

City of Aurora
Building Codes Division
15151 E Alameda Pkwy
Aurora, CO 80012
(303) 739-7420



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17 United States Code
Section 106.**



City of Aurora Public Works Department

BUILDING PERMIT APPLICATION

Building Division • 15151 E. Alameda Parkway, Ste 2400 • Aurora, CO 80012 • 303-739-7420 • Fax: 303-739-7412
Email: permitcounter@auroragov.org

Project Address <u>1411 S POTOMAC</u>		Unit # <u>1st FLOOR LOBBY</u>
Project Name: <u>AURORA MEDICAL CENTER - FACI REPLACEMENT</u>		
Contractor Company Name <u>FIRE ALARM SERVICES</u>	Phone <u>314-62-8840</u>	Fax
Contact Person <u>JERRY BIEBEL</u>	Phone	
Email <u>JBIEBEL@FASONLINE.CC</u>		Fax
Architect and/or Engineer Contact information for correction items		
Architect or Engineer name	Email	
Phone	Fax	
Owner (Required for Certificate of Occupancy) only		
Owner address		
Email		
Valuation / FDA:\$ <u>8890 - LW</u>	Materials Cost: \$ <u>4445</u>	
FDA = Fee Determination Assessment. (Also known as the value of project) has no relationship to the construction costs for the building which can vary greatly. Rather, The assessment is used only to determine the appropriate level of fees to fund our code compliance activities.		
Describe The Work You Will Be Doing: <u>FIRE ALARM PANEL REPLACEMENT</u>		

I declare under penalty that this application has been examined by me and that the statements made herein are made in good faith pursuant to City of Aurora tax and licensing regulations; and to the best of my knowledge and belief are true, correct and complete.

Print Name SABRINA BULLOCH Signature [Signature] Date 9/3/13

BOARD OF APPEALS: Contractor's Appeals and Standards Board. Applicants have the right to have the board hear appeals of orders, decisions or determinations made by the building official relative to the application and interpretation of the building code. Any application for appeal to the board shall be based on a claim that the true intent of the code or the rules legally adopted there under have been incorrectly interpreted, the provisions of the building code do not fully apply or an equally good or better form of construction is proposed.

THIS SPACE FOR OFFICE USE ONLY

Fee Determination Assessment: \$ _____

Change of occupancy/use: ☐ Yes ☐ No

REVIEWS

- ☐ Structural
- ☐ Mechanical
- ☐ Plumbing
- ☐ Electrical
- ☐ Fire-Life Safety
- ☐ Building Life Safety

INSPECTIONS

- ☐ Structural
- ☐ Mechanical
- ☐ Plumbing
- ☒ Electrical
- ☒ Life Safety
- ☐ Gate/Hazard

Intake Date: 9-3-13

Balance Due: \$ _____

PRE APPROVAL Initial [Initials] ☒ Zoning ☐ Water

Exterior changes? ☐ Yes ☒ No

Homeowner verified: ☐ Yes ☐ No

Permit Type: CT

Mid roof / Ave Bldg Height: _____

Parent Permit RSN: _____

Plans Examiner: [Signature]

Subtype: ALARM

RSN: 840639

Plans Picked Up By: _____

Company Name: _____

Phone Number: _____

APPROVED

City of Aurora Building Division
[Signature] 9-3-13

BUILDING CLASSIFICATIONS
AND CODES

OCCUPANCY GROUP: B
USE: OFFICE
CONSTRUCTION TYPE: TYPE-II
STORIES: BASEMENT + 3 FLOORS
SPRINKLERED: FULLY
REQUIREMENTS: MODIFIED PER 2009 IFC
CODES: 2009 IFC 2007 NFPA 72
2009 IBC 2003 ANSI 17.1
2009 IMC 2005 NFPA 70

SYSTEM TYPE AND MONITORING

SYSTEM CLASSIFICATION: (NFPA 72, CHAPTER 8), REMOTE STATION
SYSTEM TYPE: ADDRESSABLE/INTELLIGENT/CONVENTIONAL
WIRING CLASSIFICATION: NAC - CLASS B
SLC - CLASS B, STYLE 4
IDC - CLASS B, STYLE 4
COMMUNICATION RISER - CLASS A
NOTIFICATION TYPE: TEMPORAL PATTERN
MONITORING: THIS SYSTEM IS AND WILL CONTINUE TO BE
MONITORED BY A REMOTE SUPERVISING
STATION, PER NFPA 72 CHAPTER 8, SECTION 2.
MONITORING COMPANY: TMS
(800)662-1711
ACCOUNT: A21-0963

DRAWING INFORMATION

FAS WORK ORDER #: 13012050
FAS CAD FILE: FIRE ALARM PANEL REPLACEMENT

SCOPE OF WORK

1. REMOVE AND REPLACE ONE (1) FIRE ALARM PANEL.
2. PROVIDE AND INSTALL ONE (1) ZONE CARD TO MONITOR EXISTING HARDWIRED ZONES.
3. PROVIDE AND INSTALL ONE (1) CONTROL RELAY TO PROVIDE CONTROL FOR EXISTING GENERAL ALARM FUNCTIONS.
4. PROVIDE AND INSTALL ONE (1) BOOSTER PANEL TO POWER EXISTING NOTIFICATION CIRCUITS.
5. PROVIDE AND INSTALL ONE (1) DLD ON BOARD COMMUNICATOR.

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TYPICAL WIRING DIAGRAMS
SEQUENCE OF OPERATIONS MATRIX

AURORA MEDICAL CENTER I

FIRE ALARM SYSTEM
SHOP DRAWINGS FOR:

PROJECT:

FIRE ALARM PANEL REPLACEMENT
1421 SOUTH POTOMAC STREET
AURORA, CO 80012

ELECTRICAL CONTRACTOR:

FIRE ALARM SERVICES, INC.
4800 W. 60TH AVENUE
ARVADA, CO 80003
PH:(303)466-8800
FAX:(303)466-8820
SHANNON SMITH

FIRE ALARM DESIGNER:

FIRE ALARM SERVICES, INC.
4800 W. 60TH AVENUE
ARVADA, CO 80003
PH:(303)466-8800
FAX:(303)466-8820



Fire Alarm Services, Inc.
4800 W. 60th Avenue
Arvada, CO 80003

(303)466-8800 (Phone)
(303)466-8820 (Fax)
contactus@fasonline.cc (E-Mail)
www.fasonline.cc

OWNER:

CB RICHARD ELLIS
1411 SOUTH POTOMAC STREET
AURORA, CO 80012
PH:(720)252-3285
ANTHONY SANTURRO

GENERAL NOTES

1. FIRE ALARM SYSTEMS CANNOT BE COMBINED WITH BURGLAR ALARM SYSTEMS.
2. THE INSTALLER IS REQUIRED TO COORDINATE WITH THE MECHANICAL CONTRACTOR TO DETERMINE INSTALLATION OF SMOKE DETECTORS OR SENSORS (I.E., NOT CLOSER THAN 3 FEET FROM ANY SUPPLY/RETURN DIFFUSER AND THAT ADDITIONAL DETECTION MAY BE REQUIRED DUE TO THE RELOCATION OR SPACING ADJUSTMENT OF DETECTORS, AS A RESULT).
3. FIRE ALARM DEVICES MUST BE PLACED IN PROTECTED AREAS WITH AMBIENT TEMPERATURE RANGING FROM 32 DEGREES TO 120 DEGREES F.
4. DO NOT PLACE SMOKE DETECTORS WITHIN 3 FEET OF AIR SUPPLY REGISTERS AND DIFFUSERS.
5. FIRE ALARM SYSTEM SHALL BE MONITORED BY A CLASS 1 CENTRAL STATION.
6. FIRE ALARM CONTROL PANEL WILL BE PLACED IN THE LOCATION SPECIFIED WITHIN THE PLAN SUBMITTAL UNLESS APPROVED BY THE LIFE SAFETY FIELD INSPECTOR.
7. CITY OF AURORA BUILDING CODES DIVISION DOES NOT GRANT APPROVAL FOR ANY VIOLATIONS OF ADOPTED FIRE CODE. CODE VIOLATIONS UNCOVERED DURING FIELD INSPECTIONS MUST BE CORRECTED.
8. PER THE 2006 IFC AND THE 2005 NEC THE INSTALLER MUST REQUEST A ROUGH WIRING INSPECTION ON THE FIRE ALARM SYSTEM PRIOR TO REQUESTING A FIRE ALARM FINAL INSPECTION.
9. THE CONTRACTOR SHALL CONDUCT A "PRE-TEST" OF THE PROJECT AREA PRIOR TO SCHEDULING AN ACCEPTANCE TEST WITH THE BUILDING CODES DIVISION.
10. REMOTE ALARM INDICATORS SHALL BE PROVIDED FOR ANY FIRE ALARM DETECTOR LOCATED IN A CONCEALED LOCATION WITH A NORMALLY LOCKED DOOR.
11. AT THE TIME OF FINAL FIRE ALARM INSPECTION, THE SYSTEM MUST BE SUPERVISED/MONITORED BY A CLASS 1 CENTRAL MONITORING AGENCY.
12. THE INSTALLING CONTRACTOR (OR DESIGNEE) MUST PROVIDE ALL NECESSARY TESTING EQUIPMENT AND PERFORM ALL TESTING REQUIRED BY THE LIFE SAFETY FIELD INSPECTOR.
13. IN-DUCT SMOKE DETECTORS INSTALLED IN CONCEALED LOCATIONS OR, WHERE THE DETECTORS ALARM INDICATOR IS NOT READILY VISIBLE TO RESPONDING PERSONNEL SHALL BE PROVIDED WITH A REMOTE INDICATOR, REMOTE TEST STATION AND PLACARDING.
14. ALL NEW OR EXISTING FIRE ALARM SYSTEMS MUST BE CONNECTED TO ANY EXTERIOR HORN AND STROBE DEVICE. IF THE BUILDING IS FIRE SPRINKLED, A GENERAL ALARM ACTIVATION AT THE FIRE ALARM CONTROL PANEL WILL ACTIVATE THE EXTERIOR HORN AND STROBE. SILENCING THE PANEL MUST ALLOW THE VISUAL DEVICE TO CONTINUE UNTIL THE PANEL IS RESET.
15. FIRE ALARM SYSTEMS SHALL INCLUDE BOTH AUDIBLE AND VISUAL ALARMS. VISUAL ALARMS WILL BE REQUIRED IN ALL ACCESSIBLE PUBLIC AND COMMON-USE AREAS PER THE 2009 IFC AND THE 2003 ANSI A117.1 STANDARD.
16. PROVIDE A PRIMARY AND SECONDARY POWER SUPPLY FOR THE FIRE ALARM SYSTEM PER THE 2009 IFC, SECTION 907.5 AND THE 2007 NFPA 72.



City of Aurora Building Division
Project: AURORA MEDICAL CENTER I - FIRE ALARM PANEL REPLACEMENT
Address: 1411 S POTOMAC ST - 1ST FLOOR L
Occupancy Group: IBC B
Construction Type: IBC TYPE IIB-SPK
RSN: 840639
Permit: 2013-786187-CT



City of Aurora Building Division
Reviewed for Code Compliance
Approved as Noted: Neil W.
Date: Sep 05, 2013
2009 INTERNATIONAL CODES & 2011 NEC

Scott Stene
Nicet Fire Alarm systems
Level III
Certification #112776

Date: 8-20-13

Signature

REVISIONS

DRAWN BY:	NO.	DATE
L. BACON		
DATE:		
8/28/2013		
APPR. BY:		
SLC		
DATE:		
8/29/13		

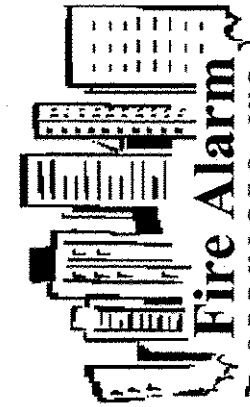
FIRE ALARM SYSTEM TENANT FINISH FOR:
FIRE ALARM PANEL REPLACEMENT

PROJECT TITLE	BUILDING NAME & ADDRESS	PROJECT NUMBER
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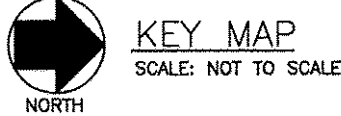
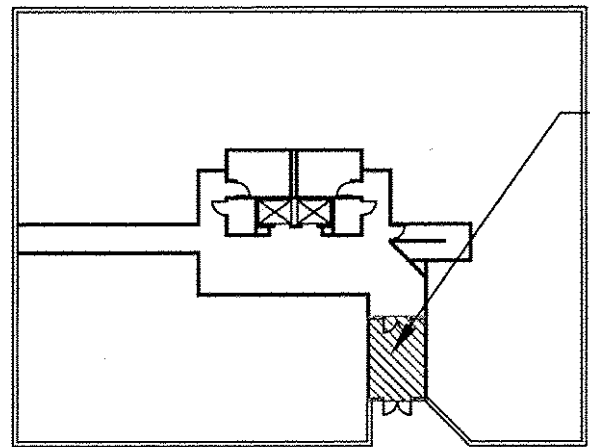
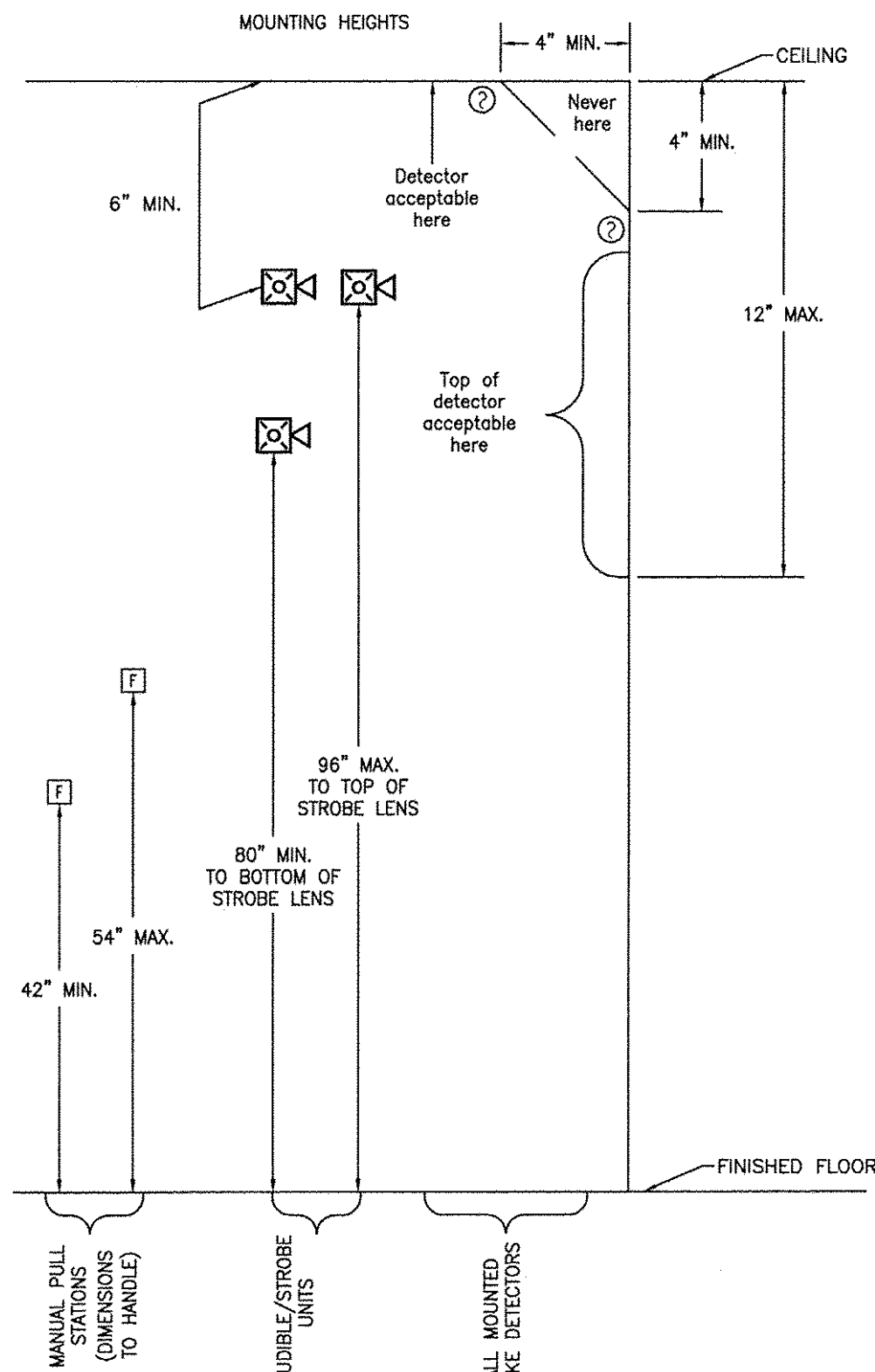
FIRE ALARM & DETECTION SYSTEM
DRAWING TITLE:
1ST FLOOR
COVER PAGE

