AURORA MEDICAL CENTER

FIRE ALARM SYSTEM
SHOP DRAWINGS FOR:

PROJECT:
COMMON AREA REMODEL
1411 S. POTOMAC STREET, BASEMENT – 4TH FLOOR
AURORA, CO 80012

OWNER/GC:
EJCM, INC.
111 KALAMATH STREET
DENVER, CO 80223
PH:(303)573–5678
FAX:(303)573–5823
GARY SCOTT

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

ARCHITECT:
CASSETTY ARCHITECTURE
901 W. MAIN STREET
HERNDERSONVILLE, TN 37075
PH:(615)822–5711
FAX:(615)824–9089
BLAKE ROBERT

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

BUILDING CLASSIFICATIONS AND CODES

OCCUPANCY GROUP:	B
USE:	MEDICAL OFFICE BUILDING
CONSTRUCTION TYPE:	TYPE–II
STORIES:	BASEMENT + 4 FLOORS
SPRINKLERED:	FULLY
REQUIREMENTS:	REQUIRED PER 2015 IFC
CODES:	2015 IFC, 2015 IBC, 2015 IMC, 2013 NFPA 72, 2014 NFPA 70

SYSTEM TYPE AND MONITORING

SYSTEM CLASSIFICATION:	(NFPA 72, CHAPTER 26), REMOTE STATION
SYSTEM TYPE:	ADDRESSABLE
WIRING CLASSIFICATION:	NAC – CLASS B SLC – CLASS B 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 26, SECTION 3.
MONITORING COMPANY:	CFP 1–800–662–1711
ACCOUNT:	A21–0964

SCOPE OF WORK

2. PROVIDE AND INSTALL SIX (6) SMOKE DETECTORS.
3. PROVIDE AND INSTALL THREE (3) BOOSTER PANELS.
4. PROVIDE AND INSTALL SEVEN (7) HORN STROBES.
5. PROVIDE AND INSTALL ONE (1) DOOR HOLDER.
6. PROVIDE AND INSTALL TWO (2) STROBES.
7. REPLACE ELEVEN (11) HORN STROBES.
6. REPLACE ELEVEN (11) PULL STATIONS.
7. REPLACE FIVE (5) SMOKE DETECTORS.
8. REPLACE EIGHT (8) STROBES.

INDEX

Fire Alarm SERVICES, INC.

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

Field Inspection consultation is available upon request; call (303) 739-7420 to schedule a consultation.

Audible/Visual occupant notification device spacing shall be field verified for compliance in Public Use/Common Use Areas. Exam rooms and shared offices are examples of Public Use/ Common Use Areas. 2015 IFC 907.5

Items determined to be in violation of code during inspection are required to be corrected; this review does not grant approval of code violations.

COA Adopted Codes for this project:
ICC-2015 - NEC-2014
NFPA 13-2013 - NFPA 72-2013
COA Amendments 22 & 66

Deviation from reviewed plans may result in an hourly fee to review the field changes for code compliance.

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 INPECTIONS MUST BE CORRECTED.
8 PER THE 2009 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 PERORM 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 2015 IFC AND THE 2003 ANSI A117.1 STANDARD.
16. PROVIDE A PRIMARY AND SECONDARY POWER SUPPLY FOR THE FIRE ALARM SYSTEM PER THE 2015 IFC, SECTION 907.5 AND THE 2013 NFPA 72.

City of Aurora Building Division
Project: *Aurora Medical Center*
Address: *1411 S Potomac St*
Occupancy Group: *IBC B*
Construction Type: *IBC Type IIB-SPK*
RSN: *1202845*
Permit: *2017-1285974-LT*
City of Aurora Building Division
Reviewed for Code Compliance
By: *Ted Caviness*
Date: *May 10, 2017*
2015 INTERNATIONAL CODES & 2014 NEC

Steven Sprague
NICET Fire Alarm Systems
Level III
Certification #137416
Date: 4-27-17

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

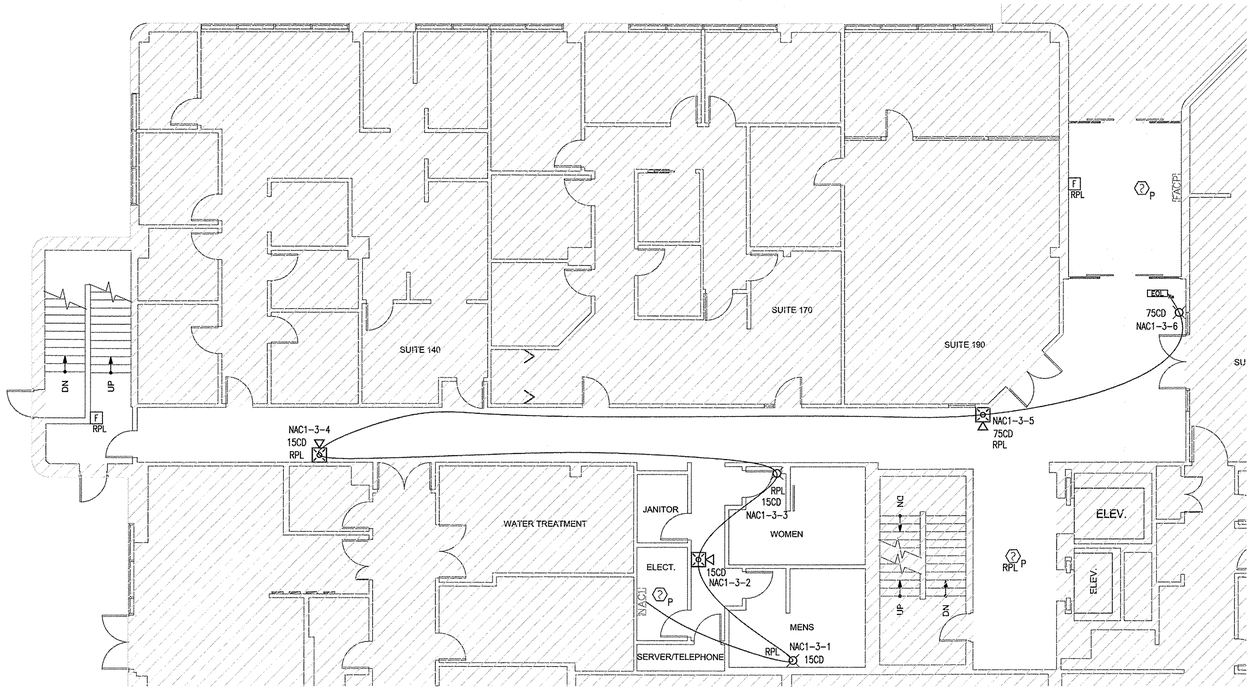
NO.	DATE	REVISIONS

DRAWN BY: J. SPIREK
DATE: 4/19/17
APPR. BY:
DATE:

PROJECT TITLE: FIRE ALARM SYSTEM TENANT FINISH FOR: COMMON AREA REMODEL
BUILDING NAME & ADDRESS: AURORA MEDICAL CENTER, 1411 S. POTOMAC STREET, BASEMENT – 4TH FLOOR, AURORA, CO 80012
PROJECT NUMBER: 17011179

FIRE ALARM & DETECTION SYSTEM
DRAWING TITLE: BASEMENT – 4TH FLOOR COVER PAGE
SCALE: N/A

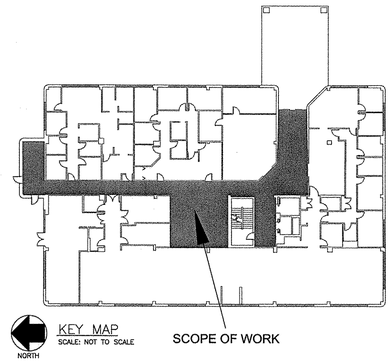
PROJECT SHEET TITLE
FA–00



1ST FLOOR FIRE ALARM PLAN

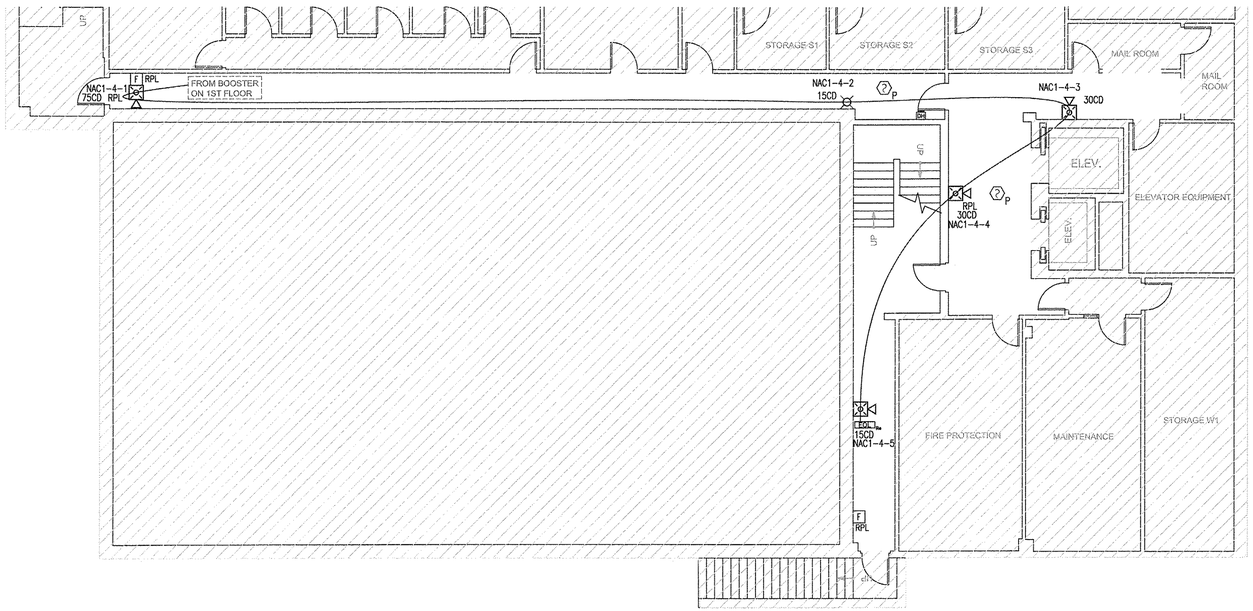
SCALE: 1/8" = 1'-0"

NORTH 0 5 10 15 30 FEET



1ST FLOOR SCOPE OF WORK

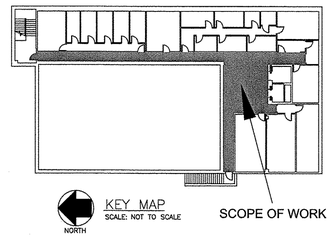
1. REPLACE TWO (2) PULL STATIONS.
2. REPLACE ONE (1) SMOKE DETECTOR.
3. PROVIDE AND INSTALL TWO (2) SMOKE DETECTORS.
4. REPLACE TWO (2) HORN STROBES.
5. PROVIDE AND INSTALL ONE (1) HORN STROBE.
6. REPLACE TWO (2) STROBES.
7. PROVIDE AND INSTALL ONE (1) STROBE.



BASEMENT FIRE ALARM PLAN

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

NORTH 0 5 10 15 30 FEET



BASEMENT SCOPE OF WORK

1. REPLACE TWO (2) PULL STATIONS.
2. PROVIDE AND INSTALL TWO (2) SMOKE DETECTORS.
3. PROVIDE AND INSTALL ONE (1) DOOR HOLDER.
4. REPLACE TWO (2) HORN STROBES.
5. PROVIDE AND INSTALL TWO (2) HORN STROBES.
6. PROVIDE AND INSTALL ONE (1) STROBE.

City of Aurora Building Division
Project: *Aurora Medical Center*
Address: *1411 S Potomac St*
Occupancy Group: *IBC B*
Construction Type: *IBC Type IIB-SPK*
RSN: *1202645*
Permit: *2017-1285974-LT*
City of Aurora Building Division
Reviewed for Code Compliance
By: *Ted Caviness*
Date: *May 10, 2017*
2015 INTERNATIONAL CODES & 2014 NEC

Steven Sprague
NICET Fire Alarm Systems
Level III
Certification #137416
Date: 4-27-17

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

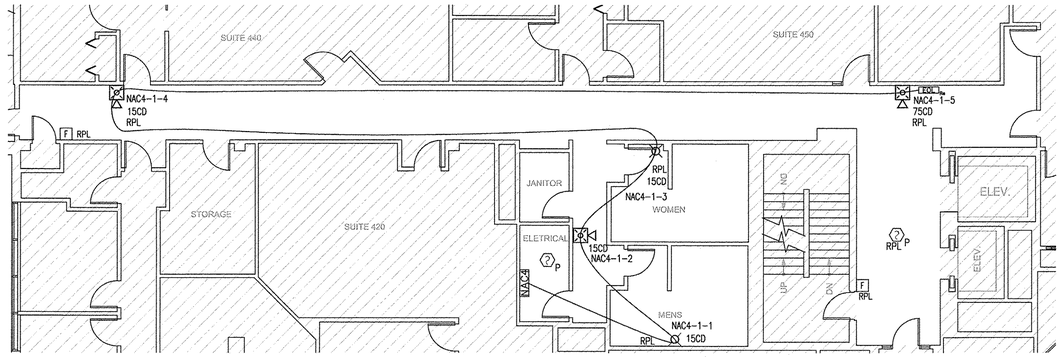
NO.	DATE	REVISIONS

DRAWN BY: J. SPIREK
DATE: 4/19/17
APPR. BY:
DATE:

PROJECT TITLE: FIRE ALARM SYSTEM TENANT FINISH FOR: COMMON AREA REMODEL
BUILDING NAME & ADDRESS: AURORA MEDICAL CENTER, 1411 S. POTOMAC STREET, BASEMENT & 1ST FLOOR, AURORA, CO 80012
PROJECT NUMBER: 17011179

FIRE ALARM & DETECTION SYSTEM
DRAWING TITLE: BASEMENT & 1ST FLOOR FIRE ALARM PLAN
SCALE: AS SHOWN

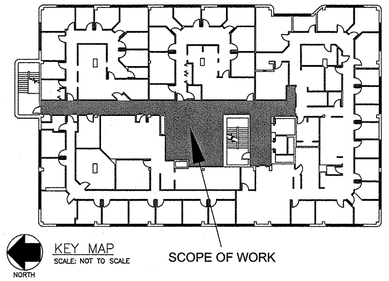
PROJECT SHEET TITLE
FA-01



4TH FLOOR FIRE ALARM PLAN

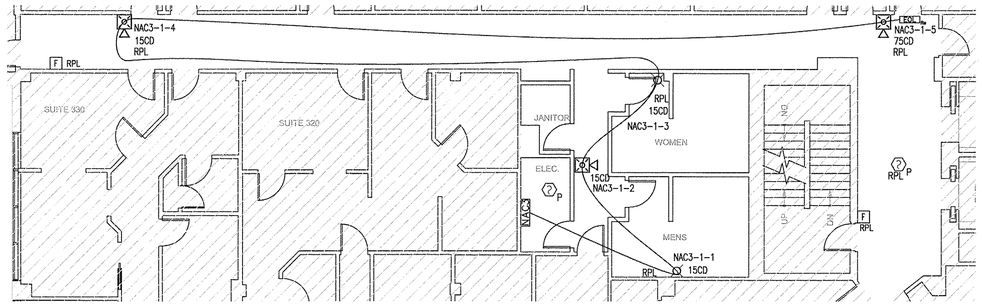
SCALE: 1/8" = 1'-0"

NORTH 0 5 10 15 30 FEET



4TH FLOOR SCOPE OF WORK

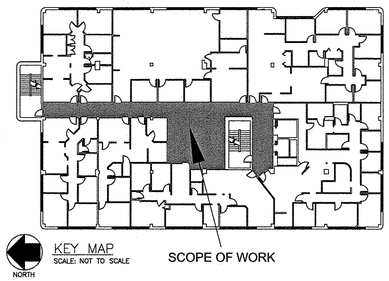
1. REPLACE TWO (2) PULL STATIONS.
2. REPLACE ONE (1) SMOKE DETECTOR.
3. PROVIDE AND INSTALL ONE (1) SMOKE DETECTOR.
4. REPLACE TWO (2) HORN STROBES.
5. PROVIDE AND INSTALL ONE (1) HORN STROBE.
6. REPLACE TWO (2) STROBES.
7. PROVIDE AND INSTALL ONE (1) BOOSTER PANEL.



