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

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Building Permit Application

Permit Center ~15151 E Alameda Pkwy ~ Aurora, CO 80012~ (303) 739-7420

Project Address: 1444 S. POTOMAC ST Unit #160, 180, 190 Zip code:
Project Name: Women's Health - Med. Center of Aurora
Contractor Company Name: Fire Alarm Services Inc Phone: 303 466 8800 Fax: 303 466 8820
Contact Person: ~~Clay Mullens~~ Jeremy Biebel Email: jbiebel@fasonline.cc
Phone: 303 466 8800 Fax: 303 466 8820

Online Services now offers email updates of correction items found during plan review as well as email updates for all inspections during the construction phase of your project. If you are interested in receiving these emails please provide your email address. NOTE: Set your email filter to accept emails from "AmandaSystem".

Plan Corrections - Email address: jbiebel@fasonline.cc
Inspection Corrections – Email address: jbiebel@fasonline.cc
Architect and/or Engineer Contact information for correction items:

Architect or Engineer name: Email:
Phone # Fax:
Owner: (Required for CO) only:
Owner address: Valuation / FDA: $
Email:
Valuation / FDA: $ 9500 - LW Materials Cost: $ 4750

FDA = Fee Determination Assessment. (Also known as the value of project) has no relationship to the construction costs for the building which can vary greatly. Rather, The assessment is used only to determine the appropriate level of fees to fund our code compliance activities.

Architect or Engineer Name: Email:

DESCRIBE THE WORK YOU WILL BE DOING:

Install 1 duct & remote test 12 horn strobes 17 ~~strobes~~

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

Print Name: Justin VanNote Signature: [signature] Date: 8-15-12

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

Sprinkler & Alarm permits must be brought in as separate submittals. "FDA" is NOT included in main permit.

◆◆◆◆ THIS SPACE FOR OFFICE USE ONLY ◆◆◆◆

Fee Determination Assessment: $_____

Change of occupancy/use: Y ☐ N ☒

REVIEWS		INSPECTIONS	
☐	Structural	☐	Structural
☐	Mechanical	☐	Mechanical
☐	Plumbing	☐	Plumbing
☐	Electrical	☒	Electrical
☒	Fire Life Safety	☒	Life Safety
☐	Bldg Life Safety	☐	Gate/Haz.

Intake Date: 8-15-12 PE Initial LW

Balance Due:

Pre approval Initial
Zoning ☐ N/A
Water ☐
Exterior changes? ☐ Yes ☒ No
Homeowner verified ☐ Yes
Permit Type: LT
Mid roof / Ave Bldg Height: --
Parent Permit RSN: 670476
Plans Examiner: LW
Subtype: ALARM
RSN: 675388 PERMIT#12617313-LT

Plans Picked up by:
Company name:
Phone number:

MEDICAL CENTER OF AURORA

City of Aurora Building Division
Project: *WOMENS HEALTH - FIRE ALARM MODIFICATIONS*
Address: *1444 S POTOMAC, #160*
Occupancy Group: *IBC B*
Construction Type: *IBC TYPE IIB-SPK*
RSN: *675388*
Permit: *12-617313-LT*

FIRE ALARM SYSTEM SHOP DRAWINGS FOR:

BUILDING CLASSIFICATIONS AND CODES

OCCUPANCY GROUP: B
USE: MEDICAL OFFICE BUILDING 6724 SF
CONSTRUCTION TYPE: IIB,SPK
STORIES: 3 FLOORS
SPRINKLERED: FULLY
REQUIREMENTS: MODIFIED PER 2009 IFC

CODES:
2009 IFC
2009 IBC
2009 IMC
2007 NFPA 72
2003 ANSI 17.1
2005 NFPA 70

SYSTEM TYPE AND MONITORING

SYSTEM CLASSIFICATION: (NFPA 72, CHAPTER 8), REMOTE STATION
SYSTEM TYPE: INTELLIGENT/ADDRESSABLE
WIRING CLASSIFICATION: NAC – CLASS B
SLC – CLASS B, STYLE 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 8, SECTION 3.
MONITORING COMPANY: API (303)427-0880
ACCOUNT: 45-00-2812

DRAWING INFORMATION

FAS WORK ORDER #: 12011233
FAS CAD FILE: WOMEN'S HEALTH

SCOPE OF WORK

1. PROVIDE AND INSTALL TWO [2] DUCT DETECTORS.
2. PROVIDE AND INSTALL TWO [2] REMOTE TEST STATIONS.
3. PROVIDE AND INSTALL TWELVE [12] HORN/STROBES.
4. PROVIDE AND INSTALL SEVENTEEN [17] STROBES.

INDEX

FA-00 COVER PAGE
GENERAL INFORMATION
BUILDING REQUIREMENTS AND CODES
SCOPE OF WORK
FA-01 FIRE ALARM PLAN
LEGEND
MOUNTING HEIGHTS
GENERAL NOTES
KEY MAP
FA-02 NOTES/CALCS.
BATTERY, BOOSTER & VOLTAGE DROP CALCULATIONS
ONE-LINE RISER DIAGRAM
WIRE COLOR CODE CHART
SEQUENCE OF OPERATIONS MATRIX

PROJECT:

WOMEN'S HEALTH
1444 S. POTOMAC STREET, 1ST FLOOR
AURORA, CO 80012

GENERAL CONTRACTOR:

HOWELL CONSTRUCTION
550 LIPAN STREET
DENVER, CO 80204
PH:(303)825-6257
FAX:(720)899-4786
MARCUS PICKWORTH

ELECTRICAL CONTRACTOR:

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

ARCHITECT:

TOM THOMPSON ARCHITECT
2510 S. OSCEOLA STREET
DENVER, CO 80219
PH:(720)989-6084
TOM THOMPSON

FIRE ALARM DESIGNER:

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

Fire Alarm SERVICES, INC.

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

GENERAL NOTES

1. FIRE ALARM SYSTEMS CANNOT BE COMBINED WITH BURGLAR ALARM SYSTEMS.
2. THE INSTALLER IS REQUIRED TO COORDINATE WITH THE MECHANICAL CONTRACTOR TO DETERMINE INSTALLATION OF SMOKE DETECTORS OR SENSORS (I.E., NOT CLOSER THAN 3 FEET FROM ANY SUPPLY/RETURN DIFFUSER AND THAT ADDITIONAL DETECTION MAY BE REQUIRED DUE TO THE RELOCATION OR SPACING ADJUSTMENT OF DETECTORS, AS A RESULT).
3. FIRE ALARM DEVICES MUST BE PLACED IN PROTECTED AREAS WITH AMBIENT TEMPERATURE RANGING FROM 32 DEGREES TO 120 DEGREES F.
4. DO NOT PLACE SMOKE DETECTORS WITHIN 3 FEET OF AIR SUPPLY REGISTERS AND DIFFUSERS.
5. FIRE ALARM SYSTEM SHALL BE MONITORED BY A CLASS 1 CENTRAL STATION.
6. FIRE ALARM CONTROL PANEL WILL BE PLACED IN THE LOCATION SPECIFIED WITHIN THE PLAN SUBMITTAL UNLESS APPROVED BY THE LIFE SAFETY FIELD INSPECTOR.
7. CITY OF AURORA BUILDING CODES DIVISION DOES NOT GRANT APPROVAL FOR ANY VIOLATIONS OF ADOPTED FIRE CODE. CODE VIOLATIONS UNCOVERED DURING FIELD INSPECTIONS MUST BE CORRECTED.
8. PER THE 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 2009 IFC AND THE 2003 ANSI A117.1 STANDARD.
16. PROVIDE A PRIMARY AND SECONDARY POWER SUPPLY FOR THE FIRE ALARM SYSTEM PER THE 2009 IFC, SECTION 907.5 AND THE 2007 NFPA 72.

- THE FIRE ALARM INSTALLATION CONTRACTOR MUST COMPLETE THE NFPA 72 "RECORD OF COMPLETION" PRIOR TO SCHEDULING THE AHJ ACCEPTANCE TEST.
- FIELD INSPECTION CONSULTATION IS AVAILABLE UPON REQUEST. CALL 303-739-7420 TO REQUEST CONSULTATION.
- AUDIBLE ALARM SIGNALING DEVICES SHALL EXCEED THE PREVAILING SOUND LEVEL IN A ROOM OR SPACE BY 15 DBA. SOUND LEVELS FOR ALARM SIGNALS SHALL BE 120 DBA MAXIMUM. IFC SECTION 907.10.2.

City of Aurora Building Division
Reviewed for Code Compliance
Approved as Noted: *Neil W.*
Date: *Aug 22, 2012*
2009 INTERNATIONAL CODES & 2011 NEC

David Ebaugh
Nicet Fire Alarm systems
Level IV
Certification ,#089814
Date: 8/29/12

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

REVISIONS

NO.	DATE

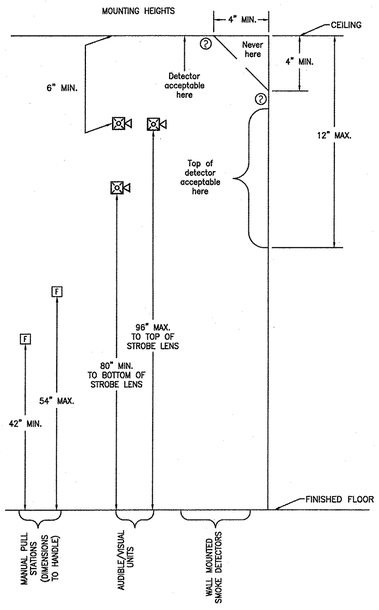
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DATE: 08/08/12
APPR. BY: LAB
DATE: 8/10/12

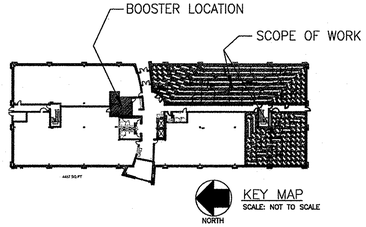
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BUILDING NAME & ADDRESS: MEDICAL CENTER OF AURORA, 1421 S. POTOMAC ST. AURORA, CO 80012
PROJECT NUMBER: 12011233

