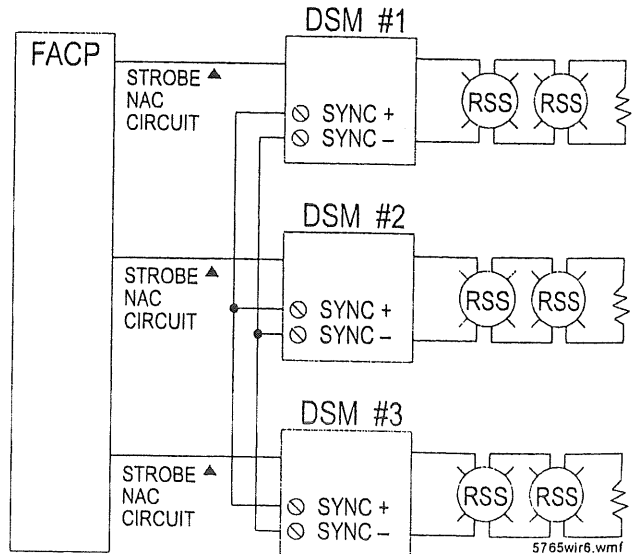
FIGURE 6: RSS/RSSP devices synchronized with multiple DSM Modules.

INTERCONNECTING WIRING SHOWN. MAXIMUM OF TWENTY (20) DSM MODULES.

FIGURE 5: RSS/RSSP devices synchronized with SM Module single Class "B" NAC circuit.



5765wir5.wmf



5765wir6.wmf



WARNING! CONTACT WHEELLOCK FOR THE CURRENT "INSTALLATION INSTRUCTIONS" AND "GENERAL INFORMATION" SHEET (P82380) ON THESE PRODUCTS. THESE DOCUMENTS UNDERGO PERIODIC CHANGES. IT IS IMPORTANT THAT YOU HAVE CURRENT INFORMATION ON THESE PRODUCTS. THESE MATERIALS CONTAIN IMPORTANT INFORMATION THAT SHOULD BE READ PRIOR TO SPECIFYING OR INSTALLING THESE PRODUCTS, INCLUDING:

- TOTAL CURRENT REQUIRED BY ALL APPLIANCES CONNECTED TO SYSTEM SECONDARY POWER SOURCES.
- FUSE RATINGS ON NOTIFICATION APPLIANCE CIRCUITS TO HANDLE PEAK CURRENTS FROM ALL APPLIANCES ON THOSE CIRCUITS.
- ADDING, REPLACING OR CHANGING APPLIANCES OR CHANGING CANDELA SETTINGS WILL AFFECT CURRENT DRAW. RECALCULATE CURRENT DRAW TO INSURE THAT THE TOTAL AVERAGE CURRENT AND TOTAL PEAK REQUIRED BY ALL APPLIANCES DO NOT EXCEED THE RATED CAPACITY OF THE POWER SOURCE OR FUSES.
- COMPOSITE FLASH RATE FROM MULTIPLE STROBES WITHIN A PERSON'S FIELD OF VIEW.
- THE VOLTAGE APPLIED TO THESE PRODUCTS MUST BE WITHIN THEIR "REGULATED VOLTAGE RANGE".
- INSTALLATION OF 110 CANDELA STROBE PRODUCTS IN SLEEPING AREAS.
- INSTALLATION IN OFFICE AREAS AND OTHER SPECIFICATION AND INSTALLATION ISSUES.
- USE STROBES ONLY ON CIRCUITS WITH CONTINUOUSLY APPLIED OPERATING VOLTAGE. DO NOT USE STROBES ON CODED OR INTERRUPTED CIRCUITS IN WHICH THE APPLIED VOLTAGE IS CYCLED ON AND OFF AS THE STROBES MAY NOT FLASH.
- FAILURE TO COMPLY WITH THE INSTALLATION INSTRUCTIONS OR GENERAL INFORMATION SHEETS COULD RESULT IN IMPROPER INSTALLATION, APPLICATION, AND/OR OPERATION OF THESE PRODUCTS IN AN EMERGENCY SITUATION, WHICH COULD RESULT IN PROPERTY DAMAGE AND SERIOUS INJURY OR DEATH TO YOU AND/OR OTHERS.
- CONDUCTOR SIZE (AWG), LENGTH AND AMPACITY SHOULD BE TAKEN INTO CONSIDERATION PRIOR TO DESIGN AND INSTALLATION OF THESE PRODUCTS, PARTICULARLY IN RETROFIT INSTALLATIONS.

Wheelock products must be used within their published specifications and must be PROPERLY specified, applied, installed, operated, maintained and operationally tested in accordance with their installation instructions at the time of installation and at least twice a year or more often and in accordance with local, state and federal codes, regulations and laws. Specification, application, installation, operation, maintenance and testing must be performed by qualified personnel for proper operation in accordance with all of the latest National Fire Protection Association (NFPA), Underwriters' Laboratories (UL), National Electrical Code (NEC), Occupational Safety and Health Administration (OSHA), local, state, county, province, district, federal and other applicable building and fire standards, guidelines, regulations, laws and codes including, but not limited to, all appendices and amendments and the requirements of the local authority having jurisdiction (AHJ).

ARCHITECTS' AND ENGINEERS' SPECIFICATIONS

The visual notification appliances shall be Wheelock Series RSS Strobe Appliances or approved equals. The Series RSS shall meet and be listed for UL Standard 1971 (Emergency Devices for the Hearing-Impaired) for Indoor Fire Protection Service. The strobe shall be listed for indoor use and shall meet the requirements of FCC Part 15 Class B. The strobe appliances shall produce a flash rate of one (1) flash per second over the Regulated Voltage Range and shall incorporate a Xenon flashtube enclosed in a rugged Lexan® lens. All inputs shall be compatible with standard reverse polarity supervision of circuit wiring by a Fire Alarm Control Panel (FACP). When Strobe Plates are to be installed, they shall be the Wheelock Series RSSP Strobe Plate and shall have the same electronic circuitry as the Wheelock Series RSS.

The Series RSS Strobe shall be of low current design. Where Multi-Candela appliances are specified, the strobe intensity shall have field selectable settings and shall be rated per UL Standard 1971 at 15/30/75/110cd or 135/185cd for wall mount and 15/30/75/95cd or 115/177cd for ceiling mount. The selector switch for selecting the candela shall be tamper resistant. The 1575 candela strobe shall be specified when 15 candela UL Standard 1971 Listing with 75 candela on axis is required (e.g. ADA compliance).

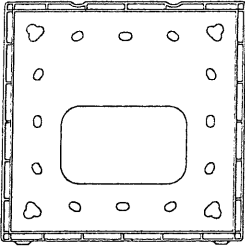
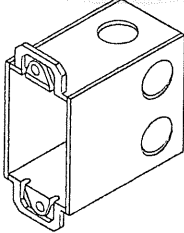
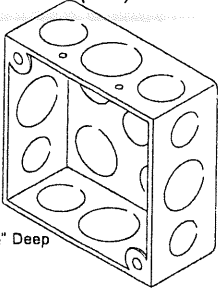
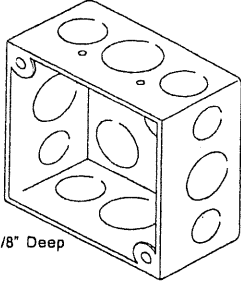
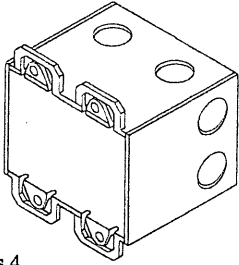
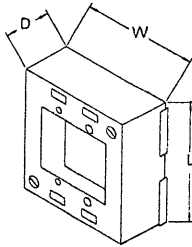
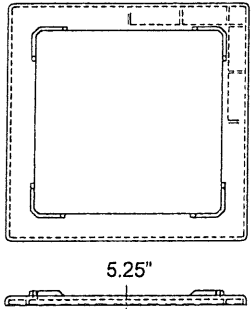
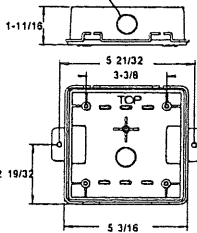
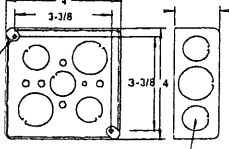
When synchronization is required, the appliance shall be compatible with Wheelock's SM, DSM Sync Modules or a Power Supply with built-in Patented Wheelock Sync Protocol. The strobes shall not drift out of synchronization at any time during operation. If the sync module or Power Supply fails to operate, (i.e., contacts remain closed), the strobe shall revert to a non-synchronized flash rate. The strobes shall be designed for indoor surface of flush mounting.

The Series RSS Strobe Appliances shall incorporate a Patented, Integral Strobe Mounting Plate that shall allow mounting to single-gang, double-gang, 4-inch square, 100mm European type backboxes, or the SHBB Surface Backbox. If required, an NATP (Notification Appliance Trimplate) shall be provided. An attaching cover plate shall be provided to give the Appliance and attractive appearance. The Appliance shall not have any mounting holes or screw heads visible when the installation is completed.

The Series RSSP Multi-Candela or single candela Strobe Plate shall mount to either a standard 4 inch square backbox for flush mounting, or the Wheelock SBL2 backbox for surface mounting.


All notification appliances shall be backward compatible. NOTE: Due to continuous development of our products, specifications and offerings are subject to change without notice in accordance with Wheelock, Inc. standard terms and conditions.

This document contains descriptions for the lettered mounting options found on Notifier Datsheets for Wheelock products. The source of information is Wheelock document #S7000, Rev. 02/04.

<p>(A) UNIVERSAL MOUNTING PLATE</p>  <p>"AS" Mounting</p>	<p>(B) SINGLE-GANG, FLUSH (BO)</p>  <p>See Notes 1 & 8</p> <p>MAXIMUM NUMBER OF CONDUCTORS</p> <table border="1"> <tr> <td>AWG. #18</td> <td>AWG. #16</td> <td>AWG. #14</td> <td>AWG. #12</td> </tr> <tr> <td>4</td> <td>4</td> <td>4</td> <td>4</td> </tr> </table>	AWG. #18	AWG. #16	AWG. #14	AWG. #12	4	4	4	4	<p>(D) 4" SQUARE, FLUSH (BO)</p>  <p>1-1/2" Deep</p> <p>See Note 2</p> <p>MAXIMUM NUMBER OF CONDUCTORS</p> <table border="1"> <tr> <td>AWG. #18</td> <td>AWG. #16</td> <td>AWG. #14</td> <td>AWG. #12</td> </tr> <tr> <td>4</td> <td>4</td> <td>4</td> <td>4</td> </tr> </table>	AWG. #18	AWG. #16	AWG. #14	AWG. #12	4	4	4	4																
AWG. #18	AWG. #16	AWG. #14	AWG. #12																															
4	4	4	4																															
AWG. #18	AWG. #16	AWG. #14	AWG. #12																															
4	4	4	4																															
<p>(E) 4" SQUARE, DEEP, FLUSH (BO)</p>  <p>2-1/8" Deep</p> <p>See Note 3</p> <p>MAXIMUM NUMBER OF CONDUCTORS</p> <table border="1"> <tr> <td>AWG. #18</td> <td>AWG. #16</td> <td>AWG. #14</td> <td>AWG. #12</td> </tr> <tr> <td>8</td> <td>8</td> <td>8</td> <td>8</td> </tr> </table>	AWG. #18	AWG. #16	AWG. #14	AWG. #12	8	8	8	8	<p>(F) DOUBLE-GANG, FLUSH (BO)</p>  <p>See Notes 4</p> <p>MAXIMUM NUMBER OF CONDUCTORS</p> <table border="1"> <tr> <td>AWG. #18</td> <td>AWG. #16</td> <td>AWG. #14</td> <td>AWG. #12</td> </tr> <tr> <td>4</td> <td>4</td> <td>4</td> <td>4</td> </tr> </table>	AWG. #18	AWG. #16	AWG. #14	AWG. #12	4	4	4	4	<p>(G) DOUBLE-GANG, SURFACE (BO)</p>  <table border="1"> <tr> <td>L.</td> <td>W.</td> </tr> <tr> <td>4-3/4"</td> <td>4-3/4"</td> </tr> <tr> <td>D.</td> <td>GANG #</td> </tr> <tr> <td>1-3/4"</td> <td>2</td> </tr> </table> <p>See Note 5</p> <p>MAXIMUM NUMBER OF CONDUCTORS</p> <table border="1"> <tr> <td>AWG. #18</td> <td>AWG. #16</td> <td>AWG. #14</td> <td>AWG. #12</td> </tr> <tr> <td>4</td> <td>4</td> <td>4</td> <td>4</td> </tr> </table>	L.	W.	4-3/4"	4-3/4"	D.	GANG #	1-3/4"	2	AWG. #18	AWG. #16	AWG. #14	AWG. #12	4	4	4	4
AWG. #18	AWG. #16	AWG. #14	AWG. #12																															
8	8	8	8																															
AWG. #18	AWG. #16	AWG. #14	AWG. #12																															
4	4	4	4																															
L.	W.																																	
4-3/4"	4-3/4"																																	
D.	GANG #																																	
1-3/4"	2																																	
AWG. #18	AWG. #16	AWG. #14	AWG. #12																															
4	4	4	4																															
<p>(H) NATP-R OR NAPT-W</p>  <p>5.25"</p> <p>5.25"</p> <p>Thickness: 13/64"</p>	<p>(I) WPBB-R</p> <p>For surface mounting AS outdoor products.</p>  <p>1-11/16"</p> <p>5 21/32"</p> <p>3-3/8"</p> <p>2 19/32"</p> <p>5 3/16"</p> <p>MAXIMUM NUMBER OF CONDUCTORS</p> <table border="1"> <tr> <td>AWG. #18</td> <td>AWG. #16</td> <td>AWG. #14</td> <td>AWG. #12</td> </tr> <tr> <td>8</td> <td>8</td> <td>8</td> <td>8</td> </tr> </table>	AWG. #18	AWG. #16	AWG. #14	AWG. #12	8	8	8	8	<p>(J) BB-R BACKBOX</p> <p>Standard steel backbox with knockouts for interior surface mounting, concealed conduit mounting or semi-flush applications. It is painted to match the signal.</p>  <p>#8-32 TAP (2) HOLES</p> <p>3-3/8"</p> <p>3-3/8"</p> <p>4"</p> <p>PROVIDED WITH KNOCKOUTS FOR 1/2" & 3/4" CONDUIT</p> <p>See Note 9</p> <p>MAXIMUM NUMBER OF CONDUCTORS</p> <table border="1"> <tr> <td>AWG. #18</td> <td>AWG. #16</td> <td>AWG. #14</td> <td>AWG. #12</td> </tr> <tr> <td>4</td> <td>4</td> <td>4</td> <td>4</td> </tr> </table>	AWG. #18	AWG. #16	AWG. #14	AWG. #12	4	4	4	4																
AWG. #18	AWG. #16	AWG. #14	AWG. #12																															
8	8	8	8																															
AWG. #18	AWG. #16	AWG. #14	AWG. #12																															
4	4	4	4																															

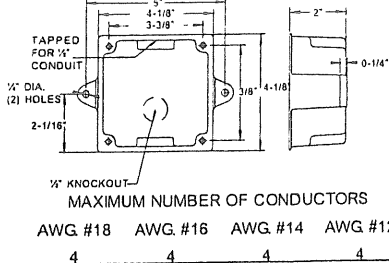
NOTIFIER® is a Honeywell company.

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 NOTIFIER. Phone: (203) 484-7161 FAX: (203) 484-7118

 **NOTIFIER®** 12 Clintonville Road, Northford, Connecticut 06472

ISO 9001
CERTIFIED
ENGINEERING & MANUFACTURING
QUALITY SYSTEMS

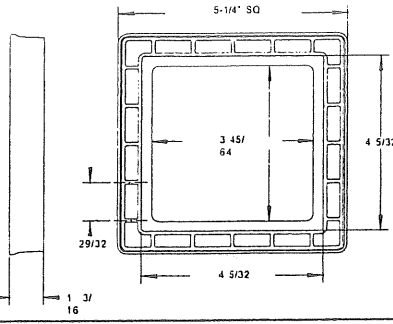
(K) WBB-R
WEATHER RESISTANT BACKBOX
 Sturdy die cast housing, threaded conduit hole and knockout for outdoor applications. It is painted to match the signal.



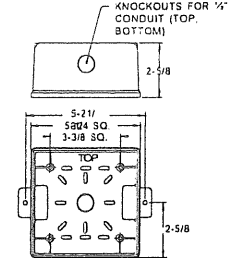
MAXIMUM NUMBER OF CONDUCTORS

AWG #18	AWG #16	AWG #14	AWG #12
4	4	4	4

(L) ISP2-R OT ISP2-W
SURFACE ADAPTER



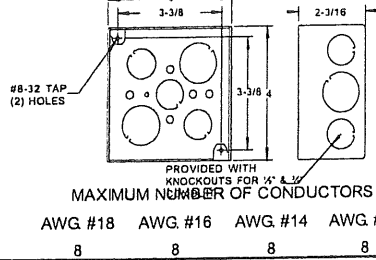
(M) IOB-R OR IOB-W BACKBOX
 For surface mounting MT products.



See Note 10
 MAXIMUM NUMBER OF CONDUCTORS

AWG #18	AWG #16	AWG #14	AWG #12
8	8	8	8

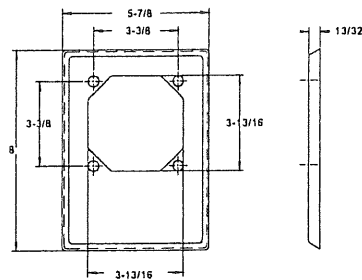
(N) DBB-R BACKBOX
 Standard steel backbox provided with knockouts for interior surface mounting, concealed conduit mounting or semi-flush applications. It is painted to match the signal.



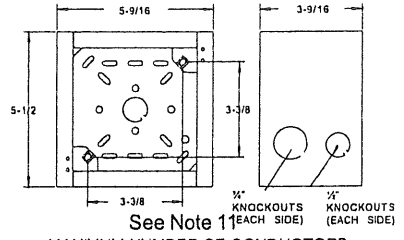
MAXIMUM NUMBER OF CONDUCTORS

AWG #18	AWG #16	AWG #14	AWG #12
8	8	8	8

(O) RP-R RETROFIT PLATE (Order Code: 5042)



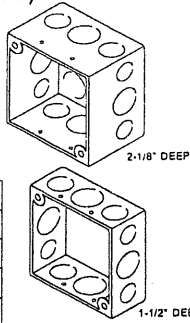
(P) SBB-R OR SBB-W BACKBOX
 For surface mounting speakers, chimes, and electronic applications.



See Note 11
 MAXIMUM NUMBER OF CONDUCTORS

AWG #18	AWG #16	AWG #14	AWG #12
8	8	8	8

(Q) 4" SQUARE DEEP W/ EXTENSION RING, FLUSH (BO)

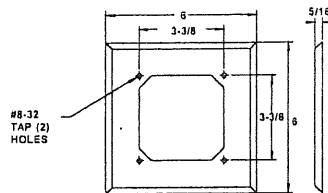


See Note 6

EXT. RING DEPTH	1-1/2"	2-1/8"
AWG #18	8	8
AWG #16	8	8
AWG #14	8	8
AWG #12	4	8

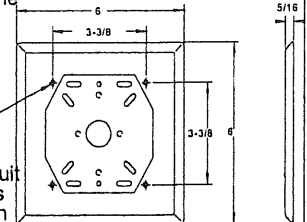
(R) SFP-R OR SFP-W SEMI-FLUSH PLATE

Stamped aluminum surface wall plate which mounts behind the basic unit and serves to cover recessed backboxes in semi-flush mounting applications. It is painted to match the signal.

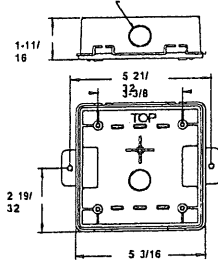


(S) AP-P OR AP-R ADAPTER PLATE

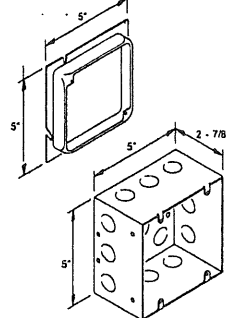
Stamped aluminum adapter plate designed for applications where semi-flush installations cannot be used. The plate can be mounted to standard octagon or round backboxes single or double gang boxes or plaster rings. The backbox and basic unit are then fastened to the plate. This type mounting is referred to as a concealed conduit installation. It is painted to match the signal.



(T) WPSBB-R

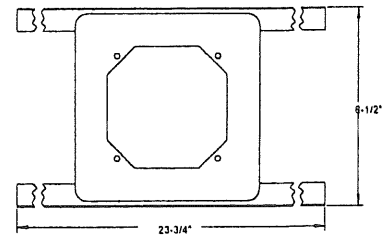


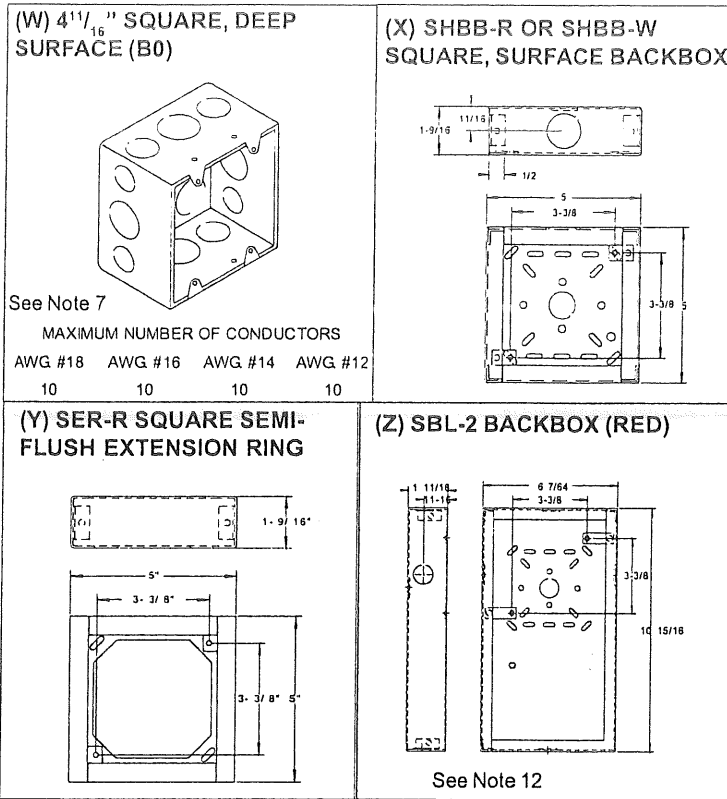
(U) 5" SQUARE BACKBOX W/ EXTENSION RING, FLUSH (BO)



(V) SSB-4 CEILING SUPPORT BRIDGE

Provisions for (4) J-nuts #8-32 ib 3-3/8" square
 Material: Steel





NOTES:
(BO) = By Others

GENERAL NOTES

- FIGURE B IS TYPICAL OF A STEEL CITY LXM-WOW BOX OR EQUAL. FIGURE B SHOULD BE A 3.5" DEEP BACKBOX FOR CONDUIT INSTALLTIONS AND IS TYPICAL OF A STEEL CITY CY-1/2 BOX OR EQUAL.
- FIGURE D IS TYPICAL OF A STEEL CITY 52151 BOX OR EQUAL.
- FIGURE E IS TYPICAL OF A STEEL CITY 52171 BOX OR EQUAL.
- FIGURE F IS TYPICAL OF TWO STEEL CITY LXM-WOW BOXES OR EQUAL.
- FIGURE G IS TYPICAL OF A WIREMOLD 5748-2 BOX OR EQUAL
- FIGURE Q IS TYPICAL OF A STEEL CITY 52171 BOX WITH A STEEL CITY 53151 EXTENSION RING OR EQUAL.
- FIGURE W IS TYPICAL OF A STEEL CITY 72171-1 BOX OR EQUAL.
- USE 3.5 DEEP BACKBOX ON ALL MIZ PRODUCTS WHEN EMT CONDUIT IS USED.
- WHEN USED WITH AC HORN (J), "BB" MUST BE USED FOR SURFACE MOUNT.
- MT OR MTWP STROBEARE FOR OUTDOOR MOUNTING.
- ONLY E70, ET70, ET-1080, & CH70 PRODUCTS WILL MOUNT TO THE SBB BACKBOX.
- USE WITH SERIES RSSP.
- FIGURE U IS TYPICAL OF A RANDL INDUSTRIES BACKBOX.
("Total Number of conductors shall be in accordance with NEC table 314.16 (B)").

MOUNTING MATRIX

	SERIES E90/ET90	SERIES RSS/RSSP	SERIES CH	SERIES ET 1010 & 1080	SERIES MB MOTOR BELLS	SERIES E70/ET70	SERIES MIZ/MIZ-TC	SERIES MT	SERIES NH/NS	SERIES HS4/HS	SERIES SM & DSM	SERIES AMT	SERIES AS/AH	SERIES RSSWP ¹ , ASWP ² , AHPW ³ , MTWP ⁴ , MT-12/24 AND ET70WP ⁴	WEATHERPROOF	SERIES RSSR (RED LENS)
(A) UNIVERSAL MOUNTING PLATE													X			
(B) 1-GANG X 2" DEEP - FLUSH (BO) NOTE 1 & 8		X				X		X					X			X
(D) 4" X 4" X 1.5" DEEP - FLUSH (BO) NOTE 2		X		X				X					X			X
(E) 4" X 4" X 2.125" DEEP FLUSH (BO) NOTE 3		X		X	X			X	X	X		X	X			X
(F) 2-GANG X 3.5" DEEP - FLUSH (BO) NOTE 4 & 8		X						X	X	X		X	X			X
(G) 2-GANG X 1.75" DEEP - SURFACE (BO) NOTE 5		X							X				X			X
(H) NATP TRIM PLATE		X							X				X			X
(I) WPBB-R WEATHERPROOF BACKBOX FOR ASWP														2		
(J) BB SURFACE (WSI) NOTE 9		X			X				X				X			X
(K) WBB WEATHER-PROOF (WSI)				X	X								X	3		
(L) ISP2 SURFACE ADAPTER			X			X		X	X	X		X				
(M) IOB SURFACE & WEATHER -PROOF (WSI) NOTE 10								X	X	X		X		4		
(N) DBB SURFACE (WSI)		X		X	X			X	X	X		X	X			X
(O) RP-R RETROFIT PLATE (WSI)		X	X	X	X	X		X	X	X		X	X			X
(P) SBB SURFACE (WSI) NOTE 11	X	X	X	X	X	X		X	X	X		X				X
(Q) 4" X 4" X 2.125" BOX W/ 1.5" EXTENSION RING-FLUSH (BO) NOTE 6	X		X	X		X										
(R) SFP SEMI-FLUSH PLATE (WSI)		X	X	X	X	X		X	X	X		X	X			X
(S) AP ADAPTER PLATE (WSI)					X											
(T) WPSBB-R WEATHERPROOF BACK BOX FOR RSSWP														1		
(U) 5" SQUARE BACKBOX W/ EXTENSION RING, FLUSH	X		X	X		X										
(V) SSB-4 CEILING (WSI) SUPPORT BRIDGE	X		X	X		X							X			
(W) 4.6875" X 4.6875" X 2.125" DEEP-SURFACE (BO)											X					
(X) SHBB (WSI) SHALLOW SURFACE		X			X				X				X			X
(Y) SER SEMI-FLUSH EXTENSION RING (RETROFIT APPLICATIONS)	X		X			X										
(Z) SBL-2 SURFACE (WSI) NOTE 12		X	X	X	X											

MOUNTING NOTES

▲ Caution: The mounting options figures show the maximum number of field wires (conductors) that can enter the backbox used with each mounting option. If these limits are exceeded, there may be insufficient space in the backbox to accommodate the field wires and stresses from the wires could damage the product. Although the limits shown for each mounting option comply with the National Electrical code (NEC), Wheelock recommends use of the largest backbox option and the use of approved stranded field wires whenever possible, to provide additional wiring room for easy installation and minimum stress on the product from wiring.

▲ Caution: Check that the installed product will have sufficient clearance and wiring room prior to installing backboxes and conduit, especially if sheathed multiconductor cable or 3/4" conduit fittings are used.

1. Mounting hardware for each mounting option is supplied.
2. Conduit entrances to the backbox should be selected to provide sufficient wiring clearance for the installed product. When extension rings are required, conduit should enter through the backbox, not the extension ring. Use Steel City #53151 (1-1/2" deep) or #53171 (2-1/8" deep) extension rings (as noted in the mounting options) or equal with the same cut-out area.
3. When terminating field wires, do not use more lead length than required. Excess lead length could result in insufficient wiring space for the appliance.
4. Use care and proper techniques to position the field wires in the backbox so that they use minimum space and produce minimum stress on the product. This is especially important for stiff, heavy gauge wires and wires with thick insulation or sheathing.
5. Do not pass additional wires (used for other than the appliance) through the backbox "unless the backbox is of a sufficient size to permit additional wiring as described in NEC 314.16 (B)". Such additional wires could result in insufficient wiring space for the appliance.

NFPA-72 Section 4-4.4 "Wall Mounted Appliances shall be mounted such that the entire lens is not less than 80" (2.03m) and not greater than 96" (2.30m)."

"Exception: Appliances installed in sleeping areas shall comply with 4-4.4.3." Not included in this document.

ADA 4.28.3 (6) states that "strobes shall be 80" from the finished floor or 6" from the ceiling".