3RD FLOOR FIRE ALARM PLAN

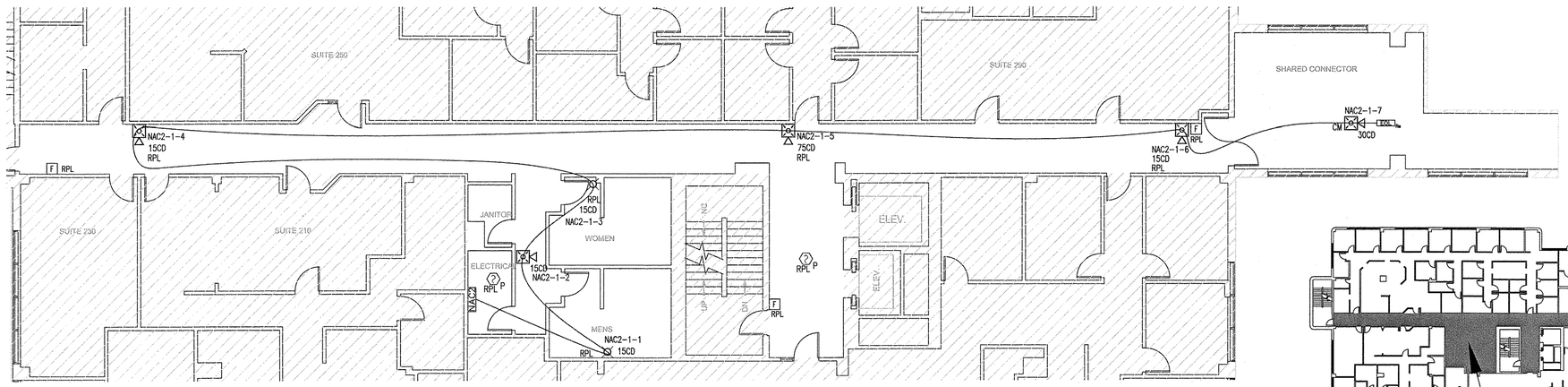
SCALE: 1/8" = 1'-0"

NORTH 0 5 10 15 30 FEET



3RD FLOOR SCOPE OF WORK

1. REPLACE TWO (2) PULL STATIONS.
2. REPLACE ONE (1) SMOKE DETECTOR.
3. PROVIDE AND INSTALL ONE (1) SMOKE DETECTOR.
4. REPLACE TWO (2) HORN STROBES.
5. PROVIDE AND INSTALL ONE (1) HORN STROBE.
6. REPLACE TWO (2) STROBES.
7. PROVIDE AND INSTALL ONE (1) BOOSTER PANEL.



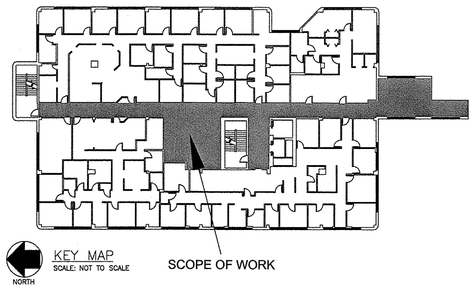
2ND FLOOR FIRE ALARM PLAN

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

NORTH 0 5 10 15 30 FEET

2ND FLOOR SCOPE OF WORK

1. REPLACE THREE (3) PULL STATIONS.
2. REPLACE TWO (2) SMOKE DETECTORS.
3. REPLACE THREE (3) HORN STROBES.
4. PROVIDE AND INSTALL TWO (2) HORN STROBES.
5. REPLACE TWO (2) STROBES.
6. PROVIDE AND INSTALL ONE (1) BOOSTER PANEL.



City of Aurora Building Division
Project: *Aurora Medical Center*
Address: *1411 S Potomac St*
Occupancy Group: *IBC B*
Construction Type: *IBC Type IIB-SPK*
RSN: *1202845*
Permit: *2017-1285974-LT*
City of Aurora Building Division
Reviewed for Code Compliance
By: *Ted Caviness*
Date: *May 10, 2017*
2015 INTERNATIONAL CODES & 2014 NEC

Steven Sprague
NICET Fire Alarm Systems
Level III
Certification #137416
Date: 4-27-17

Fire Alarm SERVICES, INC.
4600 W. 60TH AVENUE phone: 303-466-8800
ARVADA, CO 80003 fax: 303-466-8820
www.fasonline.cc email: contactus@fasonline.cc

NO.	DATE	REVISIONS

DRAWN BY: J. SPREK | DATE: 4/19/17 | APPR. BY: | DATE:

PROJECT TITLE: FIRE ALARM SYSTEM TENANT FINISH FOR: COMMON AREA REMODEL

BUILDING NAME & ADDRESS: AURORA MEDICAL CENTER, 1411 S. POTOMAC STREET, 2ND FLOOR - 4TH FLOOR, AURORA, CO 80012

PROJECT NUMBER: 170111179

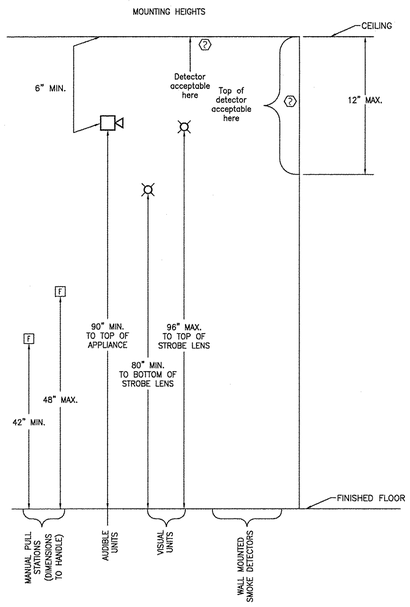
FIRE ALARM & DETECTION SYSTEM

DRAWING TITLE: 2ND FLOOR - 4TH FLOOR FIRE ALARM PLAN

SCALE: AS SHOWN

PROJECT SHEET TITLE

FA-02



GENERAL NOTES:

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

FIRE ALARM SYMBOLS LEGEND

EXISTING	DESCRIPTION	PROPOSED
	STROBE – Wall Mount or CM = Ceiling Mount	
	SMOKE DETECTOR – x = photo, ion	
	HORN STROBE – Wall Mount or CM = Ceiling Mount	
	HORN = Wall Mount or CM = Ceiling Mount	
	REMOTE LED	
EOL	END OF LINE RESISTOR	EOL
NAC	BOOSTER PANEL	NAC
f	PULL STATION	f
	FIREMAN'S PHONE JACK	
	HEAT DETECTOR – x =135, 200, ROR	
WF	FLOW SWITCH	WF
TS	TAMPER SWITCH	TS
	DUCT DETECTOR – x = photo, ion	
AIM	MONITOR MODULE	AIM

NOTIFICATION APPLIANCE CIRCUIT NUMBER
NOTIFICATION APPLIANCE PANEL NUMBER
DEVICE NUMBER
NAC1-2-3
POWER EXPANDER NUMBERING

RR = REMOVE AND REINSTALL RL = RELOCATED DEVICES RPL = REMOVE AND REPLACE J = J-BOX

BOOSTER CALCULATIONS

FOR: Aurora Medical Center
1411 S. Potomac Street

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

PANEL: EST BPS6 (1ST FLOOR)

ITEM	QTY	PART NUMBER	DESCRIPTION	Device Supervisory Current	Device Alarm Current	Total Supervisory Current	Total Alarm Current
1	1	EXISTING	Notification Booster Panel	0.070000	0.190000	0.070000	0.190000
			TOTAL:			0.070000	0.190000

PERIPHERAL:

ITEM	QTY	PART NUMBER	DESCRIPTION	Device Supervisory Current	Device Alarm Current	Total Supervisory Current	Total Alarm Current
1	2	EXISTING	15cd Strobe	0.000000	0.103000	0.000000	0.206000
2	2	EXISTING	30cd Strobe	0.000000	0.141000	0.000000	0.282000
3	1	EXISTING	75cd Strobe	0.000000	0.255000	0.000000	0.255000
4	3	EXISTING	15cd Horn/Strobe	0.000000	0.129000	0.000000	0.387000
5	4	EXISTING	75cd Horn/Strobe	0.000000	0.281000	0.000000	1.124000
6	3	G1RF-VM	15cd Strobe	0.000000	0.103000	0.000000	0.103000
7	1	G1RF-VM	75cd Strobe	0.000000	0.255000	0.000000	0.000000
8	3	G1RF-HDVM	15cd Horn/Strobe	0.000000	0.129000	0.000000	0.129000
9	2	G1RF-HDVM	30cd Horn/Strobe	0.000000	0.167000	0.000000	0.334000
10	2	G1RF-HDVM	75cd Horn/Strobe	0.000000	0.281000	0.000000	0.281000
			TOTAL:			0.000000	3.101000

SUPERVISORY:
PANEL: 0.070000 AMPS
PERIPHERAL 0.000000 AMPS
SUB-TOTAL: 0.070000 AMPS
X HOURS OF SUPERVISORY: 24.0000 HOURS
SUB-TOTAL: 1.680000 AMP HOURS

ALARM:
PANEL: 0.190000 AMPS
PERIPHERAL: 3.101000 AMPS
SUB-TOTAL: 3.291000 AMPS
X MINUTES OF ALARM: 0.08333 HOURS
SUB-TOTAL: 0.274250 AMP HOURS

TOTALS:
TOTAL SUPERVISORY: 1.680000 AMP HOURS
TOTAL ALARM: 0.274250 AMP HOURS
TOTAL: 1.954250 AMP HOURS
TOTAL PLUS SAFETY FACTOR(20%) 2.34510 AMP HOURS
Batteries Supplied – 1 Set of: 7.00000 AMP HOURS

BOOSTER CALCULATIONS

FOR: Aurora Medical Center
1411 S. Potomac Street

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

PANEL: EST BPS6 (2ND FLOOR)

ITEM	QTY	PART NUMBER	DESCRIPTION	Device Supervisory Current	Device Alarm Current	Total Supervisory Current	Total Alarm Current
1	1	EST BPS6	Notification Booster Panel	0.070000	0.190000	0.070000	0.190000
			TOTAL:			0.070000	0.190000

PERIPHERAL:

ITEM	QTY	PART NUMBER	DESCRIPTION	Device Supervisory Current	Device Alarm Current	Total Supervisory Current	Total Alarm Current
1	2	G1RF-VM	15cd Strobe	0.000000	0.103000	0.000000	0.206000
2	1	G1RF-VM	75cd Strobe	0.000000	0.255000	0.000000	0.255000
3	2	G1RF-HDVM	15cd Horn/Strobe	0.000000	0.129000	0.000000	0.258000
4	1	G1RF-HDVM	75cd Horn/Strobe	0.000000	0.281000	0.000000	0.281000
5	1	GCF-HDVM	30cd Ceiling Mt. Horn/Strobe	0.000000	0.190000	0.000000	0.190000
			TOTAL:			0.000000	1.190000

SUPERVISORY:
PANEL: 0.070000 AMPS
PERIPHERAL 0.000000 AMPS
SUB-TOTAL: 0.070000 AMPS
X HOURS OF SUPERVISORY: 24.0000 HOURS
SUB-TOTAL: 1.680000 AMP HOURS

ALARM:
PANEL: 0.190000 AMPS
PERIPHERAL: 1.190000 AMPS
SUB-TOTAL: 1.380000 AMPS
X MINUTES OF ALARM: 0.08333 HOURS
SUB-TOTAL: 0.115000 AMP HOURS

TOTALS:
TOTAL SUPERVISORY: 1.680000 AMP HOURS
TOTAL ALARM: 0.115000 AMP HOURS
TOTAL: 1.795000 AMP HOURS
TOTAL PLUS SAFETY FACTOR(20%) 2.15400 AMP HOURS
Batteries Supplied – 1 Set of: 7.00000 AMP HOURS

BOOSTER CALCULATIONS

FOR: Aurora Medical Center
1411 S. Potomac Street

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

PANEL: EST BPS6 (3RD FLOOR)

ITEM	QTY	PART NUMBER	DESCRIPTION	Device Supervisory Current	Device Alarm Current	Total Supervisory Current	Total Alarm Current
1	1	EST BPS6	Notification Booster Panel	0.070000	0.190000	0.070000	0.190000
			TOTAL:			0.070000	0.190000

PERIPHERAL:

ITEM	QTY	PART NUMBER	DESCRIPTION	Device Supervisory Current	Device Alarm Current	Total Supervisory Current	Total Alarm Current
1	2	G1RF-VM	15cd Strobe	0.000000	0.103000	0.000000	0.206000
2	2	G1RF-HDVM	15cd Horn/Strobe	0.000000	0.129000	0.000000	0.258000
3	1	G1RF-HDVM	75cd Horn/Strobe	0.000000	0.281000	0.000000	0.281000
			TOTAL:			0.000000	0.745000

SUPERVISORY:
PANEL: 0.070000 AMPS
PERIPHERAL 0.000000 AMPS
SUB-TOTAL: 0.070000 AMPS
X HOURS OF SUPERVISORY: 24.0000 HOURS
SUB-TOTAL: 1.680000 AMP HOURS

ALARM:
PANEL: 0.190000 AMPS
PERIPHERAL: 0.745000 AMPS
SUB-TOTAL: 0.935000 AMPS
X MINUTES OF ALARM: 0.08333 HOURS
SUB-TOTAL: 0.077917 AMP HOURS

TOTALS:
TOTAL SUPERVISORY: 1.680000 AMP HOURS
TOTAL ALARM: 0.077917 AMP HOURS
TOTAL: 1.757917 AMP HOURS
TOTAL PLUS SAFETY FACTOR(20%) 2.10950 AMP HOURS
Batteries Supplied – 1 Set of: 7.00000 AMP HOURS

BOOSTER CALCULATIONS

FOR: Aurora Medical Center
1411 S. Potomac Street

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

PANEL: EST BPS6 (4TH FLOOR)

ITEM	QTY	PART NUMBER	DESCRIPTION	Device Supervisory Current	Device Alarm Current	Total Supervisory Current	Total Alarm Current
1	1	EST BPS6	Notification Booster Panel	0.070000	0.190000	0.070000	0.190000
			TOTAL:			0.070000	0.190000

PERIPHERAL:

ITEM	QTY	PART NUMBER	DESCRIPTION	Device Supervisory Current	Device Alarm Current	Total Supervisory Current	Total Alarm Current
1	2	G1RF-VM	15cd Strobe	0.000000	0.103000	0.000000	0.206000
2	2	G1RF-HDVM	15cd Horn/Strobe	0.000000	0.129000	0.000000	0.258000
3	1	G1RF-HDVM	75cd Horn/Strobe	0.000000	0.281000	0.000000	0.281000
			TOTAL:			0.000000	0.745000

SUPERVISORY:
PANEL: 0.070000 AMPS
PERIPHERAL 0.000000 AMPS
SUB-TOTAL: 0.070000 AMPS
X HOURS OF SUPERVISORY: 24.0000 HOURS
SUB-TOTAL: 1.680000 AMP HOURS

ALARM:
PANEL: 0.190000 AMPS
PERIPHERAL: 0.745000 AMPS
SUB-TOTAL: 0.935000 AMPS
X MINUTES OF ALARM: 0.08333 HOURS
SUB-TOTAL: 0.077917 AMP HOURS

TOTALS:
TOTAL SUPERVISORY: 1.680000 AMP HOURS
TOTAL ALARM: 0.077917 AMP HOURS
TOTAL: 1.757917 AMP HOURS
TOTAL PLUS SAFETY FACTOR(20%) 2.10950 AMP HOURS
Batteries Supplied – 1 Set of: 7.00000 AMP HOURS

City of Aurora Building Division
Project: *Aurora Medical Center*
Address: *1411 S Potomac St*
Occupancy Group: *IBC B*
Construction Type: *IBC Type IIB-SPK*
RSN: *1202845*
Permit: *2017-1285974-LT*
City of Aurora Building Division
Reviewed for Code Compliance
By: *Ted Caviness*
Date: *May 10, 2017*
2015 INTERNATIONAL CODES & 2014 NEC

Steven Sprague
NICET Fire Alarm Systems
Level III
Certification #137416
Date: 4-27-17

Fire Alarm SERVICES, INC.
4800 W. 60TH AVENUE
ARVADA, CO 80003
phone: 303-466-6800
fax: 303-466-6820
www.fasonline.cc email: contactus@fasonline.cc

REVISIONS | NO. | DATE

DRAWN BY: J. SPIREK | DATE: 4/19/17 | APPR. BY: | DATE:

FIRE ALARM SYSTEM TENANT FINISH FOR: COMMON AREA REMODEL

PROJECT TITLE: AURORA MEDICAL CENTER

BUILDING NAME & ADDRESS: 1411 S. POTOMAC STREET, BASEMENT – 4TH FLOOR AURORA, CO 80012

PROJECT NUMBER: 17011179

FIRE ALARM & DETECTION SYSTEM

DRAWING TITLE: BASEMENT – 4TH FLOOR NOTES/CALCS

SCALE: N/A

PROJECT SHEET TITLE
FA-03

INCREMENTAL VOLTAGE DROP CALCULATIONS FOR AUDIBLE/ VISUAL CIRCUITS
MINIMUM UL RATED VOLTAGE: 16 VOLTS
Current shown in calculations is RMS current at 16 volts.