FIRE ALARM & DETECTION SYSTEM
DRAWING TITLE: 1ST FLOOR COVER PAGE
SCALE: N/A

PROJECT SHEET TITLE
FA-00

RSN 675388
PERMIT NO. 12-617313-LT



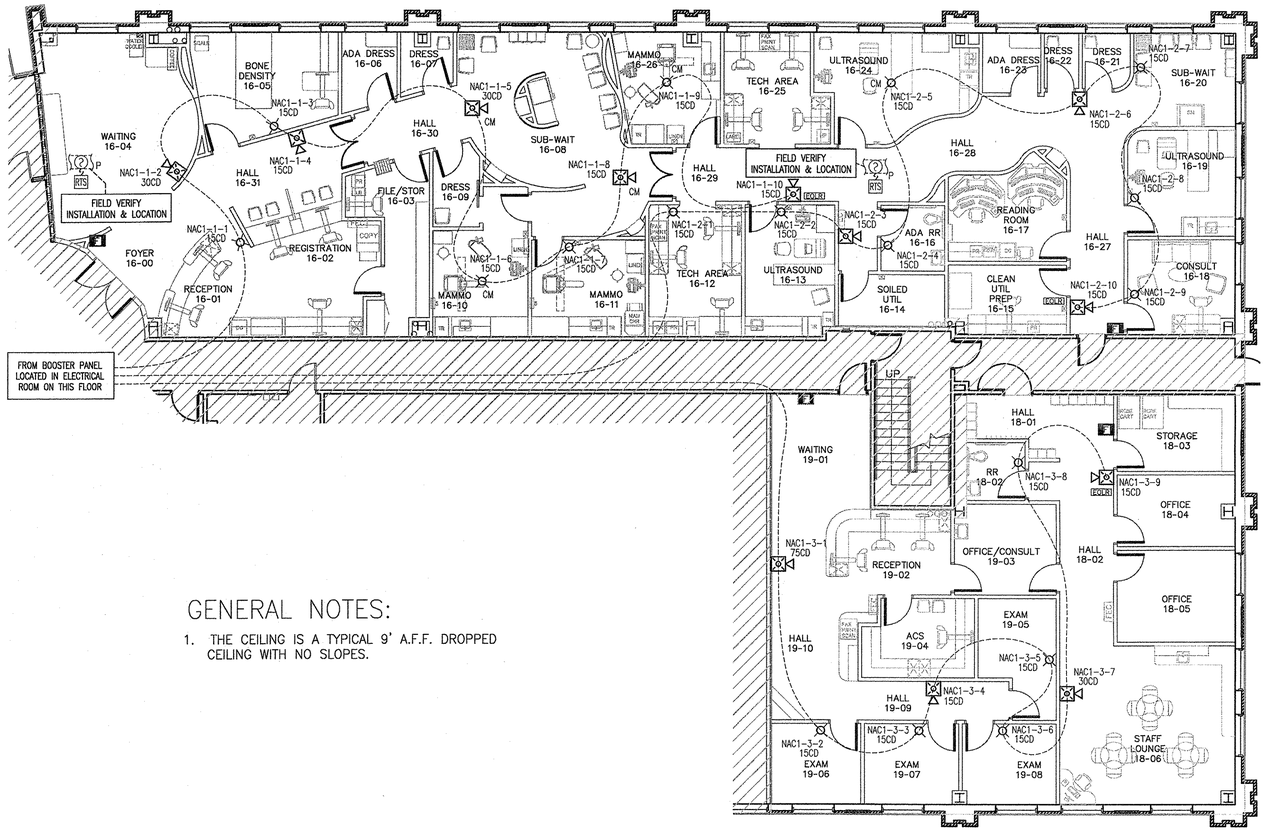


FIRE ALARM SYMBOLS LEGEND

EXISTING	DESCRIPTION	PROPOSED
	STROBE – Wall Mount or CM = Ceiling Mount	
	SMOKE DETECTOR – x = photo, ion	
	HEAT DETECTOR – x =135, 200, ROR	
	HORN STROBE – Wall Mount or CM = Ceiling Mount	
	END OF LINE RESISTOR	
	PULL STATION	
	TAMPER SWITCH	
	FLOW SWITCH	
	DUCT DETECTOR – x = photo, ion	
	REMOTE TEST STATION	
	MONITOR–MODULE	

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

J = J-BOX



GENERAL NOTES:

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

1ST FLOOR FIRE ALARM PLAN

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

NORTH 0 5 10 15 30 FEET

City of Aurora Building Division
Reviewed for Code Compliance
Approved as Noted: *Neil W.*
Date: *Aug 22, 2012*
2009 INTERNATIONAL CODES & 2011 NEC

David Ebaugh
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Level IV
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ARVADA, CO 80003 fax: 303-466-8820
www.fasonline.cc email: contactus@fasonline.cc

REVISIONS			
NO.	DATE		

DRAWN BY: L. MASON
DATE: 08/08/12
APPR. BY: LAB
DATE: 8/10/12

PROJECT TITLE	FIRE ALARM SYSTEM TENANT FINISH FOR: WOMEN'S HEALTH
BUILDING NAME & ADDRESS	MEDICAL CENTER OF AURORA 1444 S. POTOMAC ST. AURORA, CO 80012
PROJECT NUMBER	12011233

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

PROJECT SHEET TITLE
FA–01

RSN 675388
PERMIT NO. 12-617313-LT

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 Gauge	2.01
	14 Gauge	3.19
	16 Gauge	5.08

Circuit Number: NAC1-1 — **Location: Booster Panel** — **INPUT VOLTAGE = 20.4 VOLTS**

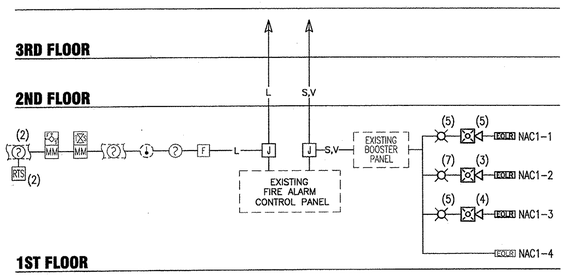
Notification Circuit	Current (in amps)	Wire Distance (in feet)	Total Distance (in feet)	Wire Size (AWG)	Resistance (Ohms)	Voltage Drop	From Baseline Voltage
Strobe 15CD	0.042	59	59	14	0.3764	0.3307	20.0693
Horn/Strobe 30CD	0.086	23	82	14	0.5232	0.4376	19.6317
Strobe 15CD	0.042	24	106	14	0.6763	0.5075	19.1241
Horn/Strobe 15CD	0.070	12	118	14	0.7528	0.5334	18.5908
Cell. Horn/Strobe 30CD	0.143	30	148	14	0.9442	0.6029	17.9879
Cell. Strobe 15CD	0.120	31	179	14	1.1420	0.5659	17.4220
Strobe 15CD	0.042	23	202	14	1.2888	0.4839	16.9381
Cell. Horn/Strobe 15CD	0.143	20	222	14	1.4164	0.4724	16.4657
Cell. Strobe 15CD	0.120	25	247	14	1.5759	0.3002	16.1655
Horn/Strobe 15CD	0.070	36	283	14	1.8055	0.1273	16.0382
End of line resistor	0.001	0	283	14	1.8055	0.0009	16.0373
Totals:	**0.879**	**283**			**12.3070**	**4.3627**	**16.0373**
Total Devices:	10						

Circuit Number: NAC1-2 — **Location: Booster Panel** — **INPUT VOLTAGE = 20.4 VOLTS**

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	0.042	107	107	14	0.6827	0.3976	20.0024
Strobe 15CD	0.042	22	129	14	0.8230	0.4448	19.5575
Horn/Strobe 15CD	0.070	19	148	14	0.9442	0.4707	19.0868
Strobe 15CD	0.042	15	163	14	1.0399	0.4456	18.6412
Cell. Strobe 15CD	0.120	29	192	14	1.2250	0.4734	18.1677
Horn/Strobe 15CD	0.070	32	224	14	1.4291	0.3809	17.7869
Strobe 15CD	0.042	18	242	14	1.5440	0.3034	17.4835
Strobe 15CD	0.042	25	267	14	1.7035	0.2632	17.2203
Strobe 15CD	0.042	20	287	14	1.8311	0.2060	17.0143
Horn/Strobe 15CD	0.070	17	304	14	1.9395	0.1367	16.8776
End of line resistor	0.001	0	304	14	1.9395	0.0010	16.8766
Totals:	**0.583**	**304**			**15.1015**	**3.5234**	**16.8766**
Total Devices:	10						

Circuit Number: NAC1-3 — **Location: Booster Panel** — **INPUT VOLTAGE = 20.4 VOLTS**

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	0.144	118	118	14	0.7528	0.4370	19.9630
Strobe 15CD	0.042	33	151	14	0.9634	0.4205	19.5425
Strobe 15CD	0.042	20	171	14	1.0910	0.4304	19.1121
Horn/Strobe 15CD	0.070	16	187	14	1.1931	0.4206	18.6915
Strobe 15CD	0.042	26	213	14	1.3589	0.3839	18.3076
Strobe 15CD	0.042	23	236	14	1.5057	0.3621	17.9455
Horn/Strobe 30CD	0.086	19	255	14	1.6269	0.3229	17.6226
Strobe 15CD	0.042	39	294	14	1.8757	0.2110	17.4115
Horn/Strobe 15CD	0.070	21	315	14	2.0097	0.1417	17.2699
End of line resistor	0.001	0	315	14	2.0097	0.0010	17.2689
Totals:	**0.581**	**315**			**14.3869**	**3.1311**	**17.2689**
Total Devices:	9						



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 — STYLE 4		NAC — CLASS B	

BATTERY CALCULATIONS

FOR: MEDICAL CENTER OF AURORA
1444 S. Potomac St. — Aurora, CO

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	EXISTING	CPU/LCD Display Unit	0.117000	0.135000	0.117000	0.135000
2	1	EXISTING	Two Line Dialer	0.013000	0.026000	0.013000	0.026000
3	1	EXISTING	Power Supply Card	0.072000	0.096000	0.072000	0.096000
4	1	EXISTING	Signature Loop Intelligent Controller	0.033000	0.057000	0.033000	0.057000
5	1	EXISTING	CPU/LCD Display Unit (remote annunciator)	0.105000	0.123000	0.105000	0.123000
			TOTAL:			0.340000	0.437000

PERIPHERAL:

ITEM	QTY	PART NUMBER	DESCRIPTION	Device Supervisory Current	Device Alarm Current	Total Supervisory Current	Total Alarm Current
1	3	EXISTING	Heat Detector	0.000045	0.000045	0.000135	0.000135
2	28	EXISTING	Duct Detector w/ Housing	0.000045	0.000045	0.001260	0.001260
3	8	EXISTING	Manual Pull Station	0.000250	0.000400	0.002000	0.003200
4	12	EXISTING	Photoelectric Smoke Detector	0.000045	0.000045	0.000540	0.000540
5	12	EXISTING	Single Input Module (Monitor Module)	0.000250	0.000400	0.003000	0.004800
6	6	EXISTING	Control Relay Module	0.000100	0.000100	0.000600	0.000600
7	2	SIGA-SD	Duct Detector w/ Housing	0.000045	0.000045	0.000090	0.000090
8	2	SIGA-TRK	Remote Test Station (Keyed)	0.000000	0.030000	0.000000	0.060000
			TOTAL:			0.007535	0.010535

SUPERVISORY:		
PANEL:	0.340000	AMPS
PERIPHERAL	0.007535	AMPS
SUB-TOTAL:	0.347535	AMPS
X HOURS OF SUPERVISORY:	24.0000	HOURS
SUB-TOTAL:	8.340840	AMP HOURS
ALARM:		
PANEL:	0.437000	AMPS
PERIPHERAL:	0.010535	AMPS
SUB-TOTAL:	0.447535	AMPS
X MINUTES OF ALARM:	0.08333	HOURS
SUB-TOTAL:	0.037295	AMP HOURS
TOTALS:		
TOTAL SUPERVISORY:	8.340840	AMP HOURS
TOTAL ALARM:	0.037295	AMP HOURS
TOTAL:	8.378135	AMP HOURS
TOTAL PLUS SAFETY FACTOR(20%)	10.05376	AMP HOURS
Batteries Supplied — 1 Set of:	12.00000	AMP HOURS

1444 S. POTOMAC BUILDING SEQUENCE OF OPERATIONS

SYSTEM INPUTS

SYSTEM OUTPUTS

		FACP Annunciation						Notification					Fire Safety Cntl.			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 1st Floor Evacuation Signals (Horn/Strobes)	Actuate 2nd Floor Evacuation Signals (Horn/Strobes)	Actuate 3rd Floor Evacuation Signals (Speakers/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	
1	Manual Pull Station — 1st Floor	X	X					X	X	X		X		X				X				1
2	Manual Pull Station — 2nd Floor	X	X					X	X	X	X	X		X				X				2
3	Manual Pull Station — 3rd Floor	X	X					X	X	X	X	X		X				X				3
4	Smoke Sensor — 1st Floor Elev Machine	X	X					X	X			X		X	X			X				4
5	Smoke Sensor — 1st Floor Elev Lobby	X	X					X	X	X		X		X		X		X				5
6	Smoke Sensor — 2nd Floor Elev Lobby	X	X					X	X	X		X		X	X			X				6
7	Smoke Sensor — 3rd Floor Elev Lobby	X	X					X	X	X		X		X	X			X				7
8	Smoke Sensor — All Other Locations	X	X					X	X	X		X		X				X				8
9	Duct Smoke Sensor — 3rd Floor			X	X			X									X				X	9
10	Heat Sensors — 1st Floor Elevator Machine	X	X					X	X			X		X	X			X				10
11	Heat Sensors — 1st Floor	X	X					X	X	X		X		X				X				11
12	Heat Sensors — 2nd Floor	X	X					X	X	X	X	X		X				X				12
13	Heat Sensors — 3rd Floor	X	X					X	X	X	X	X		X	X			X				13
14	Sprinkler Waterflow — 1st Floor	X	X					X	X	X		X		X				X			X	14
15	Sprinkler Waterflow — 2nd Floor	X	X					X	X	X	X	X		X				X			X	15
16	Sprinkler Waterflow — 3rd Floor	X	X					X	X	X	X	X		X				X				16
17	Sprinkler Control Valve			X	X			X												X		17
18	FACP AC Power Failure					X	X	X						X					X			18
19	FACP Low Battery					X	X	X											X			19
20	Open Circuit					X	X	X											X			20
21	Ground Fault					X	X	X											X			21
22	Notification Appliance Circuit Short					X	X	X											X			22
23	Alarm Signal Silence												X									23
		A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	

