

DISPLAY THIS CARD ON PRINCIPAL FRONTAGE OF WORK



# CITY OF PORTLAND BUILDING PERMIT

This is to certify that  
SIMPLEXGRINNELL  
20 THOMAS DR  
WESTBROOK, ME 04092

For installation at  
19 CROSS ST (261 Commercial St)  
UNUM GENERATOR BUILDING

Job ID: 2012-10-5247-FAFS

CBL: 038- F-020-001

has permission to install dedicated function fire alarm control unit provided that the person or persons, firm or corporation accepting this permit shall comply with all of the provisions of the Statues of Maine and of the Ordinances of the City of Portland regulating the construction, maintenance and use of the buildings and structures, and of the application on file in the department.

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

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

*Bryan Valley*  
Fire Prevention Officer

58

Code Enforcement Officer / Plan Reviewer

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

## BUILDING PERMIT INSPECTION PROCEDURES

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

or email: [buildinginspections@portlandmaine.gov](mailto:buildinginspections@portlandmaine.gov)

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

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

### **Final Fire**

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

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



# PORTLAND MAINE

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Director of Planning and Urban Development  
Jeff Levine

Job ID: 2012-10-5247-FAFS  
install dedicated function fire alarm  
control unit

For installation at:  
19 CROSS ST (261 Commercial St)  
UNUM GENERATOR BUILDING

CBL: 038- F-020-001

## Conditions of Approval:

### **Fire**

Permit for detection and control system for pre-action sprinkler system in new detached emergency generator building at MEMIC.

The installation shall comply with the following:

- City of Portland Chapter 10, Fire Prevention and Protection;
- NFPA 1, *Fire Code* (2009 edition), as amended by City Code;
- NFPA 101, *Life Safety Code* (2009 edition), as amended by City Code;
- City of Portland Fire Department Rules and Regulations; and
- NFPA 70, *National Electrical Code* (2011 edition) as amended by the State of Maine.

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

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

Records cabinet, FACP, annunciator(s), and pull stations shall be keyed alike.

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

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

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

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

A separate sprinkler permit is required.

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

# City of Portland, Maine - Building or Use Permit Application

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

Job No: 2012-10-5247-FAFS	Date Applied: 10/22/2012	CBL: 038-F-019	
Location of Construction: 19 CROSS ST/ 261 Commercial Street	Owner Name: CASCO VIEW HOLDINGS II, LLC	Owner Address: PO BOX 1137 PORTLAND, ME 04101	Phone: 791-3469
Business Name:	Contractor Name: SIMPLEXGRINNELL	Contractor Address: 20 THOMAS DR WESTBROOK MAINE 04092	Phone: (207) -239-5100
Lessee/Buyer's Name:	Phone:	Permit Type: FIRE ALARM	Zone: B-3
Past Use: Emergency Generator Bldg (under construction) next to Memic parking lot	Proposed Use: Same: Emergency Generator Bldg - to install fire alarm	Cost of Work: \$8,000.00	CEO District:
		Fire Dept: 10/25/12 Signature: <i>B. J. [unclear]</i>	Inspection: Use Group: Type: Signature: <i>(58)</i>
Proposed Project Description: Fire alarm		Pedestrian Activities District (P.A.D.)	

Permit Taken By: Brad	<b>Zoning Approval</b>
-----------------------	------------------------

<p>1. This permit application does not preclude the Applicant(s) from meeting applicable State and Federal Rules.</p> <p>2. Building Permits do not include plumbing, septic or electrical work.</p> <p>3. Building permits are void if work is not started within six (6) months of the date of issuance. False informatin may invalidate a building permit and stop all work.</p>	<b>Special Zone or Reviews</b> <input type="checkbox"/> Shoreland <input type="checkbox"/> Wetlands <input type="checkbox"/> Flood Zone <input type="checkbox"/> Subdivision <input type="checkbox"/> Site Plan  <input type="checkbox"/> Maj <input type="checkbox"/> Min <input checked="" type="checkbox"/> MM Date: <i>OK</i> <i>10/23/12</i>	<b>Zoning Appeal</b> <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:	<b>Historic Preservation</b> <i>w/ [unclear]</i> <input type="checkbox"/> Not in Dist or Landmark <input type="checkbox"/> Does not Require Review <input type="checkbox"/> Requires Review <input type="checkbox"/> Approved <input type="checkbox"/> Approved w/Conditions <input type="checkbox"/> Denied Date: <i>Any extension work requires A separate review &amp; approval</i>
	<b>CERTIFICATION</b>		

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



Entered 10/23/12

(BS)

### Fire Alarm Permit

2012-10-5247-FAS

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

38-F-9

19 Cross

038 Foto

B-3

Installation address: 261 Commercial St-

CBL: NO CBL yet in 05

Exact location: (within structure) New Generator Building

Type of occupancy(s) (NFPA & ICC): Generator Room

Building owner: Jerry Debransky

System Designer (point of contact): Ken Plourde Nicet III 088704

Designer phone: (207) 749-6726 E-mail: kplourde@simplexgrinnell.com

Installing contractor: SimplexGrinnell Certificate of Fitness No: 1019

Contractor phone: John Hale (207) 239-5100 E-mail: johale@simplexgrinnell.com

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

Amendment to an existing permit: YES  NO  Permit no: \_\_\_\_\_

The following documents shall be provided with this application:

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

COST OF WORK: 8,000

PERMIT FEE: 4100.00  
(\$10 PER \$1,000 + \$30 FOR THE FIRST \$1,000)

**RECEIVED**  
**OCT 22 2012**

Dept. of Building Inspections  
City of Portland Maine

Master box approval only: YES  NO   
(If yes check New.)

The designer shall be the  
[www.portlandmaine.gov/fire](http://www.portlandmaine.gov/fire)  
the Building Inspections I  
Prior to acceptance of any  
fire system contractors and  
All installation(s) must cor  
Life and Property, availabl

~~Andy Reed~~  
wudy  
482-2350  
4715 6350 3398  
8917  
05/15 608

Applicant signature: [Signature]

10/16/12

copy of this application at  
F in addition to readable 11 1/2 x 17s to  
d, Maine 04101.  
ance test must be coordinated with all  
test(s) provided.  
ignaling Systems for the Protection of



# PORTLAND MAINE

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Receipts Details:

**Tender Information:** Check , Check Number: 97723  
**Tender Amount:** 100.00

Receipt Header:

**Cashier Id:** bsaucier  
**Receipt Date:** 10/23/2012  
**Receipt Number:** 49537

Receipt Details:

Referance ID:	8482	Fee Type:	BP-Constr
Receipt Number:	0	Payment Date:	
Transaction Amount:	100.00	Charge Amount:	100.00
Job ID: Job ID: 2012-10-5247-FAFS - Fire alarm			
Additional Comments: 19 Cross (261 Commercial)			

Thank You for your Payment!

# Project Turnover Sheet

Project Number: \_\_\_\_\_

Site Number: \_\_\_\_\_

## Site Information

Site Name: **MEMIC**  
Project Name: **MEMIC Genrator Building**  
Address: **261Commercial St.**  
**Portland, ME 040101**  
Contact: **Jerry Dobransky/Todd Hayman**  
Telephone # & Ext. : \_\_\_\_\_

Bill To Address: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
Ship To Address: **MEMIC**  
**261Commercial St.**  
**Portland, ME 040101**

# Of Submittals & Risers: **4**

Purchase Order #: **pending**

## System Types

- Fire Alarm     Intrusion     Access Control     CCTV     Intercom     PBX / Telephone     Nurse Call     Master Clock  
 Sprinkler     Hood     Special Hazards     E-Lights     Suppression

## Shipping Dates

- Put On Submittal Hold     Release All Equipment     Emergency Order (Ship Overnight)

Work Scope: **Detection and control system for pre-action sprinkler system in new detached emergency generator building at MEMIC. Scope include tie-in to SimplexFA in main building. Sprinkler work is separate project**

## Salesperson

- Joe Cox     Jason Gervais     Walter Colby  
 Ken Plourde     Tim Hinman     Ralph Chicoine

## Engineering Approval

Paul Doughty    Date: \_\_\_\_\_

## Prime Order

Prime Order?    Installer: \_\_\_\_\_  
Contact Name: \_\_\_\_\_

Telephone #: \_\_\_\_\_  
Extension #: \_\_\_\_\_

## Install Package

Project Initial Visit Date: **10/1/2012**  
Project Completion Date: **11/14/2012**

Eng. Turnover Date: **10/15/2012**  
By: \_\_\_\_\_



**Battery Calc Worksheet**

PID	Description	QTY	Standby Current	Standby Usage	Alarm Current*	Alarm Usage*
430525	Z-10 base System w/IDCs fully loaded	1	0.100	0.100	0.264	0.264
430531	Class A					
430529	Auxiliary Relay Module		0.012	0.000	0.070	0.000
<b>Auxiliary Power (750mA max taken from 3 Amp Supply)</b>						
Aux Devices	Other Auxiliary Devices					
<b>Notification Appliance Power (taken from 3 Amp Supply)</b>						
NAC 1	NAC 1 Alarm Current (2 Amps max)					
NAC 2	NAC 2 Alarm Current (2 Amps max)					
RAC 1	RAC 1 Alarm Current (2 Amps max)					
RAC 2	RAC 2 Alarm Current (2 Amps max)					
<b>Sub Totals</b>						
430525	Z-10 Panel Standby Current			0.100		
AUX	Auxiliary Devices Standby Current			0.000		
430525	Z-10 Panel Alarm Current				0.264	
AUX	Auxiliary Devices Alarm Current				0.000	
NACs	NAC Alarm Current				0.000	
<b>TOTALS</b>						
<b>Total Standby Current</b>				0.100		
<b>Total Alarm Current</b>						0.264
Total Auxiliary Power Available = 750mA (taken from 3.0 A supply)						
Base Panel: Total Power Available for NAC/AUX = 3.0 Amps (power for panel & option cards is reserved)						

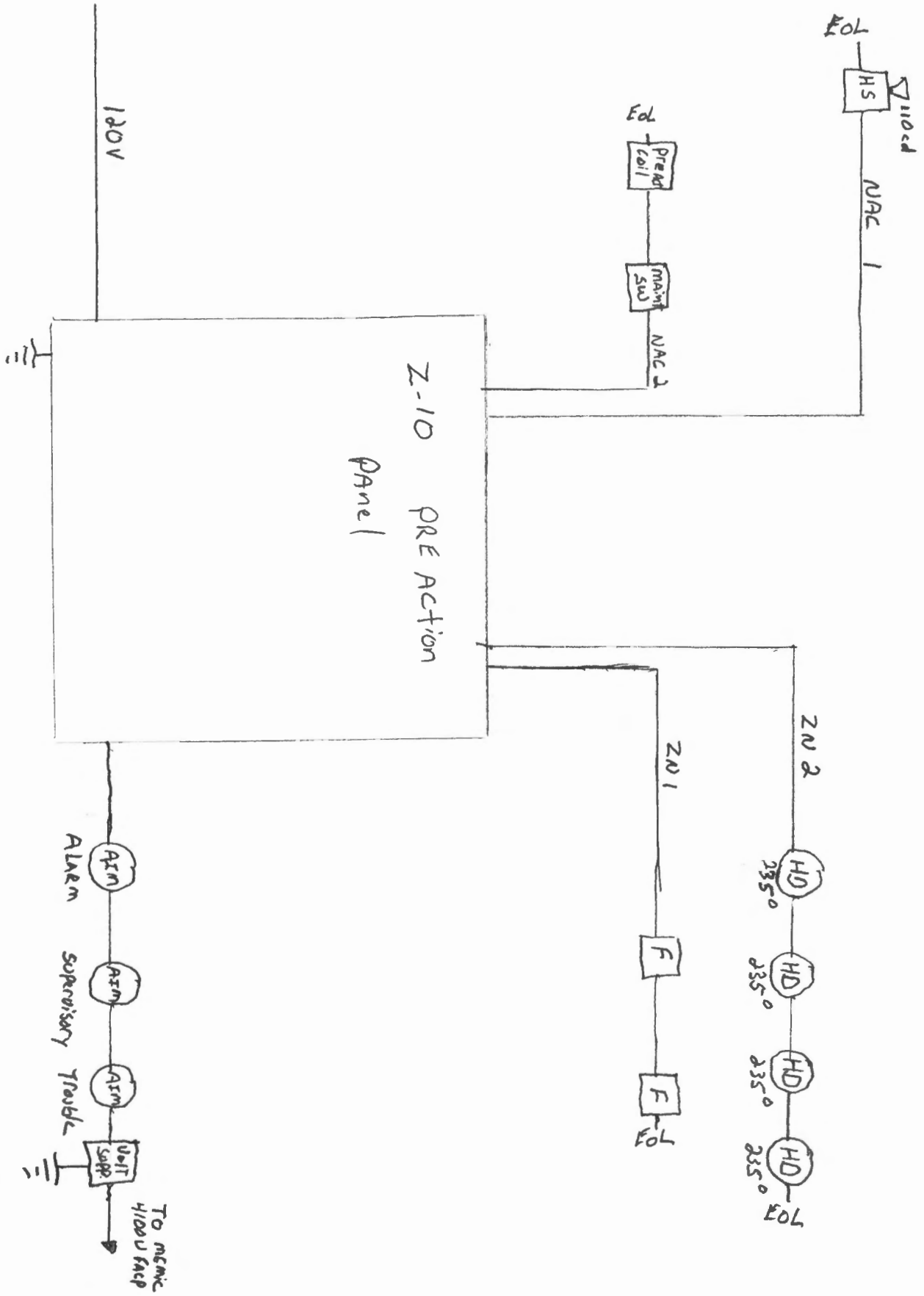


Preaction, Ansul Z-10 panel

BOM, MEMIC Generator Bldg, pre-action detection & control subsystem

rev 10/5/12

Part #		Cost	Qty	Subtotal	Data Sheet
430525	Z-10 control panel		1		Y
430529	auxiliary relay module		1		Y
430687	2 amp coil supervisory module		1		Y
417692	24V7Amp battery pack		1		Y
417693	24V12Amp battery pack (probably only 7AH)		0		N/A
71227	225 deg rate anticipation heat detector, horiz.		4		Y
430531	Class A adaptor module, 2 circuits (John H: class B OK)		0		N/A
428656	pull station, DPST		2		Y
428660	backbox		2		incl w/ pull
428654	pull station labels		2		not avail
433937	maintenance switch, surface mount		1		Y
433356	horn/strobe (FIRE)		1		Y
429700	IOB-R backbox		1		incl w/ h/s
	manual (free download)		0		on P drive
	<b>SUB TOTAL</b>			<b>\$0.00</b>	