BACKBOX MOUNTING HEIGHTS for WHEELLOCK WALL MOUNTED HORIZONTAL STROBE APPLIANCES

BACKBOX MOUNTING OPTIONS*	SERIES AS/AH AUDIBLE STROBE		SERIES RSSP FLUSH & SURFACE RETROFIT PLATE		SERIES NS/NS4 HORN STROBE		SERIES RSS STROBE		SERIES MT & AMT MULTITONE STROBE	
	80 IN.	6 IN.	80 IN.	6 IN.	80 IN.	6 IN.	80 IN.	6 IN.	80 IN.	6 IN.
(B) 1-GANG X 2" DEEP - FLUSH (BO)	77 1/2"	8 1/2"			78 3/8"	7 5/8"	79 1/8"	6 7/8"		
(D) 4" X 4" X 1.5" DEEP - FLUSH (BO)	77"	9"	83 15/16"		77 7/8"	8 1/8"	78 5/8"	7 3/8"	79 15/16"	6 1/16"
(E) 4" X 4" X 2.125" DEEP - FLUSH (BO)	77"	9"	83 15/16"		77 7/8"	8 1/8"	78 5/8"	7 3/8"	79 15/16"	6 1/16"
(F) 2-GANG X 3.5" DEEP - FLUSH (BO)	77 1/2"	8 1/2"			78 3/8"	7 5/8"	79 1/8"	6 7/8"	80 9/16"	5 7/16"
(G) 2-GANG X 1.75" DEEP - SURFACE (BO)	77 1/2"	8 1/2"			78 3/8"	7 5/8"	79 1/8"	6 7/8"	80 9/16"	5 7/16"
(M) IOB SURFACE & WEATHER-PROOF (WSI)									79 3/8"	6 5/8"
(P) SBB SURFACE (WSI)									79 1/4"	6 3/4"
(Q) 4" X 4" X 2.125" BOX W/ 1.5" EXTENSION RING - FLUSH (BO)										
(U) 5" SQUARE BACKBOX W/ EXTENSION RING, FLUSH (BO)	69 1/2"	8 1/2"	83 7/16"		77 3/8"	7 5/8"	78 1/8"	6 7/8"	79 7/16"	5 9/16"
(X) SHBB (WSI) SHALLOW SURFACE	76 1/2"	9 1/2"			77 3/8"	8 5/8"	78 1/8"	7 7/8"		
(Y) 4" X 4" X 1.5" BOX W/ 1.5" EXTENSION RING PLATE (BO)										
(Z) SBL-2 SURFACE (WSI)			78"							

BACKBOX MOUNTING OPTIONS*	SERIES CH70 CHIME STROBE		SERIES ET-1080 VANDAL RESISTANT SPEAKER STROBE		SERIES E70 SPEAKER STROBE		SERIES ET70 SPEAKER STROBE		SERIES SA-70S SELF AMPLIFIED SPEAKER STROBE	
	80 IN.	6 IN.	80 IN.	6 IN.	80 IN.	6 IN.	80 IN.	6 IN.	80 IN.	6 IN.
(P) SBB SURFACE (WSI)	77 1/4"	8 1/4"	79 3/16"	6 13/16"	77 3/4"	8 1/4"	77 3/4"	8 1/4"	79 3/16"	6 13/16"
(Q) 4" X 4" X 2.125" BOX W/ 1.5" EXTENSION RING - FLUSH	78 1/2"	7 1/2"	80"	6"	78 1/2"	7 1/2"	78 1/2"	7 1/2"	80"	6"
(U) 5" SQUARE BACKBOX W/ EXTENSION RING - FLUSH	78"	7"	79 1/2"	5 1/2"	78"	7"	78"	7"	79 1/2"	5 1/2"
(X) SHBB (WSI) SHALLOW SURFACE										
(Y) 4" X 4" X 1.5" BOX W/ 1.5" EXTENSION RING PLATE (BO)	78 1/2"	7 1/2"	80"	6"						

* Measured from Bottom of Backbox

NOTES:

(BO) = By Others

(WSI) = Wheelock Product



March 30, 2004

DN-6601 • J-134

Wheelock
NS Series horn Strobes
and NH Series Horns
Section: Audio/Visual Devices

GENERAL

The Wheelock Series NS Horn Strobe Appliances will satisfy virtually all requirements for indoor, wall mount applications.

The Series NH Horn and the horn portion of the Series NS include a selectable continuous horn tone or temporal pattern (Code 3) with selectable dBA settings of 90 or 95 dBA.

Strobe options include 1575cd or Wheelock's patented Multi-Candela strobe with field selectable candela settings of 15/30/75/110cd.

These versatile Horn Strobe Appliances may be synchronized when used in conjunction with the Wheelock SM or DSM Sync Modules or a Power Supply with the Wheelock patented Sync Protocol. Additionally, the audible may be silenced while maintaining strobe activation.

All models of the Series NS and NH are designed for maximum performance, reliability and cost-effectiveness while meeting or exceeding the latest requirements of NFPA 72/ANSI 117.1/UFC and UL Standards 1971 and 464 as well as meeting ADA requirements concerning photosensitive epilepsy.

FEATURES

- Field Selectable Candela Settings 15/30/75/110cd (24 VDC Multi-Candela models) or 1575cd in 12 or 24 VDC
- Selectable Continuous Horn or Temporal (Code 3)
- 2 Selectable dBA settings of 90 and 95 dBA in both tones
- 12 and 24 VDC models with UL "Regulated Voltage" using filtered DC or unfiltered VRMS input voltage
- Patented Universal Mounting Plate
- Wall Mount
- ADA/NFPA/UFC/ANSI compliant
- Complies with OSHA 29, Part 1910.165
- NH horn is selectable 12 or 24 VDC in 1 unit
- Synchronize with Wheelock SM or DSM Sync Module or the Power Supply with built-in sync protocol
- Patent pending Universal Mounting Plate for single-gang, double-gang, 4" (10.16 cm) square, or 100 mm European backboxes, or Wheelock's SHBB shallow surface backbox.
- Fast installation with IN/OUT screw terminals using #12 to #18 AWG wires



LISTED
E 5946



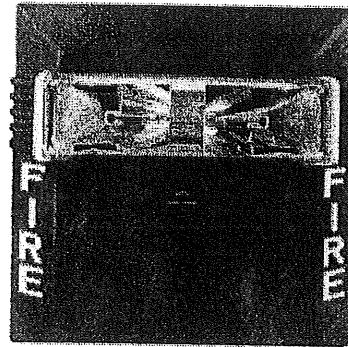
CS 243
CS 356



California
State Fire
Marshal

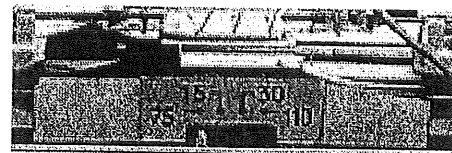
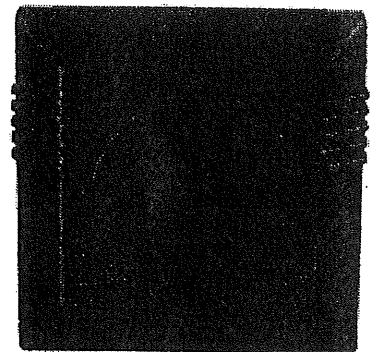
7125-0785:142

MEA
151-92-E



NS Horn Strobe

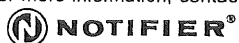
NH Horn



Multi-Candela Indicator
(bottom of Strobe Lens)

NOTIFIER® is a Honeywell company.

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 NOTIFIER. Phone: (203) 484-7161 FAX: (203) 484-7118



12 Clintonville Road, Northford, Connecticut 06472

ISO 9001
CERTIFIED
ENGINEERING & MANUFACTURING
QUALITY SYSTEMS

GENERAL NOTES

- Strobes are designed to flash at 1 flash per second minimum over their "Regulated Voltage Range". Note that NFPA-72 specifies a flash rate of 1 to 2 flashes per second and ADA Guidelines specify a flash rate of 1 to 3 flashes per second.
- All candela ratings represent minimum effective Strobe intensity based on UL Standard 1971.
- Series NS Strobe products are listed under UL Standard 1971 for indoor use with a temperature range of 32°F to 120°F (0°C to 49°C) and maximum humidity of 93% (± 2%).
- Series NH horns are listed under UL Standard 464 for audible signal appliances (Indoor use only).
- "Regulated Voltage Range" is the newest terminology used by UL to identify the voltage range. Prior to this change UL used the terminology "Listed Voltage Range".

NOTE: All CAUTIONS and WARNINGS are identified by the symbol **▲**. All warnings are printed in bold capital letters.

▲ WARNING! PLEASE READ THESE SPECIFICATIONS AND ASSOCIATED INSTALLATION INSTRUCTIONS CAREFULLY BEFORE USING, SPECIFYING OR APPLYING THIS PRODUCT. FAILURE TO COMPLY WITH ANY OF THESE INSTRUCTIONS, CAUTIONS OR WARNINGS COULD RESULT IN IMPROPER APPLICATION, INSTALLATION AND/OR OPERATION OF THESE PRODUCTS IN AN EMERGENCY SITUATION, WHICH COULD RESULT IN PROPERTY DAMAGE, AND SERIOUS INJURY OR DEATH TO YOU AND/OR OTHERS.

Model	Input Voltage VDC	Regulated Voltage Range VDC/FWR	Strobe Candela (CD)
NS-24MCW	24	16.0 - 33.0	15/30/75/110
NS-241575W	24	16.0 - 33.0	15 (75 on Axis)
NS-121575W	12	8.0 - 17.5	15 (75 on Axi)

Voltage	High (95) dBA	Low (90) dBA
16.0 VDC	.019	.017
24.0 VDC	.028	.022
33.0 VDC	.039	.027

*Average RMS Current is per UL average RMS method and Average Mean Current is per UL average mean method. NH models use average mean current. For rated In Rush and Peak current across the UL listed voltage range for both filtered DC and unfiltered VRMS (FWR), see installation instructions.

NS-24MCW with High (95 dBA) Setting				
Voltage	15cd	30cd	75cd	110cd
16.0 VDC	.077	.113	.195	.268
24.0 VDC	.065	.087	.134	.174
33.0 VDC	.069	.082	.117	.134
NS-24MCW with Low (90 dBA) Setting				
Voltage	15cd	30cd	75cd	110cd
16.0 VDC	.070	.106	.188	.261
24.0 VDC	.052	.072	.126	.158
33.0 VDC	.045	.060	.097	.114

Description	Volume	Reverberant dBA @ 10 ft. per UL 464		Anechoic dBA @ 10 ft.	
		12 VDC	24 VDC	12 VDC	24 VDC
Continuous Horn	High	83	87	89	95
	Low	76	81	84	90
Code 3 Horn	High	79	82	89	95
	Low	72	76	84	90

NS-241575W		
Voltage	High (95) dBA	Low (90) dBA
16.0 VDC	.120	.116
24.0 VDC	.094	.093
33.0 VDC	.102	.078
NS-121575W		
Voltage	High (95) dBA	Low (90) dBA
8.0 VDC	.341	.324
12.0 VDC	.251	.265
17.5 VDC	.216	.188

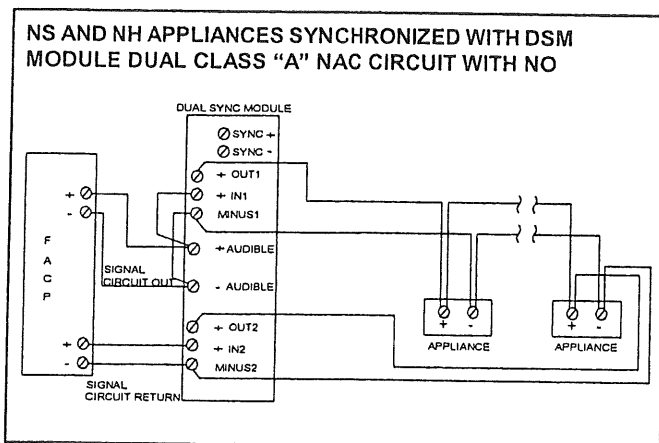
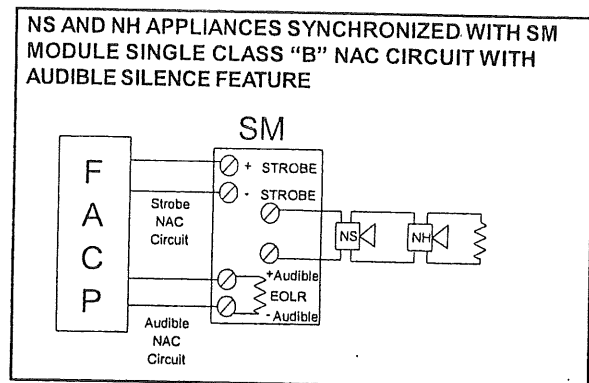
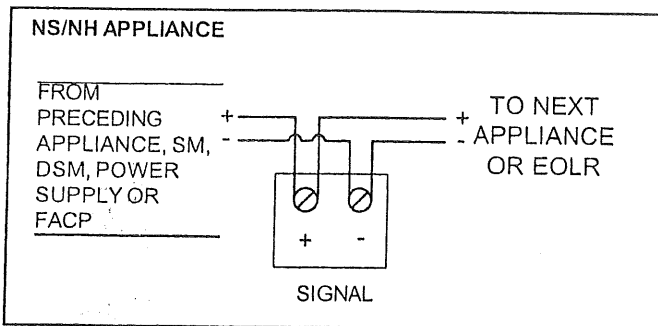
MODEL NUMBER	INPUT VOLTAGE (VDC)	AVERAGE MEAN CURRENT @ 24 VDC	MOUNTING OPTIONS
SM-12/24-R	24	.028	W
DSM-12/24-R	24	.035	W

NOTES:
 SM Sync Module is rated for 3.0 amperes @ 24 VDC;
 DSM Sync Module is rated for 3.0 amperes per circuit. The maximum number of interconnected DSM Modules is twenty (20).

⚠ WARNING: CONTACT WHEELOCK FOR THE CURRENT INSTALLATION INSTRUCTIONS (P83983) SERIES NS-24MCW, (P84234) SERIES NS-12 AND 24 VDC SINGLE CANDELA MODELS, (P83600) SERIES NH AND "GENERAL INFORMATION" SHEET (P82380) ON THESE PRODUCTS. THESE DOCUMENTS UNDERGO PERIODIC CHANGES. IT IS IMPORTANT THAT YOU HAVE CURRENT INFORMATION ON THESE PRODUCTS. THESE MATERIALS CONTAIN IMPORTANT INFORMATION THAT SHOULD BE READ PRIOR TO SPECIFYING OR INSTALLING THESE PRODUCTS, INCLUDING:

- TOTAL CURRENT REQUIRED BY ALL APPLIANCES CONNECTED TO SYSTEM SECONDARY POWER SOURCES.
 - FUSE RATINGS ON NOTIFICATION APPLIANCE CIRCUITS TO HANDLE PEAK CURRENTS FROM ALL APPLIANCES ON THOSE CIRCUITS.
 - COMPOSITE FLASH RATE FROM MULTIPLE STROBES WITHIN A PERSON'S FIELD OF VIEW.
 - ADDING, REPLACING OR CHANGING APPLIANCES OR CHANGING CANDELA SETTINGS WILL AFFECT CURRENT DRAW.
- RECALCULATE CURRENT DRAW TO INSURE THAT THE TOTAL AVERAGE CURRENT AND TOTAL PEAK REQUIRED BY ALL APPLIANCES DO NOT EXCEED THE RATED CAPACITY OF THE POWER SOURCES OR FUSES.
- THE VOLTAGE APPLIED TO THESE PRODUCTS MUST BE WITHIN THEIR "REGULATED VOLTAGE RANGE".
 - INSTALLATION OF 110 CANDELA STROBE PRODUCTS IN SLEEPING AREAS.
 - INSTALLATION IN OFFICE AREAS AND OTHER SPECIFICATION AND INSTALLATION ISSUES.
 - THESE APPLIANCES ARE NOT DESIGNED TO BE USED ON CODED SYSTEMS IN WHICH THE APPLIED VOLTAGE IS CYCLED ON AND OFF.
 - FAILURE TO COMPLY WITH THE INSTALLATION INSTRUCTIONS OR GENERAL INFORMATION SHEETS COULD RESULT IN IMPROPER INSTALLATION, APPLICATION, AND/OR OPERATION OF THESE PRODUCTS IN AN EMERGENCY SITUATION, WHICH COULD RESULT IN PROPERTY DAMAGE AND SERIOUS INJURY OR DEATH TO YOU AND/OR OTHERS.
 - CONDUCTOR SIZE (AWG), LENGTH AND AMPACITY SHOULD BE TAKEN INTO CONSIDERATION PRIOR TO DESIGN AND INSTALLATION OF THESE PRODUCTS, PARTICULARLY IN RETROFIT INSTALLATIONS.

WIRING DIAGRAMS



NOTE: NS/NH must be set on Code 3 horn tone to achieve synchronized temporal (Code 3) tone. Refer to installation instruction (P83983, P83600 respectively).

For detail using SM or DSM Sync Module refer to Data Sheet S3000 or Installation Instructions P83123 for SM and P83177 for DSM.

ARCHITECTS AND ENGINEERS SPECIFICATIONS

The audible/visual notification appliances shall be Wheelock Series NS Horn Strobe appliances and Series NH Horn appliances or approved equals. The Series NS appliances shall meet and be listed for UL Standard 1971 (Emergency Devices for the Hearing-Impaired for Indoor Fire Protection Service). The Series NH Horn shall be UL Listed under Standard 464 (Fire Protective Signaling). The horn strobe shall be listed for indoor use and shall meet the requirements of FCC Part 15 Class B. All inputs shall be compatible with standard reverse polarity supervision of circuit wiring by the Fire Alarm Control Panel (FACP).

The audible portion of the appliance shall have a minimum of two (2) field selectable settings for dBA levels (90 and 95 dBA) and shall have a choice of continuous or temporal (Code 3) audible outputs.

The strobe portion of the appliance shall produce a flash rate of one (1) flash per second over the Regulated Voltage Range and shall incorporate a Xenon flashtube enclosed in a rugged Lexan lens. The Series NS shall be of low current design. Where wall mount, Multi-Candela appliances are specified, the strobe intensity shall have field selectable settings and shall be rated per UL Standard 1971 for 15/30/75/110 candela. The selector switch for selecting the candela setting shall be tamper resistant. The 1575 candela strobe shall be specified when 15 candela UL Standard 1971 Listing with 75 candela on-axis is required (e.g. ADA compliance).

When synchronization is required, the appliance shall be compatible with Wheelock's SM, DSM Sync Modules or a Power Supply with Wheelock's built-in Patented Sync Protocol. The strobes shall not drift out of synchronization at any time during operation. If the sync module or Power Supply fails to operate, (i.e., contacts remain closed), the strobes shall revert to a non-synchronized flash-rate. The appliance shall also be designed so that the audible signal may be silenced while maintaining strobe activation.

The Series NS Horn Strobes and NH horn shall incorporate a Patented Universal Mounting Plate that shall allow mounting to a single-gang, double-gang, 4-inch square, 100mm European type backboxes, or the SHBB Surface Backbox. If required, an NATP (Notification Appliance Trimplate) shall be provided.

All notification appliances shall be backward compatible.

SPECIFICATION & ORDERING INFORMATION

MODEL	STROBE CANDELA	NON-SYNC	SYNC W/SM, DSM	24 VDC	12 VDC	2 WIRE	MOUNTING OPTIONS	AGENCY APPROVALS:				
								UL	MEA	CSFM	FM	BFP
NS-24MCW-FR	15/30/75/110	X	X	X	-	X	B,D,E,F,G,H,J,N,O,R,X	X	X	X	X	X
NS-24MCW-FW	15/30/75/110	X	X	X	-	X	B,D,E,F,G,H,J,N,O,R,X	X	X	X	X	X
NS-241575W-FR	15 (75 on axis)	X	X	X	-	X	B,D,E,F,G,H,J,N,O,R,X	X	X	X	X	X
NS-241575W-FR	15 (75 on axis)	X	X	-	X	X	B,D,E,F,G,H,J,N,O,R,X	X	X	X	X	X
NH-12/24-R	12V 24V	X	X	X	X	X	B,D,E,F,G,H,J,N,O,R,X	X	X	X	X	X

* A power supply with the built-in patented Wheelock Sync Protocol



March 30, 2004

DN-5566 • J-122

Wheelock AS Series Audible Strobe Devices and AH Series Audible Devices

Section: Audio/Visual Devices

GENERAL

Wheelock's patented 2-wire AS Series Audible Strobe Appliances and AH Series Audible Devices offer more features with low current draw.

Strobe options for wall mount models include 1575cd or Wheelock's patented MCW multi-candela wall strobes with field selectable candela settings of 15/30/75/110cd.

Ceiling mount models incorporate Wheelock's patented MCC multi-candela ceiling strobe with field selectable intensities of 15/30/75/95cd.

The audible provides a selectable choice of either a continuous horn or temporal pattern (Code 3) when constant voltage from a Fire Alarm Panel (FACP) is applied. Each tone has 3 dBA settings to choose from.

When used with the Wheelock Series SM or DSM Sync Module or with a power supply with the Wheelock sync protocol, synchronization of the continuous horn tone provides the temporal (code 3) tone (mandated by NFPA 72) simultaneously for all audible appliances. This ensures a distinct temporal (code 3) pattern when 2 or more audibles are within hearing distance. If not synchronized the temporal sound could overlap and not be distinctive. At the same time the strobes will be synchronized. This provides the ability to comply with ADA guidelines concerning photosensitive epilepsy and the NFPA standards when installing 2 or more visual appliances within the field of view all of this puls the ability to silence the audible is achieved by using only 2 wire.

FEATURES

- ADA/NFPA/UFC/ANSI Compliant
- **AS Series Audible Strobe Devices are available in wall and ceiling-mount models:**
 - Wall mount models offered** are available with Field Selectable Candela Settings of 15/30/75/110cd or 1575cd (single candela model)
 - Ceiling mount models offered** are available with field selectable candela settings of 15/30/75/95cd
- Selectable Continuous Horn or Temporal (Code 3)
- 3 Selectable dBA settings (99, 95 and 90 dBA) in both tones
- **Patented 2-Wire Audible Strobe Appliance**
- Patented Universal Mounting Plate
- Weatherproof models are available for outdoor use
- Strobes produce 1 flash per second over the regulated voltage range
- 12 and 24 VDC models with wide UL "Regulated Voltage Range" using filtered DC or unfiltered FWR input voltage
- Synchronize with Wheelock SM, DSM or power supply with built-in Wheelock sync protocol
- Fast installation with IN/OUT screw terminals using #12 and #18 AWG wires



CS 356

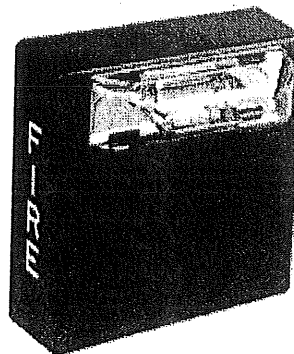


LISTED
E 5946

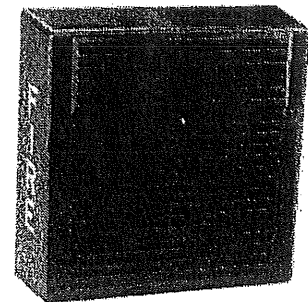


California
State Fire
Marshal
7125-0785:131

MEA
151-92-E



AS Audible Strobe



AH Audible

GENERAL NOTES

- Strobes are designed to flash at 1 flash per second minimum over the Regulated Voltage Range. Note that NFPA-72 (1999) specifies a flash rate of 1 to 2 flashes per second and ADA Guidelines specify a flash rate of 1 to 3 flashes per second.
- All candela ratings represent minimum effective Strobe intensity based on UL Standard 1971.
- AS Series Strobe products are listed under UL Standard 1971 for indoor use with a temperature range of 32° F to 120° F (0° C to 49° C) and maximum humidity of 93% ($\pm 2\%$)
- AH-24 Series horns are listed under UL Standard 464 for audible signal appliances (indoor use only).
- AH-24WP Series audible appliances are listed under UL Standard 464 for indoor/outdoor use with a temperature range of -31° F to 150° F (-35° C to 66° C) and maximum humidity of 95%.
- "Regulated Voltage Range" is the newest terminology used by UL to identify the voltage range. Prior this change, UL used the terminology "Listed Voltage Range".

NOTIFIER® is a Honeywell company.

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 NOTIFIER. Phone: (203) 484-7161 FAX: (203) 484-7118



12 Clintonville Road, Northford, Connecticut 06472

ISO 9001
CERTIFIED
ENGINEERING & MANUFACTURING
QUALITY SYSTEMS

⚠ WARNING! ⚠

PLEASE READ THESE SPECIFICATIONS AND ASSOCIATED INSTALLATION INSTRUCTIONS CAREFULLY BEFORE USING, SPECIFYING, OR APPLYING THIS PRODUCT. FAILURE TO COMPLY WITH ANY OF THE FOLLOWING INSTRUCTIONS, CAUTIONS, AND WARNINGS COULD RESULT IN IMPROPER APPLICATION, INSTALLATION AND/OR OPERATION OF THESE PRODUCTS IN AN EMERGENCY SITUATION, WHICH COULD RESULT IN PROPERTY DAMAGE, AND SERIOUS INJURY OR DEATH TO YOU AND/OR OTHERS.

ORDERING INFORMATION

MODEL	STROBE CANDELA	NON-SYNC	SYNC W/SM, DSM	VDC	WALL/CEILING MOUNT	MOUNTING OPTIONS*	AGENCY APPROVALS				
							UL	MEA	CSFM	FM	BFP
AS-24MCW-FR	15/30/75/110	X	X	24	WALL	A,B,D,E,F,G,H,J,N,O,R,X	X	X	X	X	X
AS-24MCW-FW	15/30/75/110	X	X	24	WALL	A,B,D,E,F,G,H,J,N,O,R,X	X	X	X	X	X
AS-241575W-FR	15 (75 on Axis)	X	X	24	WALL	A,B,D,E,F,G,H,J,N,O,R,X	X		X	X	X
AS-121575W-FR	15 (75 on Axis)	X	X	12	WALL	A,B,D,E,F,G,H,J,N,O,R,X	X		X	X	X
AS-24MCC-FW	15/30/75/95	X	X	24	CEILING	A,B,D,E,F,G,H,J,N,O,R,X	X	X	X	*	*
ASWP-2475W-FR	75 @ -31°F	X	X	24	WALL	I	X	X	X	X	X
AH-24-R	-	X	X	24	WALL/CEILING	A,B,D,E,F,G,H,J,N,O,R,X	X	X	X	X	X
AH-12-R	-	X	X	12	WALL/CEILING	A,B,D,E,F,G,H,J,N,O,R,X	X	X	X	X	X
AH-24WP-R	-	X	X	24	WALL/CEILING	K	X	X	X	X	X
AH-12-WP-R	-	X	X	12	WALL/CEILING	K	X	X	X	X	X

*Refer to data sheet DN6111 for Mounting Options

NOTE: Due to continuous development of our products, specifications and offerings are subject to change without notice in accordance with Notifier's standard terms and conditions

TABLE 1: RATINGS PER UL 1971

MODEL	INPUT VOLTAGE VDC	REGULATED VOLTAGE RANGE VDC/FWR	STROBE CANDELA (cd)
AS-24MCW	24	16.0 - 33.0	15/30/75/110
AS-241575W	24	16.0 - 33.0	15 (75 on axis)
AS-121575W	12	8.0 - 17.5	15 (75 on axis)
AS-24MCC	24	16.0 - 33.0	15/30/75/95
ASWP-2475W	24	16.0 - 33.0	75 @ -31°F

TABLE 2: DBA RATINGS FOR 12 VDC & 24 VDC SERIES AS/AH 12 & 24 VDC AUDIBLE

DESCRIPTION	VOLUME	REVERBERANT DBA PER UL 464 @ 10 FT.	ANECHOIC DBA @ 10 FT.
Continuous Horn	High	91	99
	Medium	88	95
	Low	83	90
Code 3 Horn	High	87	99
	Medium	84	95
	Low	79	90

SYNC MODELS/POWER SUPPLY

MODEL NUMBER	INPUT VOLTAGE (VDC)	AVERAGE MEAN CURRENT @ 24 VDC	MOUNTING OPTIONS
SM-12/24-R	24	.028	W
DSM-12/24-R	24	.035	W

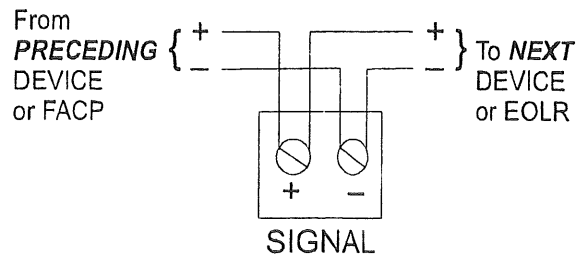
NOTES:

SM Sync Module is rated for 3.0 amperes @ 24 VDC.

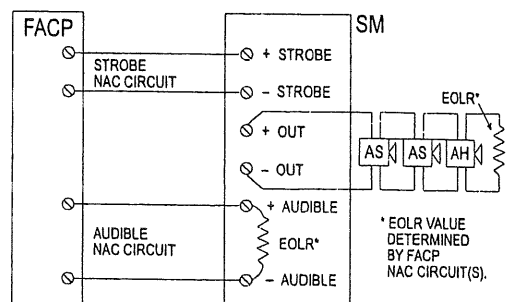
DSM Sync Module is rated for 3.0 amperes per circuit. The maximum number of interconnected DSM modules is twenty (20).

WIRING DIAGRAMS

AS device non-synchronized.

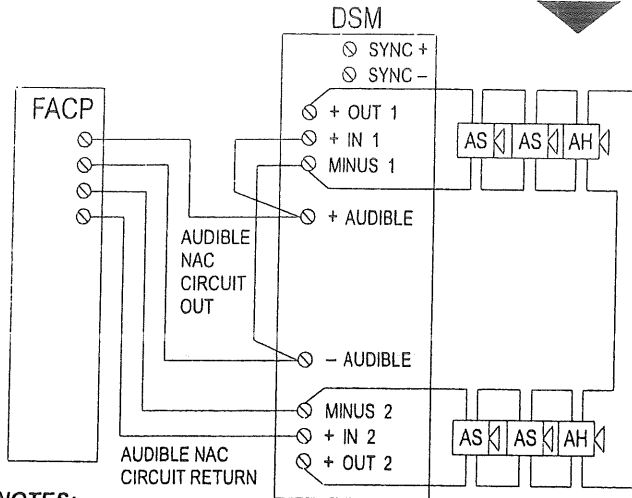


AS devices synchronized with SM Module single Class "B" (Style Y) circuit WITH audible silence feature.



WIRING DIAGRAMS

AS and AH devices synchronized with DSM Module dual Class "A" (Style Z) circuit with NO audible silence feature.



NOTES:

- AS/AH must be set on continuous horn tone, and connected to the SM or DSM Sync Module, to achieve synchronized temporal (Code 3) tone.