BOOSTER CALCULATIONS

FOR: MEDICAL CENTER OF AURORA
1444 S. Potomac St. — Aurora, CO

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

PANEL: EST BPS-6

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	3	EXISTING	15cd Strobe	0.000000	0.042000	0.000000	0.126000
2	3	EXISTING	15cd Horn/Strobe	0.000000	0.070000	0.000000	0.210000
3	1	EXISTING	30cd Horn/Strobe	0.000000	0.086000	0.000000	0.086000
4	1	EXISTING	75cd Horn/Strobe	0.000000	0.144000	0.000000	0.144000
5	14	GES3-24WR	15cd Strobe	0.000000	0.042000	0.000000	0.588000
6	7	GEC3-24WR	15cd Horn/Strobe	0.000000	0.070000	0.000000	0.490000
7	2	GEC3-24WR	30cd Horn/Strobe	0.000000	0.086000	0.000000	0.172000
8	1	GEC3-24WR	75cd Horn/Strobe	0.000000	0.144000	0.000000	0.144000
9	3	GCS24	15cd Ceiling Mt. Strobe	0.000000	0.120000	0.000000	0.360000
10	1	GCC24	15cd Ceiling Mt. Horn/Strobe	0.000000	0.143000	0.000000	0.143000
11	1	GCC24	30cd Ceiling Mt. Horn/Strobe	0.000000	0.143000	0.000000	0.143000
			TOTAL:			0.000000	2.606000

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:	2.606000	AMPS
SUB-TOTAL:	2.796000	AMPS
X MINUTES OF ALARM:	0.08333	HOURS
SUB-TOTAL:	0.233000	AMP HOURS
TOTALS:		
TOTAL SUPERVISORY:	1.680000	AMP HOURS
TOTAL ALARM:	0.233000	AMP HOURS
TOTAL:	1.913000	AMP HOURS
TOTAL PLUS SAFETY FACTOR(20%)	2.29560	AMP HOURS
Batteries Supplied — 1 Set of:	7.00000	AMP HOURS

City of Aurora Building Division
Reviewed for Code Compliance
Approved as Noted: Neil W.
Date: Aug 22, 2012
2009 INTERNATIONAL CODES & 2011 NEC

David Ebaugh
Nicet Fire Alarm systems
Level IV
Certification #089814
Date: 8/31/12

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

REVISIONS | NO. | DATE

DRAWN BY: L. MASON
DATE: 08/08/12
APPR. BY: LAB
DATE: 8/10/12

PROJECT TITLE: FIRE ALARM SYSTEM TENANT FINISH FOR: WOMEN'S HEALTH
BUILDING NAME & ADDRESS: MEDICAL CENTER OF AURORA, 1444 S. POTOMAC ST. AURORA, CO 80012
PROJECT NUMBER: 120111233

FIRE ALARM & DETECTION SYSTEM
DRAWING TITLE: 1ST FLOOR NOTES/CALCS.
SCALE: N/A

PROJECT SHEET TITLE
FA-02

Fire Alarm System Acceptance Inspection

2009 IFC and 2007 NFPA 72

This worksheet is for jurisdictions that permit the use of 2007 NFPA 72 in lieu of IFC's referenced 2002 NFPA 72.

Date of Inspection: _____ Permit Number: 12-617313-LT

Business/Building Name: Women's Health Address of Project: 1444 S Potomac St., #160

Contractor: Fire Alarm Services Inc. Contractor's Phone: 3-466-8800

Reference numbers following worksheet statements represent an NFPA code section unless otherwise specified.

	Pass	Fail	NA	
				General
1.				Obtained a copy of the fire alarm installation certification and a Record of Completion from installer, 4.5.2.1.
2.				Approved plans are on site.
3.				Fire alarm control unit (FACU) and remote annunciator (RA) are installed consistent with approved plans, 4.4.6.1.1. and 7.10.
4.				A zone and legend map is provided at the RA or an approved location.
5.				Fire alarm zones are properly identified on the FACU and RA panels.
6.				The fire alarm system power supply is a dedicated 120 AC branch circuit, which is labeled, 4.4.1.4.2.2.
7.				Type and gauge of wire or cable(s) for each circuit are consistent with the plans.
8.				Device location and installation are consistent with the plans.
9.				Pull stations are installed at the proper height and location, 42 in. to 48 in. and within the 200 ft. maximum travel distance, 5.13 and IFC 907.5.2.1 and 907.5.2.2.
10.				A Contractor Sound Pressure Level (dBA) Pretest Room Log is provided and verified with the use of a sound meter during a sound pressure test.
				Operational
11.				Fire alarm audible notification devices sound throughout the occupancy providing a sound pressure level at least a minimum of 15 dBA above the average ambient noise level or 5 dBA above the maximum noise level. For bedrooms with closed door provide at least 75 dBA at the pillow, 7.4.4.1, IFC 907.6.2.1.1.
12.				Fire alarm audible devices are a three-pulse temporal pattern unless they were permitted to match existing audible devices, 6.8.6.5.1.
13.				Fire alarm visual notification device intensity (cd) ratings and settings, mounting height (80 in. to 96 in.), and location, are consistent with the plans, 7.5.4.1.
14.				Emergency voice/ alarm communications systems is tested and documentation is provided documenting the verbal statement(s) are distinguishable and understandable, Table 10.4.2.2.15(b).
15.				In sprinklered buildings, the fire alarm notification devices will activate by operation of the sprinkler flow alarm.
16.				HVAC duct detectors are supervised by the fire alarm system, detectors are all tested to verify if they can sample the air stream, fans shut down upon activation and visual and audible status alarm functions, Table 10.4.2.2.14(g).
17.				A central, remote or proprietary monitoring service received various signals during system tests.
18.				Verify that the correct and distinctive signals are received (alarm, trouble, and supervisory alarms), 4.4.3.3, 10.4.1.1
19.				Two monitoring circuits are provided, both circuits send correct signals to monitoring company within 90 seconds, Table 10.4.2.2.16.
20.				Verify proper operation of magnetic door-releasing hardware and/or ventilation shutdown.
21.				Sprinkler tamper switch activation transmits a trouble signal at the annunciator panel.
22.				Fire department communications system, if provided, is operational.
23.				For air sampling and flame detectors, test the device in accordance with the manufacturer's instructions.
24.				Restoreable heat and smoke detectors, and pull stations are tested.
25.				Trouble condition is created for each circuit and the FACU responds appropriately.
26.				Remote annunciator displays the correct zone and device information.

RSN 675388
PERMIT NO. 12-617519-LT

27. ____|____ | ____ Battery load test: the system is switched to battery operation 24 hours before the test and in the presence of the inspector the notification devices are activated and operate for 5 minutes or 15 minutes for emergency voice alarms.
28. ____|____ | ____ Check battery charger, measure load voltage, and open circuit voltage.
29. ____|____ | ____ Test ground-fault monitoring circuit, if provided.
30. ____|____ | ____ Under primary and secondary power, perform these tests:
    - ____|____ | ____ A. power light on and in normal condition, trouble signal when on secondary power.
    - ____|____ | ____ B. supervisory signals: fire pump power loss or phase reversal, water level/temp, pressure switches, control valves, etc.
    - ____|____ | ____ C. silence switch functions.
    - ____|____ | ____ D. a 2nd alarm initiating zone overrides silence switch.
    - ____|____ | ____ E. trouble signals and FACU panel lights operate for each circuit tested; disconnect .wires from devices and primary power supply to simulate trouble conditions.
    - ____|____ | ____ F. on secondary power, measure standby and alarm current demand.
    - ____|____ | ____ G. trouble and alarm reset switches operate.
    - ____|____ | ____ H. emergency voice alarms: the message is clear and distinct.
    - ____|____ | ____ I. initiating devices tested, audible sound pressure levels, and visuals operate.
    - ____|____ | ____ J. panel lamp test switch operates: if provided.
    - ____|____ | ____ K. field zones and device address signals corresponded with panel zones and addresses.
    - ____|____ | ____ L. elevator(s) recall to designated floor and alternate floor in accordance with 6.16.3.
31. ____|____ | ____ Other systems activate fire alarm: kitchen hood suppression system, clean agent, etc.
32. ____|____ | ____ As-builts are required when system installation is not consistent with the plans.
33. ____|____ | ____ Circuit loop resistance is within specifications and a test may be required if the system wiring has changed from the plans.
34. ____|____ | ____ Heat and spot smoke detectors are not within 4 in. of the sidewall, or if on the sidewall, the detector is 4 in. to 12 in. from the ceiling, 5.6.3.1, 5.7.3.2.1.
35. ____|____ | ____ Visual devices in a room or adjacent space with more than 2 devices within the field of view the flash are synchronized, 7.5.4.1.2(3). Devices in a corridor with more than 2 devices within the field of view and a maximum spacing of 100 ft., are synchronized, 7.5.4.2.5 and 7.5.4.2.7.
36. ____|____ | ____ Visual devices are wall mounted 80 in. to 96 in. above the floor level unless otherwise permitted by the approved plans and the fire code official, 7.5.4.1.
37. ____|____ | ____ Supplemental (extra) visual devices are permitted to be mounted less than 80 in. above the floor, 7.7.2.
38. ____|____ | ____ Ceiling-mounted devices are listed for use and spaced in accordance with Table 7.5.4.1.1(b) and the approved plans.

*Note: additional testing criteria is found in NFPA 72: Chapter 10.

Additional Comments:

Inspection Date: _____ Approved or Disapproved FD Inspector: _____

Inspection Date: _____ Approved or Disapproved FD Inspector: _____

Fire Alarm Installation Certification

Permit #: 12-617313-LT Date: _____

	Property Protected	System Installer	System Supplier
Business Name:	Women's Health	Fire Protection Inc.	
Address:	1444 S Potomac, #160		
	Aurora CO 80012		
Representative:			
Telephone:			

Location of Plans: _____

Location of Owner's Manual: _____

1. Certification of System Installation: Complete this section after system is installed, but prior to conducting operational acceptance tests. Check wiring for opens, ground faults, and improper branching.

This system installation was inspected and found to comply with the installation requirements of:

_____ NFPA 72
_____ Article 760 of NEC
_____ Manufacturer's Instructions
_____ Other (specify; FM, UL, etc.) _____

Print Name: _____

Signed: _____ Date: _____

Organization: _____

2. Certification of System Operation: All operational features and functions of this system were tested and found to be operating properly in accordance with the requirements of:

_____ NFPA 72
_____ Design Specifications
_____ Manufacturer's Instructions
_____ Other (specify) _____

Print Name: _____

Signed: _____ Date: _____

Organization: _____

RSN 675388
PERMIT NO. 12-617313-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:

Tenant: Women's Health
Medical Center of Aurora
1444 S. Potomac Street, 1st Floor
Aurora, CO 80012

Scope of Work:

1. Provide and install two (2) duct detectors.
2. Provide and install two (2) remote test stations.
3. Provide and install twelve (12) horn/strobes.
4. Provide and install seventeen (17) strobes.

