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 ✣ Ste 2400 ✣ Aurora, CO 80012 ✣ (303)739-7420

Email build.permits@auroragov.org

Project Address: 1501 S Potomac ST TMCA - 2nd Floor Remodel Unit # Zip code: 80012

Project Name: POST PARTUM

Contractor Company Name: WEITFIELD GROUP Phone: 3034282011 Fax: 303 202 0406

Contact Person: DUSTIN TAFOYA 30553 Phone: 720 206 8441

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 emails filter to accept emails from "AmandaSystem"

Plan Corrections: Email: dtafoya@weitfieldgroup.com

Inspection Corrections: Email: bboswell@weitfieldgroup.com

Architect and/or Engineer Contact information for correction items:

Architect or Engineer Name: Email:

Phone #: Fax #:

Owner:(Required for Certificate of Occupancy) only:

Owner address:

Email:

Valuation / FDA$ 25,099.37 Materials cost $ 22,342.55

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

Describe the work you will be doing: Medical Center of Aurora 2nd Floor ~~FIRE ALARM~~ Post Partum NICU Fire Alarm Modifications to facilitate Tenant Improvement.

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: CAMEO WILLIAMS Signature: Cameo Williams Date: 7/3/12

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 are separate submittals, and the value is NOT included on main permit.

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

Change of occupancy/use: ☐ Yes ☐ No

FDA: 25,099

Reviews		Inspections	
☐	Structural	☐	Structural
☐	Mechanical	☐	Mechanical
☐	Plumbing	☐	Plumbing
☐	Electrical	☒	Electrical
☒	Fire Life Safety	☒	Life Safety
☐	Bldg Life Safety	☐	Gate/Haz

Intake Date 7/3/12 PE Initial JVR

Balance Due $

Pre-approval(s): Zoning ☒ Initials CP

Water: ☐

Exterior changes? ☐ Yes ☒ No CP

Homeowner Verified ☐ Yes

Permit Type LT

Mid roof /Avg bldg height N/A

Parent Permit RSN 644410

Plans Examiner JVR

Sub Type 4X Fire Alarm

RSN: 66666685 12608156

Plans picked up by:

Company Name

Phone:

THE MEDICAL CENTER OF AURORA
2ND FLOOR – POSTPARTUM NICU REMODEL
FIRE ALARM SYSTEM SHOP DRAWINGS

BUILDING CLASSIFICATIONS AND CODES

OCCUPANCY GROUP: I-1,2 USE: HOSPITAL
STORIES: 4 STORIES (1 IN SCOPE)
SQUARE FOOTAGE: APPROX. 19,775 SQ. FT.
SPRINKLERED: YES

APPLICABLE CODES

2009 I.B.C.	2009 I.F.C.
2011 N.E.C.	2010 NFPA 72

SYSTEM WIRING TYPES

INITIATING DEVICE CKT: CLASS B (HARDWIRED)
NOTIFICATION APPLIANCE CKT: CLASS B (HARDWIRED)
SIGNALING LINE CKT: CLASS B (ADDRESSABLE)
NETWORK: CLASS X (ADDRESSABLE)

SYSTEM TYPE

SUPERVISING STATION TYPE: CENTRAL STATION
AUDIBLE NOTIFICATION: TEMPORAL
VISUAL NOTIFICATION: PUBLIC

SCOPE OF WORK

MCOA 2nd Floor Postpartum Remodel

This project involves the remodel of an area on the second floor of an existing building. New addressable smoke detectors shall be installed in the path of egress. These devices will tie into a new SLC circuit (Node 2/Mapnet 9). New non-addressable strobe only and chime strobes shall be installed for proper coverage of the area. The chime circuit shall (be tied into the existing chime circuit (Sig 20) from the FACP.) FACP to be upgraded TO A 4100ES. The strobe circuit shall be homerun to the new expansion panel in Clean Utility Room 23A. All new devices will follow the existing sequence of operation. All strobes will be synchronized by the new expansion panel.

FIRE DEPT./BLDG DEPT. PLAN REVIEW #:

AURORA FIRE DEPARTMENT
15151 EAST ALAMEDA PARKWAY
AURORA, CO 80012
303.739.7447

NICET CERTIFICATION

TECHNICAL AREA 00303: LEVEL IV
CERTIFICATE #: 109355
VALID THROUGH: 09/01/12

THE DESIGN FOR MEDICAL CENTER OF AURORA – 2ND FLOOR POSTPARTUM AREA WAS PROVIDED BY SIMPLEXGRINNELL THIS DRAWING SET WAS PREPARED UNDER THE SUPERVISION OF A NICET IV PROFESSIONAL. THE DRAWINGS WERE REVIEWED FOR THE INFORMATION CONTAINED UNDER THE SCOPE OF WORK. ALL EQUIPMENT HAS BEEN VERIFIED TO BE COMPATIBLE AND WILL OPERATE AS REQUIRED PER NFPA GUIDELINES.

JAMES COOLEY — DATE 6/13/12

NICET CERTIFIED

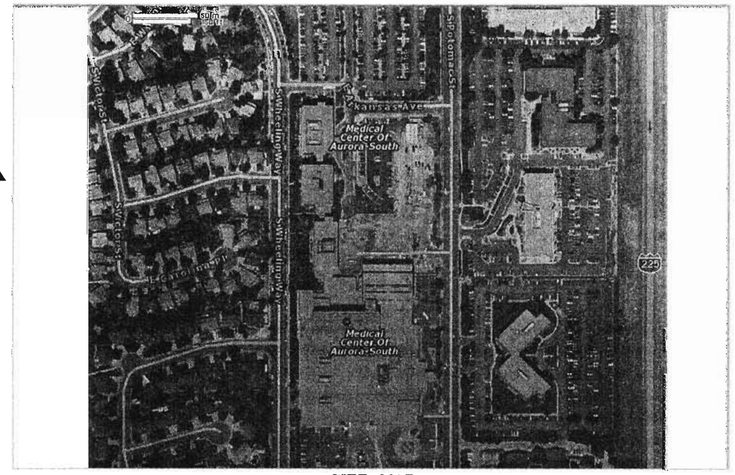
tyco / Fire & Security

PROJECT:
THE MEDICAL CENTER OF AURORA
2ND FLR. POSTPARTUM NICU REMODEL
1501 SOUTH POTOMAC STREET
AURORA, CO 80012

ARCHITECT:
TOM THOMPSON ARCHITECT
2510 SOUTH OSCEOLA STREET
DENVER, CO 80219
303-989-6084

FIRE ALARM DESIGN ENGINEER:
SIMPLEXGRINNELL
6240 SMITH ROAD
DENVER, CO 80216
303.355.0500

ELECTRICAL CONTRACTOR:
WEIFIELD GROUP CONTRACTING
~~550 LIPAN STREET~~ 146 YUMA STREET
DENVER, CO ~~80204~~ 80233
720-428-2011



SITE MAP

Simplex Grinnell

6240 Smith Road
Denver, Colorado 80216
(303) 355-0500 (Sales/Service)
(303) 355-0615 (Fax)
http://www.SimplexGrinnell.com

Project Manager: Shari Akin
System Designer: Glen Tunnell

SHEET INDEX

FIRE ALARM DRAWING INDEX:

FA0.01	COVER SHEET
FA1.01	GENERAL INFORMATION
FA1.02	BATTERY & VOLTAGE DROP CALCULATIONS
FA2.02	SECOND FLOOR ONE-LINE RISER DIAGRAM
FA3.02	SECOND FLOOR DEVICE LAYOUT
FA3.02A	SECOND FLOOR PANEL ROOM LOCATION
FA4.02	TRANSPONDER WIRING DETAILS
FA5.01	PERIPHERAL WIRING DETAILS
FA5.02	PERIPHERAL WIRING DETAILS
FA6.02	POSTPARTUM GRAPHIC MAP

REQUIRED INFORMATION LOCATED ON SHEET:

FA0.01	SCOPE OF WORK
FA0.01	APPLICABLE CODES
FA1.01	LEGEND
FA1.01	SEQUENCE OF OPERATION
FA1.01	DEVICE ADDRESSES
FA1.02	BATTERY CALCULATIONS
FA1.02	VOLTAGE DROP CALCULATIONS
FA2.01	ONE-LINE RISER DIAGRAM
FA4.01	NAC EXTENDER WIRING
FA4.02	TRANSPONDER ASSEMBLY AND WIRING
FA5.01	PERIPHERAL DETAIL WIRING
FA5.02	PERIPHERAL DETAIL WIRING
FA6.01	GRAPHIC MAPS

* SHEETS INCLUDED IN THIS SUBMITTAL.

PERMIT # 12 608156
RSN # 166685
OCCUPANCY TYPE I-2
CONST. TYPE UBC Type I FR SPK
SQUARE FOOT
CODES REV'D IFC 2009 NFPA72 '07

CITY OF AURORA
BUILDING DIVISION
APPROVED AS NOTED JMP
DATE 7/12/12

NFPA MEMBER 11-12

12-608156

AURORA FIRE DEPARTMENT GENERAL NOTES

- FIRE ALARM SYSTEMS CANNOT BE COMBINED WITH BURGLAR ALARM SYSTEMS.
- 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).
- FIRE ALARM DEVICES MUST BE PLACED IN PROTECTED AREAS WITH AMBIENT TEMPERATURE RANGING FROM 32 DEGREES TO 120 DEGREES F.
- DO NOT PLACE SMOKE DETECTORS WITHIN 3 FEET OF AIR SUPPLY REGISTERS AND DIFFUSERS.
- FIRE ALARM SYSTEM SHALL BE MONITORED BY A CLASS 1 CENTRAL STATION.
- FIRE ALARM CONTROL PANEL WILL BE PLACED IN THE LOCATION SPECIFIED WITHIN THE PLAN SUBMITTAL UNLESS APPROVED BY THE LIFE SAFETY FIELD INSPECTOR.
- 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.
- PER THE 2009 IFC AND THE 2008 NEC THE INSTALLER MUST REQUEST A ROUGH WIRING INSPECTION IN THE FIRE ALARM SYSTEM PRIOR TO REQUESTING A FIRE ALARM FINAL INSPECTION.
- THE CONTRACTOR SHALL CONDUCT A "PRE-TEST" OF THE PROJECT AREA PRIOR TO SCHEDULING AN ACCEPTANCE TEST WITH THE BUILDING CODES DIVISION.
- REMOTE ALARM INDICATORS SHALL BE PROVIDED FOR ANY AUTOMATIC FIRE ALARM DETECTOR LOCATED IN A CONCEALED LOCATION WITH A NORMALLY LOCKED DOOR.
- AT THE TIME OF FINAL FIRE ALARM INSPECTION, THE SYSTEM MUST BE SUPERVISED/MONITORED BY A CLASS 1 CENTRAL MONITORING AGENCY.
- THE INSTALLING CONTRACTOR (OR DESIGNEE) MUST PROVIDE ALL NECESSARY TESTING EQUIPMENT AND PERFORM ALL TESTING REQUIRED BY THE LIFE SAFETY FIELD INSPECTOR.
- IN-DUCT SMOKE DETECTORS INSTALLED IN CONCEALED LOCATIONS OR, WHERE THE DETECTOR'S ALARM INDICATOR IS NOT READILY VISIBLE TO RESPONDING PERSONNEL SHALL BE PROVIDED WITH A REMOTE INDICATOR(S), REMOTE TEST STATION AND PLACARDING.
- ALL NEW OR EXISTING FIRE ALARM SYSTEMS MUST BE CONNECTED ANY EXTERIOR HORN AND STROBE APPLIANCE. 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.
- 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.
- PROVIDE A PRIMARY AND SECONDARY POWER SUPPLY FOR THE FIRE ALARM SYSTEM PER THE 2009 IFC, SECTION 907.5 AND THE 2007 NFPA 72.
- FIELD INSPECTION CONSULTATION IS AVAILABLE UPON REQUEST. CALL 303-739-7420 TO REQUEST CONSULTATION.
- THE FIRE ALARM CONTRACTOR MUST COMPLETE THE NFPA72 "RECORD OF COMPLETION" PRIOR TO SCHEDULING THE AHJ ACCEPTANCE TEST.
- 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.

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tyco / Fire & Security / SimplexGrinnell

8240 SMITH ROAD
DENVER, COLORADO 80216
SALES: (303) 355-0500
SERVICE: (303) 355-0500
FAX: (303) 355-0615

NO	DATE	REVISION DESCRIPTION

FIRE ALARM SYSTEM FOR:
2ND FLR. POSTPARTUM NICU
MEDICAL CENTER OF AURORA
1501 SOUTH POTOMAC STREET
AURORA, CO 80012

DRAWN BY: GT	DATE: 06/12/12
DESIGNED BY: GT	DATE: 06/12/12
APPROVED BY: JWC	DATE: 06/13/12
PROJECT #: 962976202	
SCALE: N.T.S.	
SHEET TITLE: COVER SHEET	
SHEET NUMBER: FA0.01	

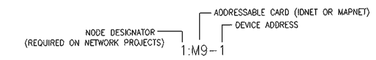
GENERAL NOTES

1. THE FIRE ALARM CONTRACTOR WILL PROVIDE 48 HOUR NOTICE TO THE OWNER AND TESTING AGENCY FOR ALL TESTING REQUIRED. THE AUTHORITY HAVING JURISDICTION SHALL BE NOTIFIED OF THE DATE AND TIME OF THE FINAL FIRE ALARM TESTING, AND SHALL ASSIST/WITNESS SUCH TESTING WHEN ABLE.
2. THE FIRE ALARM CONTRACTOR SHALL PROVIDE A COMPLETED AND SIGNED "RECORD OF COMPLETION" TO THE INSPECTOR OF RECORD AFTER COMPLETION OF OPERATIONAL ACCEPTANCE TESTS.
3. A STAMPED SET OF APPROVED FIRE ALARM DRAWINGS SHALL BE AT THE JOB SITE AND SHALL BE USED FOR INSTALLATION.
4. THE POWER CIRCUIT TO THE FACP AND TO THE FIRE ALARM POWER SUPPLIES SHALL BE ON A DEDICATED 120V, 20A BRANCH CIRCUIT BREAKER, AND SHALL HAVE A RED MARKING, LOCK-ON PROVISION AND SHALL BE IDENTIFIED AS "FIRE ALARM CIRCUIT CONTROL." THE LOCATION OF THE CIRCUIT DISCONNECT MEANS (CIRCUIT BREAKER) SHALL BE PERMANENTLY IDENTIFIED AT THE FIRE ALARM CONTROL UNIT.
5. UPDATE THE AS-BUILT DRAWING SET DAILY WITH JOB PROGRESS. RETURN THE AS-BUILT DRAWING SET TO SIMPLEXGRINNELL NO LATER THAN 7 DAYS AFTER FINAL TEST.
6. IF AN EXISTING FIRE ALARM SYSTEM EXISTS, IT SHALL NOT BE DISCONNECTED OR TAKEN OUT OF SERVICE WITHOUT WRITTEN PERMISSION FROM THE OWNER. IT IS THE CONTRACTOR'S RESPONSIBILITY TO COORDINATE WITH THE OWNER THE TIMING OF THE EXISTING FA SYSTEM DEMOLITION WORK. THE LOCAL FIRE AUTHORITY AND CENTRAL MONITORING STATION SHALL BE NOTIFIED 48 HOURS IN ADVANCE OF EXISTING FA SYSTEM SHUTDOWN.
7. THE CONTRACTOR WILL MAINTAIN ALL AREAS OF THE BUILDING IN A NEAT AND WORKMAN LIKE MANNER.
8. DO NOT APPLY POWER EXCEPT IN THE PRESENCE OF A FACTORY TRAINED SIMPLEXGRINNELL TECHNICAL REPRESENTATIVE.
9. ANY SMOKE DETECTOR HEAD INSTALLED BEFORE THE BUILDING IS CLEANED AND ACCEPTED SHALL BE COVERED TO PROTECT FROM DUST. ANY FALSE ALARMS DUE TO DIRT CONTAMINATED HEADS SHALL BE THE RESPONSIBILITY OF THE FIRE ALARM INSTALLER.
10. THE FIRE ALARM INSTALLER WILL MAINTAIN THE FIRE RESISTANCE INTEGRITY OF ALL WALL, CEILING, AND ROOF ASSEMBLIES ANY TIME THAT WORK IS NOT ACTIVELY BEING PERFORMED.
11. INSTALLATION OF DEVICES SHALL BE IN ACCORDANCE WITH MANUFACTURER'S INSTRUCTIONS. POWER LIMITED AND NON-POWER LIMITED FIELD WIRING MUST BE INSTALLED WITHIN THE FACP ENCLOSURE IN ACCORDANCE WITH MANUFACTURER'S INSTRUCTIONS AND NEC.
12. ALL WIRING SHALL BE INSTALLED ACCORDING TO NFPA 70 (NEC).
13. FIRE ALARM CIRCUITS SHALL BE IDENTIFIED IN ACCORDANCE WITH NEC SECTION 760-10. MARK ALL FIRE ALARM WIRES IN ACCORDANCE NEC SECTION 760-31g AND 760-42.
14. FIRE ALARM CABLE INSTALLED IN DUCTS, PLENUM, AND OTHER SPACES USED FOR ENVIRONMENTAL AIR SHALL BE TYPE FPLP.
15. FIRE ALARM CABLE INSTALLED IN THE VERTICAL RUNS AND PENETRATE MORE THAN ONE FLOOR OR CABLES INSTALLED IN VERTICAL RUNS IN SHAFTS SHALL BE TYPE FPLR.
16. FIRE ALARM CABLE INSTALLED IN UNDERGROUND CONDUIT OR OTHER WET LOCATIONS SHALL BE UL LISTED FOR WET LOCATIONS.
17. FIRE ALARM CIRCUITS EXTENDING BEYOND ONE BUILDING AND RUN OUTDOOR SHALL BE INSTALLED IN ACCORDANCE WITH NFPA 70 ARTICLES 760-7, 770, 725 AND 800 WHERE APPLICABLE.
18. ALL WIRING, INCLUDING SHIELDS MUST BE DRY AND FREE OF SHORTS AND GROUNDS.
19. ALL SHIELDED WIRE MUST HAVE SHIELD CONTINUITY AT FULL LENGTH OF THE WIRE.
20. ONLY SYSTEM WIRING CAN BE RUN IN THE SAME CONDUIT.
21. 120VAC IS NOT PERMITTED IN THE SAME CONDUIT WITH LOW VOLTAGE WIRING.
22. MAINTAIN 40 PERCENT CONDUIT FILL RATIO AS PER NEC REQUIREMENTS.
23. FIRE ALARM SYSTEM INSTALLER SHALL COORDINATE WITH THE MECHANICAL CONTRACTOR WHEN DETERMINING INSTALLATION OF SMOKE DETECTORS OR SENSORS.
24. DO NOT MOUNT SMOKE/HEAT SENSORS CLOSER THAN 3 FEET FROM ANY SUPPLY/RETURN DIFFUSER OR FLUORESCENT BAFFLES.
25. ALL FIRE ALARM POINTS ARE TO BE ON THE NEW FIRE ALARM PANEL.THE NEW FIRE ALARM PANEL WILL BE THE MAIN FIRE ALARM PANEL.

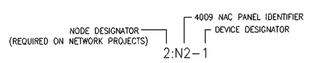
ABBREVIATIONS LEGEND

(AC) = ABOVE CEILING
(C) = CEILING MOUNTED
(E) = EXISTING
(N) = NEW
(RC) = EXISTING TO REMOVE AND COVER
(RD) = EXISTING DEVICE TO BE RELOCATED
(RL) = RELOCATED DEVICE
(RR) = REMOVE EXISTING AND REPLACE W/NEW
(WP) = WEATHERPROOF
AFF = ABOVE FINISHED FLOOR
AHJ = AUTHORITY HAVING JURISDICTION
ALM = ALARM
ANN = ANNUNCIATOR
BMS = BUILDING MANAGEMENT SYSTEM
CD = (EX. 15CD) CANDELA
DET = DETECTOR
DGP = DATA GATHERING PANEL
EOL = END OF LINE
EP = EXPLOSION PROOF
EPO = EMERGENCY POWER OFF
FACP = FIRE ALARM CONTROL PANEL
FATC = FIRE ALARM TERMINAL CABINET
FBO = FURNISHED BY OTHERS
FCC = FIRE COMMAND CENTER
FSD = FIRE SMOKE DAMPER
GCC = GRAPHIC COMMAND CENTER
HT = HEIGHT
HVAC = HEATING, VENTILATION, & AIR CONDITIONING
MAX = MAXIMUM
MIN = MINIMUM
N/A = NOT APPLICABLE
NAC = NOTIFICATION APPLIANCE CIRCUIT
NDU = NETWORK DISPLAY UNIT
NEC = NATIONAL ELECTRICAL CODE
NFPA = NATIONAL FIRE PROTECTION ASSOCIATION
NIC = NOT IN CONTRACT
NPU = NETWORK PROCESSOR UNIT
NTS = NOT TO SCALE
SCC = STATUS COMMAND CENTER
SLC = SIGNALING LINE CIRCUIT
SMK = SMOKE
SPRV = SUPERVISORY
TAC = TRUEALERT ADDRESSABLE CONTROLLER
TRBL = TROUBLE
TYP = TYPICAL
UON = UNLESS OTHERWISE NOTED
VCC = VOICE COMMAND CENTER
VT = VALVE TAMPER
WF = WATER FLOW
W = (EX. 1/2W) WATT
W/ = WITH

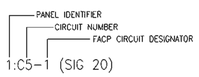
DEVICE ADDRESSING LEGEND



ADDRESSABLE INITIATING DEVICES NUMBERING



NOTIFICATION CIRCUIT



EXISTING CHIME CIRCUITS



EXISTING STROBE CIRCUITS

SEQUENCE OF OPERATION

CAUSE	ALARM: ALARM AT FACP	ALARM: ALARM AT ANNUNCIATOR	ALARM: ALARM AT OFF SITE REPORTING	ALARM: ACTIVATE AUDIBLES	ALARM: ACTIVATE VISUALS	ALARM: SPRINKLER RISER BELL	TROUBLE: TROUBLE AT FACP	TROUBLE: TROUBLE AT ANNUNCIATOR	TROUBLE: TROUBLE AT OFF SITE REPORTING	SUPERVISORY: SUPERVISORY AT FACP	SUPERVISORY: SUPERVISORY AT ANNUNCIATOR	SUPERVISORY: SUPERVISORY AT OFF SITE REPORTING	MISC: FAN SHUT DOWN	MISC: DAMPER SHUT DOWN	MISC: RELEASE CORRIDOR FIRE DOORS	MISC: RELEASE ELEVATOR FIRE DOORS	MISC: ELEVATOR SHUT DOWN	MISC: MAIN FLOOR ELEVATOR RECALL	MISC: ALTERNATE FLOOR ELEVATOR RECALL	MISC: ELEVATOR HALL LIGHT FLASH	MISC: DEACTIVATE AUDIBLES	MISC: DEACTIVATE VISUALS	MISC: SYSTEM NORMAL	MISC: OUTSIDE HORN/STROBE	REMARKS
SMOKE DETECTOR	•	•	•	•	•																				•	
MANUAL PULL STATION	•	•	•	•	•										•										•	
HEAT DETECTOR	•	•	•	•	•										•										•	
DUCT DETECTOR	•	•	•	•	•								•	•												
MAIN FLR. ELEV. LOBBY SMOKE DETECTOR	•	•	•	•	•								•	•	•		•								•	
ELEVATOR LOBBY SMOKE DETECTORS (EXC. MAIN FLR.)	•	•	•	•	•								•	•	•		•		•						•	
ELEVATOR MECH. ROOM SMOKE DETECTOR	•	•	•	•	•															•					•	
ELEVATOR SHAFT HEAT DETECTOR	•	•	•	•	•												•								•	
ELEVATOR MECH. ROOM HEAT DETECTOR	•	•	•	•	•												•								•	
WATERFLOW SWITCH	•	•	•	•	•	•									•										•	
TAMPER SWITCH										•	•	•														
POST INDICATOR VALVE SWITCH										•	•	•														
SYSTEM RESET																					•	•	•			
SIGNAL SILENCE																					•					
AC POWER FAILURE										•	•	•			•		•									
FIRE ALARM WIRING:																										
SIGNALING LINE CIRCUIT (SLC) - CLASS B/STYLE 4:																										
SINGLE OPEN										•	•	•														
SINGLE GROUND										•	•	•														
WIRE-TO-WIRE SHORT										•	•	•														
INITIATING DEVICE CIRCUIT (IDC) - CLASS B/STYLE B:																										
SINGLE OPEN										•	•	•														
SINGLE GROUND										•	•	•														
WIRE-TO-WIRE SHORT	•	•	•	•	•																					
NOTIFICATION APPLIANCE CIRCUIT (NAC) - CLASS B/STYLE Y:																										
SINGLE OPEN										•	•	•														
SINGLE GROUND										•	•	•														
WIRE-TO-WIRE SHORT										•	•	•														

NOTE: DOES NOT CHANGE FROM ORIGINAL SEQUENCE.

WIRE SCHEDULE

FIRE ALARM WIRE LIST (POWER LIMITED)

AC	120VAC WIRE - 3 CONDUCTOR 12 AWG SOLID CONDUIT ONLY: THHN (3) #12 AWG (BLACK/WHITE/GREEN)		
A	RUI/N2 COMMUNICATION RISER - 1 PAIR 18 AWG TWISTED OVERALL SHIELD NON-PLENUM RATED: FPLR ANIXTER SG1802S10-03 AREA=0.0186 SQ. INCH	#18 AWG (RED/BLACK)	PLENUM RATED: FPLP ANIXTER SG1802S21-03 AREA=0.0177 SQ. INCH
D	DOOR HOLDER CIRCUIT - 2 CONDUCTOR 14 AWG SOLID NON-PLENUM RATED: FPLR ANIXTER SG1402N10-03 AREA=0.0340 SQ. INCH	CONDUIT ONLY: THHN (2) #14 AWG (BLUE/GREY) AREA=0.0097 SQ. INCH (EACH)	PLENUM RATED: FPLP ANIXTER SG1402N21-03 AREA=0.0308 SQ. INCH
H	CHIME/SIGNAL CIRCUIT - 2 CONDUCTOR 14 AWG SOLID NON-PLENUM RATED: FPLR ANIXTER SG1402N10-03 AREA=0.0340 SQ. INCH	CONDUIT ONLY: THHN (2) #14 AWG (ORANGE/BROWN) AREA=0.0097 SQ. INCH (EACH) ********** REFER TO SIGNAL CIRCUIT DISTANCE CHART **********	PLENUM RATED: FPLP ANIXTER SG1402N21-03 AREA=0.0308 SQ. INCH
L	REMOTE LED CIRCUIT - 2 CONDUCTOR 18 AWG SOLID NON-PLENUM RATED: FPLR ANIXTER SG1802N10-03 AREA=0.0177 SQ. INCH	CONDUIT ONLY: TFFN (2) #18 AWG (RED/YELLOW)) AREA=0.0055 SQ. INCH (EACH)	PLENUM RATED: FPLP ANIXTER SG1802N21-03 AREA=0.0167 SQ. INCH
M	MAPNET/IDNET CIRCUIT - 1 PAIR 18 AWG TWISTED OVERALL SHIELD NON-PLENUM RATED: FPL ANIXTER SG1802S19-03 AREA=0.0320 SQ. INCH		PLENUM RATED: FPLP ANIXTER SG1802S21-03 AREA=0.0177 SQ. INCH
P	MAPNET/IDNET POWER CIRCUIT - 2 CONDUCTOR 14 AWG SOLID NON-PLENUM RATED: FPLR ANIXTER SG1402N10-03 AREA=0.0340 SQ. INCH	CONDUIT ONLY: THHN (2) #14 AWG (RED/BLACK) AREA=0.0097 SQ. INCH (EACH)	PLENUM RATED: FPLP ANIXTER SG1402N21-03 AREA=0.0308 SQ. INCH
V	VISUAL/SIGNAL CIRCUIT - 2 CONDUCTOR 14 AWG SOLID NON-PLENUM RATED: FPLR ANIXTER SG1402N10-03 AREA=0.0340 SQ. INCH	CONDUIT ONLY: THHN (2) #14 AWG (LT BLUE/TAN) AREA=0.0097 SQ. INCH (EACH) ********** REFER TO SIGNAL CIRCUIT DISTANCE CHART **********	PLENUM RATED: FPLP ANIXTER SG1402N21-03 AREA=0.0308 SQ. INCH
X	AUXILIARY CIRCUIT (RELAY) - 2 CONDUCTOR 14 AWG SOLID NON-PLENUM RATED: FPLR ANIXTER SG1402N10-03 AREA=0.0340 SQ. INCH	CONDUIT ONLY: THHN (2) #14 AWG (YELLOW/BLUE) AREA=0.0097 SQ. INCH (EACH)	PLENUM RATED: FPLP ANIXTER SG1402N21-03 AREA=0.0308 SQ. INCH
Z	ZONE CIRCUIT - 2 CONDUCTOR 14 AWG SOLID NON-PLENUM RATED: FPLR ANIXTER SG1402N10-03 AREA=0.0340 SQ. INCH	CONDUIT ONLY: THHN (2) #14 AWG (YELLOW/VIOLET) AREA=0.0097 SQ. INCH (EACH)	PLENUM RATED: FPLP ANIXTER SG1402N21-03 AREA=0.0308 SQ. INCH

CONDUIT SIZE	CONDUCTOR AREA	CONDUIT SIZE	CONDUCTOR AREA
1/2"	0.12 SQ INCH *	1-1/4"	0.60 SQ INCH *
3/4"	0.21 SQ INCH *	1-1/2"	0.82 SQ INCH *
1"	0.34 SQ INCH *	2"	1.34 SQ INCH *

* 40% FILL 2005 N.E.C.

CONTACT YOUR LOCAL SIMPLEXGRINNELL OFFICE FOR ANY CABLE SUBSTITUTIONS

WIRING INSTRUCTIONS

A. Install wiring according to the following:
1. NECA 1.
2. TIA/EIA 568-A
3. Cables, raceways and support pathways including but not limited to j-hooks and cable tray, which are used for fire alarm circuits, and equipment control wiring associated with the fire alarm system, shall not contain any other wire or cable.

B. Wiring Method for vertical risers penetrating floor slabs: Install wiring in metal raceway according to Specification Division 26 Section "Raceways and Boxes for Electrical Systems".

C. Wiring Method for circuits concealed in Walls, Partitions, and Inaccessible Ceilings: Install wiring in metal raceway according to Specification Division 26 Section "Raceways and Boxes for Electrical Systems".

D. Wiring Method for surface mounted and other exposed circuits, including in Crawlspaces: Install wiring in metal raceway according to Specification Division 26 Section "Raceways and Boxes for Electrical Systems".

E. Wiring Method for circuits concealed in accessible ceilings, install plenum-rated fire alarm cables supported on j-hooks.
1. For wall mounted devices: Install recessed device backboxes with conduit extended to above accessible ceiling according to Specification Division 26 Section "Raceways and Boxes for Electrical Systems.

F. Wiring Method:
1. Cables and raceways used for fire alarm circuits, and equipment control wiring associated with the fire alarm system, may not contain any other wire or cable.
2. Fire-Rated Cables: Use of 2-hour fire-rated fire alarm cables, NFPA70 Types MI and CI, is permitted.
3. Signaling Line Circuits: Non-Power-limited fire alarm cables shall not be installed in the same conduit or raceway as signaling line circuits.

G. Wiring within Enclosures: Separate power-limited and non-power-limited conductors. Install conductors parallel with or at right angles to sides and back of enclosure. Bundle, lace and train conductors to terminal points with no excess. Connect conductors that are terminated, spliced or interrupted in any enclosure associated with the fire alarm system to terminal blocks. Mark each terminal according to the system's wiring diagrams. Make all connections with approved crimp-on terminal spade lugs, pressure-type terminal blocks or plug connectors.

SYMBOL KEY

SYMBOL	DESCRIPTION	MODEL#	BACKBOX
FACP	FIRE ALARM CONTROL PANEL W / 50AH BATTERY SET	SIMPLEX 4100-8010 SIMPLEX 2081-9296	EXISTING
NAC#	NAC EXTENDER PANEL # DESIGNATES THE NAC PANEL NUMBER W / 10AH BATTERY SET	SIMPLEX 4009-9201 SIMPLEX 2081-9274	16-1/4"W x 13-1/2"H x 4-3/16"D
ANN#	SERIAL LCD ANNUNCIATOR	SIMPLEX 4603-9101	6 SINGLE GANG BOXES 3 1/2" DEEP
F	MANUAL PULL STATION STOPPER II W/HORN	SIMPLEX 4099-9003 STI-1130	SINGLE GANG BOX 2 1/2" DEEP
P	SMOKE PHOTO SENSOR / BASE	SIMPLEX 4098-9714 SIMPLEX 4098-9792 BASE	4" OCTAGONAL BOX 1 1/2" DEEP
RTS	DUCT SMOKE SENSOR W/PHOTOELECTRIC SENSOR HEAD, RELAY AND REMOTE TEST STATION W/ LED AND KEY SWITCH	SIMPLEX 4098-9751 SIMPLEX 4098-9714 SIMPLEX 2098-9806	MOUNT TO DUCTWORK SINGLE GANG BOX 2 1/2" DEEP
RTS	DUCT SMOKE SENSOR W/ REMOTE TEST STATION AND ENCAPSULATED PAM SD RELAY MODULE	SIMPLEX 4098-9756 SIMPLEX 2098-9806 SIMPLEX 4098-9843	MOUNT TO DUCTWORK
FSD	FIRE SMOKE DAMPER	BY OTHERS	MONITOR AND CONTROL WITH RELAY !AM 4090-9118
DH	DOOR HOLDER	SIMPLEX 2088-9609	SINGLE GANG BOX 2" DEEP
DH EX	DOOR HOLDER	EXISTING	SINGLE GANG BOX 2" DEEP
#	CHIME/STROBE # =CANDELA RATING	WHEELOCK CH70-24MCW-FR(RED) WHEELOCK CH70-24MCW-FW(WHITE)	4" SQUARE BOX 1 1/2" DEEP W/ 1 1/2" EXTENSION RING
#	WALL MOUNT MULTI-CANDELA V/O WHITE # =CANDELA RATING	WHEELOCK RSS-24MCW-FR(RED) WHEELOCK RSS-24MCW-FW(WHITE)	4" SQUARE BOX 1 1/2" DEEP W/ 1 1/2" EXTENSION RING
	SMOKE PHOTO SENSOR / BASE	EXISTING	4" OCTAGONAL OUTLET BOX
T	THERMAL SENSOR IN TRUEALARM BASE	EXISTING	4" OCTAGONAL OUTLET BOX WITH 2099-9813 TRIM
S	PHOTO SENSOR IN WITH SAMPLING TUBES	EXISTING	DIRECTLY TO DUCTWORK
	MANUAL PULL STATION		(2) 3x2x2-3/4 SWITCH BOXES
RTS	REMOTE TEST SWITCH	EXISTING	SINGLE GANG OUTLET BOX
	REMOTE LED ON PLATE	EXISTING	SINGLE GANG OUTLET BOX
	24VDC WALL MOUNTED DOOR HOLDERS	EXISTING	SINGLE GANG BOX
I	RELAY INDIVIDUAL ADDRESSABLE MODULE	SIMPLEX 4090-9002	SINGLE GANG OUTLET BOX
CZ	CONTROL ZAM	SIMPLEX 2190-9163	4-11/16" SQUARE, 2-1/8 DEEP BOX WITH 1-1/2" DEEP EXTENSION RING
SZ	SIGNAL ZAM	SIMPLEX 2190-9161	4-11/16" SQUARE, 2-1/8 DEEP BOX WITH 1-1/2" DEEP EXTENSION RING
	CHIME WITH 15 CANDELA STROBE UNIT	EXISTING	4" SQUARE BOX 1-1/2" DEEP
	15 CANDELA STROBE UNIT	SIMPLEX 4904-9137	SINGLE GANG BOX 1-1/2" DEEP
TS	TAMPER SWITCH	EXISTING	EXISTING
	TAMPER SWITCH	BY OTHERS	SINGLE GANG BOX 1-1/2" DEEP
FS	FLOWSWITCH	EXISTING	EXISTING
	FLOWSWITCH	BY OTHERS	IN BACKBOX OF LAST DEVICE
J	J-BOX	EXISTING	EXISTING
#K	END-OF-LINE RESISTOR (EOL)	BY OTHERS	SEE CHART SHEET FA-604
EOLR	END-OF-LINE RESISTOR (EOLR)		

NICET CERTIFIED

NICET CERTIFICATION

TECHNICAL AREA 00303: LEVEL IV
CERTIFICATE #: 109355
VALID THROUGH: 09/01/12

JAMES COOLEY — DATE

112-608156

CITY OF AURORA
BUILDING DIVISION
APPROVED AS NOTED
DATE 7/12/12

SHEET NOTES

THE INFORMATION OR SYMBOLS SHOWN IN BOLD LINETYPE ARE NEW OR RELOCATED.
THE INFORMATION OR SYMBOLS SHOWN IN LIGHT LINETYPE ARE EXISTING.

24" x 36"

SimplexGrinnell / tyco Fire & Security
6340 SMITH ROAD
DENVER, COLORADO 80216
SALES: (303) 355-0500
SERVICE: (303) 355-0500
FAX: (303) 355-0815

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NO.	DATE	REVISION DESCRIPTION

FIRE ALARM SYSTEM FOR:
2ND FLR. POSTPARTUM NICU
MEDICAL CENTER OF AURORA
1501 SOUTH POTOMAC STREET
AURORA, CO 80012

DRAWN BY: GT	DATE: 06/12/12
DESIGNED BY: GT	DATE: 06/12/12
APPROVED BY: JWC	DATE: 06/13/12
PROJECT #: 962976202	
SCALE: N.T.S.	
SHEET TITLE: GENERAL INFORMATION	
SHEET NUMBER: FA1.01	

The Medical Center of Aurora – Magnet Channel 9

Magnet Number	Device Type	Room Number (Max 40 Characters)
1:M9-1	SMOKE	1:M9-1 2ND FL P-PARTUM PATIENT RM 201
1:M9-2	SMOKE	1:M9-2 2ND FL P-PARTUM PATIENT RM 202
1:M9-3	SMOKE	1:M9-3 2ND FL P-PARTUM PATIENT RM 203
1:M9-4	SMOKE	1:M9-4 2ND FL P-PARTUM PATIENT RM 204
1:M9-5	SMOKE	1:M9-5 2ND FL P-PARTUM PATIENT RM 205
1:M9-6	SMOKE	1:M9-6 2ND FL P-PARTUM PATIENT RM 206
1:M9-7	SMOKE	1:M9-7 2ND FL P-PARTUM PATIENT RM 207
1:M9-8	SMOKE	1:M9-8 2ND FL P-PARTUM PATIENT RM 208
1:M9-9	SMOKE	1:M9-9 2ND FL P-PARTUM PATIENT RM 209
1:M9-10	SMOKE	1:M9-10 2ND FL P-PARTUM PATIENT RM 210
1:M9-11	SMOKE	1:M9-11 2ND FL P-PARTUM PATIENT RM 211
1:M9-12	SMOKE	1:M9-12 2ND FL P-PARTUM PATIENT RM 212
1:M9-13	SPARE	
1:M9-14	SMOKE	1:M9-14 2ND FL P-PARTUM PATIENT RM 214
1:M9-15	SMOKE	1:M9-14 2ND FL P-PARTUM PATIENT RM 215
1:M9-16	SMOKE	1:M9-16 2ND FL P-PARTUM PATIENT RM 216
1:M9-17	SMOKE	1:M9-17 2ND FL P-PARTUM PATIENT RM 217
1:M9-18	SMOKE	1:M9-18 2ND FL P-PARTUM PATIENT RM 218
1:M9-19	SMOKE	1:M9-19 2ND FL P-PARTUM PATIENT RM 219
1:M9-20	SMOKE	1:M9-20 2ND FL P-PARTUM PATIENT RM 220
1:M9-21	SMOKE	1:M9-21 2ND FL P-PARTUM PATIENT RM 221
1:M9-22	SMOKE	1:M9-22 2ND FL P-PARTUM PATIENT RM 222
1:M9-23	SMOKE	1:M9-23 2ND FL P-PARTUM PATIENT RM 223
1:M9-24	SMOKE	1:M9-24 2ND FL P-PARTUM PATIENT RM 224
1:M9-25	SMOKE	1:M9-25 2ND FL P-PARTUM PATIENT RM 225
1:M9-26	SMOKE	1:M9-26 2ND FL P-PARTUM PATIENT RM 226
1:M9-27	SMOKE	1:M9-27 2ND FL P-PARTUM WAITING RM 227
1:M9-28	SPARE	
1:M9-29	SPARE	
1:M9-30	SMOKE	1:M9-30 2ND FL P-PARTUM ON CALL RM 200
1:M9-31	SMOKE	1:M9-31 2ND FL P-PARTUM WAITING RM 234
1:M9-32	SMOKE	1:M9-32 2ND FL P-PARTUM PAR/CONF RM 238
1:M9-33	HEAT	1:M9-33 2ND FL P-PARTUM ELECTRICAL 904
1:M9-34	FLOW	1:M9-34 2ND FL P-PARTUM NOURISH RM 244
1:M9-35	TAMPER	1:M9-35 2ND FL P-PARTUM NOURISH RM 244
1:M9-36	SMOKE	1:M9-36 2ND FL P-PARTUM SCAN/SUPPLY 245
1:M9-37	DUCT	1:M9-37 2ND FL P-PARTUM MECH RM 901
1:M9-38	DUCT	1:M9-38 2ND FL P-PARTUM MECH RM 901
1:M9-39	HEAT	1:M9-39 2ND FL P-PARTUM MECH RM 901
1:M9-40	FLOW	1:M9-40 2ND FL P-PARTUM NURSE RM 248
1:M9-41	TAMPER	1:M9-41 2ND FL P-PARTUM NURSE RM 248
1:M9-42	SPARE	
1:M9-43	SPARE	
1:M9-44	SPARE	
1:M9-45	SMOKE	1:M9-45 2ND FL P-PARTUM 2A-HALL-06
1:M9-46	SMOKE	1:M9-46 2ND FL P-PARTUM 2A-HALL-06
1:M9-47	SMOKE	1:M9-47 2ND FL P-PARTUM 2A-HALL-06
1:M9-48	SMOKE	1:M9-48 2ND FL P-PARTUM 2A-HALL-06
1:M9-49	SMOKE	1:M9-49 2ND FL P-PARTUM 2A-HALL-06
1:M9-50	SMOKE	1:M9-50 2ND FL P-PARTUM 2A-HALL-07
1:M9-51	SMOKE	1:M9-51 2ND FL P-PARTUM 2A-HALL-07
1:M9-52	SMOKE	1:M9-52 2ND FL P-PARTUM 2A-HALL-01
1:M9-53	SMOKE	1:M9-53 2ND FL P-PARTUM 2A-HALL-01
1:M9-54	SMOKE	1:M9-54 2ND FL P-PARTUM 2A-HALL-01
1:M9-55	SMOKE	1:M9-54 2ND FL P-PARTUM ELEV LOBBY 02
1:M9-56	SMOKE	1:M9-56 2ND FL P-PARTUM 2A-HALL-02
1:M9-57	SMOKE	1:M9-57 2ND FL P-PARTUM 2A-HALL-02
1:M9-58	SMOKE	1:M9-58 2ND FL P-PARTUM 2A-HALL-03
1:M9-59	SPARE	1:M9-59 2ND FL P-PARTUM 2A-HALL-03
1:M9-60	SMOKE	1:M9-60 2ND FL P-PARTUM 2A-HALL-03
1:M9-61	SMOKE	1:M9-61 2ND FL P-PARTUM 2A-HALL-03
1:M9-62	PULL	1:M9-62 2ND FL P-PARTUM 2A-HALL-03
1:M9-63	PULL	1:M9-63 2ND FL P-PARTUM NURSE 248
1:M9-64	CZAM	1:M9-64 2ND FL P-PARTUM NE ENTRY DOOR
1:M9-65	CZAM	1:M9-65 2ND FL P-PARTUM NW ENTRY DOOR
1:M9-66	CZAM	1:M9-66 2ND FL P-PARTUM E HALLWAY
1:M9-67	CZAM	1:M9-67 2ND FL P-PARTUM W HALLWAY
1:M9-68	SPARE	
1:M9-69	SPARE	
1:M9-70	SMOKE	1:M9-70 2ND FLOOR L&O NURSERY 254
1:M9-71	SMOKE	1:M9-71 2ND FLOOR L&O NURSING STATION C
1:M9-72	SMOKE	1:M9-72 2ND FLOOR L&O MEDICATION 258
1:M9-73	SMOKE	1:M9-73 2ND FLOOR L&O BATH 258B
1:M9-74	SMOKE	1:M9-74 2ND FLOOR L&O SUPPLY SCAN
1:M9-75	SMOKE	1:M9-75 2ND FLOOR L&O ISOLATION ROOM 1
1:M9-76	SMOKE	1:M9-76 2ND FLOOR L&O ISOLATION ROOM 2
1:M9-77	SMOKE	1:M9-77 2ND FLOOR L&O SLEEP ROOM
1:M9-78	SMOKE	1:M9-78 2ND FLOOR L&O NURSERY 257
1:M9-79	SMOKE	1:M9-79 2ND FLOOR L&O DELIVERY WEST
1:M9-80	SMOKE	1:M9-80 2ND FLOOR L&O SOILED UTILITY 269
1:M9-81	SMOKE	1:M9-81 2ND FLOOR L&O GOWN & SCRUB AREA 256
1:M9-82	SMOKE	1:M9-82 2ND FLOOR L&O NURSERY 255
1:M9-83	SPARE	
1:M9-84	SPARE	
1:M9-85	SPARE	
1:M9-86	SPARE	
1:M9-87	SPARE	
1:M9-88	SPARE	
1:M9-89	SPARE	
1:M9-90	SPARE	
1:M9-91	SPARE	
1:M9-92	SPARE	
1:M9-93	SPARE	
1:M9-94	SPARE	
1:M9-95	SPARE	
1:M9-96	SPARE	
1:M9-97	SPARE	
1:M9-98	SPARE	
1:M9-99	SPARE	
1:M9-100	SPARE	
1:M9-101	SPARE	
1:M9-102	SPARE	
1:M9-103	SPARE	
1:M9-104	SPARE	
1:M9-105	SPARE	
1:M9-106	SPARE	
1:M9-107	SPARE	
1:M9-108	SPARE	
1:M9-109	SPARE	
1:M9-110	SPARE	
1:M9-111	SPARE	
1:M9-112	SPARE	
1:M9-113	SPARE	
1:M9-114	SPARE	
1:M9-115	SPARE	
1:M9-116	SPARE	
1:M9-117	SPARE	
1:M9-118	SPARE	
1:M9-119	SPARE	
1:M9-120	SPARE	
1:M9-121	SPARE	
1:M9-122	SPARE	
1:M9-123	SPARE	
1:M9-124	SPARE	
1:M9-125	SPARE	

MEDICAL CENTER OF AURORA – 2ND FLOOR POSTPARTUM – NICU

Module	Qty	Description		Standby Current	Total Standby	Alarm Current	Total Alarm
Panel Equipment							
4100-9010	1	MINIPLEX CONTROL PANEL		0.000000	0.000000	0.000000	0.000000
4100-7150	**1**	**MASTER CONTROLLER UPGRADE W/ 2X40 DISPLAY (4100 BASIC OR 1000 POINT TO 4100U)**		**0.163000**	**0.163000**	**0.210000**	**0.210000**
4100-0304	1	STYLE 7 REMOTE UNIT INTERFACE		0.085000	0.085000	0.085000	0.085000
4100-0153	1	DIGITAL ALARM COMM TRANSMITTER		0.035000	0.035000	0.050000	0.050000
4100-5004	7	8 ZONE STYLE B		0.075000	0.525000	0.195000	1.365000
4100-3003	1	8 PT AUX RELAY MODULE 3 AMP		0.025000	0.025000	0.280000	0.280000
4100-0110	5	MAPNET II ADDRESSABLE MODULE	*	0.270000	1.350000	0.290000	1.450000
4100-4321	8	6 CIRCUIT CLASS B (STYLE Y)		0.075000	0.700000	0.070000	0.560000
4100-7402	1	64/64 LED/SW CONTROLLER MODULE		0.067000	0.067000	0.285000	0.285000
4100-7404	1	32 POINT SWITCH INPUT MODULE		0.000000	0.000000	0.000000	0.000000
Peripheral Devices							
2190-9172	44	MAPNET SUPERVISED IAM	*	0.000000	0.000000	0.000000	0.000000
2099-9795	22	MAPNET SINGLE ACTION PULL STATION	*	0.000095	0.000000	0.000000	0.000000
4098-9701	376	TRUEALARM PHOTO SMOKE SENSOR		0.000000	0.000000	0.000000	0.000000
4098-9785	376	TRUEALARM SENSOR BASE W/ LED OUTPUT	*	0.000000	0.000000	0.000000	0.000000
4603-9101	11	SERIAL LCD ANNUNCIATOR		0.030000	0.330000	0.170000	1.870000
4098-9706	31	TRUEALARM DUCT SMOKE SENSOR HOUSING W/ RELAY	*	0.000280	0.008680	0.029000	0.899000
4903-9219	10	HORN/STROBE 24V 15cd		0.000000	0.000000	0.133000	1.330000
4903-9292	97	CH70-2415W-FR 15CD CHIME STROBE		0.000000	0.000000	0.070000	6.790000
4904-9137	124	15CD VISIBLE ONLY, RED		0.000000	0.000000	0.090000	11.160000
2190-9183	48	MAPNET UNSUPERVISED CONTROL ZAM	*	0.010000	0.480000	0.040000	1.840000
4098-9613	24	HEAT DETECTOR RATE OF RISE/FIXED 135	1	0.000080	0.001920	0.000000	0.000000
4098-9788	24	2 WIRE DETECTOR BASE	1	0.000000	0.000000	0.000000	0.000000
2190-9155	1	MAPNET CLASS B MONITOR ZAM	*	0.020000	0.020000	0.090000	0.090000
NEW GENERATION DEVICES							
4098-9714	48	TRUEALARM PHOTO SMOKE SENSOR		0.000000	0.000000	0.000000	0.000000
4098-9792	26	TRUEALARM SENSOR BASE	*	0.000000	0.000000	0.000000	0.000000
4098-9789	2	TRUEALARM SENSOR BASE W/ LED OUTPUT	*	0.000000	0.000000	0.000000	0.000000
2098-9808	2	REMOTE ALARM INDICATOR		0.000000	0.000000	0.000000	0.000000
4099-9003	4	IDNET DOUBLE ACTION PULL STATION	*	0.000000	0.000000	0.000000	0.000000
2190-9161	2	MAPNET CLASS B SIGNAL ZAM	*	0.015000	0.030000	0.040000	0.080000
2088-9609	2	MAGNETIC DOOR HOLDER, SURFACE		0.015000	0.030000	0.000000	0.000000
4098-9751	2	TRUEALARM PHOTO IN DUCT SMOKE SENSOR W/ RELAY	*	0.000240	0.000480	0.030000	0.060000
4098-9756	2	TRUEALARM DUCT SMOKE SENSOR W/ RELAY OUTPUT	*	0.003000	0.006000	0.015000	0.030000
2098-9806	4	REMOTE TEST STATION W/ LED AND KEY SWITCH		0.000000	0.000000	0.000000	0.000000
4098-9845	1	ENCAPSULATED RELAY PAM-SD		0.000000	0.000000	0.015000	0.015000
Multi-Candella Strobes (Select Candella Rating)							
CH70-24MCW-FR	2	MULTI CD CH STR, WM, RED	15cd	0.000000	0.000000	0.060000	0.120000
RSS-24MCW-FR	1	MULTI CD STR, 24VDC, WM, RED	15cd	0.000000	0.000000	0.060000	0.060000
				Total Periph Stby	0.887	Total Periph Alarm	24.509
				Total Standby Amps	3.337	Total Alarm Amps	28.794

* Additional Current Draw Included Below With Device Addresses Used

1. 2-wire detector alarm current is included in the alarm current of the Initiating Device Circuit.