AS and AH devices synchronized with multiple DSM Modules.

INTERCONNECTING WIRING SHOWN. MAXIMUM OF TWENTY (20) DSM MODULES.

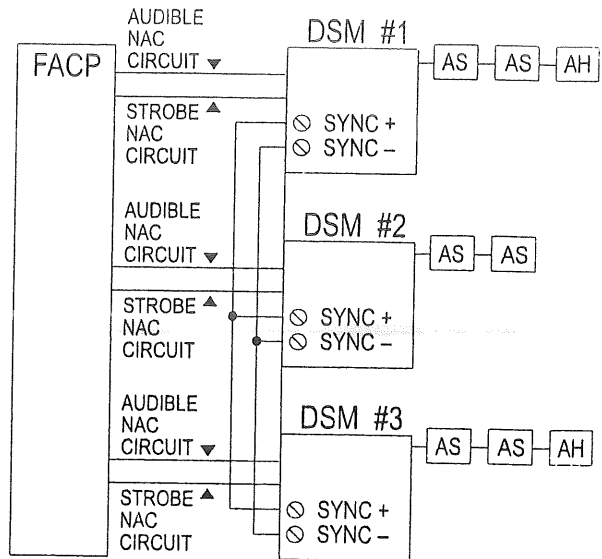


TABLE 3: AVERAGE RSM CURRENT*

24 VDC MODELS		AUDIBLE		WALL MOUNT AUDIBLE STROBE MODELS						CEILING MOUNT STROBE MODELS							
		AH-24	AS-24 1575W	AS-24MCW			AS-24MCWH			AS-24MCC			AS-24MCCH				
			1575cd	15cd	30cd	75cd	110cd	135cd	185cd	15cd	30cd	75cd	95cd	115cd	177cd		
HIGH (99) dBA	16 vdc	0.035	0.0130	0.099	0.135	0.219	0.303	0.355	0.480	0.105	0.145	0.238	0.330	0.355	0.480		
	24 vdc	0.050	0.0107	0.093	0.114	0.157	0.197	0.250	0.320	0.970	0.120	0.169	0.213	0.250	0.320		
	33 vdc	0.069	0.0105	0.098	0.108	0.138	0.166	0.210	0.250	0.101	0.113	0.146	0.177	0.210	0.250		
MEDIUM (95) dBA	16 vdc	0.020	0.114	0.078	0.116	0.203	0.282	0.340	0.465	0.084	0.126	0.222	0.309	0.340	0.465		
	24 vdc	0.026	0.085	0.065	0.088	0.133	0.179	0.230	0.305	0.069	0.094	0.145	0.195	0.230	0.305		
	33 vdc	0.035	0.075	0.065	0.078	0.206	0.134	0.180	0.230	0.068	0.083	0.114	0.145	0.180	0.230		
LOW (90) dBA	16 vdc	0.014	0.108	0.070	0.111	0.201	0.279	0.335	0.460	0.076	0.121	0.220	0.306	0.335	0.460		
	24 vdc	0.014	0.075	0.052	0.077	0.126	0.169	0.220	0.295	0.056	0.084	0.138	0.185	0.220	0.295		
	33 vdc	0.021	0.060	0.046	0.063	0.094	0.121	0.170	0.215	0.049	0.068	0.102	0.132	0.170	0.215		
12 VDC MODELS		AUDIBLE		WALL MOUNT AUDIBLE STROBE		12 VDC MODELS		AUDIBLE		WALL MOUNT AUDIBLE STROBE		12 VDC MODELS		AUDIBLE		WALL MOUNT AUDIBLE STROBE	
		AH-12	AS-12 1575W					AH-12	AS-12 1575W					AH-12	AS-12 1575W		
HIGH (99) dBA	8 vdc	0.093	0.320	MEDIUM (95) dBA	8 vdc	0.037	0.275	LOW (90) dBA	8 vdc	0.030	0.265						
	12 vdc	0.108	0.260		12 vdc	0.049	0.195		12 vdc	0.035	0.175						
	17.5 vdc	0.128	0.220		17.5 vdc	0.069	0.160		17.5 vdc	0.042	0.133						

*Average RSM Current is per UL average method and Average Mean Current is per UL average mean method. AH and AS-12 models use average mean current. For rated in Rush and Peak current across the UL listed voltage range for both filtered DC and unfiltered VRMS (FWR), see installation instructions.



WARNING! CONTACT WHEELOCK FOR "INSTALLATION INSTRUCTIONS" (Wheelock #P83509 [AS], #P83641 [AH-WP], and #P83519 [AH]) AND "GENERAL INFORMATION" SHEET (Wheelock #P82380) ON THESE PRODUCTS. THESE MATERIALS UNDERGO PERIODIC CHANGES. IT IS IMPORTANT THAT YOU HAVE CURRENT INFORMATION ON THESE PRODUCTS. THESE MATERIALS CONTAIN IMPORTANT INFORMATION THAT SHOULD BE READ PRIOR TO SPECIFYING OR INSTALLING THESE PRODUCTS, INCLUDING:

- TOTAL CURRENT REQUIRED BY ALL DEVICES CONNECTED TO SYSTEM PRIMARY AND SECONDARY POWER SOURCES.
- FUSE RATINGS ON NAC CIRCUITS TO HANDLE PEAK CURRENTS FROM ALL DEVICES ON THOSE CIRCUITS.
- COMPOSITE FLASH RATE FROM MULTIPLE STROBES WITHIN A PERSON'S FIELD OF VIEW.
- VOLTAGE APPLIED: THE VOLTAGE APPLIED TO THESE PRODUCTS MUST BE WITHIN THEIR RATED INPUT VOLTAGE RANGE.
- INSTALLATION OF 100/110 CANDELA STROBE PRODUCTS IN SLEEPING AREAS.
- INSTALLATION IN OFFICE AREAS AND OTHER SPECIFICATION AND INSTALLATION ISSUES.
- Note: USE AS/AH ONLY ON CIRCUITS WITH CONTINUOUSLY APPLIED OPERATING VOLTAGE. DO NOT USE AS SERIES ON CODED OR INTERRUPTED NAC CIRCUITS IN WHICH THE APPLIED VOLTAGE IS CYCLED ON AND OFF, AS THE STROBE MAY NOT FLASH.
- CONDUCTOR SPECIFICATIONS: CONDUCTOR SIZE (AWG), LENGTH AND AMPACITY SHOULD BE TAKEN INTO CONSIDERATION PRIOR TO DESIGN AND INSTALLATION OF THESE PRODUCTS, PARTICULARLY IN RETROFIT INSTALLATIONS.

FAILURE TO COMPLY WITH THE INSTALLATION INSTRUCTIONS OR GENERAL INFORMATION SHEETS COULD RESULT IN IMPROPER INSTALLATION, APPLICATION, AND/OR OPERATION OF THESE PRODUCTS IN AN EMERGENCY SITUATION, WHICH COULD RESULT IN PROPERTY DAMAGE AND SERIOUS INJURY OR DEATH TO YOU AND/OR OTHERS.

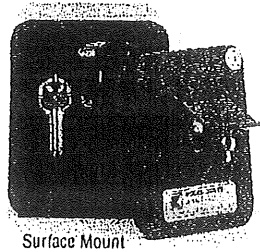
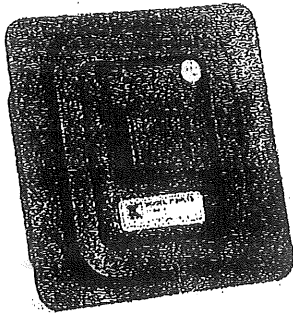
Wheelock products must be used within their published specifications and must be PROPERLY specified, applied, installed, operated, maintained, and operationally tested in accordance with their installation instructions at the time of installation and at least twice a year or more often and in accordance with local, state, and federal codes, regulations, and laws. Specification, application, installation, operation, maintenance, and testing must be performed by qualified personnel for proper operation in accordance with all of the latest National Fire Protection Association (NFPA), Underwriters' Laboratories (UL), National Electrical Code (NEC), Occupational Safety and Health Administration (OSHA), local, state, county, province, district, federal, and other applicable building and fire standards, guidelines, regulations, laws, and codes including, but not limited to, all appendices and amendments and the requirements of the local authority having jurisdiction (AHJ).

ARCHITECTS' & ENGINEERS' SPECIFICATIONS

- The notification appliances shall be Wheelock's patented AS Series Audible Strobe and AH Series Audible Horn devices, and when synchronization is required, companion SM and DSM Sync Modules, or approved equivalents. AS Series devices and SM and DSM Sync Modules shall be listed under UL Standard 1971 (Emergency Devices for the Hearing Impaired for Indoor Fire Protection Service). AH Series Audible Horn shall be listed under Standard 464 (Fire Protective Signaling). AS, AH, SM, and DSM devices shall be certified to meet FCC Part 15, Class B.
- The devices shall be designed for two-wire operation and shall provide either a continuous or temporal (Code 3) tone when constant voltage from a Notification Appliance Circuit (NACs) of the Fire Alarm Control Panel (FACP) is applied; or synchronized temporal (Code 3) horn and synchronized strobe when used in conjunction with the SM or DSM Sync Modules.
- The AS Series shall be designed so that the audible signal may be silenced while maintaining strobe activation (when used with the SM or DSM Sync Modules). The SM and DSM Sync Modules shall incorporate two inputs from Notification Appliance Circuits (NACs) for power connection from the Fire Alarm Control Panel (FACP): one for the strobe circuit (NAC), and one for the audible circuit (NAC). A single two-wire output shall control both the audible and visual appliances. Upon activation of the audible silence function of the FACP, the audible signal shall be silenced while maintaining strobe activation.
- Sound output at 10 feet (3.048 m) shall be field-selectable for 90, 95, or 99 dBA anechoic for both continuous or temporal (Code 3) tone. The AS Series shall provide listed strobe intensities of 15, 15/75, 30, 75, and 110 candela for wall-mount and/or 75 or 100 candela for ceiling-mount applications; with a flash rate of one flash per second minimum across the listed voltage range. The strobe shall incorporate a Xenon® flashtube enclosed in a rugged LEXAN® lens. The maximum allowable current at 24 VDC shall be 87 mA @ 15 cd, 102 mA @ 15/75 cd, 120 mA @ 30 cd, 177 mA @ 75 cd, and 202 mA @ 110 cd. All devices shall incorporate a reduced inrush circuit design. The strobe shall have a horizontal plane.
- The Sync Module shall be designed and available in two versions: the **SM-12/24**, for control of a single Class "B" NAC circuit; and a dual-output version, the **DSM-12/24**, for control of either a single Class "A" or two Class "B" NAC circuits. The DSM dual-circuit version shall provide the additional capability of "daisy-chaining," i.e., the ability to interconnect multiple DSM's for synchronous horn and strobe operation on multiple NAC circuits. DSM-12/24 interconnection capability shall be for a maximum of 20 modules (40 Class "B" NAC circuits or 20 Class "A" NAC circuits). Rated average current requirement for the SM-12/24 shall be 0.014 amperes @ 12 VDC and 0.025 amperes @ 24 VDC; the DSM-12/24 shall be 0.020 amperes @ 12 VDC and 0.038 amperes @ 24 VDC. The SM Sync Module shall be capable of handling a three-ampere load at 12 or 24 VDC. The DSM Sync Modules shall be capable of handling a load of three amperes *per circuit* in the Class "B" mode, and three amperes *per module* in the Class "A" mode at 12 or 24 VDC.
- SM or DSM Sync Modules and AS Audible Strobes shall be designed as a **system** for continuous activation of the strobes should the Sync Module contacts fail in the passive state (i.e., contacts remain closed). In this default mode, the strobes shall revert to a non-synchronized default flash rate.
- AS/AH Series devices shall be designed for operation at 12 or 24 VDC, over their respective listed voltage ranges of 10.5 to 15.6 VDC; and 20.0 to 31.0 VDC. The units shall be designed for operation on filtered DC, or unfiltered V_{RMS} . Rated average current for AS Series devices shall depend upon voltage and strobe intensity; current shall be as low as 0.058 amperes for 24 VDC versions and 0.145 amperes for 12 VDC versions. Rated average current for AH Series devices (volume set at high-dB output) shall be 0.041 amperes for 24 VDC versions and 0.113 amperes for 12 VDC versions.
- All versions shall be polarized for DC supervision and shall incorporate screw terminals for in/out field wiring of size #18 AWG (0.75 mm²) to #12 AWG (3.25 mm²).
- AS/AH shall incorporate a patented Universal Mounting Plate which shall allow mounting to single-gang, double-gang, 4" (10.16 cm) square, 100 mm European backboxes or Wheelock's SHBB surface backbox. No additional trim plate shall be required for flush mounting.
- Dimensions for AS/AH appliances shall be 4.625" (11.7475 cm) square by 1.5" (3.81 cm) deep.

High Security Industrial/Government Key Box

Recessed Mount
with Face Flange



Surface Mount

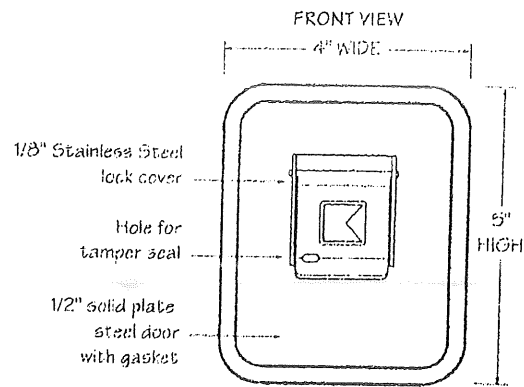
The number one high-security KNOX-BOX® key box is used for most commercial applications including businesses, schools, government and public buildings, community associations and apartment complexes. The 3200 Series KNOX-BOX with lift-off door holds keys, access cards and other small items necessary for emergency access.

Features and Benefits

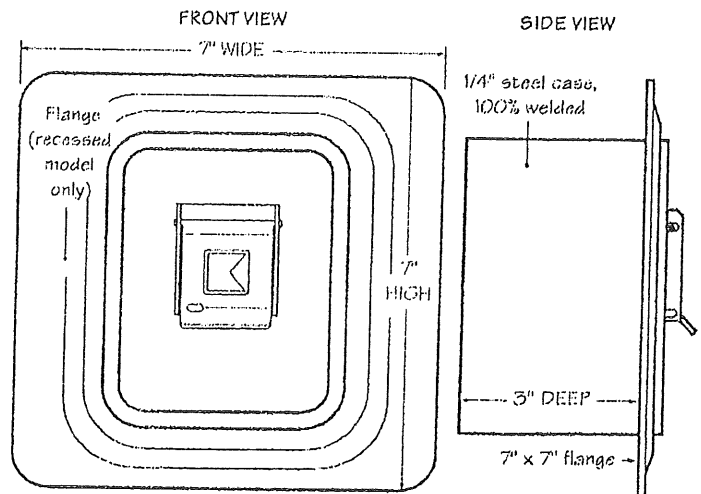
- Holds up to 10 keys or 3 access cards in interior compartment
- Ensures high security with UL® Listed Medeco lock
- Includes a Knox-Coat® proprietary finishing process that protects Knox products up to four times better than standard powder coat
- Resists moist conditions with a weather resistant door gasket
- Colors: Black, Dark Bronze or Aluminum
- Weight: Surface mount - 8 lbs.
Recessed mount - 9 lbs.

Options

- Alarm tamper switches (UL Listed)
- Additional rust and corrosion protection (Aluminization)
- Recessed Mounting Kit (RMK) for recessed models only



3200 Surface Mount



3200 Recessed Mount

Ordering Specifications

To insure procurement and delivery of the 3200 Series KNOX-BDX, it is suggested that the following specification paragraph be used:

KNOX-BOX surface/recessed mount with lift-off door, with/without UL Listed tamper switches. 1/4" plate steel housing, 1/2" thick steel door with interior gasket seal. Box and lock UL Listed. Lock has 1/8" thick stainless steel dust cover with tamper seal mounting capability.

Exterior Dimensions: Surface mount - 5"H x 4"W x 3 1/4"D
Recessed mount - 7"H x 7"W x 3 1/4"D

Lock: UL Listed. Double-action rotating tumblers and hardened steel pins accessed by a biased cut key.

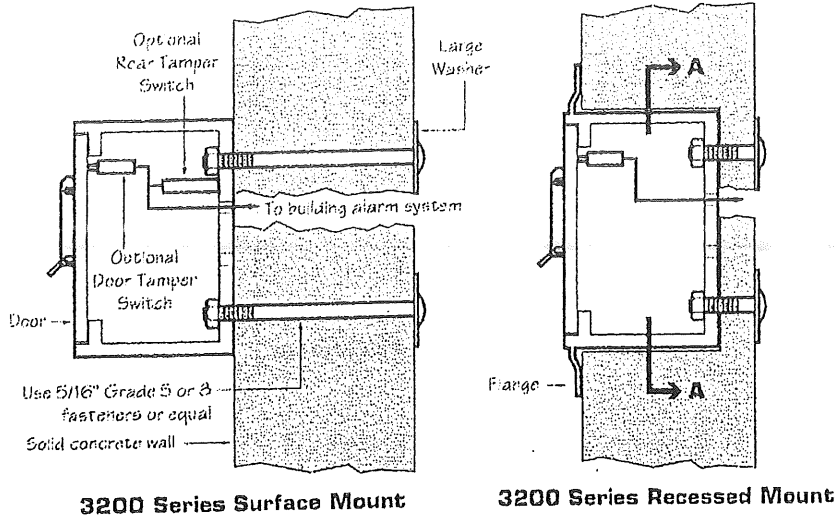
Finish: Knox-Coat® proprietary finishing process

Colors: Black, Dark Bronze or Aluminum

P/N: 3200 Series KNOX-BOX (mfr's cat. ID)

Mfr's Name: **KNOX COMPANY**

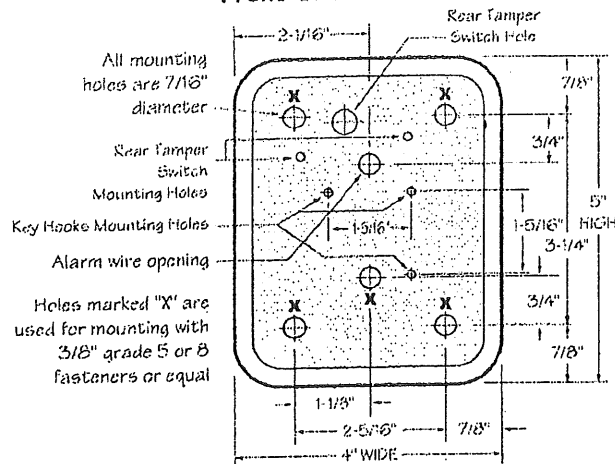
Suggested minimum mounting height
6 feet above ground



3200 Series Surface Mount

3200 Series Recessed Mount

Figure A
Front View of Rear Plate



Attention: KNOX-BOX® key box is a very strong device that **MUST** be mounted properly to ensure maximum security and resist physical attack.

Knox® Rapid Entry System

The Knox Company manufactures a complete line of high security products including Knox-Box key boxes, key vaults, cabinets, key switches, padlocks, locking FDC caps and electronic master key security systems. For more information or technical assistance, please call Customer Service at 1-800-552-5669.

Recessed Mounting Kit

The 3200 Recessed Mounting Kit (RMK) is used for recessed models only. It contains a shell housing and mounting hardware to be cast-in-place in new concrete or masonry construction. After construction is completed, the KNOX-BOX mounts inside the recessed shell housing. The RMK may only be used in new concrete or masonry construction.

Installation

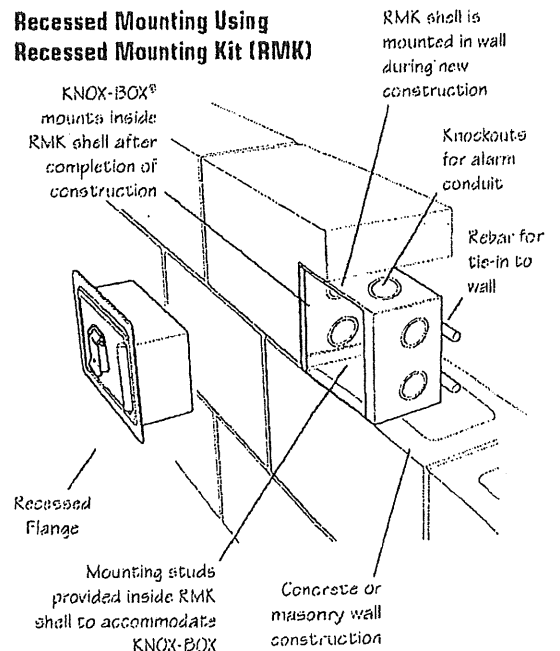
Fasten the mounting kit to the inside wall of a concrete form or set-in-place during masonry wall construction. Connect the wiring conduit through one of several knockout holes in the shell housing.

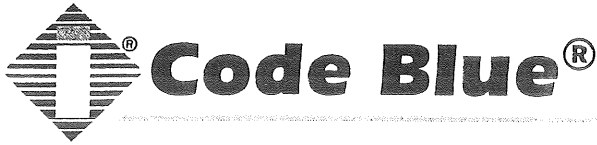
Dimensions

6-1/8"H x 6"W x 5"D, including Rebar

IMPORTANT: Care should be taken to insure that the front of the RMK shell housing, including the cover plate and screw heads, is flush with the finish wall. The RMK must be plumbed insure vertical alignment of the vault.

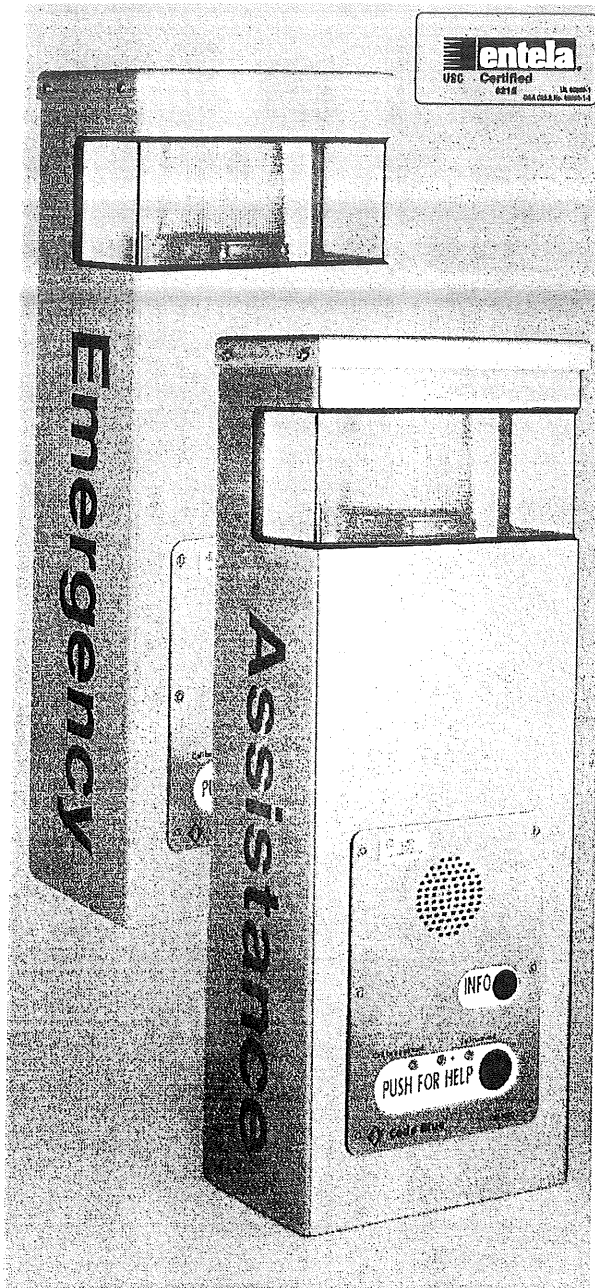
Recessed Mounting Using Recessed Mounting Kit (RMK)





Code Blue®

CB 2-e



WALL MOUNTED - INTERACTIVE VOICE COMMUNICATION UNIT

The **CB 2-e** is our most popular and cost effective wall mounted unit. Available in brushed stainless steel or optional painted steel, it is designed for both interior and exterior applications. The combination LED Beacon/Strobe and the Code Blue CB3100 communication system provides a rugged and reliable solution for the security conscious customer. The **CB 2-e** is an excellent choice for parking decks, dorm entrances, hallways and public transit centers.

- CB3100 Speakerphone
- 3 auxiliary input
- 2 auxiliary outputs
- Voice identifier
- Phone line surge suppressor
- Analog telephone connection
- Combination LED Beacon and high powered strobe
- 24v AC power
- Vandal resistant hardware
- Stainless steel faceplate
- UV resistant lenses
- 12 gauge, 4B brushed stainless steel housing
- Wall mounting kit
- ADA compliant

OPTIONAL FEATURES

- Two button speakerphone
- Two button speakerphone with keypad
- Step-down power transformer
- Painted finish
- Custom graphics

STANDARD FINISH COLORS

4B Brushed Stainless Steel

or optional painted finish

- | | |
|---------------|----------------------|
| Safety Blue | Gloss Black |
| Safety Red | Medium Bronze |
| Safety Yellow | Dark Bronze |
| Midnight Blue | Cardinal Red |
| Gloss White | British Racing Green |

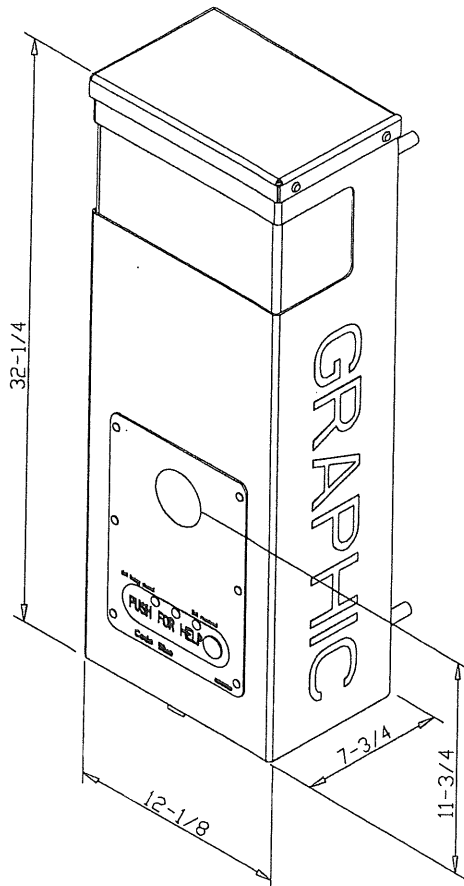
GRAPHICS TEXT (wording)

- | | | |
|------------|-----------|----------|
| Assistance | Emergency | Security |
| Courtesy | Police | |

GRAPHICS TEXT COLORS

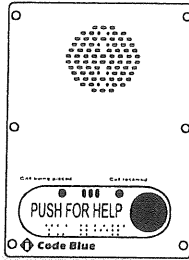
- | | |
|------------------|-------------------|
| Reflective Black | Reflective Red |
| Reflective Blue | Reflective White |
| Reflective Green | Reflective Yellow |

Custom colors and graphics from Pantone® color chart or sample are available as a special order.



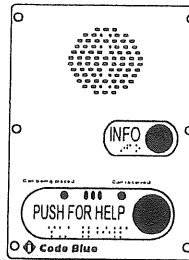
FACEPLATE OPTIONS

FP1



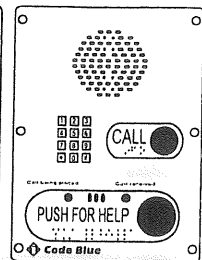
Standard faceplate assembly with single red **PUSH FOR HELP** button

FP2



Optional faceplate assembly with additional black **INFO** button

FP2-K



Optional faceplate assembly with additional **CALL** button and keypad

CODE BLUE UNIT SPECIFICATIONS

Overall Height	2' 8 1/4"
Width	12 1/8"
Depth	7-9/16"
Housing Material	1.105 inch stainless steel
Overall Weight	75 pounds
Standard Power Requirements	24v AC

Each unit is shipped with mounting hardware.



WALL OR POLE MOUNTED INTERACTIVE VOICE COMMUNICATION UNIT

The **CB 4-3** is our basic communication unit designed for wall or pole installations in interior and exterior applications. The all-steel housing and the CB3100 speakerphone meets the need for a highly vandal resistant unit while providing a cost effective and reliable solution. The optional remote mount combination LED Beacon/Strobe kit allows the user flexibility throughout the job. The **CB 4-3** is a good choice for dorm and building entrances, hallways and transit centers.