PROJECT SHEET TITLE	SCALE: N/A
FA-00	

PROJECT SHEET
TITLE
FA-00



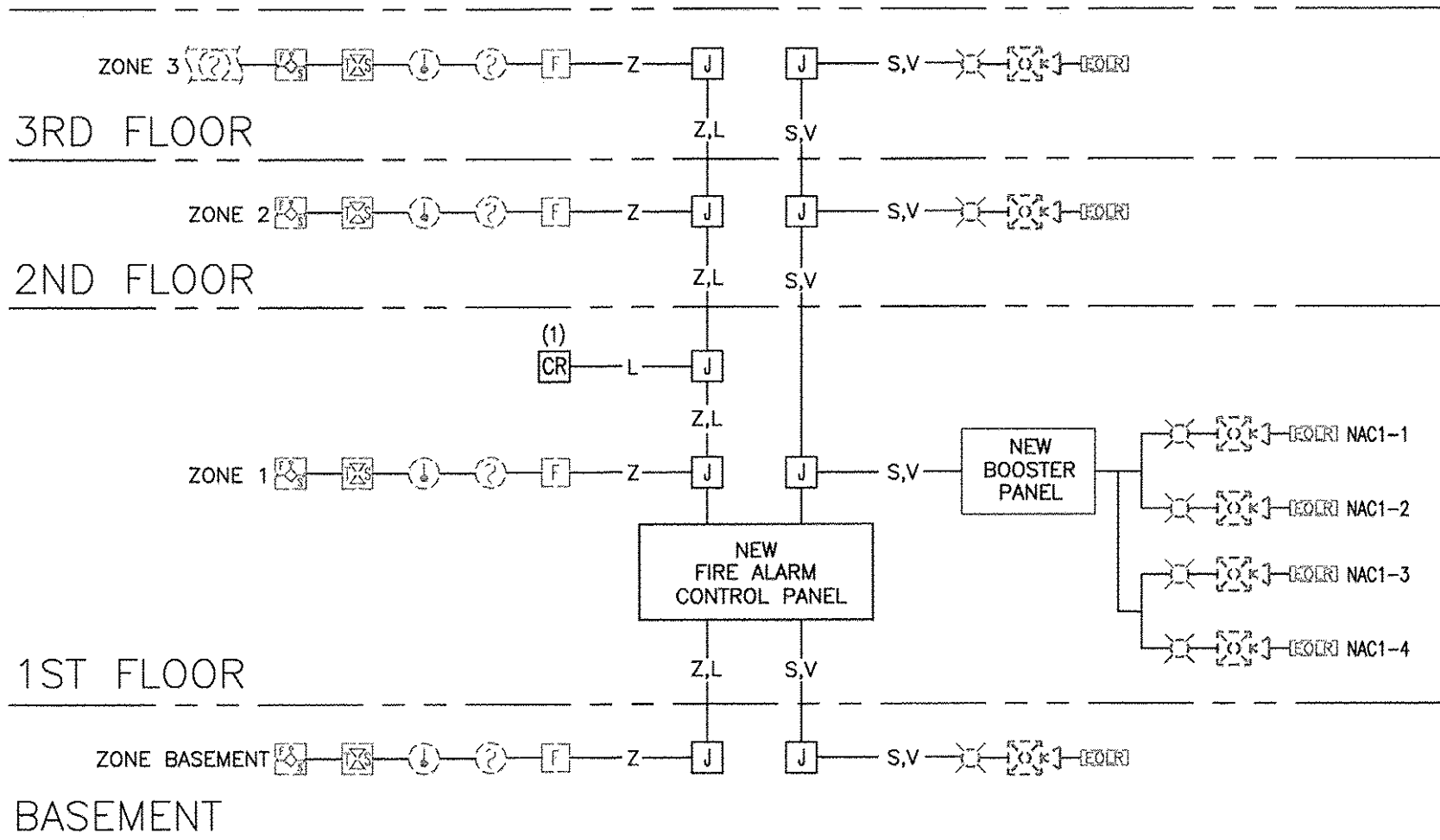
4800 W. 60TH AVENUE phone: 303-466-8800
ARVADA, CO 80003 fax: 303-466-8820
www.fasonline.cc email: contactus@fasonline.cc



FIRE ALARM SYMBOLS LEGEND

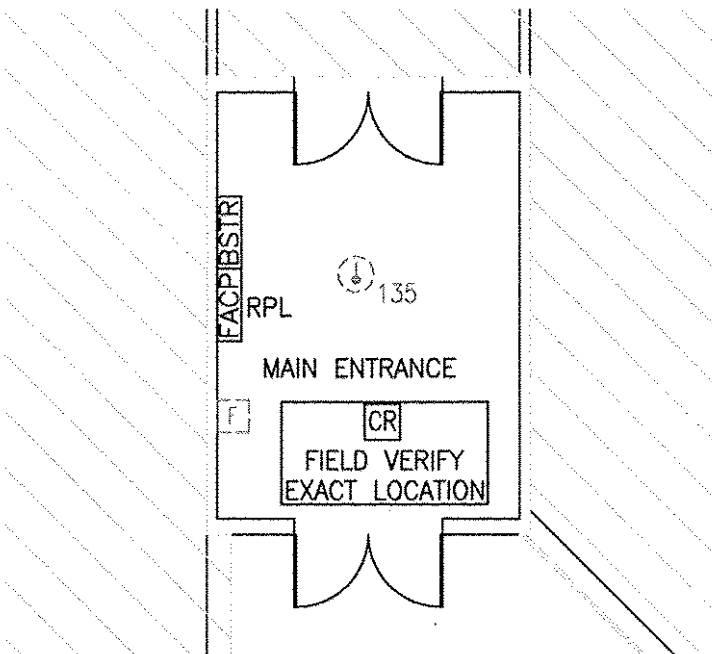
EXISTING	DESCRIPTION	PROPOSED
	BOOSTER PANEL	
	STROBE - Wall Mount or CM = Ceiling Mount	
	SMOKE DETECTOR - x = photo, ion	
	HORN STROBE - Wall Mount or CM = Ceiling Mount	
	FIRE ALARM CONTROL PANEL	
	END OF LINE RESISTOR	
	PULL STATION	
	TAMPER SWITCH	
	FLOW SWITCH	
	DUCT DETECTOR - x = photo, ion	
	CONTROL RELAY	
	HEAT DETECTOR	
NOTIFICATION APPLIANCE CIRCUIT NUMBER NOTIFICATION APPLIANCE PANEL NUMBER		
NAC1-2-3 POWER EXPANDER NUMBERING		

J = J-BOX
RPL = REMOVE AND REPLACE DEVICE



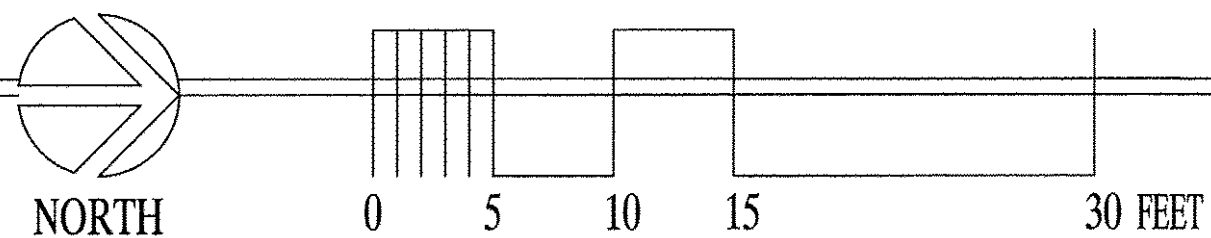
ONE-LINE RISER DIAGRAM

FIRE ALARM WIRE COLOR CODE CHART				
Code	Description	Wire Type	Color (+)	Color (-)
AC	120VAC Power Wiring	3#12 AWG Solid (w/ Green Ground)	Black (hot)	White (neu)
A	Annunciator Wiring	#18 AWG Twisted/Shielded Pair	Red	Black
D	Door Holder Wiring	2#14 AWG Solid	Red	Black
L	SLC Wiring (Signaling Line Circuit)	2#18 AWG Solid	Red	Black
P	24VDC Power Wiring	2#16 AWG Solid	Red	Black
R	Remote Light/Test Wiring	2#18 AWG Solid	Red	Black
S	Notification Appliance (Horns) Wiring	2 or 4#14 AWG Solid	Red	Black
S	Notification Appliance (Speaker) Wiring	2#16 AWG Twisted/Shielded Pair	Red	Black
T	Telephone Circuit Wiring	2#16 AWG Twisted/Shielded Pair	Red	Black
V	Notification Appliance (Strobe) Wiring	2 or 4#14 AWG Solid	Red	Black
X	Auxiliary Circuit (Relay) Wiring	2#14 AWG Solid	Red	Black
Z	IDC Wiring (Initiating Device Circuit)	2#18 AWG Solid	Red	Black
WIRE TYPE CLASS & STYLE		SLC/IDC - CLASS B - STYLE 4	NAC - CLASS B	



1ST FLOOR FIRE ALARM PLAN

SCALE: 1/8" = 1'-0"



GENERAL NOTES:

- THE CEILING IS A TYPICAL 9' A.F.F. DROPPED CEILING WITH NO SLOPES.

BATTERY CALCULATIONS

FOR: AURORA MEDICAL CENTER I
1421 S. POTOMAC STREET

HOURS OF SUPERVISION: 24 HOURS
MINUTES OF ALARM: 5 MINUTES

PANEL: EST QuickStart QS4

ITEM	QTY	PART NUMBER	DESCRIPTION	Device Supervisory Current	Device Alarm Current	Total Supervisory Current	Total Alarm Current
1	1	QS4-5-G-1	Fire Alarm Control Panel	0.199000	0.235000	0.199000	0.235000
2	1	PS6	Power Supply Card	0.072000	0.096000	0.072000	0.096000
3	1	SLIC	Signature Loop Intelligent Controller	0.033000	0.057000	0.033000	0.057000
4	1	ZB16-4	Zone Card	0.123000	0.154000	0.123000	0.154000
5	1	DLD	Dialer	0.013000	0.026000	0.013000	0.026000
6	1	QS4-CPU-1	CPU/LCD Display Unit (remote annunciator)	0.154000	0.166000	0.154000	0.166000
TOTAL:						0.594000	0.734000

PERIPHERAL:

ITEM	QTY	PART NUMBER	DESCRIPTION	Device Supervisory Current	Device Alarm Current	Total Supervisory Current	Total Alarm Current
1	35	EXISTING	Photoelectric Smoke Detector (CONVENTIONAL)	0.000064	0.100000	0.002240	3.500000
2	10	EXISTING	Heat Detector (CONVENTIONAL)	0.000064	0.100000	0.000640	1.000000
3	2	EXISTING	Duct Detector (CONVENTIONAL)	0.000070	0.100000	0.000140	0.200000
4	10	EXISTING	Manual Pull Station	0.000250	0.000400	0.002500	0.004000
5	1	SIGA-CR	Control Relay Module	0.000250	0.000400	0.000250	0.000400
TOTAL:						0.005770	4.704400

SUPERVISORY:
PANEL: 0.594000 AMPS
PERIPHERAL: 0.005770 AMPS
SUB-TOTAL: 0.599770 AMPS
X HOURS OF SUPERVISORY: 24.0000 HOURS
SUB-TOTAL: 14.394480 AMP HOURS

ALARM:
PANEL: 0.734000 AMPS
PERIPHERAL: 4.704400 AMPS
SUB-TOTAL: 5.438400 AMPS
X MINUTES OF ALARM: 0.08333 HOURS
SUB-TOTAL: 0.453200 AMP HOURS

TOTALS:
TOTAL SUPERVISORY: 14.394480 AMP HOURS
TOTAL ALARM: 0.453200 AMP HOURS
TOTAL: 14.847680 AMP HOURS
TOTAL PLUS SAFETY FACTOR(20%): 17.81722 AMP HOURS
Batteries Supplied - 1 Set of: 26.00000 AMP HOURS

BOOSTER CALCULATIONS

FOR: AURORA MEDICAL CENTER I
1421 S. POTOMAC STREET

HOURS OF SUPERVISION: 24 HOURS
MINUTES OF ALARM: 5 MINUTES

PANEL: FIRELITE FCPS-24FS6

ITEM	QTY	PART NUMBER	DESCRIPTION	Device Supervisory Current	Device Alarm Current	Total Supervisory Current	Total Alarm Current
1	1	FCPS-24FS6	Notification Booster Panel	0.065000	0.145000	0.065000	0.145000
TOTAL:						0.065000	0.145000

PERIPHERAL:

ITEM	QTY	PART NUMBER	DESCRIPTION	Device Supervisory Current	Device Alarm Current	Total Supervisory Current	Total Alarm Current
1	5	EXISTING	15cd Strobe	0.000000	0.066000	0.000000	0.330000
2	2	EXISTING	30cd Strobe	0.000000	0.094000	0.000000	0.188000
3	6	EXISTING	15cd Horn/Strobe	0.000000	0.079000	0.000000	0.474000
4	2	EXISTING	30cd Horn/Strobe	0.000000	0.107000	0.000000	0.214000
5	2	EXISTING	75cd Horn/Strobe	0.000000	0.176000	0.000000	0.352000
6	1	EXISTING	110cd Horn/Strobe	0.000000	0.212000	0.000000	0.212000
7	2	EXISTING	15cd Ceiling Mt. Horn/Strobe	0.000000	0.079000	0.000000	0.158000
8	1	EXISTING	30cd Ceiling Mt. Horn/Strobe	0.000000	0.107000	0.000000	0.107000
9	1	EXISTING	75cd Ceiling Mt. Horn/Strobe	0.000000	0.176000	0.000000	0.176000
TOTAL:						0.000000	2.211000

SUPERVISORY:
PANEL: 0.065000 AMPS
PERIPHERAL: 0.000000 AMPS
SUB-TOTAL: 0.065000 AMPS
X HOURS OF SUPERVISORY: 24.0000 HOURS
SUB-TOTAL: 1.560000 AMP HOURS

ALARM:
PANEL: 0.145000 AMPS
PERIPHERAL: 2.211000 AMPS
SUB-TOTAL: 2.356000 AMPS
X MINUTES OF ALARM: 0.08333 HOURS
SUB-TOTAL: 0.196333 AMP HOURS

TOTALS:
TOTAL SUPERVISORY: 1.560000 AMP HOURS
TOTAL ALARM: 0.196333 AMP HOURS
TOTAL: 1.756333 AMP HOURS
TOTAL PLUS SAFETY FACTOR(20%): 2.10760 AMP HOURS
Batteries Supplied - 1 Set of: 7.00000 AMP HOURS



City of Aurora Building Division
Reviewed for Code Compliance
Approved as Noted: **Neil W.**
Date: **Sep 05, 2013**
2009 INTERNATIONAL CODES & 2011 NEC