Resistance:	12 Guage	2.01
	14 Guage	3.19
	16 Guage	5.08

Circut Number: NAC4-1
Location: Floor 4 Booster Panel — Input Voltage = 20.4

Notification Circuit	Current (in Amps)	Wire Distance (in Feet)	Total Distance (in Feet)	Wire Size (AWG)	Resistance (Ohms)	Voltage Drop	From Baseline Voltage
Strobe 15CD	0.1030	28	28	14	0.1786	0.1333	20.2667
Horn Strobe 15CD	0.1290	33	61	14	0.2105	0.1354	20.1314
Strobe 15CD	0.1030	29	90	14	0.1850	0.0951	20.0363
Horn Strobe 15CD	0.1290	76	166	14	0.4849	0.1993	19.8370
Horn Strobe 75CD	0.2810	97	263	14	0.6189	0.1745	19.6625
End of Line Resistor	0.0010	0	263	14	0.0000	0.0000	19.6625
Total:	0.7460	263			1.6779	0.7375	19.6625
Total Devices:	5						

INCREMENTAL VOLTAGE DROP CALCULATIONS FOR AUDIBLE/ VISUAL CIRCUITS
MINIMUM UL RATED VOLTAGE: 16 VOLTS
Current shown in calculations is RMS current at 16 volts.

Resistance:	12 Guage	2.01
	14 Guage	3.19
	16 Guage	5.08

Circut Number: NAC3-1
Location: Floor 3 Booster Panel — Input Voltage = 20.4

Notification Circuit	Current (in Amps)	Wire Distance (in Feet)	Total Distance (in Feet)	Wire Size (AWG)	Resistance (Ohms)	Voltage Drop	From Baseline Voltage
Strobe 15CD	0.1030	28	28	14	0.1786	0.1333	20.2667
Horn Strobe 15CD	0.1290	34	62	14	0.2169	0.1395	20.1273
Strobe 15CD	0.1030	29	91	14	0.1850	0.0951	20.0322
Horn Strobe 15CD	0.1290	76	167	14	0.4849	0.1993	19.8329
Horn Strobe 75CD	0.2810	94	261	14	0.5997	0.1691	19.6637
End of Line Resistor	0.0010	0	261	14	0.0000	0.0000	19.6637
Total:	0.7460	261			1.6652	0.7363	19.6637
Total Devices:	5						

INCREMENTAL VOLTAGE DROP CALCULATIONS FOR AUDIBLE/ VISUAL CIRCUITS
MINIMUM UL RATED VOLTAGE: 16 VOLTS
Current shown in calculations is RMS current at 16 volts.

Resistance:	12 Guage	2.01
	14 Guage	3.19
	16 Guage	5.08

Circut Number: NAC2-1
Location: Floor 2 Booster Panel — Input Voltage = 20.4

Notification Circuit	Current (in Amps)	Wire Distance (in Feet)	Total Distance (in Feet)	Wire Size (AWG)	Resistance (Ohms)	Voltage Drop	From Baseline Voltage
Strobe 15CD	0.1030	28	28	14	0.1786	0.1903	20.2097
Horn Strobe 15CD	0.1290	34	62	14	0.2169	0.2087	20.0011
Strobe 15CD	0.1030	29	91	14	0.1850	0.1541	19.8469
Horn Strobe 15CD	0.1290	73	164	14	0.4657	0.3400	19.5070
Horn Strobe 75CD	0.2810	91	255	14	0.5806	0.3489	19.1580
Horn Strobe 15CD	0.1290	59	314	14	0.3764	0.1205	19.0376
CM Horn Strobe 30CD	0.1900	31	345	14	0.1978	0.0378	18.9998
End of Line Resistor	0.0010	0	345	14	0.0000	0.0000	18.9998
Total:	1.0650	345			2.2011	1.4002	18.9998
Total Devices:	7						

INCREMENTAL VOLTAGE DROP CALCULATIONS FOR AUDIBLE/ VISUAL CIRCUITS
MINIMUM UL RATED VOLTAGE: 16 VOLTS
Current shown in calculations is RMS current at 16 volts.

Resistance:	12 Guage	2.01
	14 Guage	3.19
	16 Guage	5.08

Circut Number: NAC1-3
Location: Floor 1 Booster Panel — Input Voltage = 20.4

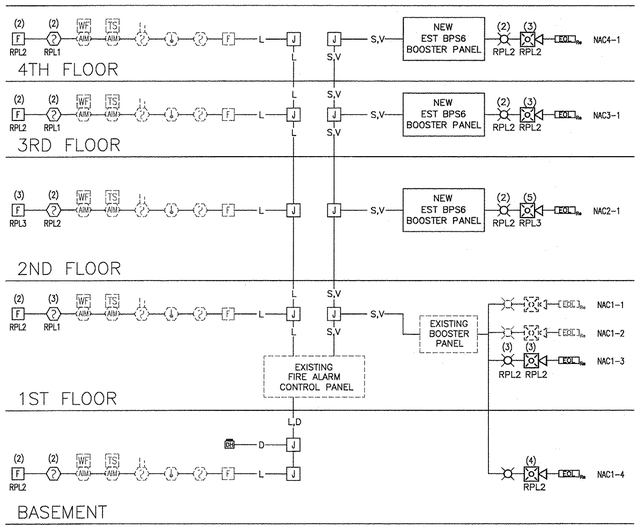
Notification Circuit	Current (in Amps)	Wire Distance (in Feet)	Total Distance (in Feet)	Wire Size (AWG)	Resistance (Ohms)	Voltage Drop	From Baseline Voltage
Strobe 15CD	0.1030	28	28	14	0.1786	0.1788	20.2212
Horn Strobe 15CD	0.1290	33	61	14	0.2105	0.1891	20.0321
Strobe 15CD	0.1030	29	90	14	0.1850	0.1423	19.8898
Horn Strobe 15CD	0.1290	61	151	14	0.3892	0.2592	19.6306
Horn Strobe 75CD	0.2810	90	241	14	0.5742	0.3083	19.3223
Strobe 75CD	0.2550	43	284	14	0.2743	0.0702	19.2521
End of Line Resistor	0.0010	0	284	14	0.0000	0.0000	19.2521
Total:	1.0010	284			1.8119	1.1479	19.2521
Total Devices:	6						

INCREMENTAL VOLTAGE DROP CALCULATIONS FOR AUDIBLE/ VISUAL CIRCUITS
MINIMUM UL RATED VOLTAGE: 16 VOLTS
Current shown in calculations is RMS current at 16 volts.

Resistance:	12 Guage	2.01
	14 Guage	3.19
	16 Guage	5.08

Circut Number: NAC1-4
Location: Floor 1 Booster Panel — Input Voltage = 20.4

Notification Circuit	Current (in Amps)	Wire Distance (in Feet)	Total Distance (in Feet)	Wire Size (AWG)	Resistance (Ohms)	Voltage Drop	From Baseline Voltage
Horn Strobe 75CD	0.2810	67	67	14	0.4275	0.3625	20.0375
Strobe 15CD	0.1030	92	159	14	0.5870	0.3328	19.7047
Horn Strobe 30CD	0.1670	36	195	14	0.2297	0.1066	19.5981
Horn Strobe 30CD	0.1670	31	226	14	0.1978	0.0587	19.5394
Horn Strobe 15CD	0.1290	44	270	14	0.2807	0.0365	19.5029
End of Line Resistor	0.0010	0	270	14	0.0000	0.0000	19.5029
Total:	0.8480	270			1.7226	0.8971	19.5029
Total Devices:	5						



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 – CLASS B	NAC – CLASS B		

BATTERY CALCULATIONS

FOR: Aurora Medical Center
1411 S. Potomac Street
HOURS OF SUPERVISION: 24 HOURS
MINUTES OF ALARM: 5 MINUTES

PANEL: EST QS1 Intelligent Control Panel

ITEM	QTY	PART NUMBER	DESCRIPTION	Device Supervisory Current	Device Alarm Current	Total Supervisory Current	Total Alarm Current
1	1	EXISITING	CPU/LCD Display Unit	0.117000	0.135000	0.117000	0.135000
2	1	EXISITING	Two Line Dialer	0.013000	0.026000	0.013000	0.026000
3	1	EXISITING	Power Supply Card	0.072000	0.096000	0.072000	0.096000
4	1	EXISITING	Signature Loop Intelligent Controller	0.033000	0.057000	0.033000	0.057000
5	1	EXISITING	CPU/LCD Display Unit (remote annunciator)	0.105000	0.123000	0.105000	0.123000
6	1	EXISITING	LED/Switch Card	0.001000	0.022500	0.001000	0.022500
			TOTAL:			0.341000	0.459500

PERIPHERAL:

ITEM	QTY	PART NUMBER	DESCRIPTION	Device Supervisory Current	Device Alarm Current	Total Supervisory Current	Total Alarm Current
1	12	EXISTING	Heat Detector	0.000045	0.000045	0.000540	0.000540
2	4	EXISTING	Duct Detector w/ Housing	0.000045	0.000045	0.000180	0.000180
3	11	EXISTING	Manual Pull Station	0.000250	0.000400	0.002750	0.004400
4	14	EXISTING	Photoelectric Smoke Detector	0.000045	0.000045	0.000630	0.000630
5	20	EXISTING	Single Input Module (Monitor Module)	0.000250	0.000400	0.005000	0.008000
6	11	SIGA-278	Manual Pull Station	0.000250	0.000400	0.002750	0.004400
7	11	SIGA-PS	Photoelectric Smoke Detector	0.000045	0.000045	0.000495	0.000495
8	1	1508-AQN5	Electromagnetic Door Holder	0.000000	0.015000	0.000000	0.015000
			TOTAL:			0.012345	0.018645

SUPERVISORY:		
PANEL:	0.341000	AMPS
PERIPHERAL	0.012345	AMPS
SUB-TOTAL:	0.353345	AMPS
X HOURS OF SUPERVISORY:	24.0000	HOURS
SUB-TOTAL:	8.480280	AMP HOURS
ALARM:		
PANEL:	0.459500	AMPS
PERIPHERAL:	0.018645	AMPS
SUB-TOTAL:	0.478145	AMPS
X MINUTES OF ALARM:	0.08333	HOURS
SUB-TOTAL:	0.039845	AMP HOURS
TOTALS:		
TOTAL SUPERVISORY:	8.480280	AMP HOURS
TOTAL ALARM:	0.039845	AMP HOURS
TOTAL:	8.520125	AMP HOURS
TOTAL PLUS SAFETY FACTOR(20%)	10.22415	AMP HOURS
Batteries Supplied – 1 Set of:	20.00000	AMP HOURS

1411 S. POTOMAC BUILDING SEQUENCE OF OPERATIONS

SYSTEM INPUTS

SYSTEM OUTPUTS

		FACP Annunciation						Notification							Safety				Monitoring			
		Actuate Common Alarm Signal Indicator	Actuate Audible Alarm Signal	Actuate Common Supervisory Signal Indicator	Actuate Audible Supervisory Signal	Actuate Common Trouble Signal Indicator	Actuate Audible Common Trouble Signal	Display Change of Status	Actuate Basement Evacuation Signals (Horn/Strobes)	Actuate 1st Floor Evacuation Signals (Horn/Strobes)	Actuate 2nd Floor Evacuation Signals (Horn/Strobes)	Actuate 3rd Floor Evacuation Signals (Horn/Strobes)	Actuate 4th Floor Evacuation Signals (Horn/Strobes)	Actuate Exterior Horn/Strobe	Silence Audible Signal (Horns)	Release Magnetically Held Smoke Doors	Recall Elevator(s) to 1st Floor – Primary Recall	Recall Elevator(s) to 2nd Floor – Alternate Recall	Shut Down Air Handling Units	Transmit Fire Alarm Signal to Supervising Station	Transmit Trouble Signal to Supervising Station	Transmit Supervisory Signal to Supervising Station	Transmit Waterflow Signal to Supervising Station	
		A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	
1	Manual Pull Station – Basement	X	X					X	X	X	X	X	X			X				X				1
2	Manual Pull Station – 1st Floor	X	X					X	X	X	X	X	X			X				X				2
3	Manual Pull Station – 2nd Floor	X	X					X	X	X	X	X	X			X				X				3
4	Manual Pull Station – 3rd Floor	X	X					X	X	X	X	X	X			X				X				4
5	Manual Pull Station – 4th Floor	X	X					X	X	X	X	X	X			X				X				5
6	Smoke Sensor – Basement Elev Machine	X	X					X	X	X	X	X	X			X	X			X				6
7	Smoke Sensor – 1st Floor Elev Lobby	X	X					X	X	X	X	X	X			X		X		X				7
8	Smoke Sensor – 2nd Floor Elev Lobby	X	X					X	X	X	X	X	X			X	X			X				8
9	Smoke Sensor – 3rd Floor Elev Lobby	X	X					X	X	X	X	X	X			X	X			X				9
10	Smoke Sensor – 4rd Floor Elev Lobby	X	X					X	X	X	X	X	X			X	X			X				10
11	Smoke Sensor – All Other Locations	X	X					X	X	X	X	X	X			X				X				11
12	Duct Smoke Sensor – 4th Floor			X	X			X											X				X	12
13	Heat Sensors – Basement Elevator Machine	X	X					X	X	X	X	X	X			X	X			X				13
14	Heat Sensors – Basement	X	X					X	X	X	X	X	X			X	X			X				14
15	Heat Sensors – 1st Floor	X	X					X	X	X	X	X	X			X				X				15
16	Heat Sensors – 2nd Floor	X	X					X	X	X	X	X	X			X				X				16
17	Heat Sensors – 3rd Floor	X	X					X	X	X	X	X	X			X	X			X				17
18	Heat Sensors – 4th Floor	X	X					X	X	X	X	X	X			X	X			X				18
19	Sprinkler Waterflow – Basement	X	X					X	X	X	X	X	X	X		X				X				19
20	Sprinkler Waterflow – 1st Floor	X	X					X	X	X	X	X	X	X		X				X			X	20
21	Sprinkler Waterflow – 2nd Floor	X	X					X	X	X	X	X	X	X		X				X			X	21
22	Sprinkler Waterflow –3rd Floor	X	X					X	X	X	X	X	X	X		X				X				22
23	Sprinkler Waterflow– 4th Floor	X	X					X	X	X	X	X	X	X		X				X				23
24	Sprinkler Control Valve			X	X			X														X		24
25	FACP AC Power Failure					X	X	X								X					X			25
26	FACP Low Battery					X	X	X													X			26
27	Open Circuit					X	X	X													X			27
28	Ground Fault					X	X	X													X			28
29	Notification Appliance Circuit Short					X	X	X													X			29
30	Alarm Signal Silence														X									30
		A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	

City of Aurora Building Division
Project: *Aurora Medical Center*
Address: *1411 S Potomac St*
Occupancy Group: *IBC B*
Construction Type: *IBC Type IIB-SPK*
RSN: *1202845*
Permit: *2017-1285974-LT*
City of Aurora Building Division
Reviewed for Code Compliance
By: *Ted Cavness*
Date: *May 10, 2017*
2015 INTERNATIONAL CODES & 2014 NEC

Steven Sprague
NICET Fire Alarm Systems
Level III
Certification #137416
Date: 4-27-17

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: J. SPIREK
DATE: 4/19/17
APPR. BY:
DATE:

PROJECT TITLE: FIRE ALARM SYSTEM TENANT FINISH FOR: COMMON AREA REMODEL
BUILDING NAME & ADDRESS: AURORA MEDICAL CENTER, 1411 S. POTOMAC STREET, BASEMENT – 4TH FLOOR, AURORA, CO 80012
PROJECT NUMBER: 17011179

FIRE ALARM & DETECTION SYSTEM
DRAWING TITLE: BASEMENT – 4TH FLOOR CALCS/RISER/MATRIX
SCALE: N/A

PROJECT SHEET TITLE
FA–04

RSN: *1202845*
Permit #: *2017-1285974-LT*

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

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

Fire Alarm System Addition at:

Project: Common Area Remodel
1411 S. Potomac Street, Basement – 4th Floor
Aurora, CO 80012

Scope of Work:

1. Provide and install six (6) smoke detectors.
2. Provide and install three (3) booster panels.
3. Provide and install seven (7) horn strobes.
4. Provide and install one (1) door holder.
5. Provide and install two (2) strobes.
6. Replace eleven (11) horn strobes.
7. Replace eleven (11) pull stations.
8. Replace five (5) smoke detectors.
9. Replace eight (8) strobes.