STANDARD FEATURES:

- | | |
|--|---|
| <input checked="" type="checkbox"/> CB3100 Speakerphone | <input checked="" type="checkbox"/> Vandal resistant hardware |
| <input checked="" type="checkbox"/> 3 auxiliary inputs | <input checked="" type="checkbox"/> Stainless steel faceplate |
| <input checked="" type="checkbox"/> 2 auxiliary outputs | <input checked="" type="checkbox"/> 24v AC power |
| <input checked="" type="checkbox"/> Voice identifier | <input checked="" type="checkbox"/> .125" thick steel housing |
| <input checked="" type="checkbox"/> Analog telephone connection | <input checked="" type="checkbox"/> Wall mounting kit |
| <input checked="" type="checkbox"/> Phonenumber Surge Suppressor | <input checked="" type="checkbox"/> ADA compliant |
| <input checked="" type="checkbox"/> Ultra weather resistant finish | |

OPTIONAL FEATURES:

- | | |
|--|---|
| <input type="checkbox"/> Two button speakerphone | <input type="checkbox"/> Pole mounting hardware kit |
| <input type="checkbox"/> Two button speakerphone with keypad | <input type="checkbox"/> Custom colors |
| <input type="checkbox"/> Remote mounted combination
LED Beacon/Strobe kit | <input type="checkbox"/> Custom graphics |

STANDARD FINISH COLORS

British Racing Green	Medium Bronze
Cardinal Red	Midnight Blue
Dark Bronze	Safety Blue
Gloss Black	Safety Red
Gloss White	Safety Yellow

GRAPHICS TEXT (wording)

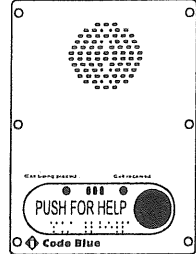
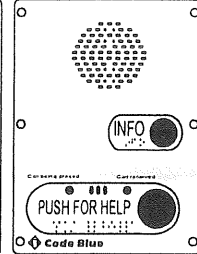
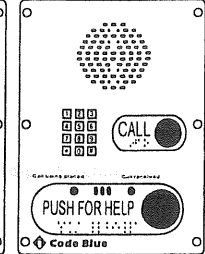
Assistance	Emergency	Security
Courtesy	Police	

GRAPHICS TEXT COLORS

Reflective Black	Reflective Red
Reflective Blue	Reflective White
Reflective Green	Reflective Yellow

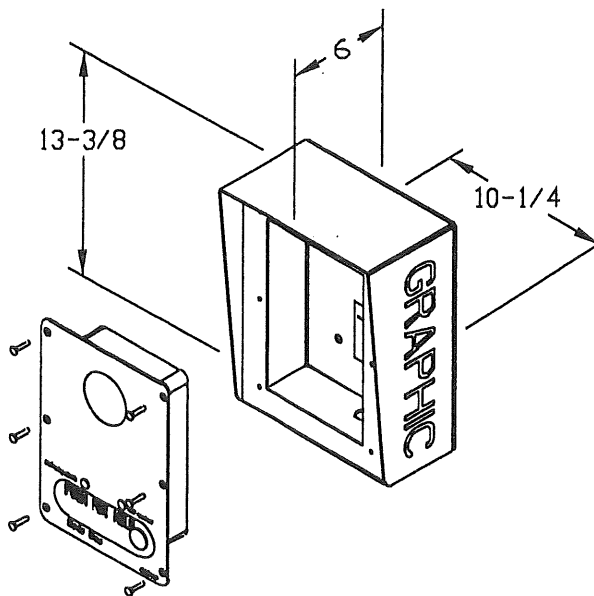
Custom colors and graphics from Pantone® color chart or sample are available as a special order.

FACEPLATE OPTIONS

FP1	FP2	FP2-K
		
Standard faceplate assembly with single red PUSH FOR HELP button	Optional faceplate assembly with additional black INFO button	Optional faceplate assembly with additional CALL button and keypad

REMOTE MOUNT COMBINATION LED BEACON/STROBE OPTION

Provides a highly visual constant blue beacon and a powerful activated strobe for rapid recognition in the unit location. The remote mount feature allows placement for maximum effectiveness.



CODE BLUE UNIT SPECIFICATIONS

Overall Height	1' 13/8"
Width	10 1/4"
Depth	6"
Housing Material	0.125 inch steel
Overall Weight	30 pounds
Standard Power Requirements	24v AC

Each unit is shipped with mounting hardware.

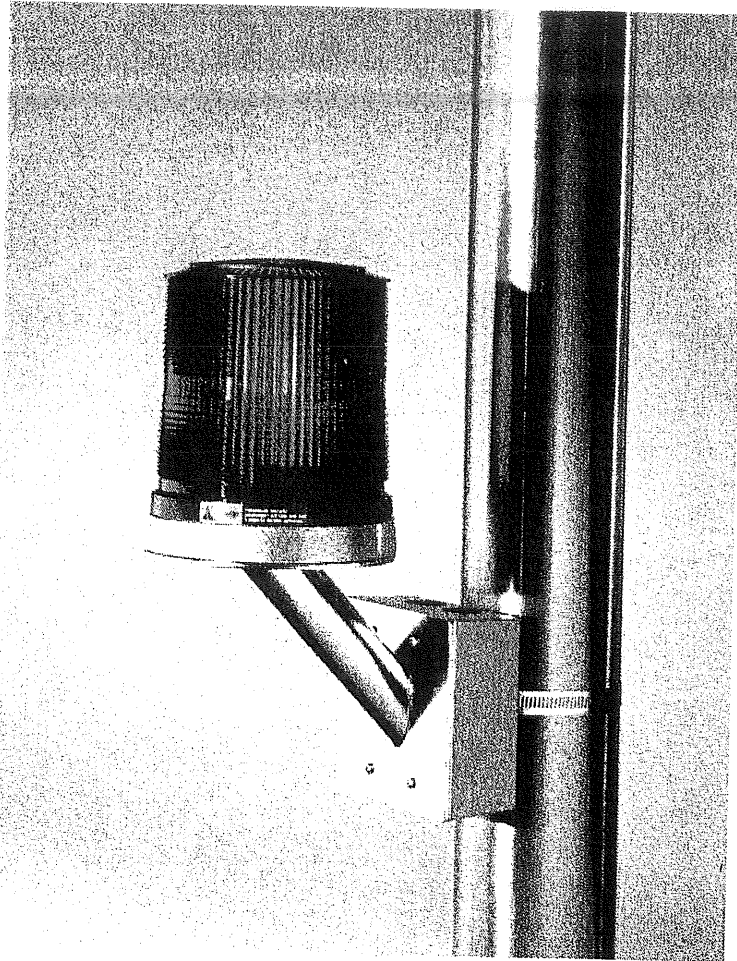


Code Blue[®] Beacon/Strobe

→ REMOTE MOUNT COMBINATION BLUE BEACON/STROBE KIT

The Code Blue Remote Mount Combination Blue Beacon/Strobe option provides a highly visible constant blue beacon and a powerful activated strobe for rapid recognition of the unit location.

The remote mount feature allows placement for maximum effectiveness. Remote combo strobe mounting kit can be used to optimize installation cost.



REMOTE BEACON/STROBE FEATURES

- ✓ Polycarbonate refractor with prismatic design to distribute light in a horizontal pattern
- ✓ Suitable for indoor or outdoor use
- ✓ Low voltage S-450 combo strobe standard
- ✓ 120 volt S-350 combo strobe available
- ✓ Heavy duty stainless steel mounting kit available
- ✓ Electrical enclosures and gaskets for weather resistant installation
- ✓ Pole adapter bracket and banding included in mounting kit

→ Edwards® 88 Series Power Transformers

Features

- Enclosed connections
- Primary Pigtails
- Screw terminal connections on secondary

Description

Edwards 88 Series Transformers provide low voltage source from 50 to 250 watts for all large signaling installations.

Agency Approvals

- UL Listed

Specifications

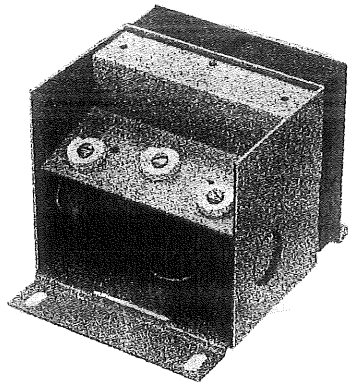
- Primary & Secondary voltage: see chart

Installation

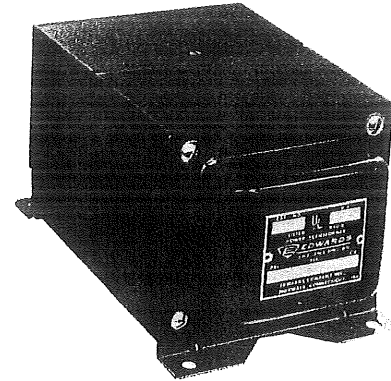
Holes provided in transformer housing for surface mounting.

Applications

The Edwards 88 Series heavy duty transformers are for heavy duty industrial and commercial applications.

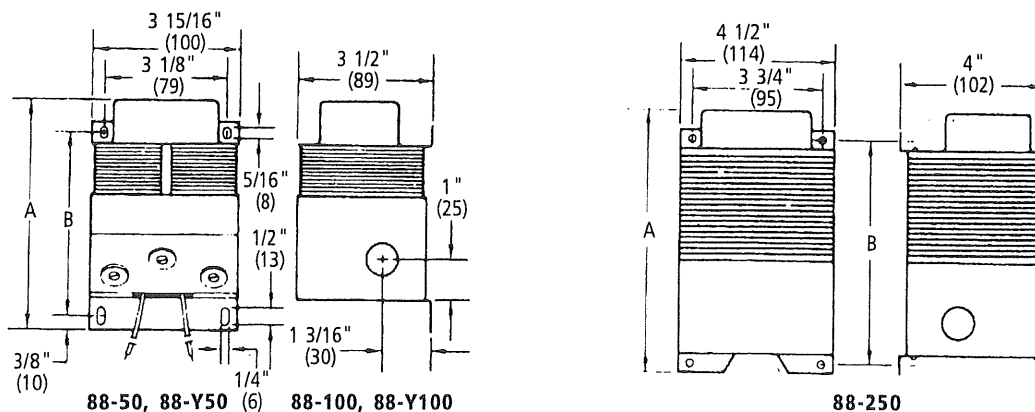


Cat. No. 88-50



Cat. No. 88-250

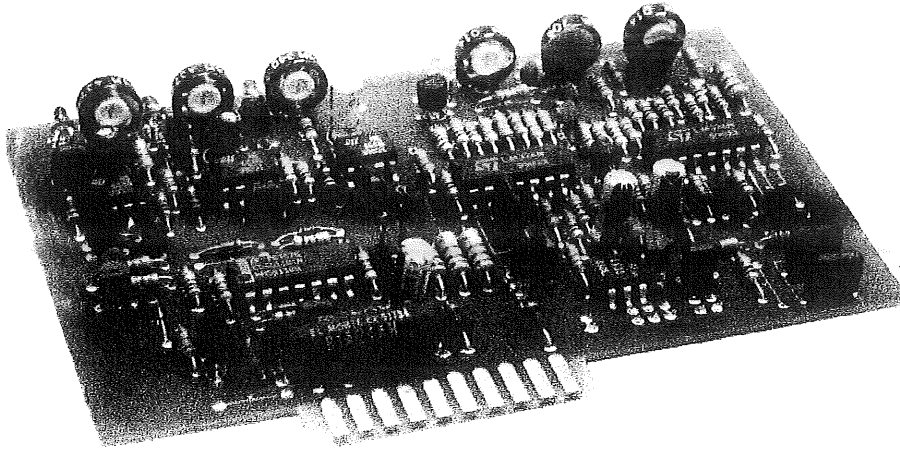
Cat. No.	Primary Volts 50/60 Hz	Secondary		Dimensions	
		Volts	V A	A	B
88-50	120V AC	24	50	5 1/2" (140mm)	4 3/8" (111mm)
		12	25		
88-Y50	240V AC	24	50	5 1/2" (140mm)	4 3/8" (111mm)
		12	25		
88-100	120V AC	24	100	5 15/16" (151mm)	4 11/16" (119mm)
		12	50		
88-Y100	240V AC	24	100	5 15/16" (151mm)	4 11/16" (119mm)
		12	50		
88-250	120V AC	24	250	7 3/4" (197mm)	6 5/8" (168mm)
		20	200		
		16	160		
		12	125		
		8	80		
		4	40		



NOTE: Dimensions are in inches and (millimeters).

⇒ TSK SDR-C SOUND DETECTION RELAY

SOUND DETECTION EQUIPMENT



Application Areas Include:

- Institutions
- Schools
- Correctional Facilities
- Health Care Facilities
- Garages & Parking Ramps
- Elevators
- Secluded Areas
- Public Buildings
- Voice Activated Call Systems

Features:

- ADVANCED AUDIO THRESHOLD DETECTION
- COMPATIBLE WITH MOST DIRECT SELECT INTERCOMS
- THREE LEVELS OF DISCRIMINATION & DETECTION
- REDUCES FALSE ALARMS
- AUTOMATIC COMPENSATION FOR AMBIENT NOISE
- SPST AUXILIARY RELAY OUTPUT

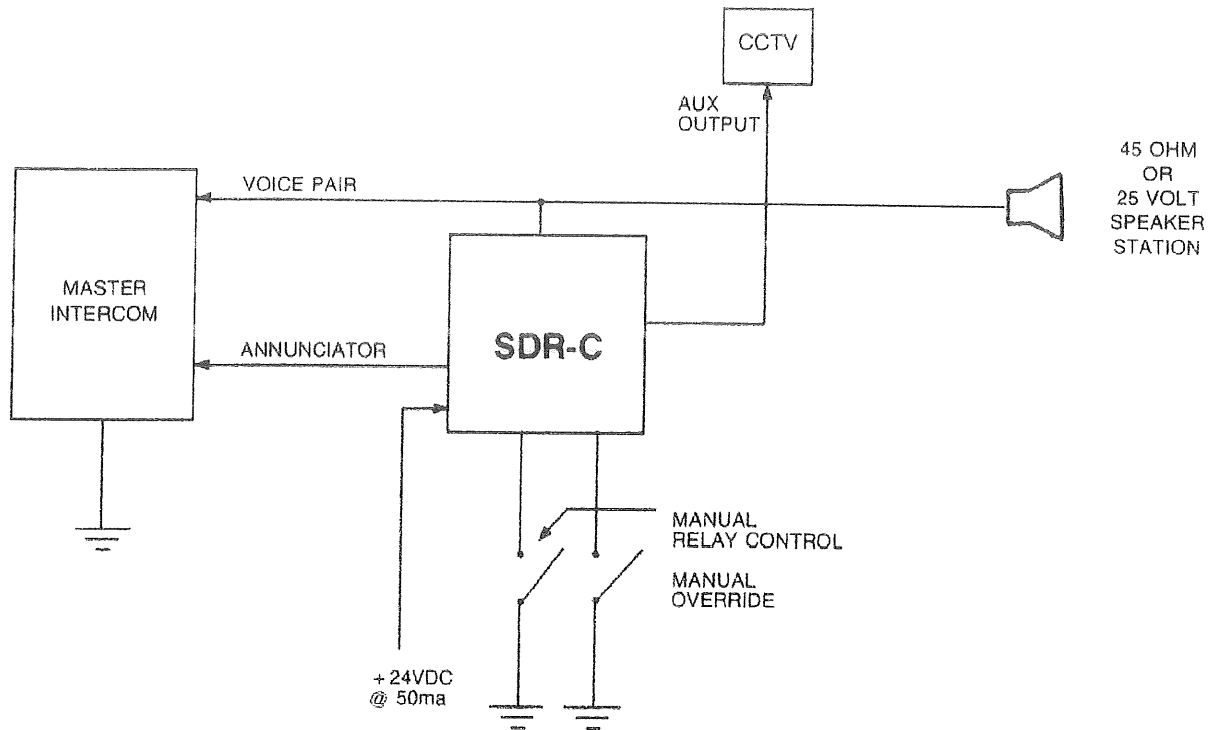
Description:

The TSK SDR-C uses existing intercom speakers as microphones to monitor any area for sound disturbances. It is compatible with most direct select intercoms on the market today. The SDR-C examines three distinct levels of discrimination and detection before reporting the disturbance, greatly reducing false alarms. The SDR-C's "trigger" level varies automatically as ambient noise levels increase or decrease, eliminating the need for Day/Night switches. Yet, sudden loud noises, above ambient noise, such as shouts, gunshots or breaking glass are easily detected and activate the annunciator at the Master Intercom Station. Upon alarm, the area in question can be immediately monitored and interrogated by the security console operator. Six adjustable potentiometers provide enough flexibility to accommodate virtually any ambient noise condition. In addition to its alarm output, the SDR-C has a SPST auxiliary relay output for external alarms or annunciation. The TSK SD25-RA(C) 19" rack assembly holds up to 25 SDR-C's and the TSK 10-PAC(C) holds up to 10 SDR-C's in a wall-mount configuration.

TSKCOM

Over Thirty Years in the Sound and Communications Business

TSK SDR-C



Electronic Specifications

Input: Electronically balanced low level speaker input for 45 ohm or 25 volt balanced speaker lines.

Maximum Gain: Ambient, 100dB; Detector, 106dB.

Dynamic Range: More than 40dB.

Frequency Response: 1.7 KHz - 15 KHz with an ambient 2 - 3 KHz centered octave detector.

Timers: Discriminator, adjustable from .1 - 1.1 seconds

Window, adjustable from 2.4 - 24.2 seconds

Extended, adjustable from 11 - 33 seconds

Override/Reset: Automatic during normal station selection by the master intercom. Manual with a ground on the control line.

Output: Momentary Optocoupler output strapped as needed.
Momentary or Latching SPST dry contacts.

Controls: 6 trimpots: Gain, Ambient Level, Filter Level, Discriminator Timer, Window Timer, Extended Timer.

LED Indicators: Detector, Discriminator, Window, Alarm.

Power Requirements: +24VDC @ 50ma (maximum in alarm).
15ma typical in idle.

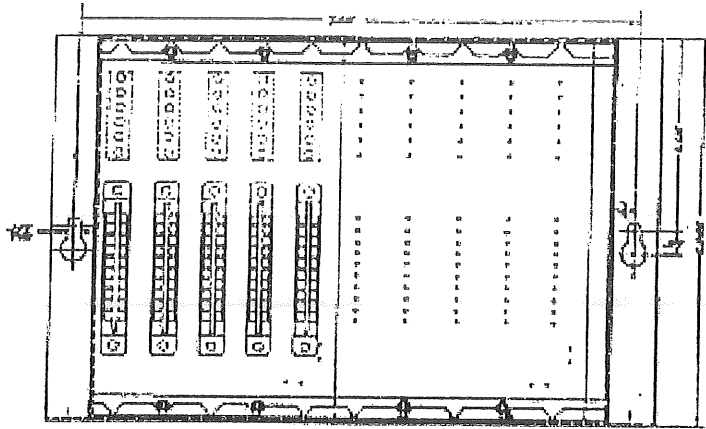
Dimensions: 5"x3.3"x.6" plug-in circuit card.

Architects & Engineers Specifications

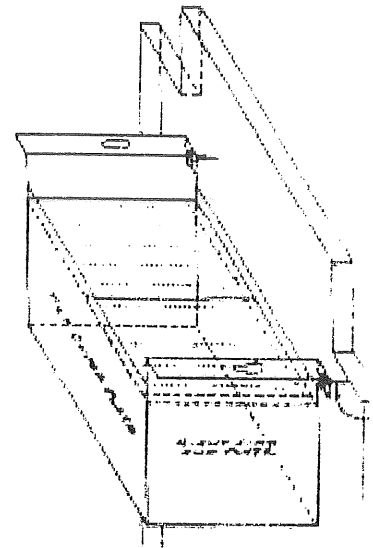
The means of audio detection shall be a TSK SDR Sound Detection Relay. It shall use one (maximum of three) intercom speakers for sound pickup and respond to specific sounds, above ambient noise, such as shouts, glass breakage, gun shots, etc. The speaker must still be usable for program or communication with the SDR on-line without alarm. The audio must pass through no less than three stages of detection before an alarm is initiated; it shall not be a single threshold type level detector. The three stages of detection shall be sound difference (time and frequency), sound discrimination, and sound verification. The SDR must be compatible with several manufacturer's intercom equipment. The SDR shall have no less than six separate potentiometers to adjust the parameters of detection for each application and must not require readjustment for normal daytime/nighttime conditions. The SDR shall have four continuously active LED displays that show the three stages of detection and the alarm output to aid in the adjustment of the SDR. A special override circuit shall be included that causes the SDR to go into alarm after a preset time if certain parameters are exceeded. In addition to annunciating the master intercom station upon alarm, the SDR shall have an auxiliary relay output to simultaneously operate a CCTV camera, VCR, or other piece of related equipment. This output shall be latching or momentary by means of inserting or removing a shorting plug. The SDR shall be a plug-in circuit card with all controls and indicators clearly labeled and accessible. It shall operate with +24VDC at no more than 50ma in alarm mode. Systems shall be capable of being assembled in blocks of five using the TSK 10-PAC or SD25-RA rack assemblies.

TSK 10-PAC WALL MOUNT ASSEMBLY

SOUND DETECTION EQUIPMENT



5 1/4" H x 9 3/16" L x 3 1/2" D



WIRING POSITION

Features:

- HOLDS UP TO 10 SOUND DETECTION RELAY MODULES
- WALL MOUNT WITH UNIQUE "WIRING POSITION"
- SIMPLE FIELD HOOK-UP
- MODULAR ARRANGEMENT KEEPS COSTS DOWN
- RUGGED METAL CONSTRUCTION

Description:

A single TSK Sound Detection Relay (SDR) module plugs into a 10 pin edge connector which is soldered to a double-sided printed circuit board (Backplane). All applicable pins are brought out to a captive screw terminal strip for simple field hook-up from the rear. A single two screw terminal block brings DC voltage to the first SDR module. Voltage is then routed to the remaining SDR modules via bus lines on the Backplane.

A single Backplane holds up to five SDR modules and a single 10-PAC holds one or two Backplanes. Two different Backplanes are available to accommodate both the "C" and "D" version TSK Sound Detection Relay modules.

Mechanically, the 10-PAC mounts to the wall with two screws. During the initial wiring process, however, the installer can turn the 10-PAC face-down, exposing the Backplane rear panel, and temporarily hang the 10-PAC. This provides a sturdy and accessible area to install field wiring. This unique "WIRING POSITION" is simple, practical and adds speed and convenience to the installation process.

Electronic Specifications

Capacity: up to 10 SDR Cards in groups of 5 Cards.
 Dimensions: 8 9/16" w x 5 1/4" h x 3 1/2" d
 Mounting: Wall mounting with special "Wiring Position".
 Finish: Textured Black
 Power Requirement: 24 VDC at .5 Amp (10 Cards)

Ordering Information:

TSK SD -PAC ()

No. of Card Capacity | Type of Cards

05 - up to 5 cards | C - SDR-C Cards
 10 - up to 10 cards | D - SDR-D Cards

TSKCOM

Over Thirty Years in the Sound and Communications Business

Audio Surveillance Equipment

by T-S-K Electronics, Inc.

Model TSK SDR-C Sound Detection Relay

General Information:

The **TSK SDR-C** Sound Detection Relay, by itself requires a 10 position single readout edge connector for field interface. The **TSK SD-##RA(C)** holds up to 5 - **TSK SD-BP(C)** Back Planes for a total of 25 detection relay card positions in a 5 ¼" x 19" rack space. All field connections are made to Euro type terminal strips.

Each card is independent of each other except for a 24 volt power buss. The **SDR-C** is wired across the sensor speaker line to the master intercom. As the speaker is selected by the master, the detection circuitry is shut down and the output relay is released (if latched). Each card can be manually reset or turned off by connecting PC pin 6 to PC pin 5 [power supply (-)].

The **SDR** requires a twisted pair to the speaker. More than one speaker (three to four maximum) can be connected to a single card, but monitoring different acoustic areas with the same module may result in loss of sensitivity or an increase in nuisance alarms.

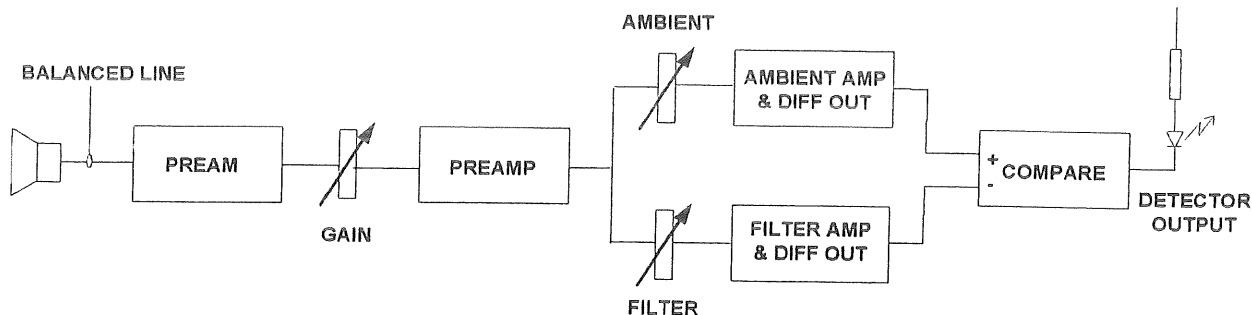
The **SDR-C** provides a single contact output for annunciating the master intercom station upon alarm. The output contact can be internally connected to the power supply (-) or isolated depending on the position of Jumper J2. With J2 in position #1 the contact is connected to the power supply (-), in position #2 the contact is isolated. The output contact can be momentary or latching upon alarm, depending on the position of jumper J1. With jumper J1 "installed", the contact will latch on alarm. With J1 "not installed", the contact is momentary. The output contact can also be controlled manually by connecting PC board pin 7 to PC board pin 5 [power supply (-)].

SPEAKER CONSIDERATIONS:

The success of the audio surveillance system depends on several factors: 1) The quantity and type of speaker picked for the sensor, 2) the location of the sensor speaker, and 3) acoustics of the area being monitored.

The **SDR-C** will function properly with a wide variety of speakers. The most important quality is the response of the speaker. Most cone speakers provide the needed response for the **SDR-C** to perform properly. Some horn speakers can cause adjustment problems. Horns with a 7" or larger bell work the best. The Atlas-Soundolier VTB Horn used in some of their correctional speaker stations should not be used.

If there is a question on a particular speaker's performance, contact the factory before being applied.



BLOCK DIAGRAM AUDIO SECTION

Adjusting the SDR-C

PRELIMINARY SETUP:

NOTE: the SDR-C card is positioned vertically in the rack unit.

AUDIO SECTION - Preset the "GAIN" (top) control so the trimmer arrow points to the 1 o'clock position. Preset the "AMBIENT" and "FILTER" controls so the trimmer arrows point to the 3 o'clock position.

LOGIC SECTION - Preset the "DISCRIMINATOR", "WINDOW" and "EXTENDED" timer controls so the trimmer arrows point to the 12 o'clock position.

NOTE: The SDR-C Sound Detection Cards are factory preset to these positions.

AUDIO SECTION

THEORY OF OPERATION - The "GAIN" trimmer control adjusts the front end gain to compensate for losses in level - 1) When more than one speaker is paralleled on the speaker line* and 2) The differences in speaker sensitivities **.

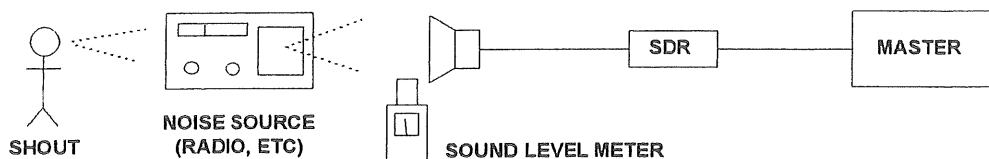
NOTE: *The voltage output of a speaker, being used as a microphone, will drop to $\frac{1}{2}$ (-6dB) when a speaker of equal impedance is paralleled on the speaker line. It drops an additional $\frac{1}{2}$ (-6dB) if the number speakers is again doubled. The maximum number of speakers on a single detector card is four.

**Speaker sensitivity varies between speakers of different types and sizes. Horn speakers are more sensitive than cone speakers, whereas the sensitivity of the cone speaker will vary according to the speaker cone sizes.

The "AMBIENT" trimmer control adjusts the effect of the sensed ambient noise at the detector. The "FILTER" control adjust the effect of a narrow bandwidth of noise (between 2.5 - 3.5kHz) at the detector. The detector compares these levels and produces an output to the Logic Section of the detector when the filtered level exceeds the ambient level.

The output of the ambient stage responds slowly on attack and decay, when a sound is sensed. The filtered output stage will respond fast on attack and decay. This combination permits the detector to separate sudden increases in sound over the ambient noise level.

The frequency, duration and intensity (energy) of a detected sound causes the detector to act differently. The ambient level will increase with sounds of higher energy and duration than with short sounds (or bursts) which may not have this energy. The filtered level increases when the frequency of the sound falls within its bandwidth.



ADJUSTMENT OF THE AUDIO SECTION: It is best to adjust the **SDR-C** when the detection area is occupied to utilize the ambient conditions that the system will normally operate under. If this can't be done, an auxiliary noise source (ie. portable tape/radio) can be used for a preliminary adjustment. The card should be readjusted after the location is occupied. Place the noise source in the area of the sensor speaker (see note below) and adjust the level to produce the anticipated ambient noise (this can be verified with a sound level meter) in the area when the area will be occupied.

NOTE: If the monitored area is enclosed (room), place the noise source in the center of the area. If the monitored area is a wide open space (parking ramp, outside) place the noise source near the area where the anticipated noise is expected to emanate from.

Standing near the noise source shout* (shout "hey" with at least a 5 - 10 sec interval between) at a level above the noise source (This can be verified with a sound level meter). Adjust the "**FILTER**" control (CW - more sensitivity) until the Detector LED starts to blink with each shout.

NOTE: At this stage it is important that there be a pause between shouts. It is very important that the ambient stage gets to settle (between 5 and 10 sec) before making another test shout to insure consistency in the adjustment. If it doesn't settle completely, the result will be increased sensitivity and nuisance alarms.

NOTE: The "**GAIN**" control can also be used to increase or decrease the sensitivities of the "**AMBIENT**" and "**FILTER**" sections equally.

IF: The filter control ends up turned fully CW and the Detector LED still does not blink, reduce the setting of the "**AMBIENT**" control CCW 1/8 turn and try again. Repeat until there is indication of a detection.

Turn the noise source off. Wait about 10 seconds for the **SDR-C** to settle and check the sensitivity again, by shouting as you walk in the area. The **SDR-C** will be at its most sensitive adjustment. The shout needed to set the detector off will not be as loud as with the noise. If the detector is too sensitive, turn the "**FILTER**" control CCW about 1/8th turn and retest it.