City of Aurora Building Division
Reviewed for Code Compliance
Approved as Noted: *Neil W.*
Date: *Aug 22, 2012*
2009 INTERNATIONAL CODES & 2011 NEC

David Eborgh
Nicet Fire Alarm Systems
Level IV
Certification #089814
Date: 8/13/12

RSN 675388
PERMIT NO. 12-617313-LT

Overview

The GE Security *SuperDuct* Signature Series smoke detector is the most advanced and most reliable device in its class. Designed for easy installation and superb reliability, *SuperDuct* represents the perfect balance of practical design and advanced technology.

***SuperDuct* detectors** feature a unique design that speeds installation and simplifies maintenance. Removable dust filters, conformally coated circuit boards, and optional water-resistant gaskets keep contaminants away from components, ensuring years of trouble-free service. When cleaning is required, the assemblies come apart easily and snap back together in seconds.

A Signature Series photoelectric sensor is incorporated into the design of each SIGA-SD duct smoke detector. This sensor inherits the power and benefits of this exceptional line of intelligent devices.

Signature Series sensors gather analog information from their smoke sensing elements and convert it into digital signals. The sensor measures and analyses these signals and 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, which virtually eliminates unwanted alarms.

WARNING: Duct detectors have specific limitations. Duct detectors are not a substitute for an open area smoke detector. Duct detectors are not a substitute for early warning detection or a replacement for a building's regular fire detection system. Smoke detectors are not designed to detect toxic gases which can build up to hazardous levels in some fires. These devices will not operate without electrical power. As fires frequently cause power interruptions, GE Security suggests you discuss further safeguards with your local fire protection specialist.

Standard Features

- Less than 2" deep for easy installation and applications where space is tight
- -4°F to 158°F (-20°C to 70°C) operating range with 100 ft/min. to 4,000 ft/min air velocity rating assures reliability under harsh environmental conditions
- Status LEDs remain visible through clear assembly cover
- Cover monitor switch for added security
- Standard sampling tube spacing for easy drop-in migration from other detectors
- Sampling tube can be installed with or without the cover in place and can be rotated in 45-degree increments to ensure proper alignment with duct airflow
- 15.2 to 19.95 Vdc operation
- Magnet-activated test switch
- One Form C auxiliary alarm relay for controlling ancillary equipment (e.g., HVAC controls)
- No special tools required for easy access to field connections
- Signature Series intelligence
- Environmental compensation with differential sensing for reliable, stable, and drift-free sensitivity
- Wide 0.79% to 2.46% obscuration/ft. smoke sensitivity
- Identification of dirty or defective detectors

Intelligent Duct Smoke Detector

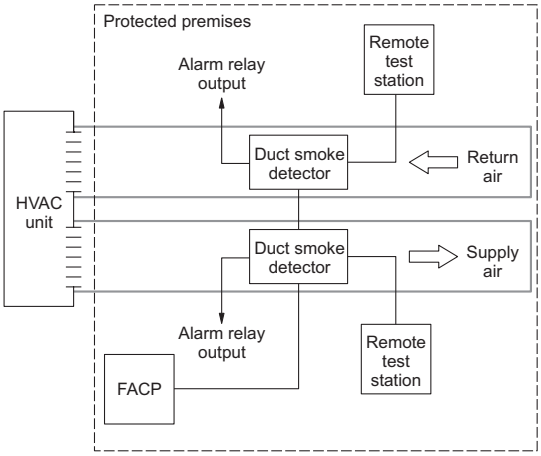
SIGA-SD



RSN 675388
PERMIT NO. 12-617313-LT

Application

SuperDuct detectors are ideally suited to duct smoke detection applications where early indication of combustion is required within the confined space of ventilation ductwork. Its primary purpose is to provide early warning of an impending fire and to prevent smoke from circulating throughout the building. It is typically used to detect smoke in the supply side of the HVAC system but can provide supervision of the return side as well.



SuperDuct detectors continually sample air flow in the HVAC duct and initiate an alarm condition whenever smoke is detected. An alarm is activated when the quantity (percent obscuration) of combustion products in that air sample exceeds the detector's sensitivity setting.

Signature Series Intelligence

Like all Signature detectors, the SIGA-SD features electronic addressing and issues a dirty sensor warning when it reaches its preset limit. The dirty sensor warning indicates the sensor is operating within its specified limits but is in need of servicing. When the detector's ability to compensate for environmental changes has reached its limit, the duct smoke detector signals a trouble condition.

The SIGA-SD also uses differential sensing to prevent gradual environmental changes from triggering unwanted alarms. A rapid change in environmental conditions, such as smoke from a fire, causes the detector to signal an alarm state, but dust and debris accumulated over time does not change alarm sensitivity.

Each Signature Series SuperDuct detector contains a microprocessor that performs comprehensive self-diagnostics and stores the results in nonvolatile memory. Stored results include details such as hours of operation, last maintenance date, and number of alarms and troubles. This information can be retrieved and reviewed when desired.

Detector Configuration

The detector assembly cover provides easy access to the smoke sensor, its wiring connections, sample and exhaust tubes, and the smoke chamber itself.

Air enters the detector's sensing chamber through a sampling tube (ordered separately) that extends into the duct and is directed back into the ventilation system through an exhaust tube (included). The difference in air pressure between the two tubes pulls the sampled air through the sensing chamber. When a sufficient amount of smoke is detected in the sensing chamber, the detector initiates an alarm.

The sampling tube may be installed from either the duct side of the assembly or from inside the sensor compartment, as preferred by the installer. (The exhaust tube must be installed from the duct side.) Sampling tubes may be rotated in 45-degree increments so that air-holes can be aligned to allow the unit to be mounted at virtually any angle relative to the air flow.

In installations where the duct smoke detector's controls and indicators are hidden from view, a remote test station or an LED indicator can be connected to the detector to provide these functions.

Remote Test Stations

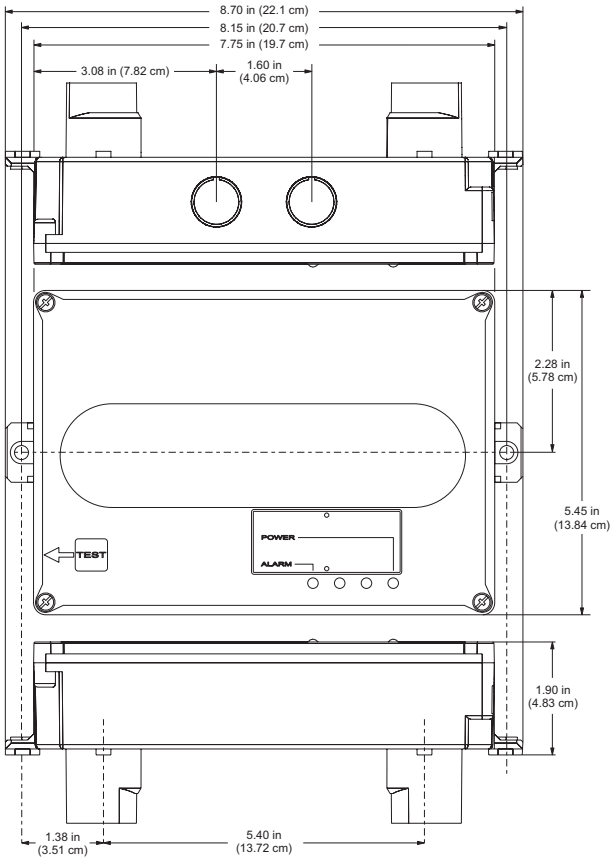


Labor-saving Remote Test/Reset stations provide alarm testing from the convenience of a remote location. Tests can be performed quickly and safely – without having to climb to the roof. Magnetically-operated and key-operated one-gang models are available. Signature SuperDuct detectors are also compatible with SIGA-LED remote alarm LED.

Air velocity in the duct as low as 100 ft/min. maintains adequate air flow into the sensor smoke chamber through air holes in the air sampling tube and discharges through the exhaust tube. *SuperDuct* air sampling tubes must be installed with the inlet holes facing the airstream. Sampling tubes may be rotated in 45-degree increments so that air-holes can be aligned to allow the unit to be mounted in virtually any angle relative to the airflow.

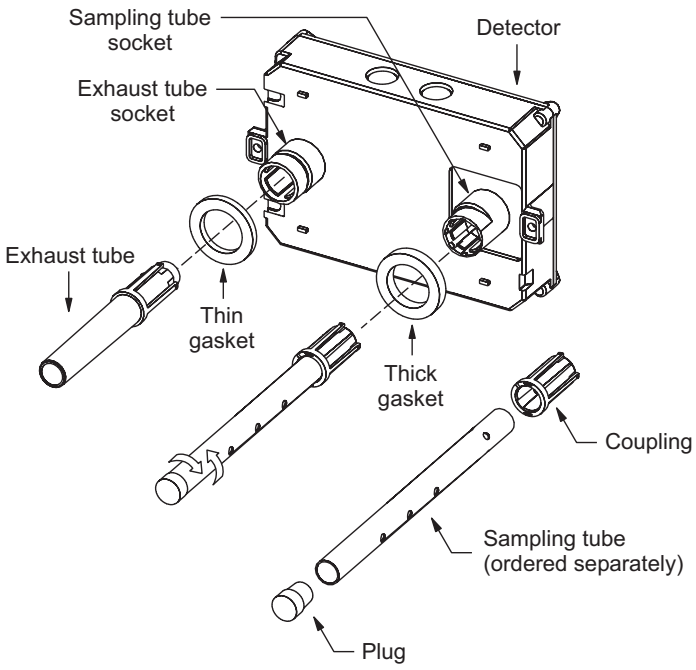
SuperDuct sensors are engineered to operate optimally under the harsh environmental conditions frequently found in HVAC ductwork. Nonetheless, before installing the detector, test the duct air velocity, temperature, and humidity to verify that it is within the operating range of the *SuperDuct* detector. Consult the *SuperDuct* installation sheet for details.