Battery Calculations			Standby Current		Alarm Current
Control Panel Card Power			2.450		4.265
Power For External Peripheral Devices			0.887		24.509
			3.337	<-- Totals -->	28.794
Additional Battery Capacity Required	0%		0.000		0.000
Standby Time =	4	Hrs	13.348	Standby Ah	
Alarm Time =	5	Mins.	2.400	Alarm Ah	
		Standby + Alarm =	15.748		
Battery Required:	2081-9287 25AH		23.942	Total Ah Required (see note below)	
Battery Supplied:	2081-9296 50AH				

Note: The total Ah required takes into account any physical and chemical properties of battery discharge rates, high alarm current draw of a battery after a long (standby) low current draw, and reflects the manufacturers discharge rates per their recommendations and UL standards.

TRANSPONDER #2 – 2ND FLOOR POSTPARTUM – NICU

TRANSPONDER SCHEDULE / VOLTAGE DROP CALCULATION
12 % MAXIMUM VOLTAGE DROP FROM NOMINAL OPERATING VOLTAGE
CIRCUIT OUTPUT VOLTAGE = 19 VOLTS (FOR CALCULATIONS)*

CIRCUIT	DESCRIPTION	CIRCUIT TYPE	A/V CH70-24MCW-FR 15cd 0.060000	V/O RSS-24MCW-FW 15cd 0.060000	A/O CH70-24-R CHIME 0.022	TOTAL CKT. LOAD (AMPS)	WIRE GAUGE (18, 16, 14, 12)	ESTIMATED CIRCUIT LENGTH	ACTUAL VOLTAGE DROP %	ACTUAL VOLTAGE DROP (VOLTS)	TOTAL CIRCUIT RESISTANCE	MAXIMUM ALLOWABLE CKT. LENGTH
2:S81	2ND FLOOR POSTPARDIUM NORTH	A/V	10	3		0.964	14	440 ft.	10.85%	2.604	2.7 Ohms	487 ft.
2:S82	2ND FLOOR POSTPARDIUM SOUTH	A/V	6	5		0.860	14	500 ft.	8.44%	2.026	3.1 Ohms	711 ft.
2:S83	2ND FLOOR POSTPARDIUM	A/O			16	0.444	14	750 ft.	8.52%	2.045	4.6 Ohms	1056 ft.
2:S84	2ND FLOOR NICU	A/V	8	3		0.752	14	550 ft.	10.58%	2.540	3.4 Ohms	624 ft.
2:S85	2ND FLOOR NICU	A/O			8	0.176	14	550 ft.	2.48%	0.594	3.4 Ohms	2665 ft.
			Appliance Summary			2.996	Total Load (AMPS) FIRE					
			24	11	24							

METHOD USED TO CALCULATE VOLTAGE DROP:
{(CIRCUIT LENGTH IN FEET X 2) (AMPS) (OHMS / F1)}

Wire Resistance At
75 Degrees Celsius
167 Degrees Fahrenheit
Ohms / ft
10GA = 0.001210
12GA = 0.001930
14GA = 0.003070
16GA = 0.004890
18GA = 0.007770

WIRE RESISTANCE BASED ON TABLE 8 FROM NATIONAL ELECTRICAL CODE (UNCOATED SOLID COPPER WIRE)

NOTE:
LUMP SUM METHOD WAS USED TO CALCULATE ALLOWABLE VOLTAGE DROP. THIS METHOD ALLOWS FOR A SMALL MARGIN OF SAFETY, TAKING INTO CONSIDERATION THE ACTUAL INSTALLED CIRCUIT ROUTING MAY DIFFER FROM WHAT IS SHOWN ON THE SHOP DRAWINGS. IF THE ACTUAL CIRCUIT LENGTH IS GOING TO EXCEED THE MAXIMUM ALLOWABLE CIRCUIT LENGTH, CONTACT YOUR LOCAL SIMPLEXGRINNELL DISTRICT OFFICE.

* AS RECOMMENDED BY THE NFPA 72 HANDBOOK, VOLTAGE DROPS ARE CALCULATED USING A BATTERY VOLTAGE OF 20.4 VOLTS AND/OR LOW AC INPUT VOLTAGE AS DEFINED BY UL864. THIS TOOL ALSO FACTORS IN INTERNAL LOSSES INCURRED WITHIN THE CONTROL PANEL HARNESSING AND CIRCUITRY RESULTING IN A MINIMUM STARTING VOLTAGE OF 19 VOLTS AT THE CIRCUITS TERMINALS FOR THESE CALCULATIONS.

MEDICAL CENTER OF AURORA – 2ND FLOOR POSTPARTUM NICU

Module	Qty	Description		Standby Current	Total Standby	Alarm Current	Total Alarm
Panel Equipment							
4100-9500	1	BASIC TRANSPONDER		0.087000	0.087000	0.087000	0.087000
4100-3107	1	IDNET+ MODULE, UP TO 250 POINTS	*	0.075000	0.075000	0.115000	0.115000
4100-0632	1	UTILITY BLOC, 16 TERMINALS		0.000000	0.000000	0.000000	0.000000
4100-5125	1	REMOTE POWER SUPPLY W/CHARGER – 120VAC		0.150000	0.150000	0.185000	0.185000
4100-2162	1	INDICATOR ONLY, 2 BAY SOLID DOOR		0.000000	0.000000	0.000000	0.000000
				Total Panel Stby	0.312000	Total Panel Alarm	0.387000
Peripheral Devices							
4098-9714	47	TRUEALARM PHOTO SMOKE SENSOR		0.000000	0.000000	0.000000	0.000000
4098-9733	2	TRUEALARM HEAT SENSOR		0.000000	0.000000	0.000000	0.000000
4098-9792	49	TRUEALARM SENSOR BASE	*	0.000000	0.000000	0.000000	0.000000
4098-9756	2	TRUEALARM DUCT SMOKE SENSOR W/ RELAY OUTPUT	*	0.003000	0.006000	0.015000	0.030000
2098-9806	2	REMOTE TEST STATION W/ LED AND KEY SWITCH		0.000000	0.000000	0.000000	0.000000
4099-9003	2	IDNET DOUBLE ACTION PULL STATION	*	0.000000	0.000000	0.000000	0.000000
4090-9001	4	IDNET SUPERVISED IAM	*	0.000000	0.000000	0.000000	0.000000
2190-9163	4	MAPNET UNSUPERVISED CONTROL ZAM	*	0.010000	0.040000	0.040000	0.160000
4603-9101	1	SERIAL LCD ANNUNCIATOR		0.030000	0.030000	0.170000	0.170000
DSM-12/24-R	2	WHEELOCK DUAL SYNC MODULE		0.000000	0.000000	0.038000	0.076000
Multi-Candella Strobes (Select Candella Rating)							
CH70-24MCW-FW	24	MULTI CD CH STR, WM, WHT	15cd	0.000000	0.000000	0.060000	1.440000
RSS-24MCW-FW	11	RSS MULTI-CANDELA	15cd	0.000000	0.000000	0.060000	0.660000
				Total Periph Stby	0.076	Total Periph Alarm	2.536
				Total Standby Amps	0.388	Total Alarm Amps	2.923

* Additional Current Draw Included Below With Device Addresses Used

1. 2-wire detector alarm current is included in the alarm current of the Initiating Device Circuit.

Battery Calculations			Standby Current		Alarm Current
Control Panel Card Power			0.312		0.387
Power For External Peripheral Devices			0.076		2.536
			0.388	<-- Totals -->	2.923
Additional Battery Capacity Required	20%		0.078		0.585
Standby Time =	24	Hrs	11.174	Standby Ah	
Alarm Time =	5	Mins.	2.588	Alarm Ah	
		Standby + Alarm =	13.762		
Battery Required:	2081-9275 18AH		13.520	Total Ah Required (see note below)	
Battery Supplied:	2081-9276 33AH				

Note: The total Ah required takes into account any physical and chemical properties of battery discharge rates, high alarm current draw of a battery after a long (standby) low current draw, and reflects the manufacturers discharge rates per their recommendations and UL standards.

SHEET NOTES

THE INFORMATION OR SYMBOLS SHOWN IN BOLD LINETYPE ARE NEW OR RELOCATED.
THE INFORMATION OR SYMBOLS SHOWN IN LIGHT LINETYPE ARE EXISTING.

CITY OF AURORA
BUILDING DIVISION
APPROVED AS NOTED
DATE 7/12/12

12-608156

NICET CERTIFIED

NICET CERTIFICATION

TECHNICAL AREA 00303: LEVEL IV
CERTIFICATE #: 109355
VALID THROUGH: 09/01/12

JAMES COOLEY — DATE

2'-4" x 35"

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DENVER, COLORADO 80216
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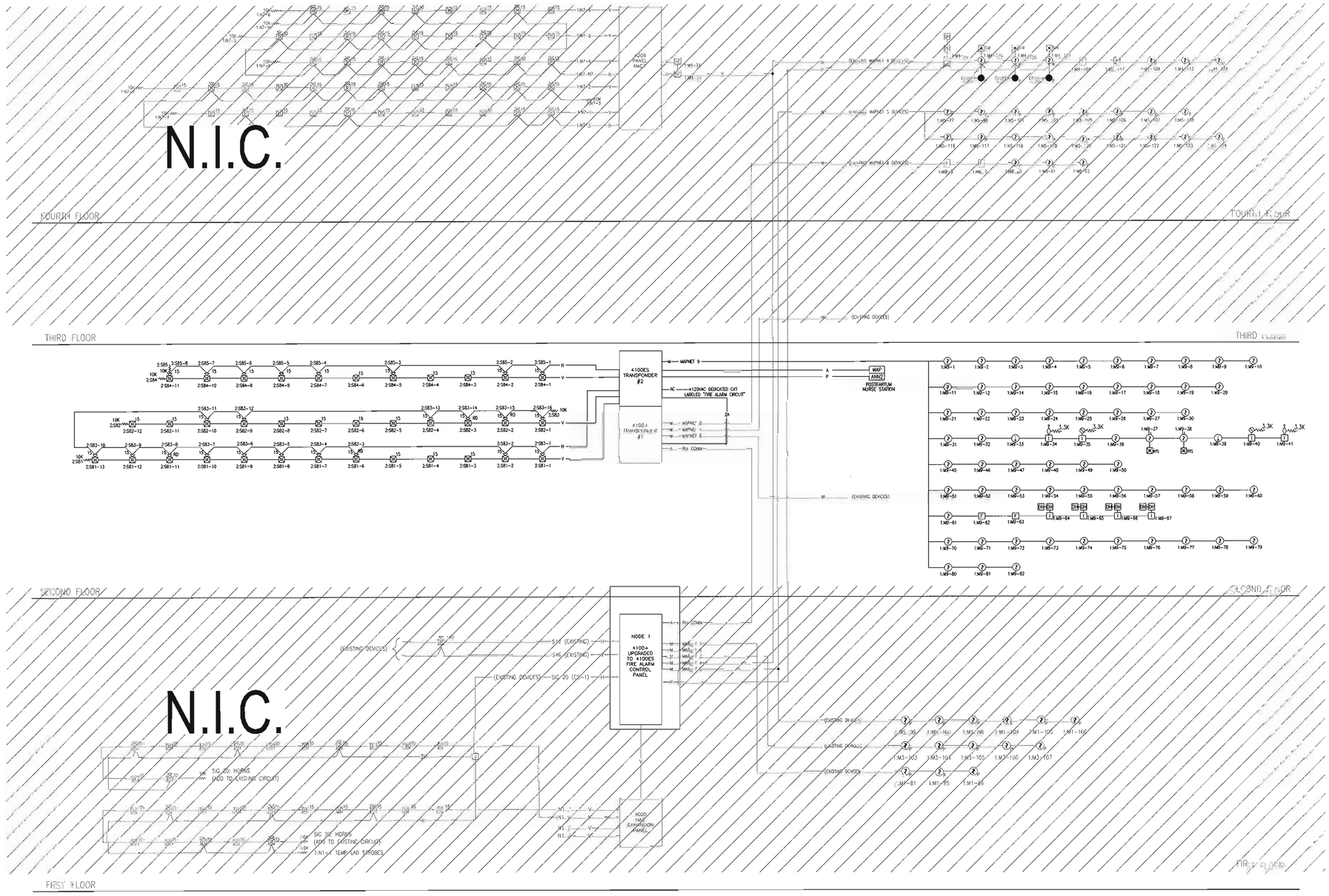
NO	DATE	REVISION DESCRIPTION

FIRE ALARM SYSTEM FOR:
2ND FLR. POSTPARTUM NICU

MEDICAL CENTER OF AURORA
1501 SOUTH POTOMAC STREET
AURORA, CO 80012

DRAWN BY: GT	DATE: 06/12/12
DESIGNED BY: GT	DATE: 06/12/12
APPROVED BY: JWC	DATE: 06/13/12
PROJECT #: 962976202	
SCALE: N.T.S.	
SHEET TITLE: BATTERY & VOLTAGE DROP CALCULATIONS	
SHEET NUMBER: FA1.02	

THE INFORMATION OR SYMBOLS SHOWN IN LIGHT LINETYPE ARE EXISTING.



ONE LINE RISER DIAGRAM

CITY OF AURORA
BUILDING DIVISION
APPROVED AS NOTED JMP
DATE 7/12/12

12-608156

SHEET NOTES

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W S E N

2ND FLOOR POSTPARTUM RISER

BAR SCALE: 1/8" = 1'-0"
0' 2' 4' 8' 16' 32'

NICET CERTIFIED

NICET CERTIFICATION

TECHNICAL AREA 00303: LEVEL IV
CERTIFICATE #: 109355
VALID THROUGH: 09/01/12

JAMES COOLEY — DATE

24" x 36"

tyco / Fire & Security / SimplexGrinnell

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FAX: (303) 355-8615

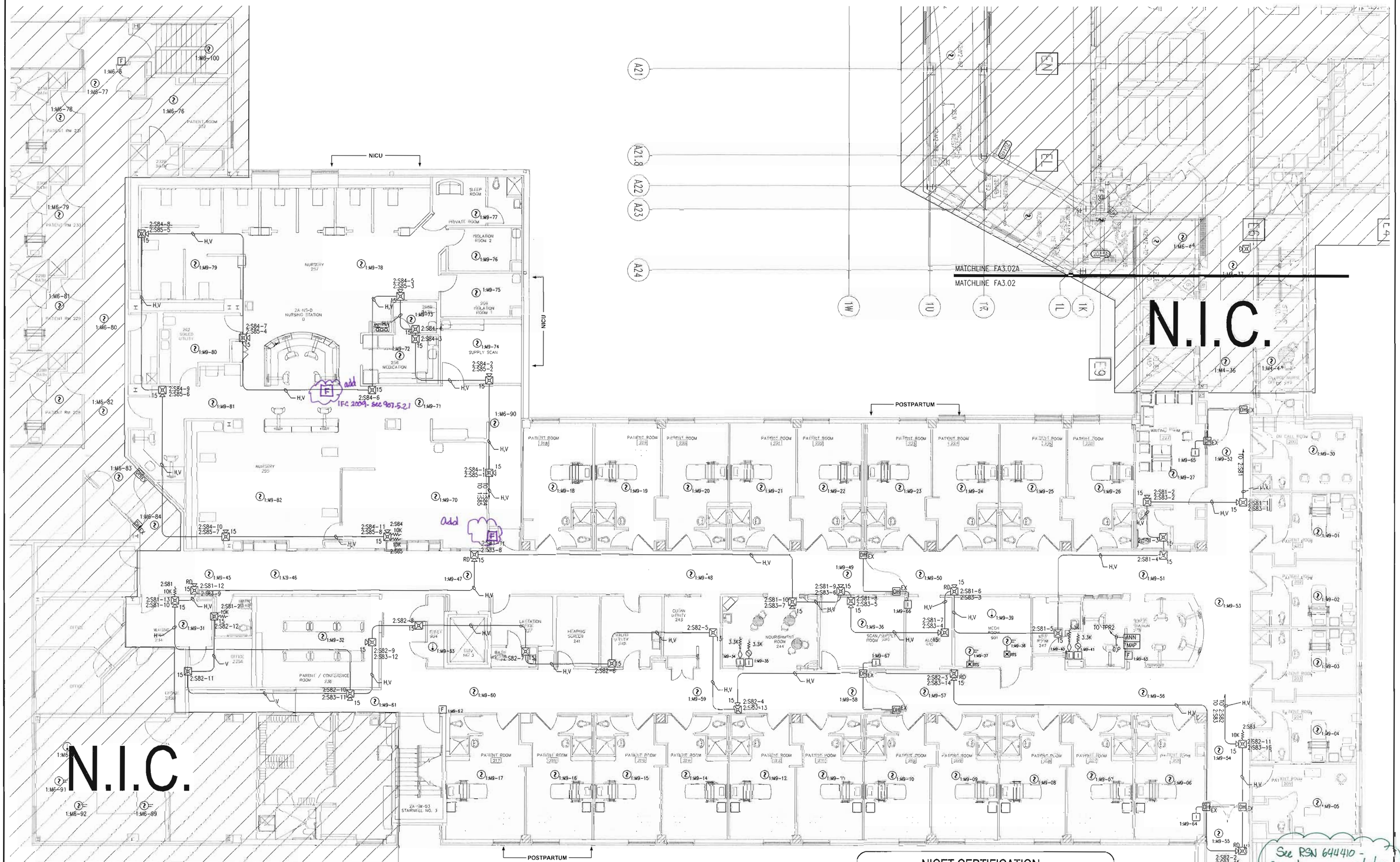
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NO	DATE	REVISION DESCRIPTION

FIRE ALARM SYSTEM FOR:
2ND FLR. POSTPARTUM NICU
MEDICAL CENTER OF AURORA

1501 SOUTH POTOMAC STREET
AURORA, CO 80012

DRAWN BY: GT	DATE: 06/12/12
DESIGNED BY: GT	DATE: 06/12/12
APPROVED BY: JWC	DATE: 06/13/12
PROJECT #: 962976202	
SCALE: 1/8"=1'-0"	
SHEET TITLE: SECOND FLOOR ONE-LINE RISER DIAGRAM	
SHEET NUMBER: FA2.02	



2ND FLOOR POSTPARTUM & NICU DEVICE PLACEMENT PLAN

BAR SCALE: 1/8" = 1'-0"
0' 2' 4' 8' 16' 32'

N W E S

NICET CERTIFIED

NICET CERTIFICATION

TECHNICAL AREA 00303: LEVEL IV
CERTIFICATE #: 109355
VALID THROUGH: 09/01/12

JAMES COOLEY — DATE

CITY OF AURORA
BUILDING DIVISION
APPROVED AS NOTED: jmp
DATE: 7/12/12

See RSN 644410 - per designer on 7/12/12 no device changes are required on the 12-608156 Labor/delivery area so they are not part of this plan. jmp

SHEET NOTES

THE INFORMATION OR SYMBOLS SHOWN IN BOLD LINETYPE ARE NEW OR RELOCATED.
THE INFORMATION OR SYMBOLS SHOWN IN LIGHT LINETYPE ARE EXISTING.

24" x 36"

tyco / Fire & Security / SimplexGrinnell

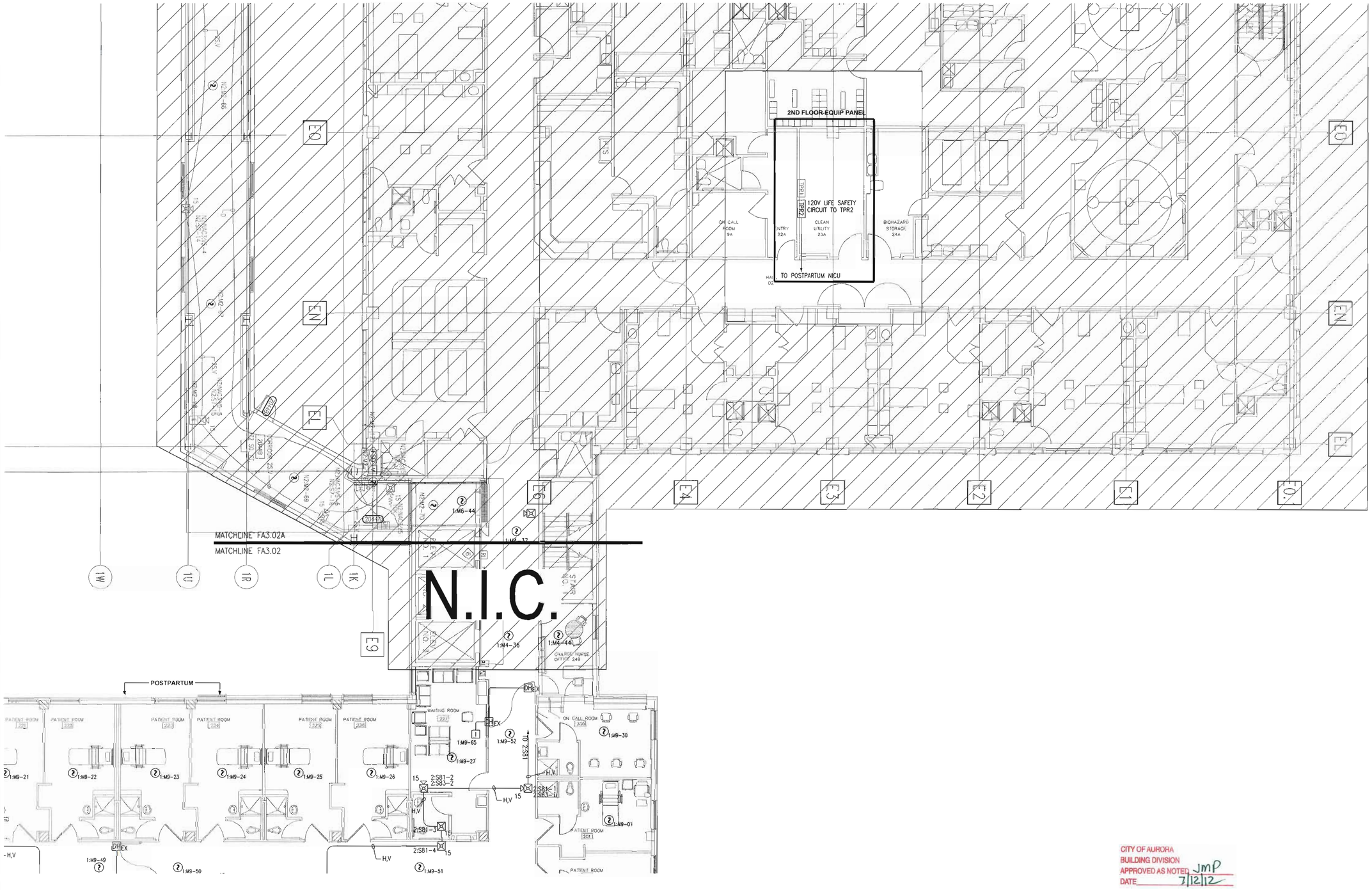
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NO.	DATE	REVISION DESCRIPTION

FIRE ALARM SYSTEM FOR:
2ND FLR. POSTPARTUM NICU
MEDICAL CENTER OF AURORA
1501 SOUTH POTOMAC STREET
AURORA, CO 80012

DRAWN BY: GT	DATE: 06/12/12
DESIGNED BY: GT	DATE: 06/12/12
APPROVED BY: JWC	DATE: 06/13/12
PROJECT #: 962976202	
SCALE: 1/8"=1'-0"	
SHEET TITLE: SECOND FLOOR DEVICE LAYOUT	
SHEET NUMBER: FA3.02	



N

W E

S

2ND FLOOR POSTPARTUM AREA PANEL LOCATION

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

0' 2' 4' 8' 16' 32'

SHEET NOTES

THE INFORMATION OR SYMBOLS SHOWN IN BOLD LINETYPE ARE NEW OR RELOCATED.
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CITY OF AURORA
BUILDING DIVISION
APPROVED AS NOTED JMP
DATE 7/12/12

12-608156

NICET CERTIFIED

NICET CERTIFICATION

TECHNICAL AREA 00303: LEVEL IV
CERTIFICATE #: 109355
VALID THROUGH: 09/01/12

JAMES COOLEY DATE

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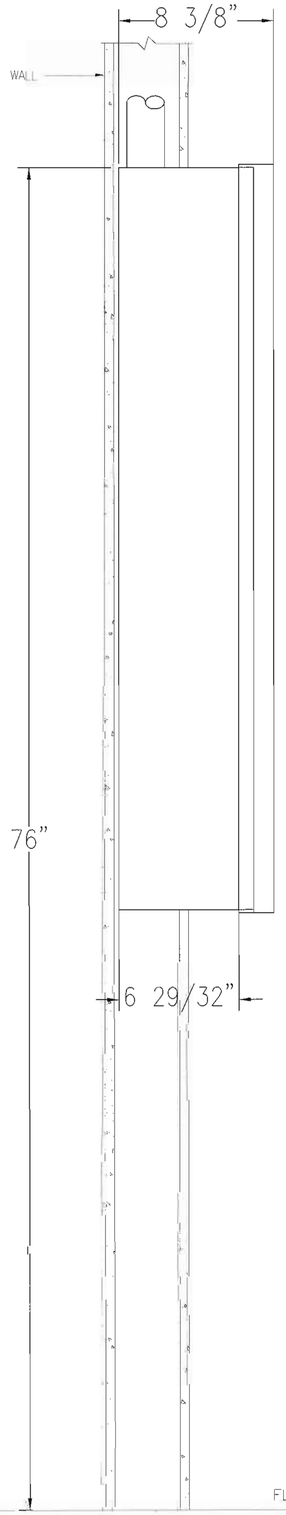
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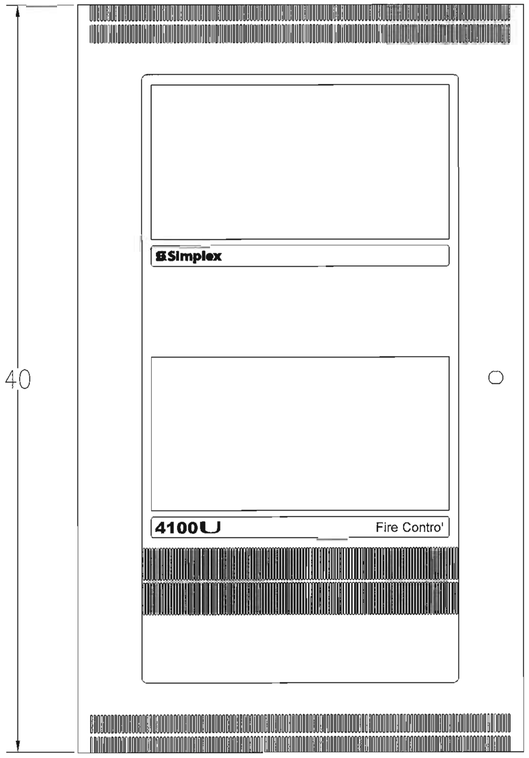
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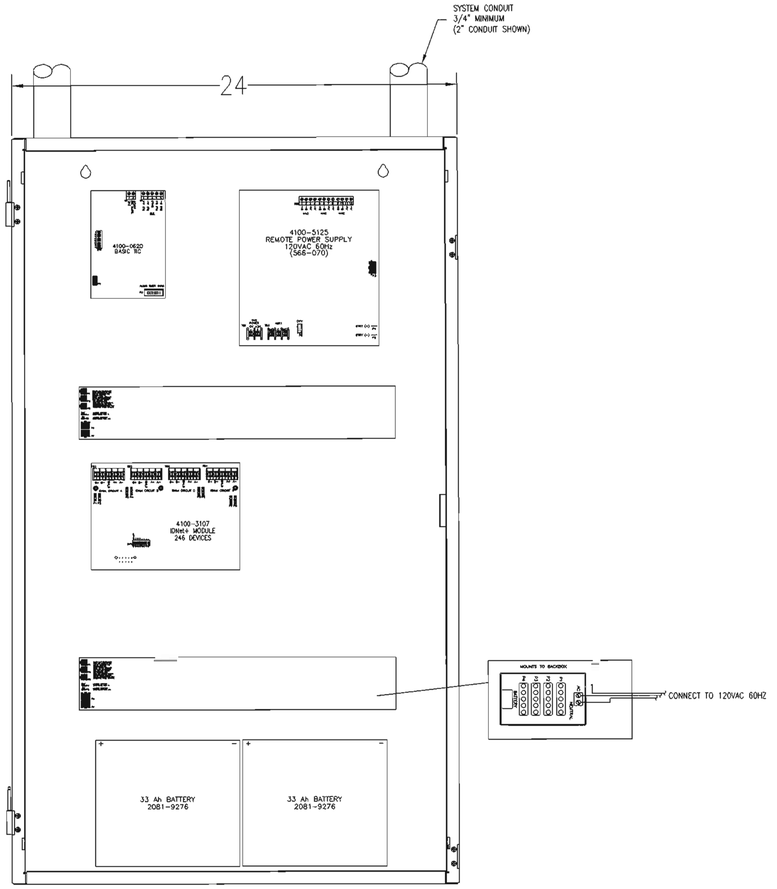
FIRE ALARM SYSTEM FOR:
2ND FLR. POSTPARTUM NICU
MEDICAL CENTER OF AURORA
1501 SOUTH POTOMAC STREET
AURORA, CO 80012

DRAWN BY: CT	DATE: 06/12/12
DESIGNED BY: CT	DATE: 06/12/12
APPROVED BY: JWC	DATE: 06/13/12
PROJECT #: 962976202	
SCALE: 1/8"=1'-0"	
SHEET TITLE: SECOND FLOOR PANEL ROOM LOCATION	
SHEET NUMBER: FA3.02A	

24" x 36"







NICET CERTIFICATION

TECHNICAL AREA 00303: LEVEL IV

CERTIFICATE #: 109355

VALID THROUGH: 09/01/12

JAMES COOLEY — DATE

NICET CERTIFIED

CITY OF AURORA
BUILDING DIVISION
APPROVED AS NOTED JMP
DATE 7/12/12

12-608156

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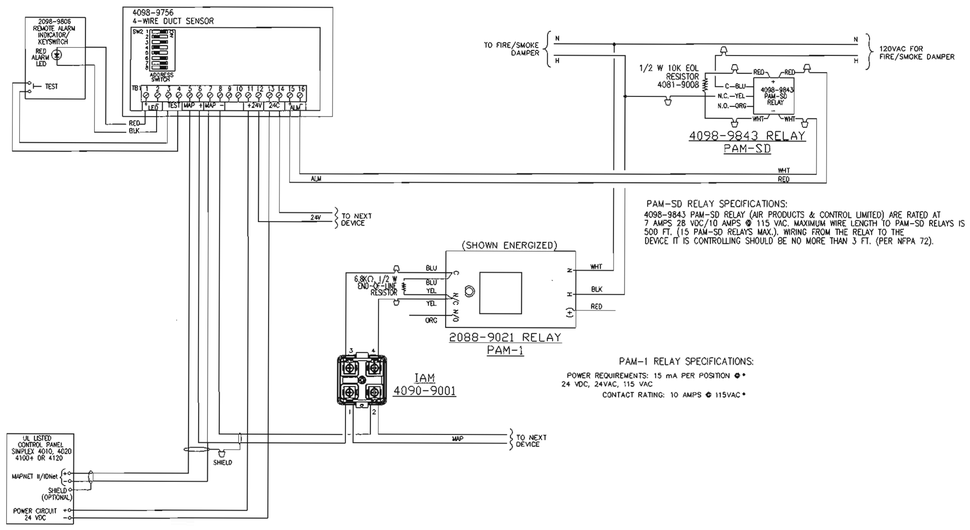
NO	DATE	REVISION DESCRIPTION

FIRE ALARM SYSTEM FOR:
2ND FLR. POSTPARTUM NICU
MEDICAL CENTER OF AURORA
1501 SOUTH POTOMAC STREET
AURORA, CO 80012

DRAWN BY: GT	DATE: 06/12/12
DESIGNED BY: GT	DATE: 06/12/12
APPROVED BY: JWC	DATE: 06/13/12
PROJECT #: 962976202	
SCALE: N.T.S.	
SHEET TITLE: TRANSPONDER WIRING DETAILS	
SHEET NUMBER: FA4.02	

36" x 24"

4098-9756 DUCT DETECTOR/IAM 4090-9001 FOR DAMPER CLOSURE/MONITOR



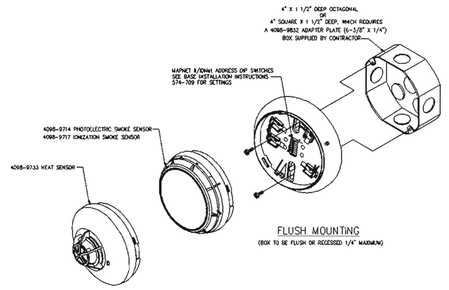
PAM-SD RELAY SPECIFICATIONS:
4098-9843 PAM-SD RELAY (AIR PRODUCTS & CONTROL LIMITED) ARE RATED AT 7 AMPS 28 VDC/10 AMPS @ 115 VAC. MAXIMUM WIRE LENGTH TO PAM-SD RELAYS IS 500 FT. (15 PAM-SD RELAYS MAX.). WIRING FROM THE RELAY TO THE DEVICE IT IS CONTROLLING SHOULD BE NO MORE THAN 3 FT. (PER NFPA 72).

PAM-1 RELAY SPECIFICATIONS:
POWER REQUIREMENTS: 15 mA PER POSITION @ *
24 VDC, 24VAC, 115 VAC
CONTACT RATING: 10 AMPS @ 115VAC *

4098-9714/9714/9733 SENSOR AND 4098-9792 STANDARD SENSOR BASE

PRODUCT INFORMATION

FEATURES:
- UL LISTED, FM APPROVED
- TRUEALARM ANALOG SENSING PROVIDES DIGITAL TRANSMISSION OF ANALOG SENSOR VALUES VIA MAPNET II, OR IDNet TWO WIRE COMMUNICATIONS
- FIRE ALARM CONTROL PANEL PROVIDES:
  - –INDIVIDUAL SENSITIVITY SELECTION FOR EACH SENSOR
  - –PEAK VALUE LOGGING ALLOWING ACCURATE ANALYSIS FOR SENSITIVITY SELECTION
  - –AUTOMATIC ENVIRONMENTAL COMPENSATION
  - –DISPLAY OF SENSITIVITY IN PERCENT PER FOOT
  - –MULTISTAGE ALARM OPERATION
  - –ABILITY TO DISPLAY AND PRINT DETAILED SENSOR INFORMATION IN PLAIN ENGLISH LANGUAGE
- PHOTOELECTRIC SMOKE SENSOR 4098-9714:
  SEVEN LEVELS OF SENSITIVITY FROM 0.2% TO 3.7%
- IONIZATION SMOKE SENSOR 4098-9717:
  FOUR LEVELS OF SENSITIVITY FROM 0.5% TO 1.7%
- HEAT SENSOR 4098-9733:
  - –RATE-OF-RISE TEMPERATURE DETECTION IS SELECTABLE AT THE CONTROL PANEL FOR EITHER 15°F OR 20°F PER MINUTE
  - –FIXED TEMPERATURE SENSING IS INDEPENDENT OF RATE-OF-RISE AND PROGRAMMABLE TO OPERATE AT 135°F OR 155°F
  - –TRUEALARM HEAT SENSORS CAN BE PROGRAMMED AS A UTILITY DEVICE TO MONITOR FOR TEMPERATURE EXTREMES IN THE RANGE FROM 32° F TO 120° F.
- UL STANDARD SPACING:
  –60 FT SPACING FOR 135° F
  –40 FT SPACING FOR 155° F
- INTEGRAL RED LED FOR POWER-ON (PULSING), OR ALARM OR TROUBLE (STEADY ON)
- BASE MOUNTED ADDRESS SELECTION:
  –ACCESSIBLE FROM FRONT (DIP SWITCH UNDER SENSOR)
  –ADDRESS REMAINS WITH ITS PROGRAMMED LOCATION
- FOR USE WITH SIMPLEX 4010, 4100, 4020, AND 4120 SERIES CONTROL PANELS.
- MAXIMUM QUANTITY OF DEVICES:
  –127 FOR 4020, 4100, 4120
  –250 FOR 4010
- MOUNTING: CEILING OR WALL
- COLOR : FROST WHITE
- BASE DIMENSIONS: 15/16" X 4–7/8"



FLUSH MOUNTING
(BOX TO BE FLUSH OR RECESSED 1/4" MAXIMUM)

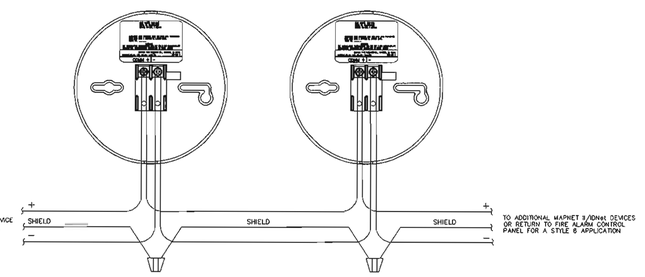
SPECIFICATIONS:
- UL LISTED TEMPERATURE RANGE: 32°F TO 100°F
- OPERATING TEMPERATURE RANGE: 32°F TO 120°F
- HUMIDITY RANGE: 10% TO 95% RH
- PHOTOELECTRIC SENSOR AIR VELOCITY RANGE: 0–2000 FT/MIN
- IONIZATION SENSOR AIR VELOCITY RANGE: 0–300 FT/MIN
- WIRING CONNECTIONS: SCREW TERMINALS FOR IN/OUT WIRING, #18 TO #14 AWG
- COMMUNICATIONS MAPNET II/IDNet: 1 ADDRESS PER BASE
  VOLTAGE (MAPNET II/IDNet): 24–40VDC
  CURRENT: 400uA TYPICAL

DESCRIPTION:
TRUEALARM SENSOR BASES CONTAIN INTEGRAL ADDRESSABLE ELECTRONICS THAT CONSTANTLY MONITOR THE STATUS OF THE DETACHABLE PHOTOELECTRIC, IONIZATION, OR HEAT SENSORS. EACH SENSOR'S OUTPUT IS DIGITIZED AND TRANSMITTED TO THE SYSTEM FIRE ALARM CONTROL PANEL EVERY FOUR SECONDS.

SINCE TRUEALARM SENSORS USE THE SAME BASE, DIFFERENT SENSOR TYPES CAN BE EASILY INTERCHANGED TO MEET SPECIFIC LOCATION REQUIREMENTS. THIS FEATURE ALLOWS INTENTIONAL SENSOR SUBSTITUTION DURING BUILDING CONSTRUCTION, WHEN CONDITIONS ARE TEMPORARILY DUSTY, INSTEAD OF COVERING THE SMOKE SENSORS.

HEAT SENSORS MAY BE INSTALLED WITHOUT REPROGRAMMING THE CONTROL PANEL, ALTHOUGH THE CONTROL PANEL WILL INDICATE AN INCORRECT SENSOR TYPE. THE HEAT SENSOR WILL OPERATE AS A DEFAULT SENSITIVITY PROVIDING HEAT DETECTION FOR BUILDING PROTECTION AT THAT LOCATION.

WIRING:
1. ALL WIRING TO COMPLY WITH LOCAL CODE.
2. CONDUCTORS MUST TEST FREE OF ALL GROUNDS.
3. MAINTAIN CORRECT POLARITY
4. MAPNET II/IDNet WIRING TO BE #18 AWG TWISTED SHIELDED PAIR
5. IF SHIELD IS USED, TWIST SHIELD WIRES TOGETHER AND CAP WITH WIRE NUT. SHIELD SHOULD BE INSULATED FROM ELECTRICAL BOX.
6. REFER TO INSTALLATION INSTRUCTIONS (574–707)
7. REFER TO APPLICATION MANUAL (574–709)



2098-9806 REMOTE ALARM INDICATOR/KEY SWITCH

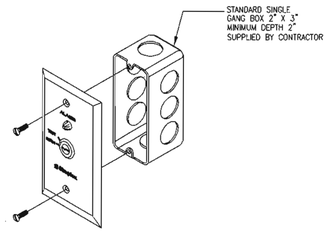
PRODUCT INFORMATION

FEATURES:
- UL LISTED
- CALIFORNIA STATE FIRE MARSHAL LISTING NUMBERS: 2908–9806 ALARM INDICATOR 7300–0026:150
- MOUNTING: FLUSH
- FINISH: CHROME OR STAINLESS STEEL

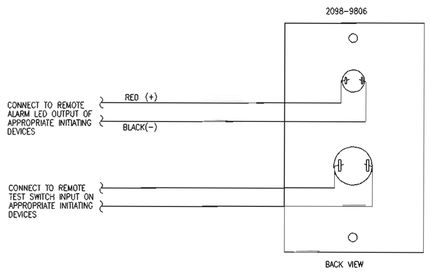
SPECIFICATIONS:
- ALARM CURRENT: 2.8 mA
- DIMENSIONS OF BOX: 2 "W X 3"H X 2"D

DESCRIPTION:
2098–9806 REMOTE TEST STATION, PROVIDES A REMOTE RED ALARM LED STATUS INDICATOR AND A REMOTE TEST KEY ACTIVATED SWITCH MOUNTED ON A SINGLE GANG STAINLESS STEEL PLATE. THE LED WILL PULSE TO INDICATE NORMAL OPERATION OF THE DUCT DETECTOR AND WILL ENERGIZE CONTINUOUS WHEN IN ALARM OR IN TROUBLE. (THE EXACT STATUS OF THE SENSOR WILL BE DISPLAYED AT THE FIRE ALARM CONTROL PANEL.) TURNING THE TEST SWITCH TO "TEST" WILL INITIATE AN ALARM AND ALLOW THE RESULTING SYSTEM RESPONSES TO BE VERIFIED.

WIRING:
- MINIMUM 18 AWG OR TO LOCAL CODE.
- CONDUCTORS MUST TEST FREE OF ALL GROUNDS.
- REMOTE ALARM LED IS POLARIZED, OBSERVE COLOR CODED WIRING.
- ONE INDICATOR MAY BE INSTALLED PER DETECTOR.



FLUSH MOUNTING



4099-9003 IDNet DOUBLE ACTION PULL STATION

PRODUCT INFORMATION

FEATURES:
- UL LISTED
- DOUBLE ACTION (PUSH/PULL), IDNET ADDRESSABLE
- PULL LEVEL PROTRUDES WHEN ALARMED
- TAMPER RESISTANT RESET KEY LOCK
- MOUNTING: SEMI–FLUSH, SURFACE
- OPERATING TEMPERATURE RANGE: 32 – 120° F
- OPERATING HUMIDITY RANGE: 0 – 93% RH
- ADAPTER PLATES 2099–9813 OR 2099–9814 CAN BE USE FOR RETROFIT APPLICATIONS.
- 5" HIGH X 3 3/4" WIDE X 1" DEEP
- SCREW TERMINALS FOR 18 TO 14 AWG WIRE
- ADDRESSED BY MEANS OF AN 8 POSITION DIP SWITCH
- COMPATIBLE WITH IDNet/MAPNET

OPERATION:
ACTIVATION:
4099–9003 DOUBLE ACTION STATION REQUIRES A FIRM DOWNWARD PULL TO ACTIVATE THE ALARM SWITCH. COMPLETING THIS ACTION BREAKS AN INTERNAL PLASTIC BREAK–ROD THAT IS VISIBLE BELOW THE PULL LEVER (USE OF PLASTIC ROD IS OPTIONAL). THE PULL LEVEL LATCHES INTO THE ALARM POSITION AND REMAINS EXTENDED OUT OF THE HOUSING TO PROVIDE A VISIBLE INDICATION.