# AutoPulse

## Z-10 AGENT RELEASE CONTROL PANEL

Data/Specifications

### FEATURES

**Agent Release Control Panel designed specifically for suppression release operation with:**

- Four initiating device circuits (IDCs)
- Two notification appliance circuits (NACs)
- Two release appliance circuits (RACs)
- Two special purpose monitor inputs (SPMs) for manual release request and manual abort request
- Three auxiliary relays with selectable functions
- Easily selected activity timing options

**Agent release operation includes:**

- Automatic extinguishing release
- Deluge and preaction sprinkler system release
- Dual or single hazard area protection
- Combined agent release and preaction operation\*
- IDCs are selectable for cross-zoning or for activation from a single detection input
- Short circuit RAC supervision

**Operator interface provides:**

- Status LEDs per circuit for Alarm, Trouble, and Supervisory (where appropriate)
- Acknowledge, alarm silence, and system reset
- Operating mode and timer selection when in programming mode

**Audible Escalation of Events:**

- Single Audible Appliance Tone: Stage 1 activates Temporal or 20 bpm March Time pattern; Stage 2 activates 120 bpm March Time pattern to indicate release timer active; Release activates On Steady to indicate release timer expired and actuator is activated
- Dual Audible Appliance Control\* (Single Hazard): RAC 2 provides a third NAC for dedicated Stage 1 Bell control; NACs 1 & 2 indicate release as On Steady

**Compatible with Listed/Approved 24 VDC coil automatic water control valves**

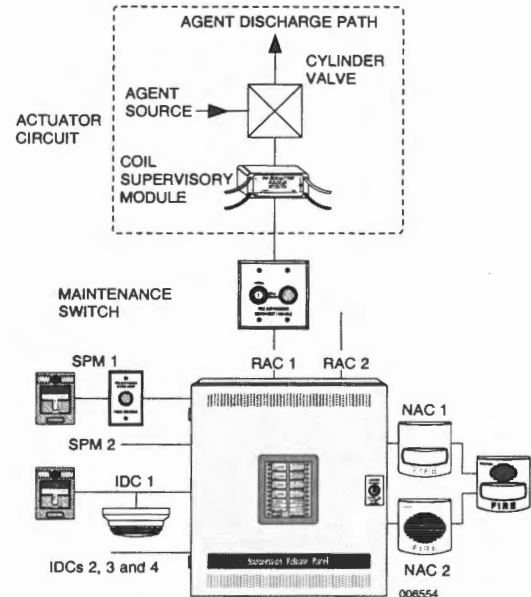
**Required system components:**

- Coil supervision module (Part No. 430687), one per solenoid control RAC
- Maintenance Switch (Part No. 433936 or 433937), one per solenoid control RAC

**Recommended accessory (where appropriate):**

- Abort Switch:  
– Part No. 433940, Flush Mount

\* Requires software revision 4.01 or higher



**AUTOPULSE Z-10 Agent Release Control Panel**  
**One-Line System Reference Drawing**

### INTRODUCTION

**Dedicated for Agent Release:** AUTOPULSE Z-10 Suppression Release Panels provide conventional fire alarm control circuits and are equipped with the features required for a wide variety of single or dual hazard suppression release applications. Capabilities include automatic extinguishing agent release, and deluge and preaction sprinkler control.

**Flexible I/O Capabilities:** Four IDCs allow for either four separately monitored zones or two cross-zoned connections. Two SPMs allow dedicated manual inputs for release or abort. Two releasing appliance circuits (RACs) supervise to the actuator coils and activate the actuators when required. The two NACs and the three panel auxiliary relays provide status condition information.

**Easy Program Selections:** The operator panel has a program mode that allows selection of panel operation type and detailed operating selections using an easily selected sequential programming operation.

**History Log:** The last 50 events are stored in non-volatile memory. This information is accessed by connecting a technician's computer to the service port which is also used to set the date and time.

### PANEL FEATURE DESCRIPTION

**Operator Panel:** The operator panel has alarm and trouble status indicating LEDs for each input and output, visible through the locking cabinet door. Unlocking the door provides access to the Acknowledge, Alarm Silence, and System Reset push-button switches.

**Four Class B IDCs** provide coverage for either two cross-zoned areas or four separately zoned areas. IDCs are capable of supporting up to 30 current-limited smoke detectors or electronic heat detectors as well as manual stations and other compatible contact closure initiating devices. IDCs are capable of Class A operation with an optional adapter module and can be programmed as Class C (short or open initiates a trouble) for use with current limited devices only. Single hazard agent release applications monitor low pressure switches on IDC3 and tamper switches with IDC4.

## PANEL FEATURE DESCRIPTION (Continued)

**Two Class B Special Purpose Monitoring Circuits (SPMs)** are dedicated for manual release or abort, waterflow and supervisory, or release/abort and pressure, depending on system type. Inputs are normally open switches. An abort switch stops release while activated and upon deactivation, the release operation occurs after a selectable time delay. Manual release inputs override abort switches and activate the release after selectable delays of from 0 to 30 seconds in 5 second increments. For Dual Hazard applications, current limited abort operation is required. SPMs are programmable as Style C and capable of Class A operation with the optional adapter module.

**Two Class B NACs** are provided for reverse polarity, notification appliance operation, each rated 2 A. Class A operation is available with the optional adapter module. NAC operation is selectable per application.

**Two Class B Release Appliance Circuits (RACs):** Rated 2 A each, these circuits are dedicated to operating release control actuators. RAC cutout timing is selectable as no cutout, 45 seconds, or 1, 3, 3.5, 4, 5, 6, 7, 21, 25, 34, 44, or 64 minutes. For bell/horn/strobe single hazard applications, RAC 2 functions as a third NAC (NAC 3).

**Auxiliary Power Output:** Rated at 750 mA, this output can be wired as continuous or as resettable. Resettable is normally used to power 4-wire smoke detectors.

**Standard Auxiliary Relay Outputs:** Three relays outputs are available, selectable as normally open or normally closed, rated 2 A @ 30 VDC.

**Trouble Relay (Aux Relay 1)** is energized when Normal and is de-energized with a Trouble condition.

**For Single Hazard Operation:** Aux Relay 2 is the Alarm relay and Aux Relay 3 indicates Time Delay Started or can optionally be selected as a Supervisory relay.

**For Dual Hazard Operation:** Aux Relay 2 is for Hazard Area 1 Alarm; Aux Relay 3 is for Hazard Area 2 Alarm.

**Power Supply and Battery Charger:** During alarm, the power supply provides 3 A at 25.5 VDC, filtered and regulated. The temperature compensated battery charger provides 27.5 VDC for charging batteries suitable for up to 90 hour standby and 10 minutes of alarm. External battery chargers and cabinets can be used for more battery backup.

## RELEASE CONTROL SYSTEM REFERENCE

**Automatic Agent Release Systems:** These systems automatically activate solenoid control valves for the release of a fire extinguishing agent in response to fire detection device input.

**Automatic Extinguishing Release Systems with Separate Bell Control (single hazard)** (SW rev. 4.01 or higher). RAC 2 operates as a bell control NAC. When cross-zoned, stage 1 alarm activates the bell until the release timer starts. When not cross-zoned, stage 1 alarm activates the bell until expiration of the release timer. In both cross-zoned and non cross-zoned applications, NAC2 may be programmed to indicate either a tamper switch supervisory condition or the start of the release timer using a cadence pattern operation.

**UL and FM Extinguishing Release System Panels must have** a minimum of 24 hours of standby power. Initiating devices must be Listed/Approved for the application, and may be wired either Class A or B. Actuators must be electrically compatible with the control panel circuits and power supplies, and are wired Class B to provide coil supervision.

**Deluge and Preaction Sprinkler Systems** automatically activate water control valves in response to fire detection device input.

**Deluge Sprinkler Systems** employ open sprinkler heads and provide water flow when the fire detection system activates a common automatic water control valve. They are used to deliver water simultaneously through all of the open sprinkler heads. This type of system is applicable where the immediate application of large quantities of water over large areas is the proper fire response.

**Preaction Sprinkler Systems** are similar to deluge systems except that normally closed sprinkler heads are used and supervisory air pressure is maintained in the pipe. Operation requires both an activated sprinkler head and an activated fire alarm initiating device.

**Combined Agent Release and Preaction Systems** provides agent release and preaction control. (Available with software revision 4.01 or higher.) For applications where agent release may not be sufficient for fire control, sprinklers are put in preaction mode to allow waterflow to continue the fire response. (Preaction is assumed, selected deluge could be provided, determined by the sprinkler installation, panel operation is the same.)

**UL requirements** for Fire Alarm Systems Listed for Automatic Release or Deluge and Preaction Sprinkler Systems are the same as described previously for Automatic Extinguishing Release Systems.

**FM Approved requirements** for Fire Alarm Systems for Automatic Release of Deluge and Preaction Sprinkler Systems require operation of specific compatible FM Approved Automatic Water Control Valves, a minimum secondary power capacity of 90 hours, and all circuits for the automatic release initiating devices must be capable of operation during a single open circuit fault condition (Class A).

## AUTOPULSE Z-10 PRODUCT SELECTION

RELEASE CONTROL PANEL			
Part No.	Description	Reference	
430525	Basic Releasing Panel, operates with AC input of: 120/220/230/240 VAC, 50/60 Hz (auto-select)	Includes: Four IDCs, two NACs, two SPMs, two RACs, 3 A power supply with battery charger, cabinet and door	
EXPANSION MODULES			
Part No.	Description	Reference	
430529	Auxiliary Relay Module; four relays, Form C, rated 7 A @ 120 VAC, 5 A @ 30 VDC, unsupervised contacts	Two maximum	Select as required
430531	Two Circuit Class A Adapter Module for IDCs, SPMs, or NACs	Four maximum	
BATTERIES			
Part No.	Description	Reference	
417692	7.0 AH Battery Pack, 24 VDC	Select one battery shipping assembly per system standby requirements; two batteries are included	
417693	12 AH Battery Pack, 24 VDC		
417694	17 AH Battery Pack, 24 VDC	Requires external battery cabinet	
417695	25 AH Battery Pack, 24 VDC		
RELEASE CONTROL SYSTEM MODULES			
Part No.	Description		
430687	Coil Supervision Module, <b>one required per RAC;</b> refer to pages 6 and 7 for detail		
433936 or 433937	Maintenance Switch, <b>one required per RAC</b>		
433940	Abort Switch		
431196	Abort Supervision Module		

**FM APPROVED WATER CONTROL VALVES**

FM Group	Manufacturer	Model Number	Details
A	Skinner	LV2LBX25	24 VDC, 11 W, 458 mA, 1/2 in. NPS, 1/2 in. orifice
B	ASCO	T8210A107	24 VDC, 16.8 W, 700 mA, 1/2 in. NPS, 5/8 in. orifice
		R8210A107	
		8210A107	
C	Star Sprinkler	5550	24 VDC, part of Model D deluge valve
D	ASCO	8210G207	24 VDC, 10.6 W, 440 mA, 1/2 in. NPS, 1/2 in. orifice
		V2648571, N.C.	
		HV2648581, N.O.	
E	Skinner	73218BN4UNLVNOC111C2	24 VDC, 10 W, 420 mA, 1/2 in. NPS, 5/8 in. orifice
		73212BN4TN00NOC111C2	24 VDC, 10 W, 420 mA, 1/2 in. NPS, 5/8 in. orifice; 5-300 psi (0.3-20.7 bar) rated working pressure
F	Skinner	73212BN4TNLVNOC322C2	24 VDC, 22 W, 1/2 in. NPS, 920 mA, 250 psi (17.2 bar), 1/2 in. orifice
G	Skinner	71395SN2ENJ1NOH111C2	24 VDC, 10 W, 420 mA, 1/4 in. NPS, 1/16 in. orifice, 250 psi (17.2 bar) rated working pressure
H	Viking	HV-274-060-001	24 VDC, 22.6 W, 940 mA, 1/2 in. NPS, 250 psi (17.2 bar), 3/4 in. orifice