Dimensions

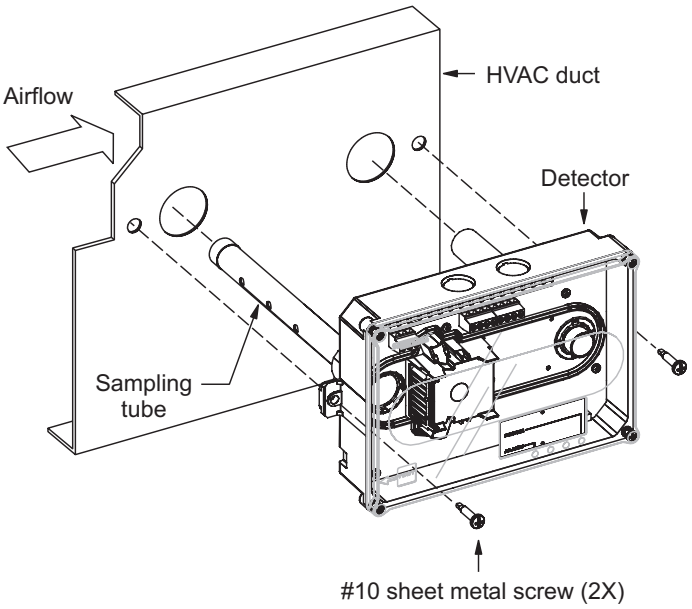


RSN 675388
PERMIT NO. 12-617313-LT

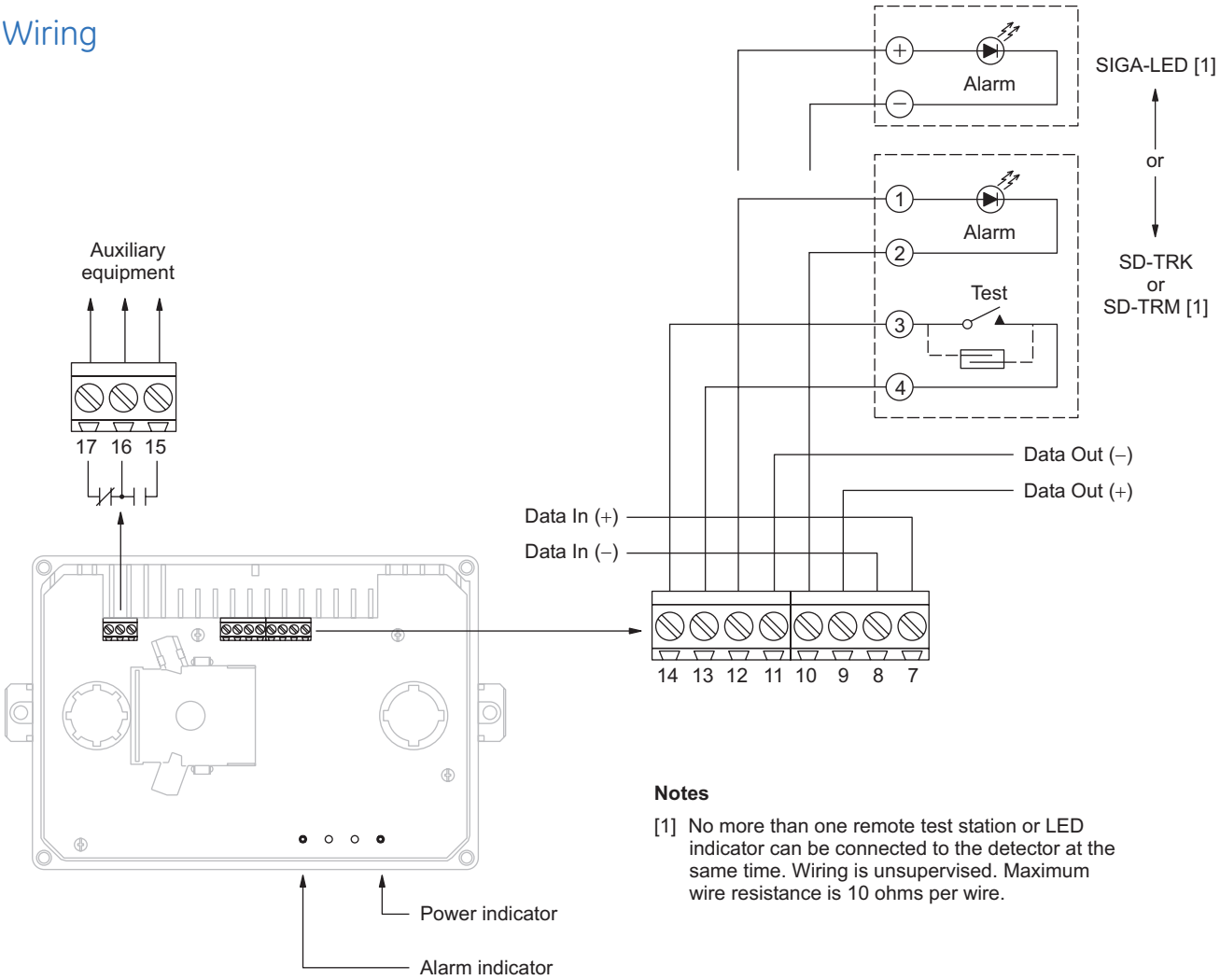
Assembly



Mounting



Wiring



Notes

[1] No more than one remote test station or LED indicator can be connected to the detector at the same time. Wiring is unsupervised. Maximum wire resistance is 10 ohms per wire.

RSN 675388
PERMIT NO. 12-617313-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

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Signature Series is a Trademark of GE Security.

Specifications, detector

Dimensions	8.70 x 5.45 x 1.90 inches (221 x 138 x 48 mm)
Wire size	14 to 22 AWG
Detection method	Photoelectric (light scattering principle)
Air velocity rating	100 to 4,000 ft/min and meets the required minimum air pressure differential
Air pressure differential	0.005 to 1.00 inches of water
Sensitivity	0.79 to 2.46 %/ft obscuration
Alarm test response time	5 seconds
LED indicators	Alarm (red), Power (green)
Common alarm relay	Unsupervised and power-limited Quantity: 1 Type: Form C Ratings: 2.0 A at 30 Vdc (resistive)
Operating voltage	15.2 to 19.95 Vdc
Operating current	Standby: 45 µA Alarm: 45 µA Inrush: 1 mA Standalone alarm: 18 mA
Operating environment	Temperature (UL): -4 to 158 °F (-29 to 70 °C). Temperature (ULC): -4 to 120 °F (-29 to 49 °C) Relative humidity: 10 to 93%, noncondensing
Agency listings	UL, ULC, CSFM, FM, MEA

Specifications, test stations

Remote Test/Reset Stations provide alarm test, trouble indication, and reset capability from a remote location. They include a one-gang plate, momentary SPST switch, red alarm LED, and terminal block. Magnetically-operated models (TRM) or key-operated models (TRK) are available.

Compatible electrical boxes	North American 1-gang box Standard 4-in square box, 1-1/2 inches deep, with 1-gang cover
LED indicators	Alarm (red)
LED type	Clear lens
Wire size	14 to 22 AWG
Resistance per wire	10 Ohms, max.
Current requirements	See controller specifications
LED circuit ratings	Voltage: 3 Vdc, max. Current: 30 mA, max.
Switch ratings (SD-TRK)	Voltage: 125 Vdc, max. Current: 4 A, max.
Switch ratings (SD-TRM)	Voltage: 200 Vdc, max. Current: 0.5 A, max.
Compatible detectors	SuperDuct conventional two-wire and Signature duct smoke detectors
Operating environment	-4°F to 158°F (-20°C to 70°C) Humidity: 93% RH, noncondensing
Storage temperature	-4 to 140 °F (-20 to 60 °C)
Agency listings	UL, ULC, CSFM

Ordering Information

Catalog Number	Description	Ship Wt., lb. (kg)
SIGA-SD	Intelligent SuperDuct Detector	2.4 (1.1)
Accessories		
SD-T8	8-inch sampling tube	0.5 (0.2)
SD-T18	18-inch sampling tube	1.5 (0.7)
SD-T24	24-inch sampling tube	2.7 (1.2)
SD-T36	36-inch sampling tube	3.0 (1.4)
SD-T42	42-inch sampling tube	3.5 (1.6)
SD-T60	60-inch sampling tube	5.8 (2.6)
SD-T78	78-inch sampling tube	7.5 (3.4)
SD-T120	120-inch sampling tube	11.5 (5.2)
SIGA-LED	Remote alarm LED	1.0 (0.5)
SD-TRM	Remote test station, magnetic	1.0 (0.5)
SD-TRK	Remote test station, keyed	1.0 (0.5)
SD-VTK	Air velocity test kit (stoppers only, etc)	1.0 (0.5)
SD-GSK	Cover gasket kit	0.5 (0.2)
SD-MAG	Test magnet kit	0.5 (0.2)
SIGA-SDPCB	Replacement PCB/Signature sensor kit	1.0 (0.5)

imagination at work

RSN 675388
PERMIT NO. 12-617313-LT

Lowest Current Draw Available!!

GENTEX CORPORATION

Commander^3 Series Selectable Candela Evacuation Signals

GEC3/GES3 12 & 24 VDC SERIES



Applications

The Commander^3 Series is a low profile strobe and horn/strobe combination that offers dependable audible and visual alarms and the absolute lowest current available.

The GE3 Series 24VDC offers tamperproof field selectable candela options of 15, 30, 60, 75, and 110 candela. The 12VDC offers tamperproof field selectable candela options of 15, 30, 60, and 75 candela.

The Commander^3 Series horn offers a continuous or synchable temporal three in 2400Hz and mechanical tone, a chime and whoop tone. All tones are easy for the professional to change in the field by using switches.

The GE3 Series has a minimal operating current and has a minimum flash rate of 1Hz regardless of input voltage.

The Commander^3 Series is shipped with a standard 4" metal mounting plate which incorporates the popular Super-Slide® feature that allows the installer to easily test for supervision. The product also features a locking mechanism which secures the product to the bracket without any screws showing.

The Commander^3 also features the patented Checkmate® - Instant Voltage Verification feature which allows the installer to check the voltage drop draw and match it to the blueprint.

The GE3 Series appliances are ANSI/UL 464 and ANSI/UL 1971, listed for use with fire protective systems and are warranted for three years from date of purchase.

Standard Features

- Nominal voltage 12VDC and 24VDC
- 24VDC units have field selectable candela options of 15, 30, 60, 75 & 110
- 12VDC units have field selectable candela options of 15, 30, 60 & 75
- GEH horn is available in 12VDC or 24VDC
- Super-Slide® Bracket - Ease of Supervision Testing
- Checkmate® - Instant Voltage Verification
- Unit Dimensions: 5” (12.7 cm) high x 4.5” (11.43 cm) wide x 2.5” (6.35 cm) deep
- Synchronize strobe and/or horn with Gentex AVSM Control Module
- Prewire entire system, install mounting bracket, then install signals
- Documented lower installation and operating costs
- Input terminals accept 12 to 18 AWG
- Switch selection for high or low dBA
- Switch for chime, whoop, mechanical and 2400Hz tone
- Tamperproof re-entrant style grill
- Switch for continuous or temporal 3 tone (not available on whoop tone)
- Surface mount with the GSB (Gentex Surface Mount Box)
- Silence horn while strobes remain flashing
- Faceplate available in red or off-white

Product Listings

SIGNALING UL LISTED

FM APPROVED

- ANSI/UL 464 & ANSI/UL 1971 Listed
- FM Approved
- CSFM: 7135-0569:122 (GEC3-24 & GEH-24)
  7125-0569:123 (GES3-24)
  7125-0569:129 (GES3-12)
  7135-0569:130 (GEC3-12 & GEH-12)
- MEA: 285-91-E (GEC3-24 & GES3-24)
  580-06-E (GEC3-12 & GES3-12)

Patents

- 7,375,617 May 20, 2008

Product Compliance

- NFPA 72
- Americans with Disabilities Act (ADA)
- Quality Management System is certified to: ISO 9001:2008

NEMA MEMBER

ASSEMBLED IN THE USA

RSN 675388
PERMIT NO. 12-617313-LT

GEH 12VDC or 24VDC Low Profile Evacuation Horn

Model Number	Part Number	Nominal Voltage	Reverberant dBA @ 10ft., per ANSI/UL 464	In Anechoic Room dBA @10ft.
GEH12-R	904-1239-002	12VDC	62-82	100
GEH12-W	904-1241-002	12VDC	62-82	100
GEH24-R	904-1205-002	24VDC	62-82	100
GEH24-W	904-1207-002	24VDC	62-82	100

GES3 12VDC or 24VDC Selectable Candela, Low Profile Evacuation Strobe

Model Number	Part Number	Nominal Voltage	Candela (ANSI/UL 1971)
GES3-12WR	904-1235-002	12 VDC	15, 30, 60, 75
GES3-12WW	904-1237-002	12 VDC	15, 30, 60, 75
GES3-24WR	904-1321-002	24 VDC	15, 30, 60, 75, 110
GES3-24WW	904-1319-002	24 VDC	15, 30, 60, 75, 110

Model Designations:
W = Wall mount
R = Red Faceplate W = White Faceplate
All units are available in plain (no lettering).
Plain units are non-returnable.
ALERT bezel available AGENT bezel available