Scott Stene
Niet Fire Alarm systems
Level III
Certification #112776

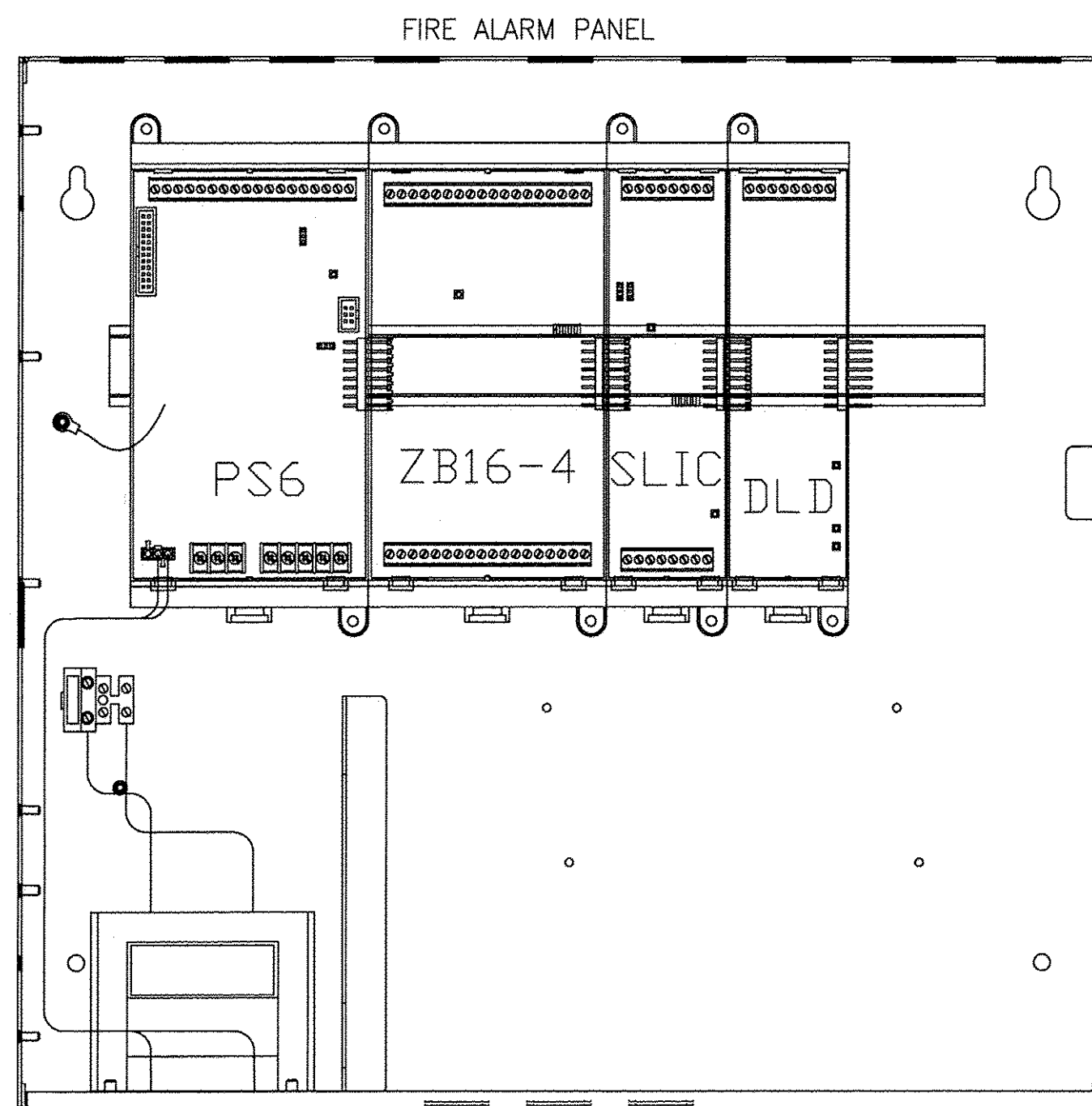
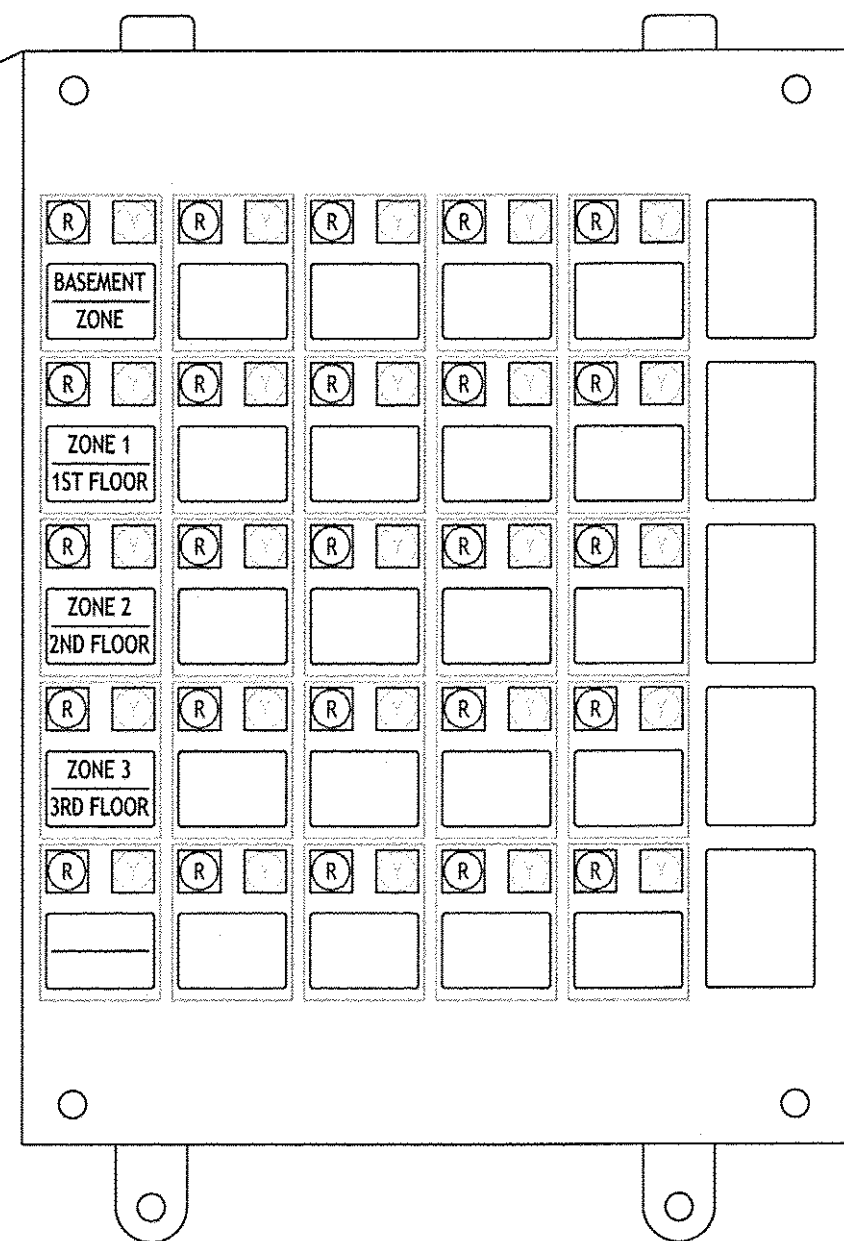
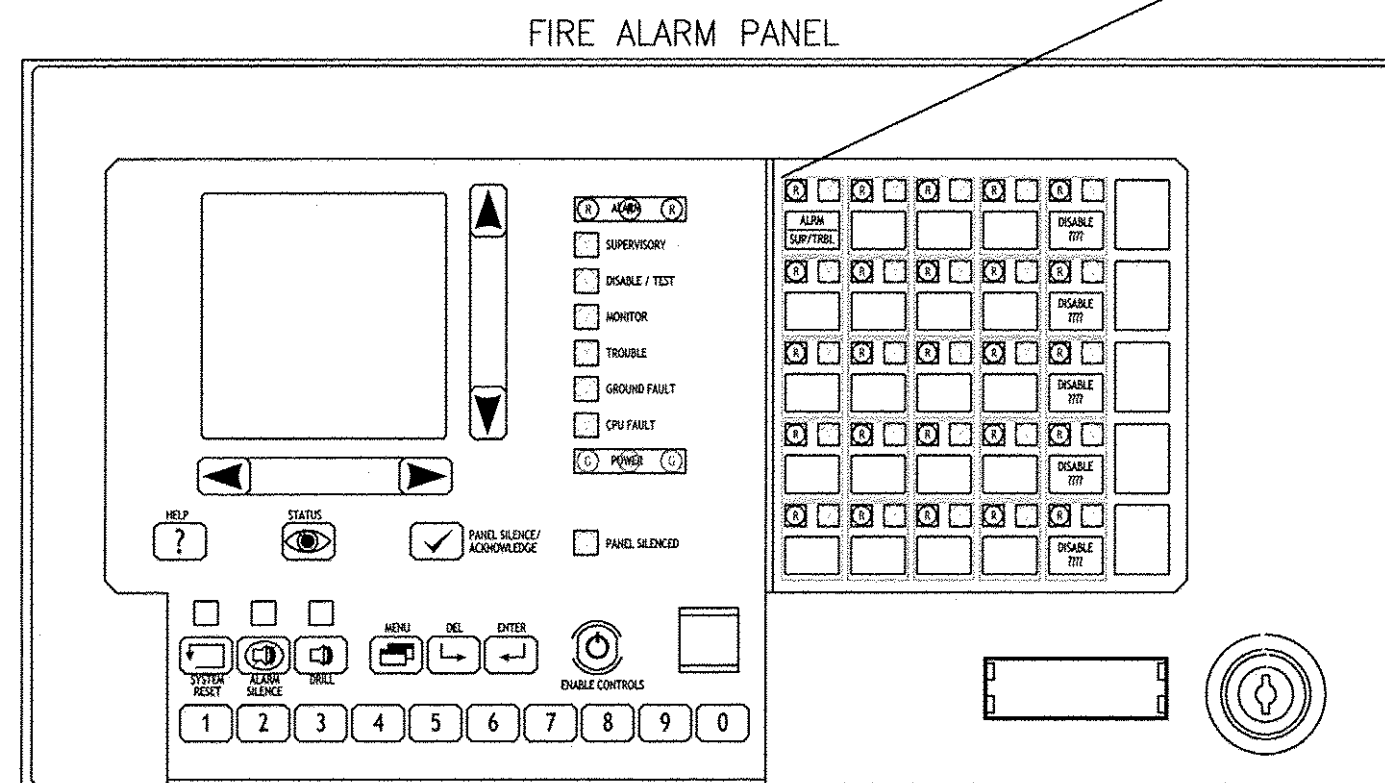
Date: 8-30-13

Fire Alarm SERVICES, INC.
4800 W. 60TH AVENUE phone: 303-466-8800
ARVADA, CO 80003 fax: 303-466-8820
www.fasonline.cc email: contactus@fasonline.cc

REVISIONS		NO.	DATE
DRAWN BY:	L. BACON		
DATE:	8/28/2013		
APPR. BY:	gpc		
DATE:	8/29/13		

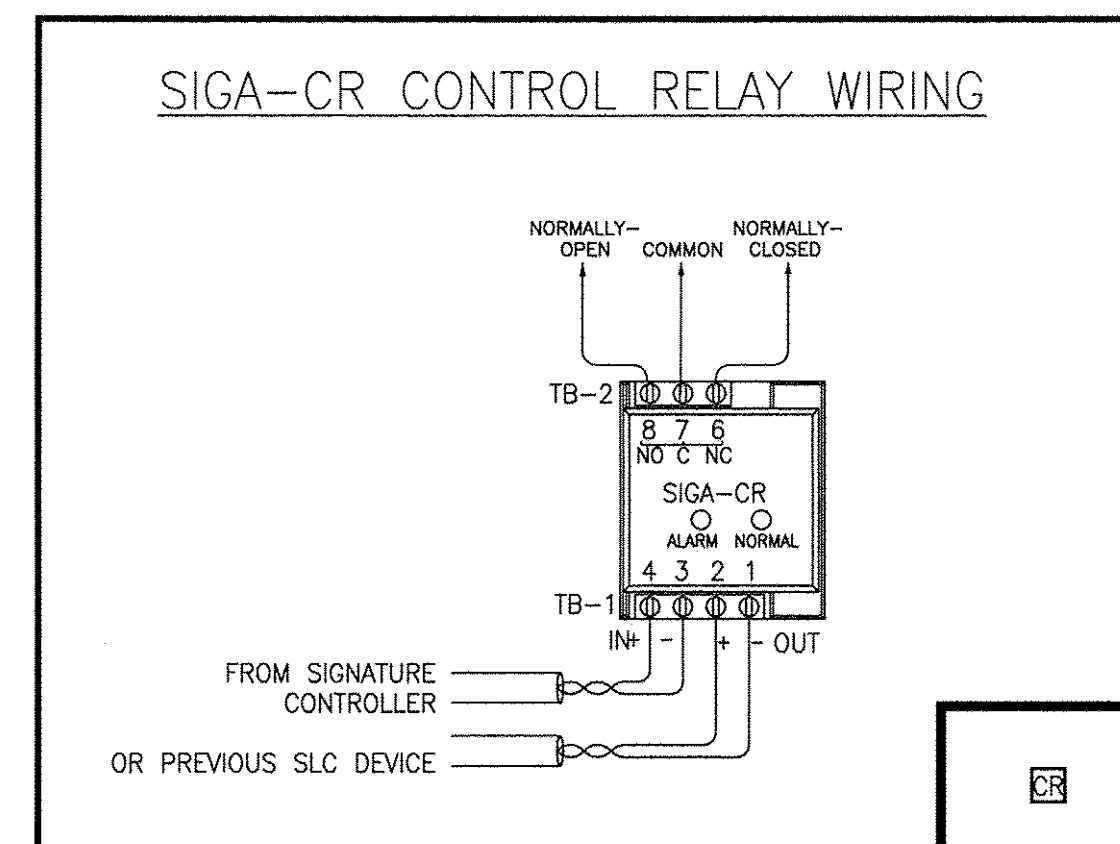
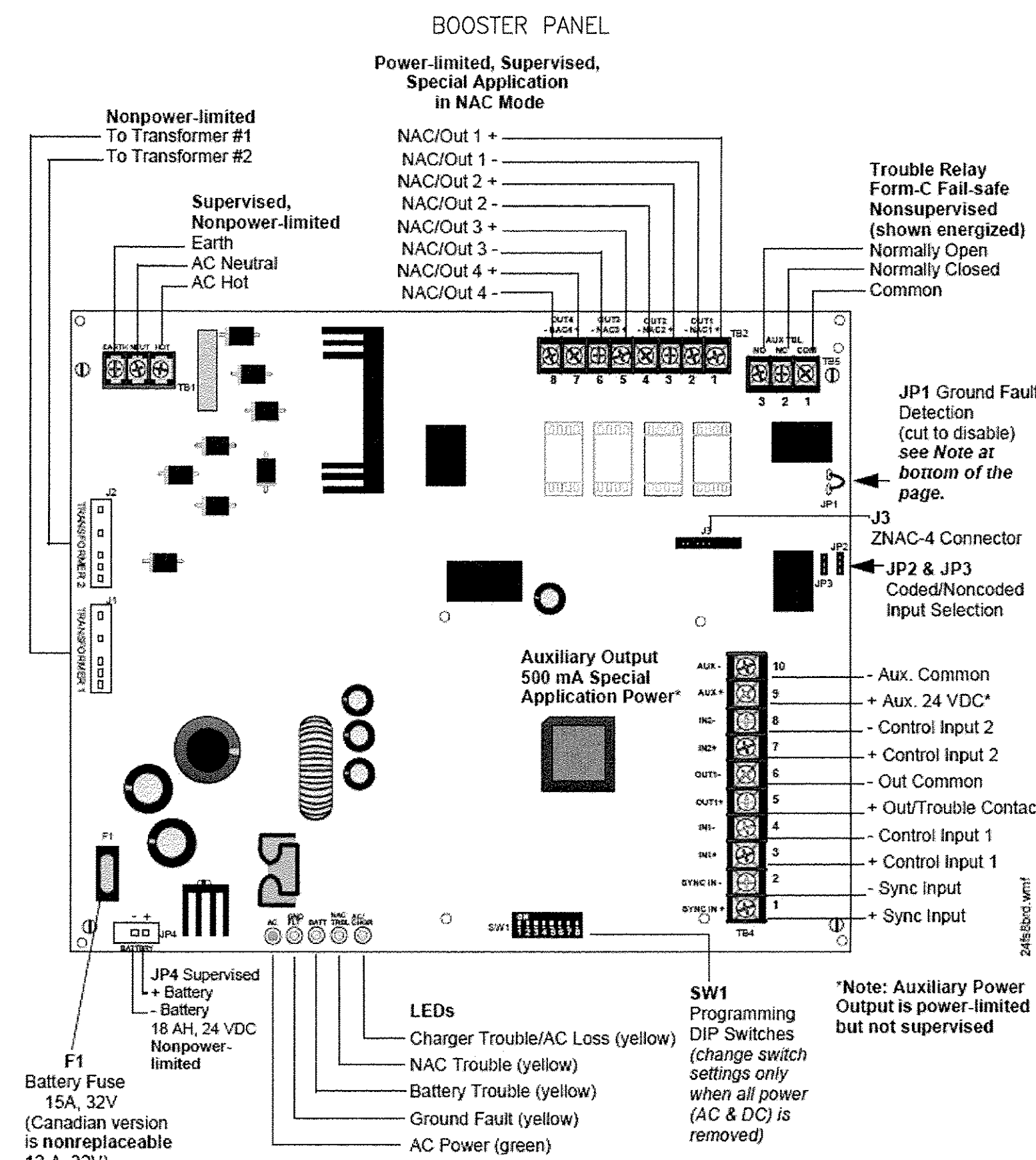
FIRE ALARM SYSTEM TENANT FINISH FOR: FIRE ALARM PANEL REPLACEMENT		AURORA MEDICAL CENTER I 1421 S. POTOMAC ST. AURORA, CO 80012	
PROJECT TITLE	BUILDING NAME & ADDRESS	PROJECT NUMBER	13012050