**SPECIFICATIONS**

Power Ratings		
AC Input	Voltage Ratings	120 VAC, 60 Hz; 220/230/240 VAC, 50/60 Hz, auto-select
	Current Ratings	2 A maximum @ 120 VAC input; 1 A maximum @ 240 VAC input
Power Supply Output	3 A maximum available for external loads	
Battery Charger	Temperature compensated, capable of recharging batteries required for 90 hour standby and 10 minute alarm (contingent on auxiliary power load)	
Standby Current	100 mA; with IDCs fully loaded, tone-alert silenced, trouble LED on, charger off	
Alarm Current	264 mA + external loads; (2 zones in alarm & 2 internal relays, NACs and RACs on)	
Standard Circuit Ratings	<b>(Note: Total DC current = 3 A maximum; see NAC ratings for details)</b>	
Initiating Device Circuits (IDCs)	Supervisory	3 mA maximum; 3.3 kΩ end-of-line resistor per circuit
	Alarm Current	75 mA maximum
	Output Voltage	28 VDC maximum
	Capacity	Each IDC supports up to 30 detectors (smoke or electronic heat) and manual stations as required; wiring distance is limited to 50 Ω maximum
Special Purpose Monitoring Circuits (SPMs)	Application	For Manual Release, Abort Switches, or Supervisory functions only; not for detectors; wiring distance is limited to 50 Ω maximum
	For Dual Hazard Applications	Dual Hazard Application Abort Switches require a current limiting resistor of 1.2 kΩ, 1 W, or an external Abort Supervision Module per SPM
	Supervisory	6 mA; 3.3 kΩ end-of-line resistor per circuit
	Activated	75 mA maximum
Notification Appliance Circuits (NACs)	Output Voltage	28 VDC maximum
	Alarm Current	Special Application appliance rating = 2 A maximum on a NAC <b>Note: Special Application appliance rating = full 3 A power supply rating</b> Regulated 24 DC appliance power = 1.5 A maximum on a circuit <b>Note: Regulated 24 DC strobe load = 1.35 A maximum total for power supply</b>
	Output Voltage	Alarm = 26 VDC max.; supervisory = 29 VDC maximum; 10 kΩ end-of-line resistor
	Synchronized Strobe Operation	Requires NAC dedicated to strobe control with non-coded output; use an external Synch Module; up to 33 strobes can be synchronized per Z-10
Notification Appliance Reference	Regulated 24 DC Appliances	Power for other appliances listed to UL Standard 1971 or UL Standard 464; use associated external synchronization modules where required
	Output Current	2 A maximum per circuit
Release Appliance Circuits (RACs)	Output Voltage	Activated = 26 VDC maximum; non-alarm = 29 VDC maximum; 10 kΩ end-of-line resistor
Auxiliary Power Output; for Special Application loads only		Two outputs are available, continuous operation or resettable operation; combined output is 750 mA maximum; output voltage = 19.25 to 27 VDC
Auxiliary Relay Outputs (Trouble, Aux Relay 2, Aux Relay 3)		Contacts rated 2 A @ 30 VDC, 0.35 p.f., inductive, selectable as N.O. or N.C. by jumper
Wiring Connections for Above and AC Input		Terminals rated for 18 AWG to 12 AWG (0.82 mm <sup>2</sup> to 3.31 mm <sup>2</sup> )
Auxiliary Module Ratings		
Class A Adapter Module (Part No. 430531)		Two circuits per module, rated same as circuits; not applicable to RACs (no additional current required)
Auxiliary Relay Module (Part No. 430529)	Relay Type	Four relays with two outputs per relay; individually selectable as N.O. or N.C.
	AC Ratings	7 A @ 120 VAC, resistive
	DC Ratings	5 A @ 30 VDC, 0.35 power factor, inductive

**SPECIFICATIONS (Continued)**

**Auxiliary Module Ratings (Continued)**

Auxiliary Relay Module 430529 (Continued)	Module Current	12 mA standby; 70 mA with all four relays energized; @ 24 VDC
	Wiring	Terminals rated for 18 AWG to 12 AWG (0.82 mm <sup>2</sup> to 3.31 mm <sup>2</sup> )

**Coil Supervision Module**

Construction	Epoxy encapsulated
Dimensions	1-3/8 in. W x 2-7/16 in. L x 1-1/16 in. H (34 mm x 62 mm x 27 mm)
Wiring	18 AWG (0.82 mm <sup>2</sup> ) wire leads, color coded
Coil Supervision Module Current Rating	2 A maximum; internally fused at 3 A, non-replaceable

**Environmental Ratings**

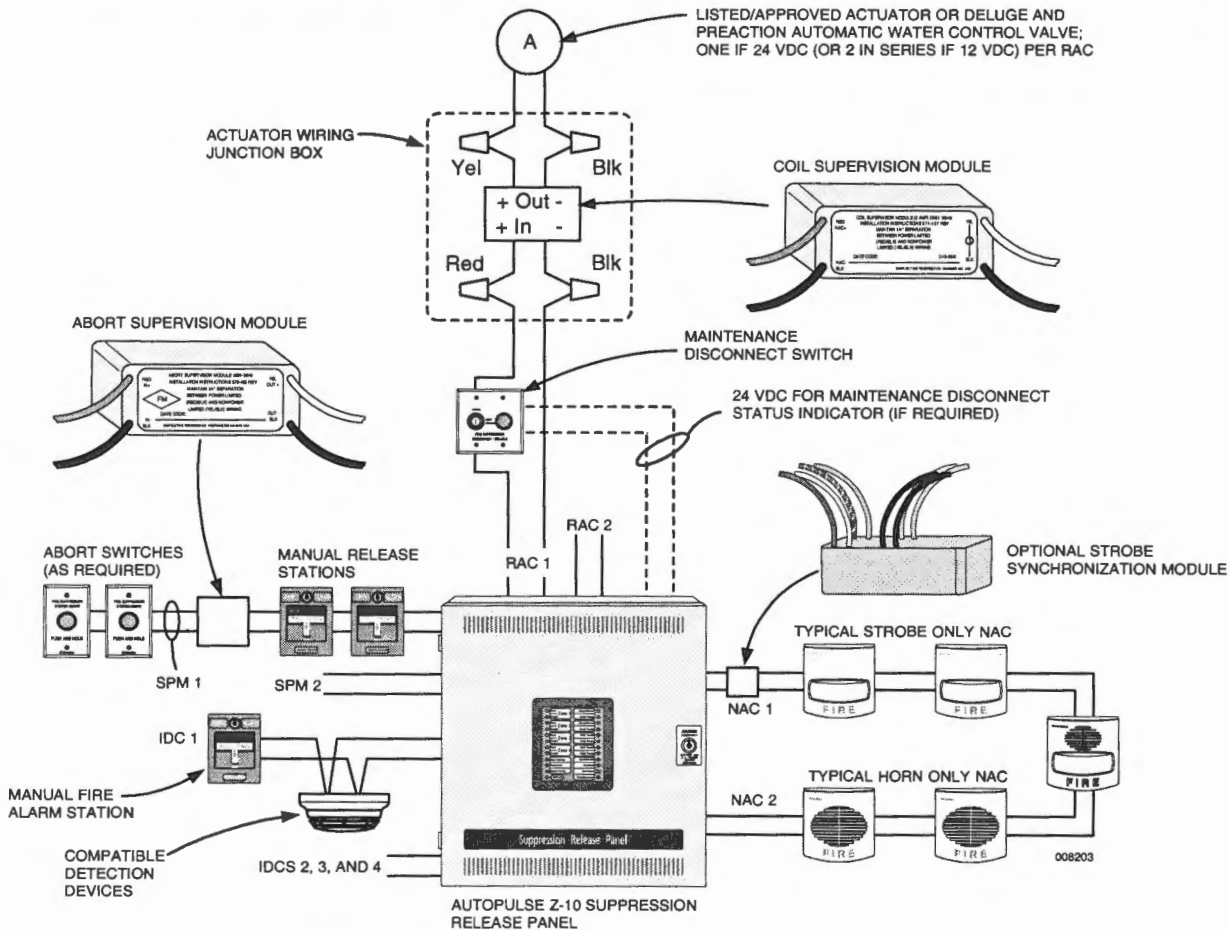
Operating Temperature Range	32 °F to 120 °F (0 °C to 49 °C)
Operating Humidity	Range up to 93% RH, non-condensing @ 100 °F (38 °C) maximum

**REFERENCE INFORMATION, COMPATIBLE DETECTORS**

Part No.	Type	Component Sheet
430559	LIFEalarm® Photoelectric Detector 2.8%/ft Obscuration (Standard)	T-2007153
430562	LIFEalarm® Photoelectric Detector 3.5%/ft Obscuration	
430565	135 °F (57 °C) Fixed Heat Detector	T-2007159
430566	200 °F (93 °C) Fixed with Rate-of-Rise Heat Detector	T-2007159

**Note:** For proper detector bases, refer to Component Sheet T-2007153.

**AUTOPULSE Z-10 SYSTEM CONNECTION REFERENCE**



**GENERAL WIRING NOTE:**  
WIRING SHOWN IS FOR REFERENCE ONLY, REFER TO SPECIFIC  
INSTALLATION INSTRUCTIONS FOR DETAILED WIRING INFORMATION.



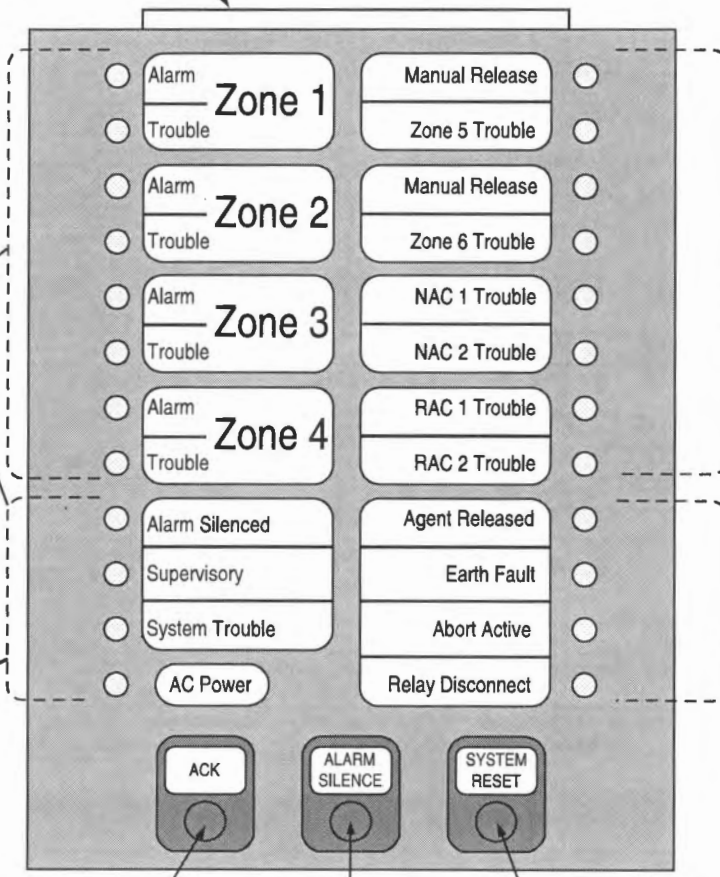
**PROGRAMMING MODES AND SELECTION CHOICES**

Sequence	Select one of 13 Application Modes (numbered 1 through 13)			
1	Agent Release	Single Hazard	Cross-Zoned 1 Either Zone 2	Combined Release (RACs activate together)
		Dual Hazard	Cross-Zoned 3 Either Zone 4	Independent Release (RACs are separate)
	Preaction/Deluge	Single Hazard	Cross-Zoned 5 Either Zone 6	Combined Release (RACs activate together)
		Dual Hazard	Cross-Zoned 7 Either Zone 8	Independent Release (RACs are separate)
	Agent Release; Single Hazard		Cross-Zoned 9	NYC Abort (not UL listed)
	Agent Release & Preaction; Single Hazard		Cross-Zoned 10 Either Zone 11	RAC 2 provides Preaction Control; RAC 1 is Agent Release Control
	Agent Release, Bell/Horn/Strobe; Single Hazard		Cross-Zoned 12 Either Zone 13	RAC 2 operates as NAC 3 for Stage 1 Bell Control (separate sound from release alarm)
	Sequence	Programming Mode Description	Description	
	2	Select Relay Operation for Application Modes 1-9	Select "Original" operation mode or "Enhanced" mode	
	3	IDC and SPM Circuit Style	Class B/Class A or Style C	
4	Automatic Release Time Delay	Selectable in 5 second increments from 0 to 60 seconds (default is 60 seconds)		
5	RAC Cutout Timer	No cutout, 45 seconds, or 1, 3, 3.5, 4, 5, 6, 7, 21, 25, 34, 44, or 64 minutes		
6	Manual Release Time Delay	0, 5, 10, 15, 20, 25, or 30 seconds		
7	Abort Release Time Delay	UL Standard 864 listed	Immediate or 10 seconds remaining	
		Not UL Standard 864 listed	IRI abort (cross-zoned systems only), NYC abort, or original release delay	
8	NAC Coding (where selectable)	Temporal pattern or 20 beats per minute (first cross-zone alarm)		
9	NAC Operation	Standard Operation	No inhibit or one minute inhibit selected as: both on until silence, NAC 1 on until reset and NAC 2 on until silence, or both on until reset;	
		Pre-Discharge Operation	<b>Note:</b> For clean agent release, a pre-discharge NAC must be configured to warn of impending discharge, the release timer selects the duration of the pre-discharged signal	
10	Supervisory Latching	Latching or non-latching		
11	Supervisory Notification	LED and tone-alert only, or with: NAC 2 also on; Aux Relay 3 also on; or both NAC 2 and Aux Relay 3 also on		



**OPERATOR PANEL FUNCTION REFERENCE**

LABEL INSERT SELECTABLE FOR PREACTION/DELUGE, AGENT RELEASE, OR COMBINATION AGENT RELEASE/PREACTION DELUGE, UL OR ULC VERSIONS (UL AGENT RELEASE VERSION SHOWN FOR REFERENCE)



**RUN MODE:** LEDs PROVIDE ALARM (RED) AND TROUBLE (YELLOW) STATUS PER IDC ZONE; ZONE 4 YELLOW LED INDICATES SUPERVISORY STATUS IF STILL FLASHING AFTER ACK

**PROGRAM MODE:** TOP TEN LEDs INDICATE PROGRAMMING MODE CATEGORY

**ALARM SILENCED** YELLOW LED INDICATES THAT AUDIBLE NOTIFICATION APPLIANCES ARE SILENCED PRIOR TO SYSTEM RESET

**SUPERVISORY AND SYSTEM TROUBLE** YELLOW LEDs; FOR UL SYSTEMS, INDICATION OF DISABLED OR DISCONNECTED RAC

**AC POWER** GREEN LED IS ON WITH NORMAL POWER STATUS

**RUN MODE:** RED LEDs INDICATE MANUAL RELEASE ACTIVATED (FOR AGENT RELEASE APPLICATIONS); YELLOW LEDs INDICATE TROUBLE FOR SPMs (ZONES 5 and 6), NACs, and RACs, FOR RACs, YELLOW LED INDICATES SUPERVISORY IF STILL FLASHING AFTER ACK