Steven Sprague
NICET Fire Alarm Systems
Level III
Certification #137416

Date: 4-27-17

RSN: *1202845*
Permit #: *2017-1285974-LT*

GE
Security

EST Fire & Life Safety
Intelligent Initiating Devices

Overview

The Signature Series Model SIGA-PS Intelligent Photoelectric Smoke Detector gathers analog information from its smoke sensing element and converts it into digital signals. The detector's on-board microprocessor measures and analyzes these signals. It compares the information to historical readings and time patterns to make an alarm decision. Digital filters remove signal patterns that are not typical of fires. Unwanted alarms are virtually eliminated.

The microprocessor in each detector 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 detector constantly runs self-checks to provide important maintenance information. The results of the self-check are automatically updated and permanently stored in the detector's non-volatile memory

Automatic Device Mapping - The loop controller learns where each device's serial number address is installed relative to other devices on the circuit. The mapping feature provides supervision of each device's installed location to prevent a detector from being reinstalled (after cleaning etc.) in a different location from where it was originally.

Stand-alone Operation - A decentralized alarm decision by the detector is guaranteed. On-board intelligence permits the detector to operate in stand-alone mode. If loop controller CPU communications fail for more than four seconds, all devices on that circuit go into stand-alone mode. The circuit acts like a conventional alarm receiving circuit.

Fast Stable Communication - On-board intelligence means less information needs to be sent between the detector and the loop controller. Other than regular supervisory polling response, the detector only needs to communicate with the loop controller when it has something new to report.

Standard Features

- Integral microprocessor
- Non-volatile memory
- Automatic mapping device
- Electronic addressing
- Environmental compensation
- Intelligent detector
- Wide 0.67% to 3.77%/ft. sensitivity range
- Twenty pre-alarm sensitivity values, set in 5% increments
- Identification of dirty or defective detectors
- Automatic day/night sensitivity adjustment
- Twin RED/GREEN status LEDs
- Standard, relay, fault isolator, and audible mounting bases
- Designed and manufactured to ISO 9001 standards

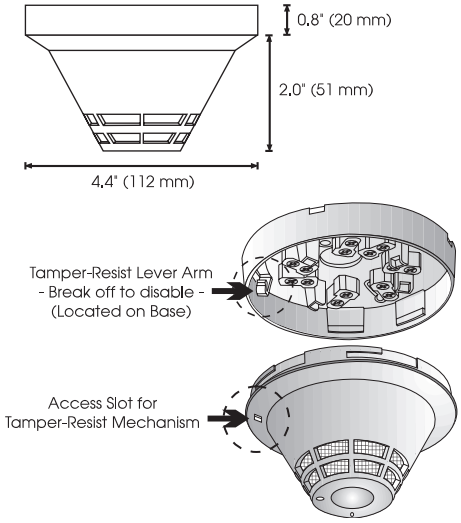
Intelligent Photoelectric Smoke Detector

SIGA-PS

Application Notes Available

Installation

Signature Series detectors mount to North American 1-gang boxes, 3-1/2 inch or 4 inch octagon boxes, and to 4 inch square electrical boxes 1-1/2 inches (38 mm) deep. They mount to European BESA and 1-gang boxes with 60.3 mm fixing centers.



Testing & Maintenance

Each detector automatically identifies when it is dirty or defective and causes a "dirty detector" message. The detector's sensitivity measurement can also be transmitted to the loop controller. A sensitivity report can be printed to satisfy NFPA sensitivity measurements which must be conducted at the end of the first year and every two years thereafter.

The user-friendly maintenance program shows the current state of each detector and other pertinent messages. Single detectors may be turned off temporarily from the control panel. Availability of maintenance features is dependent on the fire alarm system used. Scheduled maintenance (Regular or Selected) for proper detector 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.

Compatibility

The SIGA-PS detectors are compatible only with the Signature Loop Controller.

Warnings & Cautions

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

This detector will NOT sense fires that start in areas where smoke cannot reach the detector. Smoke from fires in walls, roofs, or on the opposite side of closed doors may not reach the detector to alarm it.

Accessories

All detector mounting bases have wiring terminals that are accessible from the "room-side" after mounting the base to the electrical box. The bases mount to North American 1-gang boxes and to 3½ inch or 4 inch octagon boxes, 1½ inches (38 mm) deep. They also mount to European BESA and 1-gang boxes with 60.3 mm fixing centers. The SIGA-SB4, SIGA-RB4, and SIGA-IB4 mount to North American 4 inch sq. electrical boxes in addition to the above boxes. They include the SIGA-TS4 Trim Skirt which is used to cover the "mounting ears" on the base. The SIGA-AB4G mounts to a 4" sqare box only.

SIGA-AB4G Audible Base | SIGA-SB Standard Base | SIGA-IB Isolator Base | SIGA-RB Relay Base | SIGA-LED Remote LED

Standard Base SIGA-SB, SIGA-SB4 - This is the basic mounting base for GE Security Signature Series detectors. The SIGA-LED Remote LED is supported by the Standard Base.

Relay Base SIGA-RB, SIGA-RB4 - This base includes a relay. Normally open or closed operation is selected during installation. The dry contact is rated for 1 amp (pilot duty) @ 30 Vdc. The relay's position is supervised to avoid accidentally jarring it out of position. The SIGA-RB can be operated as a control relay if programmed to do so at the control panel (EST3 V.2 only). The relay base does not support the SIGA-LED Remote LED.

Audible Base SIGA-AB4G - This base is designed for use where localized or group alarm signaling is required. When the detector senses an alarm condition, the audible base emits a local alarm signal. The optional SIGA-CRR Polarity Reversal Relay can be used for sounding to other audible bases on the same 24 Vdc circuit.

Relay and Audible Bases operate as follows:

- at system power-up or reset, the relay is de-energized
- when a detector is installed in the base with the power on, the relay energizes for four seconds, then de-energizes
- when a detector is removed from a base with the power on, the relay is de-energized
- when the detector enters the alarm state, the relay is energized.

Isolator Base SIGA-IB, SIGA-IB4 - This base includes a built-in line fault isolator for use on Class A circuits. A detector must be installed for it to operate. The isolator base does not support the SIGA-LED Remote LED.

The isolator operates as follows:

- a short on the line causes all isolators to open within 23 msec
- at 10 msec intervals, beginning on one side of the Class A circuit nearest the loop controller, the isolators close to provide the next isolator down the line with power
- when the isolator next to the short closes, reopens within 10 msec.

The process repeats beginning on the other side of the loop controller.

Remote LED SIGA-LED - The remote LED connects to the SIGA-SB or SIGA-SB4 Standard Base only. It features a North American size 1-gang plastic faceplate with a white finish and red alarm LED.

SIGA-TS4 Trim Skirt - Supplied with 4 inch bases, it can also be ordered separately to use with the other bases to help hide surface imperfections not covered by the smaller bases.

RSN: *1202845*
Permit #: *2017-1285974-LT*

Application

Although photoelectric detectors have a wide range of fire sensing capabilities they are best suited for detecting slow, smoldering fires. The table below shows six standard test fires used to rate the sensitivity of smoke and heat detectors. The table indicates that no single sensing element is suited for all test fires.

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

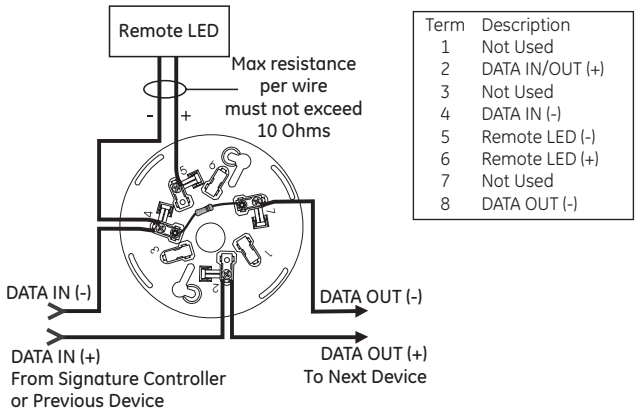
Test Fire	SIGA-IS Ion	SIGA-PS Photo	SIGA-HRS and SIGA-HFS Rate-of-Rise/ Fixed Temp.	SIGA-PHS Photo Heat 3D	SIGA-IPHS Ion/Photo/Heat 4D
Open Wood	**optimum**	unsuitable	**optimum**	very suitable	**optimum**
Wood Pyrolysis	suitable	**optimum**	unsuitable	**optimum**	**optimum**
Smouldering Cotton	very suitable	**optimum**	unsuitable	**optimum**	**optimum**
Poly Urethane Foam	very suitable	very suitable	suitable	very suitable	**optimum**
n-Heptane	**optimum**	very suitable	very suitable	**optimum**	**optimum**
Liquid Fire without Smoke	unsuitable	unsuitable	**optimum**	very suitable	very suitable

Typical Wiring

The detector mounting bases accept #18 AWG (0.75mm^2), #16 (1.0mm^2), #14 AWG (1.5mm^2), and #12 AWG (2.5mm^2) wire sizes.

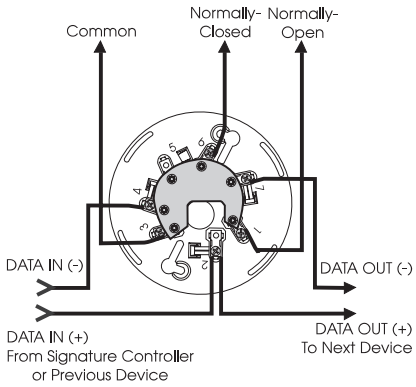
Note: Sizes #16 AWG (1.0mm^2) and #18 AWG (0.75mm^2) are preferred for ease of installation. See Signature Loop Controller catalog sheet for detailed wiring requirement specifications.

Standard Detector Base, SIGA-SB, SIGA-SB4



Term	Description
1	Not Used
2	DATA IN/OUT (+)
3	Not Used
4	DATA IN (-)
5	Remote LED (-)
6	Remote LED (+)
7	Not Used
8	DATA OUT (-)

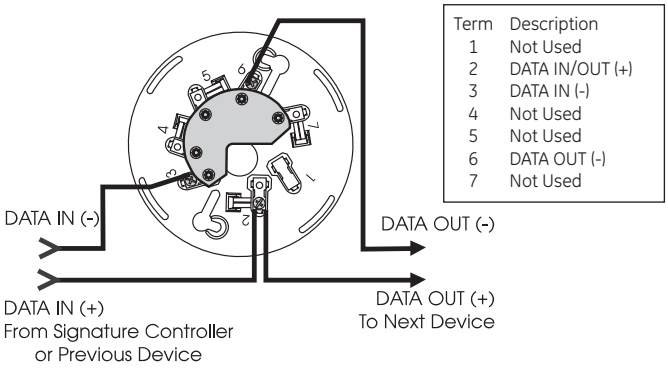
Relay Detector Base, SIGA-RB, SIGA-RB4



Term	Description
1	Normally Open
2	DATA IN/OUT (+)
3	Common
4	DATA IN (-)
5	Not Used
6	Normally-Closed
7	DATA OUT (-)

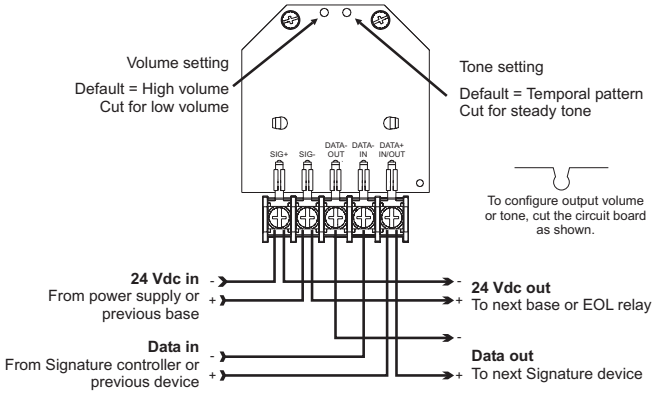
CONTACT RATING
1.0 Amp @ 30 VDC
(Pilot Duty)

Isolator Detector Base, SIGA-IB, SIGA-IB4



Term	Description
1	Not Used
2	DATA IN/OUT (+)
3	DATA IN (-)
4	Not Used
5	Not Used
6	DATA OUT (-)
7	Not Used

Audible Detector Base, SIGA-AB4G



RSN: *1202845*
Permit #: *2017-1285974-LT*

GE
Security

U.S.
T 888-378-2329
F 866-503-3996

Canada
T 519 376 2430
F 519 376 7258

Asia
T 852 2907 8108
F 852 2142 5063

Australia
T 61 3 9259 4700
F 61 3 9259 4799

Europe
T 32 2 725 11 20
F 32 2 721 86 13

Latin America
T 305 593 4301
F 305 593 4300

www.gesecurity.com/est

Specifications

Sensing Element	Photoelectric - Light Scattering Principle
Storage & Operating Environment	Air Velocity Range: 0 to 5,000 ft/min (0 to 25.39 m/s); Humidity: 0 to 93% RH, Non-Condensing Operating Temp: 32°F to 120°F (0°C to 49°C); Storage Temp: -4°F to 140°F (-20°Cto 60°C)
Sensitivity Range	ULI/ULC - 0.67% to 3.77% obscuration/foot
User Selected Alarm Sensitivity Settings	Most Sensitive: 1.0%/ft.; More Sensitive: 2.0%/ft.; Normal: 2.5%/ft.; Less Sensitive: 3.0%/ft.; Least Sensitive: 3.5%/ft.
Pre-alarm Sensitivity	5% increments, allowing up to 20 pre-alarm settings
Operating Voltage	15.2 to 19.95 Vdc (19 Vdc nominal)
Operating Current	Quiescent: 45µA @ 19 V; Alarm: 45µA @ 19 V Emergency Stand-alone Alarm Mode: 18mA Pulse Current: 100 µA (100 msec); During Communication: 9 mA max.
Construction & Finish	High Impact Engineering Polymer - White
Compatible Mounting Bases	SIGA-SB Standard Base, SIGA-RB Relay Base, SIGA-IB Isolator Base, SIGA-AB4, SIGA-AB4G Audible Bases
LED Operation	On-board Green LED - Flashes when polled; On-board Red LED - Flashes when in alarm Both LEDs - Glow steady when in alarm (stand-alone) Compatible Remote Red LED (model SIGA-LED) Flashes when in alarm
Compatibility	Use With: SIGNATURE Loop Controller
Address Requirements	Uses one Device Address
Agency Listings	UL, ULC, MEA, CSFM
UL Listed Spacing	30 ft

Ordering Information

Catalog Number	Description	Ship Wt. lbs (kg)
SIGA-PS	Intelligent Photoelectric Detector - UL/ULC Listed	0.5 (.23)
Accessories		
SIGA-SB	Detector Mounting Base - Standard	0.2 (.09)
SIGA-SB4	4-inch Detector Mounting Base c/w SIGA-TS4 Trim Skirt	
SIGA-RB	Detector Mounting Base w/Relay	
SIGA-RB4	4-inch Detector Mounting Base w/Relay, c/w SIGA-TS4 Trim Skirt	
SIGA-IB	Detector Mounting Base w/Fault Isolator	
SIGA-IB4	4-inch Detector Mounting Base w/ Fault Isolator, c/w SIGA-TS4 Trim Skirt	
SIGA-LED	Remote Alarm LED	
SIGA-AB4G	Audible (Sounder) Base	.3 (0.15)
SIGA-TS4	Trim Skirt (supplied with 4-inch bases)	.1 (.04)

imagination at work

RSN: *1202845*
Permit #: *2017-1285974-LT*

GE
Security

EST Fire & Life Safety
Intelligent Initiating Devices

Overview

The SIGA-270 and SIGA-278 series Manual Pull Stations are part of GE Security's Signature Series system. The SIGA-270 Fire Alarm Manual Pull Stations feature our very familiar teardrop shape. They are made from die-cast zinc and finished with red epoxy powder-coat paint complemented by aluminum colored stripes and markings. With positive pull-lever operation, one pull on the station handle breaks the glass rod and turns in a positive alarm, ensuring protection plus fool-proof operation. Presignal models (SIGA-270P) are equipped with a general alarm (GA) keyswitch for applications where two stage operation is required. The up-front highly visible glass rod discourages tampering, but is not required for proper operation.