FIRE ALARM & DETECTION SYSTEM DRAWING TITLE: 1ST FLOOR FIRE ALARM PLAN	PROJECT SHEET TITLE: FA-01
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****AURORA MEDICAL CENTER I - 1421 S. POTOMAC BUILDING** SEQUENCE OF OPERATIONS**

	SYSTEM OUTPUTS																			
	FACP Annunciation					Notification					Fire Safety Ctrl.					Monitoring				
1	Actuate Common Alarm Signal Indicator	A	B	C	D	Actuate Audible Alarm Signal	E	F	G	H	Actuate Audible Supervisory Signal	I	J	K	L	Actuate Audible Supervisory Signal	M	N	O	P
2	Actuate Audible Alarm Signal	A	B	C	D	Actuate Audible Supervisory Signal	E	F	G	H	Actuate Audible Supervisory Signal	I	J	K	L	Actuate Audible Supervisory Signal	M	N	O	P
3	Actuate Audible Alarm Signal	A	B	C	D	Actuate Audible Supervisory Signal	E	F	G	H	Actuate Audible Supervisory Signal	I	J	K	L	Actuate Audible Supervisory Signal	M	N	O	P
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5	Actuate Audible Alarm Signal	A	B	C	D	Actuate Audible Supervisory Signal	E	F	G	H	Actuate Audible Supervisory Signal	I	J	K	L	Actuate Audible Supervisory Signal	M	N	O	P
6	Actuate Audible Alarm Signal	A	B	C	D	Actuate Audible Supervisory Signal	E	F	G	H	Actuate Audible Supervisory Signal	I	J	K	L	Actuate Audible Supervisory Signal	M	N	O	P
7	Actuate Audible Alarm Signal	A	B	C	D	Actuate Audible Supervisory Signal	E	F	G	H	Actuate Audible Supervisory Signal	I	J	K	L	Actuate Audible Supervisory Signal	M	N	O	P
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16	Actuate Audible Alarm Signal	A	B	C	D	Actuate Audible Supervisory Signal	E	F	G	H	Actuate Audible Supervisory Signal	I	J	K	L	Actuate Audible Supervisory Signal	M	N	O	P
17	Actuate Audible Alarm Signal	A	B	C	D	Actuate Audible Supervisory Signal	E	F	G	H	Actuate Audible Supervisory Signal	I	J	K	L	Actuate Audible Supervisory Signal	M	N	O	P
18	Actuate Audible Alarm Signal	A	B	C	D	Actuate Audible Supervisory Signal	E	F	G	H	Actuate Audible Supervisory Signal	I	J	K	L	Actuate Audible Supervisory Signal	M	N	O	P
19	Actuate Audible Alarm Signal	A	B	C	D	Actuate Audible Supervisory Signal	E	F	G	H	Actuate Audible Supervisory Signal	I	J	K	L	Actuate Audible Supervisory Signal	M	N	O	P
20	Actuate Audible Alarm Signal	A	B	C	D	Actuate Audible Supervisory Signal	E	F	G	H	Actuate Audible Supervisory Signal	I	J	K	L	Actuate Audible Supervisory Signal	M	N	O	P
21	Actuate Audible Alarm Signal	A	B	C	D	Actuate Audible Supervisory Signal	E	F	G	H	Actuate Audible Supervisory Signal	I	J	K	L	Actuate Audible Supervisory Signal	M	N	O	P
22	Actuate Audible Alarm Signal	A	B	C	D	Actuate Audible Supervisory Signal	E	F	G	H	Actuate Audible Supervisory Signal	I	J	K	L	Actuate Audible Supervisory Signal	M	N	O	P
23	Actuate Audible Alarm Signal	A	B	C	D	Actuate Audible Supervisory Signal	E	F	G	H	Actuate Audible Supervisory Signal	I	J	K	L	Actuate Audible Supervisory Signal	M	N	O	P
24	Actuate Audible Alarm Signal	A	B	C	D	Actuate Audible Supervisory Signal	E	F	G	H	Actuate Audible Supervisory Signal	I	J	K	L	Actuate Audible Supervisory Signal	M	N	O	P
25	Actuate Audible Alarm Signal	A	B	C	D	Actuate Audible Supervisory Signal	E	F	G	H	Actuate Audible Supervisory Signal	I	J	K	L	Actuate Audible Supervisory Signal	M	N	O	P
26	Actuate Audible Alarm Signal	A	B	C	D	Actuate Audible Supervisory Signal	E	F	G	H	Actuate Audible Supervisory Signal	I	J	K	L	Actuate Audible Supervisory Signal	M	N	O	P



City of Aurora Building Division
Reviewed for Code Compliance
Approved as Noted: **Neil W.**
Date: **SEP 05, 2013**
2009 INTERNATIONAL CODES & 2011 NEC

Scott Stene
Niet Fire Alarm systems
Level III
Certification #112776

Date: 8-30-13

Signature

Fire Alarm
SERVICES, INC.
4800 W. 60TH AVENUE phone: 303-466-8800
ARVADA, CO 80003 fax: 303-466-8820
www.fasonline.cc email: contactus@fasonline.cc

REVISIONS		DATE	
DRAWN BY:	L. BACON	DATE:	8/28/2013
APPR. BY:	<i>Signature</i>	DATE:	8/28/13

PROJECT TITLE	FIRE ALARM SYSTEM TENANT FINISH FOR: FIRE ALARM PANEL REPLACEMENT
BUILDING NAME & ADDRESS	AURORA MEDICAL CENTER I 1421 S. POTOMAC ST. AURORA, CO 80012
PROJECT NUMBER	13012050

FIRE ALARM & DETECTION SYSTEM	DRAWING TITLE:
1ST FLOOR	TYPICAL WIRING DIAGRAMS/MATRIX
SCALE: AS SHOWN	

PROJECT SHEET
TITLE
FA-02



Fire Alarm Services, Inc.
4800 W. 60th Avenue
Arvada, CO 80003

Phone (303) 466-8800
Fax (303) 466-8820

Fire Alarm System Addition at:

Tenant: Fire Alarm Panel Replacement
Aurora Medical Center I
1421 S. Potomac St.
Aurora, CO 80012

Scope of Work:

1. Remove and replace one (1) fire alarm panel.
2. Provide and install one (1) zone card to monitor existing hardwired zones.
3. Provide and install one (1) control relay to provide control for existing general alarm functions.
4. Provide and install one (1) booster panel to power existing notification circuits.
5. Provide and install one (1) DLD on board communicator.

Scott Stene Nicet Fire Alarm systems Level III Certification #112776
Date: 8-31-13

GE
Security

EST Fire & Life Safety
QuickStart Multiplexed/Hardwired

Overview

GE Security's QS4 QuickStart life safety control panel provides conventional and intelligent addressable circuits in a single intelligent control panel. Designed for easy setup and simple installation, QuickStart lives up to its name in every respect. QS4's exclusive *QuickStart* auto-learn function, and the option of configuring the panel using convenient front panel programming or from a PC, makes short work of system setup. Devices come on-line in no time as well, thanks to QS4's built-in barcode scanner port. A simple pass of the optional scanner is all it takes to store device information in the QuickStart database. The scanner can also be used for quick and easy text entry when assembling custom messages.

QS4's setup routine is deceptively simple, considering this system's robust features and broad capacity. Supporting up to 1,000 intelligent detectors and modules, QS4 takes full advantage of GE Security's exclusive Signature Series technology, which provides electronic addressing, automatic device mapping, environmental compensation, and true multisensor detection.

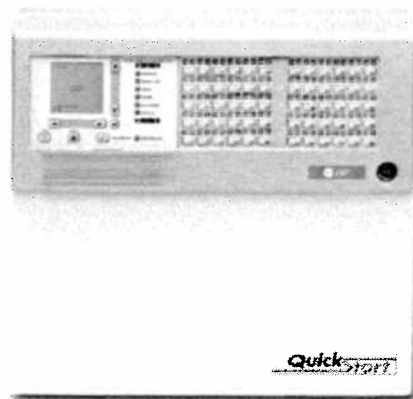
As a hybrid system, QS4 combines Signature Series support along with up to 48 conventional Class B or a combination of 40 Class A and Class B initiating circuits. Compatible with either two- or four-wire detectors, these circuits also provide built-in support for GE Security's EC family of conventional detectors.

QuickStart's design leaves plenty of room for system expansion. Option cards snap onto QS4's easily-accessible DIN mounting rails. These cards include a dialer, auxiliary relays, and additional system capacity. The QS4 also supports as many as eight remote annunciators and up to 60 programmable front panel switches with dual LEDs for system control and display.

Standard Features

- One to four Signature loops – each with a capacity of 250 Intelligent devices – PLUS up to 48 conventional circuits
- Compatible with two- and four-wire smoke detectors
- Combines the Signature intelligent releasing module with Signature multisensor detectors for reliable suppression
- Failsafe mode ensures uncompromised reliability
- Class A (Style 7) or Class B (Style 4) wiring options
- Capacity for eight remote annunciators
- Four built-in system relays
- Optional dual line dialer supports Contact ID and 4/2 formats
- Three methods of programming: QuickStart "auto-learn," front panel and personal computer (PC)
- Supports optional barcode scanner for direct device data entry
- Two optional banks of 30 front panel switches with dual LEDs
- Up to 20 adjustable pre-alarm settings for Signature smoke detectors
- Red or grey cabinets in two sizes for surface or semi-flush mounting
- Large 14-line (224 character) backlit LCD display
- Four password levels, plus priority access keyswitch
- Message routing by event type or by individual message
- Alarm sensitivity by time of day or manual selection
- 1,000 event history buffer, plus alarm history counter
- 6 amp Power Supply, 4.75 amps available for external use
- Envoy graphics compatible
- Compare utility identifies system changes and simplifies testing

Intelligent/Conventional Life Safety Control Panel QS4



MEA

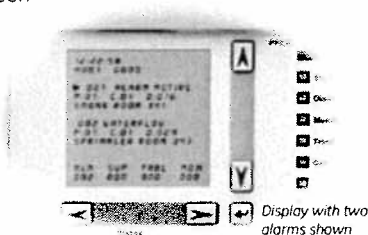
Application

QuickStart is a total life safety solution that brings the power of big-system analog technology to small and mid-size applications. Thanks to its flexibility and simple setup and operation, QS4 is ideal for new installations in schools, apartment buildings, hospitals, office buildings, and retail facilities.

The benefits brought by QS4 to retrofit applications underscores the true potential of this powerful system. As an intelligent panel, QS4 supports Signature Series devices, which can use existing wiring in most retrofit applications. As a conventional panel, QS4 supports compatible devices already installed at the site. And as a hybrid system, the QS4 supports new Signature Series devices, and existing conventional detectors – while leaving plenty of room for expansion. No need to tear a building apart to upgrade the life safety system: with QS4 you have the best of both worlds.

CPU / LCD Display

The QS4 front panel display provides 14 lines by 16 characters of text detailing event, device, diagnostic, and programming information. Its large backlit LCD screen is easy to read and always provides at-a-glance indication of the system's state of operation. The CPU/Display Unit houses the CPU card and mounting space for two optional LED/Switch cards.



QS4 is as simple to operate as it is to set up. Its large 14-line backlit LCD display provides easy-to-understand details concerning up to 1,000 system events, while bright system status LEDs and large, tactile control buttons present the user with a clean, crystal clear interface. Four password levels limit control and information retrieval to authorized personnel. A priority access keyswitch gives Level 2 access, without a password, to management and emergency personnel.

Specifications

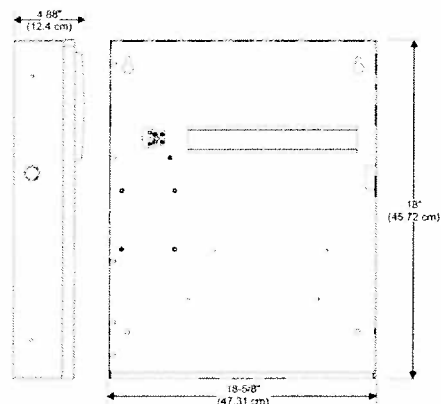
Control Panel	Standby Current: 199 mA Alarm Current: 235 mA
Remote annunciator (Full control versions)	Standby Current: 154 mA Alarm Current: 166 mA
SRA Series	Standby Current: 70 mA Alarm Current: 90 mA
Operating environment	Temperature: 32–120 °F (0–49 °C) Humidity: 93 %RH, non-condensing

Failsafe Mode

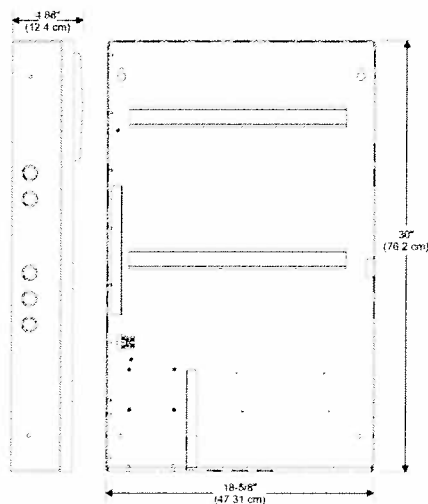
If the CPU loses communication with other circuit cards, the power supply card continues to monitor the system for any alarm events. If an alarm occurs on any device or circuit during a communications failure, the power supply activates all alarm outputs and instructs the dialer to transmit a default alarm message to the monitoring station.

Cabinet Dimensions

5-Option Cabinet
QS4-5-R-1 (red)
QS4-5-G-1 (grey)

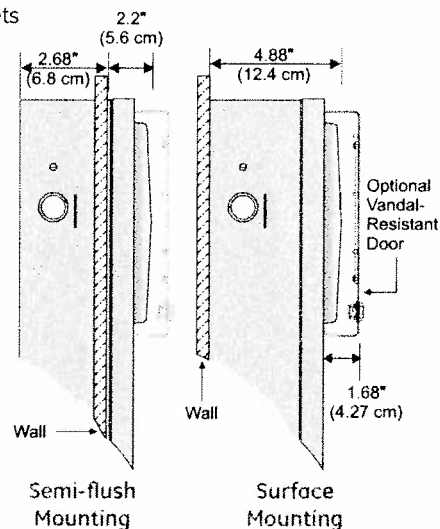


12-Option Cabinet
QS4-12-R-1 (red)
QS4-12-G-1 (grey)



Cabinet Mounting

12 and 5-Option Cabinets



Semi-flush mounting requires an optional trim ring, which adds ¼" to all sides of the panel.

Remote Annunciators

QS4 supports up to eight remote annunciators, which provide mirrored annunciation of front panel messages and status indicators. Two models are available: The QSA Series, and the SRA Series.