**PROGRAM MODE:** TOP EIGHT LEDs PROVIDE PROGRAMMING SELECTION

**AGENT RELEASED** RED LED INDICATE RACs ARE ACTIVATED

**EARTH FAULT** YELLOW LED INDICATES PRESENCE OF AN EARTH FAULT

**ABORT ACTIVE** YELLOW LED TRACKS STATE OF ABORT SWITCH

**RELAY DISCONNECT** YELLOW LED INDICATES THAT EXPANSION RELAYS HAVE BEEN DISABLED FOR SERVICE

**ACK** ACKNOWLEDGES STATUS DURING RUN MODE AND ACCEPTS SELECTION DURING PROGRAM MODE; PRESS AND HOLD FOR 5 SECONDS TO PERFORM LAMP TEST

**ALARM SILENCE** SILENCES AUDIBLE ALARMS

**SYSTEM RESET** RESTORES THE SYSTEM TO NORMAL DURING RUN MODE AND TOGGLES THE SELECTION DURING PROGRAM MODE

006552

## RELEASE CONTROL SYSTEM REQUIREMENTS

1. Solenoid valves are connected as 2-wire, Class B notification/releasing circuits with only one 24 VDC solenoid valve per circuit (or two, 12 VDC solenoids in series if applicable) to ensure supervision.
2. Coil Supervision Module (Part No. 430687) must be wired electrically before the solenoid valve and located in the solenoid valve wiring junction box.
3. For FM Approved Deluge and Preaction Sprinkler operation, initiating device circuits must be Class A, wired to Listed/Approved devices.
4. Power supply loading and wiring distances must be per Installation, Programming, and Operating Instructions (Part No. 430545).
5. For FM Approved Deluge and Preaction Sprinkler Systems, battery standby capacity must be a minimum of 90 hours with 10 minutes of alarm.
6. For FM Approved Automatic Extinguishing Release, battery standby must be a minimum of 24 hours with 5 minutes of alarm.
7. Battery standby must be selected for a minimum voltage of 23 VDC to ensure proper valve operation.
8. Maintenance Switch (Part No. 433936 or 433937) are required to allow the system to be tested or serviced.
9. For FM Approved Deluge and Preaction Sprinkler operation, the specified compatible Automatic Water Control Valves must be used.
10. For UL Listed and FM Approved Automatic Extinguishing Release, solenoid valves must be electrically compatible.
11. Abort Switch (Part No. 433940) is available when abort operation is required. When used, wire on Special Purpose Monitoring Circuits (SPMs) as Class A or B, the same as required for other initiating devices.
12. Manual Release Stations are used for direct activation of the release solenoids with the appropriate time delay implemented by the fire alarm control panel.

## LISTINGS AND APPROVALS

- UL Listed: S4935
- FM Approved: J.I.3012391
- CSFM: 7165-0595:113
- MEA (NYC): 49-03-E

## EXPANSION MODULES AND ACCESSORIES

**Auxiliary Relay Module** (Part No. 430529). Four relays per module are available as required. Dual hazard applications will require two modules for auxiliary relay operation. Each relay module has a manual disconnect switch that controls relays 2 through 4 (Trouble Relay is not controlled). Relay outputs are required to be connected to 15 A maximum circuit breaker.

Operation is per the following actions:

**Relay 1** activates on any **trouble** associated with its hazard

**Relay 2** activates on any **alarm** associated with its hazard

**Relay 3** activates for pressure switch as required per application or actuates with second zone for cross-zoned systems (hazard specific)

**Relay 4** activates when the hazard specific RAC activates

**Dual Circuit Class A Adapter Module** (Part No. 430531). This module converts two Class B circuits to Class A operation. It consumes no additional current and is compatible with IDCs, SPMs, and NACs. Up to four modules may be mounted within the AUTOPULSE Z-10 cabinet.

**Maintenance Switch.** Proper service of release appliance circuits requires the ability to securely disconnect the release circuit during installation and maintenance. Maintenance switches are controlled by keyswitch and initiate a supervisory condition when in disconnect/disable position. Models with lamp are on a double-gang plate and are powered from separate 24 VDC wiring. Mounting is on stainless steel plates and models are available as either surface or flush mount (see drawing below).

Maintenance switches, one per RAC, are required per NFPA 72, the National Fire Alarm Code, to allow the system to be tested or serviced without actuating the fire suppression systems. Their use may not be allowed in some jurisdictions; always confirm local requirements. When used, maintenance switches are required to ensure that operation initiates a supervisory condition.



Maintenance Switch

006549

**Abort Switch.** For manual abort requests, these abort switches are available with or without a built-in 1.2 k $\Omega$ , 1 W resistor and are mounted on single-gang stainless steel plates. Abort switches are connected to the SPM inputs per system requirements.

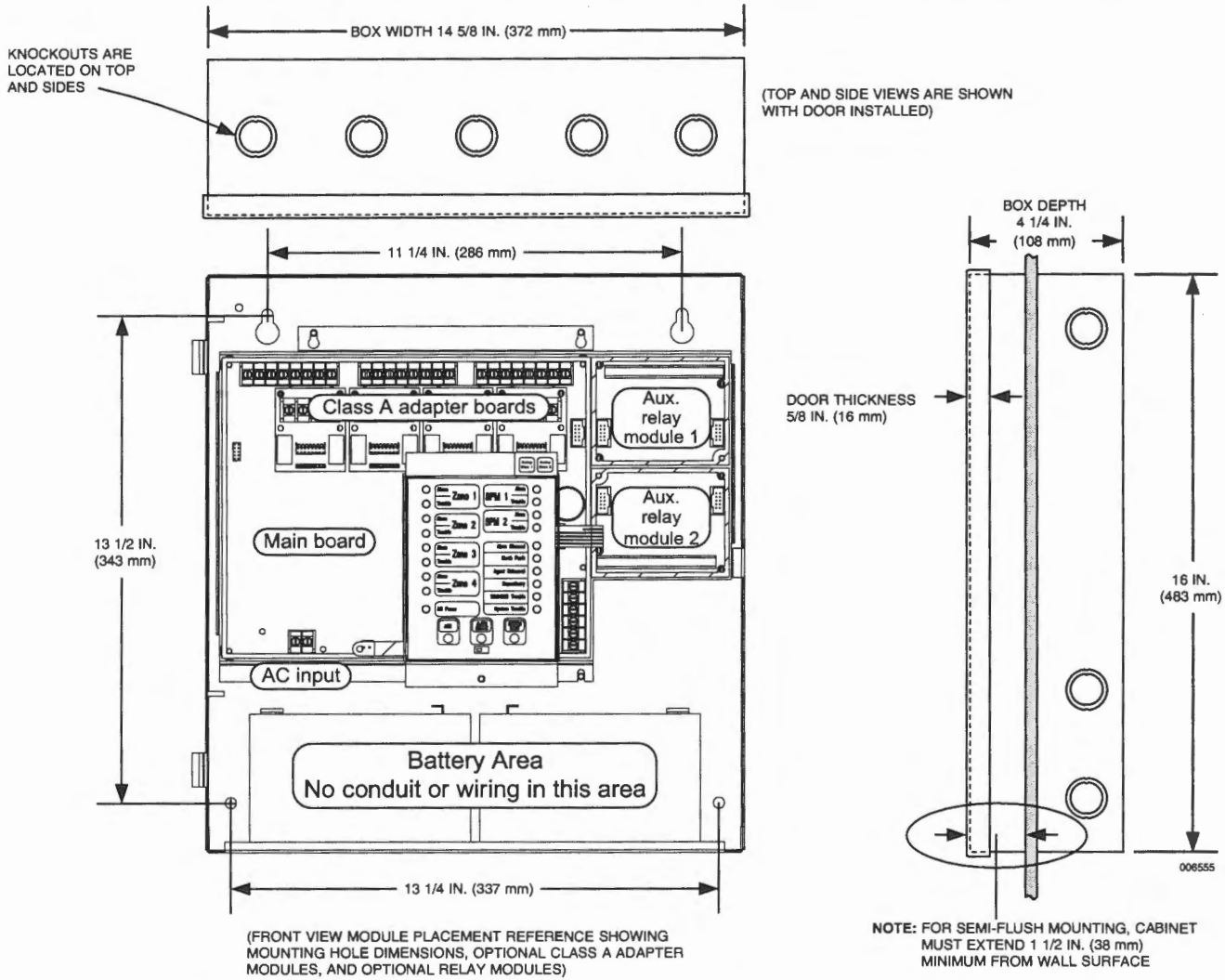
Activity abort occurs while the switch is pushed and continues after releasing the switch for the selected Abort Release Time Delay (see drawing below).



Abort Switch

006550

## MOUNTING REFERENCE INFORMATION



NOTE: A SYSTEM GROUND MUST BE PROVIDED FOR EARTH DETECTION AND TRANSIENT PROTECTION DEVICES. THIS CONNECTION SHALL BE MADE TO AN APPROVED, DEDICATED EARTH CONNECTION PER NFPA 70, ARTICLE 250, AND NFPA 780.

## ORDERING INFORMATION

Part No.	Description
430525	AUTOPULSE Z-10 FACP, 120/240 VAC

**Note:** Proper operation of release control systems requires that the system design, installation, and maintenance be performed correctly and in accordance with all applicable local and national codes, and equipment manufacturer's instructions. No liability for total system operation is assumed or implied.



## Abort Switches and Releasing Appliance Circuit (RAC) Maintenance Switches (Z-10)

### Features

- **Abort switches provide a manual Fire Suppression System release abort request:**
  - Pushbutton momentary switch is mounted on a stainless steel single-gang plate
  - A protruding collar protects the switch from accidental contact (collar is removable if required)
  - Available flush or surface mount
  - Flush mounting requires standard single-gang box
  - Surface mounting includes a red mounting box
  - Models are available with internal 1.2kΩ resistor for current limited operation
- **Maintenance switches provide a secure and visible disconnect means for servicing Fire Suppression System Releasing Appliance Circuits (RACs):**
  - Maintained position keyswitch is mounted on a stainless steel double-gang plate
  - Key is removable in either normal or disabled position
  - Disabled position opens connection to output circuit to initiate a supervisory condition at the host panel
  - Disconnect indicator lamp is a bright incandescent bulb with red lens, powered from separate 24 VDC
  - Available for flush or surface mount
  - Flush mounting requires a standard double-gang box
  - Surface mount models include a red mounting box
- **UL listed to Standard 864, 9th Edition**

### Description

Releasing systems typically require maintenance disconnect switches and often require abort switches. These abort and maintenance switches are clearly labeled and combine easy operation with rugged construction for high integrity operation.