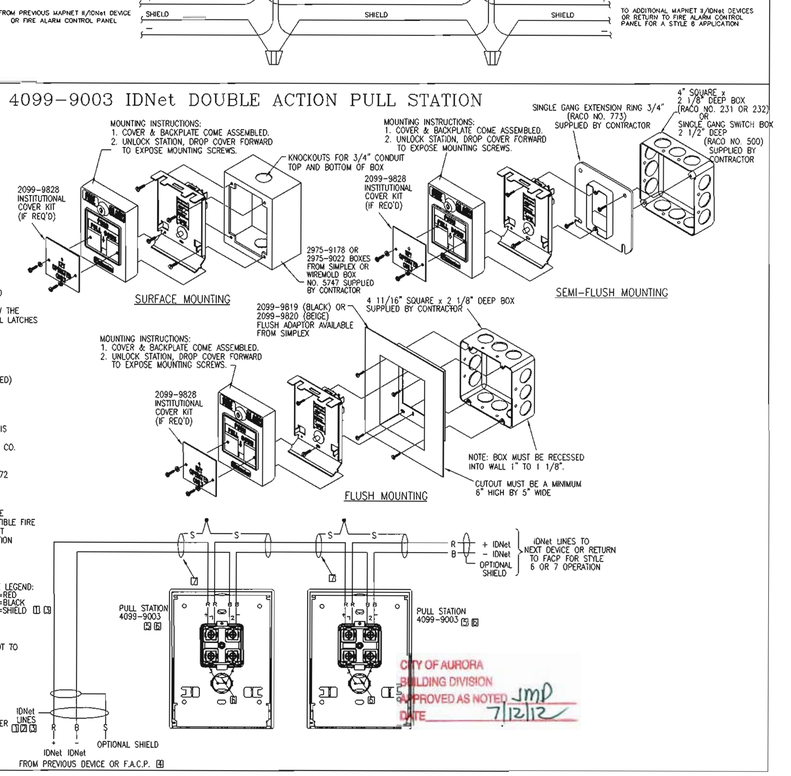
RESETTING:
4099–9003 DOUBLE ACTION STATION REQUIRES A KEY TO RESET THE ACTIVATION LEVER AND DEACTIVATE THE ALARM SWITCH. (IF OPTIONAL PLASTIC BREAK ROD WAS USED IT MUST BE REPLACED)

CONSTRUCTION:
STATION HOUSING AND PULL LEVER ARE CONSTRUCTED OF CHIP RESISTANT AND DIRT RESISTANT, HIGH IMPACT LEXAN. HOUSING IS RED WITH RAISED WHITE LETTERING AND PULL LEVER IS WHITE WITH RED RAISED LETTERING.
* LEXAN IS A REGISTERED TRADEMARK OF THE GENERAL ELECTRIC CO.

APPLICATION:
PULL STATIONS SHALL BE INSTALLED IN ACCORDANCE WITH NFPA 72 AND ADA GUIDE LINES.

INTRODUCTION:
THE 4099–9003 ADDRESSABLE PULL STATION PROVIDES TWO–STATE STATUS INFORMATION (NORMAL AND SHORT) TO THE IDNET COMPATIBLE FIRE ALARM CONTROL PANEL (FACP) VIA THE IDNET CHANNEL. THE IDNET CHANNEL PROVIDES THE COMMUNICATION LINK BETWEEN PULL STATION AND THE FACP AND POWERS THE ENTIRE CIRCUITRY.

WIRING:
1. ALL WIRING TO COMPLY WITH LOCAL CODE.
2. CONDUCTORS MUST TEST FREE OF ALL GROUNDS.
3. MAINTAIN CORRECT POLARITY
4. IDNET LINES ARE TO BE 18 AWG TWISTED SHIELDED PAIR
5. MAXIMUM LINE RUN FROM PANEL TO FARTHEST DEVICE NOT TO EXCEED 2500 FEET.
6. MAXIMUM TOTAL WIRE (INCLUDING ALL T–TAPS) FROM PANEL NOT TO EXCEED 10,000 FEET.
7. MAXIMUM QUANTITY OF DEVICES PER CIRCUIT: 250
8. TERMINALS 1 AND 2 FOR FIELD WIRING. TERMINALS 3 AND 4 ARE FACTORY WIRING.
9. WIRE NUT, SPLICE, OR SOLDER THE SHIELD WIRES.
10. IF SHIELD IS PRESENT, IT SHOULD BE CONNECTED TO THE OUTGOING IDNET SHIELD TO PROVIDE A CONTINUOUS SHIELD OVER THE LENGTH OF THE IDNET CHANNEL. SHIELD SHOULD BE INSULATED FROM THE ELECTRICAL BOX.
11. SEE INSTALLATION INSTRUCTIONS 574–332



CITY OF AURORA
BUILDING DIVISION
APPROVED AS NOTED
DATE 7/12/12

NICET CERTIFICATION

TECHNICAL AREA 00303: LEVEL IV
CERTIFICATE #: 109355
VALID THROUGH: 09/01/12

JAMES COOLEY — DATE

NICET CERTIFIED

12-608156

24" x 36"

tyco / Fire & Security / SimplexGrinnell
6240 SMITH ROAD
DENVER, COLORADO 80216
SALES: (303) 355-0500
SERVICE: (303) 355-0500
FAX: (303) 355-0515

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NO.	DATE	REVISION DESCRIPTION

FIRE ALARM SYSTEM FOR:
2ND FLR. POSTPARTUM NICU
MEDICAL CENTER OF AURORA
1501 SOUTH POTOMAC STREET
AURORA, CO 80012

DRAWN BY: GT	DATE: 06/12/12
DESIGNED BY: GT	DATE: 06/12/12
APPROVED BY: JWC	DATE: 06/13/12

PROJECT #: 962976202
SCALE: N.T.S.
SHEET TITLE: PERIPHERAL WIRING
SHEET NUMBER: FA5.01

WHEELOCK MODEL RSS-24MCW-FR VISUAL (WALL MOUNTED)
WHEELOCK MODEL RSS-24MCC-FR VISUAL (CEILING MOUNTED)

PRODUCT INFORMATION

FEATURES:
- UL LISTED TO STANDARD 1971
- UL LISTED TO STANDARD 464 (NEW YORK CITY)
- CALIFORNIA STATE FIRE MARSHAL (CSFM) APPROVED
- FACTORY MUTUAL (FM) APPROVED
- CHICAGO (BFP) APPROVED
- ADA/NFPA/UFC/ANSI COMPLIANT

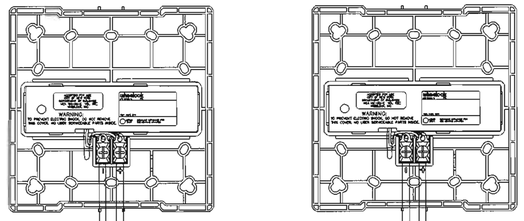
SYNCHRONIZATION FLASH RATE MODE FOR USE WITH:
- STROBES CAN BE SYNCHRONIZED USING WHEELOCK SYNC MODULE OR POWER SUPPLIES WITH BUILT IN SYNC PROTOCOL

SPECIFICATIONS:
- WALL MOUNTED MODULES W/FIELD SELECTABLE CANDELA SETTING OF 15/30/75/110/135/185 CANDELA
- CEILING MOUNTED MODULES W/FIELD SELECTABLE CANDELA SETTING OF 15/30/75/95/115/117 CANDELA
- TEMPERATURE RANGE: 32° TO 120°F (0° TO 49°C) AND HUMIDITY OF 93% ±
- TERMINAL BLOCKS FOR 18AWG TO 12AWG; TWO WIRES PER TERMINAL FOR IN/OUT WIRING.

WIRING:
1. MAINTAIN CORRECT POLARITY ON TERMINAL CONNECTIONS. DO NOT LOOP WIRES UNDER TERMINALS.
2. ALL NAC WIRING CONNECTIONS ARE SUPERVISED AND POWER-LIMITED.
3. SEE INSTALLATION INSTRUCTIONS (P/N 83911W) FOR ADDITIONAL INFORMATION.

RATINGS:
- RATED VOLTAGE RANGE: VISUALS: 16 VDC TO 33 VDC ON 24V UNITS
- FLASH RATE: 1 FLASH PER SECOND OVER THE REGULATED VOLTAGE RANGE

24VDC MODELS	WALL MOUNTED VISUALS						CEILING MOUNTED VISUALS					
	24MCW						24MCW-H		24MCC		24MCCH	
	15cd	30cd	75cd	110cd	135cd	185cd	15cd	30cd	75cd	95cd	115cd	177cd
24vdc	0.041	0.063	0.109	0.140	0.195	0.270	0.045	0.070	0.119	0.159	0.185	0.270
16.7vrms	0.060	0.092	0.165	0.220	0.300	0.420	0.065	0.105	0.189	0.249	0.300	0.420



FROM FACP 24VDC NOTIFICATION APPLIANCE CIRCUIT OR FROM FACP 24VDC NON-CODED NOTIFICATION APPLIANCE CIRCUIT WITH WHEELOCK SM OR DSM SYNC MODULE OR PRECEDING DEVICE

TO ADDITIONAL NAC DEVICES OR RETURN TO FIRE ALARM CONTROL PANEL FOR STYLE Z APPLICATION. IF LAST DEVICE ON CIRCUIT IN A STYLE Y APPLICATION PLACE A 10K 1/2W END-OF-LINE RESISTOR.

4090-9002 IDNet, INDIVIDUAL ADDRESSABLE MODULE RELAY WITH DAMPER

PRODUCT INFORMATION

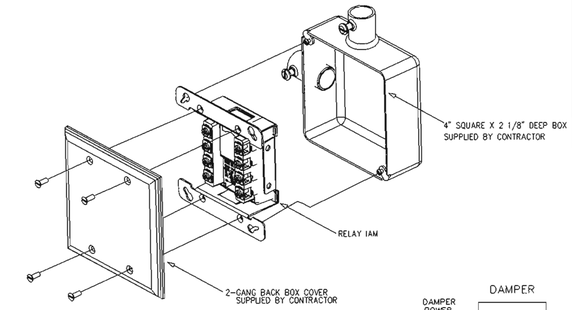
FEATURES:
- UL LISTED
- A SINGLE ADDRESSABLE POINT BOTH CONTROLS A 2A FORM "C" CONTACT AND TRACKS ITS STATUS
- LATCHING RELAY DESIGN ALLOWS DATA AND POWER TO BE BOTH SUPPLIED BY IDNet COMMUNICATIONS
- COMPACT, SEALED CONSTRUCTION:
  - SCREW TERMINALS FOR WIRING CONNECTIONS
  - REDUCES DUST INFILTRATION

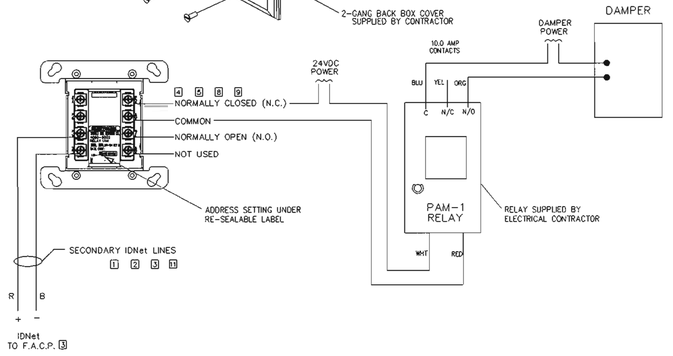
SPECIFICATIONS:
- RELAY IAM POWER: SUPPLIED BY IDNet COMMUNICATIONS
- RELAY IAM CONTACTS (FORM "C", SPDT)
- POWER LIMITED RATING: 2A @ 24VDC, TRANSIENT SUPPRESSED LOADS, 1A @ 24VDC FOR INDUCTIVE LOADS
- NON POWER LIMITED RATING: 1/2A @ 24VAC, TRANSIENT SUPPRESSED LOADS, 1A @ 24 VDC FOR INDUCTIVE LOADS
- WIRE CONNECTIONS: SCREW TERMINALS FOR IN/OUT WIRING, #18 TO #14 AWG WIRE
- COMPATIBLE WITH SIMPLEX 2081-9044 OVER VOLTAGE PROTECTORS
- DIMENSIONS: 4 1/8"H x 4 1/8"W x 1 3/8"D (105mm x 105mm x 35mm)
- HOUSING MATERIAL: BLACK THERMOPLASTIC
- MOUNTING PLATE MATERIAL: SHEET METAL, GALVANIZED
- TEMPERATURE RANGE: 32° F TO 120° F (0° C TO 49° C) INTENDED FOR INDOOR OPERATION.
- HUMIDITY RANGE UP TO 93% RH AT 100° F (38° C)

DESCRIPTION:

IDNet RELAY IAMS ALLOW THE SIMPLEX 4010 FIRE ALARM CONTROL PANEL TO CONTROL A REMOTELY LOCATED FORM "C" CONTACT USING IDNet ADDRESSABLE COMMUNICATIONS FOR BOTH DATA AND POWER. TYPICAL APPLICATIONS WOULD BE FOR SWITCHING LOCAL POWER FOR CONTROL FUNCTIONS SUCH AS ELEVATOR CAPTURE, OR CONTROL OF HVAC COMPONENTS, PRESSURIZATION FANS, DAMPERS, ETC. RELAY STATUS IS ALSO COMMUNICATED REQUIRING ONLY ONE DEVICE ADDRESS.

WIRING NOTES:
1. IDNet LINES ARE TO BE #18 AWG TWISTED PAIR (CONSULT STI SALES ENGINEERING FOR EXCEPTIONS) SHIELD RECOMMENDED.
2. MAXIMUM ALLOWABLE LINE RUN, FROM F.A.C.P. TO FARTHEST DEVICE, NOT TO EXCEED 2500 FEET.
3. MAXIMUM QUANTITY OF DEVICES PER CIRCUIT: 250.
4. CONTRACTOR WIRING TO RELAY CONTACTS IS UNSUPERVISED. USE #14 AWG WIRE TO LOCAL CODE.
5. RELAY CONTACTS RATED 2A, 24VDC (1A FOR INDUCTIVE LOAD) RELAY CONTACTS RATED 0.5A 120VAC (NON POWER LIMITED) FOR POWER-LIMITED OPERATION, POWER MUST BE PROVIDED FROM FACP OR POWER-LIMITED POWER SUPPLY LISTED FOR FIRE PROTECTIVE SIGNALING USE.
6. SEE INSTALLATION INSTRUCTIONS 574-154.
7. IF SHIELD IS PRESENT, IT SHOULD BE CONNECTED TO THE OUTGOING IDNet SHIELD TO PROVIDE A CONTINUOUS SHIELD OVER THE LENGTH OF THE IDNet CHANNEL.
8. WHEN CONNECTED TO A NON POWER-LIMITED SOURCE, THE WIRING MUST MAINTAIN A MINIMUM 1/4 INCH SEPARATION FROM IDNet WIRING.
9. WHEN USED WITH NON POWER-LIMITED SOURCE, THE "POWER LIMITED WIRING" INDICATION ON THE DEVICE LABEL MUST BE OBLITERATED.
10. WHEN BOTH POWER-LIMITED AND NON POWER-LIMITED SOURCES ARE PRESENT, USE TYPE FPL, FPLR OR FPLP POWER LIMITED CABLE FOR POWER-LIMITED CIRCUITS.
11. MAXIMUM TOTAL WIRE (INCLUDING ALL T-TAPS) ON CIRCUIT, FROM F.A.C.P. NOT TO EXCEED 10,000 FEET OR .5Ω Ω. (CLASS B ONLY)
12. REFER TO FIELD WIRING DIAGRAM 842-073

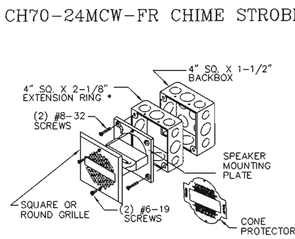




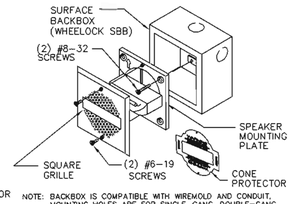
WHEELOCK MODEL CH70-24MCW-FR CHIME STROBE

SPECIFICATIONS

STROBE CANDELA	ANECHOIC PEAK dBA @ 10 FEET	dBA AT 10 FT. REVERBERANT		RATED STROBE AVERAGE CURRENT @ 24VDC	RATED CHIME AVERAGE CURRENT @ 24VDC
		MIN.	MAX.		
15	83	52	58	.050	.020
30	83	52	58	.081	.020
75	83	52	58	.133	.020
110	83	52	58	.161	.020

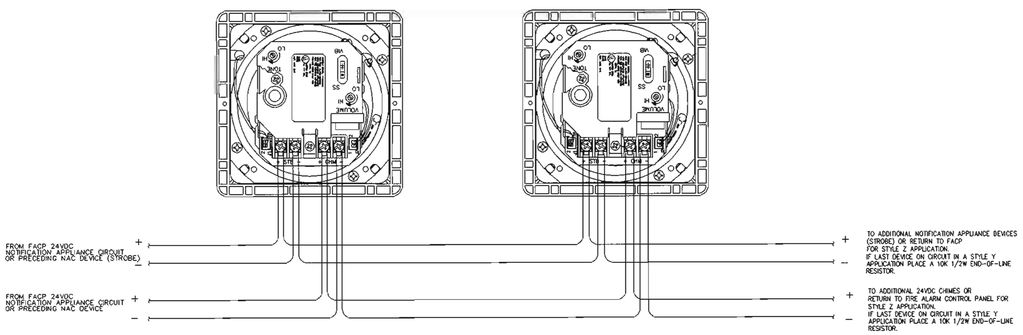


FLUSH MOUNTING



NOTE: BACKBOX IS COMPATIBLE WITH WIREMOLD AND CONDUIT, MOUNTING HOLES ARE FOR SINGLE-GANG, DOUBLE-GANG, 4" SQ. 3-1/2" & 4" OCTAGON OR ROUND BACKBOXES.

SURFACE MOUNTING



DSM-12/24-R SYNC MODULE WITH A/V DEVICES AND V/O DEVICES

SPECIFICATIONS

MODEL NUMBER	INPUT VOLTAGE	UL MAX CURRENT (AMPERES) AT 24 VDC
DUAL CIRCUIT DSM SYNC MODULE		
DSM-12/24-R	24	.055

▲ WARNING: MAKE SURE THAT THE TOTAL CURRENT REQUIRED BY ALL APPLIANCES THAT ARE CONNECTED TO A DSM DOES NOT EXCEED 3 AMPS OR EXCEED THE RATING OF THE FACP ALARM CONTROL PANEL'S PRIMARY AND SECONDARY POWER SOURCES AND NAC CIRCUITS. OVERLOADING THESE SOURCES COULD RESULT IN LOSS OF POWER AND FAILURE TO ALERT OCCUPANTS DURING AN EMERGENCY, WHICH COULD RESULT IN PROPERTY DAMAGE AND SERIOUS INJURY OR DEATH TO YOU AND/OR OTHERS.

▲ WARNING: MAKE SURE THAT ALL FUSES USED ON NAC CIRCUITS ARE RATED TO HANDLE THE MAXIMUM AMBUSH OR PEAK CURRENT FROM ALL APPLIANCES ON THOSE CIRCUITS. FAILURE TO DO THIS MAY RESULT IN LOSS OF POWER TO THE NAC CIRCUIT AND THE FAILURE OF ALL APPLIANCES ON THAT CIRCUIT TO OPERATE, WHICH COULD RESULT IN PROPERTY DAMAGE AND SERIOUS INJURY OR DEATH TO YOU AND/OR OTHERS.

NOTE: POWER BOOSTERS MAY BE USED IN CONJUNCTION WITH THE SM OR DSM MODULES. REFER TO DSM INSTALLATION INSTRUCTIONS FOR PROPER APPLICATION OR INSTALLATION OR, FIG. 1 ON THIS SHEET.

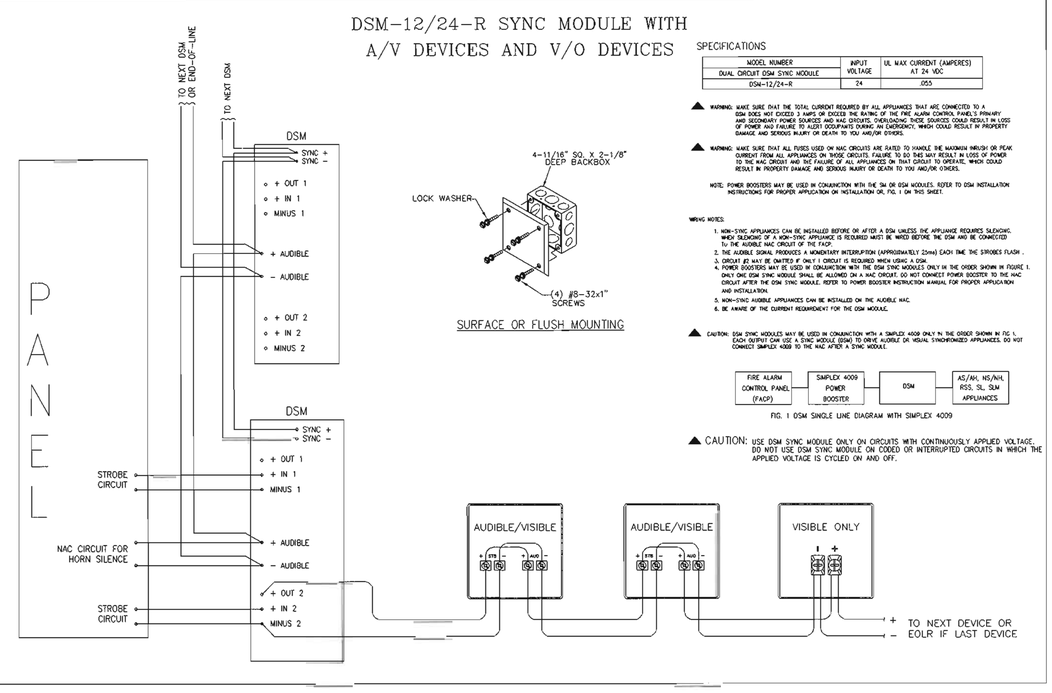
WIRING NOTES:
1. NON-SYNC APPLIANCES CAN BE INSTALLED BEFORE OR AFTER A DSM UNLESS THE APPLIANCE REQUIRES SILENCING. WHEN SILENCING OF A NON-SYNC APPLIANCE IS REQUIRED MUST BE WIRED BEFORE THE DSM AND BE CONNECTED TO THE AUDIBLE NAC CIRCUIT OF THE FACP.
2. THE AUDIBLE SIGNAL PRODUCES A MOMENTARY INTERRUPTION (APPROXIMATELY 25ms) EACH TIME THE STROBES FLASH.
3. CIRCUIT #2 MAY BE OMITTED IF ONLY 1 CIRCUIT IS REQUIRED WHEN USING A DSM.
4. POWER BOOSTERS MAY BE USED IN CONJUNCTION WITH THE DSM SYNC MODULES ONLY IN THE ORDER SHOWN IN FIGURE 1. ONLY ONE DSM SYNC MODULE SHALL BE ALLOWED ON A NAC CIRCUIT. DO NOT CONNECT POWER BOOSTER TO THE NAC CIRCUIT AFTER THE DSM SYNC MODULE. REFER TO POWER BOOSTER INSTRUCTION MANUAL FOR PROPER APPLICATION AND INSTALLATION.
5. NON-SYNC AUDIBLE APPLIANCES CAN BE INSTALLED ON THE AUDIBLE NAC.
6. BE AWARE OF THE CURRENT REQUIREMENT FOR THE DSM MODULE.

▲ CAUTION: DSM SYNC MODULES MAY BE USED IN CONJUNCTION WITH A SIMPLEX 4009 ONLY IN THE ORDER SHOWN IN FIG 1. EACH OUTPUT CAN USE A SYNC MODULE (DSM) TO DRIVE AUDIBLE OR VISUAL SYNCHRONIZED APPLIANCES. DO NOT CONNECT SIMPLEX 4009 TO THE NAC AFTER A SYNC MODULE.

FIRE ALARM CONTROL PANEL (FACP) → SIMPLEX 4009 POWER BOOSTER → DSM → AS/AH, NS/NH, RSS, SL, SLM APPLIANCES

FIG. 1 DSM SINGLE LINE DIAGRAM WITH SIMPLEX 4009

▲ CAUTION: USE DSM SYNC MODULE ONLY ON CIRCUITS WITH CONTINUOUSLY APPLIED VOLTAGE. DO NOT USE DSM SYNC MODULE ON CODED OR INTERRUPTED CIRCUITS IN WHICH THE APPLIED VOLTAGE IS CYCLED ON AND OFF.



NICET CERTIFICATION

TECHNICAL AREA 00303: LEVEL IV
CERTIFICATE #: 109355
VALID THROUGH: 09/01/12

JAMES COOLEY — DATE

NICET CERTIFIED

12-608156

CITY OF AURORA
BUILDING DIVISION
APPROVED AS NOTED JMP
DATE 7/12/12

24" x 36"

tyco / Fire & Security / SimplexGrinnell

6240 SMITH ROAD
DENVER, COLORADO 80216
SALES: (303) 355-0500
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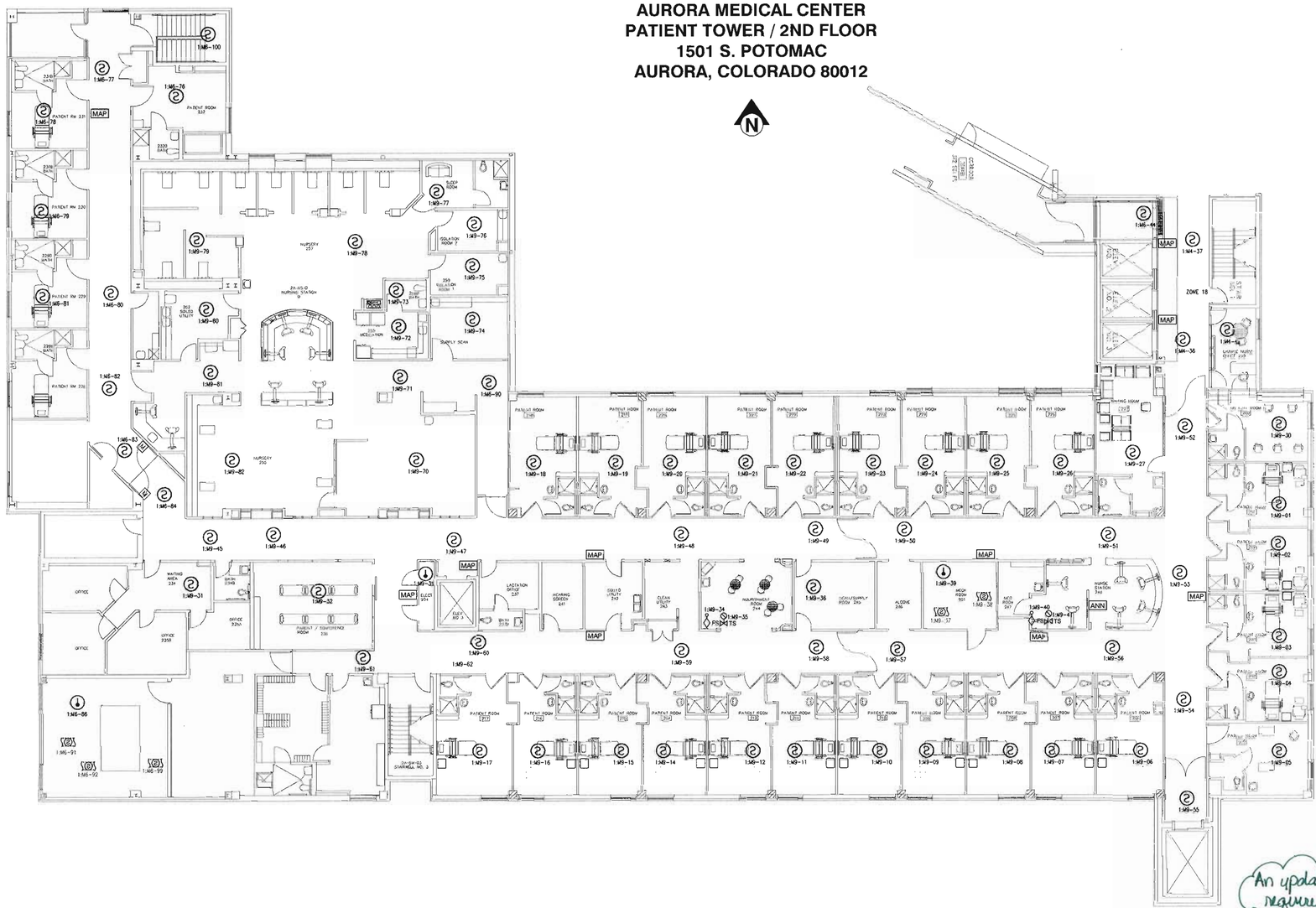
NO.	REVISION DESCRIPTION	DATE

FIRE ALARM SYSTEM FOR:
2ND FLR. POSTPARTUM NICU
MEDICAL CENTER OF AURORA
1501 SOUTH POTOMAC STREET
AURORA, CO 80012

DRAWN BY: GT	DATE: 06/12/12
DESIGNED BY: GT	DATE: 06/12/12
APPROVED BY: JWC	DATE: 06/13/12
PROJECT #: 962976202	
SCALE: N.T.S.	
SHEET TITLE: PERIPHERAL WIRING	
SHEET NUMBER: FA5.02	

AS OF 6-13-2012

AURORA MEDICAL CENTER
PATIENT TOWER / 2ND FLOOR
1501 S. POTOMAC
AURORA, COLORADO 80012



LEGEND:

- ANN LCD ANNUNCIATOR
- MAP GRAPHIC MAP
- S SMOKE DETECTOR
- H HEAT DETECTOR
- F MANUAL PULL STATION
- DS DUCT DETECTOR
- FS WATERFLOW SWITCH
- TS TAMPER SWITCH

An updated Graphic map is required before final signoff of this permit.

CITY OF AURORA
BUILDING DIVISION
APPROVED AS NOTED JMP
DATE 7/12/12

12-608156

NICET CERTIFIED

NICET CERTIFICATION

TECHNICAL AREA 00303: LEVEL IV
CERTIFICATE #: 109355
VALID THROUGH: 09/01/12

JAMES COOLEY _____ DATE _____

SECOND FLOOR POSTPARTUM NICU

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Denver (303)-355-0500

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SALES: (303) 355-0500
SERVICE: (303) 355-0500
FAX: (303) 355-0615

NO.	DATE	REVISION DESCRIPTION

FIRE ALARM SYSTEM FOR:
2ND FLR. POSTPARTUM NICU
MEDICAL CENTER OF AURORA
1501 SOUTH POTOMAC STREET
AURORA, CO 80012

DRAWN BY: CT	DATE: 06/12/12
DESIGNED BY: CT	DATE: 06/12/12
APPROVED BY: JWC	DATE: 06/13/12
PROJECT #: 962976202	
SCALE: N.T.S	
SHEET TITLE: POSTPARTUM GRAPHIC MAP	
SHEET NUMBER: FA6.02	

24" x 36"

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SHOP DRAWING / SUBMITTAL REVIEW FORM

☐	No Exceptions Taken	REVIEW IS SOLELY FOR GENERAL CONFORMANCE WITH THE DESIGN CONCEPT. THIS REVIEW DOES NOT RELIEVE THE CONTRACTOR FROM TOTAL RESPONSIBILITY FOR QUANTITIES, ERRORS, OMISSIONS OR COMPLIANCE WITH THE INTENT OF THE CONTRACT DOCUMENTS. REVIEW AND APPROVAL BY CONTRACTOR IS REQUIRED BEFORE FABRICATION, SHIPMENT OR INSTALLATION. ANY ACTION SHOWN IS SUBJECT TO THE REQUIREMENTS OF THE PLANS AND SPECIFICATIONS. CONTRACTOR IS RESPONSIBLE FOR: DIMENSIONS WHICH SHALL BE CONFIRMED AND CORRELATED AT THE JOB SITE. ALL REVISED SUBMITTALS MUST BE RETURNED BY CONTRACTOR WITHIN 15 DAYS FROM RECEIPT OF THE ORIGINAL SUBMITTAL REVIEW.
☐	Make Corrections Noted	
☐	Revise and Resubmit	
☐	Rejected	
☒	Reviewed	

SUBMITTAL NUMBER/ REGISTER NUMBER:	13850.01	PROJECT NAME:	The Medical Center of Aurora - LDRP
SUBMITTAL NAME:	Fire Alarm Product Data & Shop Drawings	CCRD PROJECT NO.:	811091
RELATED SPECIFICATION:	Fire Protection	REVIEWER'S NAME:	Chris Longstreet
DATE RECEIVED:	6/14/2012	DATE REVIEWED:	6/18/2012

REMARKS: 1. Reviewed.

END OF SUBMITTAL REVIEW

12-608156

Weifield Group

contracting • consulting

LEEDing the way in electrical construction

MCOA L&D RENOVATION

SUBCONTRACT # 110169-010

JOB #SP1-009

WEIFIELD GROUP CONTRACTING LLC

SPEC. SECTION # 16000

SUBMITTAL # 06

June 28, 2012

12-608156

Owners Project #TBD

CONTACT INFORMATION SHEET

SPEC. SECTION # 16000
SUBMITTAL # 06
June 28, 2012

GENERAL CONTRACTOR:

Howell Construction
550 Lipan Street
Denver, CO 80204
Phone: 303.825.6257
Fax: 303.575.1596

OWNER:

The Medical Center of Aurora
1501 S. Potomac St.
Aurora, CO 80012
Phone: 303.873.4895

ARCHITECT:

Tom Thompson
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Phone: 720.989.6084

ELECTRICAL CONTRACTOR:

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146 Yuma Street
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Fax: 303.202.0466

ELECTRICAL ENGINEER:

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Phone: 303.694.4755
Fax: 303.694.5125

SUPPLIER:

SimplexGrinnell
6240 Smith Road
Denver, CO 80216
Phone: 303.355.0500
Fax: 303.355.0615

12-608156

APPROVAL FORM

SPEC. SECTION # 16000
SUBMITTAL # 06
June 28, 2012

Weifield Group contracting · consulting *LEEDing the way in electrical construction* *ELECTRICAL CONTRACTOR:* *Weifield Group Contracting, LLC*	*GENERAL CONTRACTOR:* *Howell Construction*
Reviewed By: Dustin Tafoya Date Reviewed: 6/28/12 [X] Approved [ ] Approved as noted [ ] Approved/Resubmittals Required	
ELECTRICAL ENGINEER: *CCRD Partners* 12-608156	*ARCHITECT:* *Tom Thompson*

INDEX OF ITEMS

SPEC. SECTION # 16000
SUBMITTAL # 06
June 28, 2012

Fire Alarm System

TAB #1 - Product Data
TAB #2 - Drawings

12-608156

tyco
Fire &
Security

SimplexGrinnell

SIMPLEXGRINNELL
6240 Smith Road
Denver, Colorado 80216

www.simplexgrinnell.com

Tele: (303) 355-0500
Fax: (303) 355-0615

Fire Alarm
Product Data Submittal for:

Medical Center of Aurora
2nd Flr. Postpartum NICU
1501 S. Potomac Street
Aurora, CO 80012

12-608156

Prepared for:

Weifield Group Contracting
~~550 Lipan St~~ 146 YUMA ST
~~Denver, CO 80204~~ DENVER, CO 80233

SimplexGrinnell

6240 Smith Road
Denver, Colorado 80401
Sales: (303) 355-0500
Service: (303) 355-0500
Fax: (303) 355-0615

12-608156

PROJECT:	Medical Center of Aurora 2nd Flr. Postpartum NICU
PREPARED FOR:	*Weifield Group Contracting*

TYPE:	***DESCRIPTION:***
4100-9600	BASIC TRANSPONDER
4100-0634	POWER DISTRIBUTION MODULE 120V
4100-3107	IDNET+ W/QUAD ISOLATOR 246PT
4100-5125	RPS POWER, 3 NACS, 120VAC
41002162	INDICATOR ONLY 2BAY SOLID
4100-7150	4100ES UPGRADE
4098-9714	PHOTO SENSOR
4098-9733	HEAT SENSOR
4098-9792	SENSOR BASE
4098-9756	DUCT SENSOR HOUSING-4-WIRE
2098-9806	REMOTE TEST STATION
4099-9003	MANUAL STATION - DOUBLE ACTION
4090-9001	SUPERVISED IAM
4090-9002	RELAY IAM
CH70-24MCW-FW	24VDC SELECTABLE15/30/75/110CD
RSS-241575W-FW	STROBE 24 VDC, 15/75 CD, WHITE
DSM-12/24-R	1 CLASS A OR 2 CLASS B CKT
2081-9274	BATTERY 10AH
2081-9276	BATTERY 33AH
2975-9451	2 BAY BOX & SOLID DOOR PLATINUM
40490-9810	BRACKET, IAM
40490-9802	COVER-ADDRESSABLE MODULE SURFACE
4081-9004	EOL, 6.8K 1/2W
4081-9008	EOL, 10K 1/2W
4603-9101	LCD ANNUNCIATOR
4603-9111	6 GANG ALUM TRIM PLATE

Simplex

UL, ULC, CSFM Listed; FM Approved;
*MEA (NYC) Acceptance**

4100U Fire Control Panels

Addressable Fire Detection and Control MINIPLEX® Transponders

Features

4100U Series MINIPLEX transponders allow remotely located initiating and notification functions:

- Transponder operation is available as standard or with local mode operation
- Communications with the host fire alarm control panel use the Remote Unit Interface (RUI) format

Initiating functions include:

- Conventional initiating device circuit (IDC) support
- Addressable device support including TrueAlarm® analog sensor compatibility**

Notification functions include:

- Conventional DC notification appliance circuits
- Emergency voice/alarm communications
- TrueAlert® addressable strobe and horn notification

Local mode operation provides:

- Default local initiating and notification operation in the event of a communications loss with the host control panel
- Enabling of an optional Local Mode Controller with a local alarm sounder, LED status indicators, and keyswitch enabled control switches
- Support for IDNet™ addressable devices, conventional and TrueAlert addressable notification appliances, and default output tones from local amplifiers**

Optional modules include:

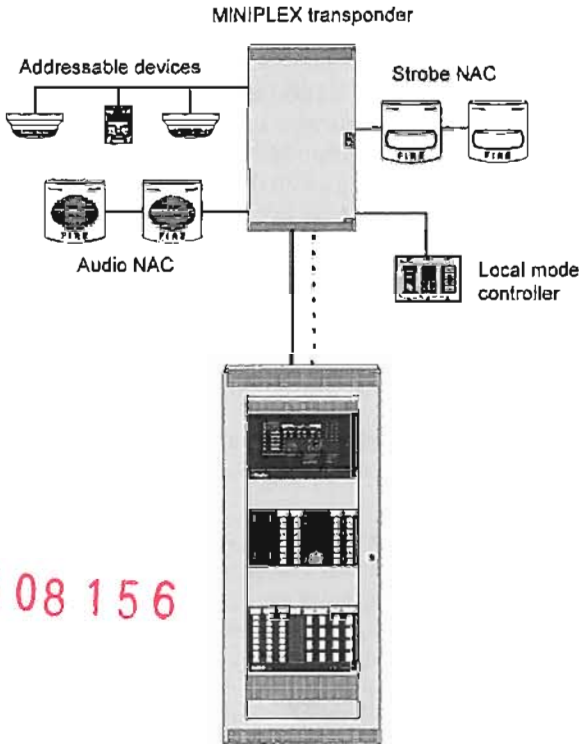
- Digital or Analog audio riser modules for connection to system audio signals
- Digital or analog input audio amplifiers with integral on-board NACs
- Power supplies with or without battery chargers
- City Connect modules and RS-232 ports for printers or maintenance terminals
- Alarm relays, auxiliary relays, additional IDC modules, and NAC expansion modules

Cabinets are equipped with solid doors (beige or red) and in one, two, or three bay sizes

Listed to:

- UL Std. 864, Fire Detection and Control (UOJZ), and Smoke Control Service (UUKL)
- UL Std. 2017, Process Management Equipment (QVAX)
- UL Std. 1076, Proprietary Alarm Units-Burglar (APOU)
- UL Std. 1730, Smoke Detector Monitor (UULH)
- ULC Std. S527-99

* See pages 4 and 5 for product that is listed as UL or ULC. This product has been approved by the California State Fire Marshal (CSFM) pursuant to Section 13144.1 of the California Health and Safety Code. See CSFM Listing 7165-0026:251 for allowable values and/or conditions concerning material presented in this document. It is subject to re-examination, revision, and possible cancellation. Accepted for use – City of New York Department of Buildings – MEA35-93E. Additional listings may be applicable; contact your local Simplex product supplier for the latest status. Listings and approvals under Simplex Time Recorder Co. are the property of Tyco Safety Products Westminster.



Typical 4100U MINIPLEX System One-Line Drawing

Introduction

4100U MINIPLEX transponders connect to a host 4100U Fire Alarm Control Panel using Simplex® remote unit interface (RUI) communications. At the transponder, RUI communications are received by the transponder interface module and translated into the same internal communications format that is used in the host control panel.

Remotely located modules. With RUI communications, the transponder can remotely provide the same initiating and notification functions that occur at the host control panel without requiring multiple long distance wiring runs. Connections to the host panel are low current communications and audio wiring with distances up to 2500 ft (762 m).

Software Revisions. Some of the features detailed and products listed in this document may require the latest 4100U System Software Revision and/or hardware updates. Contact your local Simplex® product supplier for details.

** Simplex fire alarm technology is protected by the following U.S. Patent Numbers: TrueAlarm analog smoke detection: 5,155,468; 5,173,683 and 5,543,777. IDNet and MAPNET II addressable communications, 4,796,025. TrueAlert addressable notification; 6,313,744 and 6,426,697. SmartSync horn/strobe control; 6,281,789. Flex-35 and Flex-50 amplifier operation; 6,452,481.

Introduction *(Continued)*

Please refer to document S4100-0031 and the other documents listed on page 3 for additional information concerning the extensive initiating and notification features of the 4100U fire alarm control panels.

Module Bay Description

Transponder model 4100-9600 includes a bay assembly, a power distribution interface module (PDI), a Basic Transponder Interface Module, and an interconnect harness. Communications with the host fire alarm control panel are via a Remote Unit Interface (RUI) connection that allows for up to 2500 ft (762 m) distance. RUI can communicate with up to a total of 31 remote devices and can be either Style 4 or Style 7 communications.

Transponder model 4100-9601 substitutes a Local Mode Transponder Module for the Basic Transponder Module.

Optional Expansion Bays each include a PDI and accept a variety of optional modules (refer to list starting on page 4).

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The Battery Compartment (bottom) accepts two batteries, up to 50 Ah, that can be mounted within the cabinet. Battery mounting does not interfere with available module space. A power supply with battery charger is required for each battery set.

Packaging Availability

- Modules are power-limited (except as noted, such as relay modules)
- Enclosure are available for one, two, or three bay sizes or for cabinet rack mounting
- Boxes and solid doors are available in beige or red (ordered separately)
- Up to eight close-nippled cabinets can be connected at one transponder location (close-nippled is mounted within 20 ft (6 m) and with interconnecting wiring enclosed in conduit)
- Refer to document S4100-0037 for enclosure details

Local Mode Control Operation

Default Stand-Alone Operation. In the event of a communications loss with the host fire alarm control panel, model 4100-9601 MINIPLEX Local Mode Transponders provide fire alarm response default operation for its connected devices and appliances per the following.

Input Operation. During local mode operation, TrueAlarm initiating devices connected to the transponder will cause an alarm at their least sensitive alarm threshold.

- Photoelectric sensors will alarm at 3.7%/ft smoke obscuration
- Ionization sensors will alarm at 1.3%/ft obscuration
- Heat sensors will alarm at a fixed temperature of 135° F (57° C)
- TrueAlarm device LEDs will be activated to indicate a device in alarm

Local Mode Control Operation *(Continued)*

Notification Operation. Fire alarm conditions reported against a fire alarm point type within a transponder in local mode will cause all notification appliance circuits in that transponder to:

- Sound a general alarm temporal pattern horn tone
- Activate visible notification appliance circuits

Local Mode Module Support. Local mode operation provides support for the following 4100U modules:

- System Power Supplies (SPS), Expansion Power Supplies (XPS), and Remote Power Supplies (RPS), including on-board notification appliance circuits (NACs) and expansion signal modules, operated at a temporal pattern,
- TrueAlert Power Supplies (TPS) including the on-board signaling line circuits (SLCs)
- IDNet addressable device circuits, including those on-board the SPS, IDNet expansion modules, and the quad isolator when used for IDNet communications
- 4100U amplifiers will provide their on-board horn tones (500 Hz) at a temporal pattern through their on-board amplifier NACs

Local Mode Operation Module Exclusion. Modules not listed above but that are listed as compatible with MINIPLEX transponders per this document, do not interfere with local mode operation but **are not supported** during local mode operation.