GEC3 12VDC or 24VDC Selectable Candela, Low Profile Evacuation Horn/Strobe

Model Number	Part Number	Nominal Voltage	Candela (ANSI/UL 1971)	Reverberant dBA @ 10ft., per ANSI/UL 464	In Anechoic Room dBA @ 10ft.
GEC3-12WR	904-1231-002	12 VDC	15, 30, 60, 75	62-82	100
GEC3-12WW	904-1233-002	12 VDC	15, 30, 60, 75	62-82	100
GEC3-24WR	904-1317-002	24 VDC	15, 30, 60, 75, 110	62-82	100
GEC3-24WW	904-1315-002	24 VDC	15, 30, 60, 75, 110	62-82	100

GE3 Product Strobe Current Ratings (mA)

	12VDC (8-17.5 Volts)		24VDC (16-33 Volts)	
Candela	12VDC	UL Max[1]	**24VDC**	UL Max[1]
15cd	**106mA**	92mA	**30mA**	42mA
30cd	**131mA**	141mA	**35mA**	58mA
60cd	**186mA**	260mA	**66mA**	97mA
75cd	**237mA**	312mA	**80mA**	116mA
110cd			**103mA**	161mA



GE3-12 Product Horn Current Ratings

Horn Mode	Minimum dBA @ 10ft., per UL 464 (HIGH)	Minimum dBA @ 10ft., per UL 464 (LOW)	Regulated 12VDC Max. Operating @ High Setting (mA)
Temp 3 2400Hz	76	69*	29
Temp 3 Mechanical	75	68*	26
Temp 3 Chime	62*	60*	13
Continuous 2400Hz	79	74*	29
Continuous Mechanical	78	72*	26
Continuous Chime	63*	61*	13
Whoop	78	71*	55

GE3-24 Product Horn Current Ratings

Horn Mode	Minimum dBA @ 10ft., per UL 464 (HIGH)	Minimum dBA @ 10ft., per UL 464 (LOW)	Regulated 24VDC Max. Operating @ High Setting (mA)
Temp 3 2400Hz	78	71*	28
Temp 3 Mechanical	76	70*	25
Temp 3 Chime	70*	66*	15
Continuous 2400Hz	81	74*	28
Continuous Mechanical	80	72*	25
Continuous Chime	70*	66*	15
Whoop	82	69*	56

NOTES:

- Operating temperature: 32°to 120°F (0° to 49°C). The GEC3 and GES3 Series is not listed for outdoor use.
  The sound output for the temporal 3 tone is rated lower since the time the horn is off is averaged into the sound output rating. While the horn is producing a tone in the temporal 3 mode its sound pressure is the same as the continuous mode.
- For nominal and peak current across UL regulated voltage range for filtered DC power and unfiltered (FWR [Full Wave Rectified]) power, see installation manual. 12VDC models are DC only.

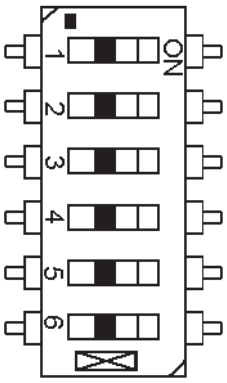
* Operating the horn in this mode at this voltage will result in not meeting the minimum ANSI/UL 464 reverberant sound level required for public mode fire protection service. These settings are acceptable only for private mode fire alarm use. Use the high dBA setting for public mode application (not applicable when using the chime tone. The chime tone is always private mode).

1 RMS current ratings are per UL average RMS method. UL max current rating is the maximum RMS current within the listed voltage range (16-33VDC for 24VDC units) (8-17VDC for 12VDC units). For strobes the UL max current is usually at the minimum listed voltage (16VDC for 24VDC units) (8VDC for 12VDC units). For audibles the max current is usually at the maximum listed voltage. For unfiltered FWR ratings, see installation manual.

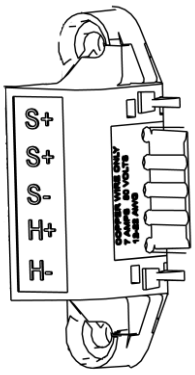
RSN 675388
PERMIT NO. 12-617313-LT

Tone Switch Locations

TONE	SWITCH POSITION		
	3	4	5
Mechanical Temporal 3	ON	ON	ON
Mechanical - Continuous	OFF	ON	ON
2400Hz - Temporal 3	ON	OFF	ON
2400Hz - Continuous	OFF	OFF	ON
Chime - Temporal 3	ON	ON	OFF
Chime - Continuous	OFF	ON	OFF
Whoop	ON	OFF	OFF
Whoop	OFF	OFF	OFF

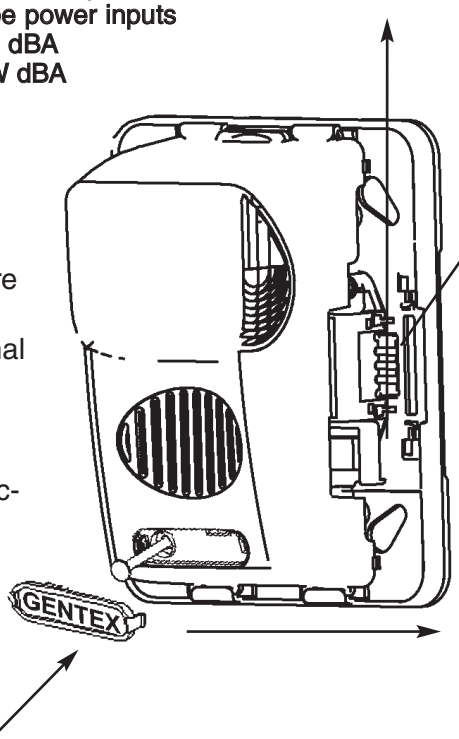


NOTE:
- Switch Positions 1 and 2 in the OFF position to select isolated horn and strobe power inputs
- Switch Position 6 ON = HIGH dBA
- Switch Position 6 OFF = LOW dBA



Gentex Super-Slide® Mounting Bracket

Allows the installer to pre-wire the system, test for system supervision, remove the signal head until occupancy, switch out Gentex signals without changing mounting brackets and has locking edge connector for snap-in-place installation.



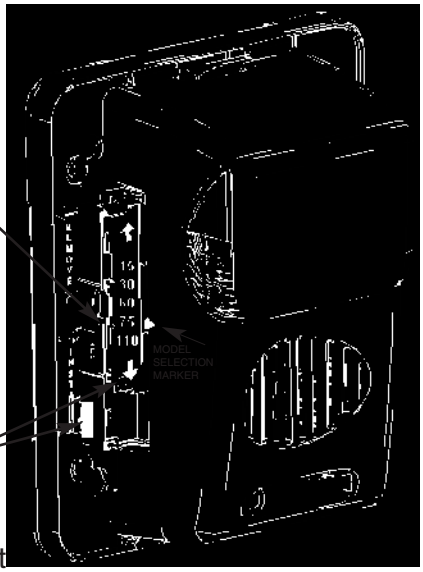
Gentex Checkmate® Instant Voltage Verification

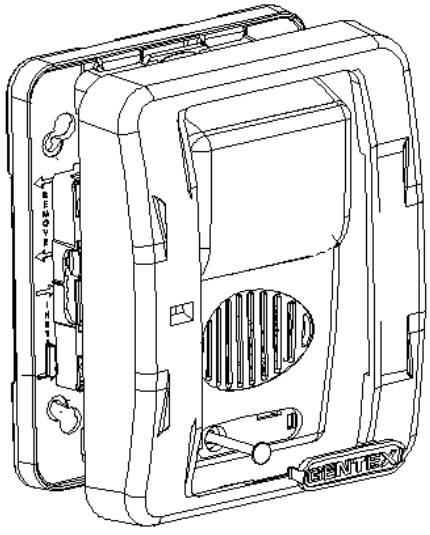
It is often necessary to confirm the voltage drop along a line of devices. The access holes are provided in the back of the terminal block to allow the voltage to be measured directly without removing the device. Typically this would be done at the end of the line to confirm design criteria. Most measurements will be taken using the S+ and S- locations although access is provided to other locations.

NOTE: Care should be taken to not short the test probes.

Candela selection slider switch. Depress center and slide switch to desire brightness level.

Break off pin and insert into hole at the bottom of the selector to lock candela setting. Signal must be removed from bracket and pin pushed forward from backside out of hole to change candela.



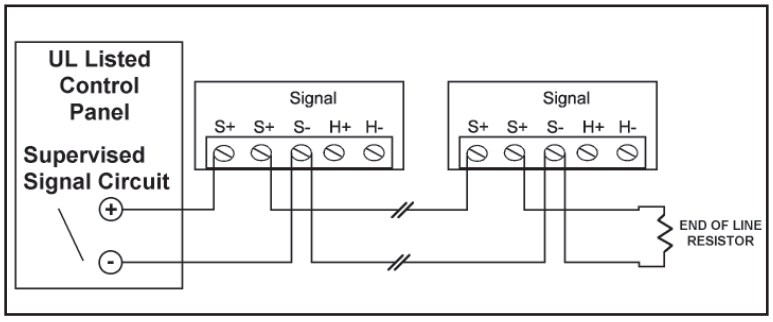


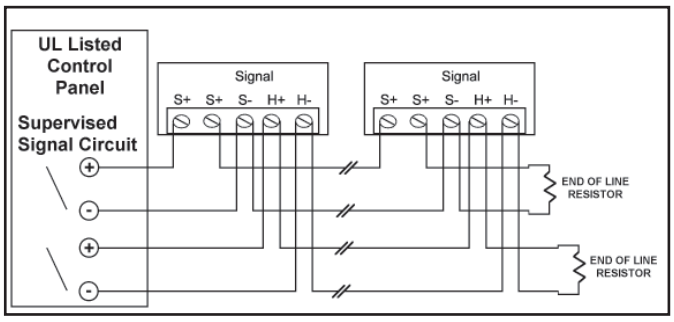
To remove bezel, grip both sides of bezel and pull in a downward and outward motion.

RSN 675388
PERMIT NO. 12-617313-LT

GEC3/GES3
12 & 24 VDC
S E R I E S

Conventional Wiring Diagrams for Emergency Notification Evacuation Series





NOTES:

- All strobes are designed to flash as specified with continuous applied voltage. Strobes should not be used on coded or pulsing signaling circuits. However, use of the Gentex AVSM control module or Gentex synchronization protocal is permitted to synchronize the strobe, horn and/or mute the horn. See Technical Bulletin 014 for additional information.
- **FOR SYNCHRONIZATION WIRING INFORMATION, REFERENCE AVSM CONTROL MODULE DATA SHEET (551-0031) AND/OR AVSM CONTROL MODULE MANUAL (550-0284) FOR SYNCHRONIZATION MODULE WIRING DIAGRAMS. AVSM CONTROL MODULE DATA SHEET AND MANUAL CAN BE OBTAINED AT http://www.gentex.com OR CALL GENTEX CORPORATION AT 1-800-436-8391.**
- **When synchronizing the GE3 12VDC Series, the Gentex AVSM control module or Gentex synchronization protocal MUST be used.**

Architect & Engineering Specifications

The audible and/or visible signal shall be Gentex GEH, GES3, GEC3 Series or approved equal and shall be listed by Underwriters Laboratories, Inc. per ANSI/UL 1971 and/or ANSI/UL 464. The notification appliance shall also be listed with Factory Mutual Listing Service (FM), the California State Fire Marshal (CSFM) and the Bureau of Standards and Appeals (NYC).

The notification appliance (combination audible/visible) shall produce a peak sound output of 100dBA or greater at 12VDC or 24VDC as measured in an anechoic chamber. The signaling appliance shall also have the capability to silence the audible signal while leaving the visible signal energized with the use of a single pair of power wires. Additionally, the user shall be able to select either continuous or temporal tone output with the temporal signal having the ability to be synchronized.

Unit shall be capable of being installed so that any unauthorized attempt to change the candela setting will result in a trouble signal at the fire alarm control panel.

The audible/visible and visible signaling appliance shall also maintain a minimum flash rate of 1Hz or up to 2Hz regardless of power input voltage. The strobe appliance shall have an operating current of 42mA or less at 24VDC for the 15Cd strobe circuit and 92mA or less at 12VDC for the 15Cd strobe circuit.

The appliance shall be polarized to allow for electrical supervision of the system wiring. The unit shall be provided with a mounting bracket with terminals and barriers for input/output wiring and be able to mount to a single gang or double gang box or double workbox without the use of an adapter plate. The unit shall have an input voltage range of 16-33 volts with either direct current or full wave rectified power for 24VDC models or a voltage range of 8-17.5 volts for 12VDC models.

The appliance shall be capable of testing supervision without disconnecting wires, verify voltage without removing unit and be capable of mounting to a surface back box.

24 units per carton
28 pounds per carton

GENTEX CORPORATION
Fire Protection Products Group • www.gentex.com
10985 Chicago Drive • Zeeland, Michigan 49464
616.392.7195 • 1.800.436.8391 • 616.392.4219 Fax

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551-0050-05

Gentex Corporation reserves the right to make changes to the product data sheet at their discretion.

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PERMIT NO. 12-617313-LT

GENTEX CORPORATION

A Smarter Vision®

GCS24 & GCC24 SERIES

ANSI/UL 1971 & ANSI/UL 464 COMPLIANT

GCSA24, GCCA24, GCSB24, GCCB24, GCSG24, GCCG24, GCSR24 & GCCR24 Series

ANSI/UL 1638 & ANSI/UL 464 COMPLIANT

SIGNALING UL LISTED

SELECTABLE CANDELA CEILING STROBE AND HORN/STROBE

I. INTRODUCTION

The Gentex Model GCS24/GCC24/GCSA24/GCCA24/GCSB24/GCCB24/GCSG24/GCCG24/GCSR24/GCCR24, strobe and horn/strobe, is a high quality visible or audible/visible signaling appliance intended for ceiling applications. The high intensity strobe utilizes a Xenon flash tube that generates a high-intensity flash visible from all angles. This appliance is intended to provide a visible or audible/visible, depending on the model, notification signal for the purpose of life safety and property protection. This appliance is ideal for any occupancy that requires notification appliances per the applicable building or fire code or wherever dependable alarms are required. The GCS24/GCC24 strobe is listed in compliance with ANSI/UL 1971, Signaling Appliances for the Hearing Impaired. The GCSA24/GCCA24/GCSB24/GCCB24/GCSG24/ GCCG24/GCSR24/GCCR24 strobe is listed in compliance with ANSI/UL 1638, Visual Signaling Appliances - Private Mode Emergency and General Signaling.

II. LOCATION

This appliance is intended for use in Fire Alarm Systems and is to be installed in accordance with this manual, the recommendation of the local authorities having jurisdiction, and other NFPA documents that provide standards on notification appliances for protective signaling systems. The GCS24/GCC24/GCSA24/ GCCA24/GCSB24/GCCB24/GCSG24/GCCG24/GCSR24/GCCR24 is intended for indoor installations only. This appliance is **not** listed for **outdoor** or drip proof applications. Spacing for the GCC24/GCS24 shall be in accordance with Table A. If a room configuration is not square, the room size that will entirely encompass the room or subdivide the room into multiple squares shall be used.

III. MOUNTING, ROUGH-IN BOX AND RUN WIRING

This unit is designed for mounting to most single gang boxes, 4" square outlet boxes, 2-gang masonry boxes or non-metallic 2-gang switch boxes. Conduit entrance to boxes should be selected to insure sufficient wiring clearance.

1. Run a minimum 18 gauge insulated 2 or more conductor cable.
2. Mount a box for each remote signaling appliance. Screw bracket onto box. Insert signal into bracket and slide to the right firmly into the terminal block receptacle. Insert mounting screw as shown and tighten. Cover assembly with the plastic housing.

Attention: Wiring should be connected to mounting bracket prior to mounting signal. Incoming positive power lead must be broken and each lead is to be inserted into each of the top two terminals. If two power runs are made to the signal, one for the strobe and one for the horn, only one of the runs must have its positive lead broken and placed under the two separate top terminals. A barrier is provided to prevent both leads from being placed under the same terminal.

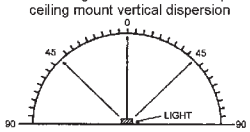
GCS24/GCC24 PRODUCT INFORMATION

Table A

Room Spacing for Ceiling-Mounted Visible Appliances per NFPA 72, 2010 Edition				
		Minimum Required Light Output (Effective Intensity, Cd; One Light)		
Maximum Room Size		Maximum Ceiling Height		
Meters	Feet	10 Foot Ceiling	20 Foot Ceiling	30 Foot Ceiling
6.10 x 6.10	20 x 20	15	30	55
9.14 x 9.14	30 x 30	30	45	75
13.4 x 13.4	44 x 44	75	75	NA
15.2 x 15.2	50 x 50	95	95	95

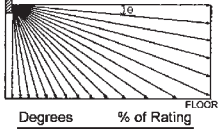
LIGHT OUTPUT IN PERCENTAGE WHEN MEASURED FROM THE FOLLOWING DIRECTIONS - PER UL1971

wall and ceiling mount horizontal dispersion
ceiling mount vertical dispersion



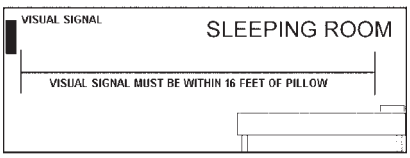
Degrees	% of Rating
0	100
5-25	90
30-45	75
50	55
55	45
60	40
65	35
70	35
75	30
80	30
85	25
90	25

wall mount vertical dispersion



Degrees	% of Rating
0	100
5-30	90
35	65
40	46
45	34
50	27
55	22
60	18
65	16
70	15
75	13
80	12
85	12
90	12

CAUTION: Strobe light must be installed within 16 feet of the pillow when used in a sleeping area.



WARNING! The visual signal must be in the direct viewing area of the occupant in order to be seen.

WARNING! Strobe light can not be seen when objects such as doors, furniture or walls block strobe light.

NOTICE: Visual signals for the hearing impaired are only one method of alerting the hearing impaired. Visual signals may not be the preferred method for notifying all hearing impaired individuals.

NOTICE: The strobe light must be seen by the sleeping person. If the person has head turned or otherwise unable to be alerted by visual, the strobe will not be effective.

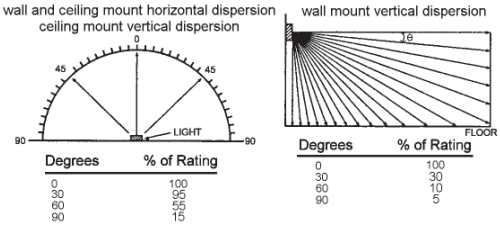
RSN 675388
PERMIT NO. 12-617313-LT

CLEAR Lens Strobe Current Ratings		
Use with GCS24/GCC24 Products		
Candela	**Regulated 24VDC Max. Operating Current (mA)**	**Regulated 24VFWR Max. Operating Current (mA)**
15	120	190
30	120	191
75	200	277
95	220	298
115	290	418
150	321	427

NOTE: DC Voltage Range Limits: 16-33V. FWR Voltage Range Limits: 16-33V. This product was only tested to the stated voltage range(s); do not apply 80% and 110% of this range for system operation.

GCSA24/GCCA24/GCSB24/GCCB24/GCSG24/GCCG24/GCSR24/GCCR24 PRODUCT INFORMATION

LIGHT OUTPUT IN PERCENTAGE WHEN MEASURED FROM THE FOLLOWING DIRECTIONS



Models	Color Lens
GCSA/GCCA	Amber
GCSB/GCCB	Blue
GCSG/GCCG	Green
GCSR/GCCR	Red

AMBER, BLUE & GREEN Lens Strobe Current Ratings		
Use with GCSA24/GCCA24/GCSB24/GCCB24/ GCSG24/GCCG24 Products		
Candela	**Regulated 24VDC Max. Operating Current (mA)**	**Regulated 24VFWR Max. Operating Current (mA)**
15	124	192
30	124	192
75	139	219
95	205	286
115	212	290

NOTE: DC Voltage Range Limits: 16-33V. FWR Voltage Range Limits: 16-33V. This product was only tested to the stated voltage range(s); do not apply 80% and 110% of this range for system operation.

RED Lens Strobe Current Ratings		
Use with GCSR24/GCCR24 Products		
Candela	**Regulated 24VDC Max. Operating Current (mA)**	**Regulated 24VFWR Max. Operating Current (mA)**
15	124	192
30	124	192
75	212	290
95	283	394
115	313	414

NOTE: DC Voltage Range Limits: 16-33V. FWR Voltage Range Limits: 16-33V. This product was only tested to the stated voltage range(s); do not apply 80% and 110% of this range for system operation.

HORN DECIBLE AND CURRENT RATINGS PRODUCT INFORMATION

	Horn Decible Levels		Horn Current Ratings	
Horn Mode	**Minimum SPL @ 10Ft. Per ANSI/UL 464 (HIGH)**	**Minimum SPL @ 10Ft. Per ANSI/UL 464 (LOW)**	**Regulated 24VDC Max. Operating Current (mA) High Setting**	**Regulated 24VFWR Max. Operating Current (mA) High Setting**
Temp 3 2400Hz	83 dBA	75 dBA	23	45
Temp 3 Mechanical	81 dBA	73* dBA	22	43
Continuous 2400Hz	86 dBA	78 dBA	23	45
Continuous Mechanical	84 dBA	76 dBA	22	43

NOTE:
- The three pulse temporal pattern is to be used for evacuation use only.
- The sound output for the temporal 3 tone is rated lower since the time the horn is off is averaged into the sound output rating. While the horn is producing a tone in the temporal 3 mode its sound pressure is the same as the continuous mode. Units have been tested to 0°C, 49°C and 93% humidity.

*Operating the horn in this mode at this voltage will result in not meeting the minimum ANSI/UL 464 sound level required for public mode fire protection service. These settings are acceptable only for private mode fire alarm signaling use. Use the high dBA setting for public mode applications.

RSN 675388
PERMIT NO. 12-617313-LT

IV. WIRING

Wiring for independent synchronized strobes and horn.

Using this method you may:

· Use only two wires to synchronize the temporal horn and strobe with the ability to mute the horn (place switches **1** and **2** up on the GCC24/GCCA24/GCCB24/GCCG24/GCCR24).

· Mute the horn only when the temporal horn option has been selected.

Wiring for synchronized parallel (unison) horn/strobe operation.

Using this method you may:

· Use only two wires to synchronize the temporal horn and strobe **without** the ability to mute the horn (place switches **1** and **2** up on the GCC24/GCCA24/GCCB24/GCCG24/GCCR24).

· Choose either temporal or continuous horn with the temporal horn synchronized.

· Also wire the control module (AVSM) to only the strobe input power terminals, set the horn to continuous mode and power it from a coded source.

NOTE: For this option, switches **1** and **2** on the GCC24/GCCA24/GCCB24/GCCG24/GCCR24 must be down to isolate power to the audible and visible portion of the circuit.