**Abort Switch**

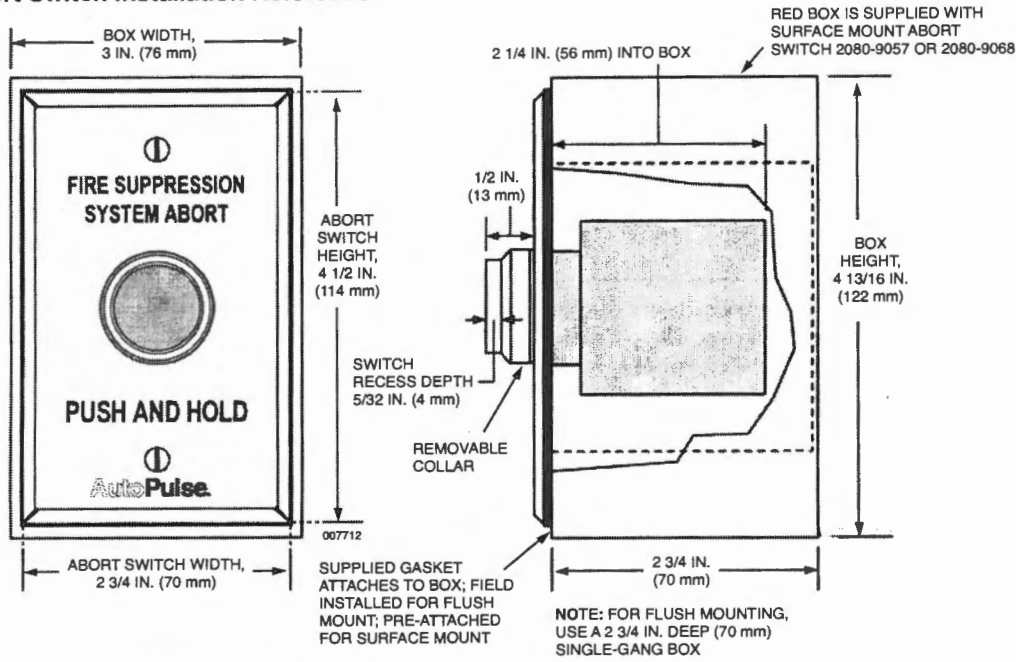


**Maintenance Switch with Disconnect Indicator Lamp**

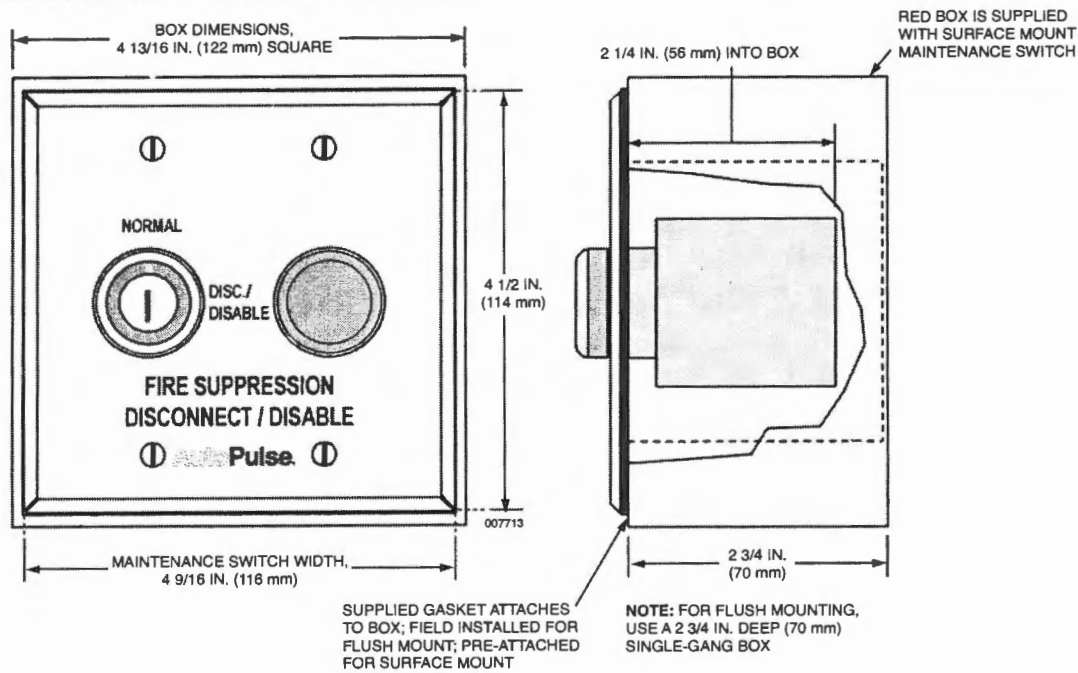
### Specifications

Electrical Ratings	
Abort Switch; One Contact block	Silver contacts; 1 NO & 1 NC; rated 2 A resistive @ 30 VDC
Maintenance Switch with Lamp; Two Contact blocks	Circuit control: Silver contacts; 1 NO & 1 NC; rated 2A resistive @ 30 VDC
	Lamp control: Silver contacts; 1 Form C; rated 2 A resistive @ 30 VDC
Maintenance Switch Indicator Light	Replaceable 2 W incandescent bulb; 24 to 30 VDC typical; 83 mA @ 35 VDC; requires -separate 24 VDC
Wiring Connections	
Abort Switch	Terminal blocks for in/out wiring; 18 to 14 AWG wire (0.82 mm <sup>2</sup> to 2.08 mm <sup>2</sup> )
Abort Switch with Current Limited Resistor	Terminal blocks for first wire connection; 18 to 14 AWG wire (0.82 mm <sup>2</sup> to 2.08 mm <sup>2</sup> ); 18 AWG wire lead for second wire connection
Maintenance Switch	18 AWG (0.82 mm <sup>2</sup> ) color coded wire leads for suppression circuit; terminal blocks for lamp wiring; 18 to 14 AWG wire (0.82 mm <sup>2</sup> to 2.08 mm <sup>2</sup> )
Environmental Ratings	
Temperature Range	32 °F to 120 °F (0 °C to 49 °C)
Humidity Range	Up to 93% at 90 °F (32 °C)

**Abort Switch Installation Reference**



**Maintenance Switch Installation Reference**



**Listings and Approvals**

- UL Listed . . . . . S8332
- ULC Listed . . . . . S8332
- CSFM . . . . . Approved
- MEA (NYC) . . . . . Approved

**Ordering Information**

Part No.	Description	Shipping Weight	
		lb	(kg)
433936	Flush Mount Maintenance Switch	2	(0.9)
433937	Surface Mount Maintenance Switch	2	(0.9)
433940	Flush Mount Abort Switch	1	(0.5)

**Overview**

This publication describes installing the Auxiliary Relay Module, Part No. 430529, in an AUTOPULSE Z-10 Releasing Panel or a TRITON RP Releasing Panel.

**In this Publication**

This publication discusses the following topics:

Topic	See Page #
Cautions and Warnings	2
Overview	3
Installing Modules in the Panel Cabinet	5
Wiring	8

## Cautions and Warnings

---

**READ AND SAVE THESE INSTRUCTIONS.** Follow the instructions in this installation manual. These instructions must be followed to avoid damage to this product and associated equipment. Product operation and reliability depends upon proper installation.



**DO NOT INSTALL ANY PRODUCT THAT APPEARS DAMAGED.** Upon unpacking your product, inspect the contents of the carton for shipping damage. If damage is apparent, immediately file a claim with the carrier and notify your distributor.



**ELECTRICAL HAZARD** - Disconnect electrical field power when making any internal adjustments or repairs. Servicing should be performed by qualified Technical Representatives.



**STATIC HAZARD** - Static electricity can damage components. Therefore, handle as follows:

- Ground yourself before opening or installing components (use the Static Control Kit, Part No. 431231).
- Prior to installation, keep components wrapped in anti-static material at all times.



**RADIO FREQUENCY ENERGY** - This equipment generates, uses, and can radiate radio frequency energy and if not installed and used in accordance with the instruction manual, may cause interference to radio communications. It has been tested and found to comply with the limits for a Class A computing device pursuant to Subpart J of Part 15 of FCC Rules, which are designed to provide reasonable protection against such interference when operated in a commercial environment. Operation of this equipment in a residential area may cause interference in which case the user, at his own expense, will be required to take whatever measures may be required to correct the interference.

**SYSTEM REACCEPTANCE TEST AFTER SOFTWARE CHANGES** - To ensure proper system operation, this product must be tested in accordance with NFPA72-1996, Chapter 7 after any programming operation or change in site-specific software. Reacceptance testing is required after any change, addition or deletion of system components, or after any modification, repair or adjustment to system hardware or wiring.

All components, circuits, system operations, or software functions known to be affected by a change must be 100% tested. In addition, to ensure that other operations are not inadvertently affected, at least 10% of initiating devices that are not directly affected by the change, up to a maximum of 50 devices, must also be tested and proper system operation verified.

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## Overview, Continued

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### General Guidelines

Adhere to the following guidelines when wiring relay modules.

- All wiring must be 18 AWG (min.) to 12 AWG (max.).
  - Conductors must test free of all grounds.
  - Relay circuits are rated for 2 A at 30 VDC, pilot duty (0.35 power factor).
  - Circuit is not supervised.
  - If power source is not power limited to the requirements of UL 864, wiring is to be segregated to the non-power limited spaces of the cabinet. See "Routing Non-Power Limited Wiring" later in this chapter for the location of the non-power limited cabinet area.
  - The relay module is rated at 24 VDC, 17 mA (normal standby) and 70 mA (max.) with all relays activated.
-

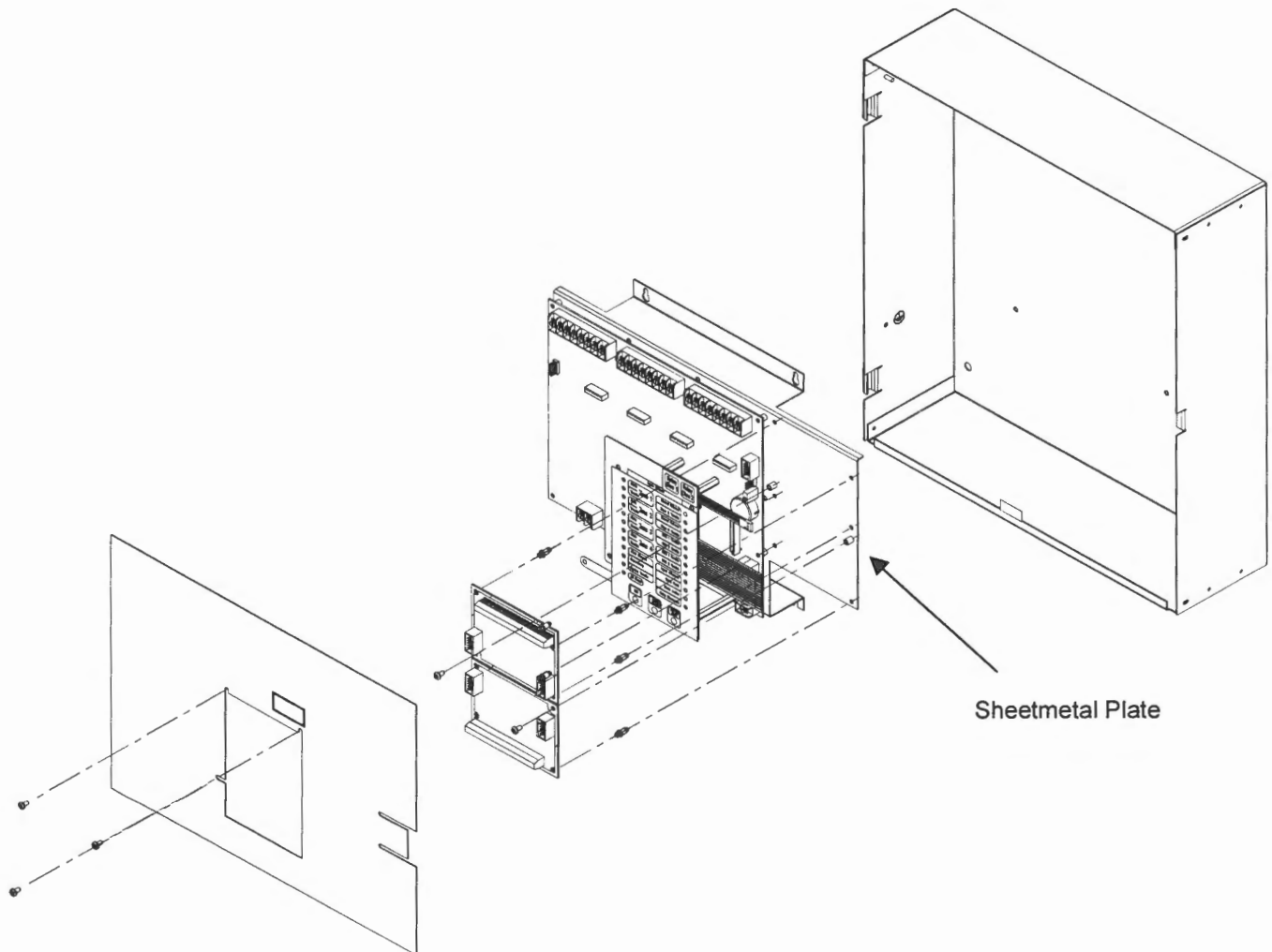
# Installing Modules in the Panel Cabinet

## Installing Modules

The relay modules attach to the sheetmetal plate located to the immediate right of the LED Display. If two modules are being installed, the top module installs with the terminals at the top and the module below it installs with the row of terminals at the bottom. See figure below.

Each module comes with three plastic standoffs and a T15 torx screw. Install each module as follows:

- **Top Module.** Orient the module so the terminal block is at the top. Install a standoff in the holes located in the top left, top right, and bottom right of the module. Align the standoffs with the holes on the sheetmetal and snap the module into place on the sheetmetal bracket. Install the Torx screw in the bottom left hole.
- **Bottom module.** Orient the module so the terminal block is at the top. Install a standoff in the holes located in the top left, bottom left, and bottom right of the module. Align the standoffs with the holes on the sheetmetal and snap the module into place on the sheetmetal bracket. Install the Torx screw in the top right hole.



**Figure 2**

*Continued on next page*

# Installing Modules in the Panel Cabinet, *Continued*

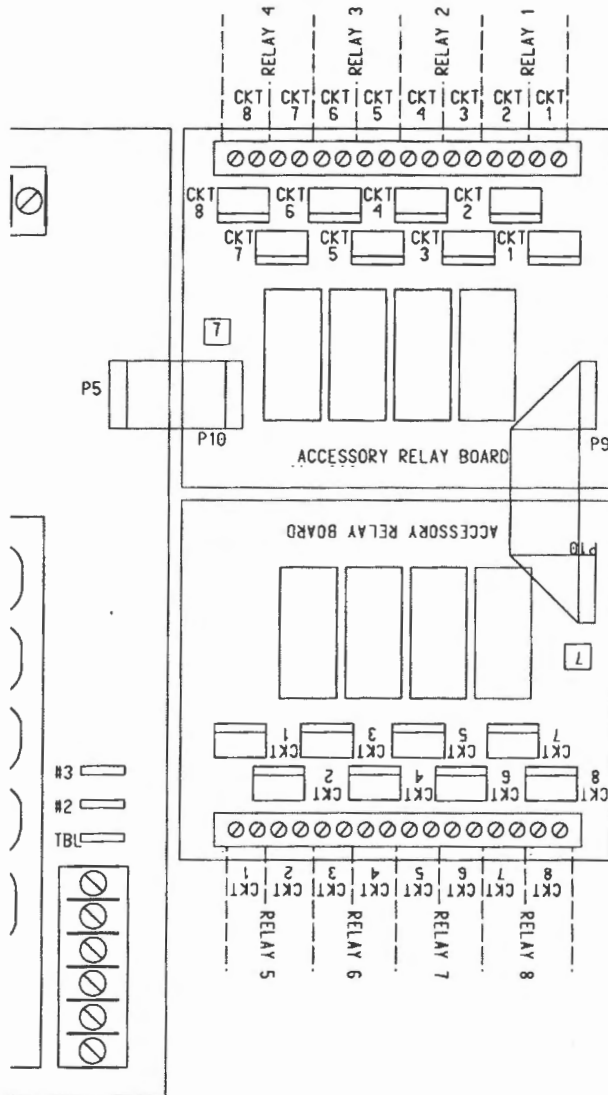
## Connecting Harnesses

A wiring harness, Part No. 431284 (ribbon cable) connects the top relay module to the panel. If a second relay module is used, another harness connects the top board to the bottom board. The plugs on the harness and the connectors on the panel and relay module are keyed and fit in only one way.

To install the harness between the panel and the top relay module, insert one end of the harness in connector P5 on the panel PCB. The figure below shows the approximate location of this connector. Insert the other end of the harness in connector P10 on the relay module.

If two relay modules are used, connect another harness between the top board and bottom board. Connect one end of the harness to the P9 connector on the top board, and connect the other end of the harness to the P10 connector on the bottom board.

**Figure 3**



*Continued on next page*

## Installing Modules in the Panel Cabinet, *Continued*

### Installing Disconnect Switch

The Relay Disconnect Switch, Part No. 431293, shipped with the relay module, is a thin, membrane-style switch that mounts above the right column of LEDs on the front panel interface of the panel. A short ribbon cable extends from the switch and installs in a connector (see figure below) on the panel Printed Circuit Board.

To install this switch, do the following:

1. Remove the adhesive backing from the membrane switch. Apply the switch to the area located just above the right column of LEDs as shown in the figure below.
2. Insert the plug on the end of the switch's ribbon cable into the connector shown in the figure below.