LOGIC SECTION:

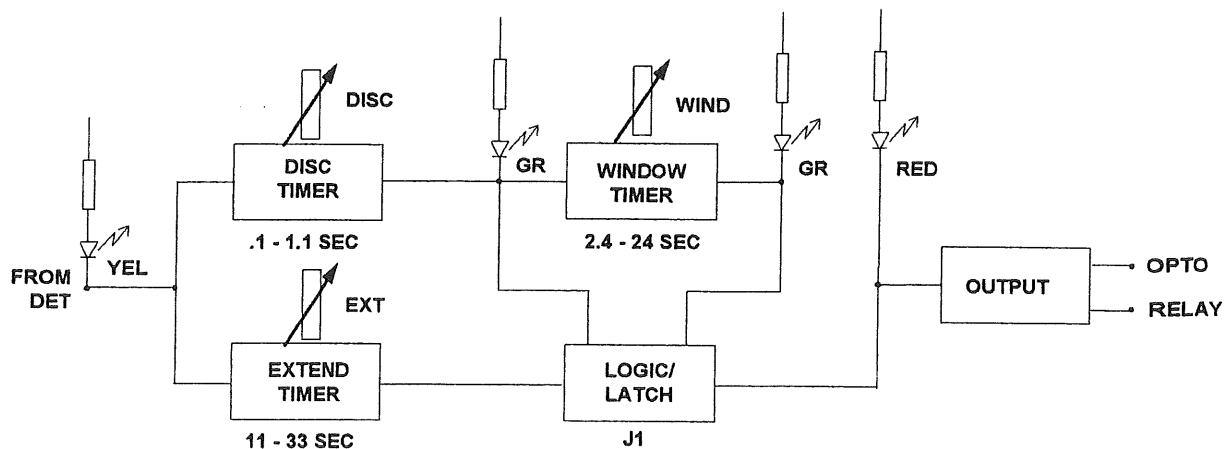
THEORY OF OPERATION: For the Logic section to begin processing a detected disturbance, the Detection LED must go on and off (see Extended Timer operation). The Discriminator Timer starts as soon as the Detection LED goes out. During the operation of the Discriminator Timer (.1 - 1.1 sec) the SDR may detect other disturbances but will not result in an alarm output. It is during the Discriminator Time that the **SDR-C** adjusts itself to the ambient conditions. The Discriminator LED and the Window LED both indicate both timers operation.

IF: The detected sound is continuous (air handlers, cranking of car engines, flushing of toilets, sirens, turning on a stereo, etc.) the ambient output level increases during the Discrimination Time and is much higher at the end of the time period causing the filtered level needing to increase to a much higher level before another detection can occur.

If: The detected sound is short in duration (shout, gun shot, door slam, laugh, etc.) the ambient output level will not increase as much during the Discrimination Time. This will cause another detection to occur at a much lower filtered level.

At the end of the Discriminator Time the Window Timer (2.4 - 24 sec) starts. Any further detection during this time results in a momentary alarm output from the Opto-coupler and an output from the Relay (with or without J1 installed).

IF: No other sound is detected during the Window Time the **SDR** times out and starts over.



BLOCK DIAGRAM LOGIC SECTION

ADJUSTMENT OF THE LOGIC SECTION:

The logic section causes the **SDR-C** to look by certain occurrences when monitoring for disturbances. When adjusting the logic section of the **SDR-C**, watch the Detection LEDs operation when a disturbance is detected. If the Audio Section is adjusted properly, it will blink once on the initial sound. Subsequent sounds will either desensitize the detector or be detected. It is this action that determines the adjustment of the Logic Section.

NOTE: The discriminator and window timers are preset for a short duration at the factory to speed up testing.

Sounds that repeat after the initial occurrence (echoes, motor starting with squeaky belts, people entering a stairwell, etc.) can be timed out by extending the Discrimination Time to give the Ambient Level enough time to increase so the detector is less sensitive when the Window Time starts.

Shout once and listen to the echo in the area.

IF: The echo is still very strong on the first few returns, the Detector LED may register each time, increase the Discriminator Timer CW so the Discriminator LED remains on as long as needed for the detector to stop detecting the echoes. A reduction in Detector sensitivity (Filter Control) may also be required if the Discriminator Timer can not time the echo out.

In areas of unrelated multiple occurrences (systems with more than one speaker per detector) multiple sounds may be hard to predict and adjust out. The Window Timer can be shortened to limit how long the detector waits for a second occurrence. The longer this timer operates, the more change of an unrelated sound setting the SDR off.

The Alarm LED (Red) follows the operation of the output relay. It will stay lit if J1 is installed.

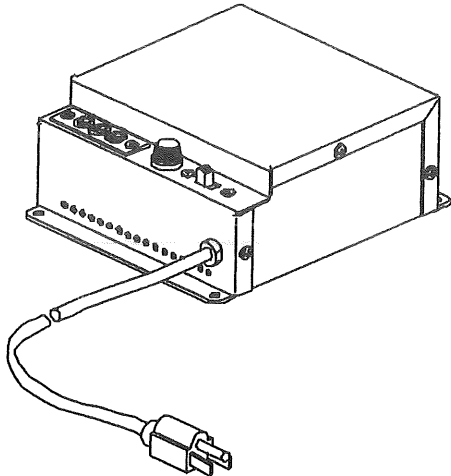
EXTENDED TIMER: - If a sound occurs in the area of a speaker (ie squealing air handler, car horn, jack hammer, etc.) that loud enough and continuous preventing the Detection LED from flashing on and off, the Extended Timer (11 - 33 sec) times out, setting the **SDR-C** in alarm.

ADJUSTMENT:

The Extended Timer can usually be left at the factory set position. If sounds are encountered in an application that cause this timer to time out and force the card into alarm, it can be increased. During the time this is occurring, the **SDR-C** is unable to detect any disturbances. This is used as a fail safe timer.

TSK PS-3024 REGULATED POWER SUPPLY

**INTERCOM
EQUIPMENT**



FEATURES

- Wide Voltage and Frequency Input
- Stable Adjustable Output
- Short Circuit Proof
- Wall or Rack mounting
- Foreign Plugs Available

DESCRIPTION:

The TSK PS 3024 Regulated Power Supply is a self contained power supply used for general applications requiring a stable 24 Volts at up to 1.2 Amps output. The unique case construction permits the power supply unit to be mounted on a flat surface such as a backboard or one of TSK's prefabricated rack panels. A power switch and fuse is provided to interrupt the input line voltage to turn the supply on (or off) or in case of component failure. A special current fold back circuit shuts down the power supply output voltage if the output current exceeds the preset level. The supply has a 6 foot cord with a molded three prong grounded plug attached. The protective ground is brought out to the output terminal strip and may be strapped to either the power supply positive or negative output for special applications.

By adding the -240/* VAC option, the supply comes with the appropriate plug for the overseas region. Add /RA for rack mounting on a 7" x 19" Rack Panel.

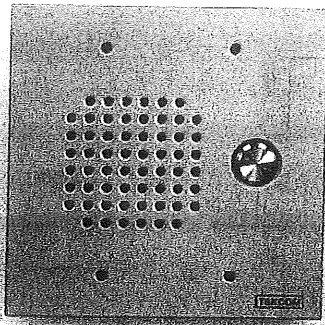
SPECIFICATIONS:

AC INPUT -	100/120/220/230-240 VAC +10%, -13%, 47-63 Hz
DC OUTPUT -	24 VDC @ 1.2 Amp. Adjustment range +5%
LINE REGULATION -	+0.05% for a 10% line change
LOAD REGULATION -	+0.05% for a 50% load change
OUTPUT RIPPLE -	3.0Mv pk +0.02% Vout Pk-Pk maximum
DIMENSIONS-	6 1/2"L x 5 3/8"W x 2 9/16"D Rack Mount 19"L x 7" x 2 5/8"D
FINISH -	Black Textured Powder Coat finish

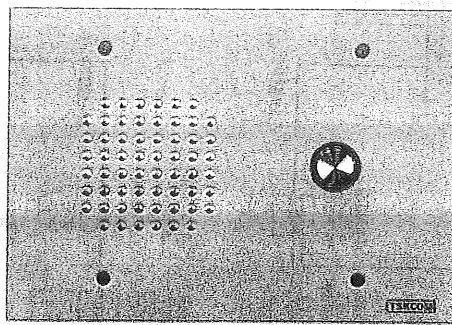
TSKCOM

TSK SERIES 200 VANDAL PROOF SPEAKER STATION

INTERCOM EQUIPMENT



TSK 202-010



TSK 203-010

FEATURES:

- All Stainless Steel Construction
- 11 Gauge Face Plate
- Waterproof Speaker/Mic Resists Damage by Abuse, Flame & Liquid
- Rugged All Stainless Steel Button
- Superb Audio Clarity
- 45 ohm or 25 Volt Operation
- Other Configurations Available

DESCRIPTION:

The **TSK Series 200** Vandal Proof Speaker Stations are constructed entirely of stainless steel and were designed specifically for security applications. These rugged speaker stations have a smooth, clean appearance, but can handle abusive environments. The 2 1/2" speaker used in this series, has a special Sealed Linear Design protecting the speaker from ferrous and non-ferrous particles. With a wide operating temperature range and resistance to water, this station still provides outstanding audio performance. An offset, perforated 14 gauge stainless steel grill plate further protects the speaker from liquids, open flame, and physical abuse.

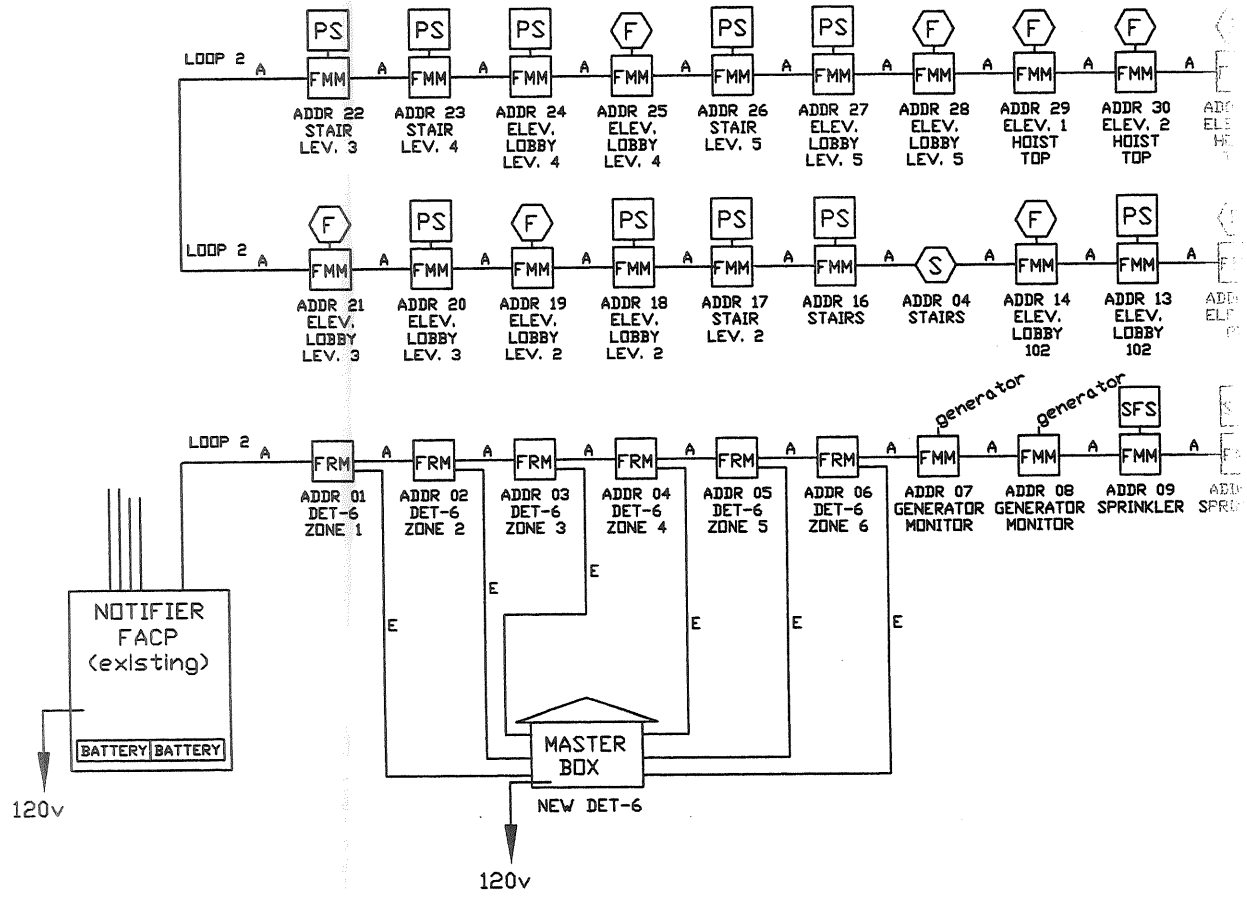
The call button, designed exclusively by **TSK**, is made entirely out of stainless steel. A stop between the button cap and the flanged switch body protects the replaceable switch from being damaged. This design permits the switch assemble to be taken apart for service and cleaning as needed.

The **200 Series** comes in either a 2 gang or 3 gang configuration permitting the use of standard flush or surface mount back boxes. These stations can be supplied with one, two (203 models only) or no call button. Our standard impedance is 45 ohm or 25 volt line, but the added flexibility of the station design permits configurations for other values to integrate with other manufacturers systems. For stations that will be subjected to the elements outside add a **W** before the model number to include an added button seal.

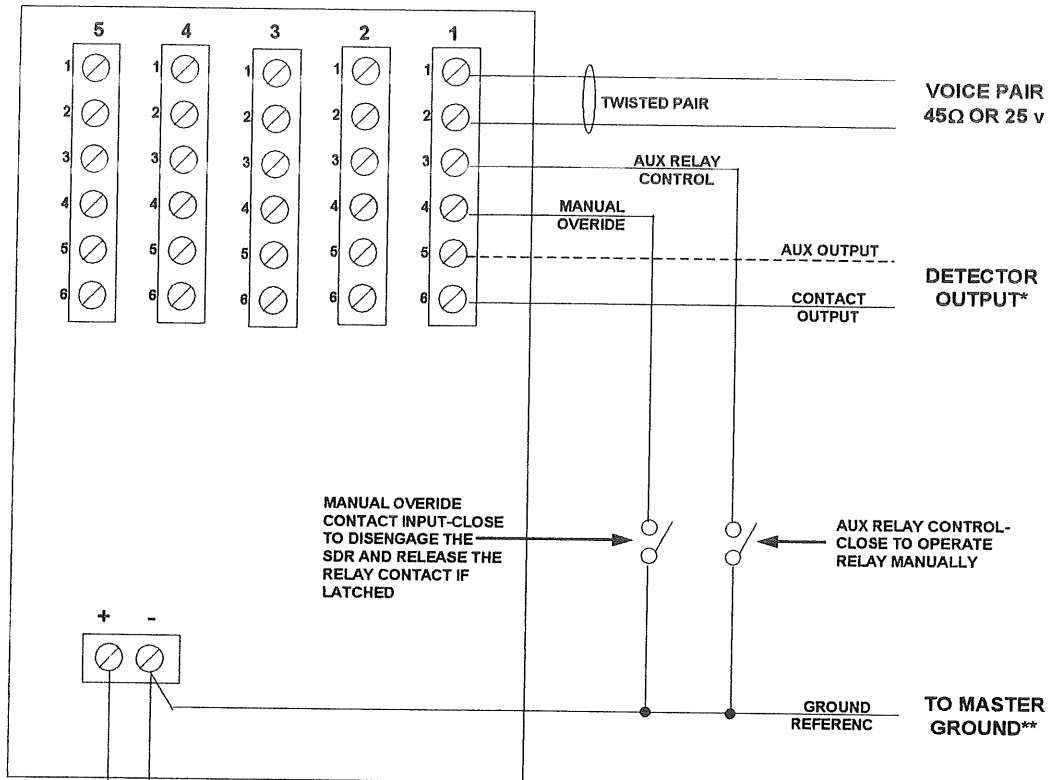
SPECIFICATIONS -

SPEAKER SIZE -	2 1/2" Square
IMPEDANCE -	45 ohm or 8 ohm with 25 Volt 2 Watt Line Transformer
POWER -	6 Watts RMS; 12 Watts Program
FREQUENCY RESPONSE -	350 Hz to 4.5 kHz
SENSITIVITY -	87 dB (above .0002 Dynes/CM ²)
ENVIRONMENTAL -	-55° C to +85° C; Total immersion in water for 96 hours without degradation Add W - for outside speaker stations.
CALL BUTTON -	All Stainless Steel housing; 1 Amp @ 125VAC or 28VDC ; 250,000 cycles at full rating
DIMENSIONS -	202-010 - 4 1/2" w x 4 1/2" h x 1 3/8" d (2 5/8" d /w Transformer) 203-010 - 6 3/8" w x 4 1/2" h x 1 3/8" d (2 5/8" d /w Transformer)
MATERIAL -	11 gauge SS Front Panel /w 14 gauge SS Baffle Plate; Matte Finish
WEIGHT -	202-010 - 1 1/2 lb.; 202-101/25 - 1 3/4 lb. 203-010 - 1 3/4 lb.; 203-010/25 - 2 lb.

TSKCOM

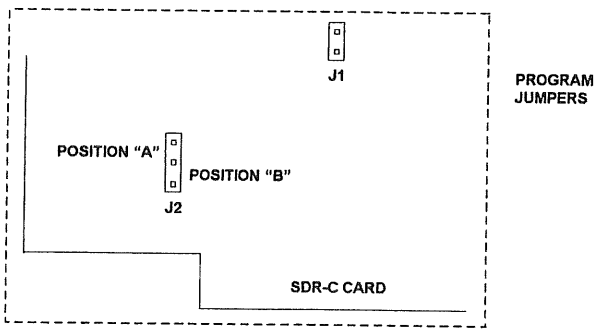


SDR-C Back Plane Wiring



NOTES:
 *** THE RELAY OUTPUT IS NORMALLY OPEN TO GROUND WHEN J2 IS IN POSITION "A".
 THE RELAY OUTPUT IS NORMALLY OPEN BETWEEN TERMINALS #5 AND #6 WHEN J2 IS IN POSITION "B".
 **** A GROUND REFERENCE IS REQUIRED BETWEEN THE NEGATIVE OF THE SDR POWER SUPPLY AND THE MASTER INTERCOM FOR PROPER OPERATION.
 WHEN J1 IS INSTALLED, THE RELAY CONTACT WILL LATCH ON ALARM. TO RELEASE, SELECT THE STATION AT THE MASTER OR RELEASE BY USING MANUAL OVERRIDE.
 THE VOICE PAIR CONNECTS ACROSS THE INTERCOM /SPEAKER STATION VOICE PAIR.
 NOTE: THE SDR-C CARD IS USED ON INTERCOMS THAT DO NOT BUSS ALL SPEAKER STATIONS IN THE OFF POSITION.

24 VDC POWER SOURCE





ICS110 Series Camclosure® Camera System

OUTDOOR, MINI DOME, SURFACE MOUNT, WDR, LOWLIGHT, HIGH RES, STD RES

Product Features

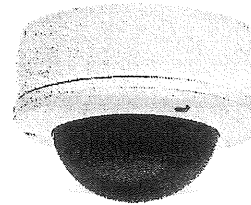
- Fully-Integrated Enclosure with Camera and Lens
- Rugged, High-Impact, Vandal-Resistant, Puncture-Proof Domes; Tamper-Resistant Hardware
- Available with Wide Dynamic Range (WDR) Technology (102 dB Typical/120 dB Maximum)
- Available with LowLight™ DSS Technology (Down to 0.025 lux)
- Camera Module Options: Color WDR, Color High Resolution, Color LowLight, Color or Monochrome Standard Resolution
- WDR Models Include Both Composite and Unshielded Twisted Pair (UTP) Outputs and Progressive Scan Mode
- Six Lens Options: 2.9 mm, 3.6 mm, 6 mm, 8 mm, 12 mm, 3-9 mm Varifocal
- Easy to Install; Camera Module Easy to Adjust and Remove
- Meets NEMA Type 4X and IP66 Standards
- 12 VDC or 24 VAC Operation, Autosensing
- Available with Smoked or Clear Dome

Camera Modules

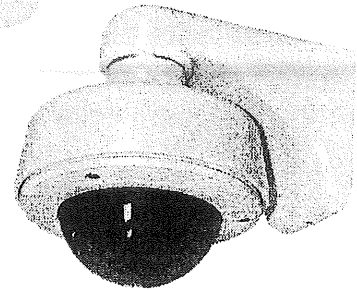
The **ICS110 Series Camclosure® Integrated Camera System** offers a large selection of camera and lens options. Available camera modules include the following:

- Wide dynamic range color camera with auto iris, 3-9 mm varifocal lens
WDR cameras are designed to meet your extreme back lighting conditions, including glare, direct sunlight, and shadows. They capture clear, discernable images in a variety of challenging environments – from lobbies to loading docks to warehouses.
- LowLight™ DSS, high-resolution color camera with auto iris, 3-9 mm varifocal lens
The LowLight color camera has extended Digital Slow Shutter (DSS) settings to enhance the low light performance of the camera by automatically adjusting the number of fields of integration. This slows the picture frame rate and increases the camera's sensitivity in low light conditions.
- High-resolution color camera with auto iris, 3-9 mm varifocal lens
- High and standard resolution color cameras with fixed focal length lenses
- Standard resolution black-white cameras with fixed focal length lenses.

All cameras with fixed focal length lenses are available in 2.9 mm, 3.6 mm, 6 mm, 8 mm, or 12 mm lengths.



ICS110 SERIES DOME



ICS110 WITH ICS110-PG PENDANT ADAPTER AND SWM-GY MOUNT

- All Color Cameras Feature Digital Signal Processing
- Optional Pendant Mount Adapter

Enclosure Modules

The **ICS110 Series Camclosure® Integrated Camera System** combines an environmental cover, back box, camera, lens, and lower dome into a small, high-security system that is quick and easy to install. The system is perfect for a variety of indoor and outdoor applications and its versatile design allows for multiple mounting options.

The **ICS110 Series** can be installed directly into a ceiling or wall, or to a 1.5-inch (3.81 mm) NPT fitting with the optional pendant mount adapter (ICS110-PG). The unit can also mount directly to a 4S electrical box using the optional adapter plate (ICS110-AP) or a standard plaster ring.

The system's back box has three conduit openings: two in the base, and a threaded 0.75-inch (1.91 cm) opening in the side. The environmental cover can be used to hide and protect the side conduit opening if it is not used.

The lower dome of the **ICS110 Series** is available with clear or smoked bubble. Models with a clear lower dome include a black dome liner for discreet viewing. Domes with a smoked bubble may be purchased without the camera module for pre-installation or for camera bicycling.



C2403 / REVISED 7-06

IP66



International Standards Organization Registered Firm; ISO 9001 Quality System



TECHNICAL SPECIFICATIONS

GENERAL

Construction	Aluminum with steel camera mounting bracket and polycarbonate dome
Finish	Light gray polyester powder coat
Light Attenuation	
Smoked	1.5 F-stops light loss
Clear	Zero light loss
Unit Weight	2.20 lb (1.00 kg)
Shipping Weight	4.0 lb (1.81 kg)

ELECTRICAL

Input Voltage*	12 VDC or 24 VAC ($\pm 10\%$), autosensing
Power Consumption	
Camera	Less than 3 watts
Heaters	10 watts when active; thermostatically controlled

MECHANICAL

Cable Entry	One 0.75-inch (1.91 cm) NPT threaded opening on side; two 0.75-inch (1.91 cm) openings on base
Pan/Tilt Adjustment	Manual
Pan	360°
Tilt	180°;
	80°: 20° to 100° range (WDR models only)
Rotation	360°

VIDEO

Signal System	EIA or CCIR
Monochrome	NTSC or PAL
Color	
Video Connectors	One composite BNC
	One composite BNC and one UTP (WDR models only)
Service Connector	3-conductor, 2.5 mm connector for video output to optional ICS090-SC cable (WDR models only)

ENVIRONMENTAL

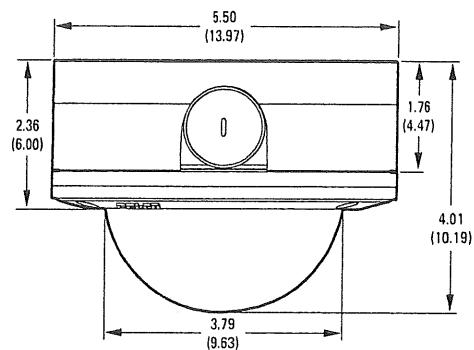
Environment	Low temperature, indoor/outdoor
Operating Temperature	-50°F to 122°F (-46°C to 50°C); de-ices to 25°F (-4°C)
Thermostat Operation	Heater is thermostatically controlled to activate ON at 50°F (10°C) and OFF at 80°F (27°C)

CERTIFICATIONS/RATINGS/PATENTS

- CE and FCC, Class A (models with black-white cameras)
- CE and FCC, Class B (models with color cameras only)
- UL Listed
- UL Listed to Canadian safety standards
- Meets NEMA Type 4X and IP66 standards
- Tested in accordance with MIL-STD 810E as follows:
 - Shock test; Section 516.4
 - Humidity test; Sections 520.1 and 507.3
 - Vibration test; Section 514.4
- ASTM Shipping Standard
- ISTA Shipping Standard

All tests are performed in accordance with ISO Guide 25 and ANSI/NCSL Z540-1.

- U.S. Patents D476,025; 6,715,939 B2; 6,805,498 B2



NOTE: VALUES IN PARENTHESES ARE CENTIMETERS; ALL OTHERS ARE INCHES.

*24 VAC power is recommended when installing any Camclosure Integrated Camera System under fluorescent lighting conditions.

TECHNICAL SPECIFICATIONS

CAMERA SPECIFICATIONS

Color, Wide Dynamic Range, LowLight™ DSS, High Resolution

	Color Wide Dynamic Range Varifocal, Auto Iris (Models ICS110-CW-V39)	Color LowLight DSS Varifocal, Auto Iris (Models ICS110-CDVxA/ ICS110-CEVxA)	Color High Resolution Varifocal, Auto Iris (Models ICS110-CRVxA/ ICS110-CSVxA)	Color High Resolution Fixed, Without Iris (Models ICS110-CRx/ ICS110-CSx)
Imaging Device	1/3-inch Imager	1/3-inch Interline Color CCD	1/4-inch Interline Color CCD (Hyper HAD™)	1/3-inch Interline Color CCD (Hyper HAD)
Dynamic Range (WDR only)	102 dB typical/120 dB maximum			
Scanning System	2:1 Interlace Progressive	2:1 Interlace	2:1 Interlace	2:1 Interlace
Sync System	Internal AC line lock	Adjustable AC line lock/internal, auto select	12 VDC: Internal 24 VAC: External (VD Lock)	12 VDC: Internal 24 VAC: External (VD Lock)
Horizontal Resolution	NTSC: 504 TV lines PAL: 504 TV lines	NTSC: 480 TV lines PAL: 480 TV lines	NTSC: 480 TV lines PAL: 480 TV lines	NTSC: 470 TV lines PAL: 460 TV lines
Signal-to-Noise Ratio	53 dB	50 dB	48 dB (AGC Off)	48 dB
Min. Illumination	0.5 lux (F1.2), 40 IRE, AGC on, 75% scene reflectance (extended shutter mode, 15 fps)	0.75 lux @ 40 IRE DSS Off, F1.6 @ wide angle 1.20 lux @ 50 IRE DSS Off, F1.6 @ wide angle 0.025 lux @ 40 IRE, 30 fields of DSS, F1.6 @ wide angle 0.040 lux @ 50 IRE, 30 fields of DSS, F1.6 @ wide angle	Less than 1.2 lux (F1.2)	1 lux (F2.0)
Video Out	Composite: 1 Vp-p (75 ohms) UTP: Active 1 Vp-p (100 ohms)	Composite: 1 Vp-p (75 ohms)	Composite: 1 Vp-p (75 ohms)	Composite: 1 Vp-p (75 ohms)
Gain Control	Auto (36 dB maximum)	Auto/Manual by DIP switch	On/Off by DIP switch (0-20 dB)	NTSC: Auto PAL: Manual
Exposure	Auto (1/15 - 1/22,000)	Automatic Control with DC Iris Meter (1/60 - 1/100,000)	Electronic Shutter (1/60 - 1/100,000)	Electronic Shutter (1/60 - 1/100,000)
White Balance	Auto or manual (switch selectable), 2700°K - 7500°K	Auto	Auto or manual (switch selectable)	Auto
Backlight Compensation	Auto	ON/OFF (switch selectable)	Auto; adjusts AGC and AES	Auto or manual (switch selectable)

TECHNICAL SPECIFICATIONS

Color and B-W, Standard Resolution

	Color Standard Resolution Fixed, Without Iris (Models ICS110-CAx/ICS110-CCx)	Black-White Standard Resolution Fixed, Without Iris (Models ICS110-MAx/ICS110-MCx)
Imaging Device	1/3-inch Interline Color CCD	1/3-inch CCD
Scanning System	2:1 Interlace	2:1 Interlace
Sync System	12 VDC: Internal 24 VAC: External (VD Lock)	Internal
Horizontal Resolution	NTSC: 350 TV lines PAL: 350 TV lines	EIA: 420 TV lines CCIR: 420 TV lines
Signal-to-Noise Ratio	48 dB	50 dB
Min. Illumination	1 lux (F2.0)	0.1 lux (F2.0)
Gain Control	Auto	Auto
Exposure	Electronic Shutter (1/60 - 1/100,000)	Electronic Shutter (1/60 - 1/100,000)
White Balance	Auto	Not applicable
Backlight Compensation	Auto or manual (switch selectable)	Auto

LENS SPECIFICATIONS

Camera	Varifocal With Auto Iris		
	Color Wide Dynamic Range	Color LowLight DSS High Resolution	Color High Resolution
Focal Length	3.0 mm - 9.0 mm	3.0 mm - 9.0 mm	3.0 mm - 9.0 mm
Format Size	1/3-inch	1/3-inch	1/4-inch
Relative Aperture (F)	1.2 to 2.1	1.2 to 2.1	1.2 to 2.1
Operation			
Iris	Auto	Auto	Auto
Focus	Manual	Manual	Manual
Zoom	Manual	Manual	Manual
Angle of View*			
Horizontal	92.8° to 33.3°	84° to 31.2°	66.2° to 23.9°
Diagonal	118.7° to 41.5°	106.9° to 23.1°	83.9° to 29.9°
Vertical	68.8° to 25°	60.8° to 23.1°	49.1° to 18°

Camera	Fixed Focal Without Iris									
	Color	B-W	Color	B-W	Color	B-W	Color	B-W	Color	B-W
Focal Length	2.9 mm	3.0 mm	3.6 mm		6.0 mm		8.0 mm		12.0 mm	
Format Size	1/3-inch		1/3-inch		1/3-inch		1/3-inch		1/3-inch	
Relative Aperture (F)	2.0		2.0		1.8	2.5	1.8	2.5	2.0	
Operation										
Iris	N/A		N/A		N/A		N/A		N/A	
Focus	Manual		Manual		Manual		Manual		Manual	
Zoom	N/A		N/A		N/A		N/A		N/A	
Angle of View*										
Horizontal	90°	87°	74°		42°	38°	32°	29°	21°	
Diagonal	—	—	—	—	—	—	—	—	—	—
Vertical	69°	67°	55°		33°	30°	25°	23°	17°	

*Focal length specifications presume a 10% horizontal and 4% vertical monitor overscan.