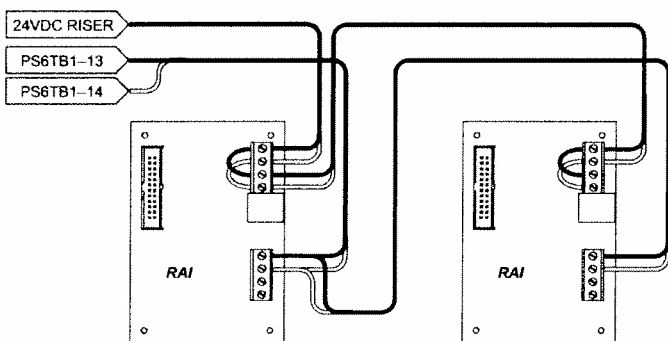


QSA Series

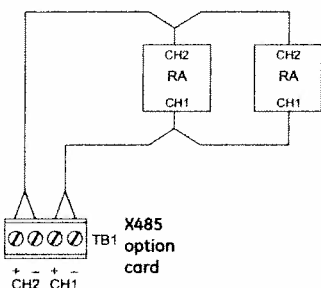
QuickStart's Class A serial remote annunciator bus requires an X485 (RS485) card and UART port at the control panel. Each remote annunciator requires only a UART port.

Class B wiring does not require an X485 card at the control panel. Remote annunciators are available in both analog and conventional versions and with wallboxes for flush or surface mounting. Models are available with one or two annunciator option spaces, each with 30 dedicated switches and LEDs. See the Ordering Table for more information.

Class B Wiring



Class A Wiring



Dimensions

Model	Height	Width	Depth
QSA-1-S	7.6" (19.46 cm)	14.25" (36.20 cm)	2.9" (7.3 cm)
QSA-1-F (rough in)	6.56" (16.66 cm)	13.25" (33.66 cm)	2.1" (5.33 cm)
QSA-1-F (finished)	7.8" (19.81 cm)	14.42" (36.63 cm)	1.38" (3.49 cm)
QSA-2-S	7.6" (19.46 cm)	18.56" (47.14 cm)	2.9" (7.3 cm)
QSA-2-F (rough in)	6.56" (16.66 cm)	17.56" (44.60 cm)	2.1" (5.33 cm)
QSA-2-F (finished)	7.8" (19.81 cm)	18.75" (47.63 cm)	1.38" (3.49 cm)

Rough-in dimensions reflect the size of the cabinet where it enters the wall.
Finished dimensions reflect the size of the cabinet that protrudes from the wall.

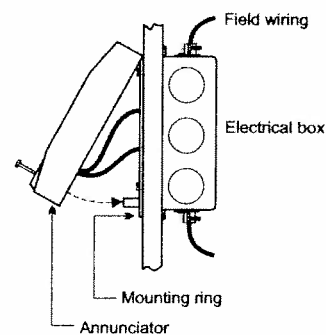
SRA Series

QuickStart SRA Remote Annunciators are standalone units that can be powered by the control panel or by an approved power supply. Annunciators support Class A or Class B connection to the system RS-485 data line, but do not provide ground fault isolation. SRA Annunciators are available in single or multiple loop models.

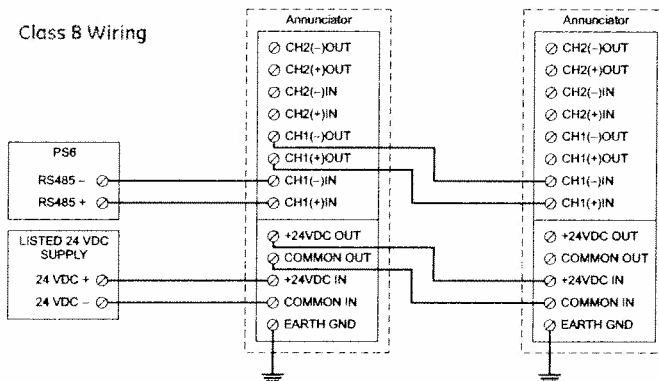
SRA Series Annunciators include an RJ-12 modular jack to allow system database downloads from a laptop computer. Connection requires a programming cable (model number PROG-CABLE-1, ordered separately). Annunciators are mounted to North American 2-gang or 4-inch square electrical boxes.



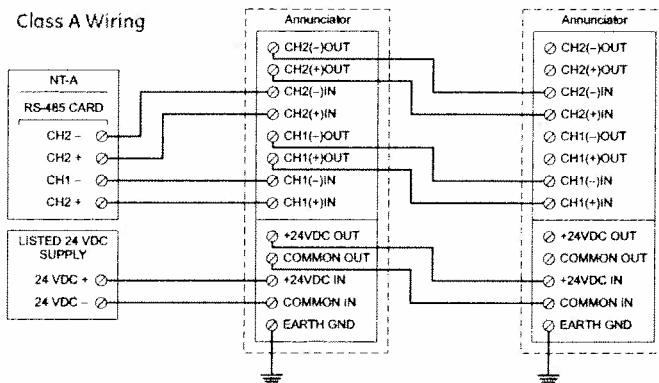
Mounting



Class B Wiring



Class A Wiring

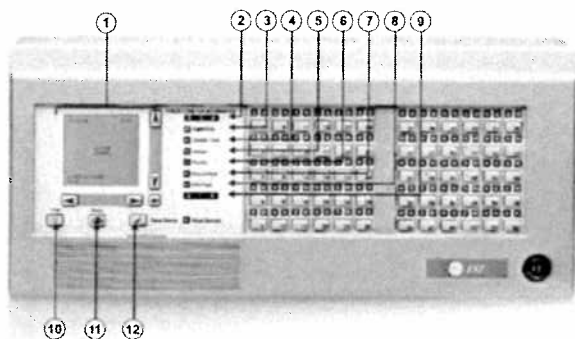


XGD Graphics Driver Card

The XGD Graphics Driver Card is an interface device that connects a QuickStart annunciator to an Envoy Graphic Annunciator. The XGD provides the electronics required to support 24 LEDs and 12 switches on the Envoy display panel. Multiple XGD cards can be chained together in one graphic annunciator cabinet to control larger displays. The QuickStart SRA Series annunciators can support a maximum of six XGD cards.

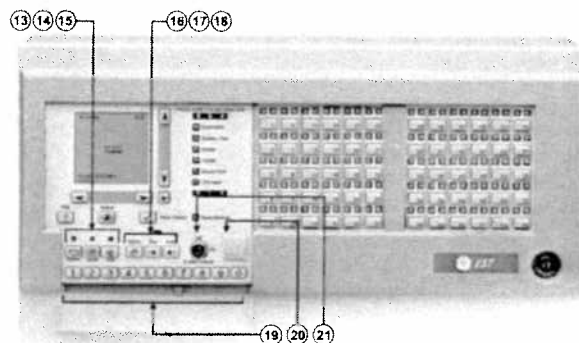
Operation

Indicators



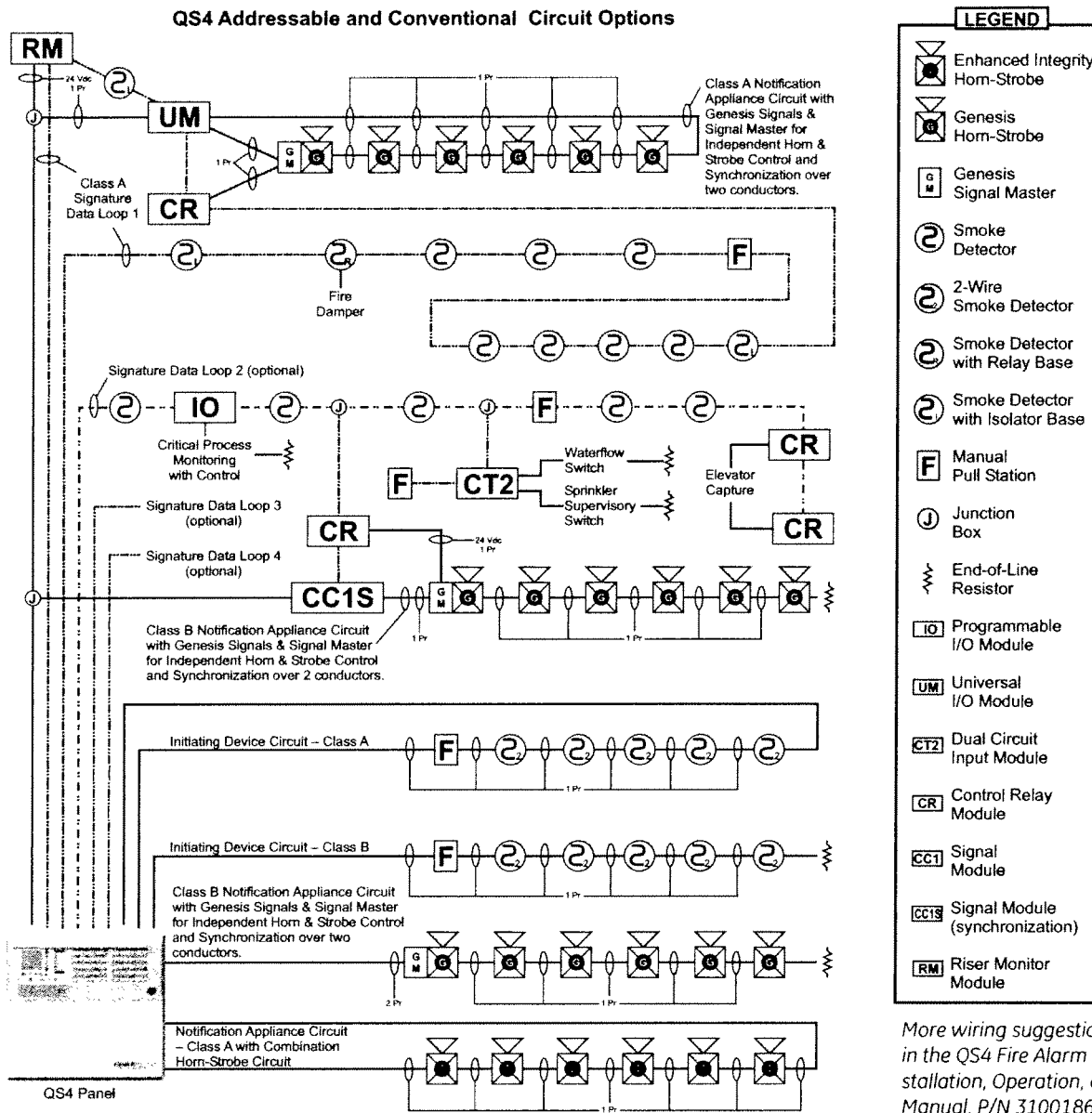
1. **Text display and controls:** Displays system messages, status information, and programming menus. Arrow buttons move the display cursor.
2. **Alarm LED:** Indicates a fire or life threatening emergency.
3. **Supervisory LED:** Indicates an off-normal condition with the fire suppression system or related equipment.
4. **Disable/Test LED:** Indicates part of the system is disabled or being tested. Disabled components also signal a system trouble.
5. **Monitor LED:** Indicates the operation of an ancillary system function (door closures, fan pressure switches).
6. **Trouble LED:** Indicates an off-normal condition or wiring fault that compromises the integrity of the system.
7. **Ground Fault LED:** Indicates a ground fault in the system wiring. Ground faults also signal a system trouble.
8. **CPU Fail LED:** Indicates an unexpected reboot or failure with the microprocessor. CPU failures also signal a system trouble.
9. **Power LED:** Indicates the panel has power.
10. **Help button:** Provides additional information about the device selected on the display.
11. **Status button:** Displays the Status Menu from which you can identify active or disabled points in the system.
12. **Panel Silence/Acknowledge button and LED:** Acknowledges all events posted in the display queues and turns off the panel buzzer. The panel silenced LED indicates that off normal events have been acknowledged.

Controls

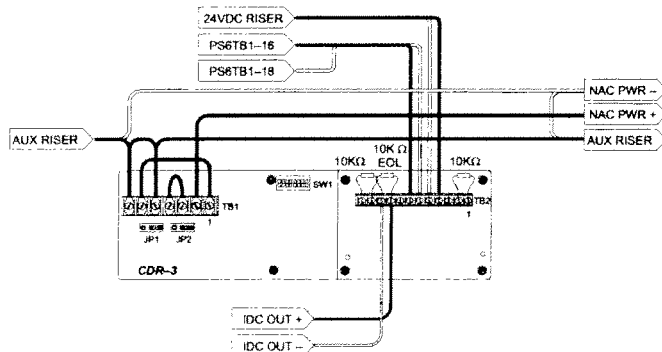


13. **Reset button:** Allows devices or zones in alarm or trouble to restore to their standby condition. The LED indicates that the panel is resetting.
14. **Alarm Silence button:** Turns active notification appliances off depending on panel programming. Pressing Alarm Silence a second time turns them back on. The LED indicates that the panel is in alarm and operating with notification appliances turned off.
15. **Drill button:** Activates notification appliances depending on panel programming but does not place the panel in alarm. The LED indicates that the panel is in Drill Mode.
16. **Menu button:** Displays the operator menus.
17. **Delete button:** Returns to the previous menu or backspaces the cursor.
18. **Enter button:** Press the Enter button to accept information or continue to the next item.
19. **Numeric keypad:** Numbered buttons for entering values and making menu selections.
20. **Barcode scanner jack:** Input for optional barcode scanner.
21. **Priority Access keyswitch:** Enables control functions reserved for access level 2 and above without requiring a password.

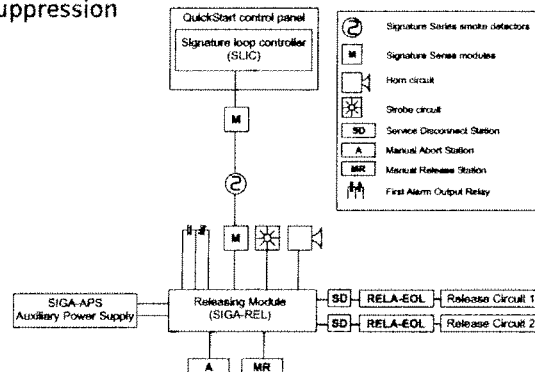
Typical Wiring



Coded Signaling



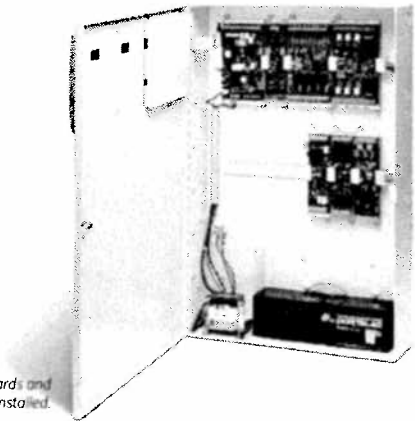
Fire Suppression



Standard Components and Option Cards

All QS4 panels come standard with a CPU/Display Unit, and a PS6 Power Supply (see ordering information for details).

QuickStart option cards provide a wide range of features and extra system capacity. Thanks to the convenient Quick-Lok mounting system, option cards snap onto the DIN mounting rails easily and securely. Wallboxes are available in two sizes with room for either five or 12 single-space option cards. Both sizes of wallbox feature easily-accessible mounting rails and plenty of room for cabling.



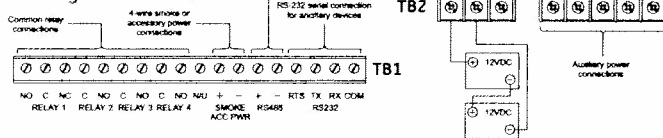
12-option card cabinet with option cards and batteries installed.

PS6 Power Supply Card

Description

The PS6 provides primary dc power to all the circuit cards installed in the cabinet. There are four 24 Vdc power output circuits – three for powering auxiliary applications, and one for powering four-wire smoke detectors – and a charging circuit for standby batteries. The PS6 also provides common alarm, supervisory, and trouble relays, as well as a fourth relay that is user programmable.

Wiring



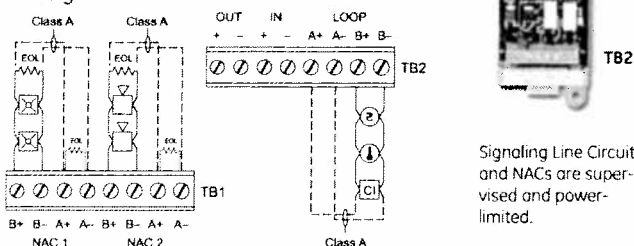
- Relay 1:** Form C. Contacts change position when the control panel processes an alarm signal and remain changed until all active alarm inputs restore and the control panel resets.
- Relay 2:** Form A. Contacts change position when the panel processes a supervisory signal and remains changed until all active supervisory inputs restore.
- Relay 3:** Form A. Contacts change position when the panel loses power or processes a trouble signal and remains changed until power returns or the trouble clears.
- Relay 4:** Form A. Relay closes and opens according to panel programming.
- Smoke/Accessory Power:** Jumper setting determines if the 24 Vdc is constant or resettable.