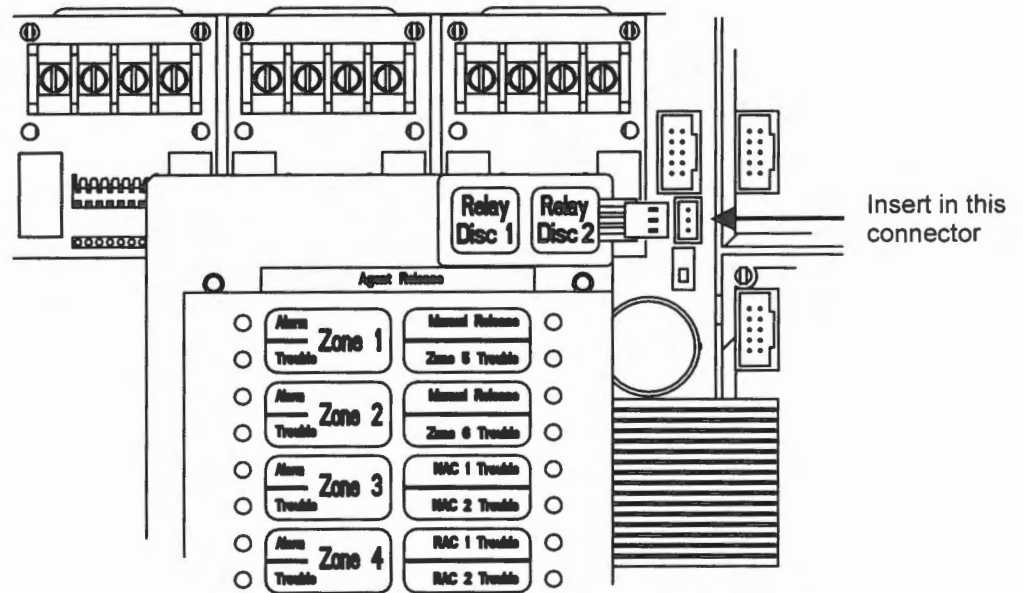


Figure 4

# Wiring

## Routing Non-Power Limited Wiring

Shaded area shows location in which non-power limited wiring must be routed. 1/4" space must be maintained between non power-limited (i.e., AC power connected to relay module) and power limited wiring (i.e., IDC, RAC, SPM wiring).

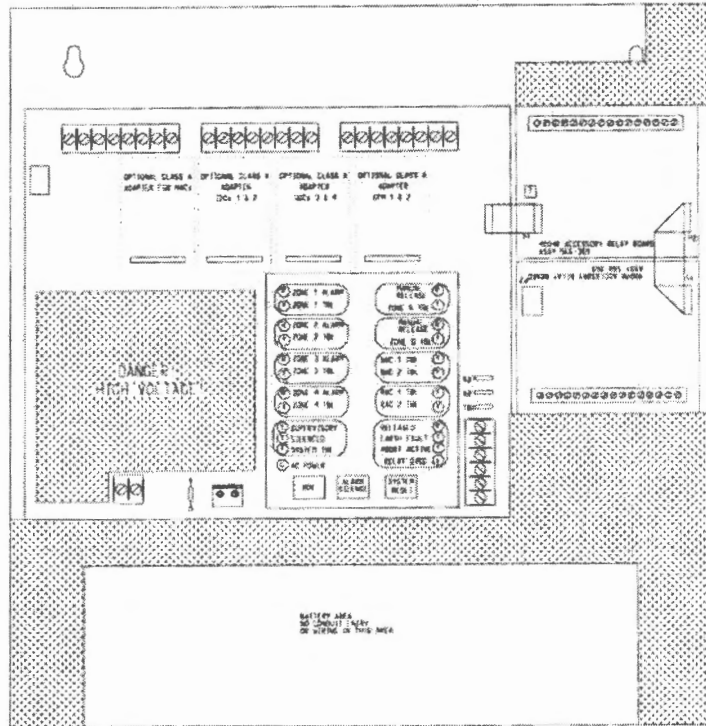


Figure 5

## Setting NO/NC Jumpers

Each relay has two sets of contacts and each contact has a corresponding jumper that allows it to be configured as a NO or NC contact. The figure below shows the mapping between jumpers and contacts. Set jumpers to the NO or NC position as shown in the figure below.

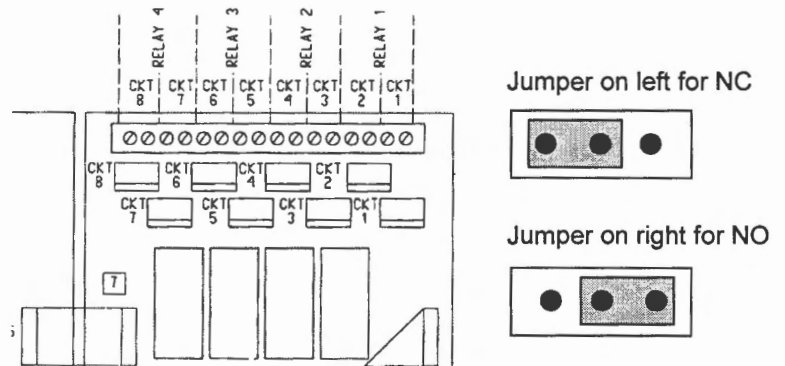


Figure 6

Continued on next page

## Wiring, Continued

### Wiring Devices

Disconnect the panel from AC power before connecting device wiring to the contacts. Each set of contacts has two terminals for connecting device wiring. Up to 16 devices may be attached to the relay board. Refer back to the overview for information on when the panel drives the relays and their associated contacts.

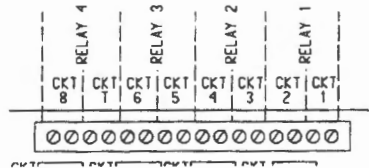


Figure 7







## PS Series Batteries (IQ-318, IQ-636X-2, 542R, 542D, Z-10)

### Features

- Provide secondary power for control units
- Gelled electrolyte
- Sealed and maintenance free
- Overcharge protected
- Extended shelf life
- Easy handling with leak-proof construction
- Ruggedly constructed, high-impact ABS plastic case
- Long service life
- Compact design

### Applications

PS series batteries provide secondary power for the AUTOPULSE control systems. Use these batteries to provide backup power for control units. 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).

### Description

The sealed construction of the 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, leak-proof, and maintenance free. The case is made of ABS, a high-impact plastic resin (acrylonitrile butadiene styrene copolymer) with high resistance to chemicals and flammability.

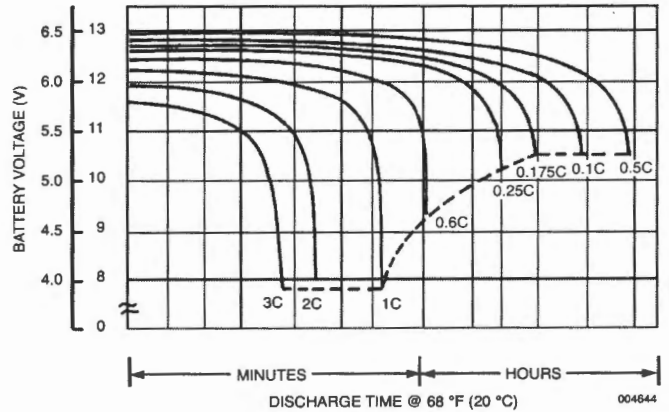
Shipping assemblies consist of two (2) 12 VDC batteries providing 24 VDC to the control system when connected in series.

### Technical Information

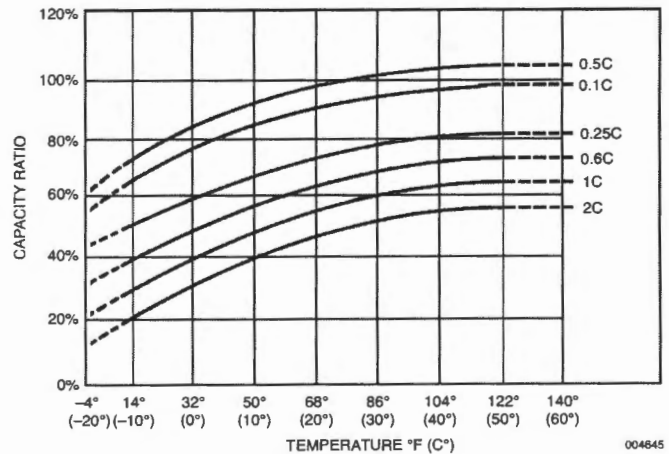
The capacity of a battery is the total amount of electrical energy available from a fully charged cell. Its value depends on the discharge current, the temperature during discharge, the final cutoff voltage and the general history of the battery.

Capacity expressed in ampere-hours (AH), is the product of the current discharged and the length of discharge time. The rated capacity (C, where C = rated Capacity of the battery in AH) of the PS series batteries is measured by its performance over 20 hours of constant current discharge at a temperature of 68 °F (20 °C) to a cutoff voltage of 1.72 volts, per cell (10.32 V on a 12 V battery). For example: Model PS-1250, with a rated capacity of 5.0 AH, will deliver 250 milli-amps (1/20 of 4 AH, or 0.05C) for 20 hours before the voltage drops to 10.32 V (1.72 x 6 cells).

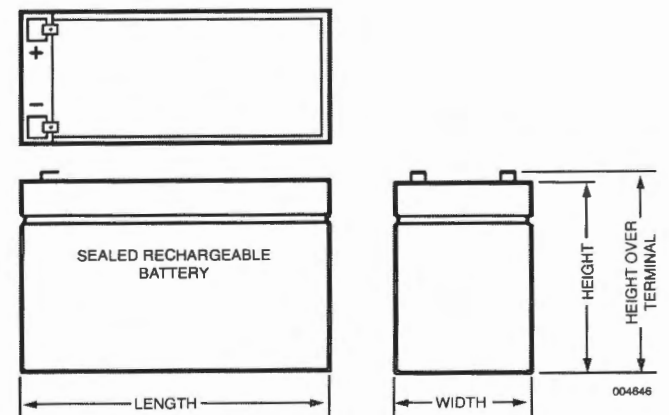
CHARACTERISTIC DISCHARGE CURVES



EFFECT OF TEMPERATURE ON CAPACITY



PS SERIES BATTERIES



### Technical Information (Continued)

Model	Rated Capacity @ 20 Hour Rate (AH)	20 Hour Discharge Rate (mA rate)	Length in. (mm)	Width in. (mm)	Height in. (mm)	Height over Terminal in. (mm)	Weight lb (kg)
PS-1270	7.0	325	5.94 (151)	2.56 (65)	3.70 (94)	3.86 (98)	5.7 (2.6)
PS-12120	12	600	5.94 (151)	3.86 (98)	3.70 (94)	3.86 (98)	8.8 (4.0)
PS-12180	18	875	7.13 (181)	2.99 (76)	6.57 (167)	6.57 (167)	12.8 (5.8)
PS-12260	26	1300	6.89 (175)	6.54 (166)	4.92 (125)	4.92 (125)	18.7 (8.5)
PS-12550	55	3000	10.25 (260)	6.60 (168)	8.20 (208)	9.45 (240)	39.7 (18.0)

Note: Individual batteries have a nominal voltage of 12 volts.

### Ordering Information

Part No.	Model No.	Description	Shipping Weight	
			lb	(kg)
417692	PS-1270	PS Battery Pack, 7.0 AH, 24 VDC	12	(5.4)
437022	PS-1270	PS Battery Pack, 7.0 AH, 24 VDC (ULC)	12	(5.4)
417693	PS-12120	PS Battery Pack, 12 AH, 24 VDC	18	(8.2)
439042	BAT-12120-BP	PS Battery Pack, 12 AH, 24 VDC (4-Pack) (ULC)	18	(8.2)
417694	PS-12180	PS Battery Pack, 18 AH, 24 VDC	26	(11.8)
437090	PS-12180	PS Battery Pack, 18 AH, 24 VDC (ULC)	26	(11.8)
417695	BAT-12260	BAT Battery Pack, 26 AH, 24 VDC	40	(18.1)
417997	PS-12550	PS Battery Pack, 55 AH, 24 VDC	84	(38.1)

# Detection and Control Components



## Electric Manual Pull Station (IQ-318, IQ-636X-2, 542R, 542D, Z-10)

### Features

- UL Listed/FM Approved
- Approved for ADA
- Dual action
- Die-cast metal construction
- Terminal block
- Optional auxiliary contacts
- Flush mounts on single gang box
- Surface mount back box available
- Weatherproof back box available
- High-gloss red enamel finish
- Customized labels
- Keyed to match AUTOPULSE control units

### Applications

The Electric Manual Pull Station is a cost-effective, feature-packed, non-coded manual fire alarm pull station. It was designed to meet multiple applications with the installer and end-user in mind.

The pull station provides the AUTOPULSE control panels with an alarm initiating input signal. Its innovative design, durable construction, and multiple mounting options make the pull station simple to install, maintain, and operate.

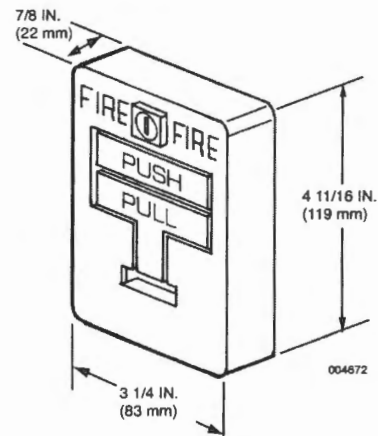
### Description

The Electric Manual Pull Station is a high-quality, die-cast metal, dual action fire alarm pull station available with a SPST, DPST or DPDT switch with terminal strip connections. The contacts are rated for 1 Amp at 30 VDC. Gold plating on the contacts avoid the risk of corrosion. All models in the series have been tested by UL for compliance to the latest requirements of the American with Disabilities Act (ADA).