SYSTEM MODELS AND ACCESSORIES

MODELS

Dome Only

The following model allows pre-installation of domes or can be used in a camera bicycling installation:

ICS-DO110A ICS110 Series surface mount dome (no camera/lens) with smoked bubble.

SYSTEM MODELS, Color Camera

Camera Type	Lower Dome	Lens	Lens Type	NTSC	PAL	
Color, Wide Dynamic Range	Smoked	3 - 9 mm	Varifocal, auto iris	ICS110-CW-V39		
	Clear	3 - 9 mm	Varifocal, auto iris	ICS111-CW-V39		
Color, LowLight DSS, High Resolution	Smoked	3 - 9 mm	Varifocal, auto iris	ICS110-CDV39A	ICS110-CEV39A	
	Clear	3 - 9 mm	Varifocal, auto iris	ICS111-CDV39A	ICS111-CEV39A	
Color, High Resolution	Smoked	3 - 9 mm	Varifocal, auto iris	ICS110-CRV39A	ICS110-CSV39A	
		2.9 mm	Fixed, without iris	ICS110-CR3	ICS110-CS3	
		3.6 mm	Fixed, without iris	ICS110-CR3.6	ICS110-CS3.6	
		6 mm	Fixed, without iris	ICS110-CR6	ICS110-CS6	
		8 mm	Fixed, without iris	ICS110-CR8	ICS110-CS8	
		12 mm	Fixed, without iris	ICS110-CR12	ICS110-CS12	
	Clear	3 - 9 mm	Varifocal, auto iris	ICS111-CRV39A	ICS111-CSV39A	
		2.9 mm	Fixed, without iris	ICS111-CR3	ICS111-CS3	
		3.6 mm	Fixed, without iris	ICS111-CR3.6	ICS111-CS3.6	
		6 mm	Fixed, without iris	ICS111-CR6	ICS111-CS6	
		8 mm	Fixed, without iris	ICS111-CR8	ICS111-CS8	
		12 mm	Fixed, without iris	ICS111-CR12	ICS111-CS12	
	Color, Standard Resolution	Smoked	2.9 mm	Fixed, without iris	ICS110-CA3	ICS110-CC3
			3.6 mm	Fixed, without iris	ICS110-CA3.6	ICS110-CC3.6
6 mm			Fixed, without iris	ICS110-CA6	ICS110-CC6	
8 mm			Fixed, without iris	ICS110-CA8	ICS110-CC8	
12 mm			Fixed, without iris	ICS110-CA12	ICS110-CC12	
Clear		2.9 mm	Fixed, without iris	ICS111-CA3	ICS111-CC3	
		3.6 mm	Fixed, without iris	ICS111-CA3.6	ICS111-CC3.6	
		6 mm	Fixed, without iris	ICS111-CA6	ICS111-CC6	
		8 mm	Fixed, without iris	ICS111-CA8	ICS111-CC8	
		12 mm	Fixed, without iris	ICS111-CA12	ICS111-CC12	

SYSTEM MODELS, B-W Camera

Camera Type	Lower Dome	Lens	Lens Type	EIA	CCIR
B-W, Standard Resolution	Smoked	3.0 mm	Fixed, without iris	ICS110-MA3	ICS110-MC3
		3.6 mm	Fixed, without iris	ICS110-MA3.6	ICS110-MC3.6
		6 mm	Fixed, without iris	ICS110-MA6	ICS110-MC6
		8 mm	Fixed, without iris	ICS110-MA8	ICS110-MC8
		12 mm	Fixed, without iris	ICS110-MA12	ICS110-MC12
	Clear	3.0 mm	Fixed, without iris	ICS111-MA3	ICS111-MC3
		3.6 mm	Fixed, without iris	ICS111-MA3.6	ICS111-MC3.6
		6 mm	Fixed, without iris	ICS111-MA6	ICS111-MC6
		8 mm	Fixed, without iris	ICS111-MA8	ICS111-MC8
		12 mm	Fixed, without iris	ICS111-MA12	ICS111-MC12

SYSTEM MODELS AND ACCESSORIES

LENS PACK OPTIONS

Lens packs offer the added convenience of easily changing a camera's field of view by simply changing the lens.

All fixed focal length lenses without iris (2.9 mm to 12 mm) are interchangeable with any camera module. Fixed focal length auto iris and varifocal lenses are not interchangeable.

Variety Pack*

13FFD-V5PAK Variety package of five lenses, one each
2.9 mm, 3.6 mm, 6 mm, 8 mm, and 12 mm

Single Lens Pack*

13FF3D 2.9 mm lens and mount
13FF3.6D 3.6 mm lens and mount
13FF6D 6 mm lens and mount
13FF8D 8 mm lens and mount
13FF12D 12 mm lens and mount

Four Lens Pack*

13FF3D-4PAK Package of four 2.9 mm lenses and mounts
13FF3.6D-4PAK Package of four 3.6 mm lenses and mounts
13FF6D-4PAK Package of four 6 mm lenses and mounts

*Fixed focal length lenses, without auto iris.

RECOMMENDED POWER SUPPLIES

(For use with 24 VAC models only!)

TF2000	Power supply for one 24 VAC camera, 20 VA
MCS Series	Multiple 24 VAC camera power supply, indoor
MCS*E Series	Multiple 24 VAC camera power supply, indoor
WCS Series	Single/multiple 24 VAC camera power supply, outdoor

OPTIONAL ACCESSORIES

ICS110-AP	Adapter plate for a 4-square electrical box
ICS110-PG	Pendant mount adapter
ICS110-BV	Breather vent to prevent condensation from forming inside the unit
SWM Series	Compact wall mount with cable feedthrough. Requires ICS110-PG adapter.
ICS090-SC	4-foot service/monitor cable; compatible with any standard monitor BNC connector (WDR models only)



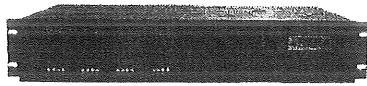
Pelco, the Pelco logo, and Camclosure are registered trademarks of Pelco.
LowLight is a trademark of Pelco.
Hyper HAD is a trademark of the Sony Corporation.
Specifications subject to change without notice.
©Copyright 2006, Pelco. All rights reserved.



R2416UL, R2416ULCB UL Listed Rack Mount CCTV Power Supply

Rev. DSR2416UL - A27F

Overview



- These Altronix AC Rack Mount CCTV Power Supplies provide 24VAC or 28VAC distributed via sixteen (16) fuse or Class 2 Rated PTC protected power limited outputs for powering CCTV Cameras, heaters and other video accessories.

R2416UL

- Sixteen (16) fuse protected outputs.
- Outputs are rated @ 3.5 amp.

R2416ULCB

- Sixteen (16) Class 2 Rated PTC protected power limited outputs.
- Outputs are rated @ 2.5 amp.

Specifications

- | | |
|---|--|
| <ul style="list-style-type: none"> • 24VAC @ 7 amp (170VA) or 28VAC @ 6 amp (170VA) supply current. • Input 115VAC, 50/60Hz, 3 amp. • Surge suppression. • Illuminated power disconnect circuit breaker with manual reset. • Removable terminal blocks w/locking screw flanges. • 3-wire grounded line cord. • Individual power LEDs. • Spare fuse(s) provided (fuse protected model only). • Unit maintains camera synchronization. | <ul style="list-style-type: none"> • Ease of installation saves time and eliminates costly labor. • 2U rack mount chassis for use in standard EIA 19" rack. • Product weight: <ul style="list-style-type: none"> - R2416UL: 14.8 lbs. - R2416ULCB: 15.7 lbs. • Shipping weight: <ul style="list-style-type: none"> - R2416UL: 15.8 lbs. - R2416ULCB: 16.7 lbs. |
|---|--|

Agency Approvals



UL Listed for Commercial CCTV Equipment (UL 2044).

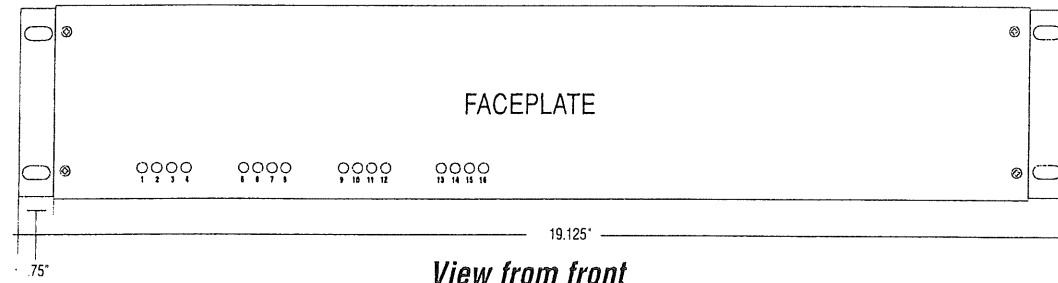
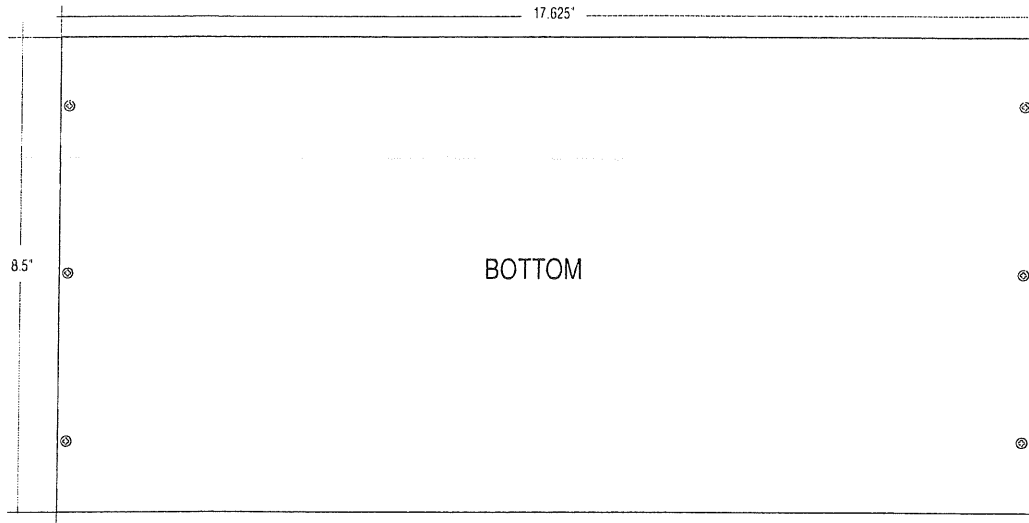
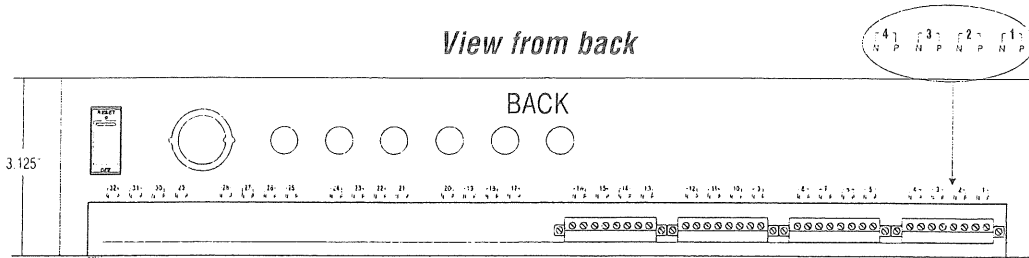


CUL Listed - CSA Standard C22.2 No.1-98, Audio, Video and Similar Equipment.

Enclosure Dimensions

3.25"H x 19.125"W x 8.5"D

View from back



View from front

DX8100 Series Digital Video Recorder

8/16/24/32 CAMERA INPUTS, 250 GB-3 TB STORAGE, ADVANCED SEARCH CAPABILITIES

PRODUCT FEATURES

- Windows® XP Embedded
- Optional MUX Card Output
- 2 Built-In Audio Channels
- Optional Layer 2 Multicasting (LAN)
- 16-Channel Expansion Box Option
- Maximum Increased Storage Capacity of 3 TB
- Increased Frame Rate for 2CIF and 4CIF Recording
- Standard Multiplexed Output for Analog Display
- Up to 704 x 480 Recording Resolution (4CIF)
- Third-Party Dome Support
- ATM/POS Data Interface Support

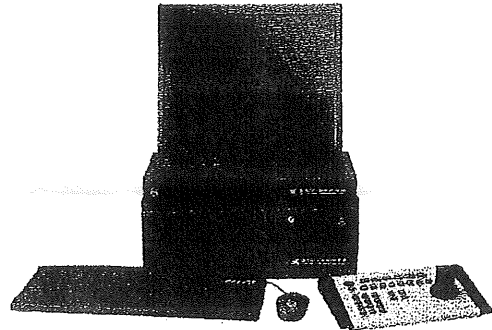
The Choice for Professional Security – As your business grows and becomes more diversified, you need a professional digital video recorder (DVR) that can grow with and also stay a step ahead of your business security requirements. Your security application might require more cameras or DVR software that provides even more sophisticated operation and control features. The **DX8100 Series** digital video recorders (DVRs) bring to market a new and innovative hardware platform that is powered by unparalleled and unique high-performance software. The DX8100 is expandable to meet your future security requirements.

The DX8100 is interoperable with your existing DX8000 DVRs, allowing you to build upon your existing DX8000 security system. A DX8100 client can operate and administer DX8100 and DX8000 servers in the same network.

When you need to quickly and easily add more security cameras, the DX8100-EXP 16-channel expansion unit extends the 8- or 16-channel DX8100 to 24 or 32 channels. With or without the channel expansion unit, all of the cameras can now take advantage of the increased frame rate of 2CIF and 4CIF recording. The DX8100 records video up to 480 images per second (IPS) at a maximum CIF image size.

If your security project demands increased storage capacity, you can extend recorded internal storage up to 3 TB. For the DX8108 and DX8116, the optional DX9200HDDI further increases the storage capacity. Alternately, the DX9200HDDI can serve as a systems RAID solution.

If your security application requires enhanced audio recording, the optional audio cards provide one audio channel for each video channel. Optional audio cards disable the standard onboard audio channels.



(MONITOR, DX8100-EXP, AND KBD300A KEYBOARD NOT INCLUDED.)

Sophisticated video security applications require a network of DVRs to monitor multiple locations. The 10/100/1000 megabit Ethernet port supports today's high-speed networks. You can network your DX8100s and DX8000 systems and remotely operate the DVRs for continuous, motion detection, alarm, ATM/POS, normal scheduled recording, and administer and view live and playback video. For time-critical security applications, you must ensure that all video recordings are synchronized to an accurate time source. The DX8100 supports the Network Time Protocol (NTP), which allows you to synchronize all networked DX8100s to one NTP time server.

New features and functionality – New DX8100 version 1.1 features broadens the already extensive feature set to further enhance DX8100 usability for the ever-changing security environment. Version 1.1 supports full screen display of index and playback video at the click of a button, the ability to export and print from a copy of backed up video, and incremental setting of the global data retention time limit in one-day increments.

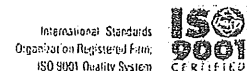
Running on Windows XP Embedded, the DX8100 continues to advance technologically, allowing you to take advantage of optimized memory usage and CPU performance, and strong network support. The 8- or 16-channel MUX option provides additional analog video outputs for viewing live video from local cameras and increased VGA output for local cameras up to 480 ips, for real-time video viewing.

Two standard audio channels in the base DX8100 are used for audio recording. Upgrade to the DX8108-AUD or DX8116-AUD audio option for 8 or 16 audio inputs.

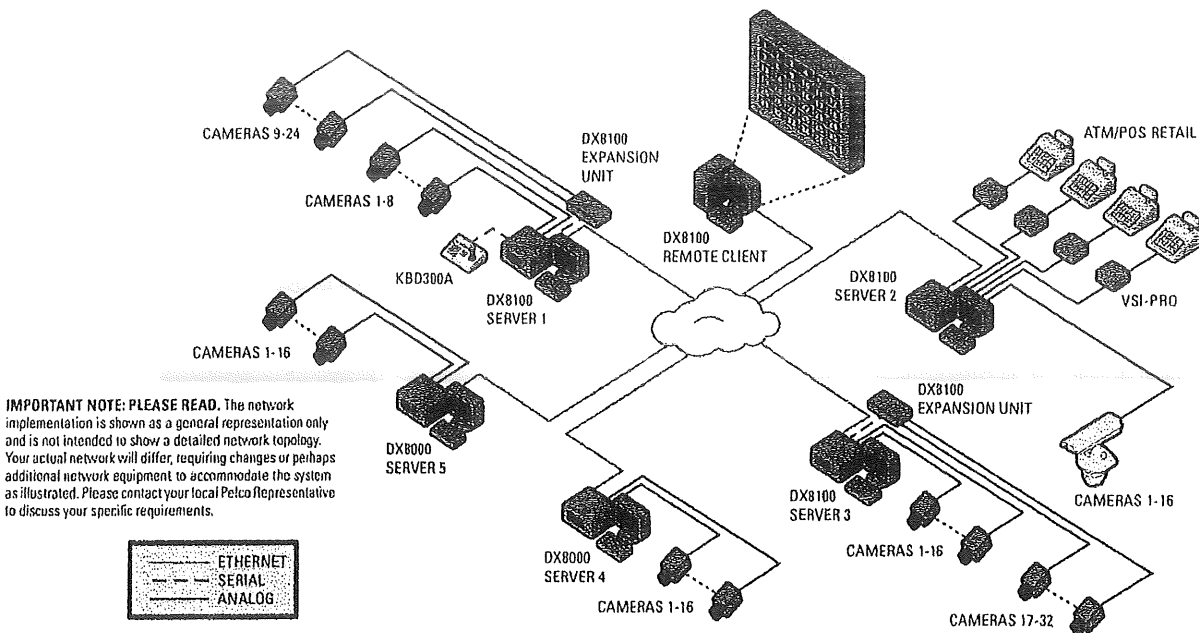
These new feature innovations, coupled with a proven performance history, continues to make the DX8100 "the professional's choice of DVR" for your security application.



C2629 / REVISED 6-07



TECHNICAL SPECIFICATIONS



APPLICATIONS

The DX8100 interacts as a comprehensive system, easily integrating into your existing DX8000 network. The DX8100 adds many new features, for example DX8100 server-to-DX8000 server connectivity, and carries forth all existing DX8000 features including KBD300A keyboard compatibility, viewing up to 36 images simultaneously, and direct connection to ATM/POS devices and other serial devices.

ADDITIONAL FEATURES

- 36 Camera Views for DX8100 Server or Client
- On-Line Help
- Up to 32 Channels of Audio Recording (Optional)
- 8/16/24/32 Alarm Inputs and 8/16/24 Relay Outputs
- Camera View Favorites
- Instant Playback
- Quick Menu Option to Turn Relays On/Off
- Live Audio Over the Network
- Video Loss Event Start and Recovery Time
- Video Loss Event Linked to an Alarm
- Up to 480 IPS Recording Rate at 320 x 240 Resolution (NTSC)
- Client connects to up to 100 servers
- Connect Any Five DX8100 Servers in a Network or Any Combination of DX8100 and DX8000 DVRs
- Network Bandwidth Throttling
- 10/100/1000 Megabit Ethernet Port
- Multi-Event Recording Schedules
- Multiple Displays for Live Viewing or Playback While Recording
- 6X Digital Zoom on Playback
- On-Screen PTZ Control with Positioning Device Programming Capability
- Includes Remote PC, Web, and Handheld Client Software
- Pelco-Engineered Compression Technology Offering High-Quality and Small File Sizes
- Local and Remote Administration, Live, Search, and Playback Viewing
- Individual Camera Channel Configuration
- Display Cameras from Different Sites on One Screen
- Dynamically Adjustable Frame Rate and Image Quality for Motion and Alarm Recording and Pre-Alarm Recording
- Pre- and Post- Alarm Recording up to 60 Seconds (up to 15 Minutes with Optional 512 MB RAM Upgrade)*
- Monitor System Changes Using Activity Logs
- User-Friendly and Highly Intuitive Graphical User Interface
- Local and Remote Software Upgrade Capabilities
- Multilevel Password and User Configuration
- Automatic Image Watermarking
- Multilanguage Support (English, French, German, Italian, Polish, Portuguese, Russian, and Spanish)
- User-Definable PTZ Presets, Patterns, and Preset Tours
- Print Still Images from Video
- Export Video and Still Images in Multiple Formats, Including DX8100 Native, AVI, ASF, BMP, TIFF, and JPEG
- DX8100 Viewer Included with Video Exports
- API Facilitates Development and Integration of Third-Party Applications
- Ability to Configure Any Number of Camera Inputs for Covert Mode
- Scheduled Backup
- Interoperable with DX8000 DVRs
- External Storage RAID Option with DX9200HDDI
- Standard DVD-R Burner Writes to CDR and DVD-R Media
- NTP Time Server Compatible
- Up to 32 Camera Inputs and Outputs with Auto Termination
- KBD300A Keyboard Support for Camera Selection and PTZ Control

*Pre-alarm time estimate based on 16-channel recording at a resolution of 320 x 240 (CIF) and a frame rate of 5 ips.

TECHNICAL SPECIFICATIONS

ELECTRICAL/VIDEO

Input Voltage	100-240 VAC ±10%, 50/60 Hz, autoranging**	
Power Consumption	Maximum 350 watts	
Signal System	NTSC/PAL	
Operating System	Windows® XP Embedded only	
Recording Resolutions	NTSC	PAL
	320 x 240	320 x 288
	640 x 240	640 x 288
	640 x 480	640 x 576
	352 x 240	352 x 288
	704 x 240	704 x 288
	704 x 480	704 x 576
Compression	Pelco engineered	
Video Inputs	8/16/24/32 (looping with automatic termination)	
VGA Outputs	1	
Analog Video Outputs	1 with DX8108/DX8116; 2 with DX8124/DX8132	
Alarm Input Terminals	8/16/24/32 (user selectable, N.O./N.C.)	
Relay Output Terminals	8/16/24 (user selectable, N.O./N.C.)	
Relay Contact Ratings***	0.5 A at 120 VAC or 1 A at 24 VDC	
Rated (Resistive) Load	Full remote control via TCP/IP network	
Remote Administration	Full remote control via TCP/IP network	

MECHANICAL

Connectors	
BNC	Video inputs and outputs
6-pin mini-DIN	PS/2 mouse and keyboard
DB9	COM 1
DB15	VGA port
RJ-45	10/100/1000 Megabit Ethernet port and RS-485/RS-422 ports
USB	Six high-speed USB 2.0 ports (2 front, 4 back)
Audio Connectors	Miniature male phone plug for line in, microphone in, and audio output

GENERAL

Environmental	
Operating Temperature	50° to 95°F (10° to 35°C)
Relative Humidity	Maximum 80%, noncondensing
Dimensions	
Desktop	7.0 (H) x 17 (W) x 19.9 (D) inches (17.78 x 43.18 x 50.55 cm)
Rack Mount	7.0 (H) x 19.0 (W) x 22 (D) inches (4 RUs) (17.78 x 48.26 x 55.88 cm)
Expansion Unit Dimensions	
Desktop	1.73 (H) x 17 (W) x 8.19 (D) inches (4.39 x 43.18 x 20.80 cm)
Rack Mount	1.73 (H) x 19.0 (W) x 8.19 (D) inches (4.39 x 48.26 x 20.80 cm)

Minimum and maximum unit and shipping weights are given for each model series.

Unit Weight (Approximate)	Unit	Shipping
DX8108-250	39.8 lb (18.1 kg)	61.0 lb (27.6 kg)
DX8108-3000	44.9 lb (20.4 kg)	67.0 lb (30.4 kg)
DX8116-250	40.3 lb (18.3 kg)	62.0 lb (28.0 kg)
DX8116-3000	45.4 lb (20.6 kg)	67.0 lb (30.4 kg)
DX8124-250	40.8 lb (18.5 kg)	62.0 lb (28.0 kg)
DX8124-3000	45.9 lb (20.8 kg)	68.0 lb (30.8 kg)
DX8132-250	41.3 lb (18.7 kg)	63.0 lb (28.5 kg)
DX8132-3000	46.4 lb (21.1 kg)	68.0 lb (30.8 kg)

** It is recommended that an Uninterruptible Power Supply (UPS) device be used with the DX8100 with a 700 VA or better rating.

***Relays are grounded.

CERTIFICATIONS

- CE, Class B
- UL Listed
- UL Listed to Canadian Safety Standards
- FCC, Class B

At the time of this printing, other certifications are pending. Please consult the factory, our website (www.pelco.com), or the most recent B.O.S.S.® update for the current status of certifications.

REMOTE PC CLIENT APPLICATION

Recommended PC Requirements

Processor	Intel® Pentium® 4 with 2800 MHz minimum processor speed
Memory	256 MB RAM
Video	AGP or PCI-e VGA card with minimum 64 MB video RAM (nonshared memory), 1024 x 768 or 1280 x 1024 display resolution, and DirectX® 8.1 application programming interface.
Monitor	SVGA or XGA with 1024 x 768 or 1280 x 1024 resolution
Operating system	Windows 2000 (SP4) or Windows XP Professional DirectX 8.1 or better Microsoft Internet Explorer 5.5 or later 500 MB free disk space
Mobile PDA Client Application	A Pocket PC with Microsoft PPC 2002 or higher, Intel XScale® CPU with minimum 64 MB of memory

DX8100 SERVER MAXIMUM IPS RECORDING

Model	Format	NTSC IPS		PAL IPS	
		Total	Per Camera	Total	Per Camera
DX8108	CIF	240	30	200	25
	2CIF	120	15	100	12
	4CIF	60	7	50	6
DX8116	CIF	480	30	400	25
	2CIF	240	15	200	12
	4CIF	120	7	100	6
DX8124	CIF	360	15	300	12
	2CIF	180	6	150	6
	4CIF	90	3	75	3
DX8132	CIF	480	15	400	12
	2CIF	240	6	200	6
	4CIF	120	3	100	3

Resolution and frame rate values can be assigned evenly among all cameras or can be configured independently for individual cameras. Frame rate values can also be customized according to recording mode (normal, motion, alarm, and ATM/POS).

NOTICE: Judgment as to the suitability of the products for users' purposes is solely the users' responsibility. Users should refer to the Operation manuals for cautionary statements regarding user selected options and how they might affect video quality. Users shall determine the suitability of the products for their own intended application, picture rate and picture quality. In the event users intend to use the video for evidentiary purposes in a judicial proceeding or otherwise, users should consult with their attorney regarding any particular requirements for such use.

TECHNICAL SPECIFICATIONS

MODEL NUMBERS

Use the following table to create a model number to specify your DX8100. For example, the model number for a 32-channel system with 1000 GB storage and audio input option is DX8132-1000A. Typically, if an audio option is ordered, a 32-channel system comes with a 32-channel audio option.

The model number for a customized system is specified differently. For example, a 32-channel system with 1000 GB storage and an 8-input audio option is stated as follows: DX8132-1000 (32 video channels) and you order the DX8108-AUD option (8 audio inputs) separately. For more information about ordering customized configurations, contact your Pelco sales representative.

DX81XX - XXXXX		
Channels		
Storage (GB)		
Options		
Channels	Storage in GB	Options
8	250	A = Audio
16	500	M = MUX
24	750	
32	1000	
	1500	
	2000	
	2250	
	3000	

Supplied Accessories

Power cords (USA and European), keyboard, PS/2 mouse, DX8100 recovery CD, remote client application CD, audio input breakout cables (optional), alarm and relay terminal blocks, and rack mounting kit. (Monitor is not supplied with DX8100 Series DVR.)

Optional Accessories

DX8100-EXP	DX8100 16-channel expansion unit kit; Racks, 1 RU per unit, rack ears and screws are provided
DX8100-ISCI	DX8100 internal Ultra 160 SCSI card****
DX8108-AUD	DX8100 8-channel audio input card
DX8116-AUD	DX8100 16-channel audio input card
DX8100XPEUP	Windows XP Embedded software upgrade for DX8100 only
DX8100-512RAM	DX8100 memory upgrade from 512 MB to 1 GB
DX8108-MUX	DX8100 8-channel multiplexed analog output display card
DX8116-MUX	DX8100 16-channel multiplexed analog output display card
DX9200HDDI	External RAID storage expansion unit****
DX81HDD250KIT	DX8100 SATA 250 GB upgrade
DX81HDD500KIT	DX8100 SATA 500 GB upgrade
DX81HDD750KIT	DX8100 SATA 750 GB upgrade
KBD300A	KBD300A Universal keyboard (requires KBDKIT/KBDKIT-X)
KBDKIT/KBDKIT-X	Remote keyboard wiring kit
VSI-PRO	AVE Video serial interfaces for ATM/POS*****

THIRD-PARTY DOME SUPPORT

The DX8100 Series is compatible with the third-party domes listed below. Consult the factory for information on additional dome compatibility.*****

Manufacturer	Model
GE (Kalatel)	CyberDome™ Day/Night
LG	LPT-SD163HM
Panasonic	WV-CW864
Samsung	SCC-641
American Dynamics (Sensormatic)	Speed Dome Ultra VII
Philips CSI	AutoDome Day/Night
Baxall	BPD1-RAS916

****Not for use with DX8124 or DX8132 models.

*****The VSI-PRO and required cabling is available from AVE.

*****This list is subject to change. Please check with Pelco Product Support.



Pelco, the Pelco logo, Coaxitron, and D.O.S.S. are registered trademarks of Pelco. Microsoft, Windows, and DirectX are registered trademarks of Microsoft Corporation. Intel, XScale, and Pentium are registered trademarks of Intel Corporation. CyberDome is a trademark of Kalatel. Specifications subject to change without notice. ©Copyright 2007, Pelco. All rights reserved.