GE Security's double action single stage SIGA-278 station is a contemporary style manual station made from durable red colored lexan. To initiate an alarm, first lift the upper door marked "LIFT THEN PULL HANDLE", then pull the alarm handle.

Standard Features

Note: *Some features described here may not be supported by all control systems. Check your control panel's Installation and Operation Guide for details.*

- **Traditional familiar appearance**
  SIGA-270 models feature our familiar teardrop design with simple positive pull action and sturdy die-cast metal body.
- **One stage (GA), two stage (pre-signal), and double action models**
  SIGA-270 models are available for one or two stage alarm systems. The single stage double action SIGA-278 features a rugged Lexan housing with keyed reset mechanism.
- **Break glass operation**
  An up-front visible glass rod on the SIGA-270 discourages tampering.
- **Intelligent device with integral microprocessor**
  All decisions are made at the station allowing lower communication speed while substantially improving control panel response time. Less sensitive to line noise and loop wiring properties; twisted or shielded wire is not required.
- **ADA Compliant**
  Meets ADA requirements for manual pull stations.
- **Electronic Addressing with Non-volatile memory**
  Permanently stores programmable address, serial number, type of device, and job number. Automatically updates historic information including hours of operation, last maintenance date, number of alarms and troubles, and time and date of last alarm.
- **Automatic device mapping**
  Each station transmits wiring information to the loop controller regarding its location with respect to other devices on the circuit.
- **Stand-alone operation**
  The station inputs an alarm even if the loop controller's polling interrogation stops.
- **Diagnostic LEDs**
  Status LEDs; flashing GREEN shows normal polling; flashing RED shows alarm state.
- **Designed for high ambient temperature operation**
  Install in ambient temperatures up to 120 °F (49 °C).

Manual Pull Stations

SIGA-270, SIGA-270P, SIGA-278

SIGA-270 SERIES

SIGA-278

MEA

Patented

RSN: *1202845*
Permit #: *2017-1285974-LT*

Application

The operating characteristics of the fire alarm stations are determined by their sub-type code or "Personality Code". NORMALLY-OPEN ALARM - LATCHING (Pesonality Code 1**)** is assigned by the factory; no user configuration is required. The device is configured for Class B IDC operation. An ALARM signal is sent to the loop controller when the station's pull lever is operated. The alarm condition is latched at the station.

Compatibility

Signature Series manual stations are compatible only with GE Security's Signature Loop Controller.

Warnings & Cautions

This device 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

To test (or reset) the station simply open the station and operate the exposed switch. The SIGA-270 series are opened with a tool; the SIGA-278 requires the key which is supplied with that station.

The station'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 Signature series device and other pertinent messages. Single devices may be 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

The fire alarm station's terminal block accepts #18 AWG (0.75mm^2) to #12 AWG (2.5mm^2) wire sizes. See Signature Loop Controller catalog sheet for detailed wiring requirement specifications.

Wiring Notes

1. Refer to Signature Loop Controller manual for maximum wire distance.
2. All wiring is power limited and supervised.

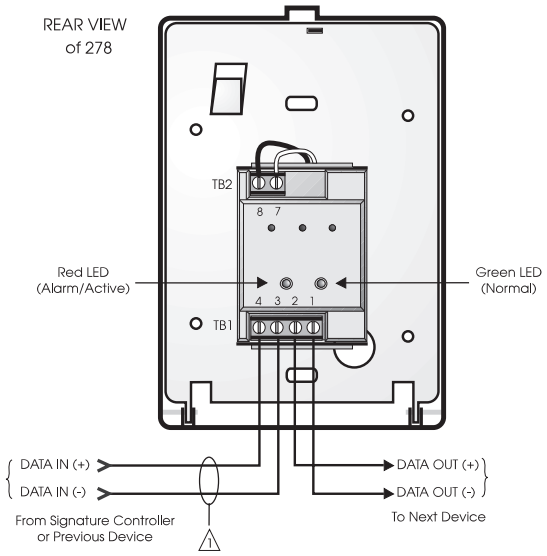


Figure 4. Single Stage Systems

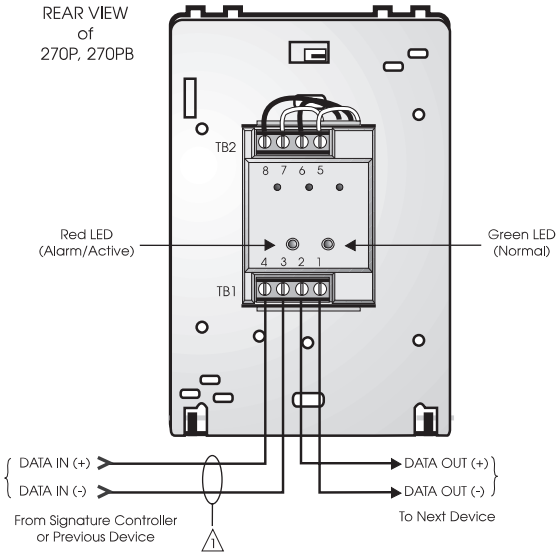


Figure 5. Two Stage Systems

Installation

Single-stage Signature Series fire alarm manual pull stations mount to North American 2½ inch (64 mm) deep 1-gang boxes.

Two stage presignal (270P) models require 1½ inch (38 mm) deep 4-inch square boxes with 1-gang, ½-inch raised covers. Openings must be angular. *Rounded openings are not acceptable.* Recommended box: Steel City Model 52-C-13; in Canada, use Iberville Model CI-52-C-49-1/2.

All models include terminals are suited for #12 to #18 AWG (2.5 mm^2 to 0.75 mm^2) wire size. GE Security recommends that these fire alarm stations be installed according to latest recognized edition of national and local fire alarm codes.

Electronic Addressing: The loop controller electronically addresses each manual station, saving valuable time during system commissioning. Setting complicated switches or dials is not required. Each station 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 stations can be addressed using the SIGA-PRO Signature Program/Service Tool.

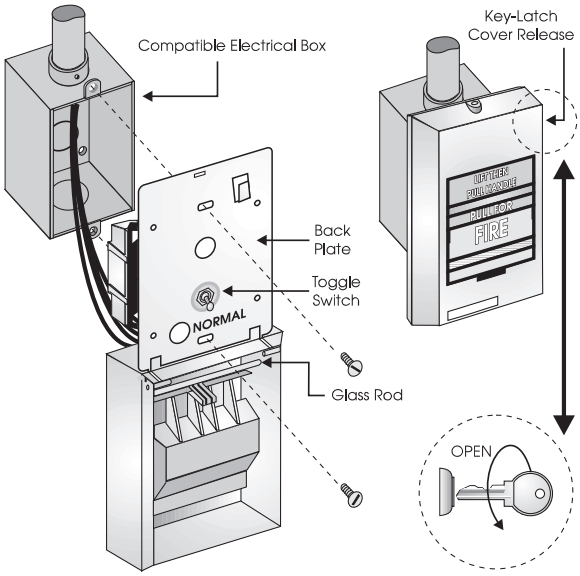


Figure 1. SIGA-278 installation

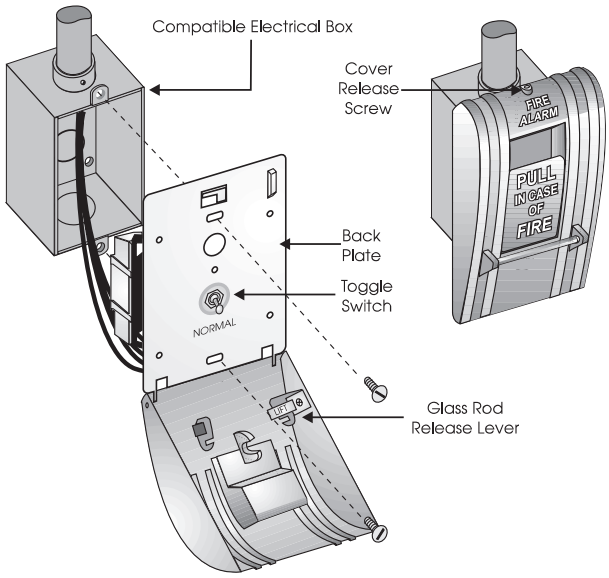


Figure 2. SIGA-270, SIGC-270F, SIGC-270B installation

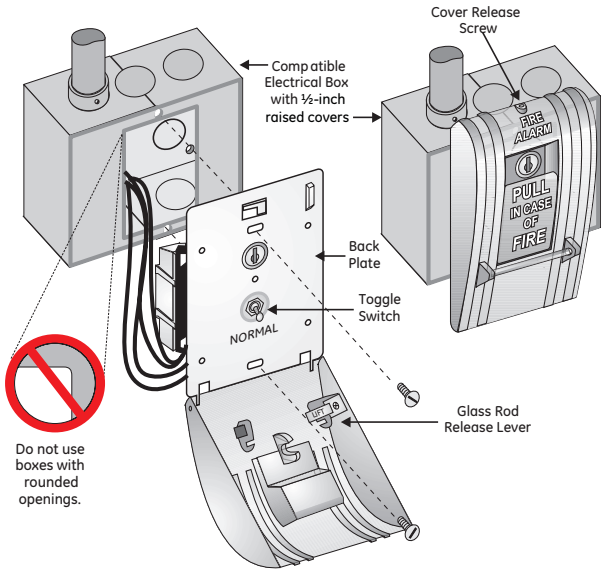


Figure 3. SIGA-270P, SIGC-270PB installation

RSN: *1202845*
Permit #: *2017-1285974-LT*

GE
Security

U.S.
T 888-378-2329
F 866-503-3996

Canada
T 519 376 2430
F 519 376 7258

Asia
T 852 2907 8108
F 852 2142 5063

Australia
T 61 3 9259 4700
F 61 3 9259 4799

Europe
T 32 2 725 11 20
F 32 2 721 86 13

Latin America
T 305 593 4301
F 305 593 4300

www.gesecurity.com/est

Specifications

Catalog Number	SIGA-270, SIGC-270F, SIGC-270B	SIGA-270P, SIGC-270PB	SIGA-278
Description	Single Action - One Stage	Single Action -Two Stage (Presignal)	Double Action - One Stage
Addressing Requirements	Uses 1 Module Address	Uses 2 Module Addresses	Uses 1 Module Address
Operating Current	Standby = 250µA Activated = 400µA	Standby = 396µA Activated = 680µA	Standby = 250µA Activated = 400µA
Construction & Finish	Diecast Zinc - Red Epoxy with aluminum markings		Lexan - Red with white markings
Type Code	Factory Set		
Operating Voltage	15.2 to 19.95 Vdc (19 Vdc nominal)		
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 w hen in alarm Both LEDs - Glow steady when in alarm (stand-alone)		
Compatibility	Use With: Signature Loop Controller		
Agency Listings	UL, ULC (note 1), MEA, CSFM		

Note: *SIGC-270F, SIGC-270B and SIGC-270PB are ULC listed only. Suffix "F" indicates French markings. Suffix "B" indicates English/French biling ual markings.*

Ordering Information

Catalog Number	Description	Ship Wt. lbs (kg)
SIGA-270	One Stage Fire Alarm Station, English Markings - UL/ULC Listed	1 (0.5)
SIGC-270F	One Stage Fire Alarm Station, French Markings - ULC Listed	
SIGC-270B	One Stage Fire Alarm Station, French/English Markings - ULC Listed	
SIGA-270P	Two Stage (Presignal) Fire Alarm Station, English Markings - UL/ULC Listed	
SIGC-270PB	Two Stage (Presignal) Fire Alarm Station, French/English Markings - ULC Listed	
SIGA-278	Double Action (One Stage) Fire Alarm Station, English Markings - UL/ULC Listed	

Accessories		
32997	GA Key w/Tag - for pre-signal station (CANADA ONLY)	0.1 (.05)
276-K2	GA Key - for pre-signal station (USA ONLY)	
276-K1	Station Reset Key, Supplied with all Key Reset Stations	
27165	12 Glass Rods - for SIGA-270 series (CANADA ONLY)	
270-GLR	20 Glass Rods - for SIGA-270 series (USA ONLY)	
276-GLR	20 Glass Rods - for SIGA-278 series	
276B-RSB	Surface Mount Box, Red - for SIGA pull stations	1 (0.6)

imagination at work

RSN: *1202845*
Permit #: *2017-1285974-LT*

Overview

GE Security Electromagnetic Door Holders are ruggedly constructed and attractively designed. The housing is finished with an aluminum color, durable baked polyester powder paint. The floor or wall section houses the electromagnet while the contact plate attaches to the door. The contact plate has a shock absorbing nylon (swivel) ball which allows the plate to adjust to any door angle. Floor units are available in single-door or double-door (back to back) versions. Wall units are available in flush or surface mounted versions.

GE Security door releases should be installed wherever doors may be effectively used to confine smoke and fire, or where the release of a self-closing door from a remote location is desirable for other reasons.

Fail-safe operation is an inherent feature of GE Security door holder-releases. If power fails, doors are released automatically but may be opened or closed manually at any time. All units are free of moving parts, are self-contained and require no maintenance.

These door holder-releases have a holding force of approximately 15 to 25 Lbf (66 to 111N). The device holds a door open while energized. When de-energized by a relay controlled by the fire alarm system or other switch, the door is released to a closed position, checking the spread of smoke and flames. Electromagnetic door holders should be used and installed in accordance with local Building Codes and Standards.

Standard Features

- Floor and wall mounted styles
- Low power consumption
- AC/DC models
- Completely silent operation
- 25 Lbf (111N) nominal holding force
- Adjustable, swivel contact plate

Basic Models

Floor Mounted:

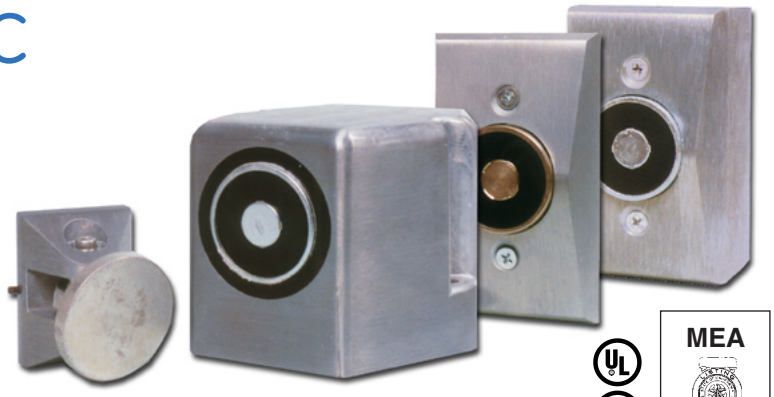
The electromagnet portion consists of a floor plate and a floor housing which when installed with gaskets provided, form a weatherproof electrical junction box. Incoming conduit connects directly into floor plate.

Floor mounted units are available with one (Cat. No. 1501) or two (Cat. No. 1502) magnet faces for holding a single door or two doors back to back.