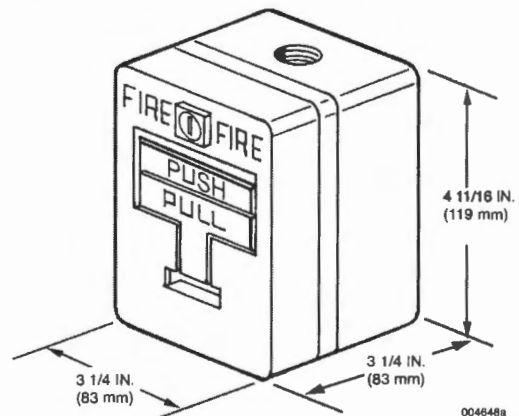
The Electric Manual Pull Station is operated by pushing in the top bar and pulling the handle on the front of the station as far down as it will go. At this point, the handle locks into place and is easily visible from up to 50 ft (15 m). Opening the station with the key, placing the handle in the normal upright position and re-locking the station resets the pull station.

The addressable ready pull station comes with a bracket on the back for securing the FMM-101 Mini Monitor Module (Part No. 428098) (sold separately). The terminal block provides clamping plates for easy connection to the SLC loop and N.O. switch contacts.

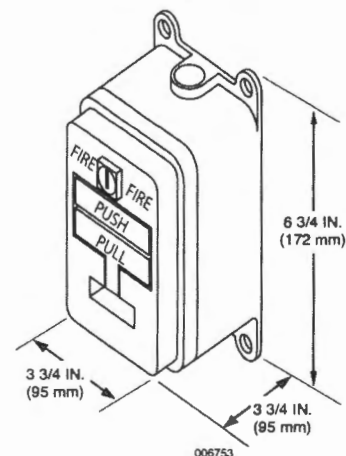
### STANDARD PULL STATION



### WEATHERPROOF PULL STATION



### EXPLOSION-PROOF PULL STATION



**TECHNICAL INFORMATION**

Conventional

Switch Ratings: . . . . . 1 A @ 30 VDC  
 1 A @ 120 VAC

Switch Type: . . . . . SPST or DPST

Terminal Size: . . . . . Up to 14 AWG

Color: . . . . . Red with raised white letters, white  
 PUSH/PULL HANDLES with raised red letters

Weather Proof with Weather Proof Back Box . . . NEMA 3R

Explosion-proof

Switch Ratings: . . . . . 1 A @ 30 VDC,  
 10 A @ 120 VAC

Switch Type: . . . . . DPDT

Terminal Size: . . . . . Up to 14 AWG

Humidity: . . . . . 90% Relative at 100 °F (37.7 °F)

Explosion Hazard Classifications: . Class I Groups B, C, D;  
 Class II Groups E, F, G; Class III

Weatherproof Classifications: . . . . . NEMA Type 4X

Other Classifications: . . . . . UL Marine Listing

Conduit Fittings: . . . . . 2

Conduit Fitting Size: . . . . . 3/4 in. – 14 NPT

Color: . . . . . Red with raised white letters, white  
 PUSH/PULL handles with raised red letters

**LISTINGS AND APPROVALS\***

UL . . . . . S5654

UL (Explosion-proof Model) . . . . . E 192508

ULC . . . . . Listed

Factory Mutual . . . . . Approved

California State Fire Marshal (CSFM) . . . . 7150-1408:107

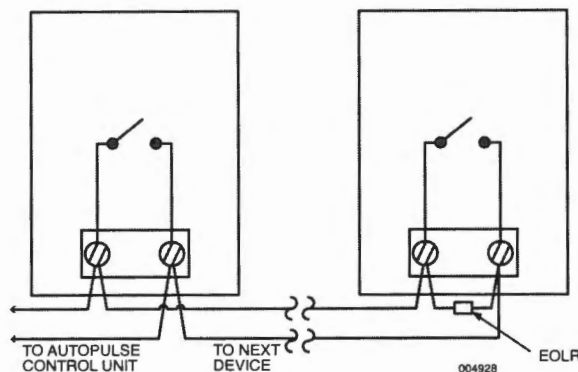
MEA . . . . . 382-94-E

\* Listings and Approvals are under Signal Communications Corporation

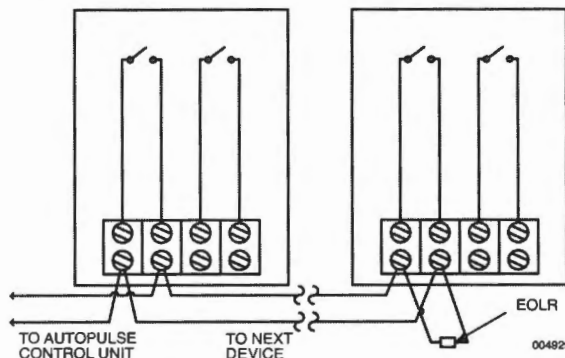
**ORDERING INFORMATION**

Part No.	Description	Shipping Weight	
		lb	(kg)
428655	Manual Pull Station, SPST	1	(0.45)
428656	Manual Pull Station, DPST	1	(0.45)
428657	Explosion Proof Manual Pull Station	1	(0.45)
428658	Manual Pull Station, Addressable Ready	1	(0.45)
428659	Weatherproof Back Box	1	(0.45)
428660	Surface Back Box	1	(0.45)
428661	Break Rod	1	(0.45)
418336	Key	1	(0.45)
428654	Label Packet	1	(0.45)

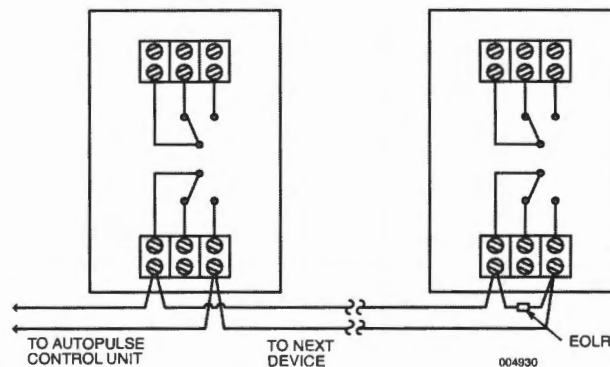
WIRING – SPST PULL STATION



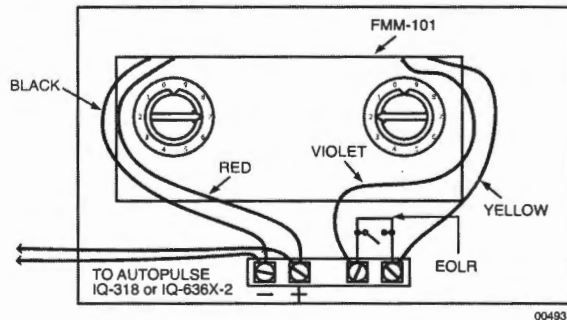
WIRING – DPST PULL STATION



WIRING – EXPLOSION PROOF PULL STATION



WIRING – ADDRESSABLE READY PULL STATION





## Electronic Sounder with Strobe (IQ-318, IQ-636X-2, 542R, 542D, Z-10)

### Features

- Approvals include: UL, New York City (MEA), California State Fire Marshal (CSFM), Factory Mutual (FM), and Chicago (BFP) (Pending for MTWP)
- ADA/NFPA/UFC/ANSI compliant
- Meets OSHA 29 Part 1910.165
- Strobes produce one flash per second over the regulated voltage range (MTWP produces 30-62 flashes per minute)
- Synchronize with Wheelock SM
- One-alarm appliance with eight selectable signals
- Two installer-selectable sound output levels cover range of 76-94 dBA reverberant
- Fast installation with IN/OUT screw terminals using #12 to #18 AWG wire
- Available as **FIRE** or **AGENT** units

### Description

The electronic sounder with strobe provides either independent or simultaneous audible and visual alarm indication. The electronic sounder is UL listed for primary or secondary signaling and the strobe is suitable for primary signaling in public mode for life safety applications.

The strobe complies with the Americans with Disabilities Act (ADA) and the demanding requirements of the UL 1971 Standard for the Hearing Impaired. The MT-24MCW 15, 30, 75, or 110 multi-candela strobe meets the light intensity requirements for the space being protected.

One of eight different warning tones can be selected during installation by arranging four programming switches. This provides for superior sound penetration for various ambient and wall conditions with two field selectable sound output levels. The MT model mounts directly to a 4 in. (102 mm) square back box with an optional SFP semi-flush plate. The MTWP model mounts to a 5.25 in. (133 mm) square IOB weatherproof back box.

Screw terminations provide secure attachment for field wiring of up to 12 AWG wire size.

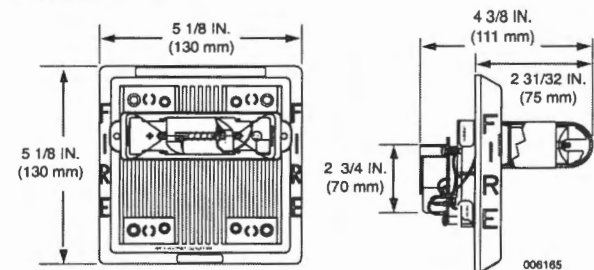
### Technical Information

Input Terminals .....	18 to 12 AWG
Size .....	5.125 in. x 5.125 in. x 4.375 in. (130 mm x 130 mm x 111 mm)
Weight .....	0.9 lb (0.4 kg)
Color .....	Red
Operating Temperature:	
MT Models .....	32 °F to 120 °F (0 °C to 49 °C)
MTWP Model .....	-31 °F to 150 °F (-35 °C to 66 °C)

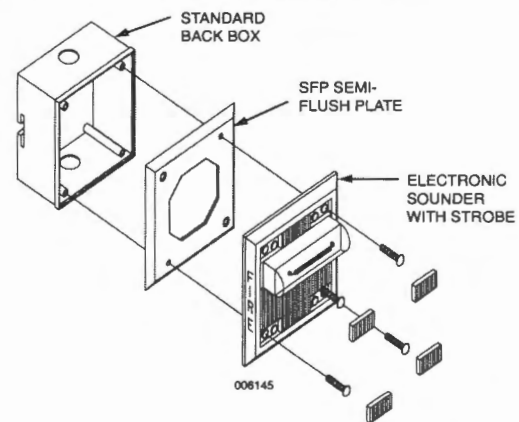
### Mounting:

MT Surface .....	4 in. x 4 in. x 1.5 in. (102 mm x 102 mm x 38 mm) standard back box
MT Semi-flush .....	4 in. x 4 in. x 1.5 in. (102 mm x 102 mm x 38 mm) standard back box with SFP mounting plate (ordered separately)
MTWP Weather-Proof .....	5.25 in. x 5.25 in. x 2.625 in. (133 mm x 133 mm x 67 mm) weatherproof IOB back box (ordered separately)
Voltage Range .....	16 – 33 VDC
Input Voltage .....	24 VDC

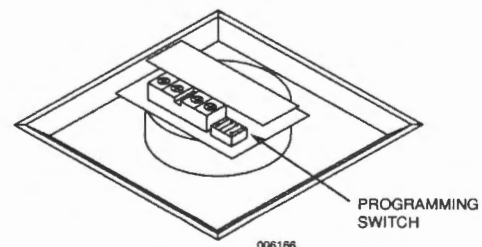
### DIMENSIONS



### MOUNTING WITH OPTIONAL SEMI-FLUSH PLATE



### TONE SELECTION SWITCHES



**Technical Information (Continued)**

**TABLE 1: dBA AND CURRENT RATINGS FOR MULTITONE AUDIBLE PORTION**

	RMS Current (amps)				dBA @ 10 ft (UL Reverberant)		dBA @ 10 ft (Anechoic)	
	24 VDC		24 VDC		24 VDC		24 VDC	
	Hi Output @ 24 VDC	UL max*	STD Output @ 24 VDC	UL max*	Hi Output	STD Output	Hi Output	STD Output
Horn	0.074	0.108	0.033	0.044	92	87	99	93
Bell	0.040	0.053	0.018	0.024	86	80	92	87
March Time Horn	0.067	0.104	0.033	0.038	89	84	99	93
Code-3 Horn	0.069	0.091	0.026	0.035	88	83	99	93
Code-3 Tone	0.061	0.075	0.026	0.035	85	80	95	90
Slow Whoop	0.069	0.098	0.028	0.037	90	89	98	93
Siren	0.080	0.104	0.027	0.036	89	84	98	93
HI/LO	0.044	0.057	0.020	0.026	86	81	93	88

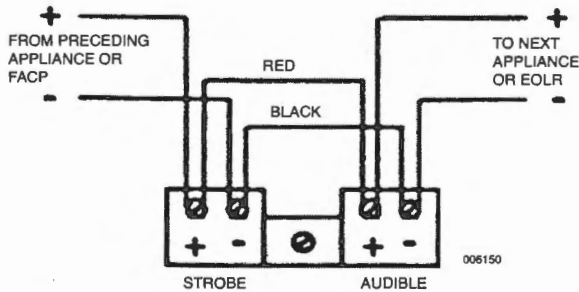
Note: If the strobe and audible operate on the same circuit, add the strobe current from Table 2 to the audible current from Table 1.

\* RMS current ratings are per UL average RMS method. UL max current rating is the maximum RMS current within the listed voltage range (16-33v for 24v units). For strobes, the UL max current is usually at the minimum listed voltage (16v for 24v units). For audibles, the max current is usually at the maximum listed voltage (33v for 24v units). For unfiltered FWR ratings, see installation instructions.

**TABLE 2: CURRENT RATINGS FOR STROBE**

Model	RMS Current (amps)				
	MTWP-2475	MT-24MCW			
Candela	180cd	15cd	30cd	75cd	110cd
@ 24VDC	0.094	0.041	0.063	0.109	0.140
UL max*	0.138	0.060	0.092	0.165	0.220

**WIRING DIAGRAM**



Alarm Tones	
Tone	Alarm Tones Pattern Description
Horn	Broadband Horn (Continuous)
Bell	1560 Hz Modulated (0.07 sec ON/Repeat)
March Time Horn	Horn (0.25 sec ON/0.25 sec OFF/Repeat)
Code-3 Horn	Horn (ANSI S3.41 Temporal Pattern)
Code-3 Tone	500 Hz (ANSI S3.41 Temporal Pattern)
Slow Whoop	500-1200 Hz Sweep (4.0 sec ON/0.5 sec OFF/Repeat)
Siren	600-1200 Hz Sweep (1.0 sec ON/Repeat)
HI/LO	1000/800 Hz (0.25 sec ON/Alternate)

**Listings and Approvals\***

UL.....	E5946
Factory Mutual.....	Approved
California State Fire Marshal (CSFM)	
MT Models.....	7125-0785:155
MTWP Models.....	7135-0785:156
MEA.....	151-92-E

\*Listings and Approvals are under Wheelock Inc.