Local Mode Controller

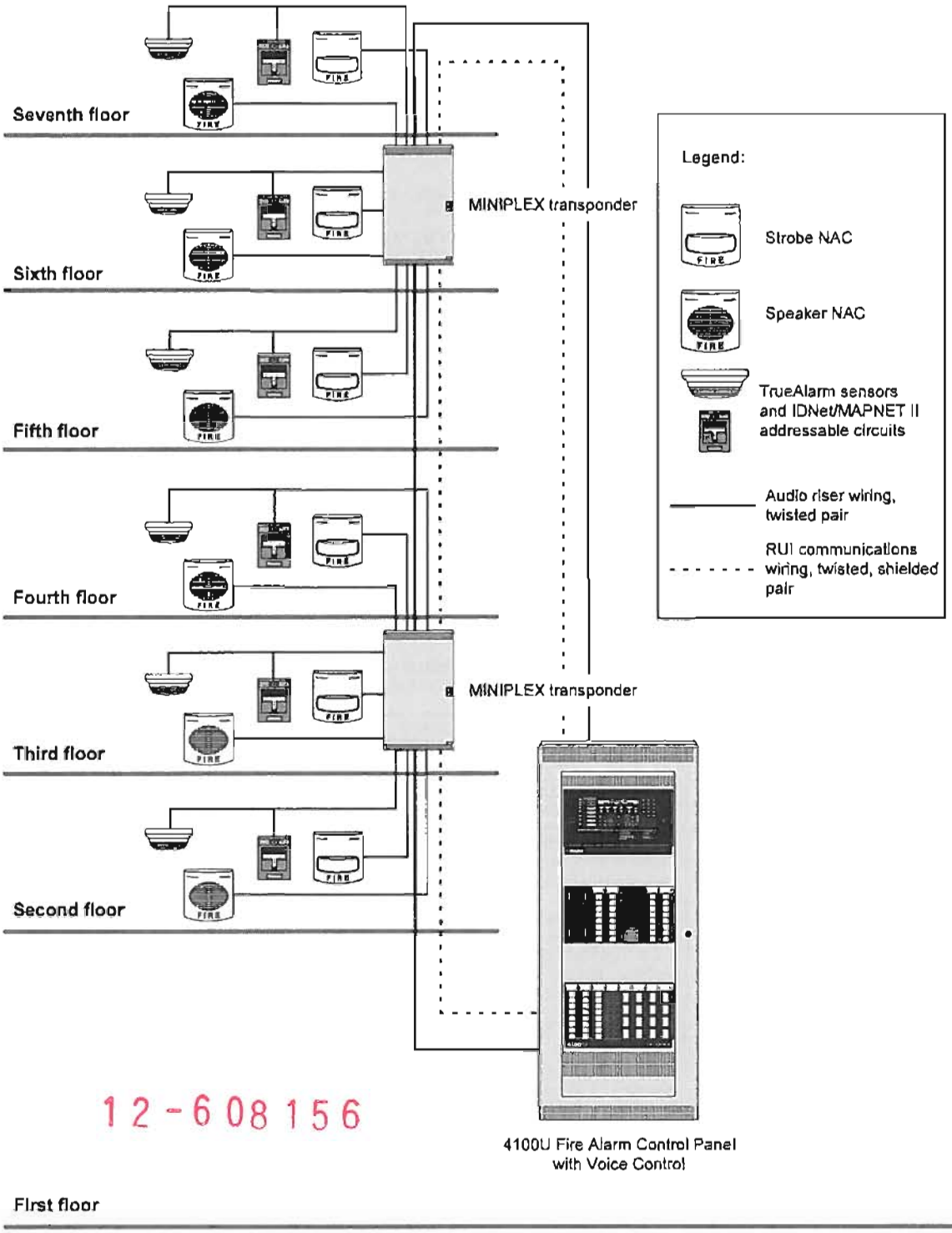
Operation. During local mode operation, an optional Local Mode Controller will indicate status (see illustration below) and can be enabled using a keyswitch to perform local alarm silence or reset. If alarms occurring during local mode are reset using a Local Mode Controller, upon restoration of communications, **those alarms will not be sent to the master controller.** If alarms are still present upon restoration of communications, then the alarm condition will be reported and host fire alarm control panel programmed alarm functions will occur. When communications are re-established, the local mode transponder restores automatically.

Mounting. Local Mode Controllers are mounted on three-gang plates, are available in beige or red, and for either flush or semi-flush mounting. (See page 7 for details).



Local Mode Controller Module

Typical Multi-Floor MINIPLEX Audio System



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Additional 4100U Data Sheet Reference

Subject	Data Sheet	Subject	Data Sheet
Enclosures	S4100-0037	Basic Panel Modules and Accessories	S4100-0031
LED/Switch Modules	S4100-0032	Network Display Unit (NDU)	S4100-0036
4100U Audio/Phone Modules	S4100-0034	Remote Annunciators	S4100-0038
TrueAlert Addressable Products	S4009-0003	Remote Battery Charger	S4081-0002
IDNet+ Module with Quad Isolator	S4100-0046	Addressable Device Compatibility	S4090-0011

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MINIPLEX Transponder Product Selection

Transponder Type

Model	Description		Supv.	Alarm
4100-9800	Basic Transponder, includes bay equipment with power distribution interface, and 4100-0620 Basic Transponder Interface Module mounted in Block A		87 mA	87 mA
4100-9801	Local Mode Transponder, includes bay equipment with power distribution interface, and 4100-0625 Local Mode Transponder Interface Module mounted in Block A	normal	87 mA	87 mA
		in local mode	112 mA	112 mA

Local Mode Controller Selection

Model	Description				Supv.	Alarm
4601-9108	Flush mount	Red with white lettering	Local Mode Controller, 3-gang plate mounted; flush mount requires a 1-1/2" (38 mm) deep 3-gang box; surface mount controllers include a matching mounting box; see p. 7 for details	normal	12 mA	12 mA
4601-9109	Surface mount					
4601-9110	Flush mount	Beige with black lettering		in local mode	20 mA	60 mA
4601-9111	Surface mount					

Communication Modules

Model	Description			Size	Supv.	Alarm
4100-6031	Select one per SPS	City Circuit, with disconnect switches	For use with SPS only, not RPS	Mounts on SPS or RPS	20 mA	36 mA
4100-6032		City Circuit, without disconnect switches			20 mA	36 mA
4100-6033		Alarm Relay, 3 Form C relays, 2 A @ 32 VDC; for SPS or RPS			15 mA	37 mA
4100-6038	Dual RS-232 Interface			1 Slot	132 mA	132 mA
4100-6045	Decoder Module			3 Slots	85 mA	163 mA
4100-6048	VESDA® Aspiration System Interface			1 Slot	132 mA	132 mA
4100-9816	Master Clock Interface Module with one standard RS-232 port (see S4100-0033)			1 Slot	132 mA	132 mA

Expansion, System, Remote, and TrueAlert Power Supplies and Accessories (XPS, SPS, and RPS are rated 9 A for "Special Application" appliances, 3 A/NAC; and 5 A for "Regulated 24 DC" power, 2 A/NAC; TPS is rated per below)

Model	Voltage/Listing		Description	Size	Supv.	Alarm
4100-5101	120 VAC	UL	**Expansion Power Supply (XPS);** 9 A output; 3 Class A/B NACs; Canadian models have low battery cutout*	2 Blocks	50 mA	50 mA
4100-5103	120 VAC, Canadian	ULC				
4100-5102	220-240 VAC	UL				
4100-5115	NAC Expansion Module, 3 NACs, Class A/B, **mounts on XPS only**			N.A.	25 mA	25 mA
4100-5111	120 VAC	UL	**System Power Supply (SPS);** 9 A power supply/charger with 250 point IDNet channel; 3 Class A/B NACs; expansion slot for City Circuit or Alarm Relay option; Canadian model has low battery cutout*	4 Blocks	175 mA	185 mA
4100-5112	120 VAC, Canadian	ULC				
4100-5113	220-240 VAC	UL				
4100-5125	120 VAC	UL	**Remote Power Supply (RPS);** 9 A power supply/charger similar to SPS except no IDNet channel or City Circuits; will accept one 4100-6033; Canadian model has low battery cutout*	4 Blocks	150 mA	185 mA
4100-5126	120 VAC, Canadian	ULC				
4100-5127	220-240 VAC	UL				
4100-5120	120 VAC	UL	**TrueAlert Power Supply (TPS);** 3, 3 A Class B SLCs for up to 63 TrueAlert addressable (special application) appliances per SLC, 189 per TPS; built-in battery charger; 2 A aux. power output; Canadian model has low battery cutout	4 Blocks	88 mA	100 mA
4100-5121	120 VAC, Canadian	ULC				
4100-5122	220-240 VAC	UL				
4100-5124	TrueAlert SLC Class A Adapter for all 3 SLCs, **mounts on TPS only**			N.A.	10 mA	10 mA
4100-5152	12 VDC Power Option, 2 A maximum			1 Block	1.5 A maximum	
4100-0636	**Box Interconnection Harness Kit (non-audio); order one for each close-nippled cabinet**					

Special Application Appliances	Simplex 4901, 4903, 4904, and 4906 Series horns, strobes, and combination horn/strobes and speaker/strobes (contact your Simplex product representative for compatible appliances)
Regulated 24 DC Appliances	Power for other UL listed appliances; use associated external synchronization modules where required

Miscellaneous Options and Accessories

Model	Description
4100-1290	24 Point I/O Module for external connections, select each point as either a switch input (momentary or maintained) or an output (for lamp/LED/relay); requires 1 Slot (refer to data sheet S4100-0032 for additional information)
4100-0632	Terminal Block Utility Module with 2, 16 position terminal blocks on 4" x 5" single block, for of up to 12 AWG wire (3.31 mm^2)
4100-0633	Door Tamper Switch, connects into Transponder Interface Module, one per cabinet assembly if required
4100-0634	120 VAC — Power Distribution Module (PDM) select per system voltage; **one required per box**
4100-0635	220/230/240 VAC — Power Distribution Module (PDM) select per system voltage; **one required per box**
4100-9837	Green LED Power-on Indicator Kit, **required for ULC listing of MINIPLEX transponder;** mounts on solid door knockout
2081-9031	Series resistor for WSO, IDCs (N.O. water flow and tamper on same circuit, wires after water flow and before tamper) 470 Ω, 1 W, encapsulated, two 18 AWG leads (0.82 mm^2), 2-1/2" L x 1-3/8" W x 1" H (64 mm x 35 mm x 25 mm)

* Standard power supply NACs can provide synchronized strobe or SmartSync™, two-wire operation.

Continued on next page

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MINIPLEX Transponder Product Selection *(Continued)*

Audio Riser Modules

Model	Description	Size	Supv.	Alarm
4100-0621	Dual Channel *Analog* Audio Riser Module; accepts one or two separate audio signals from host control panel; mounts in Block B, is controlled by Transponder Interface Module	1 Block	0 mA	15 mA
4100-0622	3-8 Channel *Digital* Audio Riser Module; similar to analog module, except receives and decodes a digital input signal with up to eight audio channels; with Non-Alarm Audio input	1 Block	70 mA	70 mA

Analog Emergency Voice/Alarm Communications Equipment, Constant Supervision Compatible*

Model	Description		Details		
4100-1361	25 VRMS output	Flex-35, 35 W Amplifier, constant supervision compatible	Includes three on-board Class B audio NACs; power is supplied from an XPS, RPS, or SPS	NAC rating = 1.4 A	35 W, or 100 speakers
4100-1362	70.07 VRMS output			NAC rating = 0.5 A	
4100-1312	25 VRMS output	Flex-50, 50 W Amplifier, constant supervision compatible		NAC rating = 2 A	50 W, or 100 speakers
4100-1313	70.7 VRMS output			NAC rating = 0.707 A	

100 W *Analog* Amplifiers with Power Supply, Constant Supervision Compatible

Model/Output Voltage		Power Supply Input/Listing		Description	Details	
25 VRMS	70.7 VRMS					
4100-1314	4100-1315	120 VAC, 60 Hz	UL	Primary 100 W Amplifier	Includes six, Class B audio NACs; NAC rating = 50 W or 100 speakers maximum; 2 A @ 25 VRMS; 1.4 A @ 70.7 VRMS	ULC models have low battery dropout circuit
4100-1316	4100-1317	120 VAC, 60 Hz	ULC			
4100-1318	4100-1319	220/230/240 VAC, 50/60 Hz	UL			
4100-1320	4100-1321	120 VAC, 60 Hz	UL	Backup 100 W Amplifier	Uses the six Class B NACs of primary amplifier	
4100-1322	4100-1323	120 VAC, 60 Hz	ULC			
4100-1324	4100-1325	220/230/240 VAC, 50/60 Hz	UL			

Digital Emergency Voice/Alarm Communications Equipment*

Model	Description		Details		
4100-1363	25 VRMS output	Flex-35, 35 W Amplifier, constant supervision compatible	Includes three on-board Class B audio NACs; power is supplied from an XPS, RPS, or SPS	NAC rating = 1.4 A	35 W, or 100 speakers
4100-1364	70.07 VRMS output			NAC rating = 0.5 A	
4100-1326	25 VRMS output	Flex-50, 50 W Amplifier, constant supervision compatible		NAC rating = 2 A	50 W, or 100 speakers
4100-1327	70.7 VRMS output			NAC rating = 0.707 A	

100 W *Digital* Amplifiers with Power Supply, Constant Supervision Compatible

Model/Output Voltage		Power Supply Input/Listing		Description	Details	
25 VRMS	70.7 VRMS					
4100-1328	4100-1329	120 VAC, 60 Hz	UL	Primary 100 W Amplifier	Includes six, Class B audio NACs; NAC rating = 50 W or 100 speakers maximum; 2 A @ 25 VRMS; 1.4 A @ 70.7 VRMS	ULC models have low battery dropout circuit
4100-1330	4100-1331	120 VAC, 60 Hz	ULC			
4100-1332	4100-1333	220/230/240 VAC, 50/60 Hz	UL			
4100-1334	4100-1335	120 VAC, 60 Hz	UL	Backup 100 W Amplifier	Uses the six Class B NACs of primary amplifier	
4100-1336	4100-1337	120 VAC, 60 Hz	ULC			
4100-1338	4100-1339	220/230/240 VAC, 50/60 Hz	UL			

Options for use with either Analog or Digital Amplifiers

Model	Description		Details and Mounting Reference	
4100-1245	Flex-35/50 Expansion NAC Module; adds three Class B audio NACs	Choose one per amplifier	Mounts on Flex-35/50 assembly; NAC ratings = 1.5 A, 35/50 W, or 100 speakers maximum; *Supv = 8 mA, Alarm = 60 mA*	
4100-1246	Flex-35/50 Class A Adapter Module; converts three on-board NACS to Class A operation		Mounts on Flex-35/50 assembly; NAC ratings = 2 A, 50 W, or 100 speakers maximum; *Supv =10 mA, Alarm = 30 mA*	
4100-1248	100 W Amplifier Expansion NAC Module; NAC ratings = 1.5 A, 50 W, or 100 speakers max.	Choose one per amplifier	Provides six additional Class B audio NACs, mounts on 100 W amplifier assembly; *Supv = 17 mA, Alarm = 60 mA*	
4100-1249	100 W Class A Adapter Module; NAC ratings = 2 A, 50 W, or 100 speakers max.		Converts six on-board NACs to Class A operation, mounts on 100 W amplifier assembly; *Supv = 1 mA, Alarm = 60 mA*	
4100-1259	25 VRMS Output; NAC rating = 2 A, 50 W, or 100 speakers max.	Constant Supervision Adapter for three NACs; select per amplifier output; not compatible with amplifier NAC expansion modules; deactivated when on batteries	*Supv = 10 mA on batteries; Alarm = 35 mA*	Converts three Class B audio NACS to Class A or Class B Constant Supervision NACs; mounts on Flex-35/50 or 100 W amplifier assembly; use two for the six NACs on 100 W amplifiers
4100-1260	70.7 VRMS Output; NAC rating = 0.707 A, 50 W, or 100 speakers max.		*Supv = 38 mA on batteries; Alarm = 70 mA*	

Firefighters Telephone Options

Model	Description	Size	Supv.	In Use
4100-1272	Expansion Telephone Control Module with three Class B telephone NACS; required when telephone circuits are mounted in transponder;	1 Block	80 mA	130 mA
4100-1273	Telephone Class A Adapter Module; mounts on 4100-1272; no additional current required			

* Refer to document S4100-0034 for additional audio information.

Continued on next page

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MINIPLEX Transponder Product Selection *(Continued)*

Audio Expansion Signal Module and Options

Model	Description	Details and Mounting Reference	
4100-5116	Expansion Signal Module; three, 1.5 A Class B NACs for Audio applications; up to five maximum per amplifier; NAC rating = 1.5 A, 50 W, or 100 speakers maximum	Converts one NAC input to three NAC outputs; selects between two inputs; for Flex-35/50 amplifiers only, two input NACs are required; Single Block module mounts in expansion bay; *Supv = 20 mA; Alarm = 80 mA*	
4100-1266	Expansion Signal Module NAC Expander; NAC rating = 1.5 A, 50 W, or 100 speakers max.	Expands module capacity to six, Class B NACs; *Supv = 0.84 mA; Alarm = 60 mA*	These modules mount on the 4100-5116; select one max. per 4100-5116 as required
4100-1267	Expansion Signal Module Class A Adapter; NAC rating = 1.5 A, 50 W, or 100 speakers maximum	Converts 3 Class B, NACs to Class A; *Supv = 0 mA; Alarm = 30 mA*	
4100-1268	Expansion Signal Module Constant Supervision Adapter; Converts 3 Class B NACs to Constant Supervision Class B or Class A NACs; for 25 VRMS or 70.7 VRMS audio	NAC rating = 1.4 A, 50 W, or 100 speakers max.; *Supv = 38 mA on batteries (constant supervision deactivated); Alarm = 70 mA*	

General Audio Options

Model	Description
4081-9018	End-of-line resistor harness for 70.7 VRMS NACs; 10 kΩ, 1 W
4100-2320	Audio Bay-to-Bay Interconnection Harness Kit; order one for each audio bay addition
4100-0637	Audio Box Interconnection Harness Kit; order one for each close-nippled audio cabinet

Initiating Device Circuits (IDCs)

Model	Description	Size	Supv.	Alarm
4100-5005	Eight zones, Class B	1 Slot	75 mA	195 mA
4100-5015	Eight zones, Class A	1 Slot	75 mA	195 mA

Addressable Interface Modules

Model	Description		Size	Supv.	Alarm
4100-3101	IDNet Module, 250 point capacity	With 250 IDNet devices, add	–	200 mA	250 mA
4100-3104	IDNet Module, 127 point capacity	With 127 IDNet devices, add	–	102 mA	127 mA
4100-3105	IDNet Module, 64 point capacity	With 64 IDNet devices, add	–	51 mA	64 mA
IDNet Modules, Specifications for each capacity; Module size = 1 Block		Module without devices	–	75 mA	115 mA
		Loading per IDNet device	–	0.8 mA	1 mA

Model	Description		Size	Supv.	Alarm
4100-3102	MAPNET II® Module, 127 point capacity, add devices separately; Module size = 2 Slots; Loading per MAPNET II device = 1.7 mA	Module without devices	–	255 mA	275 mA
		Fully loaded module, total	–	471 mA	491 mA
4100-3103	Isolator Module for MAPNET II or IDNet communications; converts one SLC into four isolated Class A or Class B outputs; up to two Modules can be connected to one SLC; NOTE: Compatible with MAPNET II Remote Isolators only; for quad isolation with IDNet Remote Isolators, use 4100-3107 IDNet+ Module (refer to data sheet S4100-0046 for details)		1 Slot	50 mA	50 mA

Relay Modules; Nonpower-Limited

Model	Description	Resistive Ratings		Inductive Ratings		Size	Supv.	Alarm
4100-3202	4 DPDT w/feedback	10 A	250 VAC	10 A	250 VAC	2 Slots	15 mA	175 mA
4100-3204	4 DPDT w/feedback	2 A	30 VDC/VAC	1/2 A	30 VDC/120 VAC	1 Block	15 mA	60 mA
4100-3206	8 SPDT	3 A	30 VDC/120 VAC	1-1/2 A	30 VDC/120 VAC	1 Block	15 mA	190 mA

Current Calculation Notes:

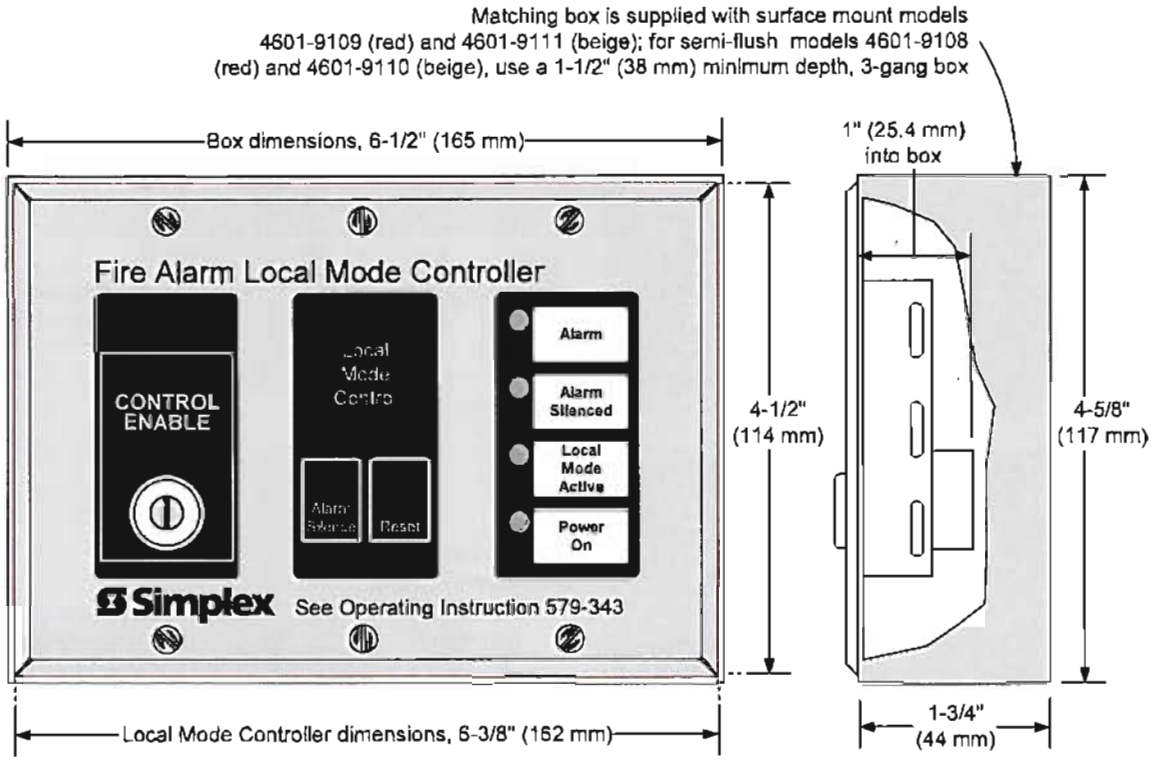
1. For total supervisory current, add panel module currents to base system value and add all external loads panel-powered loads.
2. For total alarm current, add panel module currents to base system alarm current and add all panel NAC loads and all external loads powered from panel power supplies.

General Specifications

Input Power [System (SPS); Expansion (XPS); Remote (RPS); TrueAlert Power Supplies (TPS); and 100 W amplifiers]		120 VAC Models	4 A maximum @ 102 to 132 VAC, 60 Hz	
		220-240 VAC Models	2 A maximum @ 204 to 264 VAC, 50/60 Hz; separate taps for 220/230/240 VAC	
Power Supply Output Ratings for SPS, XPS, and RPS (nominal 28 VDC on AC; 24 VDC on battery backup)	Total Power Supply Output Rating	**Including module currents and auxiliary power outputs;** 9 A total for "Special Application" appliances; 4 A total for "Regulated 24 DC" power		Output switches to battery backup during mains AC failure or brownout conditions
	Auxiliary Power Tap	2 A maximum	Rated 19.1 to 31.1 VDC	
	NACs Programmed for Auxiliary Power	2 A maximum per NAC; 5 A maximum total		
Battery Charger Ratings for SPS, RPS, SPS, and TPS (sealed lead-acid batteries)	Battery capacity range	UL listed for battery charging of 6.2 Ah up to 110 Ah (110 Ah batteries require a remote battery cabinet); ULC listed for charging up to 50 Ah batteries		
	Charger characteristics and performance	Temperature compensated, dual rate, recharges depleted batteries within 48 hours per UL Standard 864, to 70% capacity in 12 hours per ULC Standard S527		
Environmental	Operating Temp. Range	32° to 120°F (0° to 49° C)		
	Operating Humidity Range	Up to 93% RH, non-condensing @ 90° F (32° C) maximum		

Local Mode Controller Detail

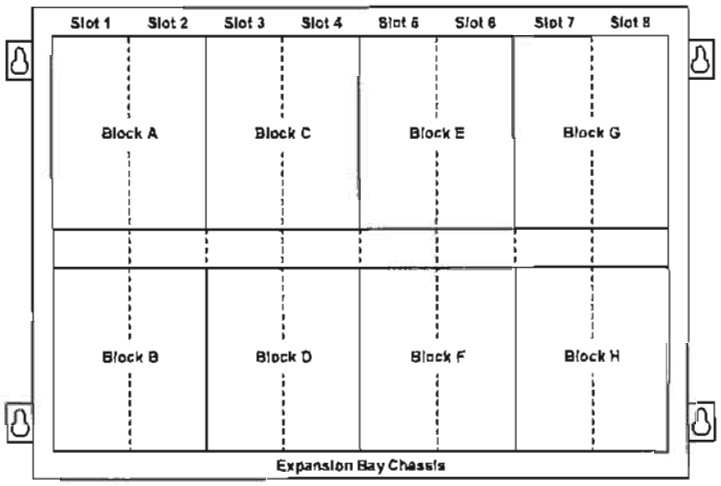
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Local Mode Controller to Transponder Wiring:

1. Wire close-nippled to transponder, maximum distance = 20 ft (6.1 m).
2. Nine wires required: 24 VDC (2), one per LED indicator (4), and one per switch (3).
3. Wire size, 18 AWG (0.82 mm²).

Expansion Bay Module Loading Reference



Size Definitions: Block = 4" W x 5" H (102 mm x 127 mm) card area

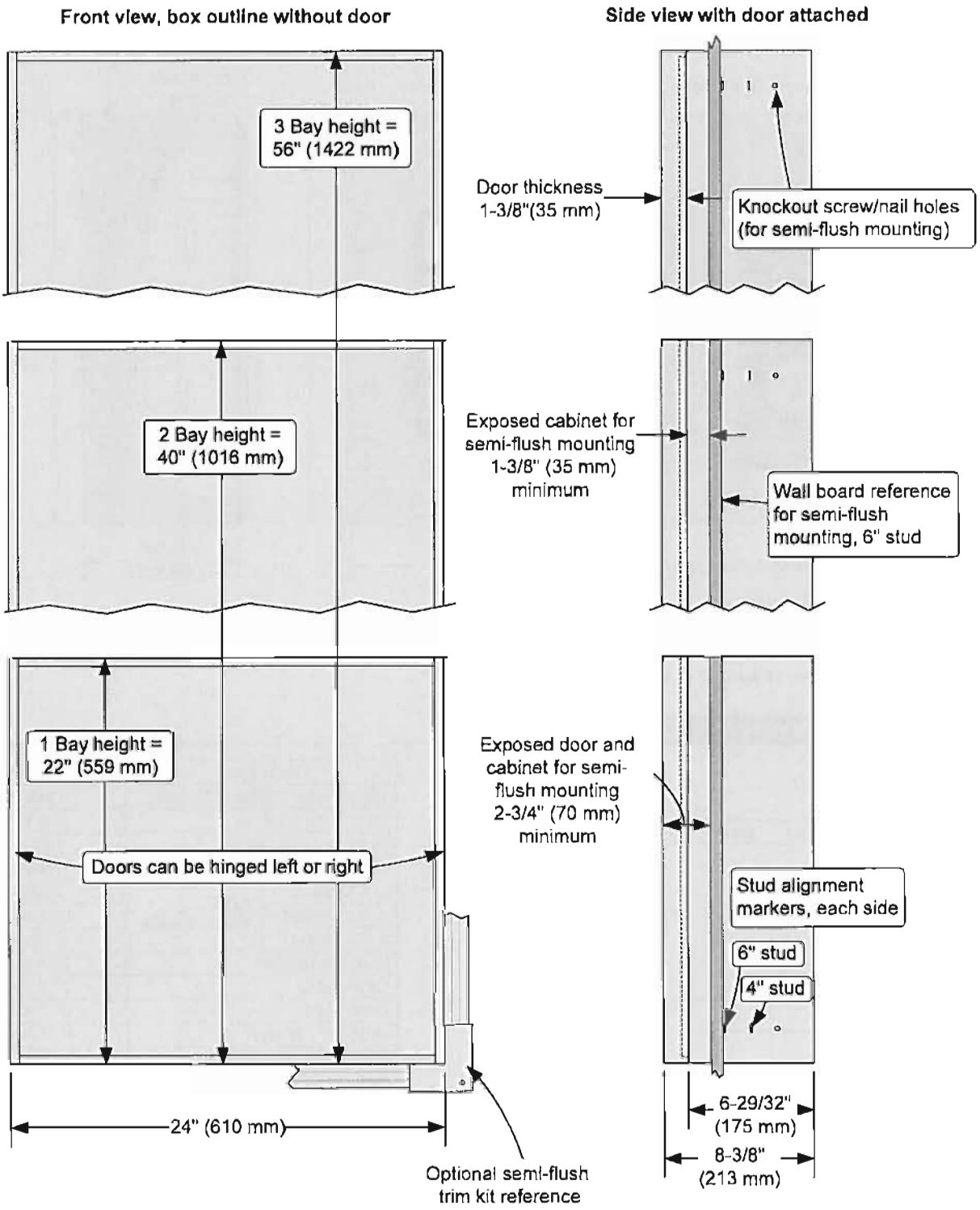
Slot = 2" W x 8" H (51 mm x 203 mm) motherboard with daughter card

Description		Mounting
Transponder Interface Modules		Block A
Audio Riser Modules		Block B
Terminal Block Module		1 Block
IDNet Modules		1 Block
4, 2 A Relays	NON Power-limited	1 Block
4, 10 A Relays		4", 2 Slots
8, 3 A Relays		1 Block
VESDA Interface		2", 1 Slot
Class B IDC		2", 1 Slot
Class A IDC		2", 1 Slot
MAPNET II Module		4", 2 Slots
MAPNET II/IDNet Isolator		2", 1 Slot
Decoder Module		6", 3 Slots
System, Remote, or TrueAlert Power Supply		Blocks E, F, G & H ONLY
Expansion Power Supply		Blocks G & H ONLY
NAC Expansion Module		On XPS ONLY
Flex-35 Amplifiers, 2 max /bay*		Blocks E & F; C & D; or A & B
Flex-50 Amplifiers, 2 max/bay*		Blocks E & F or C & D
100 W Amplifiers, 1 max/bay		Blocks E, F, G & H
100 W Backup Amplifiers, 1 max. per bay with primary amplifier		Blocks A, B, C & D
Telephone Expansion Module		1 Block
Expansion Signal Module		1 Block

* **NOTE:** When mounting dual Flex amplifiers on an expansion bay, special mounting rules apply.

Enclosure Installation Reference

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NOTE: A system ground must be provided for Earth Detection and transient protection devices. This connection shall be made to an approved, dedicated Earth connection per NFPA 70, Article 250, and NFPA 780.

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Simplex

4100ES Fire Control Panels

UL, ULC, CSFM Listed; FM Approved;
*MEA (NYC) Acceptance**

Isolated IDNet™ Communications (IDNet+) for Retrofit Wiring Applications, Model 4100-3107

Features

Provides the 4100ES (or 4100U) Fire Alarm Control Panel with an Isolated IDNet communications channel with four fault isolated circuit outputs to optimize performance when retrofitting into existing device wiring:

- Capacity is 246 IDNet external point addresses plus four built-in circuit isolators (250 addresses total)
- IDNet+ communications are isolated from other system reference voltages to reduce common mode noise interaction with adjacent system wiring
- Using existing conventional wiring for addressable communications allows significant material and labor savings when upgrading fire alarm systems
- IDNet communications wiring can be either individual conductors or multi-conductor cable; twisted or shielded wiring is not required (refer to details on pages 2 and 3)
- Operation allows NACs, other IDNet+ channels, and other fire alarm communications signals in the same conduit without interference between signals (refer to details on page 3)

Four fault isolated outputs:

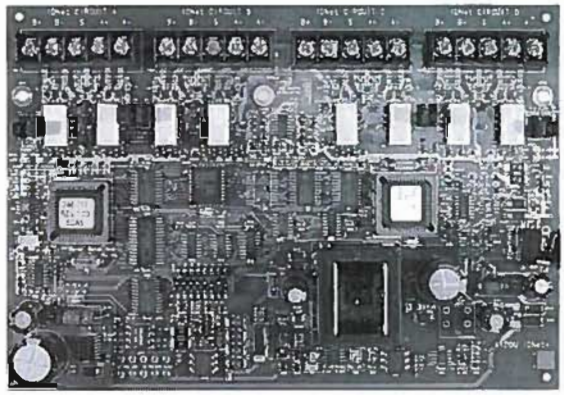
- One IDNet channel is connected through four independently controlled outputs that can be isolated from each other in the event of a short
- Each output is individually on-board selectable for either Class A or Class B operation, intermixed on the same IDNet+ module as desired
- For Class B wiring, multiple connections are available for installation convenience; each output provides two sets of parallel connected output terminals with each terminal sized to allow two wires
- Wiring terminals are rated for up to two 12 AWG wires per terminal
- Standby current requirements are the same as existing 4100ES/4100U IDNet expansion modules
- Outputs are compatible with remote IDNet Isolators and Isolator Bases

UL Listed to Standard 864

Convenient built-in service tools:

- On-board trouble LEDs activate per output
- Ground Fault Detection Diagnostics test each output
- Duplicate Device Detection and Weak Answer Detection Diagnostics assist in locating devices installed incorrectly or in conflict with wiring specifications**
- Device Detect Capability polls all devices, determines device type of each address, and provides Service Port access to the results
- Output troubles with custom labeling are indicated at the control panel per output

** IDNet addressable communications are protected by us Patent No. 4,765,025. IDNet duplicate device detection is protected under us Patent No. 6,034,601.



4100ES IDNet+ Module Detail
(5-9/16" H x 8" W; 144 mm x 204 mm)

Introduction

New Systems Versus Retrofit. When new fire alarm systems are installed, addressable communications wiring can typically be specified exactly as desired with little difficulty. Although typically more expensive than standard branch circuit power wiring, the use of twisted, shielded pair wiring, or other specific wiring types, may be preferred to optimize system performance. However, when an existing non-addressable (conventional) fire alarm system is in need of updating to addressable device operation, the compatibility of the existing wiring with the requirements of the new device communications wiring must be considered.

Compatibility. Digital communications wiring, audio signal wiring, notification appliance circuit (NAC) wiring, or other related power wiring with repetitive switching transients all have the potential to couple portions of their signals into each other if their wiring is in close proximity, such as within the same conduit. Sometimes the result is negligible, but often the result can be intermittent or continuous interference unless twisted, shielded pair (TSP); unshielded, twisted pair (UTP); or shielded wire is used on one, both, or all of the signals involved.

Improving Operation with Existing Wiring. 4100ES IDNet Module 4100-3107 uses on-board circuitry to separate the IDNet communications channel from the source power conductors to provide an isolated IDNet communications channel. An isolated IDNet channel (called IDNet+) significantly improves common mode noise rejection and allows a variety of fire alarm signals to be non-interfering when wired in the same conduit. Additionally, this module provides four fault isolated outputs capable of being selected as Class A or Class B wiring, intermixed on the same module.

* This product has been approved by the California State Fire Marshal (CSFM) pursuant to Section 13144.1 of the California Health and Safety Code. See CSFM Listing 7165-0026:251 for allowable values and/or conditions concerning material presented in this document. It is subject to re-examination, revision, and possible cancellation. Additional listings may be applicable; contact your local Simplex product supplier for the latest status. Listings and approvals under Simplex Time Recorder Co. are the property of Tyco Safety Products Westminster.

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Specifications

General System Specifications and Input/Output Specifications

Required System Software Revision		4100ES or 4100U Revision (11.10) or higher
IDNet Device Compatibility		See reference data sheet S4090-0011 for details
Input Voltage		24 VDC, system supplied
Input Current	Module only	Supervisory = 75 mA; Alarm = 115 mA; add IDNet device loading (see below); Maximum Alarm = 361 mA (with 246 remote devices)
	IDNet Devices	Per device; Supervisory = 0.8 mA; Alarm = 1 mA
IDNet+ Output	Voltage	30 VDC nominal, 36 VDC maximum; DC voltage with imposed data
	Current	500 mA maximum
	Devices	Up to 246 remote devices; outputs are assigned addresses 247 to 250

IDNet+ Wiring Specifications

Note: Maximum wiring distance is determined by either reaching the maximum capacitance, the total series wiring resistance, or the stated maximum distance, whichever occurs first.

Capacitance Parameters (for Class A or Class B wiring)

Maximum Individual IDNet+ Channel Wiring Capacitance	The sum of line-to-line capacitance + the capacitance of either line-to-shield (if shield is present) = **0.6 µF** maximum; total of all four outputs
Maximum Channel-to-Channel Wiring Capacitance (for multiple IDNet+ SLCs)	Capacitance between any one IDNet+ Channel and other IDNet+ Channels = **1 µF** maximum (measured between wires of the same polarity; plus-to-plus; minus-to-minus)

Maximum Channel Wiring Resistance

Class A Wiring Resistance	Up to 125 devices = **50 Ω** maximum	Total series wire resistance of all four output loops
	126 to 246 devices = **35 Ω** maximum	
Class B Wiring Resistance	Up to 125 devices = **50 Ω** maximum	Total series wire resistance of all four outputs, including any "T-taps"
	126 to 246 devices = **35 Ω** maximum	

Maximum Wiring Distances (distance may be less due to capacitance and resistance specifications)

Total Channel Maximum Wiring Distance	**12,500 ft (3.8 km)**; total for all four outputs, Class A or Class B, including "T-taps" for Class B wiring		
Wiring Distance Limits: **Class A wiring**; loop distance limit per output **Class B wiring**; maximum distance from the panel to the farthest device on each output	**Wire Size***	**Up to 125 devices**	**126 to 246 devices**
	18 AWG	4000 ft (1219 m)	2500 ft (762 m)
	16 to 12 AWG	5000 ft (1524 m)	2500 ft (762 m)
	* 18 AWG = 0.82 mm²; 16 AWG = 1.31 mm²; 14 AWG = 2.08 mm²; 12 AWG = 3.31 mm²		
IDNet+ Wiring Considerations **using 2081-9044 Overvoltage Protectors**; UL listed to Standard 1459, *Standard for Telephone Equipment* (refer to data sheet S2081-0016 for additional details)	**Note:** Wiring that leaves the building **must be shielded** (for lightning suppression) **and 2081-9044 Overvoltage Protectors must be installed** at building exit and entrance locations		
	Capacitance; each protector adds 0.006 µF across the connected line		
	Resistance; each protector adds 3 Ω per line of series resistance; both IDNet lines are protected; 6 Ω per protector will be added to total loop resistance		
	Distance; maximum distance of a single protected wiring run is 3270 ft (1 km)		

Capacities, Mechanical, and Environmental Specifications

Remote LED Display Capacity	Up to 20 maximum remote device LEDs can be activated simultaneously
Coded Sounder Base Capacity	Up to 43 sounder bases may be coded by IDNet communications when the sounder is powered by 24 VDC (not applicable to NAC powered sounder bases)
Mounting Requirements (see page 4 for additional reference)	5-9/16" x 8" (144 mm x 203 mm) module requires two consecutive horizontal blocks; two maximum are allowed per expansion bay; mounting is left and right
Operating Temperature Range	32° F to 120° F (0° C to 49° C)
Humidity Range	Up to 93% RH, non-condensing @ 94° F (38° C)

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Retrofit Equipment Considerations

Existing Equipment. When performing a retrofit installation with the 4100-3107 IDNet+ Module, review the following important considerations.

1. All existing devices, whether conventional or addressable, must be located and removed. ***Only IDNet communications compatible devices are allowed on an IDNet channel.*** (Refer to data sheet S4090-0011 for the Addressable Device Compatibility list.)
2. Existing devices may be mounted in normally unvisited locations, out of normal view. Look for hidden heat detectors, duct detectors, and other devices that may have minimal maintenance requirements and may be forgotten. Remember, they must be located and removed.

Retrofit Equipment Considerations *(Cont'd.)*

3. The site must be surveyed for all new fire alarm system device requirements. Existing device locations must be reviewed with respect to relocation and whether still required.
4. Existing device functions to be retained, and new device requirements, must be satisfied with the proper application of new IDNet addressable devices, located in compliance with the latest applicable building codes.
5. For audio systems, if applicable, consider using 70.7 VRMS audio NACs. The higher voltage/lower current reduces cross-coupling.
6. Detailed installation considerations are located in Installation Instructions 579-786.

Wiring Compatibility with IDNet+ Signals, Sequence of Evaluation

1. **IMPORTANT:** Install IDNet+ channel wiring in accordance with the previously stated electrical specifications and any applicable local codes. Where appropriate, wiring should also be NFPA 70 (National Electrical Code®) Article 760 compliant or equivalent.
2. Evaluate compatibility of the non-IDNet+ fire alarm signals that will be in the same conduit with IDNet+ signals and determine the required wiring types. **NOTE: Wiring that runs external to the building is required to be twisted, shielded pair.**
3. The following table describes the wiring types required of the non-IDNet+ signals when the IDNet+ signals are run on **unshielded and untwisted wire** in the same conduit. **NOTE: Contact your Simplex product supplier for other wiring combinations.**
4. "Minimum wiring allowed" means interaction with other circuits MUST be considered and restrictions on wiring distance or loading may apply. "Recommended wiring" means compatibility with other circuits in the same conduit will be optimized. Contact your Simplex product supplier for details.

FOR RETROFIT INSTALLATIONS Minimum wiring allowed when IDNet+ wiring is unshielded and untwisted	**Signal Wiring Type with IDNet+ Wiring in Same Conduit** (IDNet+ Wiring is assumed to be on unshielded and untwisted wires)	**FOR NEW INSTALLATIONS** Recommended wiring when IDNet+ wiring is unshielded and untwisted
Unshielded and Untwisted Wire or Cable	IDC Wiring	Unshielded and Untwisted Wire or Cable
	DC NAC Wiring	
	AC or DC Power Wiring (for system devices)	
	(Another) IDNet+ Channel	
Unshielded and Untwisted Wire or Cable **(restrictions apply)**	TrueAlert® Addressable Communications	Unshielded, Twisted Pair (UTP)
Unshielded, Twisted Pair (UTP)	4100ES/4100U Digital Riser	
Unshielded and Untwisted Wire or Cable **(restrictions apply)**	MAPNET II® **Isolated***	Twisted, Shielded Pair (TSP)
	RUI/RAI/RSI	
Unshielded, Twisted Pair (UTP) Wire or Cable **(restrictions apply)**	4100ES/4100U Audio NAC	
	RS-232	
	IDNet Channel (one maximum, up to 2500 ft)	
	MAPNET II® **Unisolated***	
	Network Communications	
	Non-4100ES/4100U Audio NAC	
Twisted, Shielded Pair (TSP)	(1) IDNet Channel > 2500 ft long	
	(2) or more IDNet or MAPNET II Channels > 1000 ft	
	(3) or more IDNet or MAPNET II Channels	
	4100ES/4100U Analog Riser	
	Firefighters Telephones	
	Remote Microphone	
	24 Point I/O	
Must be in separate conduit	Graphic RCU/SCU I/O	Must be in separate conduit

* 4100ES/4100U MAPNET II communications can be selected as either isolated or unisolated; refer to Installation Instructions 579-222 for details.

Class A Output Operation

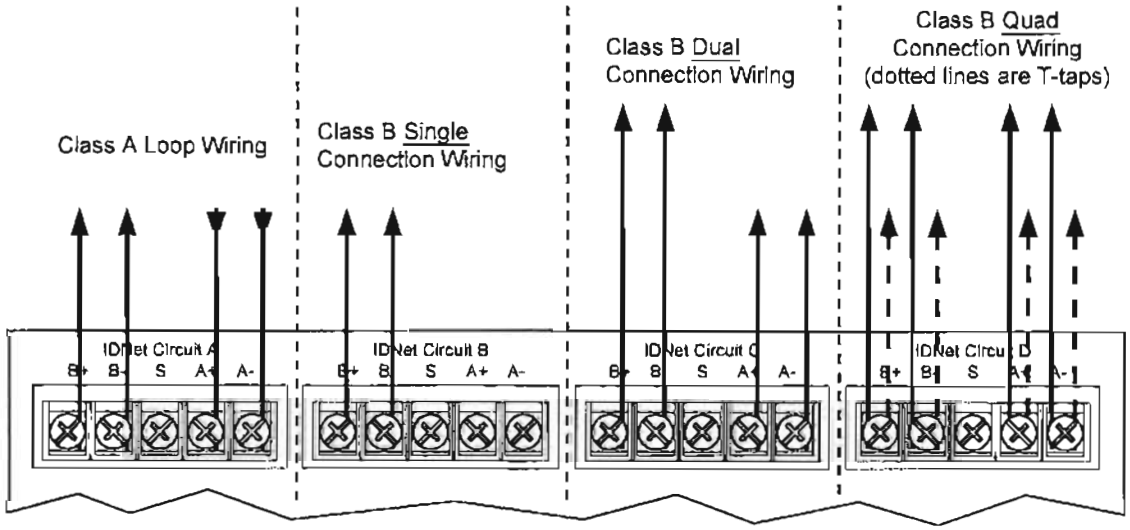
Standard Class A Operation. When wired and configured for Class A output (selectable on a per circuit basis), IDNet communications from the "B" output terminals are wired in/out at each device and are brought back to the panel where they are monitored at the "A" terminals. If there is an open circuit in the wiring, the Class A, IDNet+ Module will then drive both ends of the wiring loop which is typical of most Class A circuit operation.

Additional Isolation. In addition to typical Class A operation, the IDNet+ Module provides "A" and "B" terminal outputs that are fault isolated from each other. With this additional isolation, fewer remote isolator devices are required to properly separate the loop from short circuits; a concern of particular importance during initial system startup, even for retrofit.

IDNet+ Output Wiring Options

Each output can be individually selected for either Class A or Class B wiring. Each wiring terminal can accept one or two wires, up to 12 AWG. This allows wiring options as indicated in the diagram below. For Class B wiring, where T-tapping is acceptable, the availability of multiple terminals (as shown in the diagram) provides convenient terminations for the multiple zone wiring that may exist when retrofitting.

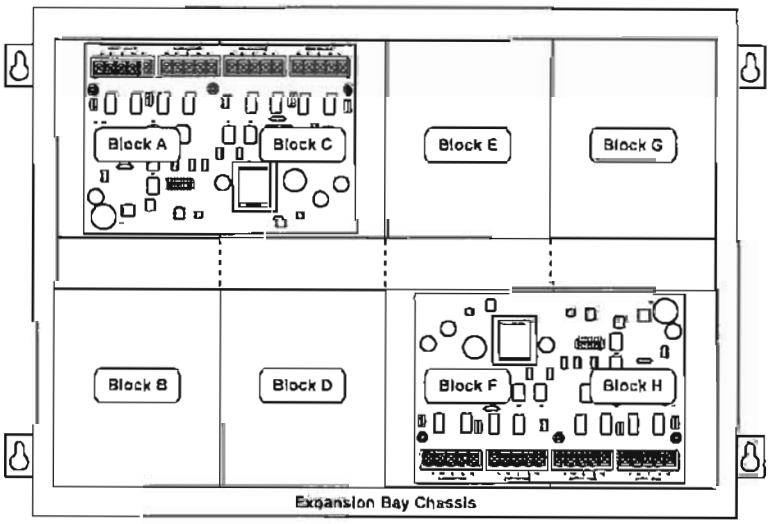
IDNet+ Output Wiring Options Reference Drawing



Module Loading Reference

Module Mounting Rules

1. IDNet+ Module 4100-3107 requires two consecutive horizontal block locations.
2. A maximum of two IDNet+ Modules may be connected to one card-power source.
3. The module makes a symmetrical connection to the PDI and it can be mounted upside down if that location is more convenient with respect to the other modules in the bay.
4. Refer to the diagram for additional reference.