Wall Mounted:

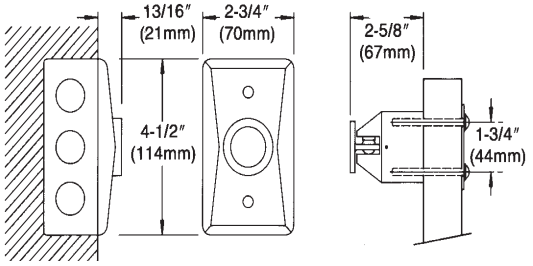
Wall mounted models are available in flush, semi-flush and surface mounting configurations. Flush and semi-flush models are designed for concealed wiring applications and mount on standard single gang (2 x 4 inch) outlet boxes. Surface mounted models mount on a surface adaptor housing (junction box), which is provided.

Electromagnetic Door Holders

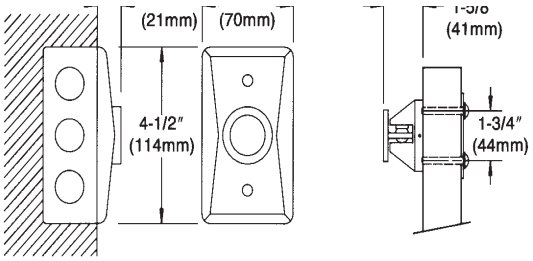


UL LISTED
c UL LISTED
FM
MEA Pending

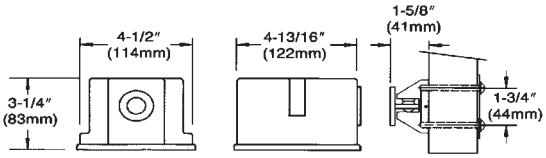
Dimensions



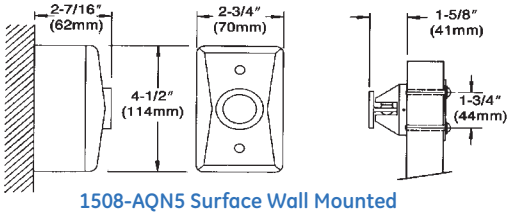
1504-AQN5 Flush Wall Mounted (Long Catch Plate)



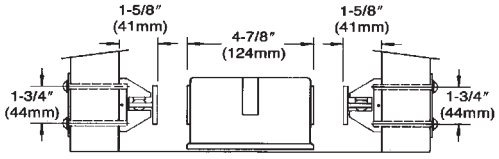
1505-AQN5 Flush Wall Mounted (Short Catch Plate)



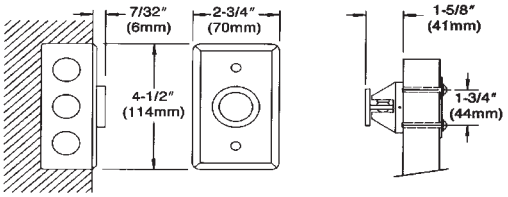
1501-AQN5 Floor Mounted (Single Door)



1508-AQN5 Surface Wall Mounted



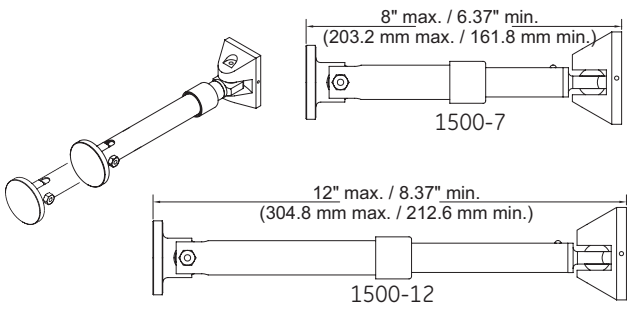
1502-AQN5 Floor Mounted (Double Door)

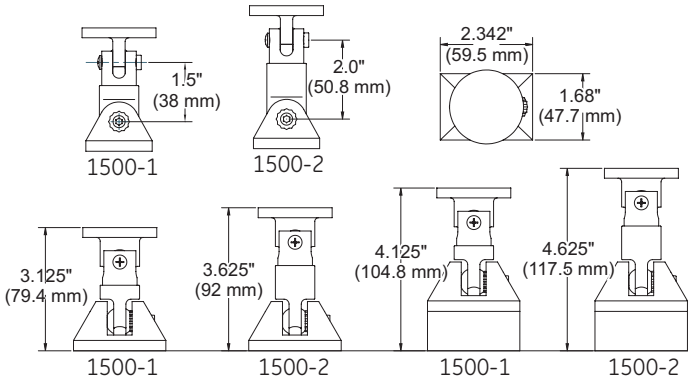


1509-AQN5 Completely Flush Wall Mounted

Catch Plate Extensions

Only the extension rods are included. The end pieces are included with the doorholders or can be ordered separately.





RSN: *1202845*
Permit #: *2017-1285974-LT*

Specifications

Model No.	Style	Volts	Amps*
1501-AQN5	Floor Mounted (Single Door)	24 Vac 60 Hz 24 Vdc 120 Vac 60 Hz	.015
1502-AQN5	Floor Mounted (Double Door)		
1504-AQN5	Flush Wall Mounted (Long Catch Plate)		
1505-AQN5	Flush Wall Mounted (Short Catch Plate)		
1508-AQN5	Surface Wall Mounted		
1509-AQN5	Completely Flush Wall Mounted		

*1502-AQN5 is a double unit which draws .015 per side

Ordering Information

Model No.	Description	Ship. Wt. lb (kg)
1501-AQN5	Floor Mounted (Single Door)	5.4 (2.45)
1502-AQN5	Floor Mounted (Double Door)	5.0 (2.27)
1504-AQN5	Flush Wall Mounted (Long Catch Plate)	2.0 (0.91)
1505-AQN5	Flush Wall Mounted (Short Catch Plate)	2.0 (0.91)
1508-AQN5	Surface Wall Mounted	3.0 (1.36)
1509-AQN5	Completely Flush Wall Mounted	2.0 (0.91)

Accessories		
1500-1	Catch plate extension assembly, 1.5"	0.25 (0.11)
1500-2	Catch plate extension assembly, 2.5"	0.25 (0.11)
1500-7	Catch plate extension assembly (5.25 to 7.5 inches)	0.5 (0.23)
1500-12	Catch plate extension assembly (7.5 to 12 inches)	1.0 (0.45)
CS2595-5	Replacement armature - short (for use with 1501, 1502, 1505, 1508 and 1509 door holders)	0.25 (0.11)
CS2598-5	Replacement armature - long (for use with 1504 door holder)	0.25 (0.11)

CAUTION: These Door Holder units will not operate without electrical power.

GE
Security

U.S.
T 888-378-2329
F 866-503-3996

Canada
T 519 376 2430
F 519 376 7258

Asia
T 852 2907 8108
F 852 2142 5063

Australia
T 61 3 9259 4700
F 61 3 9259 4799

Europe
T 32 2 725 11 20
F 32 2 721 86 13

Latin America
T 305 593 4301
F 305 593 4300

www.gesecurity.com/est

imagination at work

RSN: *1202845*
Permit #: *2017-1285974-LT*

GE
Security

EST Fire & Life Safety
Notification Appliances

Overview

The Genesis line of signals are among the smallest, most compact audible-visible emergency signaling devices in the world. About the size of a deck of playing cards, these devices are designed to blend with any decor.

Thanks to patented breakthrough technology, GE Security Genesis strobes do not require bulky specular reflectors and lenses. Instead, an exclusive cavity design conditions light to produce a highly controlled distribution pattern. Significant development efforts employing this new technology have given rise to a new benchmark in strobe performance – FullLight technology.

FullLight strobe technology produces a smooth light distribution pattern without the spikes and voids characteristic of specular reflectors. This ensures the entire coverage area receives consistent illumination from the strobe flash. As a result, Genesis strobes with FullLight technology go well beyond the minimum UL-required "T" pattern, significantly exceeding UL-1971 and ULC-S526 light distribution requirements.

Genesis strobes and horn-strobes offer 15 to 110 candela output, which is selectable with a conveniently-located switch on the side of the device. Models are also available that offer fixed 15/75 cd output. The candela output setting remains clearly visible even after final installation, yet it stays locked in place to prevent unauthorized tampering.

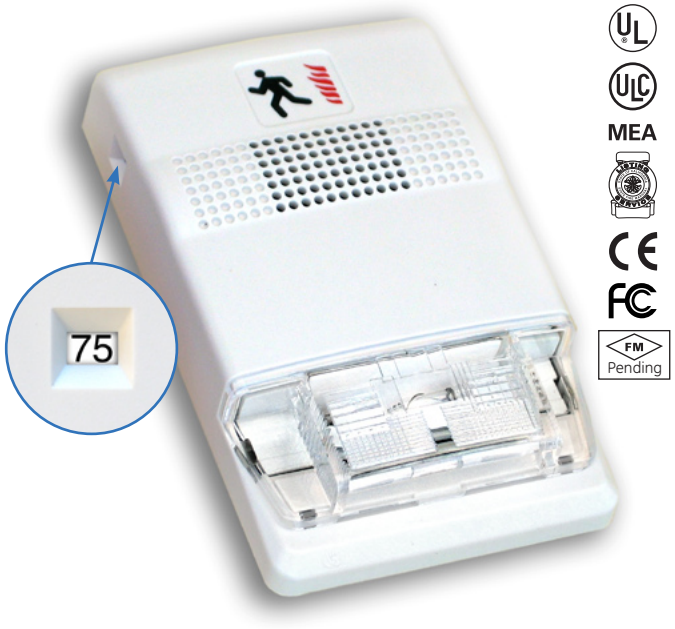
Genesis signals feature textured housings in architecturally neutral white or traditional fire red. An ingenious iconographic symbol indicates the purpose of the device. This universal symbol is code-compliant and is easily recognized by all building occupants regardless of what language they speak. Models with "FIRE" markings are also available.

Standard Features

- **Unique low-profile design**
  - The most compact UL-1971/ULC-S526 listed strobe available
  - Ultra-slim – protrudes less than one inch
  - Attractive appearance
  - No visible mounting screws
- **Four field-configurable options in one device**
  - Select 15, 30, 75, or 110 cd strobe output
  - Select high (default) or low dB horn output
  - Select temporal (default) or steady horn output
  - Select public mode flash rate (default) or private mode temporal flash
- **Fixed 15/75 cd model available**
- **Easy to install**
  - Fits standard 1-gang electrical boxes – no trim plate needed
  - Optional trim plate accommodates oversized openings
  - Pre-assembled with captive hardware
  - #12 AWG terminals – ideal for long runs or existing wiring
- **Unparalleled performance**
  - Industry's most even light distribution
  - Meets tough synchronizing standards for strobes
  - Single microprocessor controls both horn and strobe
  - Low current draw minimizes system overhead
  - Independent horn control over a single pair of wires
  - Highly regulated in-rush current
  - Multiple frequency tone improves sound penetration
  - Industry's first temporal strobe output

Field Configurable Horns and Strobes

Genesis Series



MEA

FM Pending

RSN: *1202845*
Permit #: *2017-1285974-LT*

Application

Genesis strobes are UL 1971-listed for use indoors as wall-mounted public-mode notification appliances for the hearing impaired. Prevailing codes require strobes to be used where ambient noise conditions exceed 105 dBA (87dBA in Canada), where occupants use hearing protection, and in areas of public accommodation as defined in the *Americans with Disabilities Act (see application notes – USA).*

Combination horn-strobe signals must be installed in accordance with guidelines established for strobe devices.

Strobes

Genesis strobes are UL 1971-listed for use indoors as wall-mounted public-mode notification appliances for the hearing impaired. Prevailing codes require strobes to be used where ambient noise conditions exceed specified levels, where occupants use hearing protection, and in areas of public accommodation. Consult with your Authority Having Jurisdiction for details.

All Genesis strobes exceed UL synchronization requirements (within 10 milliseconds other over a two-hour period) when used with a synchronization source. Synchronization is important in order to avoid epileptic sensitivity.

NOTE: The flash intensity of some visible signals may not be adequate to alert or waken occupants in the protected area. Research indicates that the intensity of strobe needed to awaken 90% of sleeping persons is approximately 100 cd. GE Security recommends that strobes in sleeping rooms be rated at at least 110 cd.

WARNING: These devices will not operate without electrical power. As fires frequently cause power interruptions, further safeguards such as backup power supplies may be required.

Horns

Genesis horn output reaches as high as 99 dB and features a unique multiple frequency tone that results in excellent sound penetration and an unmistakable warning of danger. Horns may be configured for either coded or non-coded signal circuits. They can also be set for low dB output with a jumper cut that reduces horn output by about 5 dB. Horn-only models may be ceiling-mounted or wall-mounted.

The suggested sound pressure level for each signaling zone used with alert or alarm signals is at least 15 dB above the average ambient sound level, or 5 dB above the maximum sound level having a duration of at least 60 seconds, whichever is greater, measured 5 feet (1.5 m) above the floor. The average ambient sound level is, A-weighted sound pressure measured over a 24-hour period.

Doubling the distance from the signal to the ear will theoretically result in a 6 dB reduction of the received sound pressure level. The actual effect depends on the acoustic properties of materials in the space. A 3 dBA difference represents a barely noticeable change in volume.

Installation

Genesis horns and strobes mount to any standard one-gang surface or flush electrical box. Matching optional trim plates are used to cover oversized openings and can accommodate one-gang, two-gang, four-inch square, or octagonal boxes, and European 100 mm square.

Genesis Horn/Strobe with optional trim plate

All Genesis signals come pre-assembled with captive mounting screws for easy installation. Two tabs at the top of the signal unlock the cover to reveal the mounting hardware. The shallow depth of Genesis devices leaves ample room behind the signal for extra wiring. Once installed with the cover in place, no mounting screws are visible.

Field Configuration

Temporal horn and horn-strobe models are factory set to sound in a **three-pulse temporal pattern**. Units may be configured for use with coded systems by cutting a jumper on the circuit board. This results in a **steady output** that can be turned on and off (coded) as the system applies and removes power to the signal circuit. A Genesis Signal Master is required when horn-strobe models are configured for coded systems. Non-temporal, horn-only models sound a steady tone.

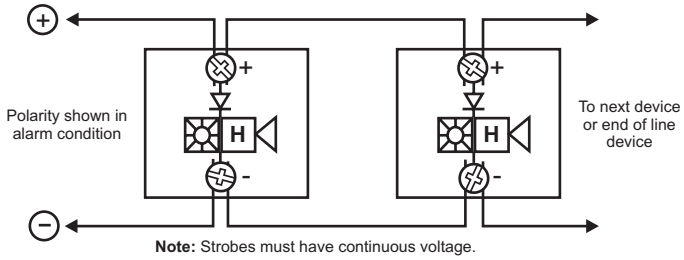
Genesis strobes and horn-strobes are shipped from the factory ready for use as **UL 1971 compliant** signals for public mode operation. These signals may be configured for **temporal flash** by cutting a jumper on the circuit board. This battery-saving feature is intended for private mode signaling only.

Genesis strobes and horn-strobes may be set for **15, 30, 75, or 110 candela output**. The output setting is changed by simply opening the device and sliding the switch to the desired setting. The device does not have to be removed to change the output setting. The setting remains visible through a small window on the side of the device after the cover is closed.

Horns and horn-strobes are factory set for **high dB output**. **Low dB output** may be selected by cutting a jumper on the circuit board. This reduces the output by about 5 dB.

Wiring

Field wiring terminals accommodate #18 to #12 AWG (0.75 mm² to 2.5 mm²) wiring. Horns, strobes, and combination horn-strobes are interconnected with a single pair of wires as shown below.



Note: Strobes must have continuous voltage.