**Ordering Information**

Part No.	Model	Description	Shipping Weight lb (kg)
433356	MT-24MCW-FR	Strobe, Multi-Candela w/Sounder (FIRE)	2 (0.9)
433357	MT-24MCW-AR	Strobe, Multi-Candela w/Sounder (AGENT)	2 (0.9)
431526	MTWP-2475W-FR	Sounder/75cd*, Weatherproof w/Sounder (FIRE)	2 (0.9)
437034	MTWP-2475W-FR	Sounder/75cd*, Weatherproof w/Sounder (ULC)	2 (0.9)
429701	SFP	Semi-Flush Plate	0.5 (0.2)
429700	IOB	Surface Back Box	2 (0.9)
437035	IOB-R	Surface Back Box (ULC)	2 (0.9)
▶ 439041	ISP2-R	Adapter	0.5 (0.2)

\* Rated 75cd at -31 °F (-35 °C). Rated 180 cd at 77 °F (25 °C).



## AutoPulse

### Horizontal Rate Compensated Thermal Detector (IQ-318, IQ-636X-2, 542R, 542D, Z-10)

#### Features

- Resets itself, nothing to replace, testable
- Withstands shock and vibration
- Wide temperature setting
- Long lasting stainless steel shell
- Wide spacing, reduces installation cost
- Factory set and hermetically-sealed in stainless steel – permanently protects internal mechanism

#### Applications

Horizontal Rate Compensated Thermal Detectors are designed for locations where appearance is a factor. The attractive, functional design lends physical protection of the unit while making it suitable for commercial, industrial, mercantile and public buildings, institutions, and ships in non-hazardous locations (those classified as “ordinary” under the National Electric Code).

Flush mounted units are designed to fit standard 4 in. octagonal electrical boxes. Canadian Electrical Code requires mounting only to an electrical junction box. These highly reliable devices have been installed in schools, factories, offices, libraries, paint spray booths, and range hoods.

The detectors are used with an AUTOPULSE control unit as an alarm initiating device to sense overheat or fire, to alert personnel, and actuate fire suppression systems.

#### Description

The Horizontal Rate Compensated Thermal Detectors are designed to compensate for thermal lag. When a rate-compensation heat detector operates, the actual operating temperature will be approximately equal to the rated operating temperature, regardless of the rate at which the air is being heated. The rate-compensation detector consists of a pair of expansion struts and electrical contacts enclosed by an expansion shell.

The two contact points are mounted on, but electrically insulated from the two curved struts which have a low coefficient of expansion. Contacts and struts make up the internal strut assembly. This assembly is mounted under compression in a tubular stainless steel shell. The shell's coefficient of expansion is much higher than that of the strut assembly.

Increase in temperature causes the shell to expand. This decreases compression on the strut and the contacts make their motion being magnified by the action of the strut assembly. Note that the shell is the temperature-sensitive, activating component – always totally in direct contact with the surrounding air.

The outer shell is made of a rapidly expanding alloy which closely follows changes in surrounding air temperature. The inner struts are made of a lower expanding alloy. Designed to resist thermal energy absorption and sealed inside the shell, the struts follow temperature changes more slowly.

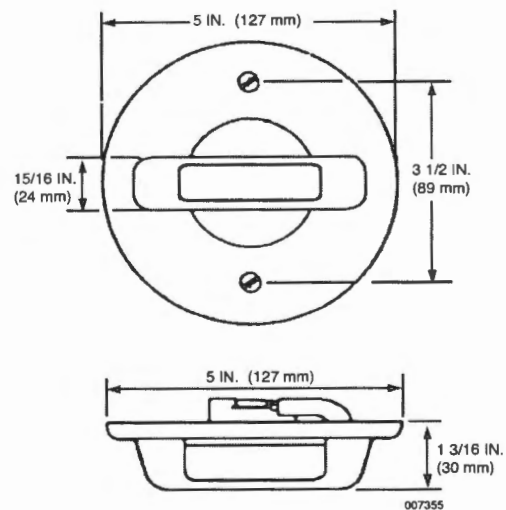
A slow rate fire will heat the shell and struts together. At the “set point,” the unit will trigger, sending a signal to the AUTOPULSE control unit. A momentary rush of warm air up to 40 °F (4 °C) per minute may expand the shell, but not enough to trigger the detector. By ignoring momentary warm air increases, the detector virtually eliminates false alarms.

If a fast rate fire starts, the shell will expand rapidly. The struts will close signaling the control unit. The faster the fire rate of growth, the sooner the detector will react.

The detectors may be mounted to any approved junction box with 7/8 in. (22 mm) diameter opening by using 1/2 – 14 NPT mounting nuts. Four lead wires are provided to facilitate supervision of system wiring. On units up to 375 °F (191 °C) – No. 18 AWG teflon insulated wire is supplied. Above 375 °F (191 °C) – No. 16 AWG TGGT insulated wire is used.

For ceiling heights up to 15 ft (4.6 m), a spacing of 15 ft (4.6 m) between detectors is utilized. Locations with ceiling heights greater than 15 ft (4.6 m) require reduced spacing. Contact Applications Engineering for assistance in locating detectors in high ceiling applications.

▶ A minimum setting of 100 °F (38 °C) above ambient temperature is recommended.



**Technical Information**

Electrical Rating (resistive): ..... 5 amps @ 125 VAC  
 0.5 amps @ 125 VDC  
 2 amps @ 24 VDC  
 1 amp @ 48 VDC

**Color Coding:**

190 °F (88 °C) ..... White  
 225 °F (107 °C) ..... White  
 275 °F (135 °C) ..... Blue  
 325 °F (163 °C) ..... Red

Weight: ..... 10 oz (283.5 g)

**Listings and Approvals\***

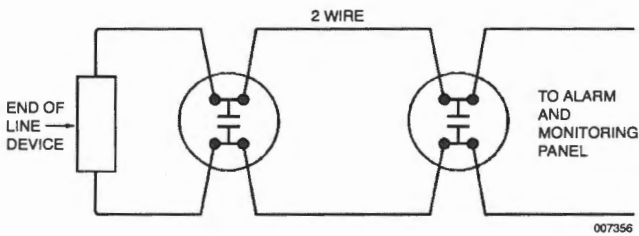
	Ordinary	Hazardous
UL .....	S492 .....	E19310
ULC .....	CS-341-E .....	CS-341-E
Factory Mutual (FM) .....	17302 .....	J.I.OV3HO.AE
MEA .....	12-95-E .....	12-95-E
California State Fire Marshal (CSFM) .....	Approved .....	Approved

\* Listings and Approvals are under FENWAL

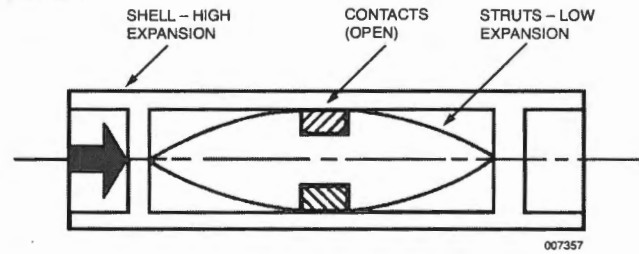
**Ordering Information**

Part No.	Description	Shipping Weight	
		lb	(kg)
71226	190 °F (88 °C) Horizontal Rate Compensated Detector	0.5	(0.23)
71227	225 °F (107 °C) Horizontal Rate Compensated Detector	0.5	(0.23)
71228	275 °F (135 °C) Horizontal Rate Compensated Detector	0.5	(0.23)
71229	325 °F (163 °C) Horizontal Rate Compensated Detector	0.5	(0.23)

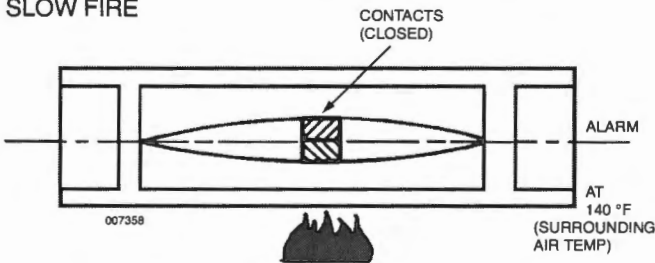
**WIRING DIAGRAM**



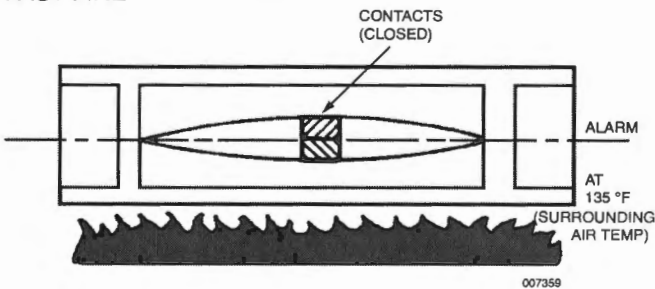
**READY**



**SLOW FIRE**



**FAST FIRE**



### Cautions and Warnings



#### **DO NOT INSTALL ANY PRODUCT THAT APPEARS DAMAGED.**

Upon unpacking your product, inspect the contents of the carton for shipping damage. If damage is apparent, immediately file a claim with the carrier and notify your distributor

**ELECTRICAL HAZARD** - Disconnect electrical power when making any internal adjustments or repairs. Servicing should be performed by qualified Technical Representatives.

**STATIC HAZARD** - Static electricity can damage components. Therefore, handle as follows:

1. Ground yourself before opening or installing components (use the Static Control Kit, Part No. 431231).
2. Keep uninstalled components wrapped in anti-static material at all times.

### Overview

This publication shows how to connect the Releasing Device Supervision Module, Part No. 430687 to an AUTOPULSE Z-28 or TRITON RPA. Refer to the Installation Instructions, Part No. 430544 or 551466, for configuration information. Refer to the Field Wiring Diagram, Part No. 431433 or 552077, for additional wiring information.

### Overview of Releasing Device Supervision Module

The Releasing Device Supervision Module (shown in Figure 1) supervises and provides power for an electrically compatible suppression system releasing device, when connected to a 24 VDC Notification Appliance Circuit (NAC). The input voltage from the NAC must be connected between the Red and Black wires of the module. The output control voltage to the releasing device is taken from the Yellow and Black wires of the module. The output control voltage to the releasing device is activated when the NAC is activated, in its alarm state (i.e., +24 VDC to the Red wire and 0 VDC to the Black wire). There is no output control voltage to releasing device when the NAC is non-active, in a supervisory state (i.e. negative to the Red wire and positive to the Black wire). The module allows for supervision of the connection to the releasing device. Diode suppression is also provided for overvoltage inductive spikes.

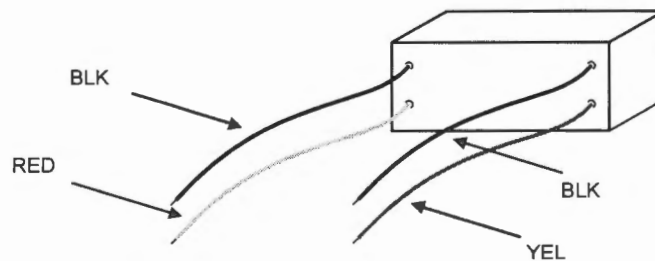


Figure 1. Releasing Device Supervision Module

## Electrical Specifications

The lists below show the input power requirements and the output specifications for the Releasing Device Supervision Module.

### Input Power Requirements

- Nominal Voltage 24 VDC

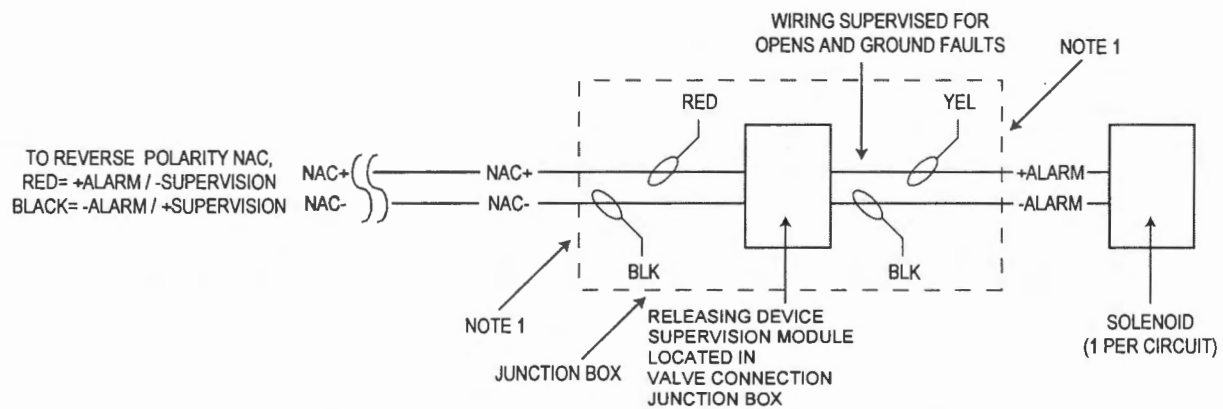
### Output Specifications

- Nominal Voltage 24 VDC
- Maximum Current 2 A @ 24 VDC
- Stand By Current 2.2 mA (Maximum)

## Wiring



**IMPORTANT:** Yellow and Black wires connected to the releasing device are non-power limited (indicated by shaded area in Figure 2). You must maintain 1/4" separation between the Yellow and Black wires and the two input Black and Red power limited wires.



**Note 1:** Separate conduit entrances are required for power limited (Red and Black) and non-power limited (Yellow and Black) wire pairs.

**Note 2:** Power limited cabling must be either FPL, FPLR, FPLP, or equivalent type cable per the NEC.

**Figure 2. Wiring Connections for Releasing Device Supervision Module**