⇒ 200 Series Flat Panel, TFT LCD Monitor

17-INCH AND 19-INCH MONITORS WITH VGA INPUT

Product Features

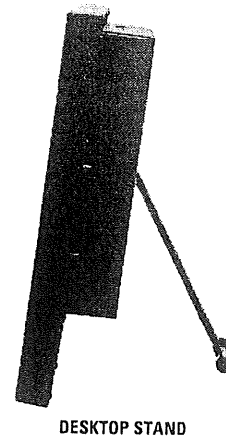
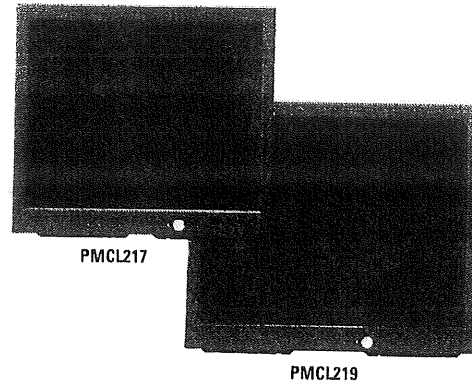
- Space-Saving, Flat Panel Design
- Picture-Frame-Style Desktop Stand
- VGA Input
- Supports up to 1280 x 1024 SXGA Resolution
- Maximum Brightness of 300 cd/m²
- Maximum Contrast Ratio of 500:1
- Typical Response Time of 8 ms
- 100/240 VAC, 60/50 Hz Autoranging Internal Power Supply
- Low Power Consumption (<50 W)
- Internal Speakers
- Optional Rack, Wall, Ceiling, and Camera Mounts

The **200 Series** LCD monitors provide high resolution display of VGA signals. These 17- and 19-inch monitors have a color LCD panel with a thin film transfer (TFT) active matrix. The monitors automatically adapt to the appropriate input resolution (up to 1280 x 1024).

The **200 Series'** ergonomic design, autoranging internal power supply, and low power consumption, combined with quick panel response time to minimize ghosting in motion video, make the **200 Series** an ideal choice for use with any DVR (digital video recorder) or PC application.

In addition, the **200 Series** features a folding picture-frame-style desktop stand, optional rack mount kits, and VESA®-compliant mounting holes to easily adapt to different wall and ceiling mounts.

Adjustments of standard monitor display parameters are made using user-friendly, on-screen menus and front panel controls.



C2925 / REVISED 12-06



International Standards
Organization Registered Firm
ISO 9001 Quality System



TECHNICAL SPECIFICATIONS

MODELS

PMCL217	17-inch (432 mm) active TFT LCD monitor, SXGA input
PMCL219	19-inch (483 mm) active TFT LCD monitor, SXGA input

GENERAL

LCD Panel Pixel Array	1280 x 1024, 75 Hz
Panel Aspect Ratio	5:4 VGA
Viewing Area	
PMCL217	338 x 270 mm
PMCL219	376 x 301 mm
Pixel Pitch	
PMCL217	0.264 x 0.264 mm
PMCL219	0.294 x 0.294 mm
Brightness	
PMCL217	300 cd/m ²
PMCL219	250 cd/m ²
Contrast Ratio	500:1
Backlight Type	4 CCFL
Panel Lamp Life	40,000 hours
Tilt	<10° to >45°
Viewing Angle (H/V)	
PMCL217	140°/130°
PMCL219	150°/130°
Display Colors	
PMCL217	16.2 million
PMCL219	16.7 million
Response Time	8 ms
Speakers	Integrated, 2 x 1 W
Front Panel Controls	Menu (up, down, left, right), power
Indicators	LED (power on/off), on-screen ("no signal")

ELECTRICAL

Input Voltage	100-240 VAC, 50/60 Hz, internal power supply
Power Consumption	<50 W (on), <5 W (standby)
Input Interfaces	
VGA	1, 15-pin D-sub
Audio	1 (L/R), RCA
Horizontal Frequency	30 kHz to 80 kHz
Vertical Frequency	56 Hz to 75 Hz

PHYSICAL

Dimensions	
PMCL217	3.2" D x 15.0" W x 13.4" H (8.0 x 38.1 x 34.1 cm)
PMCL219	3.3" D x 16.6" W x 14.7" H (8.3 x 42.1 x 37.4 cm)
Unit Weight	
PMCL217	12.4 lb (5.6 kg)
PMCL219	14.4 lb (6.5 kg)
Shipping Weight	
PMCL217	16.0 lb (7.3 kg)
PMCL219	19.0 lb (8.6 kg)

ENVIRONMENTAL

Operating Temperature	32° to 104°F (0° to 40°C)
Storage Temperature	-4° to 140°F (-20° to 60°C)
Operating Humidity	20% to 85%, noncondensing
Storage Humidity	5% to 90%, noncondensing

RECOMMENDED MOUNTS

Wall Mounts	PMCL-WM, PMCL-WMT, PMCL-WM1A, PMCL-WM2A
Ceiling Mounts	PMCL-CM, PMCL-CMP
Rack Mounts	PMCL-RM15, PMCL-RM17, PMCL-RM19
Camera Mount	CM1750-PVM (Public View Mount)

Note: The 200 Series are VESA MIS-D, 100/75, C-compliant monitors equipped with a 100 x 100 mm mounting hole pattern.

OPTIONAL ACCESSORIES

PMVC4	Multiviewer; displays up to four composite video images on a single monitor using a VGA (analog) or DVI (digital) interface. A maximum of 15 units can be cascaded together to provide up to 60 video windows.
PMVR2	Multiviewer; displays video from up to two VGA or two DVI inputs (or one of each) on a single monitor using a VGA or DVI interface. A maximum of 15 units can be cascaded together to provide up to 30 video windows.

CERTIFICATIONS

- CE, Class B
- UL Listed
- UL Listed to Canadian safety standards
- FCC, Class B





Monitor sold separately.

Intellex®

Digital Video Management Systems

Features That Make a Difference:

- Gain the ability to multiplex, detect alarms and events, record video, audio and text, and much more
- Set dome presets, patterns and configurations right from the Intellex® GUI
- Search for specific clips using video analysis tools and advanced text
- Operate Intellex like a virtual matrix via Network Client¹ with CCTV keyboard-based camera control and an expanded capacity to stream video simultaneously from multiple cameras
- React faster to potential emergencies with immediate email notification of system events and alarms
- Customize camera views for flexible monitoring
- Respond to events with alarm-triggered dome positioning
- Record higher frame rates per second for certain cameras and assign the remainder to less critical cameras
- Easily export video, audio and text to CD-RW or DVD-RW with one click of the mouse
- Store over 9 times more video than MPEG-4 and MJPEG-based systems using patented American Dynamics™ Active Content Compression (ACC) technology
- Use 3rd party applications—such as access control from Software House® and Kantech™ as well as video forensics, virtual matrix, remote monitoring and more—integrated with Intellex via the powerful API

Intellex Ultra (available with 16 channels)

Intellex Ultra is a reliable, high performance platform that captures higher resolution, de-interlaced images (4CIF, 240 ips; 2CIF, 480 ips)² without compromising the capability to record full motion video. Its 3U chassis saves expensive rack space, making it an ideal solution for applications like casinos or government facilities with limited space for security equipment. For ultimate flexibility and security, Intellex Ultra has up to four front-accessible, swappable 3.5 inch hard drive bays which can optionally be used in a RAID 5 configuration. Plus, an industry first, separate, solid-state, embedded system drive means no moving parts to wear out or fail.

Intellex IP (up to 16 network video streams)

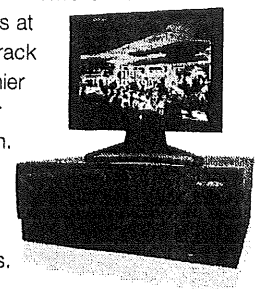
Intellex IP supports IP cameras with performance of up to 480 ips at 1CIF and 120 ips at 4CIF. Intellex IP integrates seamlessly with existing Intellex systems, as well as analog cameras when used with the American Dynamics VideoEdge™ IP Encoder. The ability to use existing IT network



cable further reduces total cost of ownership.

Intellex DVMS (available with 8 and 16 channels)

The original digital video management system, Intellex DVMS has been leading the market since 1997. Intellex DVMS offers a 16-channel system that records up to 120 ips at 2CIF. Intellex DVMS is offered in a desktop or rack mount chassis with Standard, Deluxe and Premier packages. This means simplified packaging for easier ordering, maintenance and configuration. And because Intellex DVMS is networkable and easily integrates with other equipment and software applications, it's a cost-effective solution for many new and existing applications.




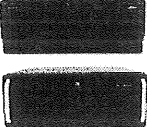


Intellex LT (available with 4, 8 and 16 channels)

Intellex LT delivers the key Intellex features in an economical package, providing the best solution for small retail stores, health care facilities and small offices. It can store more than 900 hours of video and supports as many as five simultaneous Network Client users.

(1) Requires v4.0 or higher.
 (2) All ips measurements reflect NTSC format. 120 ips NTSC = 100 ips PAL.

choose a dvr that is right for you

DVR COMPARISON TABLE

	 Intellex Ultra (Premier)	 Intellex DVMS (Standard, Deluxe & Premier)	 Intellex LT (Deluxe & Premier)	 Intellex IP (Premier)
Maximum Images per Second (NTSC/PAL)	480/400	120/100	60/50	480/400
Storage Capacity	500 GB, 1.0 TB, 1.5 TB, 2.0 TB (RAID 5 1.5 TB)	160 GB, 250 GB, 320 GB, 500 GB, 750 GB ³	160 GB, 320 GB	500 GB, 1.0 TB
Windows® XP Pro	Yes	Yes	Yes	Yes
Record Mode	Linear or Circular/Continuous	Linear or Circular/Continuous	Linear or Circular/Continuous	Linear or Circular/Continuous
Pre-Alarm Recording	Yes (up to 5 minutes)	Yes (up to 5 minutes)	Yes (up to 60 seconds)	Yes (up to 5 minutes)
Alarm Indexing	Yes (15 minutes)	Yes (15 minutes)	No	Yes (15 minutes)
Alarm/Event Notification:				
Remote	Yes (via Network Client)	Yes (via Network Client)	Yes (via Network Client)	Yes (via Network Client)
Local	Yes	Yes	Yes	Yes
Email	Yes	Yes	Yes	Yes
Video Resolutions Available:				
4CIF (NTSC/PAL)	704 x 480/704 x 576	N/A	N/A	704 x 480/704 x 576 ⁸
2CIF	704 x 240/704 x 288	640 x 240/640 x 240	640 x 240/640 x 240	704 x 240/704 x 288 ⁸
1CIF	352 x 240/352 x 288	320 x 240/320 x 240	320 x 240/320 x 240	352 x 240/352 x 288 ⁸
Text Insertion (Via Serial Port)	Yes	Yes ⁴ (up to 8 channels)	Yes ⁴ (up to 8 channels)	Yes
Video Analysis Tools (Size, Speed, Direction of Motion)	Yes	Yes, Premier Edition only	No	No
Smart Search	Yes	Yes	Yes	Yes
Custom Schedule/Weekends	Yes, with IntelxCord	Yes, with IntelxCord	Yes, with IntelxCord	Yes, with IntelxCord
Multi-Screen Playback	Yes	Yes	No	Yes
Covert Camera	Yes	Yes	Yes	Yes
Dome Control	Via Network Client, Browser Client or Intellex GUI (via ADTT16E, ADACSNET, MP48, MP168, MP1024 or other third party switchers)	Via Network Client, Browser Client or Intellex GUI (via ADTT16E, ADACSNET, MP48, MP168, MP1024 or other third party switchers)	Via Network Client, Browser Client or Intellex GUI (via ADTT16E, ADACSNET, MP48, MP168, MP1024 or other third party switchers)	Via Network Client, Browser Client or Intellex GUI (via ADTT16E, ADACSNET, MP48, MP168, MP1024, other third party switchers or any IP 422-compatible device)
Alarm-Triggered Camera Action	Yes	Yes	Yes	Yes
User-Defined Matrix & Dome Control Camera Handler	Yes	Yes	Yes	Yes
Activity Log (Who, When, What)	Yes	Yes	No	Yes
3rd Party Integration via API	Yes	Yes	Yes	Yes
Chassis Configuration	3U, Desktop/Rack Mount	4U, Desktop or Rack Mount ⁵	4U, Desktop or Rack Mount ⁶	1U, Rack Mount
Alarm Quality & Sensitivity Settings	Yes	Yes	Yes	Yes
Camera-Selectable Frame Rate	Yes	Yes	No	Yes
One-Click Clip Export	Yes, CD-RW/DVD-RW	Yes, CD-RW/DVD-RW ⁷	Yes, CD-RW	Yes, CD-RW/DVD-RW
Extended Storage Devices	Yes	Yes	Yes	Yes
Support for Remote Configuration & Management	Yes	Yes	Yes	Yes
NTSC/PAL Toggle	Yes	Yes	Yes	N/A

(3) 160 GB and 320 GB models are available in Standard Edition only; 250 GB and 500 GB are available in Deluxe and Premier Editions; 750 GB model is available in Deluxe and Premier with rack mount chassis only.

(4) Premier Edition only.

(5) Rack mount is only available in Deluxe and Premier Editions.

(6) Accessory Kit is required for rack mount, ordered separately.

(7) CD-RW is only available in the Standard and Deluxe Editions; DVD-RW is only available in the Premier Edition.

(8) Intellex IP (ADDIP050, ADDIP100) supports the following resolutions: 640 x 480, 640 x 240, and 320 x 240.

features

More Than a Digital Recorder

American Dynamics offers the most comprehensive range of digital video management products on the market. From smaller installations (Intellex LT) to mid-size applications (Intellex DVMS) and now to more demanding applications that require higher resolution and performance (Intellex Ultra), there is a solution for any situation. Plus, we provide the flexibility of IP-based video surveillance (Intellex IP) and every platform can be remotely managed using Network Client Remote Management Software. But Intellex does more than just record. You can simultaneously record, play back and archive video, text and audio while using sophisticated search functions.

Simple, Intuitive User Interface

The Intellex user interface is extremely easy to use, no matter what your skill level. Access all operations using one-click buttons, pull-down menus, adjustable sliders and tabbed screens.

Save Time and Money with Recording at Its Best

Intellex gives you an accurate representation of specific transactions by recording RS-232 text data streams from devices like cash registers and ATMs. It displays this information side by side with time-synchronized video in addition to the related audio. Efficiently search the transaction database or schedule recording by specifying the exact text or transaction criteria.

Record Only the Events You Need

Use IntelleCord to conserve space on your hard drive by recording only events that trigger an alarm at times that matter. You can set triggers for alarms generated electronically within Intellex based on: 1) any motion 2) crossing a perimeter 3) changes in light and 4) specific motion exceptions. You can also set triggers for any external wired alarm that provides a contact closure.

Additionally, you can configure settings to automatically re-position cameras in response to an alarm. IntelleCord enables you to customize the settings for each camera on your system and thereby optimize security and record duration.

Intellex retains up to five minutes of pre-alarm video when you set IntelleCord to record on alarm only. Unlimited pre-alarm video is available when you set Intellex to record continuously, the first 15 minutes of which can be conveniently retrieved via a pre-alarm video index.

Instantly Find Video Based on Motion Criteria

Use Smart Search to filter through hours of video to find clips fast. With the click of a mouse, you'll be able to view every instance when someone crossed a perimeter, turned lights on and off, or moved or drove a vehicle in the wrong direction at an inappropriate speed, and more. For motion exception, simply specify the type of motion that you are looking for—speed, direction, size of the moving object—and Intellex will find it for you.

Easily Share Incidents by Exporting Video, Audio and Text to CD or DVD

The integrated CD-RW or DVD-RW on many Intellex models allows you to save video to a standard recordable CD or DVD. This is ideal when you need to provide the authorities, vendors or other non-security personnel with video, audio and text data of incidents to view on their own PC. The Intellex Player software may be added to the CD or DVD as well so no additional software needs to be purchased to view the video.

Playback Video from any External Source on any Intellex

View video from any external source you choose – CD, DVD, network drive or a flash drive directly from Intellex. Simply click on the "External" button, select the appropriate drive and view stored video.

Integrity of Evidence You Can Trust

The Intellex recording format gives each image a unique identification "stamp". Even though the file structure is PC-compatible, the original video images are virtually impossible to alter or modify. By ensuring authenticity in this way, Intellex protects the court admissibility of your video evidence.

Easy to Set up and Operate

Intellex not only reduces equipment expenses and investigation time, it also features simple on-screen menus that make training and operation intuitive and easy. Customize access rights for multiple operators with passwords. Choose between NTSC and PAL. The removable BNC panel on 16-channel models and camera termination via software provide hassle-free camera connections. Intellex can be configured to provide alarm notification in the event of a hard drive failure, ensuring your critical events are always captured. Add swappable⁹ hard drives on Intellex Ultra and you've got a highly reliable system that's easy to use and maintain.

Remote Accessibility Offers the Most Flexible Viewing

With Browser Client, you can host and customize your own website to provide live viewing of Intellex video through a standard browser interface. Multiple clients can access and even control domes remotely through Browser Client, which is available at no charge. If more advanced operations are required, Network Client allows you to remotely configure Intellex, select video segments by time, date or alarm, use Smart Search, view up to 64 simultaneous live video segments and have virtual matrix capability⁽¹⁰⁾ when used with a CCTV keyboard. Save, annotate and organize copied video into incident folders to aid with investigations. Export video clips to an .AVI file to play on any Windows®-based PC. *For more information on these and other Intellex tools, such as Intellex Archive Manager and Intellex Policy Manager, please refer to our separate Intellex Management Suite data sheet.*

Intellex Web Server Provides Live Video Over the Web

The Intellex web server component allows you to view live video via a web page at 4CIF. Users enter a password to log on to the server, which ensures that only authorized personnel access the video. In addition, users have PTZ control of dome cameras from the web server.

Optimize the Settings to Fit Your Specific Needs

Record duration, or the quantity of images that can be recorded on hard drives, is affected by several factors. Digital video with high levels of activity or detail consumes more disk space than video with little activity or detail. Choose from super, extended record and normal settings to balance image quality against record duration. For longer record durations, simply reduce your resolution settings. Use Auto Rate mode with Intellex Ultra, DVMS and LT to set equal frame rates for each camera or adjust the recording frame rate per camera.

Customize Views with Multi-Camera Playback and Display

Select live and playback displays for any camera in any position in 1x1, 2x2, 3x3 or 4x4 picture formats. In live camera display and playback, choose Full Screen mode to hide the controls and fill the entire screen or Menu mode to display the control interface. Play back video segments at a variety of speeds in forward or reverse sequence.

Take a Closer Look for Superior Analysis

Choose any live or recorded picture area and zoom in 2X to 16X for a closer look. Digitally enhance the color, contrast

and sharpness of events. Easily navigate or move around in the enlarged picture for a quick, magnified look at all details.

Respond More Quickly for Better Security

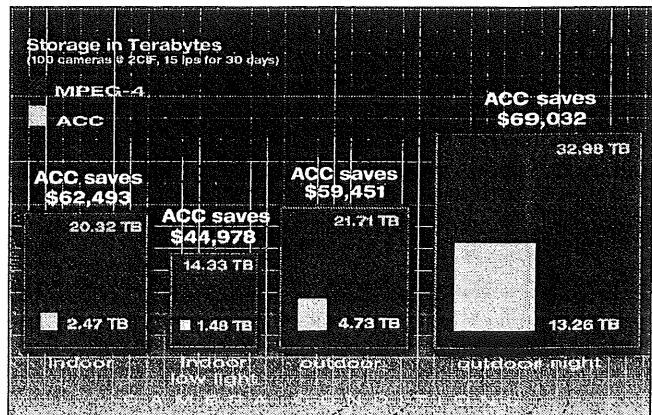
Respond to potential emergencies more quickly with automated email notification. You can configure specific types of events that register on your Intellex (such as drive failure) and cameras (such as motion detection alarms) as email triggers that generate and send a message to a pre-defined distribution list.

Upgradable, Expandable Platforms Provide Room to Grow

Keep your system up-to-date with software upgrades easily installed from digital media or via the web. In addition, each Intellex DVMS and LT system can connect to up to three Extended Storage Modules (ESM) to expand the local storage capacity. Intellex Ultra provides up to 2.0 TB of internal storage capacity and supports SAN and NAS devices including the American Dynamics RAID Storage System for extended storage, as does Intellex IP.

Best Video Compression in the Industry Saves Significant Space, Money and Bandwidth

Unlike MPEG-4 and MJPEG, the patented American Dynamics Active Content Compression (ACC) technology was developed specifically for security applications and can differentiate between true motion and video noise. This allows images to be compressed into files that are one ninth the size they would be if compressed with MPEG-4 technology, which means you will use far less disk space. In fact, images compressed using ACC can save you up to \$69,000⁽¹¹⁾ over a 30-day period when you factor in the additional space you would have to purchase for storing MPEG-4 images.



(10) Sold separately.

(11) Estimated savings with ACC compression is based on the industry average of \$3,500.00 (USD) per TB.

take a closer look

Secure Your System with Covert Cameras and Activity Logs

Intellex lets you configure up to 15 cameras for local covert operation, restricting their use to only those who are authorized. To everyone else, covert cameras register on the status screen as being disconnected. For additional security, monitor every action performed on your Intellex. Activity logging can list the user name of each person who uses the system along with the date, time and task they completed.

Intellex Management Software and Accessories

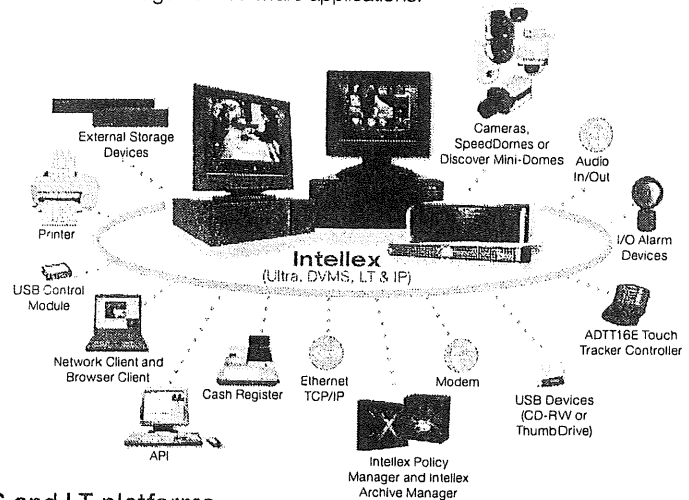
From Network Client Remote Management Software to RAID Storage Systems, American Dynamics offers a full suite of accessories to enhance the power of your Intellex digital video management system. For complete descriptions and model numbers, please refer to the Intellex Management Suite and Intellex Accessories data sheets on our website.

Model Number Configuration for Intellex IP

	BRAND	FAMILY	PLATFORM	STORAGE
EXAMPLE	AD	D	IP	050
IP	AD	Digital Video Management Systems	IP = IP	050 = 500 GB 100 = 1.0 TB

Basic System Diagram

Whatever platform you choose, Intellex lets you customize your system. Add PTZ cameras and SpeedDome programmable dome cameras and operate them with the ADTT16E Touch Tracker Controller. Display video on a variety of monitors, integrate I/O alarm devices, stream in audio or ASCII text from cash registers. Even add a printer. Need more storage capacity? Install up to three Extended Storage Modules (ESMs) for each Intellex DVMS or LT or use standard SAN, NAS, or DAS devices for Intellex Ultra and Intellex IP. Want to integrate your video with third party software? Intellex API provides a powerful yet easy to use set of programming interfaces that enable interoperability with access control and business management software applications.



Model Number Configuration for Intellex Ultra, DVMS and LT platforms

	BRAND	FAMILY	CHANNELS	CHASSIS	PLATFORM	FEATURES	STORAGE
EXAMPLE	AD	D	6	00	UL	P	150
ULTRA	AD	Digital Video Management Systems	6 = 16 channels	00 = Desktop/ Rack Mount configurable	UL = Ultra UR = Ultra RAID ⁽¹²⁾	P = Premier	050 = 500 GB 100 = 1 TB 150 = 1.5 TB 200 = 2.0 TB
EXAMPLE	AD	D	6	00	DV	S	025 ⁽¹³⁾
DVMS			8 = 8 channels 6 = 16 channels	00 = Desktop R0 = Rack Mount	DV = DVMS	S = Standard D = Deluxe P = Premier	016 = 160 GB 025 = 250 GB 032 = 320 GB 050 = 500 GB 075 = 750 GB
EXAMPLE	AD	D	4	00	LT	D	016
LT			4 = 4 channels 8 = 8 channels 6 = 16 channels	00 = Desktop	LT = LT	D = Deluxe P = Premier	016 = 160 GB 032 = 320 GB

(12) RAID configuration only available with 1.5 TB storage.

(13) 160 GB and 320 GB models are available in Standard Edition only; 250 GB and 500 GB are available in Deluxe and Premier Editions only; 750 GB model is available in Deluxe and Premier rack mount chassis only.

	Intellex Ultra	Intellex DVMS	Intellex LT	Intellex IP
General				
Drive Type	Front Access SATA	Internal SATA	Internal SATA	Internal SATA
Exporting	CD-RW or DVD-RW	CD-RW or DVD-RW ¹⁴	CD-RW 1.4 MB diskette drive	CD-RW or DVD-RW
Local Archiving (Optional)	External DAT tape (20 GB), SDLT (160 GB)	External DAT tape (20 GB), SDLT (160 GB)	N/A	N/A
Video Standard	NTSC/PAL	NTSC/PAL	NTSC/PAL	N/A
Video Inputs	16	8 (non-looping) or 16 (looping)	4 & 8 (non-looping) or 16 (looping)	Up to 16 network video streams
Main Monitor Output	SVGA, Composite	SVGA	SVGA	SVGA
Analog Output	Call/Spot ¹⁵	Call/Spot ¹⁵ , Live/Playback ¹⁶	Call/Spot ¹⁵ , Live/Playback ¹⁶	N/A
Camera Looping Outputs	16 with optional looping panel	Standard on 16-channel system	Standard on 16-channel system	N/A
Alarm Inputs and Outputs ¹⁷	16 (toolless)	8, 16	4, 8, 16	16 via network device
Single Channel Audio ¹⁸	Included	Premier	Premier	5.1 USB adapter included
IEEE 1394 (FireWire)	N/A	Deluxe, Premier only	Deluxe, Premier only	Optional
Network	2x gigabit	1x 100Base-T	1x 100Base-T	2x gigabit
USB (front/back)	2/2	2/4	2/4	2/2
Serial Port (RS-232) ¹⁹	1x DB 9	1x DB 9	1x DB 9	1x DB 9
SCSI Interface	Optional	Optional	Optional	Optional
Visual Indicators	Power, alarm, record, disk available, disk activity	Power, alarm, record	Power, alarm, record	Power, disk activity
Mouse	PC mouse included as standard	PC mouse included as standard	PC mouse included as standard	PC mouse included as standard
Printer	PC printer compatibility ²⁰	PC printer compatibility	PC printer compatibility	PC printer compatibility ²⁰
Physical				
	Desktop/Rack Mount Configurable	Desktop Model	Desktop Model only	Rack Mount only
Dimensions (H x W x D)	130 x 429 x 546 mm (5.125 x 16.895 x 21.5 in)	172 x 432 x 464 mm (6.75 x 17.0 x 18.25 in)	172 x 432 x 464 mm (6.75 x 17.0 x 18.25 in)	43 x 447 x 546 mm (1.68 x 17.60 x 21.50 in)
Unit Weight	17.3 kg (38 lbs)	14.50 kg (31.90 lbs)	14.50 kg (31.90 lbs)	11.80 kg (26 lbs)
Shipping Weight	25 kg (55 lbs)	16.93 kg (37.25 lbs)	16.93 kg (37.25 lbs)	18.14 kg (40 lbs)
		Rack Mount Model		
Dimensions (H x W x D)		175 x 432 x 521 mm (6.875 x 17.0 x 20.5 in)		
Unit Weight		20.39 kg (44.95 lbs)		
Shipping Weight		27.24 kg (60.05 lbs)		

Common Specifications for Intellex Digital Video Management Systems
Environmental

Operating Temperature	5° to 35°C (41° to 95°F)
Humidity	5% to 95% RH (noncondensing)
Storage Conditions	-10° to 60°C (14° to 140°F)
Maximum Operating Altitude	3,048 m (10,000 ft)

Electrical

Power	100-240 VAC, 50/60 Hz, 3.0/1.5 A
-------	----------------------------------

Regulatory²¹

Emissions	FCC 15b, Class B EN55022 (1995) Class A EN61000-3-2 (1995) EN61000-3-3 (1995)
Immunity	EN50130-4 (1996)
Safety	UL 60950-1 EN 60950-1: 2001+A11

⁽¹⁴⁾ CD-RW is only available in the Standard and Deluxe Editions; DVD-RW is only available in the Premier Edition.

⁽¹⁵⁾ Call mode displays video from one selected camera in single pane format; spot mode automatically switches from this camera to any alarmed cameras. Available on 16-channel systems only.

⁽¹⁶⁾ Live/Playback composite output can display the same video as your Intellex monitor or display live video only.

⁽¹⁷⁾ Two part connector—TTL inputs. Open collector outputs.

⁽¹⁸⁾ Jack (3.5 mm).

⁽¹⁹⁾ On board serial port recommended for multiplexer control. Additional serial port available in Premier Edition via USB converter.

⁽²⁰⁾ No parallel port (USB or Ethernet only).

⁽²¹⁾ Certification available upon request.

Product offerings and specifications are subject to change without notice. Actual products may vary from photos. Not all products include all features. Availability varies by region; contact your sales representative. Certain product names mentioned herein may be trade names and/or registered trademarks of other companies.



NOTIFIER

System Power Requirements

FCPS-24s8 Power Supply

Protected Premises: <u>PORTLAND INTERNATIONAL JETPORT #3</u>	Date: <u>4/16/2008</u>
Address: <u>1001 WESTBROOK ST.</u>	
City: <u>PORTLAND</u> State: <u>MAINE</u>	Zip: _____
Prepared By: <u>Norris Inc.</u>	Phone: <u>(207)-883-3473</u>
Address: <u>2257 West Broadway</u>	Email: _____
City: <u>S. Portland</u> State: <u>Maine</u>	Zip: <u>04106</u>

AC Branch Current Requirements 3.20 AMPS @ 120 VAC

Current required by source to power the fire alarm system.

Primary Standby Load 0.09 Amps

Current load on the primary power supply during non-alarm conditions.

Primary Alarm Load 5.64 Amps

Current load on the primary power supply during alarm conditions.

Secondary Load Requirements 2.44 Amp Hours

Total Secondary Load from the calculation table below.