Current Draw

Strobes, Horn-Strobes

Multi-cd Wall Strobes (G1-VM)

UL Rating	15 cd*	30 cd*	15/75 cd**	75 cd*	110 cd*
	RMS	RMS	RMS	RMS	RMS
16 Vdc	103	141	152	255	311
16 Vfwr	125	179	224	346	392

*G1-VM multi-cd; **G1F-V1575 fixed 15/75 cd

Typical Current	15 cd		30 cd		15/75		75 cd		110 cd	
	RMS	Mean	RMS	Mean	RMS	Mean	RMS	Mean	RMS	Mean
16 Vdc	85	79	127	124	150	140	245	243	285	283
20 Vdc	71	66	98	96	123	114	188	186	240	238
24 Vdc	59	55	82	80	104	97	152	150	191	190
33 Vdc	46	44	64	63	84	77	112	111	137	136
16 Vfwr	119	64	169	97	223	126	332	203	376	240
20 Vfwr	103	51	143	76	189	100	253	150	331	198
24 Vfwr	94	44	129	65	169	85	218	121	262	152
33 Vfwr	87	37	112	52	148	68	179	89	205	106

Wall Temporal Horn-strobes – High dB Setting

UL Rating	15 cd*	30 cd*	15/75 cd**	75 cd*	110 cd*
	RMS	RMS	RMS	RMS	RMS
16 Vdc	129	167	172	281	337
16 Vfwr	176	230	269	397	443

*G1-HDVM multi-cd
**G1F-HDV1575 fixed 15/75 cd

Typical Current	15 cd		30 cd		15/75		75 cd		110 cd	
	RMS	Mean	RMS	Mean	RMS	Mean	RMS	Mean	RMS	Mean
16 Vdc	102	89	135	129	160	152	246	242	309	305
20 Vdc	88	77	109	104	137	129	193	190	248	243
24 Vdc	81	71	94	90	122	114	161	158	203	200
33 Vdc	74	64	72	74	106	98	124	121	154	151
16 Vfwr	144	77	182	106	247	143	352	212	393	249
20 Vfwr	141	68	162	87	220	120	274	158	362	210
24 Vfwr	136	65	152	76	203	106	235	133	282	165
33 Vfwr	125	54	144	65	196	94	201	101	232	123

Wall Temporal Horn-strobes – Low dB Setting

UL Rating	15 cd*	30 cd*	15/75 cd**	75 cd*	110 cd*
	RMS	RMS	RMS	RMS	RMS
16 Vdc	122	160	146	274	330
16 Vfwr	162	216	231	383	429

*G1-HDVM multi-cd
**G1F-HDV1575 fixed 15/75 cd

Typical Current	15 cd		30 cd		15/75		75 cd		110 cd	
	RMS	Mean	RMS	Mean	RMS	Mean	RMS	Mean	RMS	Mean
16 Vdc	96	84	130	124	158	149	243	240	302	297
20 Vdc	79	70	104	99	133	124	189	186	241	237
24 Vdc	68	61	88	84	119	110	156	154	197	193
33 Vdc	56	52	71	68	100	93	118	116	146	143
16 Vfwr	128	69	180	104	241	139	344	204	389	244
20 Vfwr	118	60	157	84	213	115	266	156	343	200
24 Vfwr	113	54	144	74	195	101	230	128	279	161
33 Vfwr	112	48	137	64	182	87	197	99	226	117

Horns

Wall or Ceiling Mounted Temporal Horns (G1-HD)

UL Rating	High dB (RMS)	Low dB (RMS)
16 Vdc	26	19
24 Vdc	36	27
33 Vdc	41	33
16 Vfwr	51	37
24 Vfwr	69	52
33 Vfwr	76	70

Typical Current	High dB		Low dB	
	RMS	Mean	RMS	Mean
16 Vdc	22	17	17	14
20 Vdc	24	19	19	16
24 Vdc	27	21	22	18
33 Vdc	32	25	26	22
16 Vfwr	34	15	30	14
20 Vfwr	40	19	34	16
24 Vfwr	45	21	38	18
33 Vfwr	52	24	47	22

Wall or Ceiling Mounted Horns (G1-P)

UL Designation	Voltage Range	Max. Current, RMS
Regulated 24 Vdc	16 - 33 Vdc	13 mA
24 fwr	16 - 33 Vfwr	11 mA

Typical Current	RMS	Mean
24 Vdc	10	10
24 Vdc	11	11
31 Vdc	12	12
20 Vfwr	9	8
24 Vfwr	10	9

Notes and Comments

1. Current values are shown in mA.
2. UL Nameplate Rating can vary from Typical Current due to measurement methods and instruments used.
3. GE Security recommends using the Typical Current for system design including NAC and Power Supply loading and voltage drop calculations.
4. Use the Vdc RMS current ratings for filtered power supply and battery AH calculations. Use the Vfwr RMS current ratings for unfiltered power supply calculations.
5. Fuses, circuit breakers and other overcurrent protection devices are typically rated for current in RMS values. Most of these devices operate based upon the heating affect of the current flowing through the device. The RMS current (not the mean current) determines the heating affect and therefore, the trip and hold threshold for those devices.
6. Our industry has used 'mean' currents over the years. However, UL will direct the industry to use the 2004 RMS values in the future.

RSN: *1202845*
Permit #: *2017-1285974-LT*

dBA output

Temporal Horns, Horn-strobes (G1-HD, G1-HDVM series)

High dB Setting	UL464		Average	Peak
	Temporal	Steady	Temporal/ Steady	Temporal/ Steady
16 Vdc	81.4	85.5	91.4	94.2
24 Vdc	84.4	88.6	94.5	97.6
33 Vdc	86.3	90.4	96.9	99.5

Low dB Setting	UL464		Average	Peak
	Temporal	Steady	Temporal/ Steady	Temporal/ Steady
16 Vdc	76.0	80.1	86.3	89.2
24 Vdc	79.4	83.5	89.8	92.5
33 Vdc	82.1	86.5	92.5	95.3

Steady Tone Horns (G1-P series)

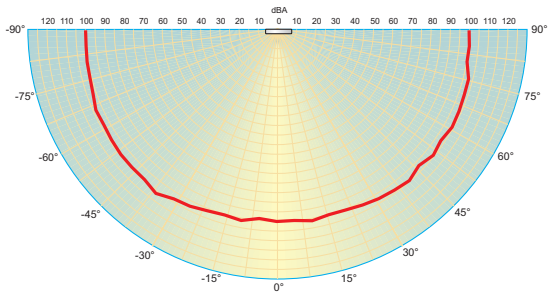
	UL464	Average	Peak
16 Vdc	77 dBA, min	85 dBA	91 dBA
16 Vfwr	77 dBA, min	85 dBA	91 dBA

Notes

1. All values shown are dBA measured at 10 feet (3.01m).
2. UL464 values measured in reverberation room.
3. Average and Peak values are measured in anechoic chamber.

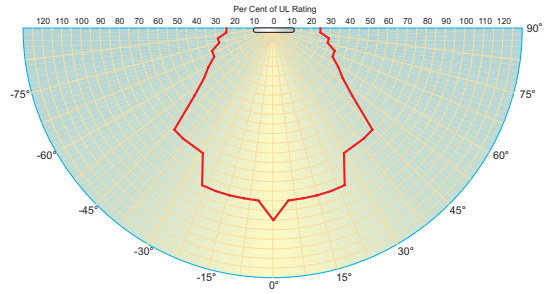
Average Sound Output (dBA)

(High dB setting, anechoic, 24V, measured at 10ft)



Light output - (effective cd)

Percent of UL rating versus angle



Specifications

Housing	Red or white textured UV stabilized, color impregnated engineered plastic. Exceeds 94V-0 UL flammability rating.
Lens	Optical grade polycarbonate (clear)
Mounting (indoor only)	Strobes and horn-strobes are for wall-mount installation only. Horn-only models may be ceiling- or wall-mounted. Flush mount: 2½ inch (64 mm) deep one-gang box Surface mount: Model 27193 surface mount box, wiremold box, or equivalent surface-mount box With optional trim plate: One-gang, two-gang, four-inch square, octagonal, or European single-gang box
Wire connections	Screw terminals: single input for both horn and strobe. #18 to #12 AWG (0.75 mm² to 2.5 mm²) wire size
Operating environment	Indoor only: 32-120°F (0-49°C) ambient temperature. 93% relative humidity
Agency listings/approvals	UL 1971, UL 1638, UL 464, ULC S525, ULC S526, CSFM, CE, FCC, MEA (FM pending). (All models comply with ADA Code of Federal Regulation Chapter 28 Part 36 Final Rule.)
Dimensions (HxWxD)	Signal: 4-1/2" x 2-3/4" x 13/16" (113 mm x 68 mm x 21 mm) Trimplate: 5" (127 mm); Height – 5-7/8" (149 mm); Depth – ½" (13 mm)
Operating voltage	G1-HD series temporal-tone horns: non-coded, filtered 16-33 Vdc or unfiltered 16-33 Vdc FWR (or coded when horn set to steady tone) G1-HDVM series temporal-tone horn-strobes: non-coded, filtered 16-33 Vdc or unfiltered 16-33 Vdc FWR (or coded (audible NAC only) when used with optional G1M Genesis Signal Master) G1-VM series strobes: non-coded, filtered 16 - 33 Vdc or unfiltered 16-33 Vdc FWR G1-P series steady-tone horns: coded or non-coded, filtered 20-31 Vdc or unfiltered 20-27 Vfwr
Strobe output rating	UL 1971, UL 1638, ULC S526: selectable 15 cd, 30 cd, 75 cd, or 110 cd output UL 1971: 15 cd (fixed 15/75 cd models) UL 1638, ULCS526: 75 cd (fixed 15/75 cd models)
Strobe flash rate	G1-VM strobes and G1-HDVM series temporal-tone horn-strobes: one flash per second synchronized with optional G1M Genesis Signal Master indefinitely within 10 milliseconds (or self-synchronized within 200 milliseconds over thirty minutes on a common circuit without G1M Genesis Signal Master) Temporal setting (private mode only): synchronized to temporal output of horns on same circuit
Synchronization Sources	G1M-RM, SIGA-CC1S, SIGA-MCC1S, BPS6A, BPS10A
Horn pulse rate	G1-HD temporal-tone horns and G1-HDVM series temporal-tone horn-strobes: temporal rate synchronized with optional G1M Genesis Signal Master indefinitely within 10 milliseconds (or self-synchronized within 200 milliseconds over thirty minutes on a common circuit without G1M Genesis Signal Master) G1-P steady-tone horns: continuous, steady tone only
Temporal audible pattern	½ sec ON, ½ sec OFF, ½ sec ON, ½ sec OFF, ½ sec ON, 1½ sec OFF, then repeat cycle

RSN: *1202845*
Permit #: *2017-1285974-LT*

Ordering Information

Catalog Number		Description	Ship Wt. lbs (kg)
White Finish	Red Finish		
G1-HDVM	G1R-HDVM	Genesis Horn-Strobe (selectable 15, 30, 75, or 110 cd output, selectable high/low dB output)	0.25 (0.11)
G1-VM	G1R-VM	Genesis Strobe (selectable 15, 30, 75, or 110 cd output)	
G1-HD	G1R-HD	Genesis Temporal Horn (selectable high/low dB output)	
G1-P	G1R-P	Genesis Steady Horn (not compatible with Genesis Signal Master)	
G1F-HDVM	G1RF-HDVM	Genesis Horn-Strobe (selectable 15, 30, 75, or 110 cd output, selectable high/low dB output) – with "FIRE" marking	
G1F-VM	G1RF-VM	Genesis Strobe (selectable 15, 30, 75, or 110 cd output) – with "FIRE" marking	
G1F-HD	G1RF-HD	Genesis Temporal Horn (selectable high/low dB output) – with "FIRE" marking	
G1F-P	G1RF-P	Genesis Steady Horn with "FIRE" marking (not compatible with Genesis Signal Master)	
G1F-HDV1575	G1RF-HDV1575	15/75 cd temporal horn-strobe, hi/lo dB-24V – with "FIRE" marking (see note 1)	
G1F-V1575	G1RF-V1575	15/75 cd strobe – with "FIRE" marking (see note 1)	
Mounting Accessories			
G1T	G1RT	Genesis Trim Plate (for two-gang or 4" square boxes)	0.15 (0.7)
G1T-FIRE	G1RT-FIRE	Genesis Trim Plate (for two-gang or 4" square boxes) with "FIRE" markings	0.15 (0.7)
27193-16	27193-11	One-gang surface mount box	1 (0.4)
Synchronization Modules			
G1M		Genesis Signal Master – Snap-on Mount	0.2 (0.1)
G1M-RM		Genesis Signal Master – Remote Mount (1-gang)	
SIGA-CC1S		Intelligent Synchronization Output Module (2-gang)	0.5 (0.23)
SIGA-MCC1S		Intelligent Synchronization Output Module (Plug-in UIO)	0.18 (0.08)

Note 1: These 15/75 cd models provide fixed output and are not multi-candela devices. The 15 cd output component complies with UL1971, while the 75 cd output component complies with UL 1638.

Genesis Horn-Strobes may be ordered in red or white, with or without 'FIRE' marking. Order matching trim plates separately.

GE
Security

U.S.
T 888-378-2329
F 866-503-3996

Canada
T 519 376 2430
F 519 376 7258

Asia
T 852 2907 8108
F 852 2142 5063

Australia
T 61 3 9259 4700
F 61 3 9259 4799

Europe
T 32 2 725 11 20
F 32 2 721 86 13

Latin America
T 305 593 4301
F 305 593 4300

www.gesecurity.com

imagination at work

RSN: 1202845
Permit #: 2017-1285974-LT

GE
Security

EST Fire & Life Safety
Power Supplies

Overview

The Remote Booster Power Supply is a self-contained 24 Vdc power supply designed to augment fire alarm audible and visual power requirements as well as provide power for auxiliary, access control and security applications. The booster contains all of the necessary circuits to monitor and charge batteries, control and supervise four Class B or two Class A NAC circuits and monitor two controlling inputs from external sources.

Simple switch selection provides a wide variety of operational configurations. Each remote booster power supply is supplied with its own enclosure providing ample space for additional interface modules and battery compartment.

The Remote Booster Power Supply is available in either a 6.5 or 10 amp version @ 24 Vdc.

Standard Features

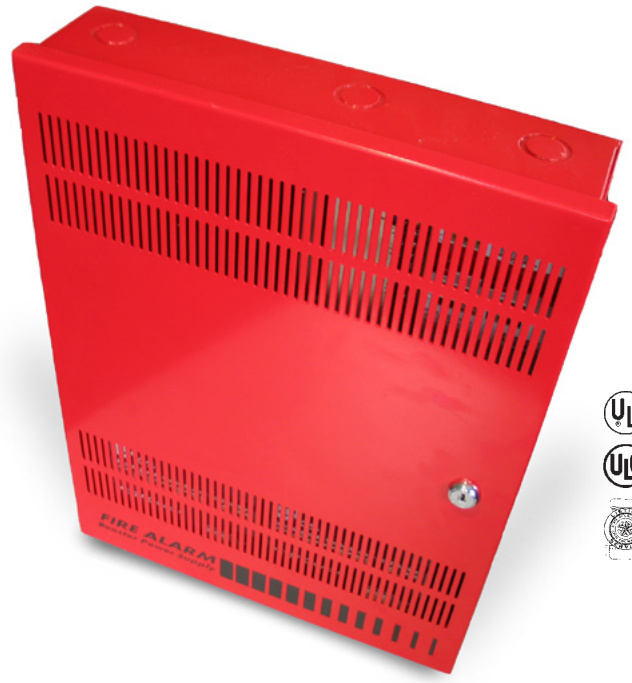
- Available in 10 amp and 6.5 amp versions.
- Includes four independent 3 amp NACs – each configurable as auxiliary outputs.
- Configurable signal rates.
- Field selectable input-to-output correlation.
- Extends power available to Notification Appliance Circuits (NACs).
- Provides strobe synchronization.
- Use as auxiliary Power Supply.
- Extensive UL Listings
  (Listed accessory under the following standards)

Standard	CCN	Description
UL864 9th edition	UOXX	Fire Alarm Systems
UL636	ANET, UEHX7	Holdup Alarm Units and Systems
UL609	AOTX, AOTX7	Local Burglar Alarm Units and Systems
UL294	ALVY, UEHX7	Access Control Systems
UL365	APAW, APAW7	Police Station Connected Burglar Alarm Units and Systems
ULC-S527	UOXXC	Control Units, Fire Alarm (Canada)
ULC-S303	AOTX7	Local Burglar Alarm Units and Systems (Canada)
ULC-S304	AMCX7	Central and Monitoring Station Burglar Alarm Units (Canada)
C22.2 No. 205		Signaling Equipment (Canada)
UL1076	APOU, APOU7	Proprietary Burglar Alarm System Units
UL1610	AMCX	Central Station Alarm Unit

- Two inputs allow activation by Signature Series modules or existing NACs.
- NACs configure for either four Class B or two Class A circuits.
- 110 Vac and 230 Vac versions
- On-board status LEDs for easy recognition of wiring faults.
- Supports up to 24 Amp hour batteries for fire and security applications, up to 65 Amp hour for access control applications.