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Simplex

*UL, ULC, CSFM Listed; FM Approved; MEA (NYC) Acceptance**

4100ES Fire Control Panels

Addressable Fire Detection and Control Basic Panel Modules and Accessories

Features

Master Controller (top) bay:

- Master controller with color-coded operator interface including raised switches for high confidence feedback
- Dual configuration program CPU, convenient service port access, and capacity for up to 2000 addressable points
- CPU assembly includes dedicated compact flash memory for on-site system information storage
- System power supply (SPS) and charger (9 A total) with on-board: NACs, IDNet addressable device interface, programmable auxiliary output and alarm relay
- Available with InfoAlarm Command Center expanded content user interface (see data sheet S4100-0045)
- Upgrade kits are available for existing control panels

Standard addressable interfaces include:

- IDNet addressable device interface with 250 points that support TrueAlarm analog sensing and operate with *either shielded or unshielded* twisted pair wiring
- Remote annunciator module support via RUI (remote unit interface) communications port

Optional modules include:

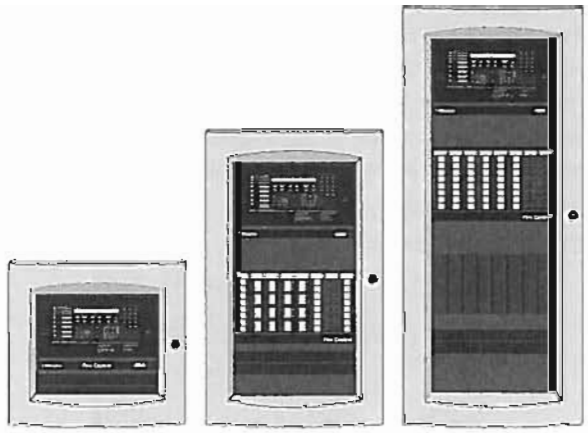
- Building Network Interface Module (BNIC) for Ethernet connectivity options (see data sheet S4100-0061)
- TrueAlert addressable notification appliance power supplies with three, 3 A SLC outputs
- Additional IDNet and MAPNET II addressable device modules and IDNet/MAPNET II quad isolator modules
- IDNet+ output module with built-in quad isolator and enhanced operation for better retrofit to existing wiring (see data sheet S4100-0046)
- Fire Alarm Network Interfaces, DACTs, city connections, and up to five (5) RS-232 ports for printers and terminals
- IP communicator compatibility
- Alarm relays, auxiliary relays, additional power supplies, IDC modules, NAC expansion modules
- Service modems, VESDA Air Aspiration Systems interface, ASHRAE BACnet Interface, TCP/IP Bridges
- LED/switch modules and panel mount printers
- Emergency communications systems (ECS) equipment; 8 channel digital audio or 2 channel analog audio
- Battery brackets for seismic area protection (see page 2)

Compatible with Simplex® remotely located:

- 4009 IDNet NAC Extenders, up to ten per IDNet SLC
- TrueAlert Addressable Controllers

4100ES and upgrade kits are UL Listed to:

- UL Std. 864, Fire Detection and Control (UOJZ), and Smoke Control Service (UUKL)
- UL Std. 2017, Process Management Equipment (QVAX)
- UL Std. 1076, Proprietary Alarm Units-Burglar (APOU)
- UL Std. 1730, Smoke Detector Monitor (UULH)
- ULC Std. S527-99



4100ES Cabinets are Available with One, Two or Three Bays

Software Feature Summary

CPU provides dual configuration programs:

- Two programs allow for optimal system protection and commissioning efficiency with one active program and one reserve
- Downtime is reduced because the system stays running during download

PC based programmer features:

- Convenient front panel accessed Ethernet port for quick and easy ***download*** of site-specific programming
- Modifications can be ***uploaded*** as well as downloaded for greater service flexibility
- ***AND***, firmware enhancements are made via software downloads to the on-board flash memory

Introduction

4100ES Series Fire Detection and Control Panels provide extensive installation, operator, and service features with point and module capacities suitable for a wide range of system applications. An on-board Ethernet port provides fast external system communications to expedite installation and service activity. Dedicated compact flash memory archiving provides secure on-site system information storage of electronic job configuration files to meet NFPA 72 (*National Fire Alarm and Signaling Code*) requirements.

Modular design. A wide variety of functional modules are available to meet specific system requirements. Selections allow panels to be configured for either Stand-Alone or Networked fire control operation. InfoAlarm Command Center options provide convenient expanded display content (detailed on data sheet S4100-0045).

* See pages 5 and 6 for product that is UL or ULC listed and additional listing information. This product has been listed by the California State Fire Marshal (CSFM) pursuant to Section 13144.1 of the California Health and Safety Code. See CSFM Listing 7165-0026:251 (4100ES) and 7300-0026:0368 (4009 TPS) for allowable values and/or conditions concerning material presented in this document. It is subject to re-examination, revision, and possible cancellation. Accepted for use – City of New York Department of Buildings – MEA35-93E. Additional listings may be applicable; contact your local Simplex product supplier for the latest status. Listings and approvals under Simplex Time Recorder Co. are the property of Tyco Fire Protection Products.

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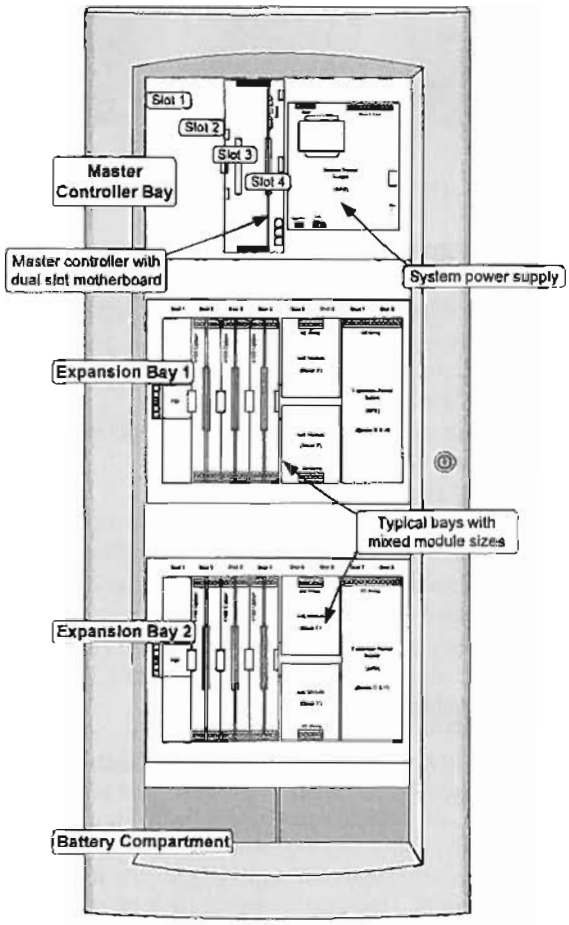
Module Bay Description

The Master Controller Bay (top) includes a standard multi-featured system power supply, the master controller board, and operator interface equipment.

The Expansion Bays include a Power Distribution Interface (PDI) for new 4" x 5" flat design option modules and also accommodate 4100-style modules.

The Battery Compartment (bottom) accepts two batteries, up to 50 Ah, to be mounted within the cabinet without interfering with module space.

The following illustration identifies bay locations using a three bay cabinet for reference.



4100ES Module Bay Reference

Mechanical Description

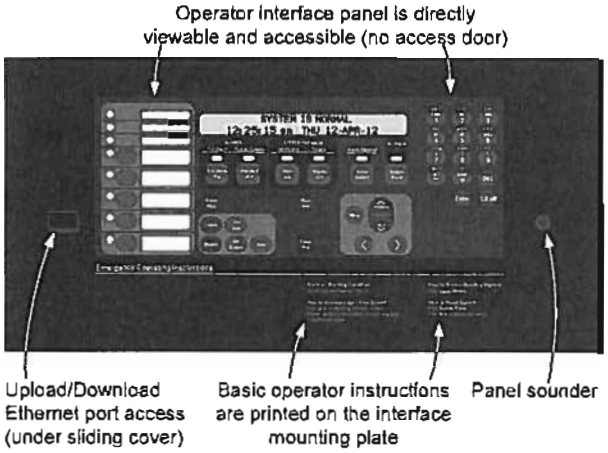
- Boxes can be close-nippled; each box provides convenient stud markers for drywall thickness and nail-hole knockouts for quicker mounting
- Smooth box surfaces are provided for locally cutting conduit entrance holes exactly where required
- Cabinet assembly design has been seismic tested and is certified to IBC and CBC standards as well as to ASCE 7-05 category D, requires 33 Ah or 50 Ah batteries with battery brackets as detailed on data sheet S2081-0019

Mechanical Description *(Continued)*

- The latching dress panel (retainer) assembly easily lifts off for internal access
- NACs are mounted directly on power supply assemblies providing minimized wiring loss, compact size, and readily accessible terminations
- Packaging supports traditional 4100-style motherboard with daughter cards
- Modules are power-limited (except as noted, such as relay modules)
- The NEMA 1 box is ordered separately and available for early installation
- Doors are available with tempered glass inserts or solid; boxes and doors are available in platinum or red
- Boxes and door/retainer assemblies are ordered separately per system requirements; refer to data sheet S4100-0037 for details

Operator Interface Detail Reference

The following illustration identifies the primary functions of the operator interface.



Software Feature Summary

- TrueAlarm individual analog sensing with front panel information and selection access
- "Dirty" TrueAlarm sensor maintenance alerts, service and status reports including "almost dirty"
- TrueAlarm magnet test indication appears as distinct "test abnormal" message on display when in test mode
- TrueAlarm sensor peak value performance report
- ***"Install Mode"*** allows grouping of multiple troubles for uninstalled modules and devices into a single trouble condition (typical with future phased expansion); with future equipment and devices grouped into a single trouble, operators can more clearly identify events from the commissioned and occupied areas
- Module level ground fault searching assists installation and service by locating and isolating modules with grounded wiring
- ***"Recurring Trouble Filtering"*** allows the panel to recognize, process, and log recurring intermittent troubles (such as external wiring ground faults), but only sends a single outbound system trouble to avoid nuisance communications
- WALKTEST silent or audible system test performs an automatic self-resetting test cycle

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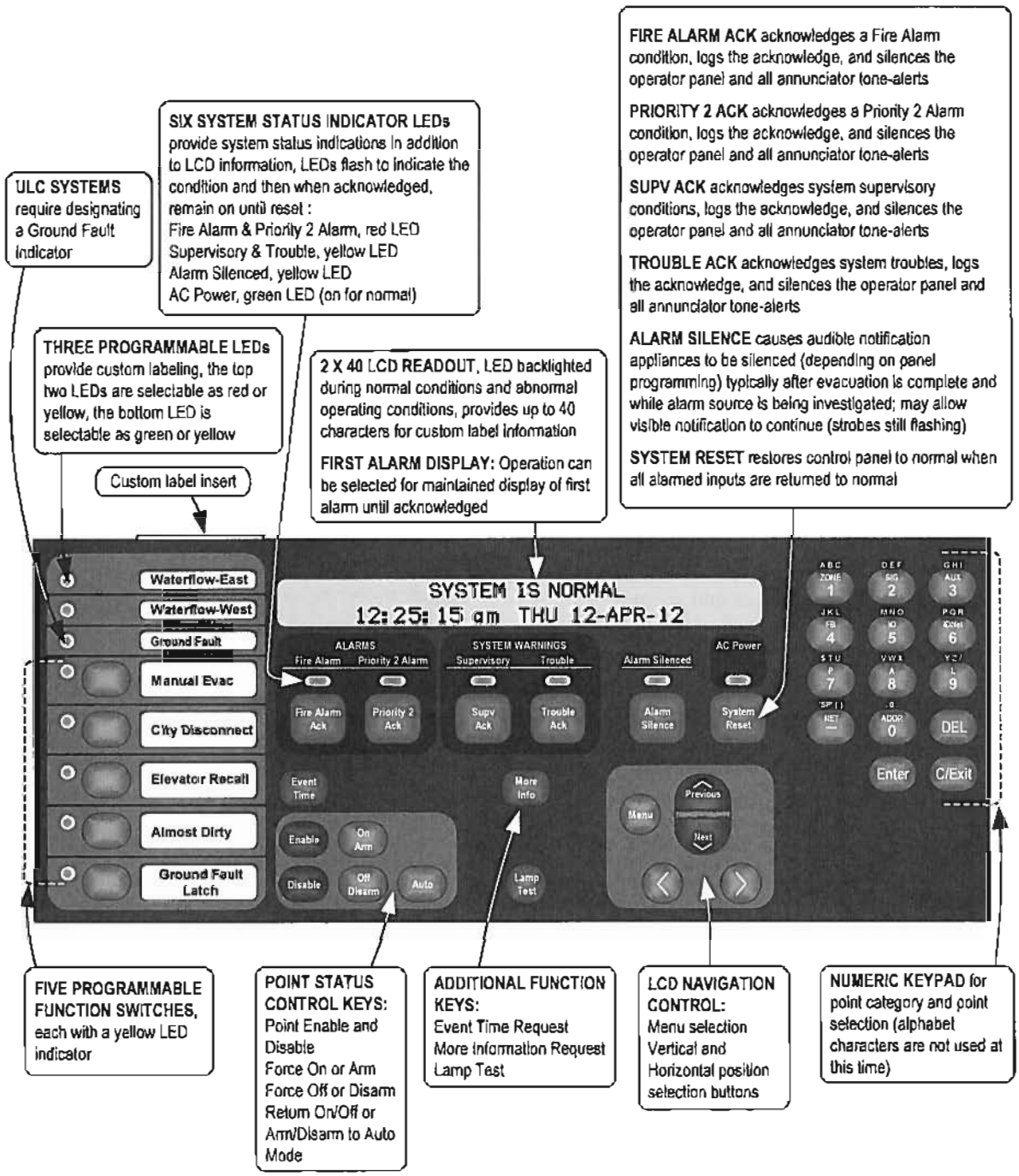
Operator Interface

Convenient Status Information. With the locking door closed, the glass window allows viewing of the display, status LEDs, and available operator switches. Features include a two-line by 40-character, wide viewing angle (super-twist) LCD with status LEDs and switches as shown in the illustration below.

LED indicators describe the general category of activity being displayed with the LCD providing more detail. For the authorized user, unlocking the door provides access to the control switches and allows further inquiry by scrolling the display for additional detail.

Operator Interface Features

- Convenient and extensive operator information is provided using a logical, menu-driven display
- Multiple automatic and manual diagnostics for maintenance reduction
- Alarm and Trouble History Logs (up to 1300 total events) are available for viewing from the LCD, or capable of being printed to a connected printer, or downloaded to a service computer
- Convenient PC programmer label editing
- Password access control



Compatible Peripheral Devices

The 4100ES is compatible with an extensive list of remote peripheral devices including printers, CRT/keyboards (up to five total), and both conventional and addressable devices including TrueAlarm analog sensors.

Addressable Device Control

Overview. The 4100ES provides standard addressable device communications for IDNet compatible devices and accepts optional modules for communications with MAPNET II compatible devices. Using a two wire communications circuit, individual devices such as manual fire alarm stations, TrueAlarm sensors, conventional IDC zones, and sprinkler waterflow switches can be interfaced to the addressable controller to communicate their identity and status.

Addressability allows the location and condition of the connected device to be displayed on the operator interface LCD and on remote system annunciators. Additionally, control circuits (fans, dampers, etc.) may be individually controlled and monitored with addressable devices.

Addressable Operation. Each addressable device on the communication channel is continuously interrogated for status condition such as: normal, off-normal, alarm, supervisory, or trouble. Both Class B and Class A operation are available. Sophisticated poll and response communication techniques ensure supervision integrity and allow for "T-tapping" of the circuit for Class B operation. Devices with LEDs pulse the LED to indicate receipt of a communications poll and can be turned on steady from the panel.

IDNet Channel Capacity. The CPU bay system power supply (SPS) provides an IDNet signaling line circuit (SLC) that supports up to 250 addressable monitor and control points intermixed on the same pair of wires. Additional IDNet circuit modules are available for 64, 127, or 250 addressable devices.

IDNet/MAPNET II Communications wiring specifications. Distances are for shielded or unshielded wire. Shielded wire may provide protection from unexpected sources of interference.

Wiring Specifications

Size		18 AWG (0.82 mm²)
Type	Preferred	Shielded twisted pair (STP)
	Acceptable*	Unshielded twisted pair (UTP)
Farthest Distance from Control Panel per Device load	126-250	Up to 2500 feet (762 m)
	up to 125	Up to 4000 ft (1219 m)
Total Wire Length Allowed With "T" Taps for Class B Wiring		Up to 10,000 ft (3 km); 0.58 µF

* Some applications may require shielded wiring. Review your system with your local Simplex product supplier.

TrueAlert Addressable Notification

TrueAlert Power Supplies provides three, 3 A Signaling Line Circuits (SLCs) for controlling and powering addressable notification appliances. With addressable appliances, Class B wiring can be "T-tapped" for easier wiring and reduced wire run lengths. Appliances include horns, strobes, and combination units. For more detail, refer to data sheet S4009-0003.

TrueAlarm System Operation

Addressable device communications include operation of TrueAlarm smoke and temperature sensors. Smoke sensors transmit an output value based on their smoke chamber condition and the CPU maintains a current value, peak value, and an average value for each sensor. Status is determined by comparing the current sensor value to its average value. Tracking this average value as a continuously shifting reference point filters out environmental factors that cause shifts in sensitivity.

Programmable sensitivity of each sensor can be selected at the control panel for different levels of smoke obscuration (shown directly in percent) or for specific heat detection levels. To evaluate whether the sensitivity should be revised, the peak value is stored in memory and can be easily read and compared to the alarm threshold directly in percent.

CO sensor bases combine an electrolytic CO sensing module with a TrueAlarm analog sensor to provide a single multiple sensing assembly using one system address. The CO sensor can be enabled/disabled, used in LED/Switch modes and custom control, and can be made public for communication across a fire alarm Network. (refer to data sheet S4098-0041 for details)

TrueAlarm heat sensors can be selected for fixed temperature detection, with or without rate-of-rise detection. Utility temperature sensing is also available, typically to provide freeze warnings or alert to HVAC system problems. Readings can selected as either Fahrenheit or Celsius.

TrueSense Early Fire Detection. Multi-sensor 4098-9754 provides photoelectric and heat sensor data using a single 4100ES IDNet address. The panel evaluates smoke activity, heat activity, ***and their combination***, to provide TrueSense early detection. For more details on this operation, refer to data sheet S4098-0024.

Diagnostics and Default Device Type

Sensor Status. TrueAlarm operation allows the control panel to automatically indicate when a sensor is almost dirty, dirty, and excessively dirty. The NFPA 72 requirement for a test of the sensitivity range of the sensors is fulfilled by the ability of TrueAlarm operation to maintain the sensitivity level of each sensor. CO Sensors track their 5 year active life status providing indicators to assist with service planning. Indicators occur at: 1 year, 6 months, and when end of life is reached.

Modular TrueAlarm sensors use the same base and different sensor types (smoke or heat sensor) and can be easily interchanged to meet specific location requirements. This allows intentional sensor substitution during building construction when conditions are temporarily dusty. Instead of covering smoke sensors (causing them to be disabled), heat sensors may be installed without reprogramming the control panel. The control panel will indicate an incorrect sensor type, but the heat sensor will operate at a default sensitivity to provide heat detection for building protection at that location.

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CPU Bay Module Details

Master Controller and Motherboard:

- Mounts in Slot 4 of a two slot motherboard (Slots 3 and 4 of the Master Controller Bay) and provides one Style 4 or Style 7, RUI communications channel, available at Slot 4
- RUI communications controls up to 31 devices per master controller (on one or multiple RUI channels); devices include: MINIPLEX transponders, 4603-9101 LCD Annunciators, 4602-9101 Status Command Units (SCU), 4602-9102 Remote Command Units (RCU), 4602 Series LED Annunciator Panels, 4100 Series 24 I/O and LED/Switch modules, and remote mount 4009 TPS units
- Up to four RUI channels are supported; use up to three 4100-1291 RUI expansion modules as required
- Optional Service Modem 4100-6030 mounts onto the master controller board with its own on-board connections
- Slot 3 of the motherboard is primarily for the 4100-6078 Network Interface Board with media modules, and secondarily for the 4100-6038 Dual RS-232 Board (4100-6038 is required for 2120 System connections)

System Power Supply: (see page 8 for more detail)

- Rating is 9 A total with "Special Application" appliances; 4 A total for "Regulated 24 DC" appliance power
- Outputs are power-limited, except for the battery charger
- Provides system power, battery charging, auxiliary power, auxiliary relay, earth detection, on-board IDNet communications channel for 250 points, three on-board NACs, and provisions for either an optional City Connect Module or an optional Alarm Relay Module
- **IDNet SLC Output** provides Class B or Class A communications for up to 250 addressable devices (as described on page 4)

System Power Supply *(Continued)*:

- **Three, 3 A On-Board NACs**, conventional reverse polarity operation; rated 3 A for Special Application appliances and 2 A for Regulated 24 DC power, with electronic control and overcurrent protection; selectable as Class B or Class A, and for synchronized strobe or SmartSync horn/strobe operation over two wires
- **NACs can be selected** as auxiliary power outputs derated to 2 A for continuous duty; the total auxiliary power output per SPS is limited to 5 A
- **Battery Charger** is dual rate, temperature compensated, and charges up to 50 Ah sealed lead-acid batteries mounted in the battery compartment (33 Ah for single bay cabinets); also is UL listed for charging up to 110 Ah batteries mounted in an external cabinet (see data sheet S2081-0012 for details)
- **Battery and Charger Monitoring** includes battery charger status and low or depleted battery conditions; status information provided to the master controller includes analog values for: battery voltage, charger voltage and current, actual system voltage and current, and individual NAC currents
- **2 A Auxiliary Power Output** is selectable for detector reset, door holder, or coded output operation
- **Auxiliary Relay** is selectable as N.O. or N.C., rated 2 A @ 32 VDC, and is programmable as a trouble relay, either normally energized or normally de-energized, or as an auxiliary control
- **Optional City Connect Module** (4100-6031, with disconnect switches, or 4100-6032, without disconnect switches) can be selected for conventional dual circuit city connections
- **Optional Alarm Relay Module** (4100-6033) provides three Form C relays that are used for Alarm, Trouble, and Supervisory, rated 2 A resistive @ 32 VDC

Master Controller Selection Information

Master Controller and Expansion Bay Selection* (Canadian models have low battery cutout)

Model	Model Type and Listing			Description	Supv.	Alarm
4100-9111	120 VAC Input		UL	4100ES Master Controller Assembly **with LCD and operator interface**, 9 A system power supply/battery charger (SPS), 250 point IDNet interface, 3 NACs, auxiliary relay, and external RUI communications interface	373 mA	470 mA
4100-9112	English	120 VAC, Canadian	ULC			
4100-9113	French					
4100-9211	220-240 VAC Input		UL			
4100-9131	120 VAC Input		UL	4100ES Master Controller Assembly, **no display, no operator interface**, 9 A system power supply/battery charger (SPS), 250 point IDNet interface, 3 NACs, auxiliary relay, and external RUI communications interface	363 mA	425 mA
4100-9132	English	120 VAC, Canadian	ULC			
4100-9133	French					
4100-9230	220-240 VAC Input		UL			
4100-9121 (not ULC listed)	Redundant Master Controller, two bay assembly; top bay contains LCD and operator interface, CPU card assembly, and 4100ES, 9 A system power supply/battery charger (SPS); second bay contains CPU card in Slot 2, and LCD and operator interface; 120 VAC, 60 Hz input; **NOTE: RUI connections require use of 4100-1291 RUI expansion modules**				718 mA	937 mA
4100-2300	Expansion Bay Assembly; **order for each required expansion bay** (not required for 4100-9121)					
4100-2303	Legacy Module Stabilizer Bracket, used when expansion bays have legacy slot style modules					

Master Controller Upgrades for Existing 4100 Series Fire Alarm Control Panels*

Model	Panel Type	Includes
4100-7150	1000 pt 4100 (4100+)	New Master Controller and 4100ES user interface door assembly with Ethernet connection
4100-7152	512 pt 4100	Same as 4100-7150 plus includes a Universal Power Supply
4100-7158	1000 pt 4100 (4100+) or 4100U	New Master Controller with Ethernet Connection Upgrade Kit; for 4100+ **without** LCD and operator interface, or 4100U **with or without** LCD and operator interface
4100-2301	Expansion Bay Upgrade Kit for mounting 4100ES style (4" x 5" modules) in existing 4100 style panels; **Note:** When using this kit to upgrade a 4100+ transponder, a **4100-0620 Transponder Interface Card (TIC)** is also required for communications to the 4100ES module	

* For InfoAlarm Command Center expanded content display products, refer to data sheet S4100-0045. *(Continued on next page)*

Module Selection Information

Master Controller Upgrades for Existing 4020 Series Fire Alarm Control Panel

Model	Description
4100-9833	4020 Master Controller Upgrade to 4100ES; Includes New Master Controller with LCD & operator interface assembly, 8 VDC Converter and RUI Interface in a single bay cabinet with locking glass door and retainer; mounts as an adjunct panel close-nippled to existing 4020 cabinet; also includes 8 VDC box-to-box power and communications harness and solid filler panel for the existing 4020 Master Controller bay

Communication Modules

Model	Description	Size	Supv.	Alarm
4100-6078	For Master Controller; mounts in Slot 3 — Modular Network Interface; each requires two media modules (below)	1 Slot	46 mA	46 mA
4100-6061	For Redundant Master Controller	1 Slot	46 mA	46 mA
4100-6056	Wired Media Module — Select two media cards as required; mounts on 4100-6078 or 4100-6061	N.A.	55 mA	55 mA
4100-6057	Fiber Optic Media Module	N.A.	25 mA	25 mA
4100-6047	Building Network Interface Card (BNIC), refer to data sheet S4100-0061 for details	2 Blocks	291 mA	291 mA
4100-6055	Network Access Dial-in Service Modem, mounts to 4100-6078 or 4100-6061 Network Interface Card, requires telephone line connection	N.A.	60 mA	60 mA
4100-1291	Remote Unit Interface Module (RUI); up to three maximum per control panel	1 Slot	85 mA	85 mA
4100-6030	Service Port Modem, local panel access only, mounts to Master Controller Module, requires telephone line connection, accesses same information as front panel port	N.A.	70 mA	70 mA
4100-6031	Select one per SPS (fits on SPS) — City Circuit, with disconnect switches — For use with SPS only, not RPS	N.A.	20 mA	36 mA
4100-6032	City Circuit, w/o disconnect switches	N.A.	20 mA	36 mA
4100-6033	Alarm Relay, 3 Form C relays, 2 A @ 32 VDC; for SPS or RPS	N.A.	15 mA	37 mA
4100-6101	Physical Bridge, Class B, includes 1 modem module and 2 wired modules	1 Slot	210 mA	210 mA
4100-6102	Physical Bridge, Class X, includes 2 modem and 2 wired modules	2 Slots	300 mA	300 mA
4100-6038	Dual Port RS-232 with 2120 interface (slot module) — 3 maximum of RS-232 type modules per panel	1 Slot	132 mA	132 mA
4100-6046	Dual Port RS-232 standard Interface (4 x 5 module)	1 Block	60 mA	60 mA
4100-6045	Decoder Module	3 Slots	85 mA	163 mA
4100-6048	VESDA Aspiration System Interface	1 Slot	132 mA	132 mA
4100-6052	DACT, Point or Event Reporting; 1 shipped unless 4100-7908 is selected; 2 max. per system; includes 2, 2080-9047 cables, 14 ft (4.3 m) long, RJ45 plug and spade lugs	1 Slot	30 mA	40 mA

Expansion, System, Remote, and TrueAlert Power Supplies and Accessories (Canadian models have low battery cutout)

Model	Voltage/Listing		Description	Size	Supv.	Alarm
4100-5101	120 VAC	UL	**Expansion Power Supply (XPS)**; 9 A output, 3 built-in Class A/B NACs; NAC operation is same as SPS, see page 5 for details	2 Blocks	50 mA	50 mA
4100-5103	120 VAC, Canadian	ULC				
4100-5102	220-240 VAC	UL				
4100-5115	NAC Expansion Module, 3 NACs, Class A/B, **mounts on XPS only**			N.A.	25 mA	25 mA
4100-5111	120 VAC	UL	**Additional System Power Supply (SPS)**; 9 A power supply/charger with 250 point IDNet channel, 3 Class A/B NACs, add IDNet device currents separately	4 Blocks	175 mA	185 mA
4100-5112	120 VAC, **Canadian**	ULC				
4100-5113	220-240 VAC	UL				
4100-5125	120 VAC	UL	**Remote Power Supply (RPS)**; 9 A power supply/charger similar to SPS except no IDNet channel or City Circuits; will accept one 4100-6033	4 Blocks	150 mA	185 mA
4100-5126	120 VAC, Canadian	ULC				
4100-5127	220-240 VAC	UL				
4100-5120	120 VAC	UL	**TrueAlert Power Supply (TPS)**; 3 Class B SLCs rated 3 A each for up to 63 TrueAlert addressable (special application) appliances per channel, 189 per TPS; built-in battery charger; 2 A aux. power output; add device current separately (see S4009-0003 for details)	4 Blocks	88 mA	100 mA
4100-5121	120 VAC, Canadian	ULC				
4100-5122	220-240 VAC	UL				
4100-5124	TrueAlert SLC Class A Adapter for all 3 SLCs, **mounts on TPS only**			N.A.	10 mA	10 mA
4100-5152	12 VDC Power Option, 2 A maximum			1 Block	1.5 A maximum	
4100-0156	8 VDC Converter, required for multiple Physical Bridge Modules, 3 A maximum			1 Block	included w/loads	
4009-9813	4009 TPS Transponder Interface Card (TIC), mounts in a remote cabinet with TPS; order card, TPS, and batteries separately, and select a 2975-9229 (red) or 2975-9230 (beige) cabinet (field installed); refer to data sheet S4100-0037 for cabinet detail; Supervisory and Alarm current = 87 mA; (CSFM listed under 7300-0026:0368)					
4100-0636	Box Interconnection Harness Kit (non-audio); **order one for each close-nippled cabinet**					
4100-0638	4100 Slot Module Additional 24 VDC Harness; **need when 4100 Slot module requirements exceed 2 A from SPS**					

8 Zone Initiating Device Circuits*

Model	Type	Supv.	Alarm
4100-5005	Class B	75 mA	195 mA
4100-5015	Class A	75 mA	195 mA

* IDC Modules are 1 Slot size

Expansion Signal Module and Options (1.5 A Class B except as noted)

Model	Description		Supv.	Alarm
4100-5116	Converts 1 NAC in to 3 NACs out; 1 Block size		18 mA	80 mA
4100-1266	Expands 3 NACs to 6	select one; mounts on 4100-5116	0.6 mA	60 mA
4100-1267	Converts 3 NACs to Class A		0.6 mA	30 mA

Continued on next page

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Module Selection Information *(Continued)*

Miscellaneous Accessories

Model	Description
4100-1279	Single blank 2" display cover; **4100-2302** provides a single plate for a full bay
4100-9856*	4100ES Canadian French Appliqué Kit; Simplex, 4100ES, Controle Incendie
4100-9857*	4100ES English Appliqué Kit; Simplex, 4100ES, Fire Control
4100-9858*	4100ES InfoAlarm Remote Display English Appliqué Kit; Simplex, Operator Interface, 4100ES
4100-9859*	4100ES InfoAlarm Remote Display Canadian French Appliqué Kit; Simplex, Interface de l'operateur, 4100ES
4100-9835	Termination and Address Label Kit (for module marking); provides additional labels for field installed modules
4100-6029	Smoke Management Application Guide; required for UUKL listing
4100-6034	Tamper Switch, one per cabinet assembly if required; monitors solid door for panels with solid door; monitors the internal retainer panel for panels with glass door (not the glass door); has a built-in addressable IDNet IAM
2081-9031	Series resistor for WSO, IDCs (N.O. water flow and tamper on same circuit, wires after water flow and before tamper) 470 Ω, 1 W, encapsulated, two 18 AWG leads (0.82 mm^2), 2-1/2" L x 1-3/8" W x 1" H (64 mm x 35 mm x 25 mm)

* **Note:** 4100ES English Appliqués are included with 4100ES Upgrade and Retrofit Kits for mounting 4100ES in 4100, 2120, 2001, and Autocall back boxes so that upgrades can be easily identified as 4100ES. 4100ES Appliqué Kits are available for applications such as to update Remote InfoAlarm Displays connected to a panel that was upgraded to 4100ES or for an existing 4100U when the New Master Controller is upgraded to 4100ES and only a software upgrade is required. **When required, French appliqués are ordered separately.**

Addressable Interface Modules (refer to location reference on pages 9 and 10)

Model	Description		Supv.	Alarm
4100-3101	IDNet Module, 250 point capacity	With 250 IDNet devices, add	200 mA	250 mA
4100-3104	IDNet Module, 127 point capacity	With 127 IDNet devices, add	102 mA	127 mA
4100-3105	IDNet Module, 64 point capacity	With 64 IDNet devices, add	51 mA	64 mA
IDNet Modules, Specifications for each capacity; Module size = 1 Block		Module without devices	75 mA	115 mA
		Loading per IDNet device	0.8 mA	1 mA

Model	Description		Supv.	Alarm
4100-3102	MAPNET II Module, 127 point capacity, add devices separately; Module size = 2 Slots; Loading per MAPNET II device = 1.7 mA	Module without devices	255 mA	275 mA
		Fully loaded module, total	471 mA	491 mA
4100-3103	Isolator Module for MAPNET II or IDNet; converts a single connected SLC into four isolated outputs selectable as Class A or Class B; up to two Isolator Modules can be connected to one SLC; Module size = 1 Slot; NOTE: Compatible with MAPNET II Remote Isolators only; for quad isolation with IDNet Remote Isolators, use 4100-3107 IDNet+ Module (see data sheet S4100-0046 for details)		50 mA	50 mA

Relay Modules; Nonpower-limited (for mounting in expansion bay only, refer to location reference on pages 9 and 10)

Model	Description	Resistive Ratings		Inductive Ratings		Size	Supv.	Alarm
4100-3202	4 DPDT w/feedback	10 A	250 VAC	10 A	250 VAC	2 Slots	15 mA	175 mA
4100-3204	4 DPDT w/feedback	2 A	30 VDC/VAC	1/2 A	30 VDC/120 VAC	1 Block	15 mA	60 mA
4100-3208	8 SPDT	3 A	30 VDC/120 VAC	1-1/2 A	30 VDC/120 VAC	1 Block	15 mA	190 mA

Current Calculation Notes:

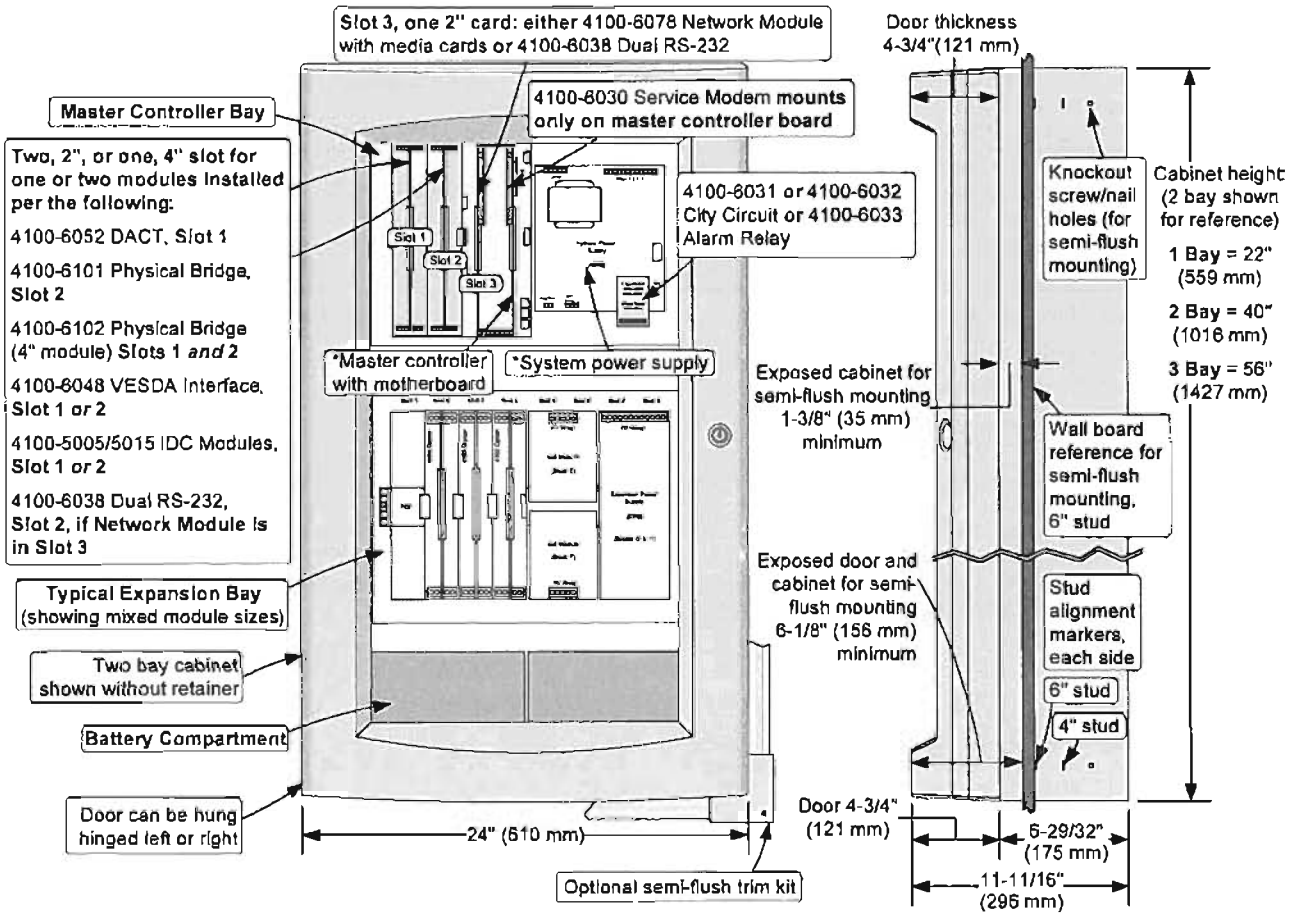
1. To determine total supervisory current, add currents of modules in panel to base system value and all external loads powered by panel power supplies.
2. To determine total alarm current, add currents of modules in panel to base system alarm current and add all panel NAC loads and all external loads powered from panel power supplies.

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General Specifications

Input Power	System Power Supplies (SPS) Expansion Power Supplies (XPS) Remote Power Supplies (RPS) TrueAlert Power Supplies (TPS)	120 VAC Models	4 A maximum @ 102 to 132 VAC, 60 Hz	
		220-240 VAC Models	2 A maximum @ 204 to 264 VAC, 50/60 Hz; separate taps for 220/230/240 VAC	
Power Supply Output Ratings for SPS, XPS, and RPS (nominal 28 VDC on AC; 24 VDC on battery backup)	Total Power Supply Output Rating	Including module currents and auxiliary power outputs; 9 A total for "Special Application" appliances; 4 A total for "Regulated 24 DC" power (see below for details)		Output switches to battery backup during mains AC failure or brownout conditions
	Auxiliary Power Tap	2 A maximum	Rated 19.1 to 31.1 VDC	
	NACs Programmed for Auxiliary Power	2 A maximum per NAC; 5 A maximum total		
Special Application Appliances	Simplex 4901, 4903, 4904, and 4906 Series horns, strobes, and combination horn/strobes and speaker/strobes (contact your Simplex product representative for compatible appliances)			
Regulated 24 DC Appliances	Power for other UL listed appliances; use associated external synchronization modules where required			
Battery Charger Ratings for SPS, RPS and TPS (sealed lead-acid batteries)	Battery capacity range	UL listed for battery charging of 6.2 Ah up to 110 Ah (110 Ah batteries require a remote battery cabinet); ULC listed for charging up to 50 Ah batteries		
	Charger characteristics and performance	Temperature compensated, dual rate, recharges depleted batteries within 48 hours per UL Standard 864; to 70% capacity in 12 hours per ULC Standard S527		
Environmental	Operating Temperature	32° to 120°F (0° to 49° C)		
	Operating Humidity	Up to 93% RH, non-condensing @ 90° F (32° C) maximum		
Additional Technical Reference	Installation Instructions	574-848		
	Operating Instructions	579-197		

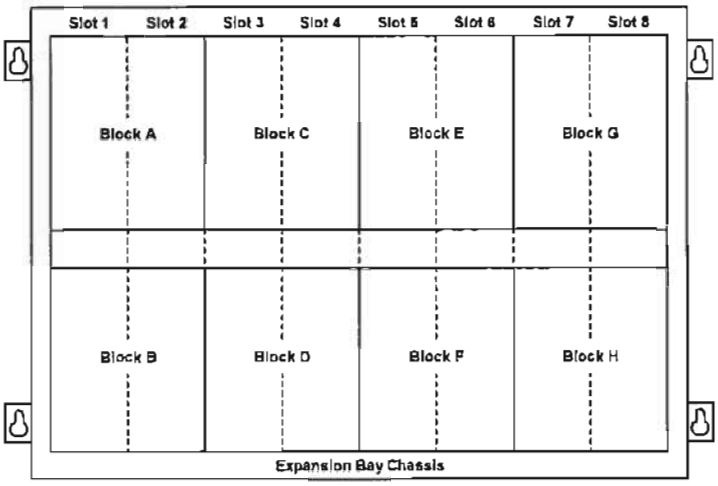
Mounting and CPU Bay Module Reference (* indicates supplied modules)



NOTE: A system ground must be provided for Earth Detection and transient protection devices. This connection shall be made to an approved, dedicated Earth connection per NFPA 70, Article 250, and NFPA 780.

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Expansion Bay Module Loading Reference



Size Definitions: Block = 4" W x 5" H (102 mm x 127 mm) card area
Slot = 2" W x 8" H (51 mm x 203 mm) motherboard with daughter card

Description		Mounting
IDNet Modules		1 Block
4, 2 A Relays	NON Power-limited	1 block
4, 10 A Relays		4", 2 slots
8, 3 A Relays		1 block
VESDA Interface		2", 1 Slot
Class B IDC		2", 1 Slot
Class A IDC		2", 1 Slot
MAPNET II Module		4", 2 Slots
MAPNET II/IDNet Isolator		2", 1 Slot
Class B Physical Bridge		2", 1 Slot
Class X Physical Bridge		4", 2 Slots
Decoder Module		6", 3 Slots
System, Remote, or TrueAlert Power Supply		Blocks E, F, G & H ONLY
Expansion Power Supply		Blocks G & H ONLY
NAC Expansion Module		On XPS ONLY

Additional 4100ES Data Sheet Reference

Subject	Data Sheet	Subject	Data Sheet
Introducing the 4100ES	*S4100-0060*	Agent Release Applications	S4100-0040
4100ES Enclosures	S4100-0037	Fire Alarm Network Overview	S4100-0055
4100ES Audio and Firefighter Phone Modules	S4100-0034	Network Communications	S4100-0056
LED/Switch Modules & Printer	S4100-0032	Network Display Unit (NDU)	S4100-0036
Remote Annunciators	S4100-0038	Addressable Device Compatibility	S4090-0011
MINIPLEX Transponders	S4100-0035	TrueAlert Addressable Products	S4009-0003
Building Network Interface (BNIC)	S4100-0061	IDNet+ Module w/Quad Isolator	S4100-0046
InfoAlarm Command Center	S4100-0045	Remote Battery Charger	S4081-0002
Graphic I/O Modules	S4100-0005	TFX Interface Module	S4100-0042
SafeLINC Internet Interface	S4100-0028	Master Clock Interface	S4100-0033
TrueInsight Remote Service	S4100-0063	2120 BMUX Module	S4100-0048

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Simplex

TrueAlarm Analog Sensing

*UL, ULC, CSFM Listed; FM Approved; MEA (NYC) Acceptance**

TrueAlarm Analog Sensors – Photoelectric, Ionization, and Heat; Standard Bases and Accessories

Features

TrueAlarm analog sensing provides:

- Digital transmission of analog sensor values via IDNet or MAPNET II two-wire communications

For use with the following Simplex® products:

- 4100ES, 4100U, 4010ES, and 4010 Series control panels; and 4008 Series control panels with reduced feature set (refer to data sheet S4008-0001 for details)
- 4020, 4100, and 4120 Series control panels, Universal Transponders and 2120 TrueAlarm CDTs equipped for MAPNET II operation

Fire alarm control panel provides:

- Peak value logging allowing accurate analysis of each sensor for individual sensitivity selection
- Sensitivity monitoring satisfying NFPA 72 sensitivity testing requirements; automatic individual sensor calibration check verifies sensor integrity
- Automatic environmental compensation, multi-stage alarm operation, and display of sensitivity directly in percent per foot
- Ability to display and print detailed sensor information in plain English language

Photoelectric smoke sensors provide:

- Seven levels of sensitivity from 0.2% to 3.7%

Heat sensors provide:

- Fixed temperature sensing
- Rate-of-rise temperature sensing
- Utility temperature sensing

Ionization smoke sensors provide:

- Three levels of sensitivity; 0.5%, 0.9%, and 1.3%

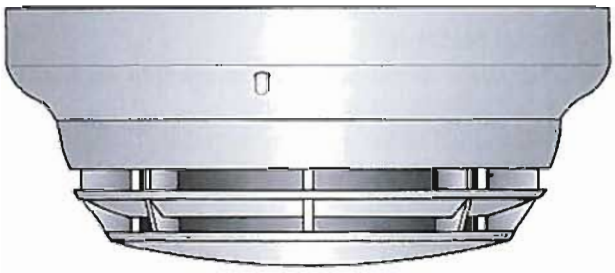
General features:

- UL listed to Standard 268
- Louvered smoke sensor design enhances smoke capture by directing flow to chamber; entrance areas are minimally visible when ceiling mounted
- Designed for EMI compatibility
- Magnetic test feature is provided
- Optional accessories include remote LED alarm indicator and output relays

Additional base reference:

- For isolator bases, refer to data sheet S4098-0025
- For sounder bases, refer to data sheet S4098-0028
- For photo/heat sensors, refer to data sheet S4098-0024 (single address) and S4098-0033 (dual address)

* These products have been approved by the California State Fire Marshal (CSFM) pursuant to Section 13144.1 of the California Health and Safety Code. See CSFM Listings 7272-0026:218, 7271-0026:231, 7270-0026:216, and 7300-0026:217 for allowable values and/or conditions concerning material presented in this document. It is subject to re-examination, revision, and possible cancellation. Accepted for use – City of New York Department of Buildings – MEA35-93E. Additional listings may be applicable, contact your local Simplex product supplier for the latest status. Listings and approvals under Simplex Time Recorder Co. are the property of Tyco Fire Protection Products.



4098-9714 TrueAlarm Photoelectric Sensor Mounted in Base

Description

Digital Communication of Analog Sensing. TrueAlarm analog sensors provide an analog measurement digitally communicated to the host control panel using Simplex addressable communications. At the control panel, the data is analyzed and an average value is determined and stored. An alarm or other abnormal condition is determined by comparing the sensor's present value against its average value and time.

Intelligent Data Evaluation. Monitoring each sensor's average value provides a continuously shifting reference point. This software filtering process compensates for environmental factors (dust, dirt, etc.) and component aging, providing an accurate reference for evaluating new activity. With this filtering, there is a significant reduction in the probability of false or nuisance alarms caused by shifts in sensitivity, either up or down.

Control Panel Selection. Peak activity per sensor is stored to assist in evaluating specific locations. The alarm set point for each TrueAlarm sensor is determined at the host control panel, selectable as more or less sensitive as the individual application requires.

Timed/Multi-Stage Selection. Sensor alarm set points can be programmed for timed automatic sensitivity selection (such as more sensitive at night, less sensitive during day). Control panel programming can also provide multi-stage operation per sensor. For example, a 0.2% level may cause a warning to prompt investigation while a 2.5% level may initiate an alarm.

Sensor Alarm and Trouble LED Indication. Each sensor base's LED pulses to indicate communications with the panel. If the control panel determines a sensor is in alarm, or is dirty or has some other type of trouble, the details are annunciated at the control panel and that sensor base's LED will be turned on steadily. During a system alarm, the control panel will control the LEDs such that an LED indicating a trouble will return to pulsing to help identify the alarmed sensors.

TrueAlarm Sensor Bases and Accessories

Sensor Base Features

Base mounted address selection:

- Address remains with its programmed location
- Accessible from front (DIP switch under sensor)

General features:

- Automatic identification provides default sensitivity when substituting sensor types
- Integral red LED for power-on (pulsing), or alarm or trouble (steady on)
- Locking anti-tamper design mounts on standard outlet box
- Magnetically operated functional test

Sensor Bases

4098-9792, Standard sensor base

4098-9789, Sensor base with wired connections for:

- 2098-9808 Remote LED alarm indicator **or** 4098-9822 relay (unsupervised)

4098-9791, Sensor base with supervised relay driver output (not compatible with 2120 CDT):

- Relay operation is programmable and can be manually operated from control panel
- Use with remote mount 2098-9737 relay
- Also includes wired connections for remote LED alarm indicator **or** 4098-9822 relay

Sensor Base Options

2098-9737, Remote or local mount supervised relay:

- DPDT contacts for resistive/suppressed loads, power limited rating of 3 A @ 28 VDC; non-power limited rating of 3 A @ 120 VAC (requires external 24 VDC coil power)

4098-9822, LED Annunciation Relay:

- Activates when base LED is on steady, indicating local alarm or trouble
- DPDT contacts for resistive/suppressed loads, power limited rating of 2 A @ 28 VDC; non-power limited rating of 1/2 A @ 120 VAC, (requires external 24 VDC coil power)

4098-9832, Adapter plate:

- Required for surface or semi-flush mounting to 4" square electrical box and for surface mounting to 4" octagonal box
- Can be used for cosmetic retrofitting to existing 6-3/8" diameter base product

2098-9808, Remote red LED Alarm Indicator:

- Mounts on single gang box (shown in illustration to right)



Description

TrueAlarm sensor bases contain integral addressable electronics that constantly monitor the status of the detachable photoelectric, ionization, or heat sensors. Each sensor's output is digitized and transmitted to the system fire alarm control panel every four seconds.

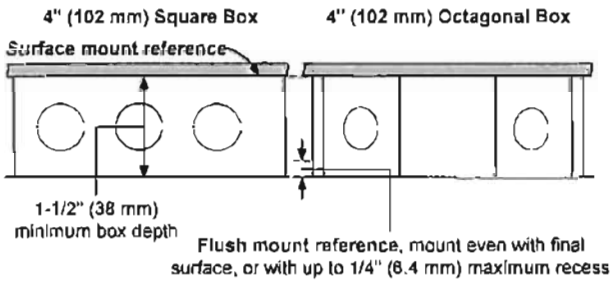
Since TrueAlarm sensors use the same base, different sensor types can be easily interchanged to meet specific location requirements. This feature also allows intentional sensor substitution during building construction. When conditions are temporarily dusty, instead of covering the smoke sensors (causing them to be disabled), heat sensors may be installed without reprogramming the control panel. Although the control panel will indicate an incorrect sensor type, the heat sensor will operate at a default sensitivity providing heat detection for building protection at that location.

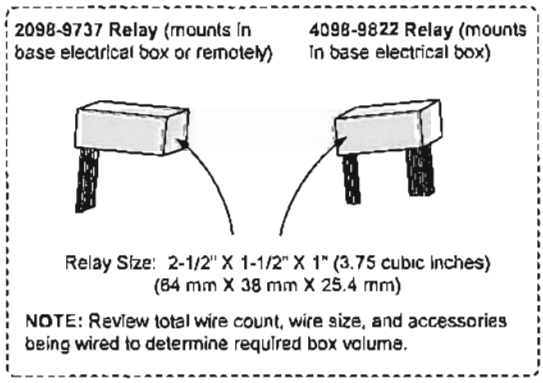
Mounting Reference

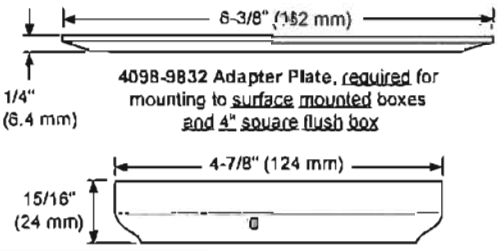
Electrical Box Requirements: (boxes are by others)

Without relay: 4" octagonal or 4" square, 1-1/2" deep; single gang, 2" deep

With relay : 4" octagonal or 4" square, 1-1/2" deep, with 1-1/2" extension ring







TrueAlarm Bases
4098-9789, -9791, & -9792

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TrueAlarm Sensors

Features

Sealed against rear air flow entry

Interchangeable mounting

EMI/RFI shielded electronics

Heat sensors:

- Selectable rate compensated, fixed temperature sensing with or without rate-of-rise operation
- Rated spacing distance between sensors:

Fixed Temp. Setting	UL & ULC Spacing	FM Spacing, Either Fixed Temperature Setting
135° F (57.2° C)	60 ft x 60 ft (18.3 m)	20 ft x 20 ft (6.1 m) for fixed temperature only; RTI = Quick
155° F (68° C)	40 ft x 40 ft (12.2 m)	50 ft x 50 ft (15.2 m) for fixed temperature with either rate-of-rise selection; RTI = Ultra Fast

Smoke Sensors:

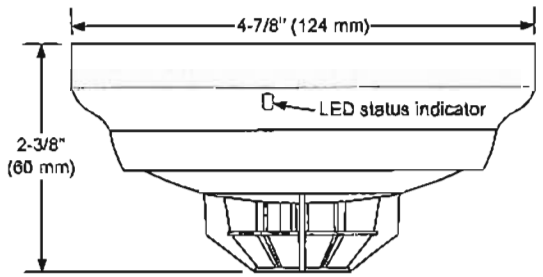
- Photoelectric or ionization technology sensing
- 360° smoke entry for optimum response
- Built-in insect screens

4098-9733 Heat Sensor

TrueAlarm heat sensors are self-restoring and provide rate compensated, fixed temperature sensing, selectable with or without rate-of-rise temperature sensing. Due to its small thermal mass, the sensor accurately and quickly measures the local temperature for analysis at the fire alarm control panel.

Rate-of-rise temperature detection is selectable at the control panel for either 15° F (8.3° C) or 20° F (11.1° C) per minute. Fixed temperature sensing is independent of rate-of-rise sensing and programmable to operate at 135° F (57.2° C) or 155° F (68° C). In a slow developing fire, the temperature may not increase rapidly enough to operate the rate-of-rise feature. However, an alarm will be initiated when the temperature reaches its rated fixed temperature setting.

TrueAlarm heat sensors can be programmed as a utility device to monitor for temperature extremes in the range from 32° F to 155° F (0° C to 68° C). This feature can provide freeze warnings or alert to HVAC system problems. *Refer to specific panels for availability.*



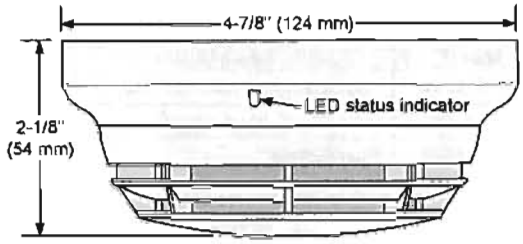
4098-9733 Heat Sensor with Base

WARNING: In most fires, hazardous levels of smoke and toxic gas can build up before a heat detection device would initiate an alarm. In cases where Life Safety is a factor, the use of smoke detection is highly recommended.

4098-9714 Photoelectric Sensor

TrueAlarm photoelectric sensors use a stable, pulsed infrared LED light source and a silicon photodiode receiver to provide consistent and accurate low power smoke sensing. Seven levels of sensitivity are available for each individual sensor, ranging from 0.2% to 3.7% per foot of smoke obscuration. Sensitivity is selected and monitored at the fire alarm control panel.

The sensor head design provides 360° smoke entry for optimum response to smoke from any direction. Due to its photoelectric operation, air velocity is not normally a factor, except for impact on area smoke flow.

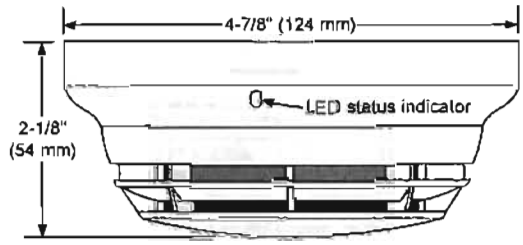


4098-9714 Photoelectric Sensor with Base

4098-9717 Ionization Sensor

TrueAlarm Ionization sensors use a single radioactive source with an outer sampling ionization chamber and an inner reference ionization chamber to provide stable operation under fluctuations in environmental conditions such as temperature and humidity. Smoke and invisible combustion gases can freely penetrate the outer chamber. With both chambers ionized by a small radioactive source [Am 241 (Americium)], a very small current flows in the circuit. The presence of particles of combustion will cause a change in the voltage ratio between chambers. This difference is measured by the electronics in the sensor base and digitally transmitted back to the control panel for processing.

Three levels of sensitivity are available for each ionization sensor: 0.5, 0.9, and 1.3% per foot of smoke obscuration.



4098-9717 Ionization Sensor with Base

Application Reference

Sensor locations should be determined only after careful consideration of the physical layout and contents of the area to be protected. Refer to NFPA 72, the *National Fire Alarm and Signaling Code*. On smooth ceilings, smoke sensor spacing of 30 ft (9.1 m) may be used as a guide. For detailed application information, refer to *4098 Detectors, Sensors, and Bases Application Manual* (574-709).

TrueAlarm Analog Sensing Product Selection Chart

TrueAlarm Sensor Bases

(Refer to Application Manual 574-709 and Installation Instructions 574-707 for additional information)

Model	Description	Compatibility	Mounting Requirements
4098-9792	Standard Sensor Base, no options	Sensors 4098-9714, -9733, & -9717	4" octagonal or 4" square box, 1-1/2" min. depth; or single gang box, 2" min. depth
4098-9789	Sensor Base with connections for Remote LED Alarm Indicator or Unsupervised Relay	Sensors 4098-9714, -9733, & -9717 2098-9808 remote LED alarm indicator or 4098-9822 relay	4" octagonal or 4" square box **Note**: Box depth requirements depend on total wire count and wire size, refer to accessories list below for reference.
4098-9791**	Sensor Base with connections for **Supervised** Remote Relay and connections for Remote Alarm Indicator or Unsupervised Relay	Sensors 4098-9714, -9733, & -9717 2098-9737 remote relay (supervised) 2098-9808 remote alarm indicator or 4098-9822 relay (unsupervised)	** NOTE: 4098-9791 is NOT compatible with the 2120 CDT

TrueAlarm Sensors

Model	Description	Compatibility	Mounting Requirements
4098-9714	Photoelectric Smoke Sensor	Bases 4098-9792, 4098-9789, and 4098-9791	Refer to base requirements
4098-9717	Ionization Smoke Sensor		
4098-9733	Heat Sensor		

TrueAlarm Sensor/Base Accessories

Model	Description	Compatibility	Mounting Requirements
2098-9737	Supervised Relay, mounts remote or in base electrical box	For use with 4098-9791 base	**Remote Mounting** requires 4" octagonal or 4" square box, 1-1/2" minimum depth **Base Mounting** requires 4" octagonal box, 2-1/8" deep with 1-1/2" extension ring
2098-9808	Remote Red LED Alarm Indicator on single gang stainless steel plate	Bases 4098-9789 and 4098-9791	Single gang box, 1-1/2" minimum depth
4098-9822	Relay, tracks base LED status (unsupervised, mounts only in base electrical box)		4" octagonal box, 2-1/8" deep with 1-1/2" extension ring
4098-9832	Adapter Plate	Bases 4098-9792, -9789, & -9791	**Required** for surface or semi-flush mounted 4" square box and for surface mounted 4" octagonal box

Specifications

General Operating Specifications		
Communications and Sensor Supervisory Power		MAPNET II or IDNet, auto-select, 24-40 VDC w/data, 400 µA typical, 1 address per base
Communications Connections		Screw terminals for in/out wiring, 18 to 14 AWG (0.82 mm^2 to 2.08 mm^2)
Remote LED Alarm Indicator Current		1 mA typical, no impact to alarm current
Remote LED Alarm Indicator and Relay Connections		Color coded wire leads, 18 AWG (0.82 mm^2)
UL Listed Temperature Range		32° to 100° F (0° to 38° C)
Operating Temperature Range	with 4098-9717 or 4098 -9733	32° to 122° F (0° to 50° C)
	with 4098-9714	15° to 122° F (-9° to 50° C)
Humidity Range		10 to 95% RH
Smoke Sensor Ambient Ratings	4098-9714, Photoelectric Sensor	Air velocity = 0-4000 ft/min (0-1220 m/min)
	4098-9717, Ionization Sensor	Air velocity = 0-200 ft/min (0-61 m/min); Altitude is up to 8000 ft (2.4 km)
Housing Color		Frost White
4098-9791 Base With Supervised Remote Relay 2098-9737 (see page 2 for contact ratings)		
Externally Supplied Relay Coil Voltage		18-32 VDC (nominal 24 VDC)
Supervisory Current		270 µA, from 24 VDC supply
Alarm Current with 2098-9737 Relay		28 mA, from 24 VDC supply
4098-9822 Unsupervised Relay, Requirements for Bases 4098-9789 and 4098-9791 (see page 2 for contact ratings)		
Externally Supplied Relay Coil Voltage		18-32 VDC (nominal 24 VDC)
Supervisory Current		Supplied from communications
Alarm Current		13 mA from separate 24 VDC supply

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Simplex

TrueAlarm® Analog Sensing

*UL, ULC, CSFM Listed; FM Approved; MEA (NYC) Acceptance**

Addressable Duct Sensor Housings with TrueAlarm Photoelectric Sensor; Available with Multiple Relay Control

Features

Compact air duct sensor housing with clear cover to monitor for the presence of smoke**

Includes factory installed TrueAlarm photoelectric smoke sensor and features:

- Individual sensor information processed by the host control panel to determine sensor status
- Digital transmission of analog sensor values via IDNet™ or MAPNET II®, 2-wire communications†
- Programmable sensitivity, consistent accuracy, environmental compensation, status testing, and monitoring of sensor dirt accumulation

Model 4098-9755:

- Basic duct sensor housing (no relay output) powered by IDNet/MAPNET II communications

Model 4098-9756:

- Duct sensor housing with supervised output for multiple remote relays; requires separate 24 VDC; includes one relay
- Relay output is under panel control
- At the panel, relay output can be activated manually or in response to a separate alarm or other input

General features:

- UL listed to Standard 268A
- Clear cover allows visual inspection
- Test ports provide functional smoke testing access with cover in place
- Mounts to rectangular ducts or round ducts; minimum size is 8" (203 mm) square or 18" (457 mm) diameter
- Magnetic test feature for alarm initiation at housing
- Optional weatherproof enclosure is available separately (refer to data sheet S4098-0032)

Diagnostic LEDs (on interface board):

- Red Alarm/Trouble LED for sensor status and communications polling display
- Yellow LED for open or shorted trouble indication of supervised relay control (4098-9756 only)

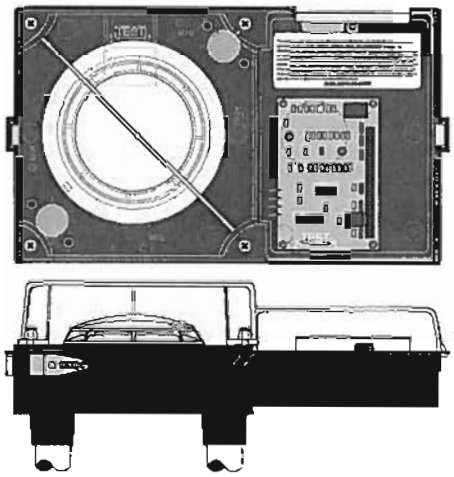
Sampling tubes (ordered separately):

- Available in multiple lengths to match duct size
- Installed and serviced with housing in place

Remote module options (ordered separately):

- Remote red status/alarm LED (2098-9808)
- Remote test station with LED (2098-9806)
- 4098-9843 remote relays (refer to page 2 for details)

* These products have been approved by the California State Fire Marshal (CSFM) pursuant to Section 13144.1 of the California Health and Safety Code. See CSFM Listing 3240-0028:241 for allowable values and/or conditions concerning material presented in this document. It is subject to re-examination, revision, and possible cancellation. Accepted for use – City of New York Department of Buildings – MEA35-93E. Additional listings may be applicable; contact your local Simplex product supplier for the latest status. Listings and approvals under Simplex Time Recorder Co. are the property of Tyco Safety Products Westminster.



Duct Sensor Housing, Front and Bottom View



2098-9808 2098-9806

Remote Status/Alarm Indicator and Test Station

Introduction

Operation. Simplex® compact air duct smoke sensor housings provide TrueAlarm operation for the detection of smoke in air conditioning or ventilating ducts. Sampling tubes are installed into the duct allowing air to be directed to the smoke sensor mounted in the housing.

TrueAlarm Sensor Operation

Digital Communication of Analog Sensing. Analog information from the sensor is digitally communicated to the control panel where it is analyzed. Sensor input is stored and tracked as an average value with an alarm or abnormal condition being determined by comparing the sensor's present value against its average.

Intelligent Data Evaluation. Monitoring each photoelectric sensor's average value provides a software filtering process that compensates for environmental factors (dust, dirt, etc.) and component aging, providing an accurate reference for evaluating new activity. The result is a significant reduction in the probability of false or nuisance alarms caused by shifts in sensitivity, either up or down.

** Please note that smoke detection in air ducts is intended to provide notification of the presence of smoke *in the duct*. It is not intended to, and will not, replace smoke detection requirements for open areas or other non-duct applications.

† TrueAlarm sensors and IDNet and MAPNET II communications are protected by one or more of the following U.S. Patents: 5,155,468; 5,173,683; 5,543,777; 5,400,014; 5,543,777; 5,710,541; D383,407; D388,352; D392,573; 4,796,025.

TrueAlarm Sensor Operation *(Continued)*

Control Panel Selection. Peak activity per sensor is stored to assist in evaluating specific locations. The alarm set point for each sensor is determined at the control panel, selectable as the individual application requires.

Sensor Status LED. Each sensor housing's red status LED (located on the electrical interface board) pulses to indicate communications with the panel. If the control panel determines that a sensor is in alarm, or that it is dirty or has some other type of trouble, the details are annunciated at the control panel and that sensor housing's status LED will be turned on steadily. During a system alarm, the control panel will control the LEDs such that an LED indicating a trouble will return to pulsing to help identify any alarmed sensors. (Remote Status/Alarm LEDs track the operation of the sensor housing LED.)

Photoelectric Sensing

TrueAlarm photoelectric sensors use a stable, pulsed infrared LED light source and a silicon photodiode receiver to provide consistent and accurate low power smoke sensing.

Photoelectric Sensing *(Continued)*

Typically duct sensor applications require less sensitive settings (such as 2.5% per foot obscuration) due to the ducts being a relative dirty environment. However, the standard seven levels of TrueAlarm sensor sensitivity are available for each individual sensor, ranging from 0.2% to 3.7% per foot of smoke obscuration. Sensitivity is selected and monitored at the fire alarm control panel.

Fire Alarm Control Panel Features

- Individual smoke sensitivity selection
- Sensitivity monitoring that satisfies NFPA 72 sensitivity testing requirements
- Peak value logging allows accurate analysis for sensitivity selection
- Automatic, once per minute individual sensor calibration check verifies sensor integrity
- Automatic environmental compensation
- Smoke sensitivity is displayed in percent per foot
- Ability to display and print detailed sensor information in plain English language
- Relays of model 4098-9756 are under panel control for ON, OFF, or override

Duct Sensor Selection Chart

Duct Smoke Sensor Housing with Photoelectric Sensor*

Model	Description	Compatibility
4098-9755	Basic Duct Sensor Housing; operating power is supplied by either IDNet or MAPNET II communications (no relay output)	Simplex fire alarm control panel models 4010, 4020, 4100, 4100U, and 4120. Also 2120 CDT if configured for MAPNET II, TrueAlarm operation
4098-9756	Duct Sensor Housing with supervised multiple relay output, requires separate 24 VDC fire alarm power and 4081-9008 end-of-line resistor harness; includes one 4098-9843 relay	Same as above except relay operation is not compatible with 2120 CDT; Relay output is for up to 15 total 4098-9843 Relays (additional relays are ordered separately)

Remote LED Indicator and Test Station, Select One if Required

Model	Description	Compatibility	Mounting
2098-9808	Red LED status indicator	4098-9755 4098-9756	Use single gang box, 3" H x 2" W x 2" D (76 mm x 51 mm x 51 mm)
2098-9806	Test Station with keyswitch and red LED status indicator (turning switch to "TEST" initiates alarm for system testing)		

Epoxy Encapsulated Remote Relay and End-of-Line Resistor

Model	Description	Compatibility	Location
4098-9843	Relay; single Form C (7 A @ 120 VAC); refer to pages 3 and 4 for additional relay information; one included with 4098-9756; wiring is 18 AWG (0.82 mm^2) color coded wire leads	4098-9756 only; connect up to 15	Locate relays within 3 ft (1 m) of device being controlled per NFPA 72
4081-9008	End-of-Line Resistor Harness; 10 kΩ, 1/2 W; (ref. 733-894); required to supervise remote relay coil connection	4098-9756	At last relay location

* Each duct housing includes an internally mounted model 4098-9714 TrueAlarm photoelectric sensor and an exhaust tube. A correctly sized sampling tube (ordered per application) is required, refer to chart below.

Sampling Tube Selection Chart, Ordered Separately Per Duct Width, Select One

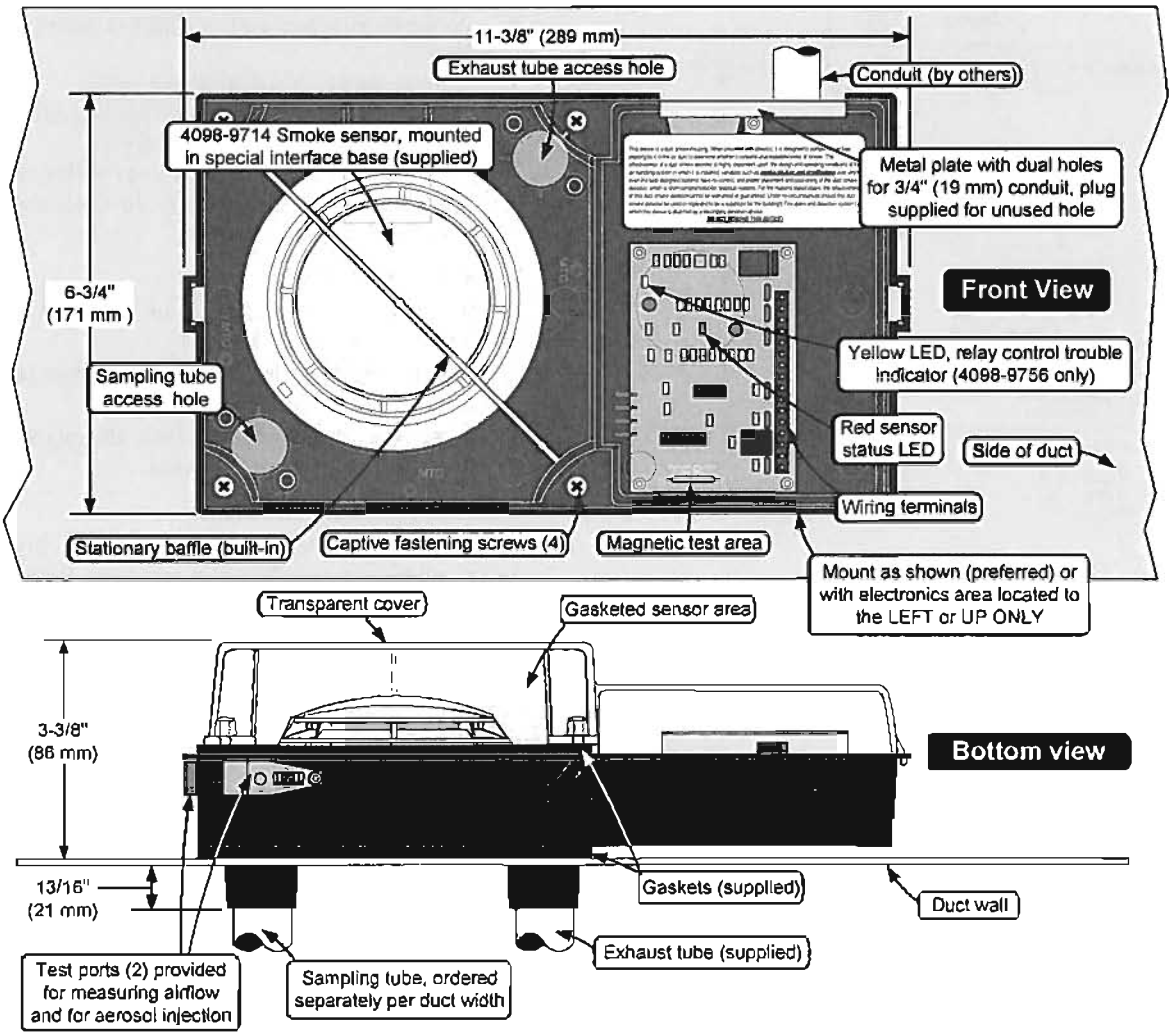
Overall Duct Width	Tube Required	Suggested Cut Length
12" (305 mm)	2098-9796	1/2" (12.7 mm) longer than duct width
13" to 23" (330 mm to 584 mm)	2098-9804	1/2" (12.7 mm) longer than duct width
24" to 46" (610 mm to 1168 mm)	2098-9797	2" (51 mm) longer than duct width
46" to 71" (1168 mm to 1803 mm)	2098-9798	2" (51 mm) longer than duct width
71" to 95" (1803 mm to 2413 mm)	2098-9799	2" (51 mm) longer than duct width

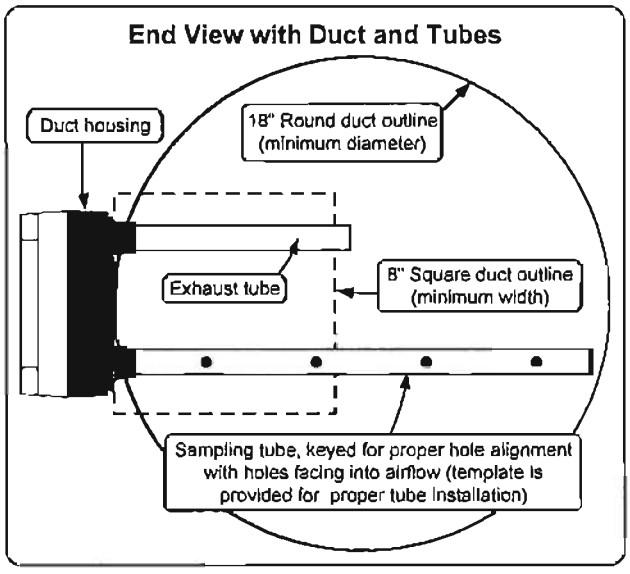
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Duct Sensor Housing Detail Reference

NOTE: Refer to Installation Instructions 574-776 for additional detail and maintenance information.

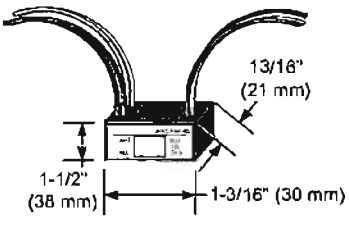




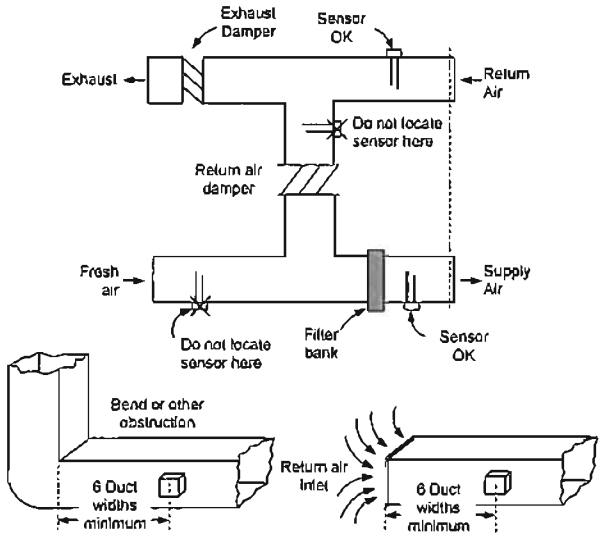
4098-9843 Remote Relay

(7 A @ 120 VAC, for use with 4098-9758 only)

NOTE: Mount in separate electrical box within 3 ft (1 m) of device being controlled per NFPA 72



Duct Sensor Location Reference



Preferred Duct Sensor Locations:

1. A minimum of six duct widths downstream from bends or inlets to avoid air turbulence.
2. On the downstream side of filters to detect fires in the filters.
3. In return ducts, ahead of mixing areas.
4. Upstream of air humidifier and cooling coil.
5. With accessibility for test and service.
6. For additional information, refer to NFPA 90A, *Standard for the Installation of Air Conditioning and Ventilating Systems*.

Locations to Avoid:

1. Where dampers closed for comfort control would interfere with airflow.
2. Next to outside air inlets (unless the intent is to monitor smoke entry from that area).
3. In return air damper branch ducts and mixing areas where airflow may be restricted.

Outdoor Applications Note:

For outdoor applications, refer to data sheet S4098-0032 for information on weatherproof enclosure 4098-9845.

Specifications

General Mechanical and Environmental	
Air Velocity Range (linear ft/min)	300 to 4000 ft/min (91 to 1220 m/min)
Sensor Sensitivity Range	0.2% to 3.7% per foot of obscuration, selectable at host control panel
UL Listed Temperature Range	32° F to 100° F (0° C to 38° C)
Operating Temperature Range	32° F to 122° F (0° C to 50° C)
Storage Temperature Range	0° F to 140° F (-18° C to 60° C)
Humidity Range	10% to 95% RH, non-condensing
Wiring Connections	Terminal blocks, 18 to 12 AWG (0.82 mm^2 to 3.31 mm^2)
Housing Color	Black base with clear cover
Remote Status/Alarm LED and Test Station with Remote Status/Alarm LED	
Remote Alarm LED Current	1.2 mA, no impact to 24 VDC alarm current (2098-9808 or 2098-9806)
Test Station Keyswitch Current	3.3 mA, no impact to 24 VDC alarm current (2098-9806)
Remote Alarm LED and Test Station Distance	250 ft (76 m) maximum
Addressable Operation	
Data Communications	IDNet or MAPNET II communications, auto-select, one address per housing; provides operating power to model 4098-9755
Model 4098-9756 with Supervised Multiple Relay Control, Requires Separate Fused 24 VDC from Fire Alarm Power Supply	
Input Voltage	18-32 VDC (24 VDC nominal)
Standby Current	3 mA @ 24 VDC
Alarm Current (one relay activated)	15 mA @ 24 VDC; add 15 mA for each additional remote 4098-9843 relay
Supervised Remote Relay Control Output	For use with 4098-9843 relay only, quantity of 15 maximum; distance of 500 ft (152 m) maximum; requires 4081-9008 (ref. 733-894) 10 kΩ, 1/2 W end-of-line resistor
4098-9843 Relay Output Ratings, Single Form C, use with Model 4098-9756 Only	
Coil Current	15 mA @ 24 VDC, up to 15 maximum per relay control output
Relay Contacts	7 A at 0.35 PF @ 28 VDC & 120 VAC 250 µA @ 5 VDC
Location Distance	500 ft (152 m) maximum to relay coils; relays must be within 3 ft (1 m) of device being controlled per NFPA 72

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Simplex

Multi-Application Peripherals

UL, ULC, CSFM Listed; FM Approved;
*MEA (NYC) Acceptance**

IDNet or MAPNET II Communicating Devices
Addressable Manual Stations

Features

Individually addressable manual fire alarm stations with:

- Power and data supplied via IDNet or MAPNET II addressable communications using a single wire pair
- Operation that complies with ADA requirements
- The NO GRIP Single Action Station and Retrofit Kit are available with a more easily operated pull lever for applications where anticipated users may find the standard station lever difficult to activate
- Pull lever that protrudes when alarmed
- Break-rod supplied (use is optional)
- Models are available with single or double action (breakglass or push) operation
- UL listed to Standard 38

Compatible with the following Simplex® control panels:

- Model Series 4100ES, 4100U, 4010ES, 4010, 4008, 4020, 4100, and 4120 fire alarm control panels equipped with either IDNet or MAPNET II communications
- Model Series 2120 Communicating Device Transponders (CDTs) equipped with MAPNET II communications

Compact construction:

- Electronics module enclosure minimizes dust infiltration
- Allows mounting in standard electrical boxes
- Screw terminals for wiring connections

Tamper resistant reset key lock (keyed same as Simplex fire alarm cabinets)

Multiple mounting options:

- Surface or semi-flush with standard boxes or matching Simplex boxes
- Flush mount adapter kit
- Adapters are available for retrofitting to commonly available existing boxes

Description

The Simplex addressable manual station combines the familiar Simplex manual station housing with a compact communication module that is easily installed to satisfy demanding applications. Its integral individual addressable module (IAM) constantly monitors status and communicates changes to the connected control panel via IDNet or MAPNET II communications wiring.

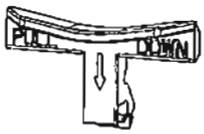
* Refer to page 2 for specific model listings. This product has been approved by the California State Fire Marshal (CSFM) pursuant to Section 13144.1 of the California Health and Safety Code. See CSFM Listing 7150-0026:224 for allowable values and/or conditions concerning material presented in this document. It is subject to re-examination, revision, and possible cancellation. Accepted for use – City of New York Department of Buildings – MEA35-93E. Additional listings may be applicable; contact your local Simplex product supplier for the latest status. Listings and approvals under Simplex Time Recorder Co. are the property of Tyco Fire Protection Products.



4099-9001
Single action



4099-9020
NO GRIP
Single action



4099-9805
NO GRIP
Retrofit kit



4099-9002
Breakglass



4099-9003
Push



With 2099-9828
Institutional
Cover kit

Operation

Activation of the 4099-9001 single action manual station requires a firm downward pull to activate the alarm switch. Completing the action breaks an internal plastic break-rod (visible below the pull lever, use is optional). The use of a break-rod can be a deterrent to vandalism without interfering with the minimum pull requirements needed for easy activation. The pull lever latches into the alarm position and remains extended out of the housing to provide a visible indication.

Single Action NO GRIP Station 4099-9020. For applications such as California Building Code, Title 24, which requires "Controls and operating mechanisms shall be operable with one hand and shall not require tight grasping, pinching or twisting of the wrist" the model 4099-9020 station provides a more easily operated pull lever compared to standard stations. Retrofit of existing stations is available using the 4099-9805 Retrofit kit.

Double Action Stations (Breakglass) require the operator to strike the front mounted hammer to break the glass and expose the recessed pull lever. The pull lever then operates as a single action station.

Double Action Stations (Push Type) require that a spring loaded interference plate (marked PUSH) be pushed back to access the pull lever of the single action station.

Station reset requires the use of a key to reset the manual station lever and deactivate the alarm switch. (If the break-rod is used, it must be replaced.)

Station testing is performed by physical activation of the pull lever. Electrical testing can be also performed by unlocking the station housing to activate the alarm switch.

Addressable Manual Station Product Selection

Addressable Manual Stations, Red Housing with White Letters and White Pull Lever

Model	Description	Housing	Pull Lever	Listings
4099-9001	Single action, English	FIRE ALARM	PULL DOWN	UL, ULC, FM, CSFM, MEA
4099-9001CB	Single action, Bilingual English and French	FEU FIRE	TIREZ PULL	ULC, FM
4099-9001CF	Single action, French	ALARME FEU	ABAISSEZ	
4099-9002	Double action, Breakglass operation, English	FIRE ALARM	PULL DOWN	UL, ULC, FM, CSFM, MEA
4099-9003	Double action, Push operation, English			
4099-9020	Single action NO GRIP operation, English	FIRE ALARM	PULL DOWN	UL, ULC, FM, CSFM

Accessories

Model	Description	
2975-9178	Surface mount steel box, red	Refer to page 3 for dimensions
2975-9022	Cast aluminum surface mount box, red	
2099-9813	Semi-flush trim plate for double gang switch box, red	Typically for retrofit, refer to page 4
2099-9814	Surface trim plate for Wiremold box V5744-2, red	
2099-9819	Flush mount adapter kit, black	Refer to page 4 for details
2099-9820	Flush mount adapter kit, beige	
2099-9803	Replacement breakglass	
2099-9804	Replacement break-rod	
2099-9828	Institutional cover kit for field installation on 4099-9001	
4099-9805	Retrofit Kit for field conversion of a single action station to a NO GRIP station; refer to Installation Instructions 579-1007 for details	

Specifications (refer to Installation Instructions 574-332 for additional information)

Power and Communications	IDNet or MAPNET II communications, 1 address per station
Address Means	DIP switch, 8 position
Wire Connections	Screw terminal for in/out wiring, for 18 to 14 AWG wire
UL Listed Temperature Range	32° to 120° F (0° to 49° C) intended for indoor operation
Humidity Range	Up to 93% RH at 100° F (38° F)
Housing Color	Red with white raised lettering
Material	Housing and pull lever are Lexan polycarbonate or equal
Pull Lever Color	White with red raised lettering
Housing Dimensions	5" H x 3-3/4" W x 1" D (127 mm x 95 mm x 25 mm)

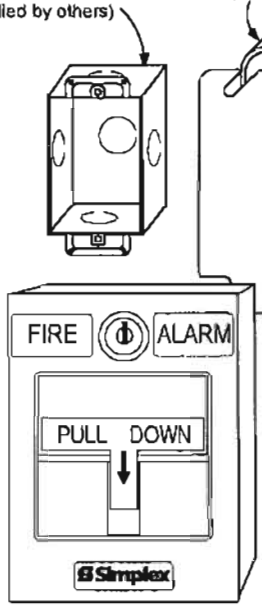
Addressable Manual Station Semi-Flush Mounting

Single Gang Box Mount

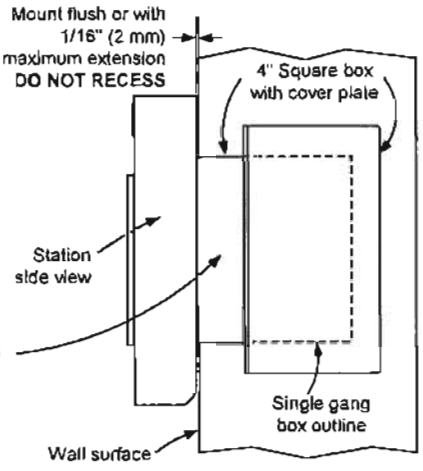
Single gang box, 2-1/2" deep (64 mm), RACO #500 or equal (supplied by others)

4" Square Box Mount

4" (102 mm) square box, 2-1/8" (54 mm) minimum depth, RACO #231 or equal (supplied by others)



Single gang cover plate, 3/4" (19 mm) extension, RACO #773 or equal (supplied by others)



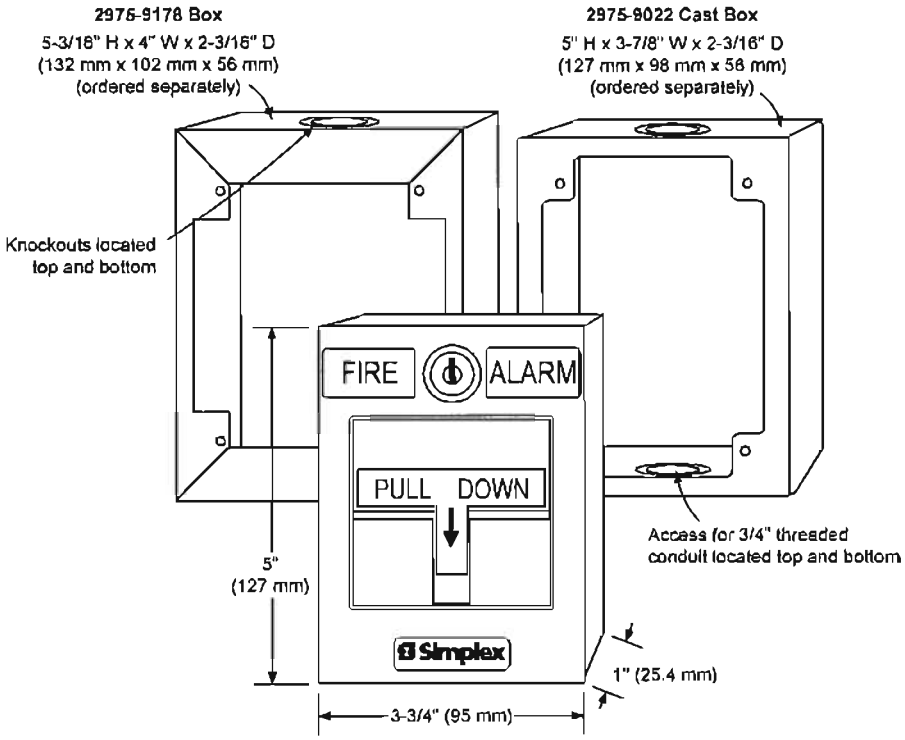
Semi-Flush Mount Side View

12-608156

Addressable Manual Stations Surface Mounting

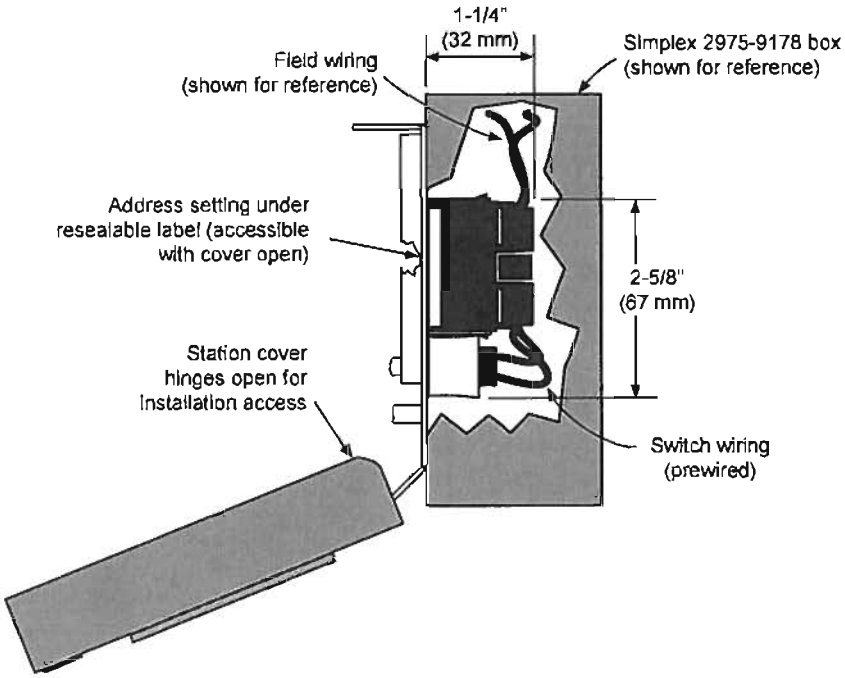
Preferred Mounting. For surface mounting of these addressable manual stations, the preferred electrical boxes are shown in the illustration to the right.

Additional Mounting Reference. Refer to page 4 for Wiremold box mounting compatibility.



4099 Series Addressable Manual Station

Surface Mount Side View with Internal Detail



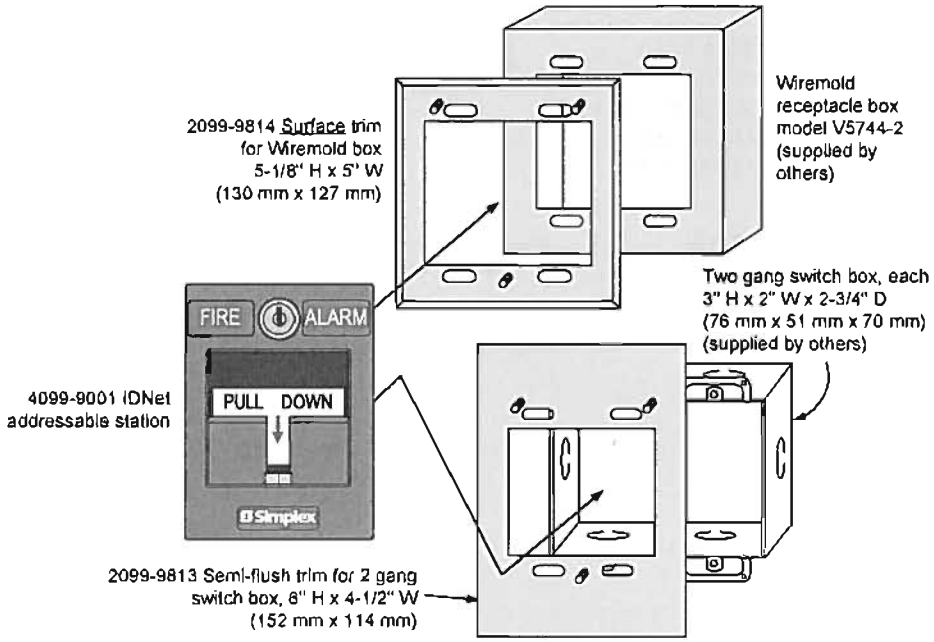
Application Reference

Refer to NFPA 72, the *National Fire Alarm and Signaling Code*, and all applicable local codes for complete requirements for manual stations. The following summarizes the basic requirements.

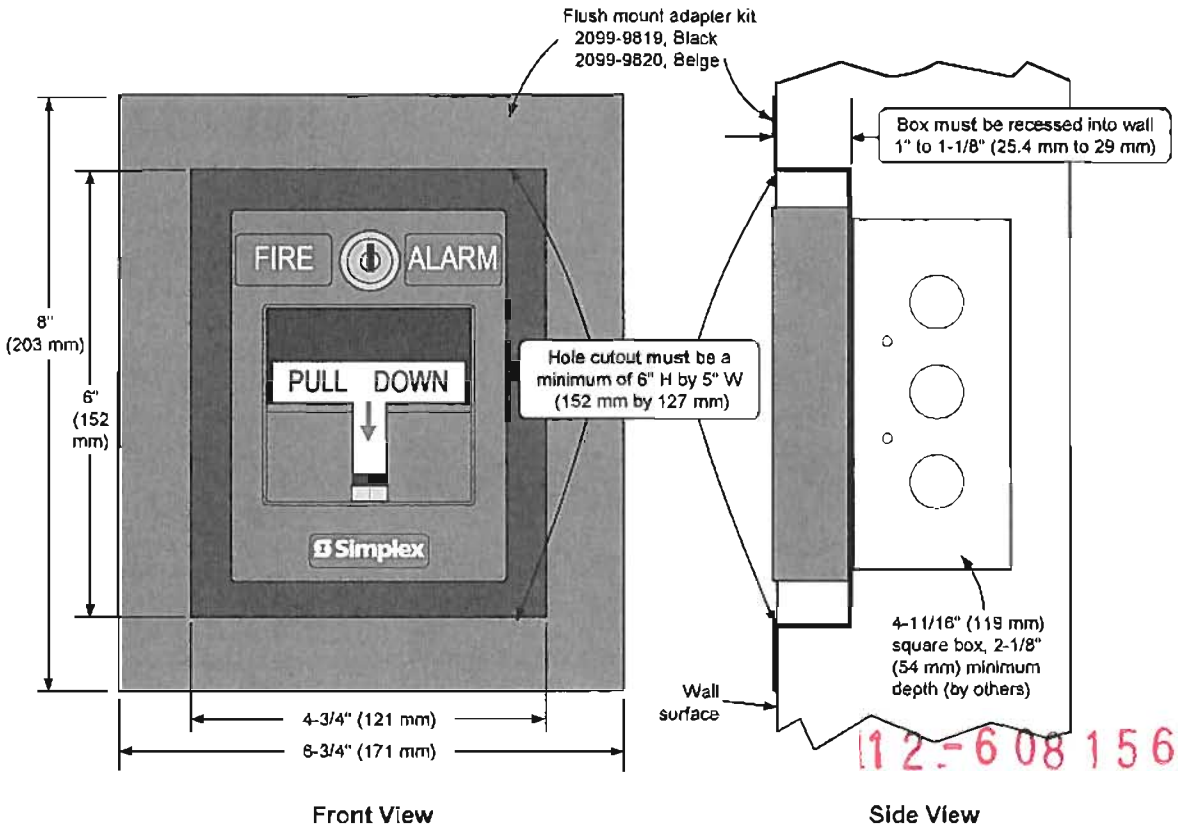
1. Stations shall be located in the normal path of exit and distributed in the protected area such that they are unobstructed and readily accessible.
2. Mounting shall be with the operable part not less than 3-1/2 ft (1.1 m) and not more than 4-1/2 ft (1.37 m) above floor level.
3. At least one station shall be provided on each floor. Additional stations shall be provided to obtain a travel distance not more than 200 ft (61 m) to the nearest station from any point in the building.
4. When manual station coverage appears limited in any way, additional stations should be installed.

Addressable Manual Station, Additional Mounting Information

For retrofit and new installations, additional compatible mounting boxes and the required adapter plates are shown in the illustration to the right.



Addressable Manual Station, Flush Mounting Information



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12-608156

Simplex

Multi-Application Peripherals

*UL, ULC, CSFM Listed; FM Approved; MEA (NYC) Acceptance**

IDNet™ and MAPNET II® Communicating Devices, Individual Addressable Modules (IAMs)

Features

IDNet or MAPNET II addressable communications supply both data and power over a single wire pair to provide:**

- Supervised Class B monitoring of normally open, dry contacts
- Total wiring distance from IAM to supervision resistor(s) of up to 500 ft (152 m)
- Monitored connection is compatible with Simplex® 2081-9044 Overvoltage Protectors for outdoor wiring or electrically noisy applications
- For use in indoor locations up to 158° F (70° C) such as attic spaces or similar applications

For use with following Simplex control panels:

- Model Series 4008, 4010, and 4100U fire alarm control panels for IDNet communications
- Model Series 4100/4100U, 4120, 4020, and 2120 Communicating Device Transponders (CDTs) equipped with MAPNET II communications

Model 4090-9001:

- Enclosed design minimizes dust infiltration
- Mounts in standard single gang electrical box
- Screw terminals for wiring connections
- Visible LED flashes to indicate communications
- Optional covers are available to allow LED to be viewed after installation (requires mounting bracket, ordered separately)

Model 4090-9051:

- Encapsulated design for extended exposure to high humidity (LED is not present on this model)
- Color coded 18 AWG leads for wiring

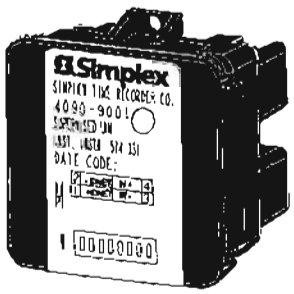
IDNet communications provides current limited monitoring:

- Provides monitoring of tamper switch (supervisory) and waterflow switch (alarm) on same circuit using one point
- Available with IDNet communications only

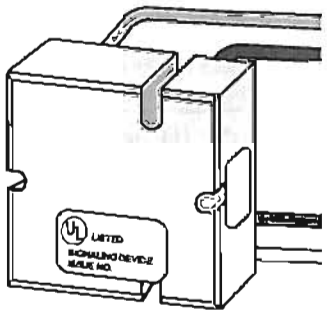
Multiple operation modes are available and are selectable at the control panel:

- Contact closure status can be tracked
- Momentary contact closure conditions can be selected at the panel to be latched or tracked (not available with the 2120 CDT)

UL listed to Standard 864



4090-9001 Supervised IAM
(shown approximately 3/4 size)



4090-9051 Supervised IAM
(shown approximately 3/4 size)

Description

Individual addressable modules (IAMs) receive both power and communications from a two-wire MAPNET II or IDNet circuit. They provide location specific addressability to a single initiating device (such as single station smoke detector alarm contacts or heat detector contacts) or multiple devices at the same location by monitoring normally open dry contacts and the wiring to an end-of-line resistor.

Model 4090-9001 is packaged in a thermoplastic housing and provides screw terminal connections and a status indicating LED.

Model 4090-9051 is an encapsulated package with wire leads. It does not provide a status indicating LED.

* These products have been approved by the California State Fire Marshal (CSFM) pursuant to Section 13144.1 of the California Health and Safety Code. See CSFM Listing 7300-0026:223 for allowable values and/or conditions concerning material presented in this document. It is subject to re-examination, revision, and possible cancellation. Accepted for use – City of New York Department of Buildings – MEA35-93E. Additional listings may be applicable; contact your local Simplex product supplier for the latest status. Listings and approvals under Simplex Time Recorder Co. are the property of Tyco Safety Products Westminster.

** IDNet and MAPNET II addressable communications are protected under U.S. Patent Nos. 4,796,025, 5,966,002; and 6,034,601.

Operation

Contact Closure. Closure of the monitored contact(s) initiates an alarm or other response as programmed at the fire alarm control panel. An open in the monitored circuit wiring will cause a trouble to be reported.

Panel Selections. Selections can be made at the control panel to maintain the alarm condition if the initiating device contacts are momentary, such as from a rate-of-rise heat detector, or to track the device contact status (not available with the 2120 CDT).

Current Limited Operation Applications

For use with IDNet communications only, these IAMs can provide quad-state sensing of normal, open circuit, short circuit, and current limited conditions. (Program type is "T-sense.") With the proper end-of-line and current limiting resistors, dual functions such as tamper switch and waterflow switch monitoring can be determined and communicated by a single addressable point.

IAM Product Selection

Model	Description
4090-9001	Supervised IAM, mounted in thermoplastic housing with screw terminals; see applicable options below
4090-9051	Supervised IAM, encapsulated with wire leads

Optional Trim Plates and Mounting Bracket for Model 4090-9001

Model	Description
4090-9806	For semi-flush mounted box — Trim plate with LED viewing window, requires 4090-9810 mounting bracket, includes mounting screws; galvanized steel
4090-9807	For surface mounted box — Trim plate with LED viewing window, requires 4090-9810 mounting bracket, includes mounting screws; galvanized steel
4090-9810	Mounting bracket, mounts IAM to electrical box and provides screw holes for trim plate, required for optional trim plates

End-of-Line Resistor Harnesses (ordered separately as required)

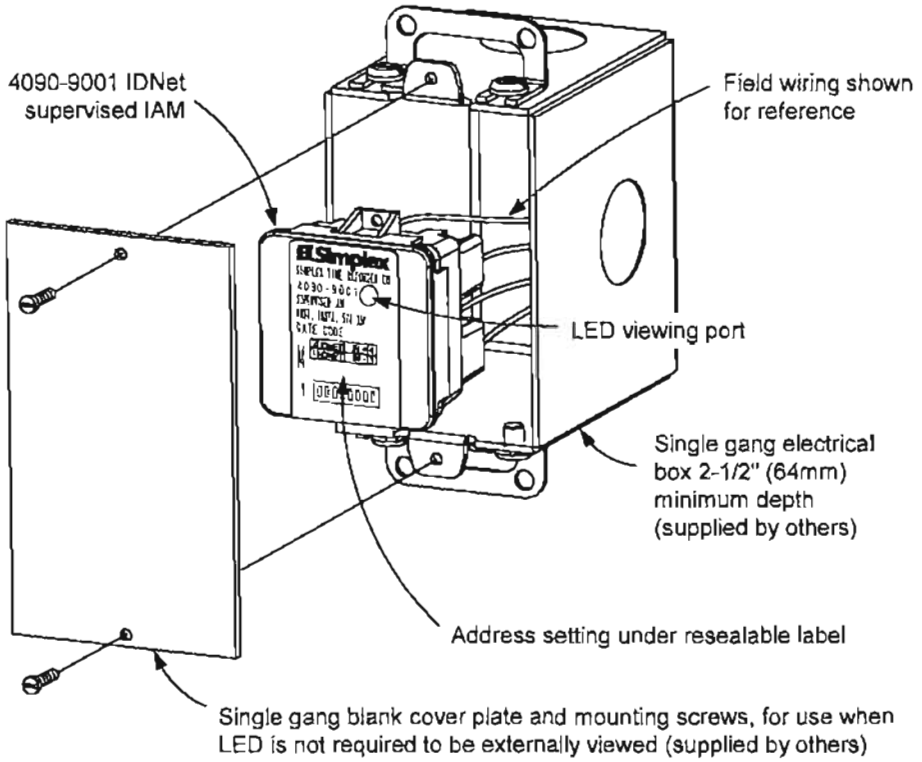
Model	Reference No.	Description
4081-9004	733-886	6.8 kΩ, 1/2 W; Standard end-of-line resistor harness for N.O. contact supervision
4081-9003	733-896	4.7 kΩ, 1/2 W — Use for current limited monitoring applications
4081-9005	733-984	1.8 kΩ, 1/2 W — Use for current limited monitoring applications

Specifications

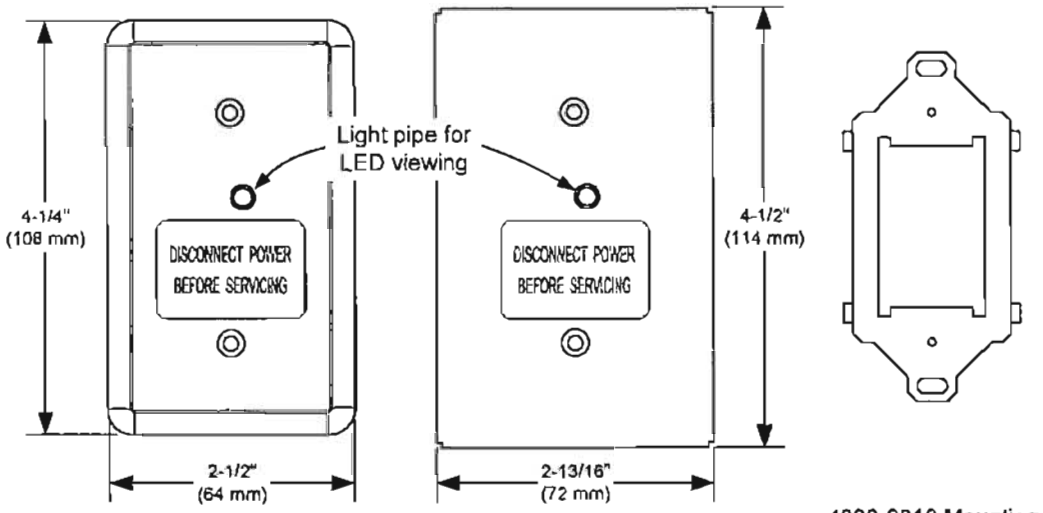
Electrical		
Power and Communications		MAPNET II or IDNet, auto selected, 1 address per IAM
Input Requirements		Normally open, dry contacts
Wire Connections	4090-9001	Screw terminals for in/out wiring, 18 to 14 AWG wire (0.82 mm^2 to 2.08 mm^2)
	4090-9051	Color coded wire leads, 18 AWG (0.82 mm^2), 8" long (203 mm)
Reference Documents	Installation Instructions	574-331 for 4090-9001; 579-572 for 4090-9151
	Field Wiring Diagrams	842-073 for IDNet operation; 841-804 for MAPNET II operation
Wiring Distances		
Distance from IAM to Contacts		500 ft (152 m) maximum without protectors
		400 ft (122 m) maximum with 2081-9044 Overvoltage Protectors
Wiring Distance Reference per channel, MAPNET II or IDNet Communications		2500 ft (762 m) maximum from fire alarm control panel
		10,000 ft (3048 m) maximum total wiring distance (including T-Taps)
Mechanical		
Dimensions	4090-9001	1-9/16" W x 1-3/4" H x 1-1/4" D (40 mm x 44 mm x 32 mm)
	4090-9051	1-9/16" W x 1-9/16" H x 9/16" D (40 mm x 40 mm x 14 mm)
Housing Material, 4090-9001		Black thermoplastic
Encapsulation Material, 4090-9051		Epoxy, beige
Temperature Range		32° to 158° F (0° to 70° C); intended for indoor operation
Humidity Range		Up to 93% RH at 100° F (38° C)

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Mounting Reference, Single Gang Blank Cover Plate



4090-9806, Trim plate for semi-flush mounted box

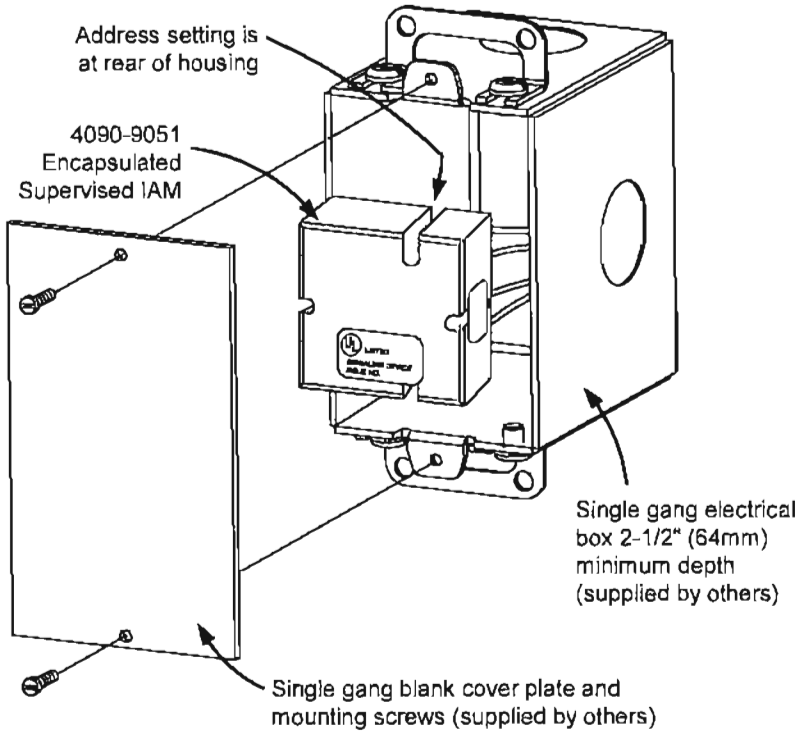
4090-9807, Trim plate for surface mounted box

4090-9810 Mounting bracket, ordered separately

NOTE: These mounting plates require mounting bracket 4090-9810.

Optional Trim Plates and Mounting Bracket for Visible LED

4090-9051 Mounting Information



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112-608156

Simplex

Multi-Application Peripherals

*UL, ULC Listed; FM, CSFM, and MEA (NYC) Approved**

IDNet™ Communicating Devices
Model 4090-9002 Relay IAM

Features

IDNet addressable interface modules for use with Simplex® models 4010 and 4100U fire alarm control panels**

4090-9002, Individual Addressable Relay Module (Relay IAM):

- A single addressable point provides control and status tracking of a Form "C" contact
- Low power latching relay design allows IDNet communications to supply both data and module power

Compact, sealed construction:

- Enclosed design minimizes dust infiltration
- Mounts in standard 4" square electrical box
- Screw terminals for wiring connections
- Visible LED flashes to indicate communications
- Optional covers are available to allow LED to be viewed after installation

UL listed to Standard 864

Description

IDNet Relay IAMs allow fire alarm control panels to control a remotely located Form "C" contact using IDNet addressable communications for both data and module power. Typical applications would be for switching local power for control functions such as elevator capture, or control of HVAC components, pressurization fans, dampers, etc. Relay status is also communicated requiring only one device address.

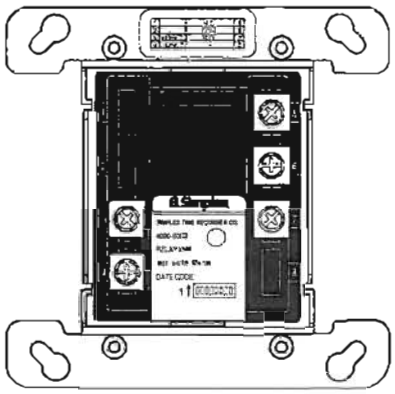
Product Selection

Model	Description
4090-9002	Relay IAM

Optional Trim Plates

Model	Description	
4090-9801	Trim plate with LED viewing window, includes mounting screws; galvanized steel	For semi-flush mounted box
4090-9802		For surface mounted box

* This product has been approved by the California State Fire Marshal (CSFM) pursuant to Section 13144.1 of the California Health and Safety Code. See CSFM Listing 7300-0026:223 for allowable values and/or conditions concerning material presented in this document. It is subject to re-examination, revision, and possible cancellation. Accepted for use – City of New York Department of Buildings – MEA35-93E. Additional listings may be applicable; contact your local Simplex product supplier for the latest status. Listings and approvals under Simplex Time Recorder Co. are the property of Tyco Safety Products Westminster.



4090 Series IDNet Relay IAM Package
(shown approximately 1/2 size)

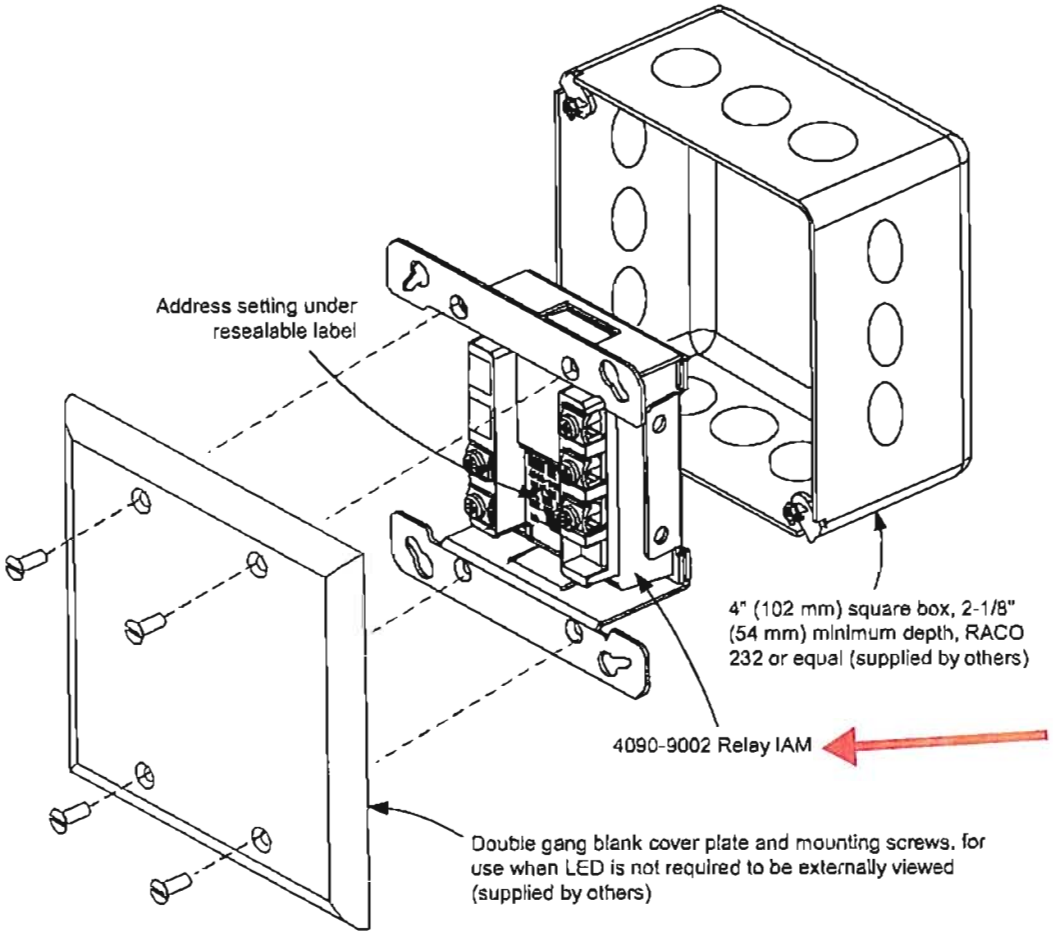
Specifications

(Refer to Installation Instructions 574-184 for additional information.)

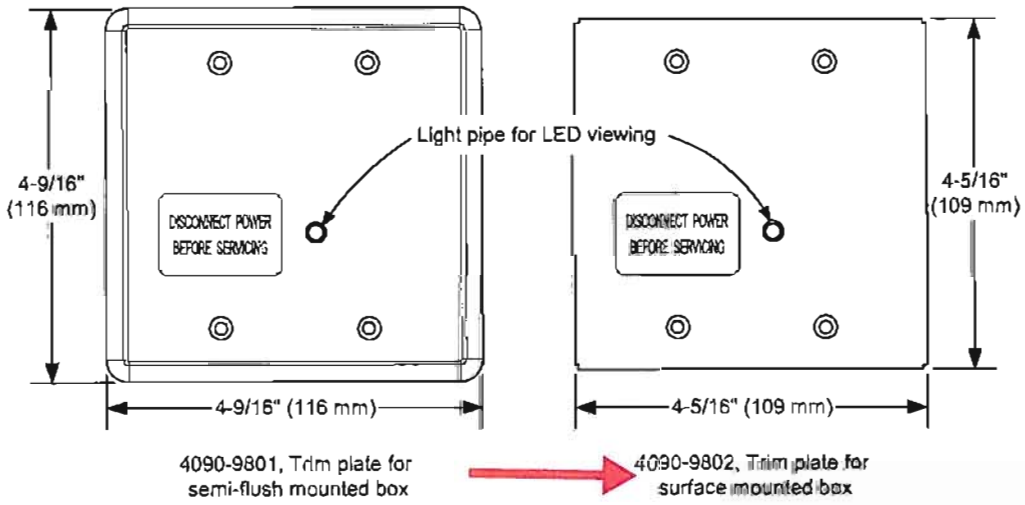
Communications		4010 or 4100U IDNet, 1 address per device
Relay IAM Power		Supplied by IDNet communications
Contact Ratings	Type	Form C, SPDT
	Power-Limited	2 A @ 24 VDC, for transient suppressed loads
		1 A @ 24 VDC for inductive loads
	Nonpower-Limited	1/2 A @ 120 VAC, for transient suppressed loads
Wire Connections		Screw terminals for in/out wiring, 18 to 14 AWG wire (0.82 to 2.08 mm²)
IDNet Wiring Reference		Up to 2500 ft (762 m) from fire alarm control panel
		Up to 10,000 ft (3048 m) total wiring distance (including T-Taps)
		Compatible with Simplex 2081-9044 Overvoltage Protectors
Dimensions		4-1/8" H x 4-1/8" W x 1-3/8" D (105 mm x 105 mm x 35 mm)
Housing Material		Black thermoplastic
Mounting Plate Material		Sheet metal, galvanized
Temperature Range		32° to 120° F (0° to 49° C), intended for indoor operation
Humidity Range		Up to 93% RH at 100° F (38° C)

** IDNet addressable communications are protected by U.S. Patent No. 4,796,025.

Relay IAM Mounting Information



Mounting Reference, Double Gang Blank Cover Plate



Optional Trim Plates for Visible LED

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COOPER Notification

Series CH Chimes and Chime Strobes

112-608156



SERIES CH70
CHIME STROBE

SERIES CH90
CHIME STROBE

SERIES CH90
CHIME

SERIES CH70
CHIME

Description

The Wheelock Series CH Chimes and Chime Strobes minimize alarm system power supply requirements and wiring costs with a low current draw and a patented chime mounting plate for fast, easy installation. Each model has a built-in level adjustment feature and an aesthetic two (2) screw grille cover.

These unique solid-state chime appliances provide field selectable single-stroke or vibrating operation with Anechoic sound levels adjustable up to 83 dB and tone adjustable from 800 to 1200 Hz.

Strobe options for wall mount models include 1575cd or Wheelock patented MCW multi-candela strobe with field selectable candela settings of 15/30/75/110cd or the high intensity MCWH strobe with field selectable 135/185cd.

Ceiling mount models are available in Wheelock patented MCC multi-candela ceiling strobe with field selectable intensities of 15/30/75/95cd or the high intensity MCCH strobe with field selectable 115/177cd.

The strobe portion of all Series CH Chime Strobes may be synchronized when used in conjunction with the Wheelock SM, DSM Sync Modules, Wheelock Power Supplies or other manufacturers panels incorporating the Wheelock Patented Sync Protocol. Wheelock's synchronized strobes offer an easy way to comply with ADA recommendations concerning photosensitive epilepsy as well as meeting the requirements of NFPA 72 and UFC.

The Series CH Chime Strobes are UL Listed for indoor, wall or ceiling mount applications under Standard 1971 for Signaling Devices for the Hearing-Impaired and under Standard 464 for Private Mode Audible Signal Appliances. They are available in two attractive package styles for flush mounting to standard electrical boxes or convenient surface mounting. All models include IN/OUT wiring terminations that accept two #12 to #18 AWG wires at each terminal. Inputs are polarized for compatibility with industry standard reverse polarity supervision.

Features

- Approvals include: UL Standard 1971, UL Standard 464, New York City (MEA), and California State Fire Marshal (CSFM) and Chicago (BFP) See approvals by model in Specifications and Ordering Information
- ADA/NFPA/UFC/ANSI compliant
- Complies with OSHA 29 Part 1910.165
- Wall mount models are available with Field

  Selectable Candela Settings of 15/30/75/110cd or 135/185cd (Multi-Candela models) or 1575cd (single candela model)
- Ceiling mount models are available with field selectable candela settings of 15/30/75/95cd or

  115/177cd (Multi-candela models)
- Low current draw with temperature compensation to reduce power consumption and wiring costs
- Strobes produce 1 flash per second over the regulated voltage range
- 24 VDC with wide UL "Regulated Voltage" using filtered DC or unfiltered VRMS input voltage
- Synchronize using the Wheelock Sync Modules or panels with built-in Wheelock Patented Sync Protocol
- Adjustable Volume and Tone Control
- Single Stroke or Vibrating Operation
- Fast Installation with IN/OUT screw terminals using #12 to #18 AWG wires

S5391 MEA 151-92-E 7125-0785:161 7135-0785:109 (Chime Only) FM APPROVED

NOTE: All CAUTIONS and WARNINGS are identified by the symbol ⚠. All warnings are printed in bold capital letters.

⚠ **WARNING: PLEASE READ THESE SPECIFICATIONS AND ASSOCIATED INSTALLATION INSTRUCTIONS CAREFULLY BEFORE USING, SPECIFYING OR APPLYING THIS PRODUCT. VISIT WWW.COOPERWHEELOCK.COM OR CONTACT COOPER WHEELOCK FOR THE CURRENT INSTALLATION INSTRUCTIONS. FAILURE TO COMPLY WITH ANY OF THESE INSTRUCTIONS, CAUTIONS OR WARNINGS COULD RESULT IN IMPROPER APPLICATION, INSTALLATION AND/OR OPERATION OF THESE PRODUCTS IN AN EMERGENCY SITUATION, WHICH COULD RESULT IN PROPERTY DAMAGE, AND SERIOUS INJURY OR DEATH TO YOU AND/OR OTHERS.**

General Notes:

- Strobes are designed to flash at 1 flash per second minimum over their "Regulated Voltage Range". Note that NFPA-72 specifies a flash rate of 1 to 2 flashes per second and ADA Guidelines specify a flash rate of 1 to 3 flashes per second.
- All candela ratings represent minimum effective Strobe intensity based on UL Standard 1971.
- Series NS Strobe products are listed under UL Standard 1971 for indoor use with a temperature range of 32°F to 120°F (0°C to 49°C) and maximum humidity of 93% (± 2%).
- Series NH horns are listed under UL Standard 464 for audible signal appliances (indoor use only).
- **"Regulated Voltage Range" is the newest terminology used by UL to identify the voltage range. Prior to this change UL used the terminology "Listed Voltage Range".**

Table 1: Average RMS Current

CH70/ CH90 Chimes	Chime current	CH70 Strobe current - Wall Mount							CH90 Strobe current - Ceiling Mount					
		241575W	24MCW				24MCWH		24MCC				24MCCH	
		1575cd	15cd	30cd	75cd	110cd	135cd	185cd	15cd	30cd	75cd	95cd	115cd	177cd
24 vdc	**0.022**	**0.060**	**0.041**	**0.063**	**0.109**	**0.140**	**0.195**	**0.270**	**0.045**	**0.070**	**0.119**	**0.159**	**0.195**	**0.270**
UL max*	0.022	0.090	0.060	0.092	0.165	0.220	0.300	0.420	0.065	0.105	0.189	0.249	0.300	0.420

Table 2: Chime dBA ratings

CH70/CH90 sound level	Peak dBA @ 10 ft. anechoic	dBA @ 10 ft reverberant	
		Min	Max
	83	52	58

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

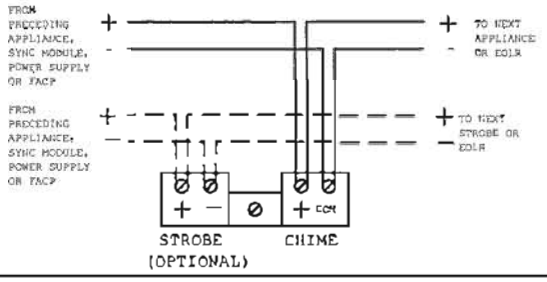
Application

1. The chimes are factory set in single stroke (SS) mode. They can be changed to vibrating (VIB) mode with jumper on PC Board. SINGLE STROKE OPERATION: The minimum input pulse duration must be at least 160 ms "on" time and 160 ms "off" time. The chime will only operate once each time it is pulsed. This mode is recommended for coded systems. VIBRATING OPERATION: Continuous input voltage applied to the chime will activate the chime at one-second intervals.
2. The volume and tone controls have been adjusted at the factory to insure maximum dBA output. However, once the mode is selected, the installer may want to fine-tune the signal to better suit the application.
3. Anechoic dBA is measured in an anechoic chamber with peak meter response. Reverberant dBA is rated per UL Standard 464.
4. Chime inrush current is 0.100 amps maximum with filtered DC input (0.140 amps with VRMS input voltage) with a time duration of 100 milliseconds.

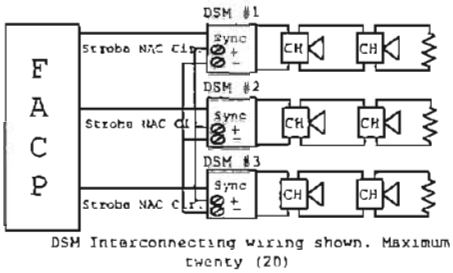
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*Wiring Diagrams**

SERIES CH CHIME & STROBE OPERATE INDEPENDANTLY (NON-SYNC OR SYNC)

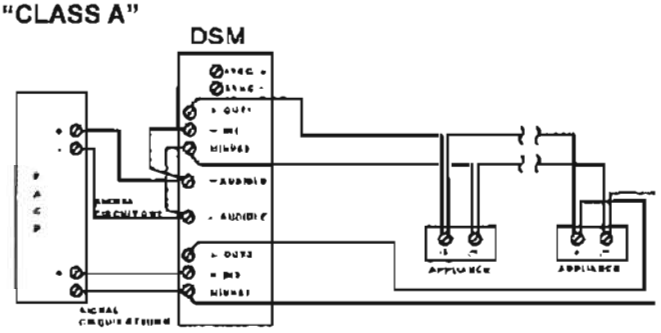


SERIES CH CHIME STROBES SYNCHRONIZED W/ MULTIPLE DSM MODULES

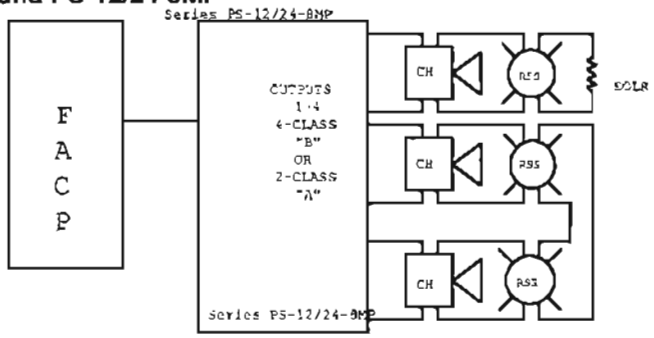


Note: Figure shows interconnection to strobe through sync module. Chime portion requires 2 separate conductors to FACP.

SERIES CH CHIME STROBE APPLIANCES SYNCHRONIZED WITH DSM MODULE SINGLE "CLASS A"



SERIES CH CHIME STROBE APPLIANCES & RSS STROBES SYNCHRONIZED WITH PS-12/24-8CP and PS-12/24-8MP



For wiring information on the PS-24-8MC Power Supply, please refer to Data Sheet #8900.

Specifications and Ordering Information

Model Number	Order Code	Wall Mount	Ceiling Mount	Strobe Sync w/ SM, DSM or PS-24-8MC	Strobe Candela	24 VDC	Model Color RED	Model Color White	Mounting Options	Agency Approvals			
										UL	MEA	CSFM	BFP
CH70-24MCW-FR	9018	X		X	15/30/75/110	X	X	-	L,O,P,Q,R,U,Y	X	X	X	X
CH70-24MCW-FW	9019	X	-	X	15/30/75/110	X	-	X	L,O,P,Q,R,U,Y	X	X	X	X
CH70-24MCWH-FR	9083	X	-	X	135/185	X	X	-	L,O,P,Q,R,U,Y	X	X	X	*
CH70-24MCWH-FW	9084	X	-	X	135/185	X	-	X	L,O,P,Q,R,U,Y	X	X	X	*
CH70-241575W-FR	7830	X	-	X	15 (75 on Axis)	X	X	-	L,O,P,Q,R,U,Y	X	X	X	X
CH90-24MCC-FW	3168	-	X	X	15/30/75/95	X	-	X	Q,U,V	X	X	X	*
CH90-24MCC-FR	3167	-	X	X	15/30/75/95	X	X	-	Q,U,V	X	X	X	*
CH90-24MCCH-FW	3110	-	X	X	115/177	X	-	X	Q,U,V	X	X	X	*
CH70-24-R	7825	X	X	-	-	X	X	-	L,O,P,Q,R,U,Y	X	X	X	X
CH70-24-W	7827	X	X	-	-	X	-	X	L,O,P,Q,R,U,Y	X	X	X	X
CH90-24-W	7826	X	X	-	-	X	-	X	Q,U,V	X	X	X	X
CH90-24-R	7828	X	X	-	-	X	X	-	Q,U,V	X	X	X	X

Models are available in either Red or White. Call Customer Service for Order Code & Delivery.

*PENDING

NOTE: Due to continuous development of our products, specifications and offerings are subject to change without notice in accordance with Wheelock Inc. standard terms and conditions.

12-608156

Architects and Engineers Specifications

The chime appliances shall be Wheelock Series CH Chimes and the chime strobe appliances shall be Wheelock Series CH Chime Strobes or approved equals. The chime shall be UL Listed under Standard 464 for Audible Signal Appliances and chimes equipped with strobes shall be listed under UL Standard 1971 for Emergency Devices for the Hearing-Impaired. In addition, the strobes shall be certified to meet the requirements of FCC Part 15, Class B and shall incorporate low temperature compensation to ensure the lowest possible current consumption.

All chimes shall use solid state components and shall provide field selectable single stroke or vibrating operation with volume control and tone control. All models shall have a peak Anechoic sound output of 83 dB at 10 feet and an adjustable frequency range of 800 to 1200 Hz. All inputs shall employ terminals that accept #12 to #18 AWG wire sizes.

The strobe portion of the appliance shall produce a flash rate of one (1) flash per second over the Regulated Voltage Range and shall incorporate a Xenon flashtube enclosed in a rugged Lexan® lens. The strobe shall be of low current design. Where Multi-Candela Chime Strobes are specified, the strobe intensity shall have a minimum of four (4) field selectable settings and shall be rated per UL Standard 1971 at: 15/30/75/110cd or 135/185cd for wall mount and 15/30/75/95cd or 115/177cd for ceiling mount. The selector switch for selecting the candela shall be tamper resistant and not accessible from the front of the appliance. The 1575 candela strobe shall be specified when 15 candela UL Standard 1971 listing with 75 candela on-axis is required (e.g. ADA compliance).

When synchronization is required, the strobe portion of the appliance shall be compatible with Wheelock SM, DSM Sync Modules, Wheelock Power Supplies or other manufacturers panels with built-in Wheelock Patented Sync Protocol. The strobes shall not drift out of synchronization at any time during operation. If the sync module or Power Supply fails to operate, (i.e., contacts remain closed), the strobe shall revert to a non-synchronized flash rate.

The chime and the chime strobe appliances shall be designed for indoor surface or flush mounting. The chime and chime strobe shall incorporate a chime mounting plate with a grille cover which is secured with two screws for a level, aesthetic finish and shall mount to standard electrical hardware requiring no additional trimplate or adapter.

All chime and chime strobe appliances shall be backward compatible.

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F: 941-487-2389

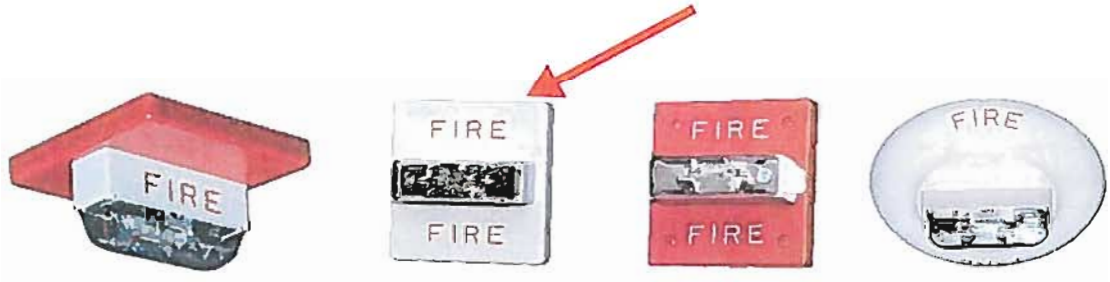
VA Location
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F: 703-294-6560

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COOPER Notification

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Series RSS and RSSP Strobes and Strobe Plates



Series RSS | Series RSS | Series RSSWP | RSS Round

Description

The Wheelock patented Series RSS Strobe Appliances and Series RSSP Strobe Plates have lower current draw while maintaining outstanding performance, reliability and cost effectiveness. These versatile appliances will satisfy virtually all requirements for indoor, wall or ceiling mount applications.

Strobe options for wall mount models include 1575 or the Wheelock Patented MCW multi-candela strobe with field selectable candela settings of 15/30/75/110cd or the high intensity MCWH strobe with field selectable 135/185cd. Ceiling mount models include the patented MCC multi-candela ceiling strobe with field selectable intensities of 15/30/75/95cd or the high intensity MCCH strobe with field selectable 115/177cd.

All models may be synchronized using the Wheelock SM, DSM Sync Modules, Wheelock Power Supplies or other manufacturers panels incorporating the Wheelock Patented Sync Protocol. Synchronized strobes can eliminate possible restrictions on the number of strobes in the field of view. Wheelock's synchronized strobes offer an easy way to comply with ADA recommendations concerning photosensitive epilepsy as well as meeting the requirements of NFPA 72.

The Wheelock Series RSS Strobes employ a Patented Integral Strobe Mounting Plate that can be mounted to a single gang, double gang, 4" square, 100mm European backboxes or the SHBB surface backbox. If the flush backbox has side or top space between it and the finished wall, the NATP (Notification Appliance Trimplate) may be used. It provides an additional .65" of trim for the Appliance. An attractive cover plate is provided for a clean, finished appearance on all models.

The Series RSSP Multi-Candela Strobe Plates are a cost effective way to retrofit required wall strobe appliances to bells, horns, chimes, multitones or speakers and easily mounts to standard 4" backboxes or for surface mount use with the Wheelock SBL2 surface backbox.

Features

- Approvals include: UL Standard 1971, New York City (MEA), California State Fire Marshal (CSFM), Factory Mutual (FM), and Chicago (BFP) See approvals by model in Specifications and Ordering Information
- ADA/NFPA/UFC/ANSI compliant. Meets OSHA 29 Part 1910.165
- Wall mount Multi-Candela models are available with Field Selectable Candela Settings of 15/30/ 75/110cd or 135/185cd. Single Candela models are available in 1575cd
- Ceiling mount Multi-Candela models are

  available with field selectable candela settings of 15/30/75/95cd or 115/177cd. (Round or Square)
- Strobes produce 1 flash per second over the regulated voltage range
- 12 and 24 VDC models with wide UL "Regulated Voltage" using filtered (DC) or unfiltered VRMS input voltage
- Synchronize using the Wheelock sync modules or panels with built-in Wheelock Patented Sync Protocol
- Fast installation with IN/OUT screw terminals using #12 to #18 AWG wire

For Weatherproof Series RSS See Datatsheet S9004

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S5391 | 151-92-E | 7125-0785:141 7300-0785:154 | FM APPROVED

NOTE: All CAUTIONS and WARNINGS are identified by the symbol ⚠. All warnings are printed in bold capital letters.

⚠ WARNING: PLEASE READ THESE SPECIFICATIONS AND ASSOCIATED INSTALLATION INSTRUCTIONS CAREFULLY BEFORE USING, SPECIFYING OR APPLYING THIS PRODUCT. VISIT WWW.COOPERWHEELOCK.COM OR CONTACT COOPER WHEELOCK FOR THE CURRENT INSTALLATION INSTRUCTIONS. FAILURE TO COMPLY WITH ANY OF THESE INSTRUCTIONS, CAUTIONS OR WARNINGS COULD RESULT IN IMPROPER APPLICATION, INSTALLATION AND/OR OPERATION OF THESE PRODUCTS IN AN EMERGENCY SITUATION, WHICH COULD RESULT IN PROPERTY DAMAGE, AND SERIOUS INJURY OR DEATH TO YOU AND/OR OTHERS.

General Notes:

- Strobes are designed to flash at 1 flash per second minimum over their "Regulated Voltage Range". Note that NFPA-72 specifies a flash rate of 1 to 2 flashes per second and ADA Guidelines specify a flash rate of 1 to 3 flashes per second.
- All candela ratings represent minimum effective Strobe intensity based on UL Standard 1971.
- Series NS Strobe products are listed under UL Standard 1971 for indoor use with a temperature range of 32°F to 120°F (0°C to 49°C) and maximum humidity of 93% (± 2%).
- Series NH horns are listed under UL Standard 464 for audible signal appliances (Indoor use only).
- **"Regulated Voltage Range" is the newest terminology used by UL to identify the voltage range. Prior to this change UL used the terminology "Listed Voltage Range".**

Table 1: Average RMS Current*

RSS/RSSP 24VDC Models	RSS/RSSP - Wall Mount							Ceiling Mount					
	241575W	24MCW				24MCWH		24MCC				24MCCH	
	1575cd	15cd	30cd	75cd	110cd	135cd	185cd	15cd	30cd	75cd	95cd	115cd	177cd
UL max*	0.090	0.060	0.092	0.165	0.220	0.300	0.420	0.065	0.105	0.189	0.249	0.300	0.420

RSS/RSSP 24VDC Models	RSS/RSSP Wall Mount
	121575W
12 vdc	0.152
UL max*	0.255

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

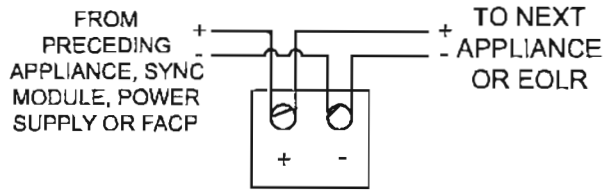
Table 2: Audibles/Speakers for RSSP Strobe Plate

Product	Series
Multitone Appliances	AMT, MT
Horns	AH, NH, HS
Motor Bells	MB-G6/G10
Speakers	ET-1010/1080, E70, ET70
Chimes	CH70

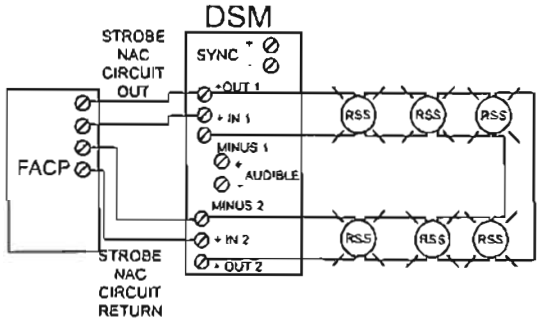
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Wiring Diagrams

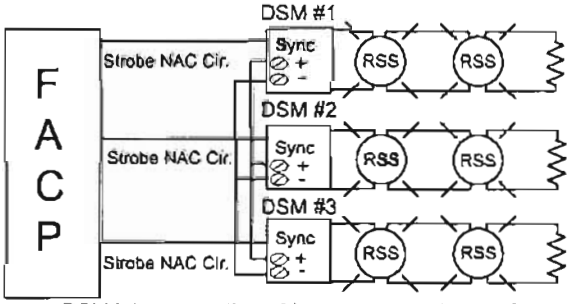
SERIES RSS/RSSP APPLIANCE



SERIES RSS/RSSP APPLIANCES SYNCHRONIZED WITH DSM MODULE SINGLE CLASS "A" NAC CIRCUIT

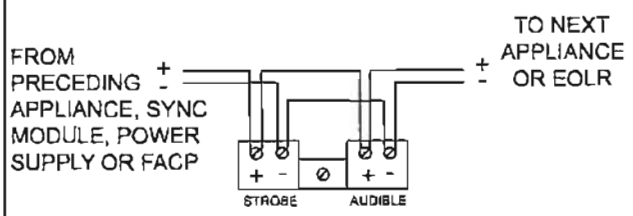


SERIES RSS/RSSP APPLIANCES SYNCHRONIZED WITH MULTIPLE DSM MODULES

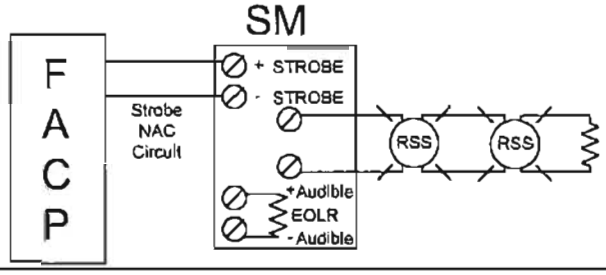


DSM Interconnecting wiring shown. Maximum of twenty (20)

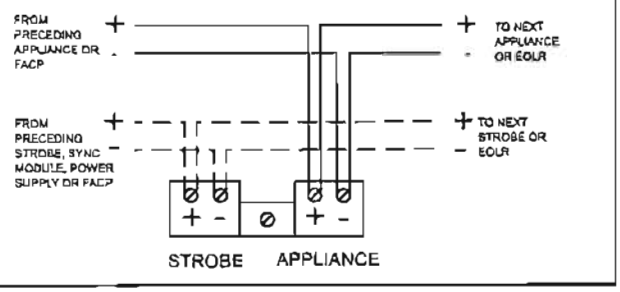
STROBE/PLATE ASSEMBLY
AUDIBLE & VISIBLE APPLIANCE OPERATE IN UNISON



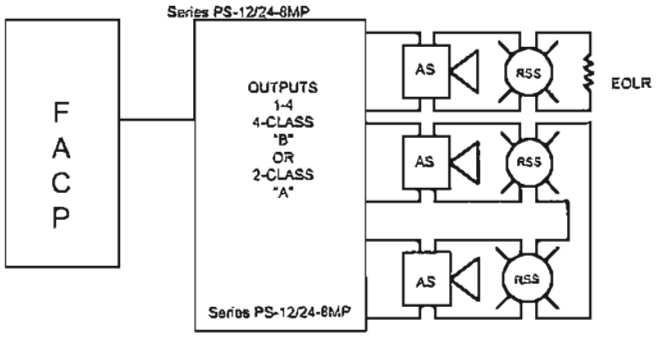
SERIES RSS/RSSP APPLIANCE SYNCHRONIZED WITH SM MODULE SINGLE CLASS "B" NAC CIRCUIT



STROBE/PLATE ASSEMBLY
AUDIBLE & VISIBLE APPLIANCE OPERATE INDEPENDENTLY



SERIES RSS/RSSP APPLIANCES SYNCHRONIZED WITH PS-12/24-8CP or PS-12/24-8MP



For detail using SM or DSM Sync Module refer to Data Sheet S3000 or Installation Instructions P83123 for SM and P83177 for DSM. For wiring information on the power supplies refer PS-24-8MC.