Current Draw		Time (hours)	Total (AH)
Secondary Standby Load 0.065 A	x	Required Standby Time	
		24 hours	1.56
Secondary Alarm Load 5.641 A	x	Required Alarm Time (hours)	
		0.084 hours	0.47
Auxiliary Power Supply Load 0.000 A	x	Required Alarm Time (hours)	
		0.084 hours	0.00
Total Secondary Load			2.03
Derating factor			x 1.2
Secondary Load Requirements			2.44

AH

Battery Selection 7 Amp Hours

Select batteries from the list below.

7.0 AH BAT-1270 Battery (12 volt)

- Two
 Four (two 12VDC sets in parallel)



System Power Requirements

FCPS-24s8 Power Supply

Protected Premises: <u>PORTLAND INTERNATIONAL JETPORT #2</u>	Date: <u>4/16/2008</u>
Address: <u>1001 WESTBROOK ST.</u>	
City: <u>PORTLAND</u> State: <u>MAINE</u>	Zip: <u></u>
Prepared By: <u>Norris Inc.</u>	Phone: <u>(207)-883-3473</u>
Address: <u>2257 West Broadway</u>	Email: <u></u>
City: <u>S. Portland</u> State: <u>Maine</u>	Zip: <u>04106</u>

AC Branch Current Requirements 3.20 AMPS @ 120 VAC

Current required by source to power the fire alarm system.

Primary Standby Load 0.09 Amps

Current load on the primary power supply during non-alarm conditions.

Primary Alarm Load 5.64 Amps

Current load on the primary power supply during alarm conditions.

Secondary Load Requirements 2.44 Amp Hours

Total Secondary Load from the calculation table below.

Current Draw		Time (hours)	Total (AH)
Secondary Standby Load 0.065 A	x	Required Standby Time 24 hours	1.56
Secondary Alarm Load 5.641 A		x	Required Alarm Time (hours) 0.084 hours
Auxiliary Power Supply Load 0.000 A	x		Required Alarm Time (hours) 0.084 hours
Total Secondary Load			2.03
Derating factor			x 1.2
Secondary Load Requirements			2.44

AH

Battery Selection 7 Amp Hours

Select batteries from the list below.

7.0 AH BAT-1270 Battery (12 volt)

- Two Four (two 12VDC sets in parallel)



System Power Requirements

FCPS-24s8 Power Supply

Protected Premises: <u>PORTLAND INTERNATIONAL JETPORT #1</u>	Date: <u>4/16/2008</u>
Address: <u>1001 WESTBROOK ST.</u>	
City: <u>PORTLAND</u> State: <u>MAINE</u>	Zip: _____
Prepared By: <u>Norris Inc.</u>	Phone: <u>(207)-883-3473</u>
Address: <u>2257 West Broadway</u>	Email: _____
City: <u>S. Portland</u> State: <u>Maine</u>	Zip: <u>04106</u>

AC Branch Current Requirements 3.20 AMPS @ 120 VAC

Current required by source to power the fire alarm system.

Primary Standby Load 0.09 Amps

Current load on the primary power supply during non-alarm conditions.

Primary Alarm Load 5.89 Amps

Current load on the primary power supply during alarm conditions.

Secondary Load Requirements 2.47 Amp Hours

Total Secondary Load from the calculation table below.

Current Draw		Time (hours)	Total (AH)
Secondary Standby Load 0.065 A	x	Required Standby Time	
		24 hours	1.56
Secondary Alarm Load 5.893 A	x	Required Alarm Time (hours)	
		0.084 hours	0.50
Auxiliary Power Supply Load 0.000 A	x	Required Alarm Time (hours)	
		0.084 hours	0.00
Total Secondary Load			2.06
Derating factor			x 1.2
Secondary Load Requirements			2.47

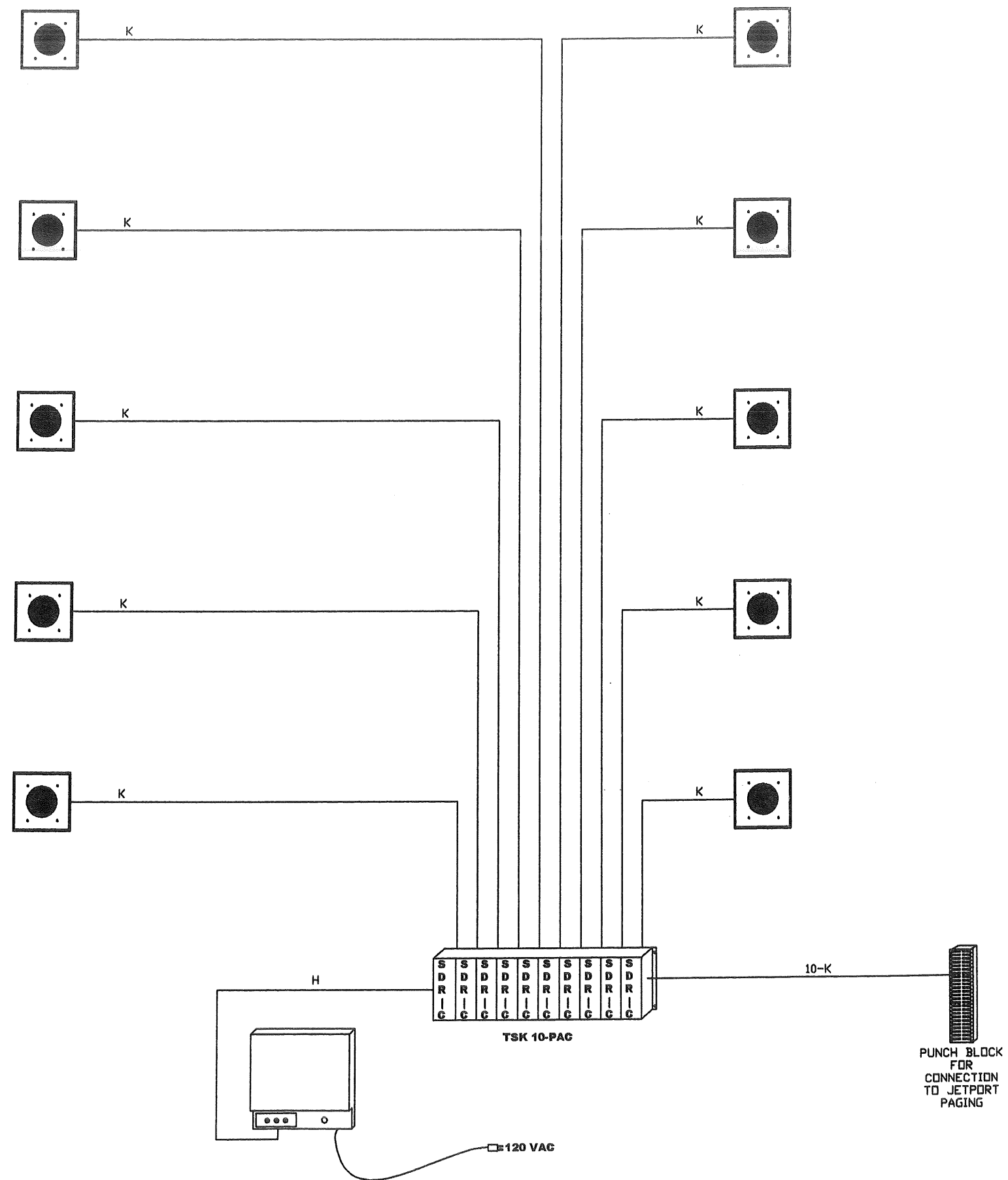
AH

Battery Selection 7 Amp Hours

Select batteries from the list below.

7.0 AH BAT-1270 Battery (12 volt)

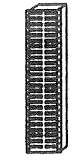
- Two Four (two 12VDC sets in parallel)



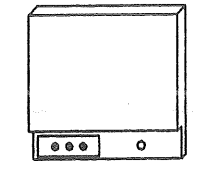
SYMBOL LEGEND



TSK 202 SPEAKER



TERMINATION BLOCK



TSK PS-3024 POWER SUPPLY

CABLE LEGEND

- H 1 pr #16 AWG CABLE
- K 1 pr #18 AWG TWISTED SHIELDED CABLE

COMMENTS

NOTE 1: All speakers are required to have a home run cable.

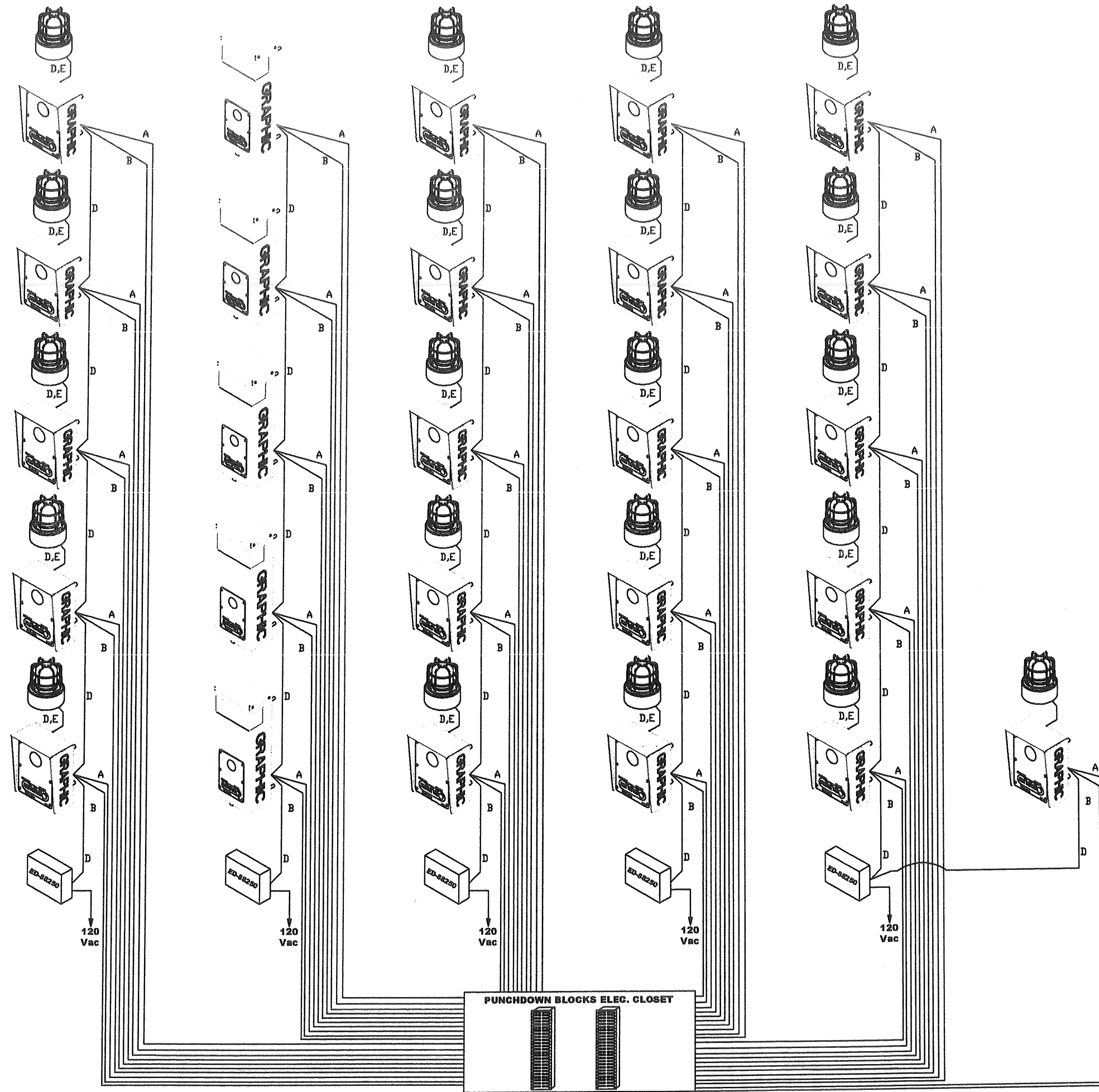
REVISION 2	DATE:
REVISION 1	DATE:
REVISION 0 SUBMITTAL	DATE: 04-16-08

SYSTEM WIRING RISER



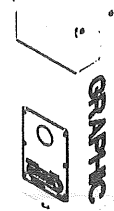

PROJECT NAME PORTLAND JETPORT PORTLAND, MAINE	SCALE NTS BY: EAD CK BY:
--	---------------------------------------

NORRIS INC
Prepared For Tomorrow; Delivered Today
 2257 BROADWAY, So PORTLAND, MAINE

SAVED AS:



SYMBOL LEGEND

-  REMOTE BEACON
-  CB IV-S WALL MOUNT
-  CB II-E
-  24 VAC TRANSFORMER

CABLE LEGEND

- A 1 pr #22 AWG TWISTED SHIELDED CABLE
- B 1 pr #18 AWG CABLE
- D 1 pr #12 AWG CABLE
- E 1 pr #20 AWG CABLE

COMMENTS

NOTE 1: Remote Beacons are to be mounted high enough to be seen above any vehicle likely to park in the garage.

NOTE 2: Each unit is required to have a separate cable for paging and telephone that are home run to Punch blocks in the electrical closet. Each column will have a riser for power.

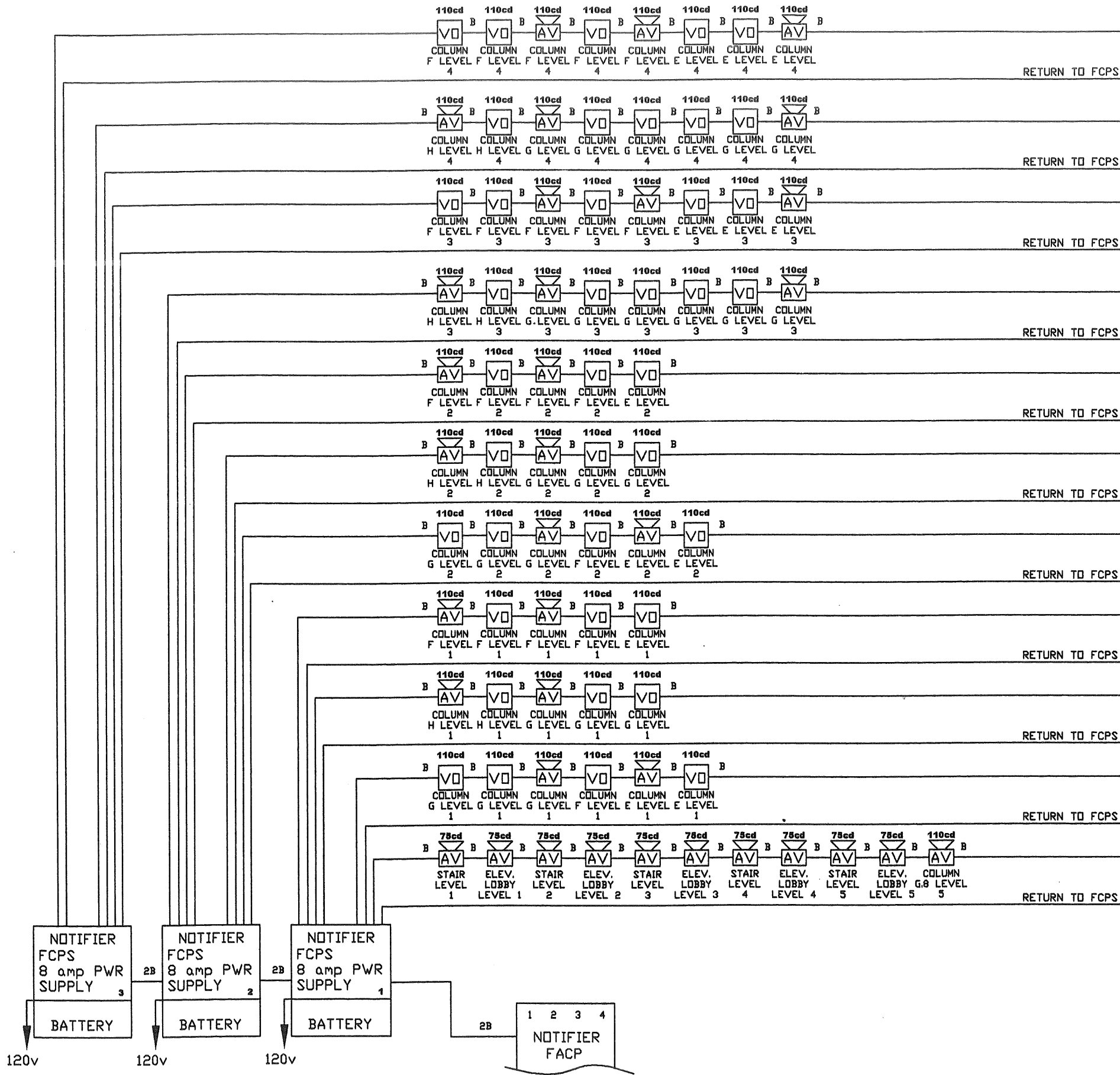
REVISION 2	DATE:
REVISION 1	DATE:
REVISION 0 SUBMITTAL	DATE: 04/10/08

SYSTEM WIRING RISER

PROJECT NAME	SCALE NTS
Portland Jetport	BY: EAD
Portland, MAINE	CK BY:


NORRIS INC
Prepared For Tomorrow, Delivered Today
 2257 BROADWAY, So PORTLAND, MAINE

SAVED AS:



120v 120v 120v

DO NOT BOTTOM
ENTRY ANY CONDUIT
IN ANY PANEL

LEGEND

- MOUNTING HEIGHT
- 80 INCHES VISUAL ONLY
 - 80 INCHES AUDIO / VISUAL
 - MINI HORN
 - 80 INCHES SPEAKER / VISUAL
 - SPEAKER
 - DUAL SYNC MODULE

This is a typical notification layout, the wiring is shown diagrammatically. Riser does not necessary indicate all devices. See floor plans and specification for location and quantities. The purchaser needs to accurately layout the devices in their proper signal circuit. Note: Each circuit has a 3.0 amp load limitation, with a maximum of 8.0 amp per power supply. (see chart below for current vs. candela rating)

Room size	Candela Rating	Load (amps)
20' x 20'	15	0.08
30' x 30'	30	0.11
40' x 40'	75	0.19
50' x 50'	110	0.25

4.7k END OF LINE RESISTOR. (FCPS Circuits)

- A 1 PR #18 TWISTED PAIR
- B 1 PR #12 AWG FPL CABLE
- C 1 PR #14 AWG FPL CABLE
- D 1 PR #16 AWG FPL CABLE
- E 1 PR #18 AWG FPL CABLE
- F 2c #12 AWG CABLE
- G 2c #14 AWG CABLE
- H 2c #16 AWG CABLE
- I 2c #18 AWG CABLE
- S 5c #18 AWG CABLE

REVISION 2 DATE:

REVISION 1 DATE:

REVISION 0 SUBMITTAL DATE: 04/14/08

SYSTEM WIRING RISER

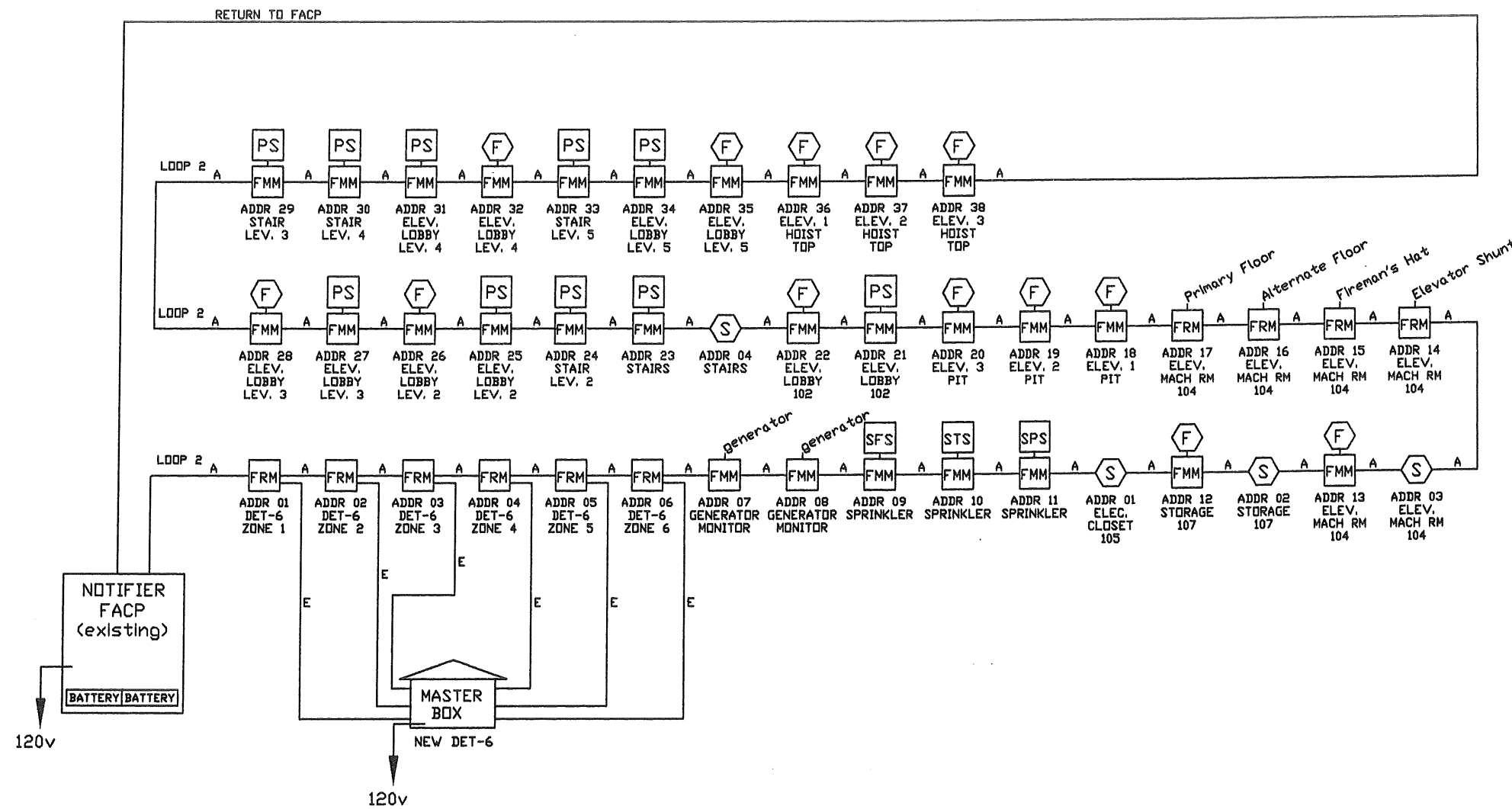
PROJECT NAME
Portland Jetport
Portland, MAINE

SCALE NTS
BY: **EAD**
CK BY:

Prepared For Tomorrow; Delivered Today
2257 BROADWAY, So PORTLAND, MAINE

SAVED AS:

Important! Wiring connections must have correct polarity.



LEGEND

- MOUNTING HEIGHT
- 48 INCHES
 - PS PULL STATION
 - S SMOKE DETECTOR
 - R HEAT DETECTOR RATE OF RISE
 - F HEAT DETECTOR FIXED TEMP
 - 120v RT REMOTE TEST/INDICATOR
 - DS DUCT SMOKE DETECTOR *Note: Remove J1 Juniper*
 - 80 INCHES
 - VO VISUAL ONLY
 - 90 INCHES
 - AV AUDIO / VISUAL
 - DSM DUAL SYNC MODULE
 - ISD ISOLATION MODULE
 - FMM MONITOR MODULE
 - FRM RELAY MODULE
 - STS SPRINKLER TAMPER
 - SFS SPRINKLER FLOW
 - SPS SPRINKLER PRESSURE


This drawing is an accurate layout from provided floor plans and information available at time of design. Circuiting has been designed for maximum use of resources available with supplied equipment. Deviations from this design must be noted and approved prior to final acceptance. Note: REMOTE power supply has a 3.0 amps limitation per circuit and an 8.0 amp combined limitation for all 4 circuits. Changes in circuiting must incorporate equipment specifications/limitations (see chart below for current vs. candela rating, Distances and ratings shown are for wall applications ONLY, call Norris, Inc. for ceiling devices when applicable.) Twisted-Shielded Cable is NOT recommended for use on SLC wiring for this panel. Untwisted cable inside/outside conduit has a 1000' max distance sizes 12-18AWG.

Room Size	Candela Rating	Load (amps)
20' x 20'	15 cd	0.08 amps
28' x 28'	30 cd	0.10 amps
45' x 45'	75 cd	0.15 amps
54' x 54'	110 cd	0.20 amps

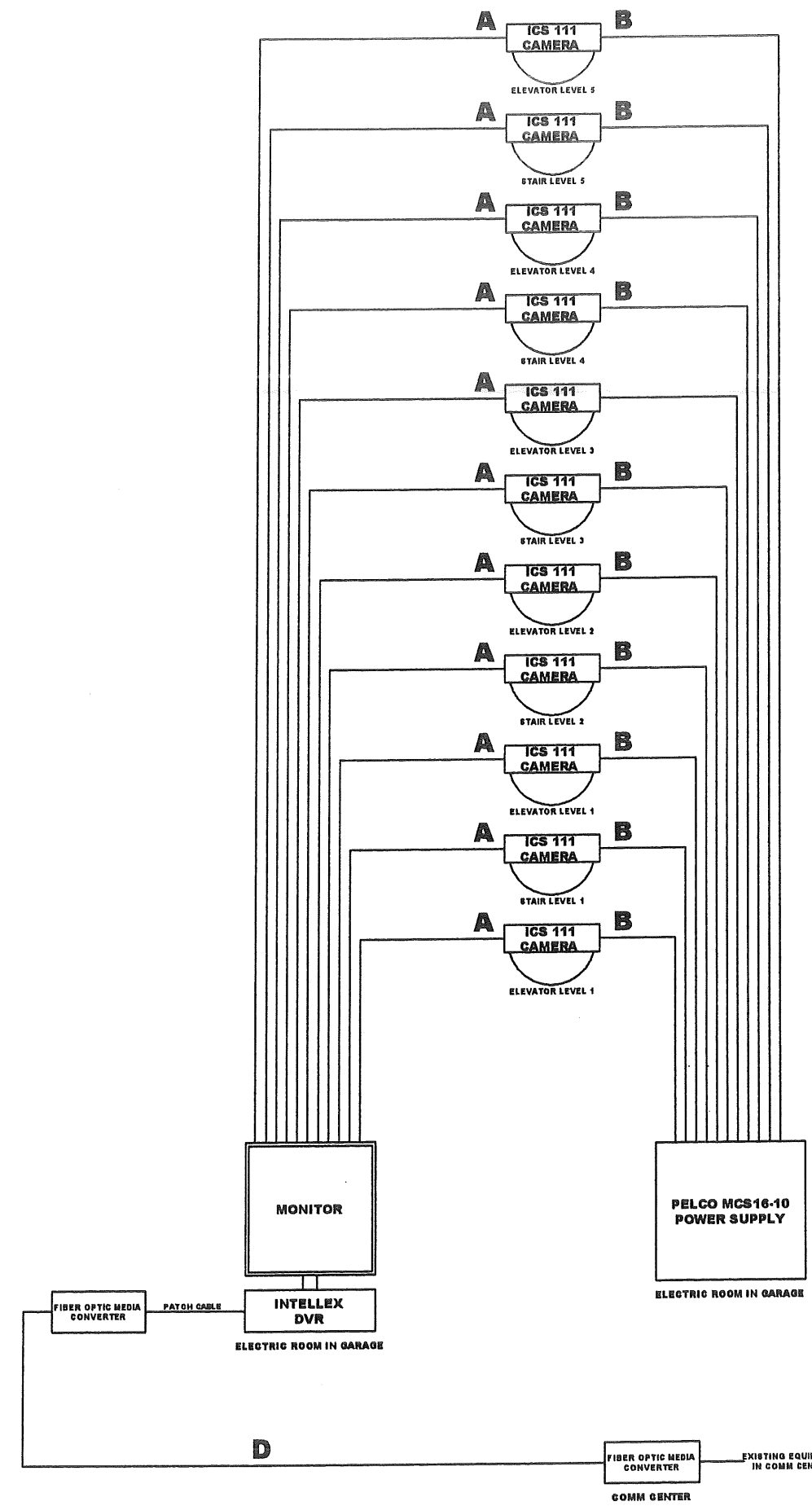
- 4.7k END OF LINE RESISTOR (Panel Circuits)
- A 1 PR #12 AWG TWISTED PAIR CABLE (Up to 10,000 ft)
- A 1 PR #14 AWG TWISTED PAIR CABLE (Up to 8,000 ft)
- A 1 PR #16 AWG TWISTED PAIR CABLE (Up to 4,500 ft)
- B 1 PR #12 AWG FPL CABLE
- D 1 PR #14 AWG FPL CABLE
- E 1 PR #16 AWG FPL CABLE
- F 2c #12 AWG CABLE
- G 2c #14 AWG CABLE
- H 2c #16 AWG CABLE
- K 1 CAT5 CABLE
- L 1 PR #16 AWG TWISTED SHIELDED CABLE

REVISION	DATE
REVISION 2	DATE:
REVISION 1	DATE:
REVISION 0	SUBMITTAL DATE: 4/16/08

SYSTEM WIRING RISER

PROJECT NAME PORTLAND JETPORT Portland, Maine		SCALE NTS
		BY: EAD
		CK BY:
 Prepared for Tomorrow, Delivered Today 2257 BROADWAY, So PORTLAND, MAINE		SAVED AS:

Important! Duplicate Addresses on devices of different style is NOT an error in design or printing. All electronic devices MUST be placed in a heated room with temperature above 32 degrees




- A RG-59U WEST PENN #815
- B 18/2 WEST PENN #224B
- D 6-STRAND MULTI-MODE FIBER OPTIC CABLE

NOTE: ALL CABLES MUST BE HOME RUNS TO THE DVR AND TO THE POWER SUPPLY.

REVISION 2	DATE:
REVISION 1	DATE:
REVISION 0 SUBMITTAL	DATE: 04-16-08

SYSTEM WIRING RISER

PROJECT NAME PORTLAND JETPORT PORTLAND, MAINE	SCALE: NTS
	BY: EAD
	CK BY:
 NORRIS INC Prepared For Tomorrow; Delivered Today 2257 BROADWAY, So PORTLAND, MAINE	
	SAVED AS: