

FIRE ALARM INSTALLER/SUPPLIER:
OTTOProTech Fire Consultants, LLC
21181 EAST LEHIGH PLACE
AURORA, COLORADO 80013
PHONE: 303-956-3447
CONTACT: OTTO LAU

OCCUPANCY GROUP: B - OUTPATIENT









PROTECTION TYPE: FULLY SPRINKLED

CODES USED: 2009 IBC

- 2009 IBC
- 2009 IFC
- 2014 NEC
- 2007 NFPA 72

SCOPE OF WORK

THIS IS A REMODEL WITH AN EXISTING EST CONVENTIONAL FIRE ALARM SYSTEM. AN EXISTING NOTIFICATION CIRCUIT WILL BE EXTENDED TO TRIGGER THE NEW REMOTE POWER SUPPLY. TWO CIRCUITS FROM THIS NEW NAC POWER SUPPLY WILL BE USED TO POWER NEW HORNS AND STROBES IN THE REMODEL AREA. A NEW SMOKE DETECTOR WILL BE INSTALLED AT THE NEW REMOTE POWER SUPPLY. THIS DETECTOR WILL BE ADDED TO AN EXISTING CONVENTIONAL IDC CIRCUIT. THE EXISTING SEQUENCE OF OPERATIONS WILL REMAIN UNCHANGED.

SYMBOL	QTY NEW	MODEL NUMBER	DESCRIPTION	MANUFACTURER	MOUNTING
	0	EST Q44	FIRE ALARM CONTROL PANEL	EST	EXISTING
	1	FCPS-24FS6	REMOTE POWER SUPPLY, 6 AMP	FIRELITE	MOUNT ON WALL
	2	12V-7	7 AMP HOUR BATTERIES	MK	MOUNT IN CABINET
	1	2WB	CONVENTIONAL SMOKE DETECTOR	SYSTEM SENSOR	4" OCTAGONAL BOX
	4	GEC3-24WR	HORN/STROBE, WALL, # INDICATES CANDELA	GENTEX	4" SQUARE BOX D
	1	GCC24CR	HORN/STROBE, CEILING, # INDICATES CANDELA	GENTEX	4" SQUARE BOX D
	13	GES3-24WR	STROBE, WALL, # INDICATES CANDELA	GENTEX	4" SQUARE BOX D
	1	GCS24CR	STROBE, CEILING, # INDICATES CANDELA	GENTEX	4" SQUARE BOX D
			END OF LINE RESISTOR		

FIRE ALARM WIRE TYPE CHART

Code	Description	Wire Type
C	Notification Appliance Circuit (Horn/Strobe) Wiring	2#14 AWG Solid FPLP
Z	Initiating Device Circuit (Zone) Wiring	2#16 AWG Solid FPLP

FOR:		DENVER NEPHROLOGY		BATTERY CALCULATION			
HOURS OF SUPERVISION:		24		HOURS		MINUTES	
MINUTES OF ALARM		24		HOURS		MINUTES	
PANEL:		FOPS-24F56 FIRE/RETE		REMOTE POWER SUPPLY #1			
ITEM	QTY	PART NUMBER	DESCRIPTION	Device Supervisory Current	Device Alarm Current	Total Supervisory Current	Total Alarm Current
1	1	FOPS-24F56	REMOTE POWER SUPPLY, 6 AMP	0.091000	0.145000	0.091000	0.145000
2	3	GC3-24WR	HORN/STROBE 15CD	0.000000	0.104000	0.000000	0.312000
3	1	GC3-24HR	HORN/STROBE 75CD	0.000000	0.252000	0.000000	0.252000
4	2	GC3-24R	STROBE 15CD	0.000000	0.077000	0.000000	0.244000
5	1	GC3-24HR	STROBE 30CD	0.000000	0.102000	0.000000	0.102000
6	1	GC24CR	HORN/STROBE, CEILING 15CD	0.000000	0.217000	0.000000	0.217000
7	1	GC24CR	STROBE, CEILING 15CD	0.000000	0.190000	0.000000	0.190000
				0.091000	0.910000	0.091000	0.910000

SUB-TOTAL:	0.091000	AMPS
24 HOURS OF SUPERVISORY:	24	HOURS
SUB-TOTAL:	2.184000	AMP HOURS
ALARM:		
SUB-TOTAL:	2.142000	AMPS
5 MINUTES OF ALARM:	0.083333	HOURS
SUB-TOTAL:	0.178500	AMP HOURS
TOTALS:		
TOTAL SUPERVISORY:	2.184000	AMP HOURS
TOTAL ALARM:	0.178500	AMP HOURS
TOTAL:	2.362500	AMP HOURS
SPARE OF 20%	0.472500	AMP HOURS
MINIMUM BATTERY SIZE REQUIRED	2.835000	AMP HOURS
BATTERIES	7.0	AMP HOURS

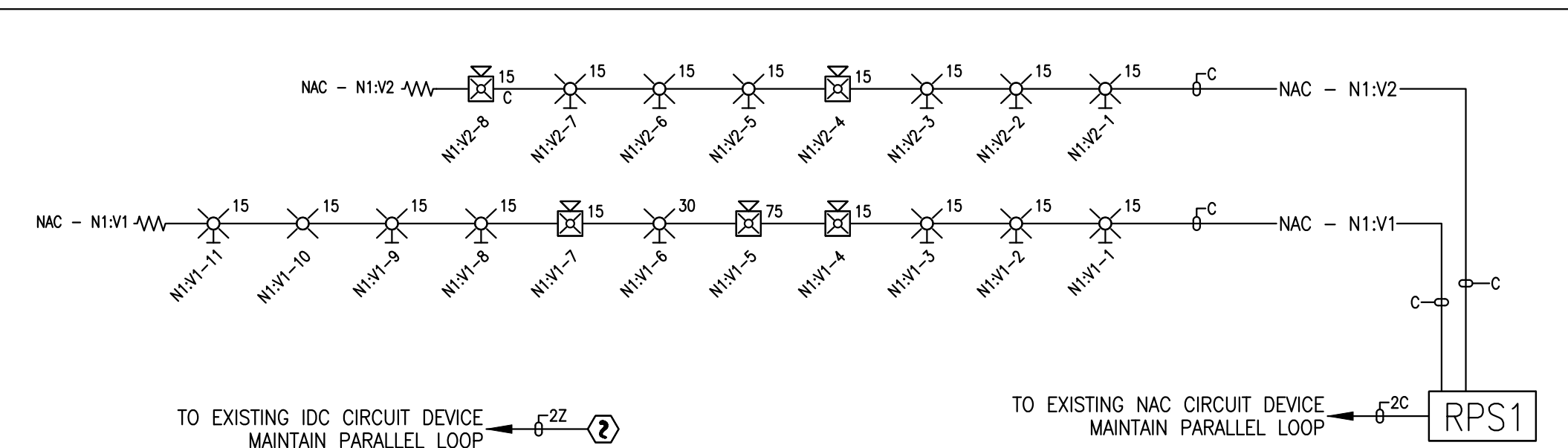
VOLTAGE DROP CALCULATION													
4 VOLT MAXIMUM VOLTAGE DROP													
20 X MAXIMUM VOLTAGE DROP													
CIRCUIT OUTPUT VOLTAGE = 20.4 VOLTS (FOR CALCULATIONS)													
CIRCUIT TYPE	ESTIMATED LENGTH	A/V	V/D	WIRE GAUGE	A/V	V/D	WIRE GAUGE	TOTAL ACTUAL VOLTAGE DROP	ACTUAL VOLTAGE DROP	ACTUAL VOLTAGE DROP	TOTAL ACTUAL VOLTAGE DROP	TOTAL ACTUAL VOLTAGE DROP	TOTAL ACTUAL VOLTAGE DROP
CIRCUIT DESCRIPTION		0.104	0.252	0.077	0.102	0.217	0.190	AMPS (18, 16, 14, 12)	DROP %	DROP (VOLTS)	DROP %	DROP (VOLTS)	DROP (VOLTS)
NV1	A/V	180	1	6	0	0	0	1,214	14	7.21%	1,472	18	9.08%
NV2	A/V	160	1	0	0	0	0	0.793	14	0.00%	0.793	18	0.00%
NV3	0 R	0	0	0	0	0	0	0.00%	14	0.00%	0.00%	18	0.00%
NV4	0 R	0	0	0	0	0	0	0.00%	14	0.00%	0.00%	18	0.00%
NV5	0 R	0	0	0	0	0	0	0.00%	14	0.00%	0.00%	18	0.00%
Appliance Summary								Total Load (AMPS)	1.997				
								Total Current Available	6.000				
								Total Current Remaining	4.003				

METHOD USED TO CALCULATE PERCENT OF VOLTAGE DROP:

$$\frac{[(\text{CIRCUIT LENGTH IN FEET} \times 2) (\text{AMPS} \times \text{OHMS/FOOT})]}{VOLTAGE} \times 100$$

Starting voltage is 20.4 volts Per NFPA 72

1. FIRE ALARM SYSTEMS CANNOT BE COMBINED WITH BURGLAR ALARM SYSTEMS.
2. THE INSTALLER IS REQUIRED TO COORDINATE WITH THE MECHANICAL CONTRACTOR TO DETERMINE THE LOCATION OF SMOKE DETECTORS. DETECTORS SHALL BE INSTALLED AT A MINIMUM 8 FEET FROM ANY SMOKE RETURN DIFFUSER AND THAT ADDITIONAL DETECTION MAY BE REQUIRED DUE TO THE RELLOCATION OR SPACING ADJUSTMENT OF DETECTORS. (AS A RESULT).
3. SMOKE DETECTORS MUST BE PLACED IN THE SPECIFIED AREAS WITH AMBIENT TEMPERATURE RANGING FROM 32 DEGREES TO 120 DEGREES F.
4. DO NOT PLACE SMOKE DETECTORS WITHIN 3 FEET OF FIRE ALARM REGISTERS AND DIFFUSERS.
5. DETECTORS SHALL BE INSTALLED IN THE SPECIFIED AREAS WITHIN 10 FEET OF THE STAIRWELL.
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 AND AREA BUILDING DIVISIONS SHALL REVIEW ALL VARIATIONS OF ADOPTED FIRE CODE. CODE VIOLATIONS UNCOVERED DURING FIELD INSPECTIONS MUST BE CORRECTED.
8. AT THE TIME OF THE 2014 NFPA THE INSTALLER MUST REQUEST A ROUGH WIRING INSPECTION ON THE FIRE ALARM SYSTEM PRIOR TO REQUESTING A FIRE ALARM FINAL INSPECTION.
9. THE INSTALLER SHALL OBTAIN A PERMIT FROM THE CITY OF THE PROJECT AREA PRIOR TO ACCEPTANCE TESTING WITH THE BUILDING DIVISION.
10. REMOVE ALARM INDICATORS SHALL BE PROVIDED FOR ANY AUTOMATIC FIRE ALARM DETECTOR.
11. AT THE TIME OF THE 2014 NFPA THE INSTALLER SHALL PROVIDE A REMOTE TEST SIGNAL TO THE ACCEPTANCE TESTING WITH THE BUILDING DIVISION.
12. AT THE TIME OF FINAL FIRE ALARM INSPECTION, THE SYSTEM MUST BE SUPERVISED/MONITORED BY A CLASS C CENTRAL MONITORING AGENCY.
13. THE CONTRACTOR SHALL PROVIDE (FREE) MUST PROVIDE ALL NECESSARY TESTING EQUIPMENT AND PERFORM ALL TESTING REQUIRED BY THE LIFE SAFETY FIELD INSPECTOR.
14. IN-DUCT SMOKE DETECTORS INSTALLED IN CONCEALED LOCATIONS OR, WHERE THE DETECTORS ARE NOT INSTALLED IN CONCEALED LOCATIONS, THE CONTRACTOR SHALL PROVIDE (FREE) A REMOTE (SMOKE INDICATOR'S) REMOTE TEST SIGNAL ON PERMANENT PLACARDING.
15. ALL NEW OR EXISTING FIRE ALARM SYSTEMS MUST BE CONNECTED TO ANY EXTERIOR HORN AND STROBE. IF THERE IS NO EXTERIOR HORN AND STROBE, THE ACTIVATION AT THE FIRE ALARM CONTROL PANEL WILL ACTIVATE THE EXTERIOR HORN AND STROBE. LOCATING THE PANEL IN THE EXTERIOR HORN AND STROBE AREA SHALL BE THE CONTRACTOR'S RESPONSIBILITY.
16. FIRE ALARM SYSTEMS SHALL INCLUDE BOTH AUDIBLE AND VISUAL SIGNALS.
17. VISUAL SIGNALS SHALL BE PROVIDED IN ALL AREAS PER THE 2010 IFAC. VISUAL ALARMS WILL BE REQUIRED IN ALL ACCESSIBLE PUBLIC AND COMMON-USE AREAS PER THE 2009 IFAC AND THE 2003 IFAC.
18. PROVIDE A PRIMARY AND SECONDARY POWER SUPPLY FOR THE FIRE ALARM SYSTEM PER THE 2009 IFAC AND THE 2007 NFPA 72.
19. THE FIRE ALARM INSTALLATION CONTRACTOR MUST COMPLETE THE NFPA 72 "RECORD OF COMPLETION" PRIOR TO SCHEDULING THE AHA ACCEPTANCE TEST.
20. FIELD INSPECTION CONSULTATION IS AVAILABLE UPON REQUEST. CALL 303-739-7420 TO REQUEST.
21. AUDIBLE ALARM SIGNALING DEVICES SHALL EXCEED THE PREVAILING SOUND LEVEL, IN A ROOM OR OUTDOOR AREA, BY 15 DBA. SOUND LEVELS FOR ALARM SIGNALS SHALL BE 120 DBA MAXIMUM. IF A ROOM OR



ONE-LINE DIAGRAM

EXISTING SEQUENCE OF OPERATIONS

CONTROL PANEL ANNUNCIATION		NOTIFICATION				SAFETY CONTROL	
	ACTIVATE GENERAL ALARM AUDIBLE SOUNDER	X					1
	ACTIVATE GENERAL ALARM VISUAL INDICATOR	X					2
	ACTIVATE SUPERVISORY AUDIBLE SOUNDER		X				3
	ACTIVATE SUPERVISORY VISUAL INDICATOR		X				4
	ACTIVATE TROUBLE AUDIBLE SOUNDER						5
	ACTIVATE TROUBLE VISUAL INDICATOR						6
	SEND EVENT TO THE HISTORY BUFFER		X	X			7
	ACTIVATE EVACUATION SIGNALS (HORN/S Strobes)		X	X	X		8
	TRANSMIT GENERAL FIRE ALARM SIGNAL TO SUPERVISORY STATION			X			9
	TRANSMIT SUPERVISORY SIGNAL TO SUPERVISING STATION			X			10
	TRANSMIT TROUBLE SIGNAL TO SUPERVISING STATION				X		11
	SHUT DOWN ASSOCIATED AIR HANDLING UNIT		X				12
	ACTIVATE EXTERIOR WP HORN/STROBE AT TDC				X		13
	SILENCE AUDIBLES						14
UNIT				X		X	15

NICET CERTIFICATION

TECHNICAL AREA 00303: LEVEL IV

CERTIFICATE #: 110711

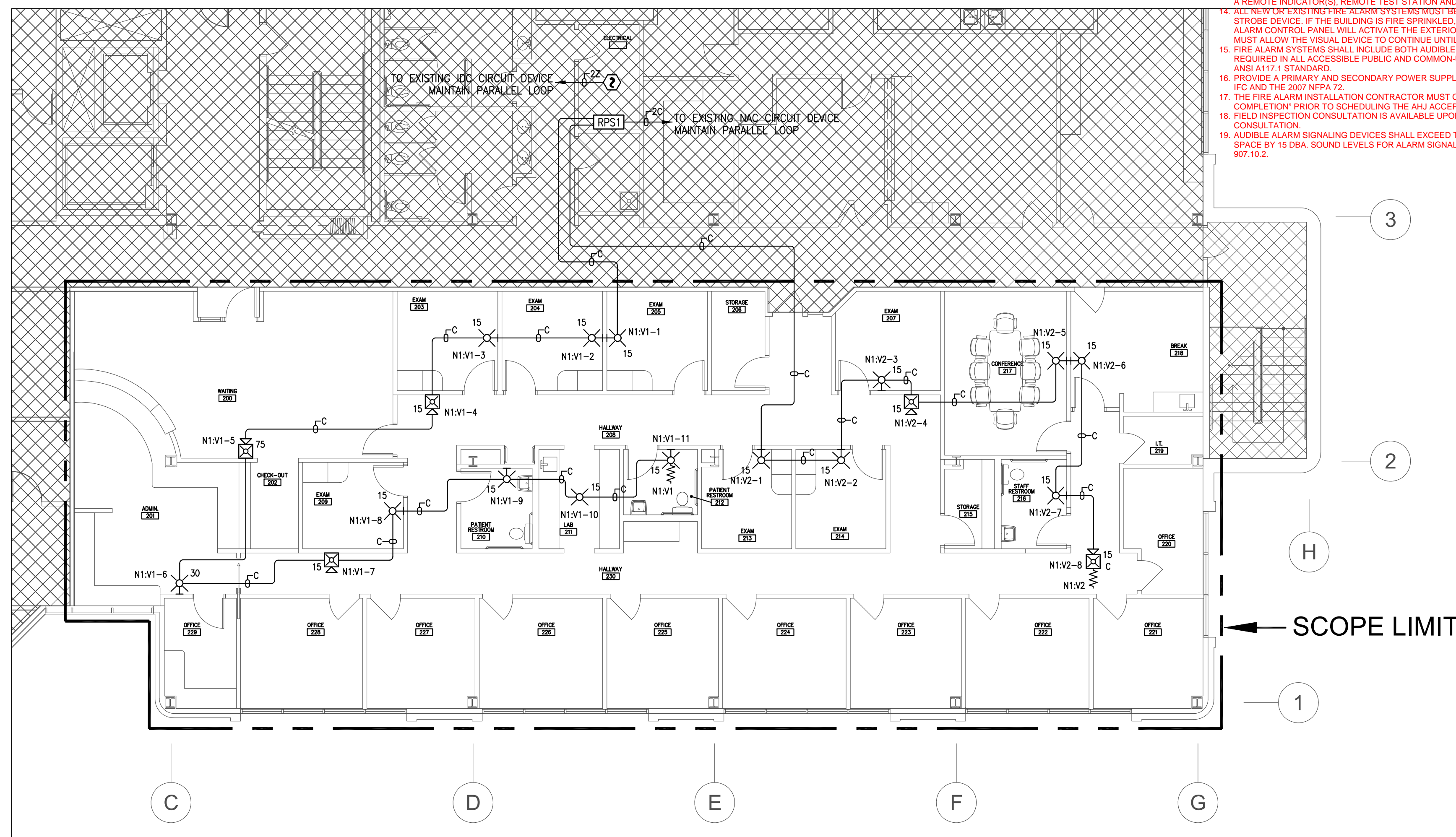
Otto Antonio Lau

3-15-2016

DATE _____

OTTO LAU

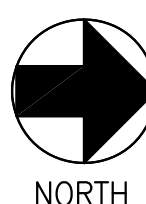
DATE _____



KEYPLAN

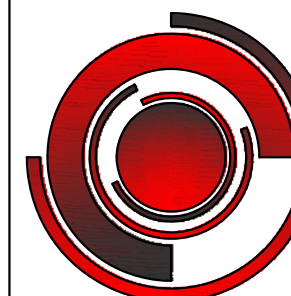
SECOND FLOOR FIRE ALARM SYSTEM PLAN

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



NORTH

OTTOProTech Fire Consultants, LLC
21181 EAST LEHIGH PLACE
AURORA, COLORADO 80013
(P) 303-956-3447



REVISIONS

REV	DATE	FO
	03/10/16	

DENVER NEPHROLOGY

RE ALARM SYSTEM REMODEL
1411 S. POTOMAC, STE 200
AURORA, COLORADO 80012

ENGINEER OF RECORD

SCALE

SCALE
1/8" = 1'-0"

DRAWN/REVIEWED BY
EMW

FLOOR / AREA
GENERAL INFO
FLOORPLAN & CALCS

SHEET NUMBER

FA-1.0

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: _____

Business/Building Name: _____ Address of Project: _____

Contractor: _____ Contractor's Phone: _____

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

Pass	Fail	NA	General
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- | | | | |
|-----------|-------|-------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 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. |

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 #: _____

Date: _____

	Property Protected	System Installer	System Supplier
Business Name:	_____	_____	_____
Address:	_____	_____	_____
	_____	_____	_____
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: _____

FCPS-24FS6

24 Volt, 6 Amp Power Supply



Power Supplies/Accessories

General

The **Fire-Lite FCPS-24FS6(C/E)** is a compact, cost-effective, 6-amp remote power supplies with battery charger. The FCPS-24FS6(C/E) may be connected to any 12 or 24 volt fire alarm control panel (FACP) or may stand-alone. Primary applications include notification appliance (bell) circuit (NAC) expansion (to support ADA requirements and NAC synchronization) or auxiliary power to support 24 volt system accessories. The FCPS provides *regulated and filtered* 24 VDC power to four notification appliance circuits configured as either two Class B (Style Y) and Class A (Style Z, with ZNAC-4 option module) or four class B only. Alternately, the four outputs may be configured as any combination of resettable/non-resettable power outputs (optimal for powering four-wire smoke detectors). The FCPS-24FS6(C/E) also contains a battery charger capable of charging up to 7.0 Amp hour batteries. FCPS-24FS6(C/E) is ULC-listed.

NOTE: Unless otherwise specified, the term FCPS-24FS6 used in this document refers to the standard FCPS-24FS6, FCPS-24FS6C, FCPS-24FS6E

Features

- UL-Listed Notification Appliance Circuit (NAC) synchronization using System Sensor, Wheelock, or Gentex "Commander²" appliances.
- Operates as a "sync-follower" or as a "sync-generator" (default). *See note on page 2.*
- Contains two fully-isolated input/control circuits - triggered from FACP NAC (NAC expander mode) or jumped permanently "ON" (stand-alone mode).
- Two Class B (Style Y) or Class A (Style Z, with ZNAC-4 module) NACs (circuits 1 & 3)
- 6-amp full load output, with 3 amps maximum/circuit, in NAC expander mode (UL 864).
- 4-amp continuous output in stand-alone mode (UL 1481).
- Compatible with coded inputs; signals passed through.
- Optional power-supervision relay (EOLR-1).
- In stand-alone mode, output power circuits may be configured as: resettable, (reset line from FACP required), non-resettable, or a mix of two and two.
- Fully regulated and filtered power output - optimal for powering four-wire smoke detectors, annunciators, and other system peripherals requiring regulated/filtered power.
- Power-limiting technology meets UL power-limiting requirements.
- Form-C normally-closed trouble relay.
- Fully supervised power supply, battery, and NACs.
- Selectable earth fault detection.
- AC trouble report selectable for immediate 2-hour delay.
- Works with virtually any UL 864 fire alarm control which utilizes an industry-standard reverse-polarity notification circuit (including unfiltered and unregulated bell power).
- Requires input trigger voltage of 9 - 32 VDC.
- Self-contained in compact, locking cabinet - 15"H x 14.5"W x 2.75"D (cm: 38.1H x 36.83W x 6.985D).



- Includes integral battery charger capable of charging up to 18 AH batteries. Cabinet capable of housing 7.0 AH batteries.
- Battery charger may be disabled via DIP switch for applications requiring larger batteries.
- Fixed, clamp-type terminal blocks accommodate up to 12 AWG (3.1mm²) wire.

Specifications

Primary (AC) Power:

- FCPS-24FS6: 120 VAC, 60 Hz, 3.2A maximum.
- FCPS-24FS6/E: 240 VAC, 50 Hz, 1.6A maximum.
- Wire Size: minimum #14 AWG (2.0mm²) with 600 V insulation.

Control Input Circuit:

- **Trigger Input Voltage:** 9 to 32 VDC.
- **Trigger Current:** 2.0 mA (16 - 32 V); Per Input: 1.0 mA (9 - 16 V).

Trouble Contact Rating: 5 A at 24 VDC.

Auxiliary Power Output: Specific application power 500 mA maximum.

Output Circuits:

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

Secondary Power (Battery) Charging Circuit:

- Supports lead-acid batteries only.
- Float-charge voltage: 27.6 VDC.
- Maximum current charge: 250 mA.
- Maximum battery capacity: 7.0 AH.

Applications

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

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

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

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

**NOTE: Addressable FACP's are capable of locating control and monitor modules at distances of up to 10,000 feet (3,046 meters) .*

Sync Follower/Generator Note

In some installations, it is necessary to synchronize the flash timing of all strobes in the system for ADA compliance. Strobes accomplish this by monitoring very short timing pulses on the NAC power which are created by the FACP. When installed at the end of a NAC wire run, the FCPS-24FS6 can track (i.e. "follow") the strobe synchronization timing pulses on the existing NAC wire run. This maintains the overall system flash timing of the additional strobes attaches to the FCPS.

When the FCPS-24FS6 is configured (via DIP switch settings) as a "sync follower," the FCPS's NAC outputs track the strobe synchronization pulses present at the FCPS's sync input terminal. The pulses originate from an upstream FACP or other power supply.

When the FCPS-24FS6 is configured (via DIP switch settings) as a "sync generator," the FCPS's sync input terminals are not used. Rather, the FCPS is the originator of the strobe synchronization pulses on the FCPS's NAC outputs. In "sync generator" mode, the sync type (System Sensor, Wheelock, or Gentex) is selectable via DIP switch settings.

Standards and Codes

The FCPS-24FS6 complies with the following standards:

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

Agency Listings and Approvals

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

- **UL Listed:** S2424, S1287
- **ULC Listed:** S2424
- **CSFM Approved:** 7315-0076:176
- **MEA:** 387-94E

Ordering Information

FCPS-24FS6: 6.0 A, 120 VAC remote charger power supply. Includes main printed circuit board, transformers, enclosure (15"H x 14.5"W x 2.75"D [cm: 38.1H x 36.83W x 6.985D]), and installation instructions.

FCPS-24FS6 is ULC-listed.

FCPS-24FS6E: 6.0 A, 240 VAC remote charger power supply. Includes main printed circuit board, transformers, enclosure (15"H x 14.5"W x 2.75"D [cm: 38.1H x 36.83W x 6.985D]), and installation instructions.

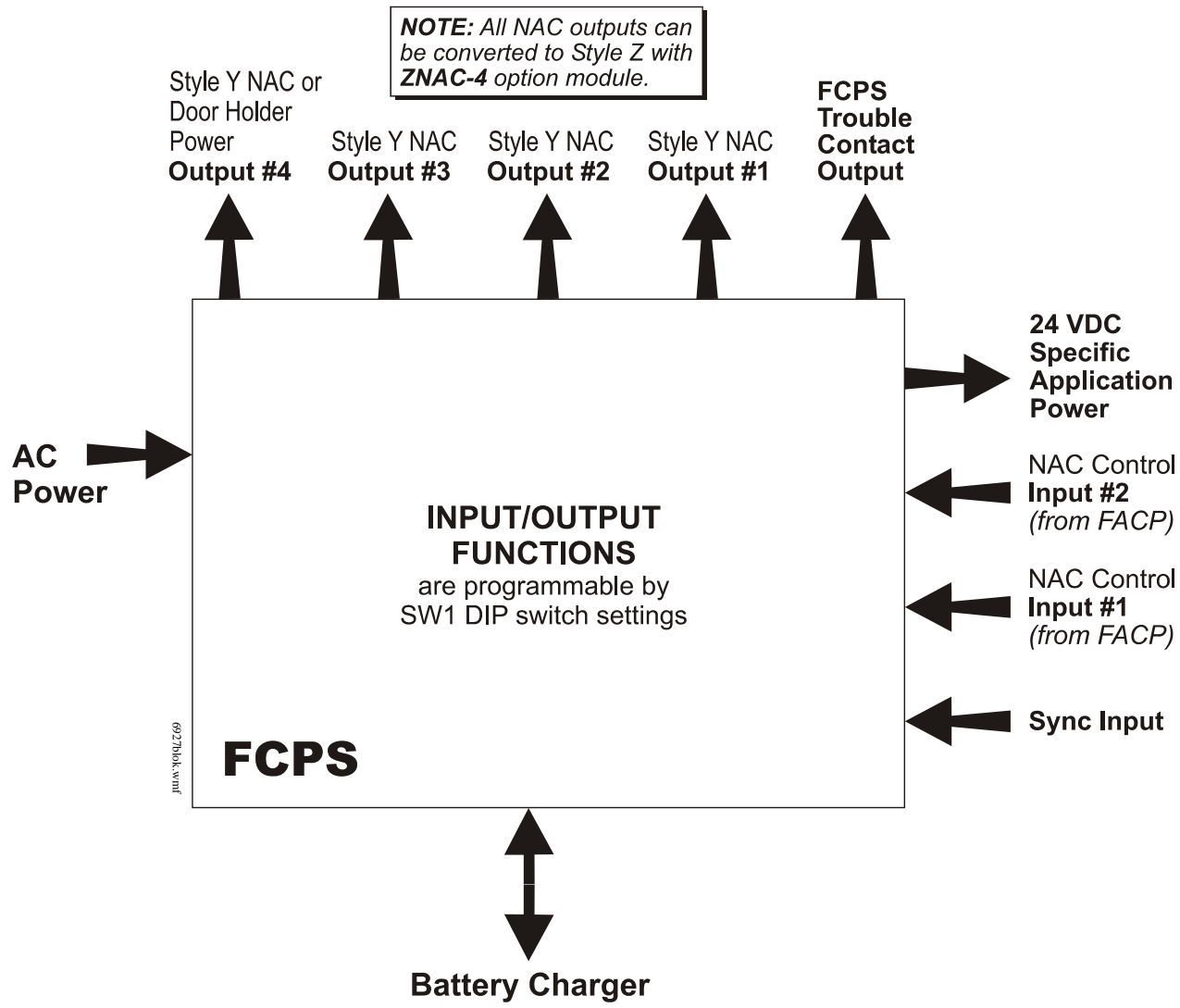
ZNAC-4: Class A (Style Y) NAC option module.

EOLR-1: 12/24 VDC end-of-line relay for monitoring four-wire smoke detector power.

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

PS-1270: Battery, 12-volt, 7.0 AH (two required).

90286: Optional module mounting kit, is required to install an addressable module on the power supply main circuit board.



Simplified Block Diagram



ISO 9001
CERTIFIED
ENGINEERING & MANUFACTURING
QUALITY SYSTEMS



Made in the U.S.A

Page 4 of 4 — DF-52301:A2 • 5/17/13



Photoelectric Smoke Detectors

System Sensor i³™ series smoke detectors represent significant advancement in conventional detection. The i³ family is founded on three principles: installation ease, intelligence, and instant inspection.



Features

- Plug-in detector line, mounting base included
- Large wire entry port
- In-line terminals with SEMS screws
- Mounts to octagonal and single-gang back boxes, 4-square back boxes, or direct to ceiling
- Stop-Drop 'N Lock attachment to base
- Removable detector cover and chamber
- Built-in remote maintenance signaling
- Drift compensation and smoothing algorithms
- Simplified sensitivity measurement
- Wide-angle, dual-color LED indication
- Loop testing via EZ Walk feature
- Built-in test switch

Installation ease. The i³ line redefines installation ease with its plug-in design. This allows an installer to pre-wire bases (included with heads). The large wire entry port and in-line terminals provide ample room for neatly routing the wiring inside the base. The base accommodates a variety of back box mounting methods as well as direct mounting with drywall anchors. To complete the installation, i³ heads plug into the base with a simple Stop-Drop 'N Lock™ action.

Intelligence. i³ detectors offer a number of intelligent features to simplify testing and maintenance. Drift compensation and smoothing algorithms are standard with the i³ line to minimize nuisance alarms. 2-wire i³ detectors can generate a remote LED-indicated maintenance signal when connected to the 2W-MOD2 loop test/maintenance module or a panel equipped with the i³ protocol. The SENS-RDR, a wireless device, displays the sensitivity of i³ detectors in terms of percent-per-foot obscuration.

Instant inspection. The i³ series provides wide-angle red and green LED indicators for instant inspection of the detector's condition: normal standby, out-of-sensitivity, alarm, or freeze trouble. When connected to the 2W-MOD2 loop test/maintenance module or a panel with the i³ protocol, the EZ Walk loop test feature is available on 2-wire i³ detectors. This feature verifies the initiating loop wiring by providing LED status indication at each detector.

Agency Listings



Smoke Detector Specifications

Architectural/Engineering Specifications

Smoke detector shall be a System Sensor i³ Series model number _____, listed to Underwriters Laboratories UL 268 for Fire Protection Signaling Systems. The detector shall be a photoelectric type (Model 2W-B, 4W-B) or a combination photoelectric/thermal (Model 2WT-B, 4WT-B) with thermal sensor rated at 135°F (57.2°C). The detector shall include a mounting base for mounting to 3½-inch and 4-inch octagonal, single-gang, and 4-inch square back boxes with a plaster ring, or direct mount to the ceiling using drywall anchors. Wiring connections shall be made by means of SEMS screws. The detector shall allow pre-wiring of the base and the head shall be a plug-in type. The detector shall have a nominal sensitivity of 2.5 percent-per-foot nominal as measured in the UL smoke box. The detector shall be capable of automatically adjusting its sensitivity by means of drift compensation and smoothing algorithms. The detector shall provide dual-color LED indication that blinks to indicate power up, normal standby, out of sensitivity, alarm, and freeze trouble (Model 2WT-B, 4WT-B) conditions. When used in conjunction with the 2W-MOD2 module, 2-wire models shall include a maintenance signal to indicate the need for maintenance at the alarm control panel and shall provide a loop testing capability to verify the circuit without testing each detector individually.

Electrical Specifications

Operating Voltage	Nominal: 12/24 V non-polarized Minimum: 8.5 V Maximum: 35 V
Maximum Ripple Voltage	30% peak to peak of applied voltage
Standby Current	2-wire: 50 µA maximum average; 4-wire: 50 µA maximum average
Maximum Alarm Current	2-wire: 130 mA limited by control panel; 4-wire: 20 mA @ 12 V, 23 mA @ 24 V
Peak Standby Current	2-wire: 100 µA; 4-wire: n/a
Alarm Contact Ratings	2-wire: n/a; 4-wire: 0.5 A @ 30 V AC/DC

Physical Specifications

Dimensions (including base)	5.3 inches (127 mm) diameter; 2.0 inches (51 mm) height
Weight	6.3 oz (178 g)
Operating Temperature Range	2W-B and 4W-B: 32°F to 120°F (0°C to 49°C); 2WT-B and 4WT-B: 32°F to 100°F (0°C to 37.8°C)
Operating Humidity Range	0 to 95% RH non-condensing
Thermal Sensor	135°F (57.2°C) fixed
Freeze Trouble	2WT-B and 4WT-B only: 41°F (5°C)
Sensitivity	2.5%/ft nominal
Input Terminals	14 to 22 AWG
Mounting	3½-inch octagonal back box 4-inch octagonal back box Single-gang back box 4-inch square back box with a plaster ring Direct mount to ceiling

LED Modes			Power-Up Sequence for LED Indication	
LED Mode	Green LED	Red LED	Condition	Duration
Power up	Blink every 10 seconds	Blink every 10 seconds	Initial LED status indication	80 seconds
Normal (standby)	Blink every 5 seconds	off		
Out of sensitivity	off	Blink every 5 seconds		
Freeze trouble	off	Blink every 10 seconds		
Alarm	off	Solid		

Ordering Information

Model	Thermal	Wiring	Alarm Current	
2W-B	No	2-wire	130 mA max. limited by control panel	
2WT-B	Yes	2-wire	130 mA max. limited by control panel	
4W-B	No	4-wire	20 mA @ 12 V, 23 mA @ 24 V	
4WT-B	Yes	4-wire	20 mA @ 12 V, 23 mA @ 24 V	
Accessories				
2W-MOD2	2-wire loop test / maintenance module		RT	Removal / replacement tool
SENS-RDR	Sensitivity reader		A77-AB2	Retrofit adapter bracket, 6,6 inch (16,76 cm) diameter



Commander⁴ Series Selectable Candela Evacuation Signals

GCS/GCC
24VDC

S E R I E S

Applications

RSN: **1096344**

Permit #: **2016-1077722-LT**

The GCS/GCC Series is a ceiling mount strobe or horn/strobe combination that offers dependable audible and visual alarms and the lowest current consumption.

The GCS/GCC offers tamperproof field selectable candela options of 15, 30, 75, 95, 115 and 150 candela.

The GCC horn offers a continuous or synchable temporal three in 2400Hz and mechanical tone. All tones are easy for the professional to change in the field by using switches. The models are shipped from the factory in the temporal three alarm mode.

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

The Commander⁴ Series comes standard with the 4" 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 Commander⁴ also features the patented Checkmate[®] - Instant Voltage Verification feature which allows the installer to check the voltage drop draw without removing the signal.

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



Product Listings

SIGNALING



LISTED



- ANSI/UL 464 and ANSI/UL 1971 Listed
- FM Approved
- CSFM: 7135-0569:122 (GCC)
7125-0569:123 (GCS)
- MEA: 285-91-E

Patents

- 7,375,617 May 20, 2008

Product Compliance

- NFPA 72
- Americans with Disabilities Act (ADA)
- IBC/IFC/IRC
- City & State ordinances/Laws/Regulations
- Quality Management System is certified to:
ISO 9001:2008



Standard Features

- Nominal voltage 24VDC
- Tamperproof field selectable candela options of 15, 30, 75, 95, 115 & 150
- Super-Slide[®] Bracket - Ease of Supervision Testing
- Checkmate[®] - Instant Voltage Verification
- Unit Dimensions: 6" (15.24 cm) x 2.6" (6.604 cm)
- 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 12 to 18 AWG
- Switch Selection for High or Low dBA
- Switch Selection for 2400Hz or Mechanical Tone
- Switch Selection for Continuous or Temporal 3
- Tamperproof re-entrant grill
- Surface mount with the GCSB (Gentex Ceiling Surface Mount Box)
- Silence audible while visual appliance will remain flashing (for use in accepted jurisdictions)
- Faceplate available in red or off-white

GCS Series 24 Volt Ceiling Mount Selectable Strobe

Model Number	Part Number	Nominal Voltage	Candela
GCS24CR	904-1213-002	24VDC	15, 30, 75, 95, 115, 150
GCS24CW	904-1215-002	24VDC	15, 30, 75, 95, 115, 150
GCS24PCR	904-1214-002	24VDC	15, 30, 75, 95, 115, 150
GCS24PCW	904-1216-002	24VDC	15, 30, 75, 95, 115, 150

GCC Series 24 Volt Ceiling Mount Selectable Horn/Strobe

Model Number	Part Number	Nominal Voltage	Candela	Reverberant dBA @ 10ft. per ANSI/UL 464	In Anechoic Room dBA @ 10ft.
GCC24CR	904-1209-002	24VDC	15, 30, 75, 95, 115, 150	81-86	90
GCC24PCR	904-1210-002	24VDC	15, 30, 75, 95, 115, 150	81-86	90
GCC24CW	904-1211-002	24VDC	15, 30, 75, 95, 115, 150	81-86	90
GCC24PCW	904-1212-002	24VDC	15, 30, 75, 95, 115, 150	81-86	90

Model Designations:
 C = Ceiling Mount
 R = Red Faceplate W = White Faceplate

All units are available in plain (no lettering).
Plain units are non-returnable.

GC24 Product Strobe Current Ratings (mA)

	Candela	15cd	30cd	75cd	95cd	115cd	150cd
24VDC (16-33 Volts)	24VDC	72mA	101mA	167mA	200mA	214mA	286mA
	UL Max ¹	120mA	120mA	200mA	220mA	290mA	321mA

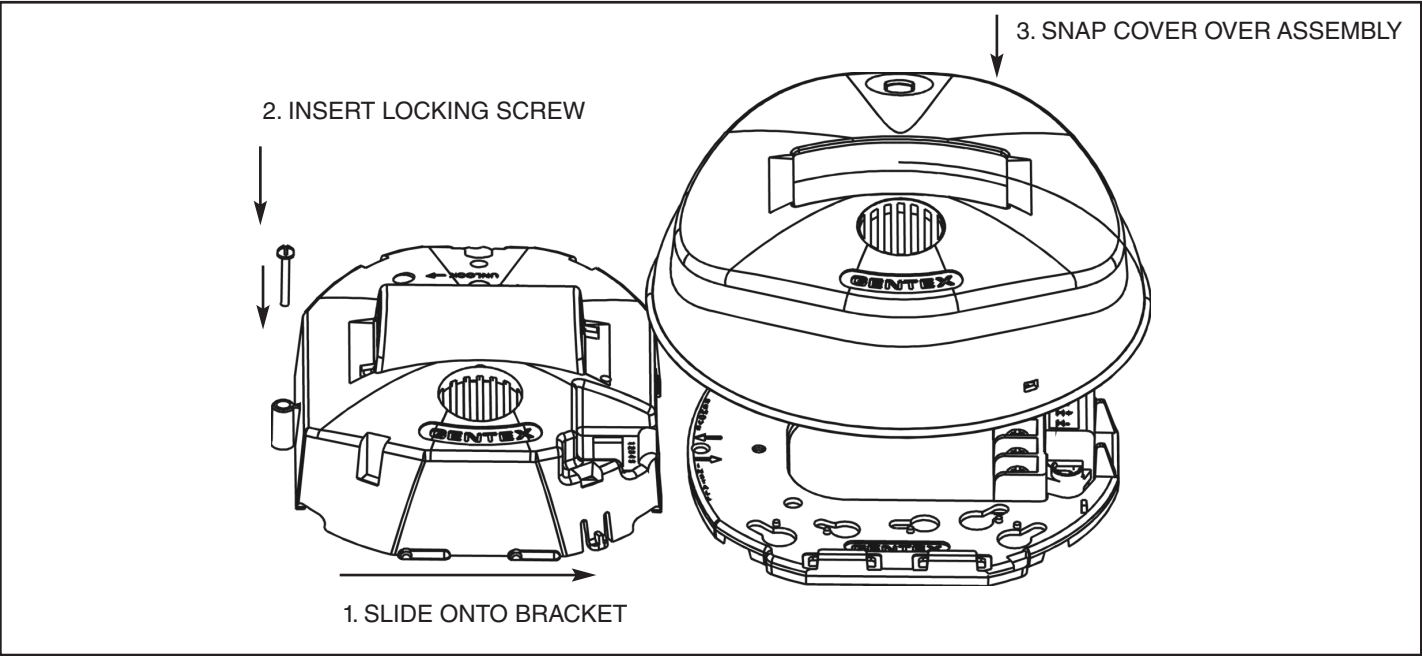
GCC24 Product Horn Decibel and Current Ratings (mA)

Horn Mode	Minimum dBA @ 10ft. per ANSI/UL 464 (HIGH)	Minimum dBA @ 10ft. per ANSI/UL 464 (LOW)	Regulated 24VDC Max. Operating @ High Setting (mA)
Temp 3 2400Hz	83	75	23
Temp 3 Mechanical	81	73*	22
Continuous 2400Hz	86	78	23
Continuous Mechanical	84	76	22

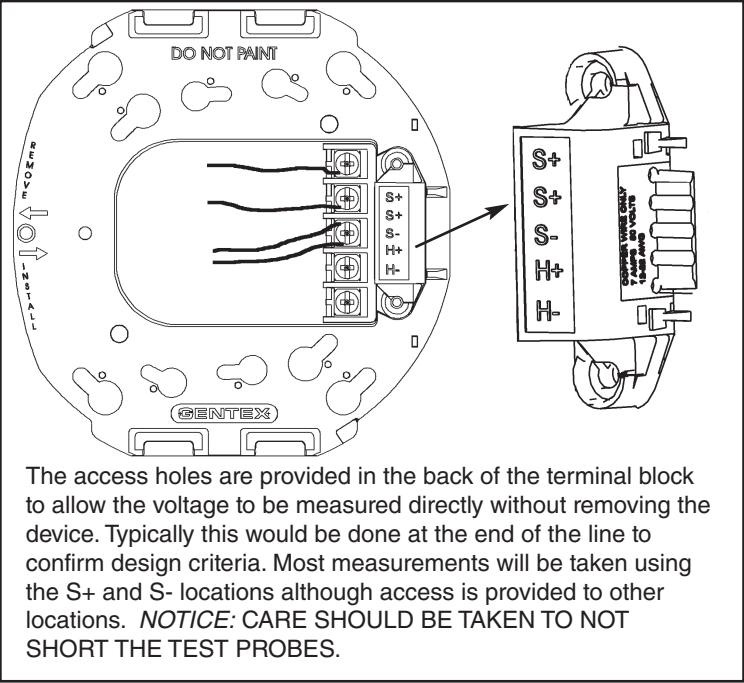
NOTES:

- Operating temperature: 32°to 120°F (0° to 49°C). The GC 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.
- Gentex does not recommend using a coded or pulsing signaling circuit with any of our strobe products (see Technical Bulletin Number 014).
- * 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). For strobes the UL max current is usually at the minimum listed voltage (16VDC for 24VDC units). For audibles the max current is usually at the maximum listed voltage. For unfiltered FWR ratings, see installation manual.

Mounting Super-Slide®

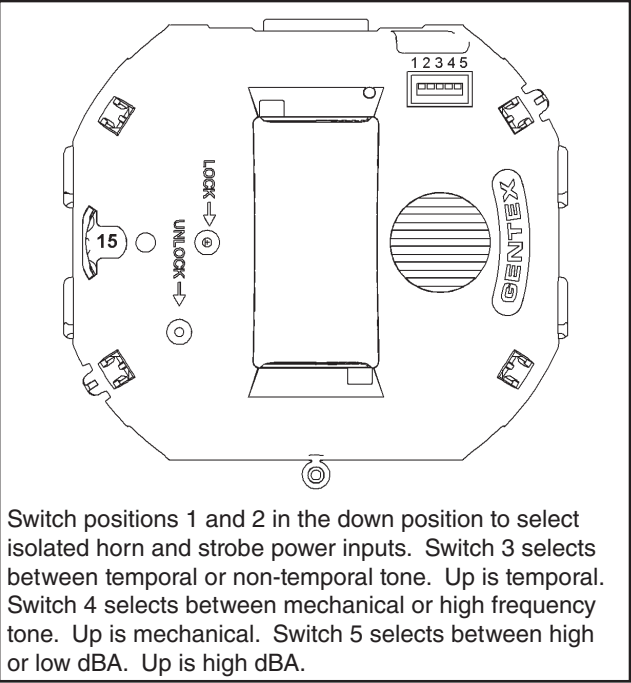


Checkmate® Instant Voltage Verification



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. **NOTICE:** CARE SHOULD BE TAKEN TO NOT SHORT THE TEST PROBES.

Switch Locations



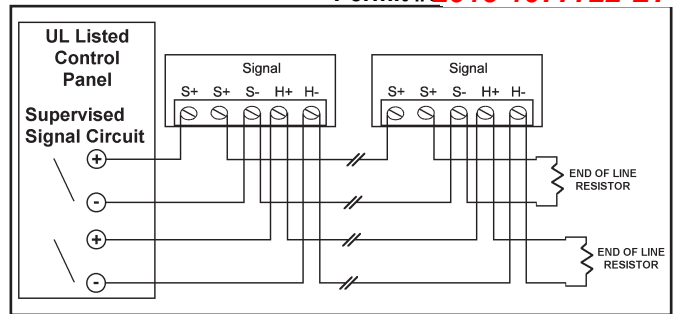
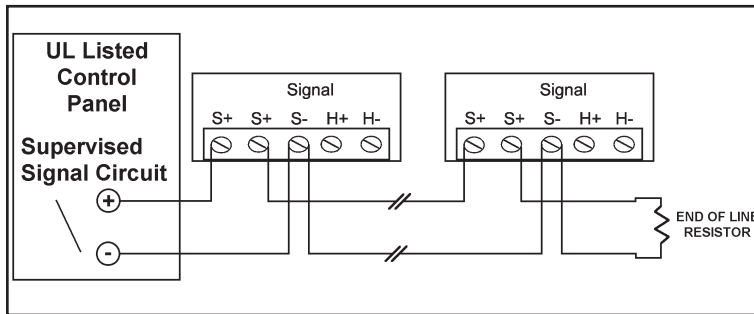
Switch positions 1 and 2 in the down position to select isolated horn and strobe power inputs. Switch 3 selects between temporal or non-temporal tone. Up is temporal. Switch 4 selects between mechanical or high frequency tone. Up is mechanical. Switch 5 selects between high or low dBA. Up is high dBA.

GCS/GCC 24VDC S E R I E S

Conventional GC Series Wiring Diagrams

RSN: **1096344**

Permit # **2016-1077722-LT**



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 protocol 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.

Architect & Engineering Specifications

The visible and audible/visible signal shall be Gentex model GCS or GCC or approved equal and shall be listed by Underwriters Laboratories Inc. per ANSI/UL 1971 for the GCS and ANSI/UL 464 for the GCC. The notification appliance shall also be listed with the California State Fire Marshal (CSFM) and the Bureau of Standards and Appeals (NYC).

The notification appliance (combination audible/visible units and audible units only) shall produce a peak sound output of 90dBA or greater as measured at 24VDC 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.

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 appliance shall have an operating current of 72mA or less at 24VDC for the 15 candela 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 with barriers for input/output wiring and be able to mount to a single gang or double gang box or double workbox with 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.

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

24 units per carton
29 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

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

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551-0051-06

Commander³ Series Selectable Candela Evacuation Signals

Applications

RSN: **1096344**

Permit #: **2016-1077722-LT**

The Commander³ 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 Commander³ 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 the use of switches.

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

The Commander³ 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 Commander³ 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
- Unit Dimensions: 5" (12.7 cm) high x 4.5" (11.43 cm) wide x 2.5" (6.35 cm) deep
- Super-Slide[®] Bracket - Ease of Supervision Testing
- Checkmate[®] - Instant Voltage Verification
- 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 audible while visual appliance will remain flashing (for use in accepted jurisdictions)
- Faceplate available in red or off-white

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



Product Listings

SIGNALING



- ANSI/UL 464 & ANSI/UL 1971 Listed
- 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)
- IBC/IFC/IRC
- Quality Management System is certified to: ISO 9001:2008



GEH 12VDC or 24VDC Low Profile Evacuation Horn

Model Number	Part Number	Nominal Voltage	Reverberant dBA at 10ft., per ANSI/UL 464	In Anechoic Room dBA at 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

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

Model Number	Part Number	Nominal Voltage	Candela (ANSI/UL 1971)	Reverberant dBA at 10ft., per ANSI/UL 464	In Anechoic Room dBA at 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)				
	12 VDC (8-17.5 Volts)		24 VDC (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

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 for order

AGENT bezel available for order

GE3-12 Product Horn Current Ratings			
	Horn Decibel Levels		Horn Current Ratings
Horn Mode	Minimum SPL at 10ft., per ANSI/UL 464 (HIGH)	Minimum SPL at 10ft., per ANSI/UL 464 (LOW)	Regulated 12VDC Max. Operating @ High Setting (mA)
Temp 3 2400Hz	76 dBA	69* dBA	29mA
Temp 3 Mechanical	75 dBA	68* dBA	26mA
Temp 3 Chime	62* dBA	60* dBA	13mA
Continuous 2400Hz	79 dBA	74* dBA	29mA
Continuous Mechanical	78 dBA	72* dBA	26mA
Continuous Chime	63* dBA	61* dBA	13mA
Whoop	78 dBA	71* dBA	55mA

GE3-24 Product Horn Current Ratings			
	Horn Decibel Levels		Horn Current Ratings
Horn Mode	Minimum SPL at 10ft., per ANSI/UL 464 (HIGH)	Minimum SPL at 10ft., per ANSI/UL 464 (LOW)	Regulated 24VDC Max. Operating @ High Setting (mA)
Temp 3 2400Hz	78 dBA	71* dBA	28mA
Temp 3 Mechanical	76 dBA	70* dBA	25mA
Temp 3 Chime	70* dBA	66* dBA	15mA
Continuous 2400Hz	81 dBA	74* dBA	28mA
Continuous Mechanical	80 dBA	72* dBA	25mA
Continuous Chime	70* dBA	66* dBA	15mA
Whoop	82 dBA	69* dBA	56mA

NOTES:

- Operating temperature: 32°to 120°F (0° to 49°C). The GEC3 and GES3 Series is **not** listed for outdoor use.
- For nominal and peak current across ANSI/UL regulated voltage range for filtered DC power and unfiltered (FWR [Full Wave Rectified]) power, see installation manual. 12VDC models are DC only.
- Gentex does not recommend using a coded or pulsing signaling circuit with any of our strobe products (see Technical Bulletin Number 014).**
- 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.
- * 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).

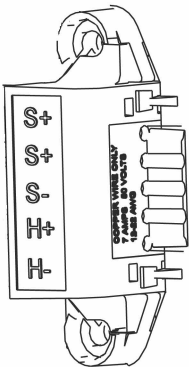
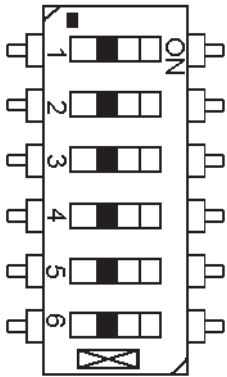
¹ RMS current ratings are per ANSI/UL average RMS method. ANSI/UL max current rating is the maximum RMS current within the listed voltage range (16-33VDC for 24VDC units) (8-17VDC for 12VDC units). For strobes the UL max current is usually at the minimum listed voltage (16VDC for 24VDC units) (8VDC for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

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

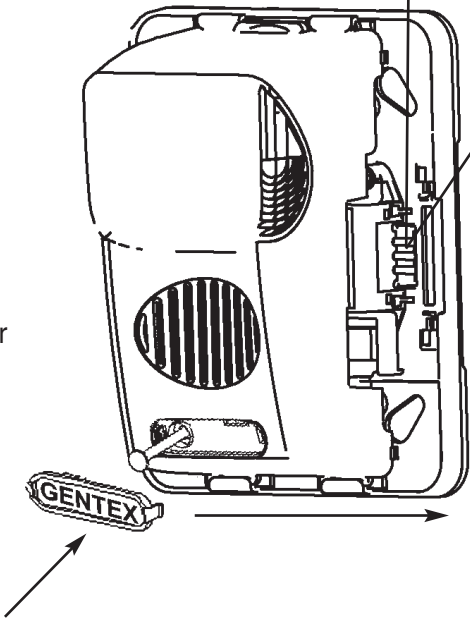
NOTE:

- 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.



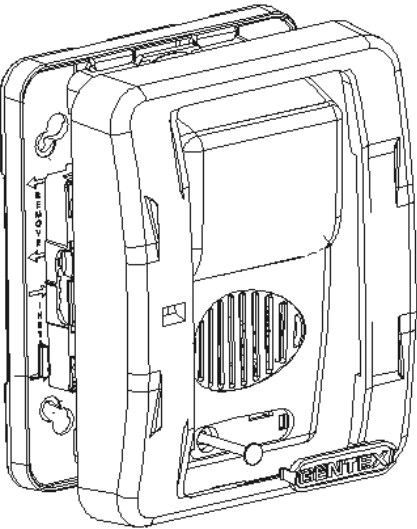
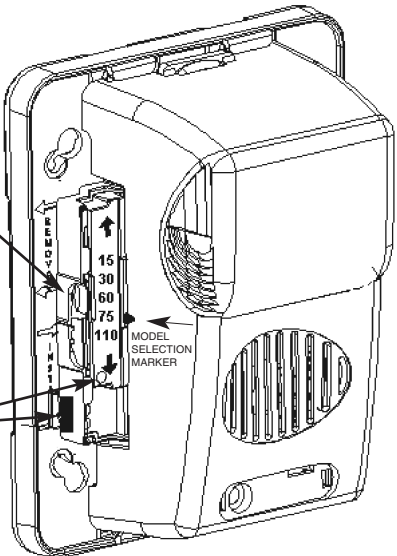
Gentex Checkmate® Instant Voltage Verification

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.

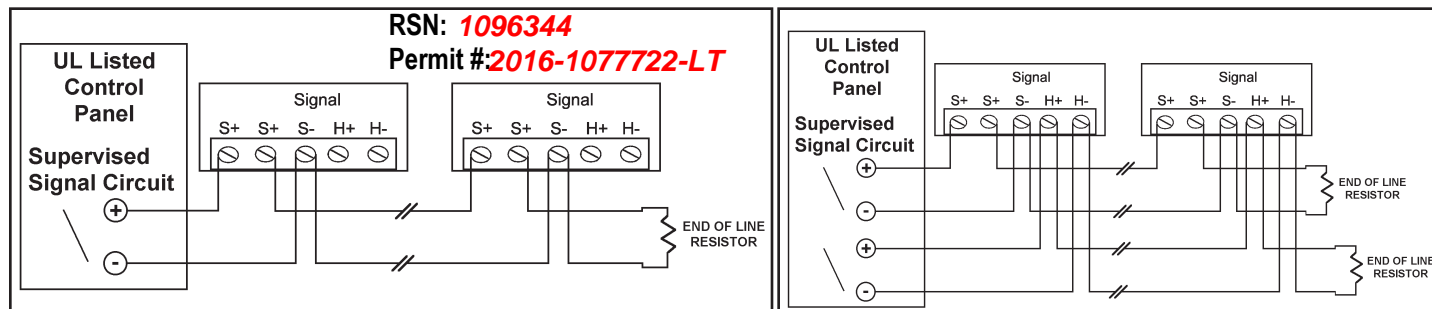
Break off pin and insert into hole at the bottom of the selector to lock candela setting. Signal must be removed from bracket and pin pushed forward from backside out of hole to change candela.



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

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 protocol 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 protocol 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) and the California State Fire Marshal (CSFM).

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

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

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