SLIC Signature Loop Intelligent Controller

Description

The SLIC provides one Class A or Class B data circuit (loop) for connecting Signature Series detectors and modules. The SLIC also provides two programmable Class A or Class B notification appliance circuits (NACs) for connecting polarized 24 Vdc notification appliances such as horns and strobes. QS4 supports up to four SLICs.

Wiring



Signaling Line Circuit and NACs are supervised and power-limited.

Standard Component

Specifications

Main supply circuit	AC input: 115 or 230 Vac, 50/60 Hertz DC input: 24 Vdc batteries
Battery charging circuit	Charge current: 2 amps Charge capacity: 40 amp hours (UL) 30 amp hours (ULC)
Smoke/Accessory power output circuit	Voltage: 24 Vdc, regulated Current: 250 mA Wire size: 12 to 18 (0.75 to 2.5 mm ²)
Auxiliary power output circuits	Quantity: 3 Voltage: 24 vdc full wave rectified Current: 1.5 amps each
Common alarm relay	Style: Form C Contact rating: 1 amp Wire size: 12 to 18 AWG (0.75 to 2.5 mm ²)
Trouble, Supervisory and programmable relays	Style: Form A (N/O) Contact rating: 1 amp Wire size: 12 to 18 AWG (0.75 to 2.5 mm ²)
Operating environment	Temperature: 32 - 120° F (0 - 49° C) Humidity: 93 %RH, non-condensing
Current requirements	Standby current: 72 mA Alarm current: 96 mA

Option Card

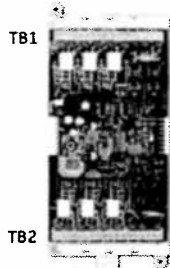
Specifications

Signaling line circuit	Configuration: Class B (Style 4) or Class A (Style 7) Capacity: 125 Signature detectors 125 Signature modules Wire size: 18 to 12 AWG (0.75 to 2.5 mm ²) Circuit resistance: 65 ohms Circuit capacitance: 0.3 µf
Notification appliance circuits #1 and #2	Configuration: Class B or Class A Output voltage: 24 Vdc, nominal Output current: 2.0 A at 24 Vdc for #1 and 0.8 A at 24vdc for #2 Wire size: 18 to 12 AWG (0.75 to 2.5 mm ²) End of line resistor: 10k ohms, ½ W
NAC power input circuit	Voltage: 24 Vdc, nominal Wire size: 18 to 12 AWG (0.75 to 2.5 mm ²)
Operating environment	Temperature: 32 - 120° F (0 - 49° C) Humidity: 93 %RH, non-condensing
Current requirements	Standby current: 33 mA Alarm current: 57 mA (Both NACs on)
Card spaces	Requires one card space.

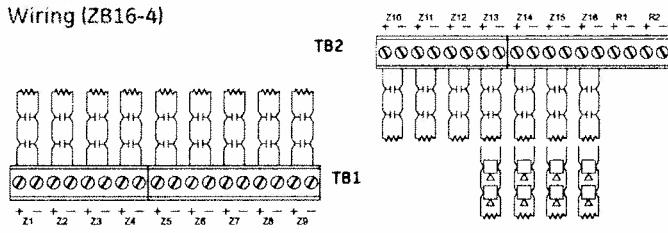
ZA8-2, ZB16-4 Zone Cards

Description

The **ZB16-4 Zone Card** provides sixteen circuits for connecting Class B conventional input and output zones. Twelve circuits are dedicated initiating device circuits (IDCs) for connecting 2-wire smoke detectors and dry-contact initiating devices. Four circuits can be configured as either IDCs or as notification appliance circuits (NACs) for connecting polarized 24 Vdc notification appliances such as horns or strobes.

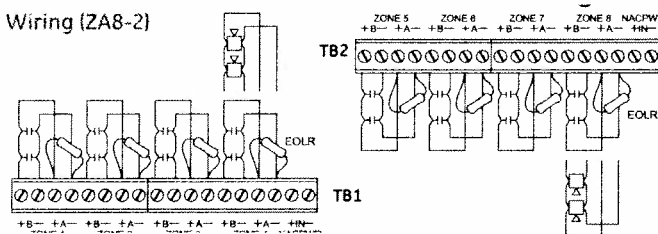


Wiring (ZB16-4)



The **ZA8-2 Zone Card** provides eight circuits for connecting Class A conventional input and output zones. Six circuits are dedicated initiating device circuits (IDCs) for connecting 2-wire smoke detectors and dry-contact initiating devices. The remaining two circuits can be configured as either IDCs or as notification appliance circuits (NACs) for connecting polarized 24 Vdc notification appliances such as horns or strobes.

Wiring (ZA8-2)

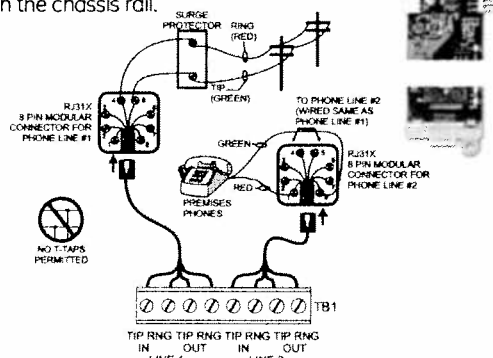


DLD Dialer

Description

The DLD is a ULI/ULC listed dual line Digital Alarm Communicating Transmitter (DACT). It provides two phone line connections for sending system messages to a compatible Digital Alarm Communicator Receiver. The DLD supports 4/2 and Contact ID formats. It occupies one card space on the chassis rail.

Wiring



Option Cards

Specifications	ZB16-4	ZA8-2
----------------	--------	-------

Initiating device circuits

Quantity	12 to 16	6 to 8
Wiring configuration	Class B	Class A
Detector voltage	19.9 – 24.0 Vdc, max ripple 400 mV	
End of line resistor	4.7k ohms, ½W	
Short circuit current	31 mA, max.	
Resistance	50 Ohms, max.	
Capacitance	100 µF, max.	

NAC power input circuit

Voltage	24 Vdc
Wire size	18 to 12 AWG (0.75 to 2.5 mm²)

Notification appliance circuits

Quantity	1 to 4	1 or 2
Wiring configuration	Class B	Class A
End of line resistor	10k ohms, ½W	
Output voltage	24 Vdc, nominal	
Output current	2.0 A, 24 Vdc	
Wire size	18 to 12 AWG (0.75 to 2.5 mm²)	

Operating environment

Temperature	32–120° F (0–49° C)
Humidity	93 %RH, non-condensing

Current requirements

Standby	117 mA	73 mA
Alarm	152 mA	116 mA
Maximum cards in panel	Three (48 zones)	Five (40 zones)
Card Spaces	40 zones maximum when both ZB16-4 and ZA8-2 cards installed.	
	Requires two card spaces.	

Option Card

Specifications

Operating environment	Temperature: 32 - 120 ° F (0 - 49 ° C) Humidity: 93% RH, non-condensing
Current requirements	Standby: 13 mA Alarm: 20 mA Dialing: 26 mA
Phone Lines	Two loop start lines on switched telephone network. Pulse or DTMF dialing.
Wall Connector	RJ31X/CA31A equiv. or RJ38X/CA38A equiv.
Communications Protocol	Contact ID (SIA DC-05), 4/2 (SIA DC-02 P3).
Programming	Via QuickStart, Front Panel or PC.
Communications Compliance	Communications Canada CS-03FCC/CFR 47 Parts 15 and 68, NFPA 72, ULI 864, ULC S527-M87
Receivers	Signals can be transmitted to either or both of two receivers.
Telephone #s	Two 24-digit numbers per receiver.
Card spaces	Requires one card space.

SL30, SL30-1, SL20L5S, SL30L LED/Switch Cards

Option Cards

Description

The SL30 and SL30-1 provide thirty circuits for zone annunciation. Each circuit comprises two LEDs and a push button switch. The **SL30** push button switches are numbered from 1 to 30 and the **SL30-1** push button switches are numbered from 31 to 60. The **SL20L5S** provides 20 circuits for point annunciation and five circuits for custom control functions. The **SL30L** provides 30 circuits for point annunciation. SL20L5S and SL30L circuits are labeled using inserts provided with the cards.



Specifications

Operating environment	Temperature: 32 - 120 ° F (0 - 49 ° C)
	Humidity: 93% RH, non-condensing
Current requirements	Standby: 1mA Alarm: 0.75 mA per active LED

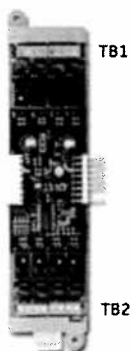
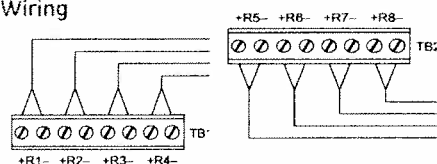
ZR8 Relay Card

Option Card

Description

The ZR8 provides eight dry-contact relays that can be independently configured as Form A or Form B relays. It occupies one card space on the chassis rail.

Wiring



Specifications

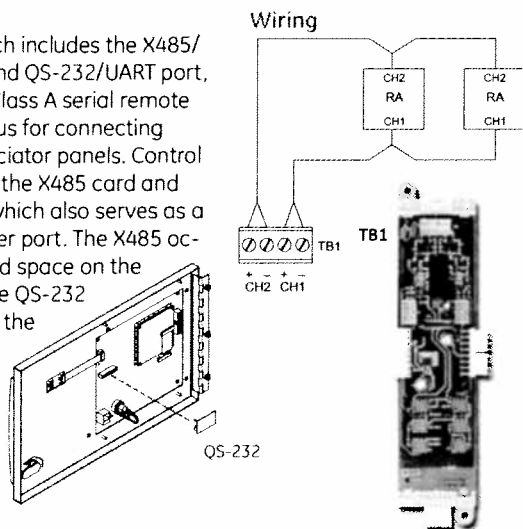
Output relays	Style: Form A (N/O) or Form B (N/C) (jumper configurable)
	Contact rating: 1 amp @ 30 Vdc resistive. Wire size: 18 to 12 AWG (0.75 to 2.5 mm ²)
Operating environment	Temperature: 32 - 120° F (0 - 49° C)
	Humidity: 93 %RH, non-condensing
Current requirements	Standby: 11 mA
	Alarm: add 18 mA per active relay
Card spaces	Requires one card space.

X485 Class A RS-485 Card and QS-232 Port

Option Cards

Description

The NT-A, which includes the X485/RS-485 card and QS-232/UART port, provides one Class A serial remote annunciator bus for connecting remote annunciator panels. Control panels require the X485 card and QS-232 port, which also serves as a laptop or printer port. The X485 occupies one card space on the chassis rail. The QS-232 port plugs into the panel CPU.



Specifications

Wire size	12 to 18 AWG (0.75 to 2.5 mm ²) twisted pair (6 twists per foot minimum)
Circuit resistance	100 Ohms
Circuit capacitance	0.4 µF
Operating environment	Temperature: 32 - 120° F (0 - 49° C)
	Humidity: 93 %RH, noncondensing
Current requirements	Standby: 60 mA
	Alarm: 60 mA
Card Spaces	Requires one space for the NT-A

Ordering Information

Part Number	Description	Ship Wt. lb. (kg.)
Basic Package - Enclosure, Power Supply, CPU and Display, 115v transformer...		
QS4-5-G-1	Intelligent/Conventional System. Five option card spaces. Gray.	17.0 (7.71)
QS4-5-R-1	Intelligent/Conventional System. Five option card spaces. Red.	17.0 (7.71)
QS4-12-G-1	Intelligent/Conventional System. 12 option card spaces. Gray. QS-Cable12 required.	30.0 (13.61)
QS4-12-R-1	Intelligent/Conventional System. 12 option card spaces. Red. QS-Cable12 required.	30.0 (13.61)

Enclosure Accessories

QS-2-VR	Vandal-resistant cabinet door, gray	3.0 (1.36)
QS-2-VR-R	Vandal-resistant cabinet door, red	3.0 (1.36)
QS-Cable12	Expansion Cable for 12-option card cabinets.	0.5 (0.23)
Trim-5	Gray Flush mount trim ring for QS-5-G-1.	5.0 (2.27)
Trim-5R	Red Flush mount trim ring for QS-5-R-1.	5.0 (2.27)
Trim-12	Gray Flush mount trim ring for QS-12-G-1.	8.0 (3.63)
Trim-12R	Red Flush mount trim ring for QS-12-R-1.	8.0 (3.63)

Initiating/Notification Circuit Option Cards

SLIC	Signature Loop Intelligent Controller. Supports one SLC of up to 250 devices. Card includes one Class A or two Class B NACs.	1.0 (0.45)
ZB16-4	Conventional Zone Card. 16 Class B circuits, four convertible to Class B NAC's. Requires 2 card spaces.	2.0 (0.91)
ZA8-2	Conventional Zone Card. Eight Class A circuits, two convertible to Class A NAC's. Requires 2 card spaces.	2.0 (0.91)

Other Option Cards

DLD	Dual Line Dialer. Supports 4/2 & Contact ID formats.	1.0 (0.45)
ZR8	Relay Card. 8 programmable Form A contacts.	1.0 (0.45)

Display Options

SL30	Annunciator module. Numbered 1 to 30. Two LEDs and one switch per zone.	1.0 (0.45)
SL30-1	Annunciator module. Numbered 31 to 60. Two LEDs and one switch per zone.	1.0 (0.45)
SL20L5S	Annunciator module. 20 circuits for point or zone annunciation, 5 circuits for custom functions. Circuits labeled with insert card.	1.0 (0.45)
SL30L	Annunciator module. Circuits labeled with insert card.	1.0 (0.45)
NT-A	RS-485 option card. Required for Class A remote annunciation. Includes UART card.	1.0 (0.45)
QS-232	UART option card. Plugs into CPU. Required for PC Programming / printer port. Included in NT-A package	1.0 (0.45)

Remote Annunciator CPUs

QS4-CPU-1	Intelligent/Conventional CPU/Display. One annunciator option space. Order backbox below.	4.0 (1.81)
QS4-CPU-2	Intelligent/Conventional CPU/Display. Two annunciator option spaces. Order backbox below.	4.0 (1.81)
EST-SRA4	Intelligent/Conventional CPU/Display with integrated LCD and control switches. 4" square box mount.	4.0 (1.81)

Part Number	Description	Ship Wt. lb. (kg.)
Remote Annunciator Cabinets (c/w Interface Assembly; Require CPU/Display)...		
QSA-1-S	Surface Annunciator Cabinet. Holds one SL30.	4.0 (1.81)
QSA-1-F	Flush Annunciator Cabinet. Holds one SL30.	4.0 (1.81)
QSA-2-S	Surface Annunciator Cabinet. Holds two SL30s.	5.0 (2.27)
QSA-2-F	Flush Annunciator Cabinet. Holds two SL30s.	5.0 (2.27)
QSA-1-S-VR	Surface Annunciator Cabinet. Vandal resistant. Holds one SL30.	4.0 (1.81)
QSA-1-F-VR	Flush Annunciator Cabinet. Vandal resistant. Holds one SL30.	4.0 (1.81)
QSA-2-S-VR	Surface Annunciator Cabinet. Vandal resistant. Holds two SL30s.	5.0 (2.27)
QSA-2-F-VR	Flush Annunciator Cabinet. Vandal resistant. Holds two SL30s.	5.0 (2.27)

Programming Tools

QS-CU	QuickStart Panel Configuration Utility.	1.0 (0.45)
QS-Scan	QuickStart scanner and programming guide.	2.0 (0.91)
Prog cable-1	Scanner port upload/download cable	1.0 (0.45)
260097	Programming cable (PC to QSC, QS1, QS4)	1.0 (0.45)

Accessories

PT-1S	SystemPrinter - Desk top Style	14.0 (6.35)
BC-1IR	Battery Cabinet. Holds 1 40 Ah or 2 24 Ah batteries.	22.0 (9.98)
MFC-A	MultiFunction Cabinet.	7.0 (3.1)
IOP3A	RS-232 Isolator Module.	3.0 (1.36)
RPM	Reverse Polarity Module.	3.0 (1.36)
2-CTM	City Tie Module.	1.0 (0.45)
API-8/232ME	Alphanumeric Pager Interface.	11.0 (5.0)
BPS6A	6.5 Amp Booster Power Supply, 110 V	13.0 (5.9)
BPS10A	10 Amp Booster Power Supply, 110 V	13.0 (5.9)
CDR-3	PSNI Coder Module	1.0 (0.45)

Ordering options

(Apply to basic packages and CPU/displays only)

Languages

No suffix = American English

SP = Spanish (230v or 115v)

PG = Portuguese (230v only)

FR = French Canadian (120v only)

Examples

QS4-5-G-2-SP = QS4 basic package with five option card spaces, grey enclosure, 230v transformer, Spanish language.