Remote Booster Power Supplies

BPS6A, BPS10A



RSN: *1202845*
Permit #: *2017-1285974-LT*

Application

The Remote Booster Power Supply provides additional power for audible and visual devices helping remove system capacity or site application constraints. The booster may also be used to power auxiliary, access control and security devices, in addition to fire devices.

Fault conditions detected by the BPS will open the main panel's NAC. This initiates a trouble condition and eliminates the need to wire a separate trouble contact back to the control panel. During alarm condition, detected faults are overridden and the main panel's default configuration is continuous 24 Vdc on all NACs typically used to drive visual devices. On board trouble contact is supplied for applications requiring trouble contact monitoring.

The booster power supply provides the capability to maximize available power by being able to supply power for multiple services including Access Control, Security and Fire. For security applications, space is provided to mount a tamper switch in the cabinet. When used for Fire Alarm notification with Genesis Notification appliances, the booster provides the ability to synchronize strobes as well as horn signals. The booster flexibility allows synchronization with upstream devices, or, the booster may be used to synchronize downstream devices, as well as other boosters and their connected devices. Up to 10 boosters deep may be configured while maintaining strobe synchronization.

BPS notification appliance circuits easily configure for either of two signaling rates: 3-3-3 temporal or continuous. California rate is also available on certain models. This makes the BPS ideal for applications requiring signaling rates not available from the main panel. It also allows independent setup of a notification appliance circuit without interfering with the main panel and its initiating circuits.

In addition to the generated signal rates, the BPS can also be configured to follow the signal rate of the main panel's notification appliance circuit. This allows seamless expansion of existing NACs.

The BPS includes seven on-board LED indicators: one for each resident NAC; one for battery supervision; one for ground fault; and, one for ac power. The trouble contact has a sixteen second delay when an ac power failure or brownout condition is detected. This reduces the reporting of troubles during short duration ac brownouts.

NAC configuration options include: ac power fail delay (16 seconds or 6 hours); sensing input to NAC output correlations; and, auxiliary outputs. All NACs are configurable as auxiliary outputs. Auxiliary outputs can be always on, or off after 30 seconds without ac power. As auxiliary output, the booster may power access control and security devices. Should an overcurrent occur, the booster automatically opens the circuit. The booster automatically restores the circuit when the overcurrent is removed. Jumpers configure the BPS for Class A or Class B wiring.

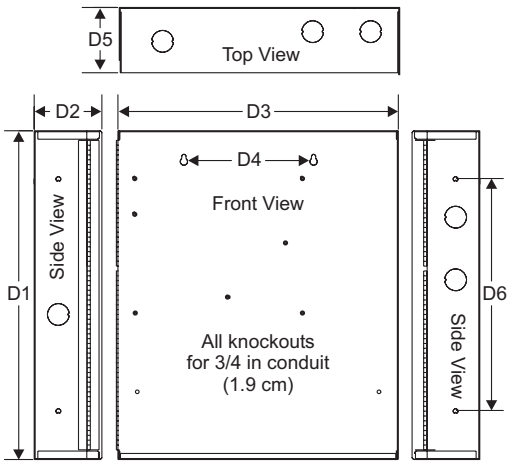
Engineering Specification

Supply where needed GE Security BPS series Booster Power Supplies as an extension of Notification Appliance Circuits. The extension shall be in the form of a stand alone booster power supply. The supply must incorporate its own standby batteries. Batteries must be sized for <24>, <60> hours of standby followed by <5>, <30> minutes of alarm. It must be possible to support up to 24 Amp hour batteries.

The booster supply must incorporate four independent supervised Notification Appliance Circuits. It shall be possible to configure the NACs to follow the main panel's NAC or activate from intelligent Signature Series modules. The booster NACs must be configurable to operate independently at any one of the following rates: continuous, California Rate, or 3-3-3 temporal. Fault conditions on the booster shall not impede alarm activation of host NAC circuits.

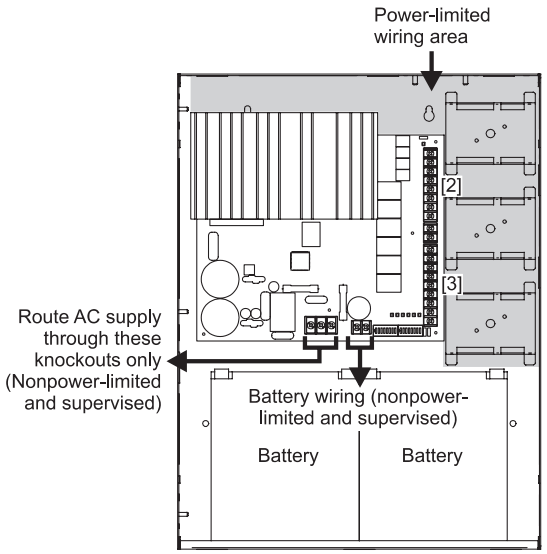
The booster must be able to provide concurrent power for Notification devices, Security devices, Access Control equipment and Auxiliary devices such as door holders. The BPS must provide the ability to synchronize Genesis series strobes and horns.

Dimensions



D1	D2	D3	D4	D5	D6
17.0 in (43.2 cm)	3.5 in (8.9 cm)	13.0 in (33.0 cm)	6.5 in (16.5 cm)	3.375 in (8.6 cm)	12.0 in (30.4 cm)

Wire routing



Notes

1. Maintain 1/4-inch (6 mm) spacing between power-limited and non-power-limited wiring or use type FPL, FPLR, or FPLP cable per NEC.

[2] Power-limited and supervised when not configured as auxiliary power. Non-supervised when configured as auxiliary power.

[3] Source must be power-limited. Source determines supervision.

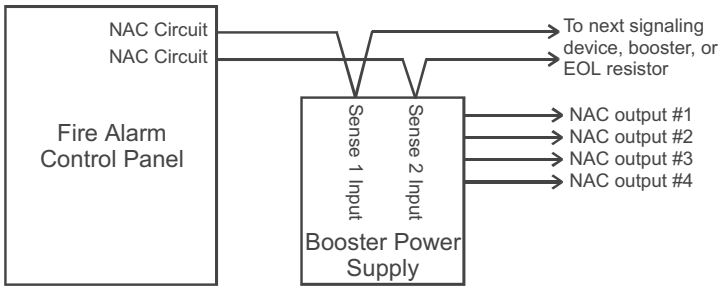
4. When using larger batteries, make sure to position the battery terminals towards the door.

RSN: *1202845*
Permit #: *2017-1285974-LT*

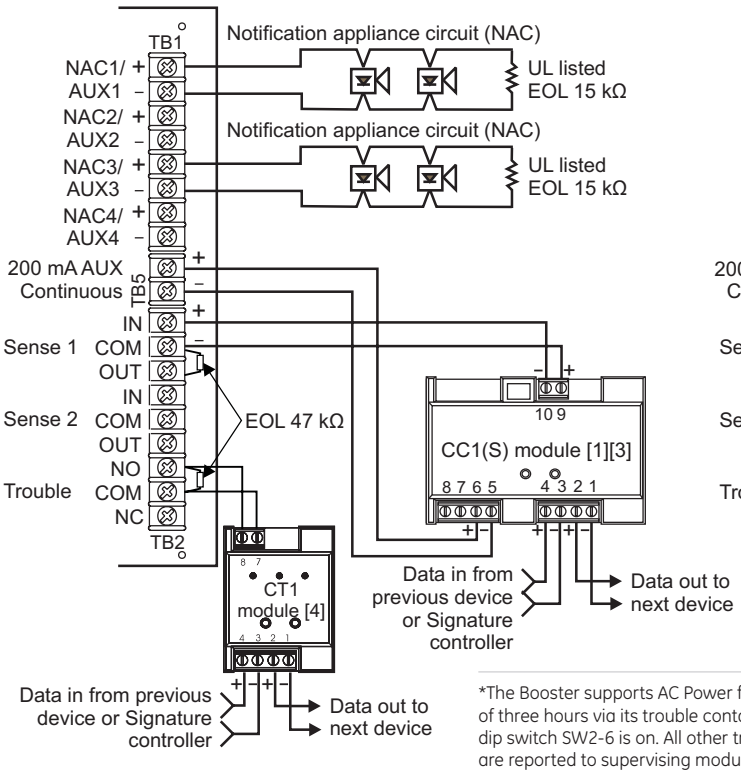
Typical Wiring

Single or castcaded booster anywhere on a notification appliance circuit

Existing NAC end-of-line resistors are not required to be installed at the booster's terminals. This allows multiple boosters to be driven from a single NAC circuit without the need for special configurations.

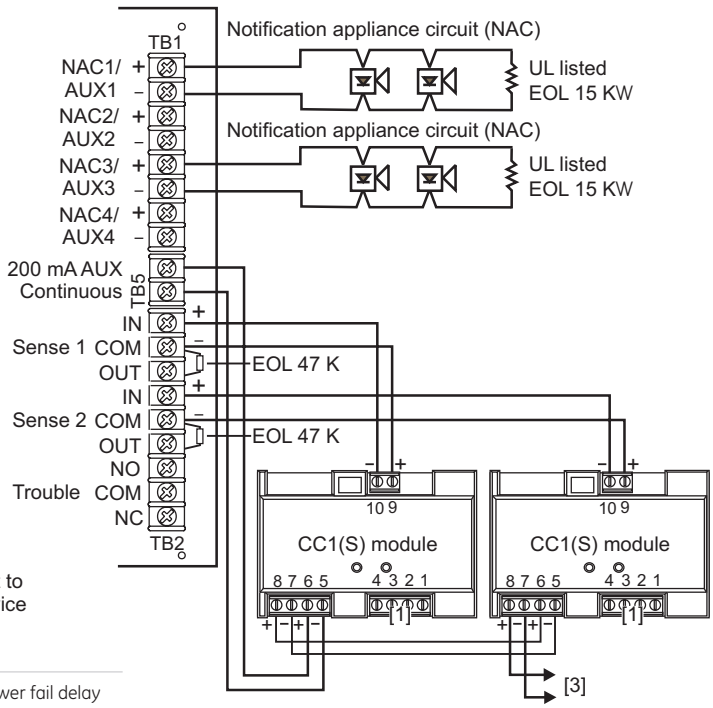


Configuring the Booster for AC Power Fail delay operation*

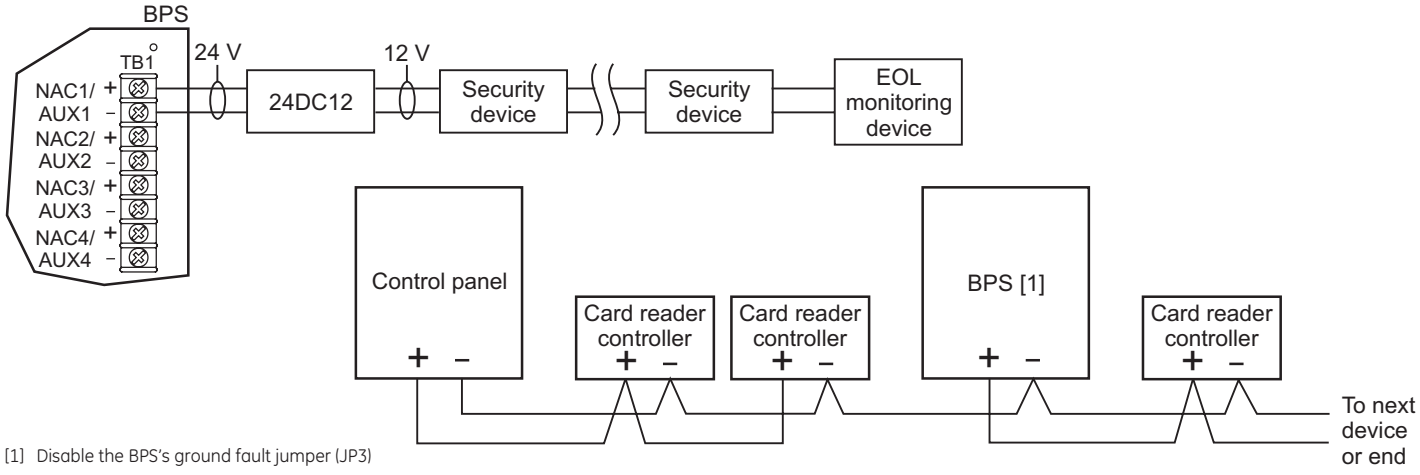


*The Booster supports AC Power fail delay of three hours via its trouble contact when dip switch SW2-6 is on. All other troubles are reported to supervising module or panel without delay via Sense inputs.

Multiple CC1(S) modules using the BPS's sense inputs



Security and access



[1] Disable the BPS's ground fault jumper (JP3)

RSN: *1202845*
Permit #: *2017-1285974-LT*

GE
Security

U.S.
T 888-378-2329
F 866-503-3996

Canada
T 519 376 2430
F 519 376 7258

Asia
T 852 2907 8108
F 852 2142 5063

Australia
T 61 3 9259 4700
F 61 3 9259 4799

Europe
T 32 2 725 11 20
F 32 2 721 86 13

Latin America
T 305 593 4301
F 305 593 4300

www.gesecurity.com/est

Specifications

Model	6.5 amp Booster	10 amp Booster
AC Line Voltage	120VAC or 220-240VAC 50/60Hz 250 watts	120VAC or 220-240VAC 50/60Hz 375 watts
Notification Appliance Circuit Ratings	3.0A max. per circuit @ 24Vdc nominal 6.5A max total all NACs	3.0A max. per circuit @ 24Vdc nominal 10A max total all NACs
Trouble Relay	2 Amps @ 30Vdc	
Auxiliary Outputs	Four configurable outputs replace NACs 1, 2, 3 or 4. as auxiliary outputs and 200 mA dedicated auxiliary. (See note 2.)	
Input Current (from an existing NAC)	3mA @ 12Vdc, 6mA @ 24Vdc	
Booster Internal Supervisory Current	70mA	
Signature Mounting Space	Accomodates three two-gang modules.	
Maximum Battery Size	10 Amp Hours (2 of 12V10A) in cabinet up to 24 Amp hours with external battery cabinet for fire and security applications; up to 65 Amp hours for access control applications in external battery box.	
Terminal Wire Gauge	18-12 AWG	
Relative Humidity	0 to 93% non condensing @ 32°C	
Temperature Rating	32° to 120°F (0° to 49°C)	
NAC Wiring Styles	Class A or Class B	
Output Signal Rates	Continuous, California rate, 3-3-3 temporal, or follow installed panel's NAC. (See note 1.)	
Ground Fault Detection	Enable or Disable via jumper	
Agency Listings	UL, ULC, CSFM	

1. Model BPS*CAA provides selection for California rate, in place of temporal.
2. Maximum of 8 Amps can be used for auxiliary output.

Ordering Information

Catalog Number	Description	Shipping Wt. lb (kg)
BPS6A	6.5 Amp Booster Power Supply	13 (5.9)
BPS6AC	6.5 Amp Booster Power Supply (ULC)	13 (5.9)
BPS6A/230	6.5 Amp Booster Power Supply (220V)	13 (5.9)
BPS6CAA	6.5 Amp Booster Power Supply with California rate	13 (5.9)
BPS10A	10 Amp Booster Power Supply	13 (5.9)
BPS10AC	10 Amp Booster Power Supply (ULC)	13 (5.9)
BPS10A/230	10 Amp Booster Power Supply (220V)	13 (5.9)
BPS10CAA	10 Amp Booster Power Supply with California rate	13 (5.9)

Related Equipment		
12V6A5	7.2 Amp Hour Battery, two required	3.4 (1.6)
12V10A	10 Amp Hour Battery, two required	9.5 (4.3)
3-TAMP	Tamper switch	
BC-1	Battery Cabinet (up to 2 - 40 Amp Hour Batteries)	58 (26.4)
BC-2	Battery Cabinet (up to 2 - 17 Amp Hour Batteries)	19 (8.6)
12V17A	18 Amp Hour Battery, two required (see note 1)	13 (5.9)
12V24A	24 Amp Hour Battery, two required (see note 1)	20 (9.07)
12V40A	40 Amp Hour Battery, two required (see notes 1, 2)	32 (14.5)
12V50A	50 Amp Hour Battery, two required (see notes 1, 2)	40 (18.14)
12V65A	65 Amp Hour Battery, two required (see notes 1, 2)	49 (22.2)

1. Requires installation of separate battery cabinet.
2. BPS supports batteries greater than 24 Amp hours for access control applications only.

imagination at work