NOTE: *All strobes are designed to flash as specified with continuous applied voltage. This appliance is not recommended for use on coded or pulsing signaling circuits. However, use of the AVSM control module is permitted to synchronize the strobe and/or mute the horn.*

MAX. WIRE DISTANCE (IN FEET) = (PANEL VOLTAGE-APPLIANCE MIN. VOLT) X WIRE CONDUCTIVITY / TOTAL CURRENT DRAW

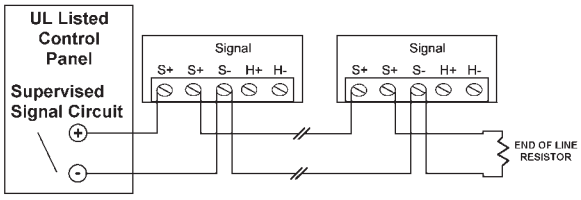
WIRE	CONDUCTIVITY
18AWG	60
16AWG	95
14AWG	153
12AWG	244

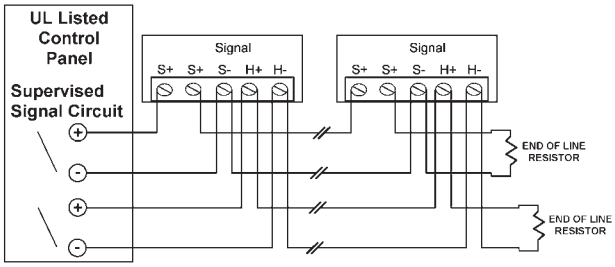
Includes wire to and from appliance. **CAUTION:** Applies only to regulated supplies. Assumes all appliances are at the end of wire run (worst case).

***NOTICE*: REFERENCE AVSM CONTROL MODULE MANUAL (550-0284, dated 2-1-03) FOR SYNCHRONIZATION MODULE WIRING DIAGRAMS. AVSM MANUAL CAN BE OBTAINED AT http://www.gentex.com OR CALL GENTEX CORPORATION AT 1-800-436-8391.**

Conventional Method:

You may connect both the strobe and the horn directly from a source of rated power without the use of a control module. However, the horns and strobe lights will NOT be synchronized. Place switches **1** and **2** up on the GCC24/GCCA24/GCCB24/GCCG24/GCCR24 to power both the audible and visible from a single pair of power wires. If you wish to power the horn and strobe from independent sources of power, place switches **1** and **2** down on the GCC24/GCCA24/GCCB24/GCCG24/GCCR24 and connect power to the appropriate terminals.

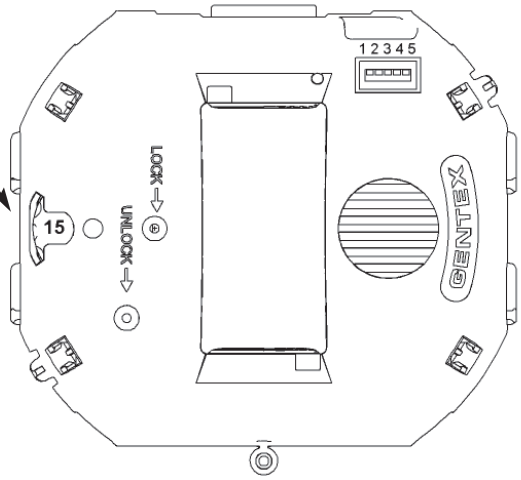




CAUTION: When using only a single power source to energize the strobe and horn (switches 1 and 2 up), the in/out wiring must be under the S+ and S- terminals only. Failure to do so may result in damage to your signal.

Adjust candela by turning dial. Displayed number will be candela selected.

NOTE: To prevent accidental candela selection change, remove the screw from the unlock position and place in the lock position after the desired intensity is selected.

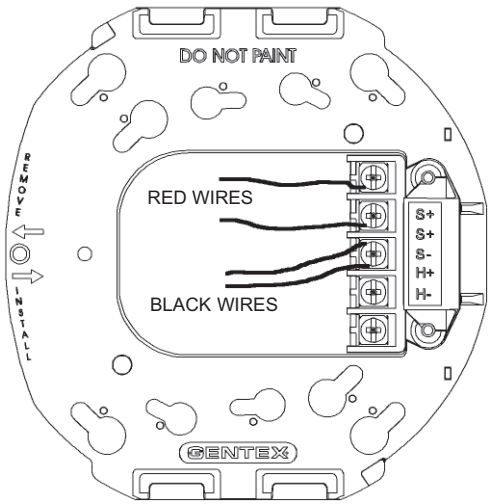


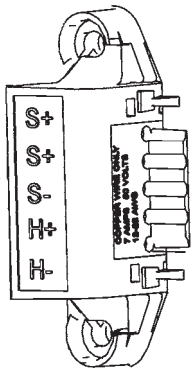
Switch positions 1 and 2 in the down position to select isolated horn and strobe power inputs.

Switch 3 selects between temporal or non-temporal tone. Up is temporal.

Switch 4 selects between mechanical or high frequency tone. Up is mechanical.

Switch 5 selects between high or low dBA. Up is high dBA.





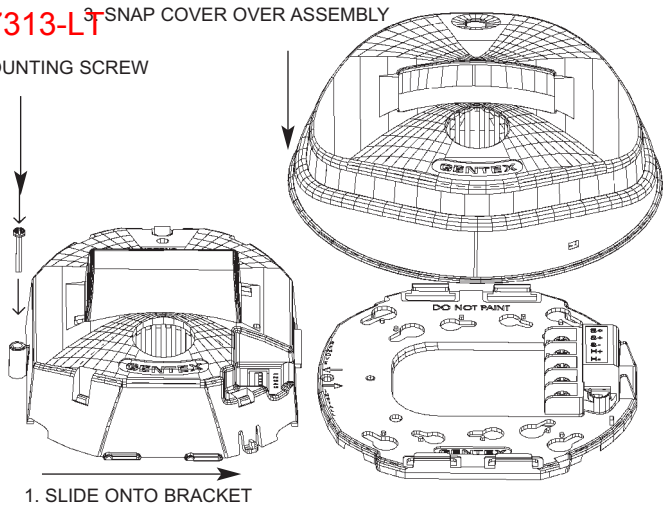
Checkmate® Instant Voltage Verification:

It is often necessary to confirm the voltage drop along a line of devices. The access holes are provided in the back of the terminal block to allow the voltage to be measured directly without removing the device. Typically this would be done at the end of the line to confirm design criteria. Most measurements will be taken using the S+ and S- locations although access is provided to other locations.

NOTE: Care should be taken to not short the test probes.

CAUTION: A jumper card is provided to test for correct wiring in the supervisory mode only. DO NOT pass alarm current through the jumper.

RSN 675388
PERMIT NO. 12-617313-LT



V. CHECKOUT AND TROUBLESHOOTING

1. Supply power to the system control panel. The auxiliary signaling appliances in the system should not be activated.
2. If the signal is activated:
   · Check all smoke and fire detectors in the system to make sure they have not been activated.
   · Check all wiring connections to make sure the signal detection circuits are not reversed or shorted together. Check wire color codes and traces.
   · Verify that the jumpers and switches are properly set on both the control module and signal appliance. If the jumper on the AVSM is removed, the horns will not produce any sound unless there is an input to the H+ and H- terminals on the control module.
3. To test the signal appliances, trip the auxiliary panel or activate the alarm circuit at the main control panel or activate one of the fire detection units in the system. All auxiliary signals should be activated.
4. An operational test on this product should be conducted in accordance with National Standards or at a minimum annually and more often if dictated by local and state codes or authorities having jurisdiction.

NOTE: These testing procedures and troubleshooting instructions are generalized. Please refer to the system control panel operating instructions for proper operation of the panel and fire detection system.

SIGNALING APPLIANCE LIMITATION:

Your horn and horn/strobe meet or exceed the current audibility requirements of ANSI/UL 464. However, if the appliance is located outside a bedroom it may not wake up a sound sleeper, especially if the room door is closed or only partially open.

⚠ WARNING

THIS APPLIANCE WILL NOT OPERATE WITHOUT ELECTRICAL POWER. AS FIRES FREQUENTLY CAUSE POWER INTERRUPTIONS, GENTEX SUGGESTS YOU DISCUSS FURTHER SAFEGUARDS WITH YOUR LOCAL FIRE PROTECTION SPECIALIST.

VI. TO RETURN AN APPLIANCE

Should you experience problems with your appliance, proceed as follows:

1. Turn off electrical power to the auxiliary alarm circuit.
2. Remove faceplate, then remove mounting screw and slide signal off from bracket.
3. Replace unit that was removed to restore wiring supervision and to eliminate system trouble alert.
4. Carefully pack the defective unit (the manufacturer cannot be responsible for consequential damage due to shipping or mis-handling). Include your return address and complete details as to the nature of the difficulties being experienced and date of installation.
5. Return to: Gentex Corporation, 10985 Chicago Dr., Zeeland MI 49464. Prior to returning, call the Gentex field service department at 1-800-436-8391 or e-mail FP_RMA@gentex.com to obtain a RMA number.

LIMITED WARRANTY

For a period of 36 months from the date of purchase or a maximum of 42 months from the date of manufacture, Gentex warrants to you the original purchaser that your appliance will be free from defects in workmanship, materials and construction under normal use and service. If a defect in workmanship, materials and construction should cause your appliance to become inoperative within the warranty period, Gentex will repair your appliance or furnish you with a new or rebuilt appliance without charge to you except for postage required to return the appliance to us. Gentex will not reimburse you for repairs or replacement parts provided by other parties. Your repaired or replacement appliance will be returned to you free of charge and it will be covered under the warranty for the balance of the warranty period.

The warranty is void if our inspection of your appliance shows that the damage or failure was caused by abuse, misuse, abnormal usage, faulty installation, improper maintenance or repairs other than those performed by us.

ANY WARRANTIES IMPLIED UNDER ANY STATE LAW INCLUDING IMPLIED WARRANTIES OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE APPLY ONLY FOR THE WARRANTY PERIOD SPECIFIED ABOVE. PLEASE NOTE THAT SOME STATES DO NOT ALLOW LIMITATION ON HOW LONG AN IMPLIED WARRANTY LASTS. SO THE ABOVE LIMITATION MAY NOT APPLY TO YOU. GENTEX WILL NOT BE LIABLE FOR ANY LOSS, DAMAGE, INCIDENTAL OR CONSEQUENTIAL DAMAGES OF ANY KIND ARISING IN CONNECTION WITH THE SALE, USE OR REPAIR OF THIS APPLIANCE. THE MAXIMUM LIABILITY OF GENTEX SHALL NOT IN ANY CASE EXCEED THE PURCHASE PRICE PAID BY YOU FOR THE APPLIANCE. PLEASE NOTE THAT SOME STATES DO NOT ALLOW THE EXCLUSION OR LIMITATION OF INCIDENTAL OR CONSEQUENTIAL DAMAGES, SO THE ABOVE LIMITATION OR EXCLUSION MAY NOT APPLY TO YOU.

If a defect in workmanship, materials or construction should cause your appliance to become inoperable within the warranty period, you must return the appliance to Gentex postage prepaid. You must prove to the satisfaction of Gentex the date of purchase of your appliance. Warranty service may only be performed by Gentex personnel at Gentex's facilities in Zeeland, Michigan. You must also pack the appliance to minimize the risk of it being damaged in transit. You must also enclose a return address. Appliances returned for warranty service should be sent to: Gentex Corporation, 10985 Chicago Dr., Zeeland MI 49464. If we receive an appliance in a damaged condition as the result of shipping, we will notify you and you must seek a claim with the shipper.

THIS WARRANTY GIVES YOU SPECIFIC LEGAL RIGHTS AND YOU MAY ALSO HAVE OTHER RIGHTS WHICH VARY FROM STATE TO STATE.

Important Notice:

These materials have been prepared by Gentex Corporation ("Gentex") for informational purposes only, are necessarily summary, and are not purported to serve as legal advice and should not be used as such. Gentex makes no representations and warranties, express or implied, that these materials are complete and accurate, up-to-date, or in compliance with all relevant local, state and federal laws, regulations and rules. The materials do not address all legal considerations as there is inevitable uncertainty regarding interpretation of laws, regulations and rules and the application of such laws, regulations and rules to particular fact patterns. Each person's activities can differently affect the obligations that exist under applicable laws, regulations or rules. Therefore, these materials should be used only for informational purposes and should not be used as a substitute for seeking professional legal advice. Gentex will not be responsible for any action or failure to act in reliance upon the information contained in this material.