QS4-CPU-2-FR = QS4 CPU/display, two annunciator option spaces, French Canadian.

Power Supplies

1 = 115v transformer

2 = 230v transformer

Colors

G = Grey enclosure (230v or 115v)

R = Red enclosure (115v only)

Which Quickstart Panel is right for you?	QSC	QS1	QS4
Signature Series devices supported	0	1 x 250	4 x 250
Conventional Class B circuits supported	3 x 16	0	3 x 16
Conventional Class A circuits supported	5 x 8	0	5 x 8
LCD display (lines x characters)	4 x 20	14 x 16	14 x 16
Optional Zone Switch/LEDs on front panel	2 x 30	1 x 30	2 x 30
Option card spaces	5 or 12	1	5 or 12
For more information, see Data Sheet ...	85005-0112	85005-0113	85005-0114

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Australia
T 61 3 9259 4700
F 61 3 9259 4799

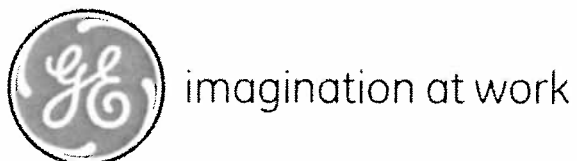
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F 32 2 721 86 13

Latin America
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F 305 593 4300

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GE
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EST Fire & Life Safety
Intelligent Input/Output

Overview

The Control Relay Module and the Polarity Reversal Relay Module are part of the Signature Series system. They are intelligent analog addressable devices available in either plug-in (UIO) versions, or standard 1-gang mount versions.

The SIGA-CR/MCR Control Relay Module provides a Form "C" dry relay contact to control external appliances such as door closers, fans, dampers etc. This device does not provide supervision of the state of the relay contact. Instead, the on-board microprocessor ensures that the relay is in the proper ON/OFF state. Upon command from the loop controller, the SIGA-CR/MCR relay activates the normally open or normally-closed contact.

The SIGA-CRR/MCRR Polarity Reversal Relay Module provides a Form "C" dry relay contact to power and activate a series of SIGA-AB4G Audible Sounder Bases. Upon command from the Signature loop controller, the SIGA-CRR reverses the polarity of its 24 Vdc output, thus activating all Sounder Bases on the data loop.

Standard-mount versions (SIGA-CR and SIGA-CRR) are installed to standard North American 1-gang electrical boxes, making them ideal for locations where only one module is required. Separate I/O and data loop connections are made to each module.

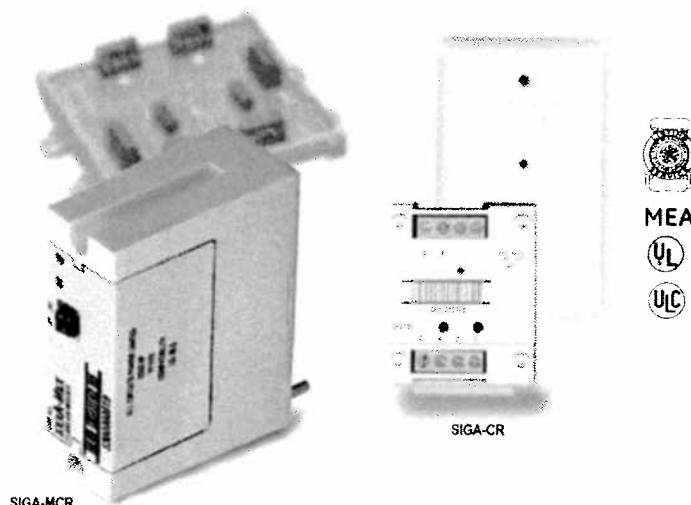
Plug-in UIO versions (SIGA-MCR and SIGA-MCRR) are part of the UIO family of plug-in Signature Series modules. They function identically to the standard mount versions, but take advantage of the modular flexibility and easy installation that characterizes all UIO modules. Two- and six-module UIO motherboards are available. All wiring connections are made to terminal blocks on the motherboard. UIO assemblies may be mounted in GE Security enclosures.

Standard Features

- **Provides one no/nc contact (SIGA-CR/MCR)**
Form "C" dry relay contact can be used to control external appliances such as door closers, fans, dampers etc.
- **Allows group operation of sounder bases**
The SIGA-CRR/MCRR reverses the polarity of its 24 Vdc output, thus activating all Sounder Bases on the data loop.
- **Plug-in (UIO) or standard 1-gang mount**
UIO versions allow quick installation where multiple modules are required. The 1-gang mount version is ideal for remote locations that require a single module.
- **Automatic device mapping**
Signature modules transmit information to the loop controller regarding their circuit locations with respect to other Signature devices on the wire loop.
- **Electronic addressing**
Programmable addresses are downloaded from the loop controller, a PC, or the SIGA-PRO Signature Program/Service Tool; there are no switches or dials to set.
- **Intelligent device with microprocessor**
All decisions are made at the module to allow lower communication speed with substantially improved control panel response time and less sensitivity to line noise and loop wiring properties; twisted or shielded wire is not required.
- **Ground fault detection by address**
Detects ground faults right down to the device level.

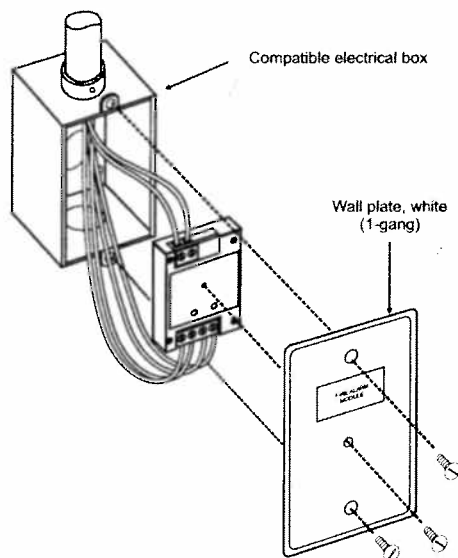
Control Relay Modules

SIGA-CR, SIGA-MCR, SIGA-CRR,
SIGA-MCRR

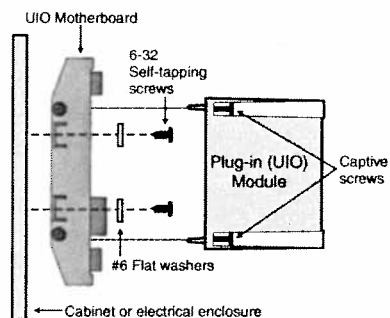


Installation

SIGA-CR and SIGA-CRR: modules mount to North American 2½ inch (64 mm) deep 1-gang boxes and 1½ inch (38 mm) deep 4 inch square boxes with 1-gang covers and SIGA-MP mounting plates. The terminals are suited for #12 to #18 AWG (2.5 mm² to 0.75 mm²) wire size.



SIGA-MCR and SIGA-MCRR: mount the UIO motherboard inside a suitable GE Security enclosure with screws and washers provided. Plug the module into any available position on the motherboard and secure the module to the motherboard with the captive screws. Wiring connections are made to the terminals on the motherboard (see wiring diagram). UIO motherboard terminals are suited for #12 to #18 AWG (2.5 mm² to 0.75 mm²) wire size.



Electronic Addressing - The loop controller electronically addresses each module, saving valuable time during system commissioning. Setting complicated switches or dials is not required. Each module has its own unique serial number stored in its on-board memory. The loop controller identifies each device on the loop and assigns a "soft" address to each serial number. If desired, the modules can be addressed using the SIGA-PRO Signature Program/Service Tool.

GE Security recommends that this module be installed according to latest recognized edition of national and local fire alarm codes.

Application

The operation of Signature Series control relays is determined by their sub-type code or "Personality Code."

Personality Code 8: CONTROL RELAY (SIGA-CR/MCR) - Dry Contact Output. This setting configures the module to provide one Form "C" DRY RELAY CONTACT to control Door Closers, Fans, Dampers, etc. Contact rating is 2.0 amp @ 24 Vdc; 0.5 amp @ 120 Vac (or 220 Vac for non-UL applications). Personality Code 8 is assigned at the factory. No user configuration is required.

Personality Code 8: POLARITY REVERSAL RELAY MODULE (SIGA-CRR/MCRR). This setting configures the module to reverse the polarity of its 24 Vdc output. Contact rating is 2.0 amp @ 24 Vdc (pilot duty). Personality Code 8 is assigned at the factory. No user configuration is required.

Compatibility

The Signature Series modules are compatible only with GE Security's Signature Loop Controller.

Warnings & Cautions

This module will not operate without electrical power. As fires frequently cause power interruption, we suggest you discuss further safeguards with your local fire protection specialist.

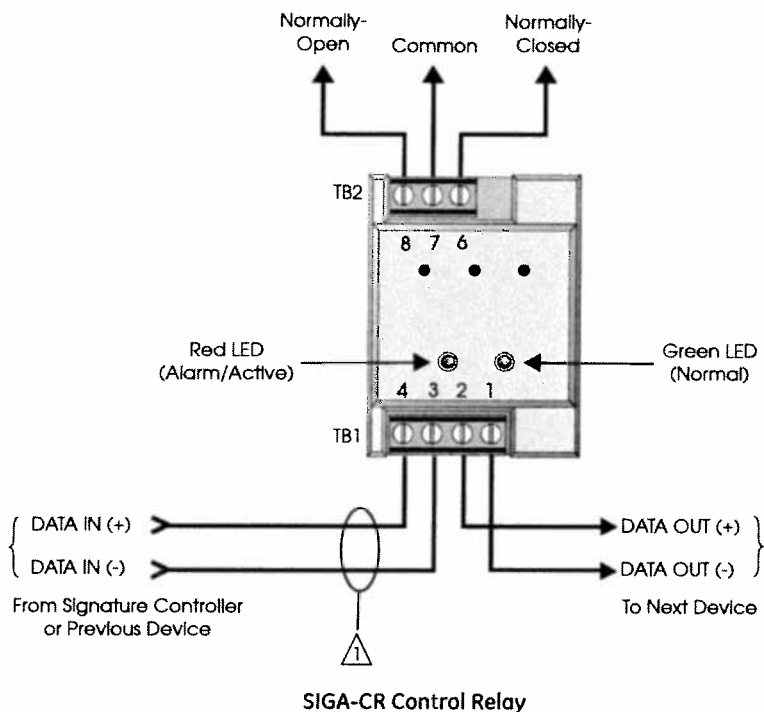
Testing & Maintenance

The module's automatic self-diagnosis identifies when it is defective and causes a trouble message. The user-friendly maintenance program shows the current state of each module and other pertinent messages. Single modules may be turned off (deactivated) temporarily, from the control panel. Availability of maintenance features is dependent on the fire alarm system used. Scheduled maintenance (Regular or Selected) for proper system operation should be planned to meet the requirements of the Authority Having Jurisdiction (AHJ). Refer to current NFPA 72 and ULC CAN/ULC 536 standards.

Typical Wiring

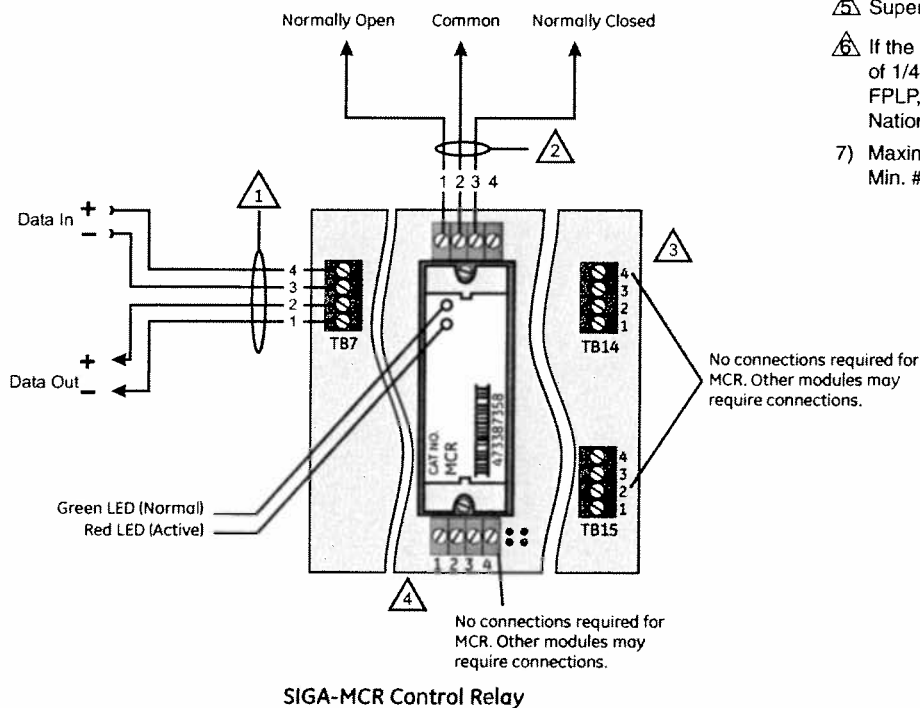
Modules will accept #18 AWG (0.75mm²), #16 (1.0mm²), #14 AWG (1.50mm²) and #12 AWG (2.5mm²) wire sizes.

Note: Sizes #16 AWG (1.0mm²) and #18 AWG (0.75mm²) are preferred for ease of installation. See Signature Loop Controller catalog sheet for detailed wiring requirement specifications.



Notes

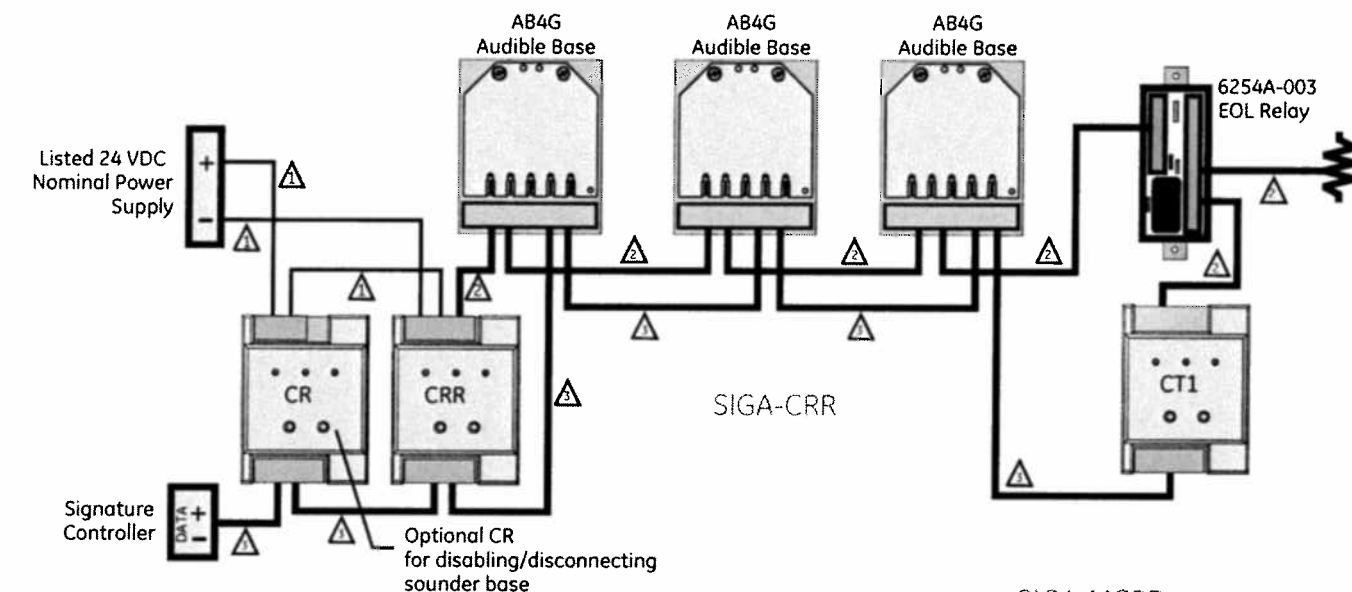
- ⚠ Refer to Signature Loop Controller Installation Sheet for wiring specifications.
- ⚠ NFPA 72 requires that the SIGA-CR/SIGA-MCR be installed in the same room as the device it is controlling. This requirement may not apply in all markets. Check with your local AHJ for details.
- ⚠ The SIGA-UIO6R and the SIGA-UIO2R do not come with TB14.
- ⚠ The SIGA-UIO6 does not come with TB8 through TB13.
- ⚠ Supervised and power-limited.
- ⚠ If the source is nonpower-limited, maintain a space of 1/4 inch from power-limited wiring or use FPL, FPLP, FPLR, or an equivalent in accordance with the National Electrical Code.
- 7) Maximum #12 AWG (2.5mm²) wire.
Min. #18 (0.75mm²).



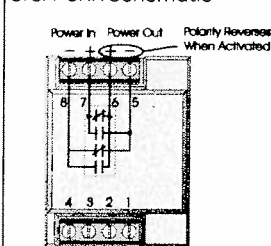
Typical Wiring

Modules will accept #18 AWG (0.75mm²), #16 (1.0mm²), #14 AWG (1.50mm²) and #12 AWG (2.50mm²) wire sizes.

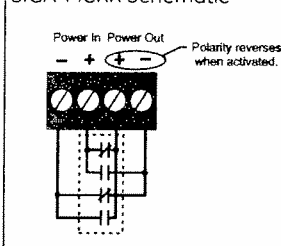
Note: Sizes #16 AWG (1.0mm²) and #18 AWG (0.75mm²) are preferred for ease of installation. See Signature Loop Controller catalog sheet for detailed wiring requirement specifications.



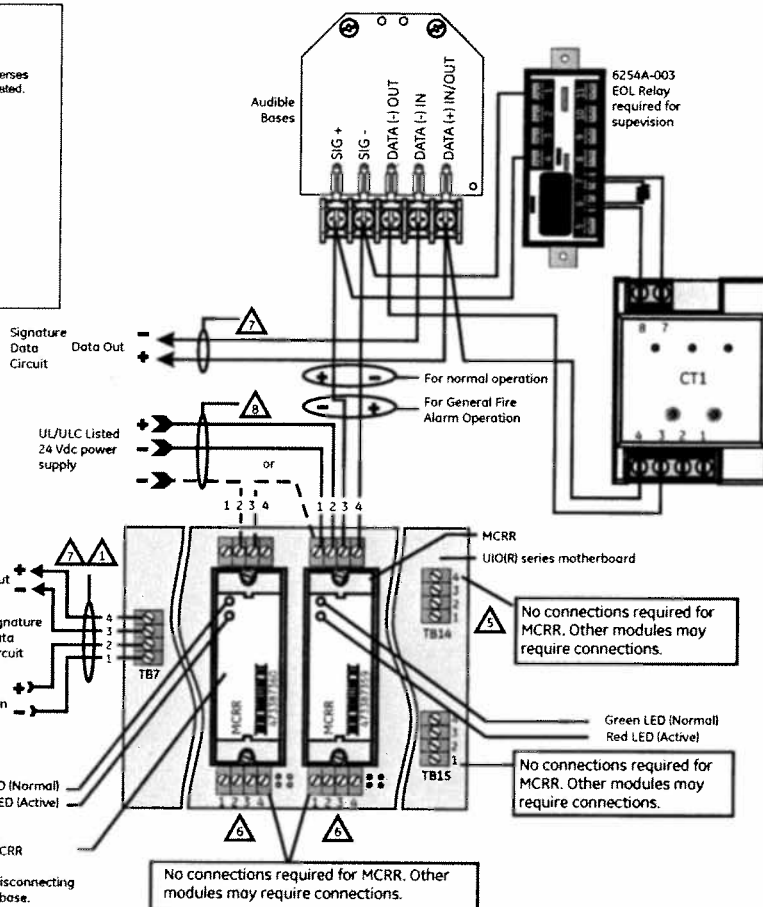
SIGA-CRR Schematic



SIGA-MCRR Schematic



SIGA-MCRR



Notes

1. Refer to the Signature controller installation sheet for wiring.
2. One Pair of Wires (24 Vdc power).
3. One Pair of Wires (Signature Data).
4. Single Wire (24 Vdc power).
5. The SIGA-UIO6R and the SIGA-UIO2R do not come with TB14.
6. The SIGA-UIO6 does not come with TB8 through TB13.
7. Supervised and power-limited.
8. If the source is nonpower-limited, maintain a space of 1/4 inch from power-limited wiring or use FPL, FPLP, FPLR, or an equivalent in accordance with the National Electrical Code.
9. Maximum #12 AWG (2.5 mm²) wire; Minimum #18 AWG (0.75 mm²).
10. End-of-Line Relay must monitor and report power supply trouble to control panel.
11. Class B Data wiring may be "T-tapped."

Specifications

Catalog Number	SIGA-CR	SIGA-MCR	SIGA-CRR	SIGA-MCRR
Description	Control Relay		Polarity Reversal Relay	
Type Code	Personality Code 8 (Factory Set)		Personality Code 8 (Factory Set)	
Address Requirements	Uses 1 Module Address			
Operating Current	Standby = 100µA Activated = 100µA			
Operating Voltage	15.2 to 19.95 Vdc (19 Vdc nominal)			
Relay Type and Rating	Form "C" 24 VDC = 2 amps (pilot duty) 120 Vac = 0.5 amps 220 Vac (non-UL) = 0.5 amps			
Mounting	North American 2½ inch (64 mm) deep 1-gang boxes and 1½ inch (38 mm) deep 4 inch square boxes with 1-gang covers and SIGA-MP mounting plates	Plugs into UIO2R, UIO6R or UIO6 Motherboards	North American 2½ inch (64 mm) deep 1-gang boxes and 1½ inch (38 mm) deep 4 inch square boxes with 1-gang covers and SIGA-MP mounting plates	Plugs into UIO2R, UIO6R or UIO6 Motherboards
Construction & Finish	High Impact Engineering Polymer			
Storage and Operating Environment	Operating Temperature: 32°F to 120°F (0°C to 49°C) Storage Temperature: -4°F to 140°F (-20°C to 60°C) Humidity: 0 to 93% RH			
LED Operation	On-board Green LED - Flashes when polled On-board Red LED - Flashes when in alarm/active			
Compatibility	Use With: Signature Loop Controller			
Agency Listings	UL, ULC, CSFM, MEA			

Ordering Information

Catalog Number	Description	Ship Weight - lbs (kg)
SIGA-CR	Control Relay Module (Standard Mount)	0.4 (0.15)
SIGA-MCR	Control Relay Module (UIO Mount)	0.18 (0.08)
SIGA-CRR	Polarity Reversal Relay Module (Standard Mount)	0.4 (0.15)
SIGA-MCRR	Polarity Reversal Relay Module (UIO Mount)	0.18 (0.08)

Related Equipment

27193-11	Surface Mount Box - Red, 1-gang	1 (0.6)
27193-16	Surface Mount Box - White, 1-gang	1 (0.6)
SIGA-UIO2R	Universal Input-Output Module Board w/Riser Inputs - Two Module Positions	0.32 (0.15)
SIGA-UIO6R	Universal Input-Output Module Board w/Riser Inputs - Six Module Positions	0.62 (0.28)
SIGA-UIO6	Universal Input-Output Module Board - Six Module Positions	0.56 (0.25)
SIGA-AB4G	Audible (Sounder) Detector Base	0.3 (0.15)

Accessories

MFC-A	Multifunction Fire Cabinet - Red, supports Signature Module Mounting Plates	7.0 (3.1)
SIGA-MB4	Transponder Mounting Bracket (allows for mounting two 1-gang modules in a 2-gang box)	0.4 (0.15)
SIGA-MP1	Signature Module Mounting Plate, 1 footprint	1.5 (0.70)
SIGA-MP2	Signature Module Mounting Plate, 1/2 footprint	0.5 (0.23)
SIGA-MP2L	Signature Module Mounting Plate, 1/2 extended footprint	1.02 (0.46)

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Signature Series Overview

The Signature Series intelligent analog-addressable system from GE Security is an entire family of multi-sensor detectors and mounting bases, multiple-function input and output modules, network and non-network control panels, and user-friendly maintenance and service tools. Analog information from equipment connected to Signature devices is gathered and converted into digital signals. An onboard microprocessor in each Signature device measures and analyzes the signal and decides whether or not to input an alarm. The microprocessor in each Signature device provides four additional benefits – Self-diagnostics and History Log, Automatic Device Mapping, Stand-alone Operation and Fast, Stable Communication.

Self-diagnostics and History Log – Each Signature Series device constantly runs self-checks to provide important maintenance information. The results of the self-check are automatically updated and permanently stored in its non-volatile memory. This information is accessible for review any time at the control panel, PC, or using the SIGA-PRO Signature Program/Service Tool. The information stored in device memory includes:

- Device serial number, address, and type
- Time and date of last alarm
- Most recent trouble code logged by the detector – 32 possible trouble codes may be used to diagnose faults.

Automatic Device Mapping – The Signature Data Controller (SDC) learns where each device's serial number address is installed relative to other devices on the circuit. The SDC keeps a map of all Signature Series devices connected to it. The Signature Series Data Entry Program also uses the mapping feature. With interactive menus and graphic support, the wired circuits between each device can be examined. Layout or "as-built" drawing information showing branch wiring (T-taps), device types and their address are stored on disk for printing hard copy. This takes the mystery out of the installation. The preparation of as-built drawings is fast and efficient.

Device mapping allows the Signature Data Controller to discover:

- Unexpected additional device addresses
- Missing device addresses
- Changes to the wiring in the circuit.

Most Signature modules use a personality code selected by the installer to determine their actual function. Personality codes are downloaded from the SDC during system configuration and are indicated during device mapping.

Standalone Operation – A decentralized alarm decision by the device is guaranteed. On-board intelligence permits the device to operate in standalone (degrade) mode. If Signature loop controller CPU communications fail for more than four seconds, all devices on that circuit go into standalone mode. The circuit acts like a conventional alarm receiving circuit. Each Signature device on the circuit continues to collect and analyze information from its slave devices. When connected to a panel utilizing standalone operation, modules with their "personality" set as alarm devices (IDC) will alarm should their slave alarm-initiating device activate.



imagination at work



www.firelite.com

July 8, 2004

DF-52301 • D-025

FCPS-24FS6 24 Volt, 6 Amp Remote Power Supply

Section: Power Supplies/Accessories

GENERAL

The **FCPS-24FS6** is a compact, cost-effective, 6-amp remote power supply with battery charger. The FCPS-24FS6 may be connected to any 12- or 24-volt Fire Alarm Control Panel (FACP) or may stand alone. 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-24FS6 provides *regulated* and *filtered* 24 VDC power to four Notification Appliance Circuits configured as either four Class B (Style Y) or Class A (Style A, with ZNAC-4 option module). Alternately, the four outputs may be configured as all non-resettable or all resettable or two non-resettable and two resettable. The FCPS-24FS6 also contains a battery charger capable of charging up to 18 Amp Hour batteries.

FEATURES

- UL Listed NAC Synchronization using System Sensor, Wheelock or Gentex (Commander Series) appliances.
- Cascadable up to 10 power supplies (four with Gentex) with strobe timing maintained.
- Operates as a sync follower or a sync generator (default).
* See note on reverse side.
- Contains two, fully-isolated input/control circuits (triggered from FACP Notification Appliance Circuit [NAC expander mode] or jumpered permanently on [stand-alone mode]).
- Optional mounting kit, P/N 90286, to internally house addressable SLC control module (CRF-300 or CMF-300) for alarm activation.
- Four Class B (Style Y) or four Class A (Style Z) (with ZNAC-4 Module) Notification Appliance Circuits.
- 6.0 A full load output (3.0 A maximum per circuit) in NAC expander mode (UL 864).
- 4.0 A continuous output in stand-alone mode (UL 1481).
- In stand-alone mode, output power circuits may be configured as resettable (reset line from FACP required) or 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 Notification Appliance Circuits.
- 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, lockable cabinet (15" [38.1 cm] H x 14.5" [36.8 cm] W x 2.75" [7.0 cm] D).
- Includes integral battery charger capable of charging up to 18 AH batteries. Cabinet capable of housing 7.0 AH batteries.
- 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.



California
State Fire
Marshal
7315-0075:206

MEA

219-02-E



Fire-Lite® Alarms 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 **Fire-Lite Alarms**, One Fire-Lite Place, Northford, Connecticut 06472.
Phone: (800) 627-3473, Toll-Free FAX: (877) 699-4105.

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QUALITY SYSTEMS

STANDARDS and CODES

The FCPS-24FS6 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-24FS6: 120 VAC 60 Hz, 3.2 A maximum
- Wire size: minimum 14 AWG (2.0 mm²) with 600V insulation.

Control Input Circuit

- Trigger Input Voltage: 9.0 to 32 VDC.
- Trigger Current: 2.0 mA (16 - 32 V).
(per input) 1.0 mA (9 - 16 V).

Trouble Contact Rating

- 5.0 A at 24 VDC.

Auxiliary Power Output

- Specific Application Power - 500 mA maximum.

Output Circuits

- +24 VDC filtered, regulated.
- 3.0 A maximum for any one circuit.
- 4.0 A maximum total continuous current for all outputs (*Stand-alone mode*).
- 6.0 A maximum total short-term current for all outputs (*NAC Expander mode*).

Secondary Power (Battery) Charging Circuit

- Supports lead-acid batteries only.
- Float Charge Voltage: 27.6VDC.
- Maximum Charge Current: 1.5 A.
- Maximum Battery Capacity: 18 AH.

ORDERING INFORMATION

FCPS-24FS6 Remote charger power supply (120 VAC). Includes main printed circuit board, transformers, red enclosure, and installation instructions.

FCPS-2456RB Replacement mother board.

PN 90286 FCPS-24F Module Mounting Kit

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

A77-716B 12/24 VDC end-of-line relay for monitoring 4-wire smoke detector power.

BAT-1270 Battery, 12 volt, 7.0 AH (*two required*).

APPLICATIONS

Example 1

Expand notification appliance power an additional 6.0 amps. Use up to 4 Class B (Style Y) outputs or 4 Class A (Style Z) outputs (using the ZNAC-4).

In this example, the FACP notification appliance circuits will activate the FCPS-24FS6 when reverse polarity activation occurs. Trouble conditions on the FCPS-24FS6 are sensed by the FACP through the Notification Appliance Circuit.

Example 2

Use the FCPS-24FS6 to expand auxiliary regulated 24 volt system power up to 4 amps. Both non-resettable and resettable power options are available.

Resettable outputs are created by connecting the resettable output from the FACP to one or both of the FCPS-24FS6 inputs.

Example 3

Use addressable control modules to activate the FCPS-24FS6 versus the FACP Notification Appliance Circuits. This typically allows for mounting the FCPS-24FS6 at greater distances* away from the FACP while expanding system architecture in various applications.

In this example, an addressable control module is used to activate the FCPS-24FS6 and an addressable monitor module is used to sense FCPS-24FS6 trouble conditions. Local auxiliary power output from the FCPS-24FS6 provides power to the addressable control module.

*Fire-Lite's MS-9200, MS-9200UD, (198-point) or MS-9600 (636-point) addressable FACP's have the capability of locating control and monitor modules up to 10,000 feet (3048 m) away.

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 a Fire Alarm Control Panel such as the Fire-Lite MS-9600. When installed at the end of a MS-9600 NAC wire run, this power supply 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 this power supply.

When this power supply is configured (via DIP switch settings) as a "sync follower," this supply's NAC outputs track the strobe synchronization pulses present at this supply's sync input terminal. The pulses are originated from an upstream FACP or other power supply.

When this power supply is configured (via DIP switch settings) as a "sync generator," this supply's sync input terminal are not used. Rather, this power supply is the originator of the strobe synchronization pulses on this power supply's NAC outputs. In "sync generator" mode, the sync type (System Sensor, Wheelock, or Gentex) is selectable via DIP switch settings.