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Specifications and Ordering Information

Model	Order Code	Wall Mount	Ceiling Mount	Non-Sync	Strobe Candela	24 VDC	12 VDC	Color RED	Color WHITE	Mounting Options***	Square or Round	Agency Approvals				
												UL	MEA	CSFM	FM	BFP
RSS-24MCW-FR	940	X	-	X	15/30/75/110	X	-	X	-	B,D,E,F,G,H,J,N,O,R,X	Square	X	X	X	X	X
RSS-24MCW-FW	9401	X	-	X	15/30/75/110	X	-	-	X	B,D,E,F,G,H,J,N,O,R,X	Square	X	X	X	X	X
RSS-241575W-FR	7471	X	-	X	15 (75 on Axis)	X	-	X	-	B,D,E,F,G,H,J,N,O,R,X	Square	X	X	X	X	X
RSS-241575W-FW	7788	X	-	X	15 (75 on Axis)	X	-	-	X	B,D,E,F,G,H,J,N,O,R,X	Square	X	X	X	X	X
RSS-121575W-FR	7476	X	-	X	15 (75 on Axis)	-	X	X	-	B,D,E,F,G,H,J,N,O,R,X	Square	X	X	X	X	X
RSS-121575W-FW	7468	X	-	X	15 (75 on Axis)	-	X	-	X	B,D,E,F,G,H,J,N,O,R,X	Square	X	X	X	X	X
RSS-24MCC-FW	3158	-	X	X	15/30/75/95	X	-	-	X	B,D,E,F,G,H,J,N,O,R,X	Square	X	X	X	X	*
RSS-24MCC-FR	3157	-	X	X	15/30/75/95	X	-	X	-	B,D,E,F,G,H,J,N,O,R,X	Square	X	X	X	X	*
RSS-24MCCR-FW	3160	-	X	X	15/30/75/95	X	-	-	X	B,D,E,F,G,H,J,N,O,R,X	Round	X	X	X	X	*
RSS-24MCCH-FW	3461	-	X	X	115/177	X	-	-	X	B,D,E,F,G,H,J,N,O,R,X	Square	X	X	X	X	*
RSS-24MCCHR-FW	3463	-	X	X	115/177	X	-	-	X	B,D,E,F,G,H,J,N,O,R,X	Round	X	X	X	X	*
RSS-24MCWH-FR	3465	X		X	135/185	X		X		B,D,E,F,G,H,J,N,O,R,X	Square	X	X	X	X	*
RSS-24MCWH-FW	3464	X		X	135/185	X			X	B,D,E,F,G,H,J,N,O,R,X	Square	X	X	X	X	*
RSSWP-2475W-FR**	9013	X	-	X	180@ 77°F 75@ -31°F	X	X	X	-	B,D,E,F,G,H,J,N,O,R,X	Square	X	X	X	X	*
RSSWP-2475W-FW**	3034	X	-	X	180@ 77°F 75@ -31°F	X	X	-	X	B,D,E,F,G,H,J,N,O,R,X	Square	X	X	X	X	*
RSSP-121575W-FR	7798	X	-	X	15 (75 on Axis)	-	X	X	-	D,E,Z	Square	X	X	X	X	X
RSSP-24MCW-FR	9402	X	-	X	15/30/75/110	X	-	X	-	D,E,Z	Square	X	X	X	X	X
RSSP-241575W-FR	7793	X	-	X	15 (75 on Axis)	-	-	X	-	D,E,Z	Square	X	X	X	X	X

*PENDING

All models sync with Wheelock SM, DSM or PS-12/24-8CP or PS-12/24-8MP.
Models are available in either Red or White. Call Customer Service for Order Code & Delivery.
**For Weatherproof Series RSS Strobe specifications see data sheet S9004.
***Refer to data sheet S7000 for mounting options.

Architects and Engineers Specifications

The visual notification appliances shall be Wheelock Series RSS Strobe Appliances or approved equals. The Series RSS shall meet and be listed for UL Standard 1971 (Emergency Devices for the Hearing-Impaired) for Indoor Fire Protection Service. The strobe shall be listed for indoor use and shall meet the requirements of FCC Part 15 Class B. The strobe appliances shall produce a flash rate of one (1) flash per second over the Regulated Voltage Range and shall incorporate a Xenon flashtube enclosed in a rugged Lexan® lens. All inputs shall be compatible with standard reverse polarity supervision of circuit wiring by a Fire Alarm Control Panel (FACP). When Strobe Plates are to be installed, they shall be the Wheelock Series RSSP Strobe Plate and shall have the same electronic circuitry as the Wheelock Series RSS.

The Series RSS Strobe shall be of low current design. Where Multi-Candela appliances are specified, the strobe intensity shall have field selectable settings and shall be rated per UL Standard 1971 at 15/30/75/110cd or 135/185cd for wall mount and 15/30/75/95cd or 115/177cd for ceiling mount. The selector switch for selecting the candela shall be tamper resistant. The 1575 candela strobe shall be specified when 15 candela UL Standard 1971 Listing with 75 candela on axis is required (e.g. ADA compliance).

When synchronization is required, the appliance shall be compatible with Wheelock's SM, DSM Sync Modules, Wheelock Power Supplies or other manufacturers panels with built-in Wheelock Patented Sync Protocol. The strobes shall not drift out of synchronization at any time during operation. If the sync module or Power Supply fails to operate, (i.e., contacts remain closed), the strobe shall revert to a non-synchronized flash rate. The strobes shall be designed for indoor surface of flush mounting.

The Series RSS Strobe Appliances shall incorporate a Patented, Integral Strobe Mounting Plate that shall allow mounting to single-gang, double-gang, 4-inch square, 100mm European type backboxes, or the SHBB Surface Backbox. If required, an NATP (Notification Appliance Trimplate) shall be provided. An attaching cover plate shall be provided to give the Appliance and attractive appearance. The Appliance shall not have any mounting holes or screw heads visible when the installation is completed.

The Series RSSP Multi-Candela or single candela Strobe Plate shall mount to either a standard 4 inch square backbox for flush mounting, or the Wheelock SBL2 backbox for surface mounting.

All notification appliances shall be backward compatible.

NOTE: Due to continuous development of our products, specifications and offerings are subject to change without notice in accordance with Wheelock, Inc. standard terms and conditions.

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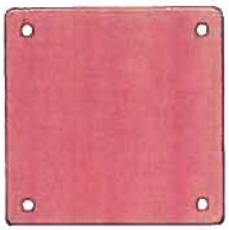
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Series SM and DSM Sync Modules



Series SM or DSM

Description

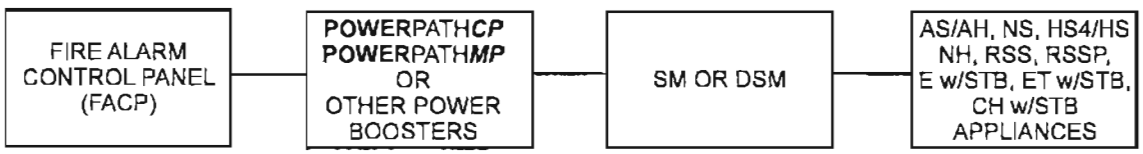
The Wheelock Series SM and DSM Sync Modules are utilized with the Series AS/AH, Series NS/NS4/NH, Series RSS, Series RSSP, Series SLM and selected strobe applications with other Wheelock combination appliances.

When used with Series AS Audible Strobes and/or Series NS Horn Strobes, the SM and DSM Sync Modules provide independent operation of synchronized temporal pattern (code 3) horn and synchronized strobe flash, as well as the ability to silence the horn while maintaining the strobe flash. while using only a single pair of wires. The sync modules are available in two versions; the SM-12/24 for control of a Class B NAC circuit; and a dual output version, the DSM-12/24 for control of either a Class A or two (2) Class B NAC circuits.

Features

- Approvals include: UL Standard 1971, ULC, New York City (MEA), California State Fire Marshal (CSFM) and Chicago (BFP)
- Uniquely designed to accept an independent strobe and audible input from the FACP and convert to a single output that connects to Wheelock's Series AS or Series NS family of audible strobes
- Series SM and DSM Sync Modules can also be used to synchronize Wheelock's Series RSS, RSSP and SLM Sync Strobes
- 3 ampere per circuit current handling at 12 or 24 VDC
- Low operating current draw
- Compatible with all standard fire alarm control panels
- Meets the NFPA-72 requirement for Temporal Pattern when used with the Series AS/AH and/or Series NS/NS4/NH
- 3 year warranty

12-608156



SM or DSM Connection Diagram with Power Booster

E5848 151-92-E 7300-0785:132 APPROVED

Table 1: Sync Module (SM) Current Requirements (AMPS)								Table2: Sync Module (DSM) Current Requirements (AMPS)							
UL Voltage	ULC Voltage	Rated Average Current		Rated Peak Current		Rated Inrush Current		UL Voltage	ULC Voltage	Rated Average Current		Rated Peak Current		Rated Inrush Current	
		In1	Audible	In1	Audible	In1	Audible			In1/In2	Audible	In1/In2	Audible	In1/In2	Audible
8.0 VDC	10.5 VDC	0.017	0.004	0.055	0.004	0.140	0.016	8.0 VDC	10.5 VDC	0.019	0.004	0.055	0.004	0.150	0.016
12.0 VDC	12.0 VDC	0.017	0.004	0.060	0.004	0.160	0.019	12.0 VDC	12.0 VDC	0.020	0.004	0.064	0.004	0.170	0.019
24.0 VDC	24.0 VDC	0.028	0.008	0.070	0.008	0.320	0.030	24.0 VDC	24.0 VDC	0.035	0.008	0.080	0.008	0.342	0.030
33.0 VDC	33.0 VDC	0.038	0.010	0.080	0.010	0.440	0.040	33.0 VDC	33.0 VDC	0.045	0.010	0.090	0.010	0.470	0.040
8.0 VRMS	8.0 VRMS	0.026	0.006	0.085	0.008	0.210	0.016	8.0 VRMS	8.0 VRMS	0.028	0.005	0.107	0.008	0.210	0.016
12.0 VRMS	12.0 VRMS	0.028	0.006	0.090	0.009	0.225	0.019	12.0 VRMS	12.0 VRMS	0.030	0.006	0.103	0.009	0.240	0.019
24.0 VRMS	24.0 VRMS	0.040	0.010	0.120	0.015	0.446	0.033	24.0 VRMS	24.0 VRMS	0.048	0.010	0.145	0.015	0.480	0.033
33.0 VRMS	31.0 VRMS	0.055	0.012	0.150	0.022	0.645	0.056	33.0 VRMS	31.0 VRMS	0.062	0.012	0.175	0.022	0.685	0.056

NOTE: All CAUTIONS and WARNINGS are identified by the symbol ⚠. All warnings are printed in bold capital letters.

⚠ **WARNING: PLEASE READ THESE SPECIFICATIONS AND INSTALLATION INSTRUCTIONS CAREFULLY BEFORE USING, SPECIFYING OR APPLYING THIS PRODUCT. FAILURE TO COMPLY WITH ANY OF THESE INSTRUCTIONS, CAUTIONS AND WARNINGS COULD RESULT IN IMPROPER APPLICATION, INSTALLATION AND/OR OPERATION OF THESE PRODUCTS IN AN EMERGENCY SITUATION, WHICH COULD RESULT IN PROPERTY DAMAGE, AND SERIOUS INJURY OR DEATH TO YOU AND/OR OTHERS.**

⚠ **WARNING: MAKE SURE THAT THE TOTAL CURRENT REQUIRED BY ALL APPLIANCES THAT ARE CONNECTED TO A SM OR DSM DOES NOT EXCEED 3.0A OR EXCEED THE RATING OF THE FIRE ALARM CONTROL PANEL'S PRIMARY AND SECONDARY POWER SOURCES AND NAC CIRCUITS. OVERLOADING THESE SOURCES COULD RESULT IN LOSS OF POWER AND FAILURE TO ALERT OCCUPANTS DURING AN EMERGENCY, WHICH COULD RESULT IN PROPERTY DAMAGE AND SERIOUS INJURY OR DEATH TO YOU AND/OR OTHERS.**

When calculating the total current, use Tables 1& 2 to determine the highest value of "Rated Average Current" for the SM or DSM (across the listed voltage range), then add this value to the total current for any other appliances powered by the same source and include any required safety factors. Refer to Instruction Sheet for addtional information.

⚠ **WARNING: MAKE SURE THAT ALL FUSES USED ON NAC CIRCUITS ARE RATED TO HANDLE THE MAXIMUM INRUSH OR PEAK CURRENT FROM ALL APPLIANCES ON THOSE CIRCUITS. FAILURE TO DO THIS MAY RESULT IN LOSS OF POWER TO THE NAC CIRCUIT AND THE FAILURE OF ALL APPLIANCES ON THAT CIRCUIT TO OPERATE, WHICH COULD RESULT IN PROPERTY DAMAGE AND SERIOUS INJURY OR DEATH TO YOU AND/OR OTHERS.**

Table 3: **Current Consumption of the SM and DSM Modules**				
Outpurt Circuit Description of SM/DSM Module		**SM Module**	**DSM Module**	**Ref. Fig.**
Class "B" with Audible Silence	(single circuit)	Y		1
Class "B" with No Audible Silence	(single circuit)	Y		2
Class "B" with Audible Silence	(dual circuit)		Y	3
Class "B" with No Audible Silence	(dual circuit)		Y	4
Class "A" with Audible Silence	(single circuit)		Y	5
Class "A" with No Audible Silence	(single circuit)		Y	6

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Note: SM Sync Modules are rated for 3.0 amperes at 12/24 VDC; DSM Dual Sync Modules are rated for 3.0 amperes per circuit. The **maximum number of interconnected DSM modules is twenty (20).**

⚠**CAUTION**: Use SM or DSM Sync Modules only on NAC circuits with continuously applied voltage. Do not use SM or DSM Sync Modules on coded or interrupted NAC circuits in which the applied voltage is cycled on and off.

⚠**CAUTION:** Power Boosters may be used in conjunction with the SM or DSM Sync Modules only in the order shown below. Only one SM or DSM Sync Module shall be allowed on a NAC circuit. Do not connect Power Booster to the NAC circuit after the one SM or DSM Sync Module. **Exception:** The Wheelock PS-24-8MC Power Booster can be connected either before or after the SM or DSM Sync Module. Refer to Power Booster Instruction manual for proper application and installation.

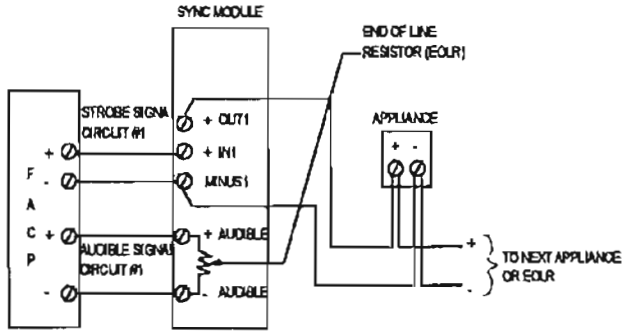


FIG. 1 SINGLE CLASS "B" CIRCUIT WITH AUDIBLE SILENCE FEATURE

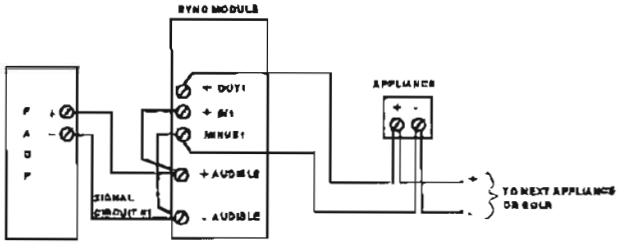


FIG. 2 SINGLE CLASS "B" CIRCUIT WITH NO AUDIBLE SILENCE FEATURE

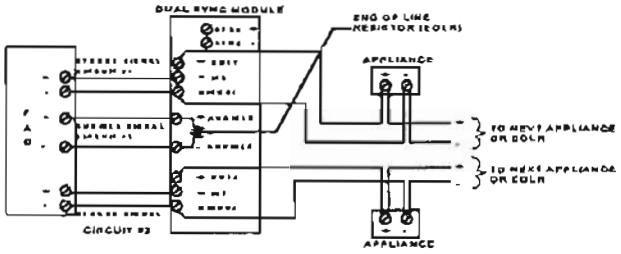


FIG. 3 DUAL CLASS "B" CIRCUIT WITH AUDIBLE SILENCE FEATURE

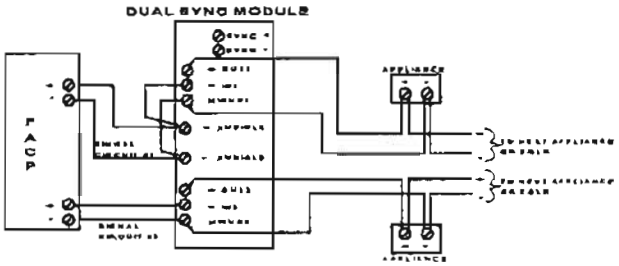


FIG. 4 DUAL CLASS "B" CIRCUIT WITH NO AUDIBLE SILENCE FEATURE

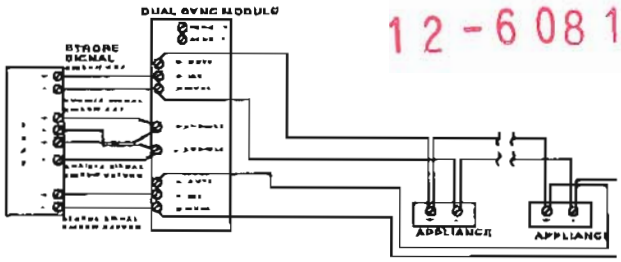


FIG. 5 SINGLE CLASS "A" CIRCUIT WITH AUDIBLE SILENCE FEATURE

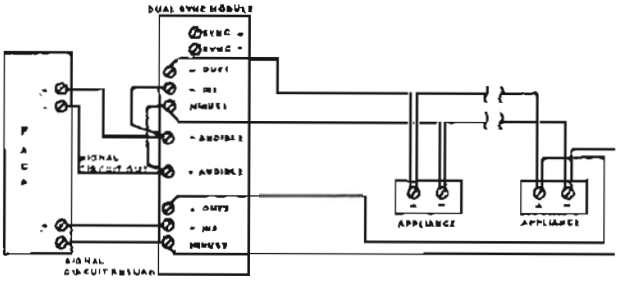


FIG. 6 SINGLE CLASS "A" CIRCUIT WITHOUT AUDIBLE SILENCE FEATURE

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Notes

1. Non-Sync Appliances can be installed before or after a SM or DSM. If the Non-Sync appliance requires audible silence, four wire connection is necessary with the strobe circuit connected before the SM or DSM NAC circuit, and the audible leads connected to a silenceable NAC circuit from the FACP.
2. The audible appliance produces a momentary interruption (approximately 25ms) each time the strobes flash.
3. Circuit #2 may be omitted if only 1 circuit is required when using the DSM.
4. Non-Sync Audible Appliances can be installed on the audible NAC. Be aware of the current requirement for the SM or DSM module. See table 3.

Specifications and Ordering Information

Model	Order Code	Input Voltage VDC	Average Current @ 12 or 24 VDC	UL Max*	Mounting Options**
SM-12/24-R	6369	12	0.017	0.023	W
		24	0.028	0.038	W
DSM-12/24-R***	6374	12	0.020	0.026	W
		24	0.035	0.055	W

R = Red

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

** **Refer to Data sheet # S7000 for Mounting Options.**

*** The maximum number of interconnected DSM modules is twenty (20).
The total distance from the first to the last DSM shall not exceed 1,000 feet of #18 AWG wire. Use only #18 AWG wire.

⚠ WARNING: THESE APPLIANCES WERE TESTED TO THE OPERATING VOLTAGE LIMITS OF 8-33 VOLTS USING FILTERED DC OR UNFILTERED FULL-WAVE RECTIFIED (FWR). DO NOT APPLY 80% AND 110% OF THESE VOLTAGE VALUES FOR SYSTEM OPERATION. THE APPLICATION OF IMPROPER VOLTAGE MAY RESULT IN DEGRADED OPERATION OR DAMAGE TO THESE PRODUCTS, WHICH COULD RESULT IN PROPERTY DAMAGE AND SERIOUS INJURY OR DEATH TO YOU AND/OR OTHERS.

Wheelock products must be used within their published specifications and must be PROPERLY specified, applied, installed, operated, maintained and operationally tested in accordance with their installation instructions at the time of installation and at least twice a year or more often and in accordance with local, state and federal codes, regulations and laws. Specification, application, installation, operation, maintenance and testing must be performed by qualified personnel for proper operation in accordance with all of the latest National Fire Protection Association (NFPA), Underwriters' Laboratories (UL), National Electrical Code (NEC), Occupational Safety and Health Administration (OSHA), local, state, county, province, district, federal and other applicable building and fire standards, guidelines, regulations, laws and codes including, but not limited to, all appendices and amendments and the requirements of the local authority having jurisdiction (AHJ).

⚠ WARNING: CONTACT WHEELOCK FOR "INSTALLATION INSTRUCTIONS" (P83123-SM & P83177-DSM) AND "GENERAL INFORMATION" SHEET ON THESE PRODUCTS. These documents do undergo periodic changes. It is important that you have current information on these products. These materials contain important information that should be read prior to specifying or installing these products including:

- **TOTAL CURRENT REQUIRED BY ALL APPLIANCES CONNECTED TO SYSTEM SECONDARY POWER SOURCES.**
- **FUSE RATINGS ON NAC CIRCUITS TO HANDLE MAXIMUM INRUSH OR PEAK CURRENTS FROM ALLAPPLIANCES ON THOSE NAC CIRCUITS.**
- **COMPOSITE FLASH RATE FROM MULTIPLE STROBES WITHIN A PERSON'S FIELD OF VIEW.**
- **THE VOLTAGE APPLIED TO THESE PRODUCTS MUST BE WITHIN THEIR RATED IN PUT VOLTAGE RANGE.**
- **INSTALLATION IN OFFICE AREAS AND OTHER SPECIFICATION AND INSTALLATION ISSUES.**
- **USE STROBES ONLY ON NAC CIRCUITS WITH CONTINUOUSLY APPLIED OPERATING VOLTAGE. DO NOT USE STROBE ON CODED OR INTERRUPTED NAC CIRCUITS IN WHICH THE APPLIED VOLTAGE IS CYCLED ON AND OFF AS THE STROBE MAY NOT FLASH.**

Architects and Engineers Specifications

The sync modules shall be Wheelock Series SM or DSM Sync Modules. Series SM or DSM Sync Modules shall be the master controllers for Wheelock Series AS/AH, NS/NS4/NH, RSS, RSSP and appliances where a synchronized audible/visual audible or visual only appliance is specified. All modules shall be UL listed under Standard 464. Series SM and DSM modules shall be designed to interface with Series AS Audible Strobe Appliances and NS Horn Strobe Appliances to produce a synchronized temporal (Code 3) horn as well as synchronized strobe flash on a two-wire alarm circuit. Other synchronized products are the Wheelock Series RSS, RSSP, SLM visual only appliances and Series AH and NH Horn Appliances.

SM Sync Module shall incorporate two input NAC circuits for power connection from the Fire Alarm Control Panel; one for the strobe NAC circuit and one for the audible NAC circuit. DSM modules shall provide an additional strobe circuit input/output for control of either two Class "B" NAC circuits or a single Class "A" NAC circuit. Upon activation of the audible silence function at the Fire Alarm Control Panel, the audible signal component of Series AS Audible Strobe and/or the Series NS Horn Stobe may be silenced while maintaining strobe activation.

Series SM or DSM module shall be designed and available in two versions; the SM-12/24 for control of a single Class B NAC circuit and a dual output version, the DSM-12/24 for control of either Class A two (2) Class B NAC circuits. The DSM dual circuit version shall provide the additional capability of "daisy-chaining", that is, the ability to interconnect multiple DSM's for synchronous horn and strobe operation on multiple NAC circuits. Interconnection capability shall be for a maximum of 40 NAC circuits. All modules shall operate on either 12 or 24 VDC. Rated average current requirement for the SM 12/24 shall be .017 amperes @ 12 VDC and .028 amperes @ 24 VDC. The DSM 12/24 shall be .020 amperes @ 12 VDC and .035 amperes @ 24 VDC. A single circuit SM Sync Module shall be capable of handing a 3 ampere load at 12 or 24 VDC and the dual circuit DSM Sync Module shall be capable of handling a load of 3 amperes per NAC circuit at 12 or 24 VDC.

All versions shall be polarized for DC supervision and shall incorporate screw terminals for in/out field wiring of #18 to #12 AWG wire size. The SM and DSM Sync modules shall mount to a 4-11/16" x 2-1/8" deep backbox.

NOTE: Due to continuous development of our products, specifications and offerings are subject to change without notice in accordance with Wheelock Inc. standard terms and conditions.

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WE ENCOURAGE AND SUPPORT NICET CERTIFICATION
3 YEAR WARRANTY
Made in USA

Simplex

Fire Alarm Control Panel Accessories

Cabinet Mounted System Batteries; 2081 Series, Sealed Lead-Acid; 6.2 Ah to 50 Ah

Features

Rechargeable, sealed lead-acid design:

- Lead-calcium grid structure
- Immobilized electrolyte in absorbent separator
- High reliability dual seal construction
- Low maintenance, no need to add water
- Low self-discharge characteristics
- One-piece, high impact polystyrene cell cover

UL 924 recognized pressure relief valves

Available in a variety of capacities:

- Batteries for internal mounting range from 6.2 Ah up to 50 Ah, depending on control panel cabinet size

For applications requiring 110 Ah batteries:

- Refer to data sheet S4081-0002 for 4100U systems
- Refer to data sheet S2081-0012 for 4100/4120 series system

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Description

Simplex® rechargeable sealed-lead acid batteries provide reliable and repeatable discharge and recharge characteristics for use in fire alarm and other systems applications. They are designed with immobilized electrolyte in an absorbent separator, allowing them to provide rated capacity on the first cycle.

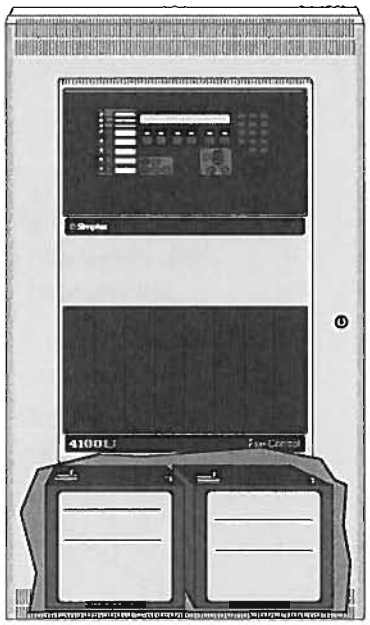
Because of their sealed construction, packaging is allowed within the system electronics enclosure (see illustration on page 2). When this is applicable, the quantity of system cabinets and the battery wiring distances are both minimized.

Battery Details

Charging. These batteries are intended to be used with compatible Simplex battery chargers.

Series Connections. These batteries are required to be connected in series to produce 24 V system voltage. Battery sets must be of identical voltage, model number, appearance, and approximately the same date of manufacture for proper operation.

Testing. Battery capacity testing is recommended to be performed by using a sealed lead-acid battery tester designed to withdraw a minimum of battery charge. The preferred tester applies a variety of amplitude and duration controlled test pulses that compares terminal voltage against those predicted for the specific battery size. (Testing is available through your local Simplex product supplier.)



Compatible Sealed Lead-Acid Batteries can be Installed Inside Fire Alarm Control Panel Cabinets

Battery Details *(Continued)*

Disposal. Battery chemicals and materials can be recycled. Refer to information shipped with the battery or on its case. Return to the battery manufacturer or to a similarly qualified battery processing facility for proper disposal.

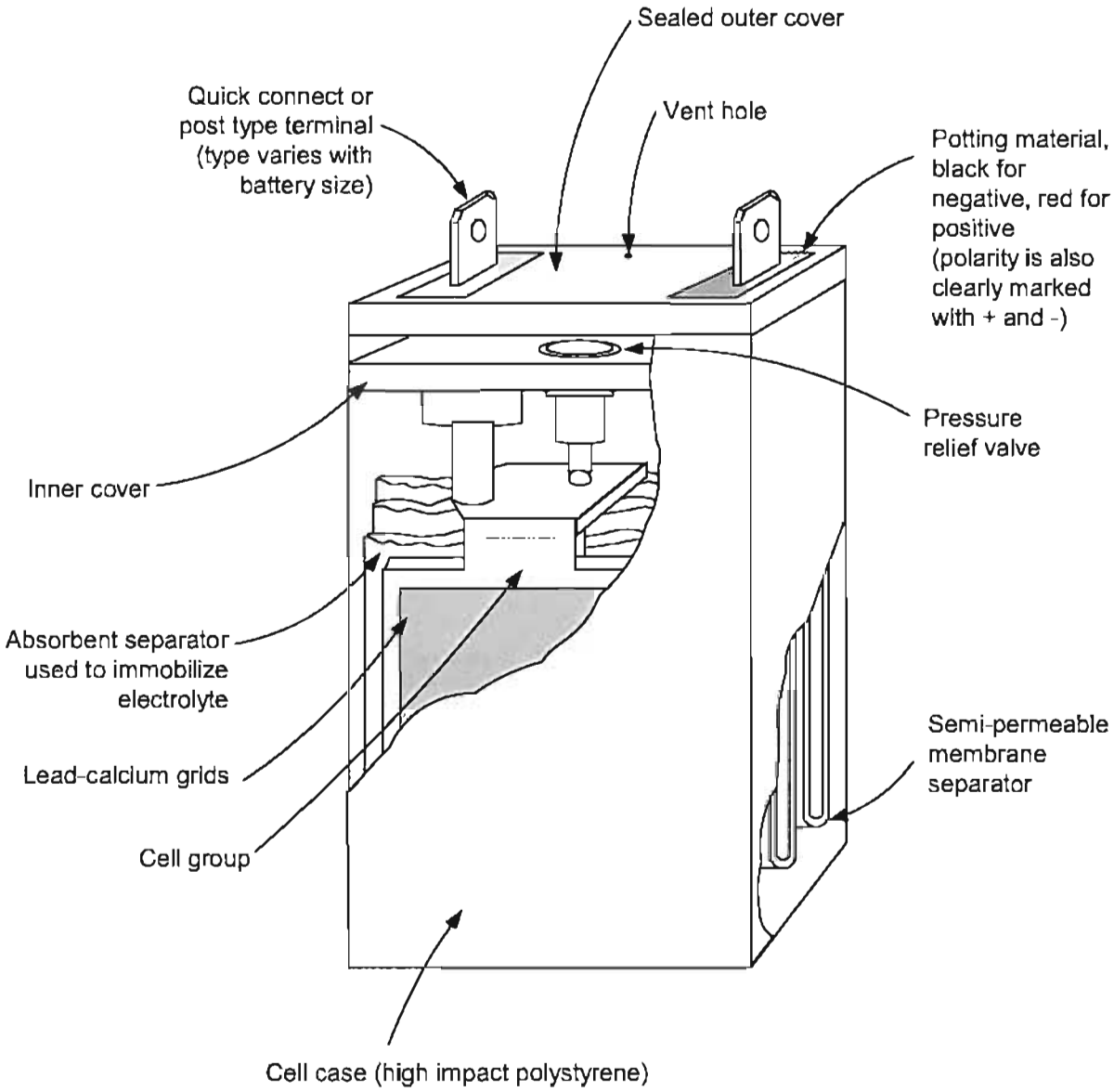
Specification Summary

Nominal Voltage Rating	12 V/battery
Discharge Rating	20 Hour Rate
Typical Chart/Discharge Cycles	100 to 150
Preferred Charge Temperature Range	60° F to 90° F (15.6°C to 32.2° C)

These batteries meet the requirements of UL, ULC, and Factory Mutual for use with respective equipment battery chargers as listed on page 3. Contact your local Simplex product supplier for proper battery selection per system requirements.

Typical Construction Details

Actual appearance will vary with battery size.



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Battery Specifications

Battery Model	Capacity @ 20 Hour Discharge Rate	Width*	Depth*	Height with Terminals	Approximate Weight*
2081-9272	6.2 Ah	6-1/8" (156 mm)	2-5/8" (67 mm)	4" (102 mm)	5.75 lbs (2.6 kg)
2081-9274	10 Ah	6" (153 mm)	4-1/16" (103 mm)	4" (102 mm)	9.2 lbs (4.2 kg)
2081-9288	12.7 Ah	6" (153 mm)	4" (102 mm)	4" (102 mm)	9 lbs (4.1 kg)
2081-9275	18 Ah	7-1/4" (184 mm)	3-3/8" (86 mm)	6-5/8" (168 mm)	14.3 lbs (6.5 kg)
2081-9287	25 Ah	6-5/8" (168 mm)	5" (127 mm)	7" (178 mm)	19.4 lbs (8.8 kg)
2081-9271 (rectangular case, typically for service)	33 Ah	12-1/2" (318 mm)	3-3/8" (86 mm)	7-1/16" (179 mm)	26.6 lbs (12.1 kg)
2081-9276 ("square" case, use for new)	33 Ah	7-3/4" (197 mm)	5-1/4" (133 mm)	6-3/4" (171 mm)	26.5 lbs (12 kg)
2081-9296	50 Ah	9-1/2" (241 mm)	5-1/2" (140 mm)	8-7/8" (225 mm)	41.8 lbs (19 kg)

* Dimensions and weight are per battery and are for reference only. Exact size may vary. Refer to the chart below for panel mounting compatibility. These batteries are 12 V each and series connected for 24 V system use.

NOTE: When installed in a fire alarm control panel, they are to be of identical voltage, appearance, model number, and approximately the same date of manufacture.

Battery Compatibility for Fire Alarm Control Panel Mounting

NOTE: Refer to individual fire alarm control panel product data sheets for additional battery application information

Battery Model	Capacity	Simplex Control Panel Model Series (see legend and notes below)									
		4003	4004	4004R	4005	4006 & 4008	4009 (all models)	4010	4100U (2 or 3 bay)	4100 & 4120 (2, 4 or 6-Unit)	4020 (2, 4 or 6-Unit)
2081-9272	6.2 Ah	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
2081-9274	10 Ah	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
2081-9288	12.7 Ah	✓		✓	✓	✓	✓	✓	✓	✓	✓
2081-9275	18 Ah	✓		Note 3	✓	Ext	Ext	Note 2	✓	✓	✓
2081-9287	25 Ah			Note 3	Ext	Ext		✓	✓	✓	Ext
2081-9271 (rectangular)	33 Ah			Note 3	Ext			Note 3	✓	Ext	Note 4
2081-9276 ("square")	33 Ah			Note 3	Ext			Note 3	✓	✓	Ext
2081-9296	50 Ah			Note 3				Note 3	✓	Ext	Ext

✓ = Can be placed in the respective equipment cabinet

Ext = External battery cabinet is required, refer to selection chart on page 4

Shaded areas = Not applicable

NOTES:

1. These batteries meet the requirements of UL, ULC, and Factory Mutual for use with respective equipment battery chargers listed above. Contact your local Simplex product supplier for proper battery selection per system requirements.
2. 4010 Cabinets will accommodate 2081-9275, 18 Ah batteries, but will not allow bottom entry conduit.
3. Use 4081 series companion cabinet and charger, refer to page 4.
4. 4020 Cabinets will accommodate 2081-9271, 33 Ah batteries, but will not allow bottom entry conduit.
5. Some control panel models are listed for battery replacement reference only.

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External Battery Cabinet Compatibility Reference

Battery Model *	Capacity	Externally Mounted Battery Cabinets with Chargers			Battery Cabinets without Chargers (connects to charger in panel)				
		2081-9301**	2081-9303**	4081 Series†	2081-9270**	2081-9281	2081-9282	4009-9801	4009-9802
2081-9275	18 Ah	✓	✓	✓	✓	✓	✓	✓	✓
2081-9287	25 Ah	✓	✓	✓	✓	✓	✓	✓ (effective 7/2005)	
2081-9271 (rectangular)	33 Ah	✓	✓	✓	✓	✓	✓		✓
2081-9276 ("square")		✓	✓	✓	✓	✓	✓		
2081-9296	50 Ah			✓	✓	✓	✓		

* Batteries smaller than those listed are normally mounted in the product cabinet.

** Refer to Simplex data sheet S2081-0002 for additional information on these remote battery cabinet/charger products.

† Refer to Simplex data sheet S4081-0001 for additional information.

✓ = Can be placed in the respective equipment cabinet

Shaded area = Not applicable

External Battery Cabinet Specification Reference

Model	Description		Color	Dimensions
2081-9281	2-Unit, 4100 style cabinet **without** charger, with solid door and battery shelf, primarily intended for 50 Ah batteries		Beige	25-3/4" W x 20-3/4" H x 6-3/4" D (654 mm x 527 mm x 171 mm)
2081-9282			Red	
2081-9270*	External battery cabinet **without** charger		Red	26-1/2" W x 12" H x 12" D (673 mm x 305 mm x 305 mm)
2081-9301*	External battery cabinet **with** charger			
2081-9302*	External battery cabinet **without** charger and with meters for voltage and current			
2081-9303*	External battery cabinet **with** charger and with meters for voltage and current			
4009-9801	For up to 25 Ah batteries†	External battery cabinet **without** charger, with solid door and battery harness, for close-nippled mounting to fire alarm control panel cabinet	Beige	16-1/4" W x 13-1/2" H x 5-3/4" D (413 mm x 343 mm x 146 mm)†
4009-9802	For up to 33 Ah batteries			25-3/4" W x 20-3/4" H x 4-1/8" D (654 mm x 527 mm x 105 mm)
4081 Series**	For up to 50 Ah batteries	Companion cabinet **with** charger for the 4010 and 4004R fire alarm control panel	Beige or Red	22-1/2" W x16-3/4" H x 8-3/8" D (572 mm x 425 mm x 213 mm)

* Refer to Simplex data sheet S2081-0002 for additional information.

** Refer to Simplex data sheet S4081-0001 for additional information.

† Depth increased for 25 Ah batteries effective 7/2005.

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Simplex

*UL, ULC, CSFM Listed; FM Approved; MEA (NYC) Acceptance**

4100ES Fire Control Panels

Cabinet Reference; Boxes, Doors, Dress Panels, Rack Mounting, and Accessories

Features

4100ES Box and door options:

- Boxes are available sized for one, two, or three equipment bays, each with a battery bay located at the bottom
- Colors include platinum or red
- Doors are glass front with modular dress panels, or solid
- Models are available with box and door combined for single package shipping, or packaged separately
- Enclosures are NEMA 1 rated
- Refer to individual 4100ES data sheets for product application listings (see list on page 2)

Door and dress panel selection is coordinated with cabinet function:

- Glass doors with modular dress panels provide visibility of annunciation and interface modules for Control Panels, Network Display Units (NDU), and Remote Annunciators
- Solid doors are for MINIPLEX Transponders and utility function cabinets where module visibility is not required

4100ES Enclosure details:

- Latching dress panels easily lift off for internal access
- Smooth box surfaces are provided for locally cutting conduit entrance holes exactly where required
- Alignment markers are provided at the top and bottom of each box side for 6" (152 mm) or 4" (102 mm) wall studs
- Knockout screw/nail holes are supplied for semi-flush mounting

Upright cabinet rack packaging reference:

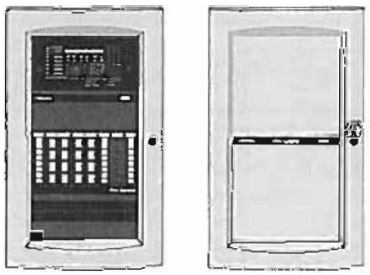
- For use with Bud Industries Inc. special cabinet rack model number 45964
- Refer to page 2 for cabinet rack listing

4009 TPS (TrueAlert Addressable Power Supply) cabinet assemblies:

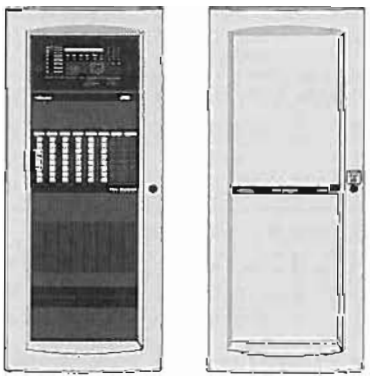
- Cabinet assemblies are available for remote mounting of the TrueAlert addressable power supply (TPS)
- Refer to page 2 for listings information



4100ES One Bay Cabinets



4100ES Two Bay Cabinets



4100ES Three Bay Cabinets



Cabinet Rack Enclosure (shown with door open)



4009 TPS Cabinet Assembly (not to scale)

* For 4100ES one, two, and three bay cabinets with associated equipment: Products are listed by the California State Fire Marshal (CSFM) pursuant to Section 13144.1 of the California Health and Safety Code. See CSFM Listing 7165-0026:251 for allowable values and/or conditions concerning material presented in this document. It is subject to re-examination, revision, and possible cancellation. Accepted for use – City of New York Department of Buildings – MEA35-93E. Additional listings may be applicable, contact your local Simplex® product supplier for the latest status. Listings and approvals under Simplex Time Recorder Co. are the property of Tyco Fire Protection Products.

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Enclosure Selection Chart (refer to pages 3 and 4 for dimensions)

Combined Box and Door Selection (select if box and door are to be shipped together)

Description	Platinum 1 Bay	Platinum 2 Bay	Platinum 3 Bay	Red 1 Bay	Red 2 Bay	Red 3 Bay
Box with Glass Door and Dress Panel	2975-9444	2975-9445	2975-9446	2975-9441	2975-9442	2975-9443
Box with Solid Door	2975-9450	2975-9451	2975-9452	2975-9447	2975-9448	2975-9449

Model	Color	Description	Details
2975-9230	Beige	4009 TPS Cabinet Assembly for remote TrueAlert Power Supply (TPS) mounting	Includes box with door and mounting plate, input terminal block, and wiring harnesses; *Separately Order*: 4100 Series TPS (4100-5120 for US, 4100-5121 for Canada, 4100-5122, 240 VAC for international use), 4009-9813 Interface Card, and batteries (12.7 Ah maximum for cabinet mounting); refer to page 3, to data sheets S4100-0031 and S4009-0003, and instructions 579-875 for additional details [Listings: ETL Listed to UL864 & ULCS527; CSFM listed under 7300-0026:0368; FM Approved, NYC Fire Dept. acceptance)
2975-9229	Red		

Separate Box and Door Selection (select if boxes and doors are required to be shipped separately)

Description	Platinum 1 Bay	Platinum 2 Bay	Platinum 3 Bay	Red 1 Bay	Red 2 Bay	Red 3 Bay
Box	2975-9438	2975-9439	2975-9440	2975-9407	2975-9408	2975-9409
Glass Door and Dress Panel	4100-2104	4100-2105	4100-2106	4100-2124	4100-2125	4100-2126
Solid Door	4100-2114	4100-2115	4100-2116	4100-2134	4100-2135	4100-2136

Cabinet Rack Mounting (refer to page 4 for additional details)

Model	Description	#45964 Listings
#45964, from Bud Industries Inc.	Special upright cabinet rack for 4100ES; 19" (483 mm) E.I.A.; gray texture; includes front polycarbonate door and rear louvered door, both keyed with Simplex "B" keys	UL and ULC listed only as of document revision date; cabinets are listed with the Simplex 4100ES product line
4100-2140	Master Controller Rack Mount Kit, **one required per master controller**	Master Controller and Option Bays each require 9 Rack Units; 15.75" height (400 mm)
4100-2145	Option Bay Rack Mounting Kit, **one required per expansion bay**	
4100-2144	Power Distribution Module (PDM) Rack Mount Kit, order PDM separately per system voltage, **one required per cabinet rack**	

Power Distribution Modules (Not required for 4009 TPS Cabinets 2975-9229 and 2975-9230)

Model	Voltage	Description
4100-0634	120 VAC	Power Distribution Module (PDM); select per system voltage; **one required per 4100ES box or cabinet rack**
4100-0635	220/230/240 VAC	

Miscellaneous Accessories

Model	Description	
4100-9856	Canadian French Appliqué Kit, for 1, 2, or 3 bay sizes	
4100-9857	4100ES Appliqué Retrofit Kit, for 1, 2, or 3 bay sizes; use to identify 4100ES features when new door is not used; included with Master Controller Upgrade kits as detailed on data sheet S4100-0031	
4100-9835	Termination and Address Label Kit, for module marking	**NOTE:** One kit is supplied for each cabinet; order this if required for additional field module installation
4100-9837	Green LED Power-on Indicator Kit, **required for ULC listing of MINIPLEX transponder**	Mounts using knockout provided in solid door
2975-9813	Platinum semi-flush box trim	1-7/16" (37 mm) wide, four corners and trim pieces for top, bottom, and sides
2975-9812	Red semi-flush box trim	

Battery Reference

Model	Capacity	Model	Capacity
2081-9272	6.2 Ah	2081-9287	25 Ah
2081-9274	10 Ah	2081-9276	33 Ah
2081-9288	12.7 Ah	2081-9296	50 Ah
2081-9275	18 Ah		

Battery Notes

1. Sealed lead-acid batteries, 12 VDC each; two required per battery location.
2. Battery selection is required if batteries are internal.
3. Select one size per battery set
4. Refer to data sheet S2081-0006 for battery details.

Battery Accessories

Model	Description
4100-0650	Battery Shelf, **required for 50 Ah batteries**
4100-5128	Battery Distribution Terminal Block, mounts to side of box, required for all close-nippled cabinets unless cabinet receives all power from power supplies and batteries located in the adjacent cabinet

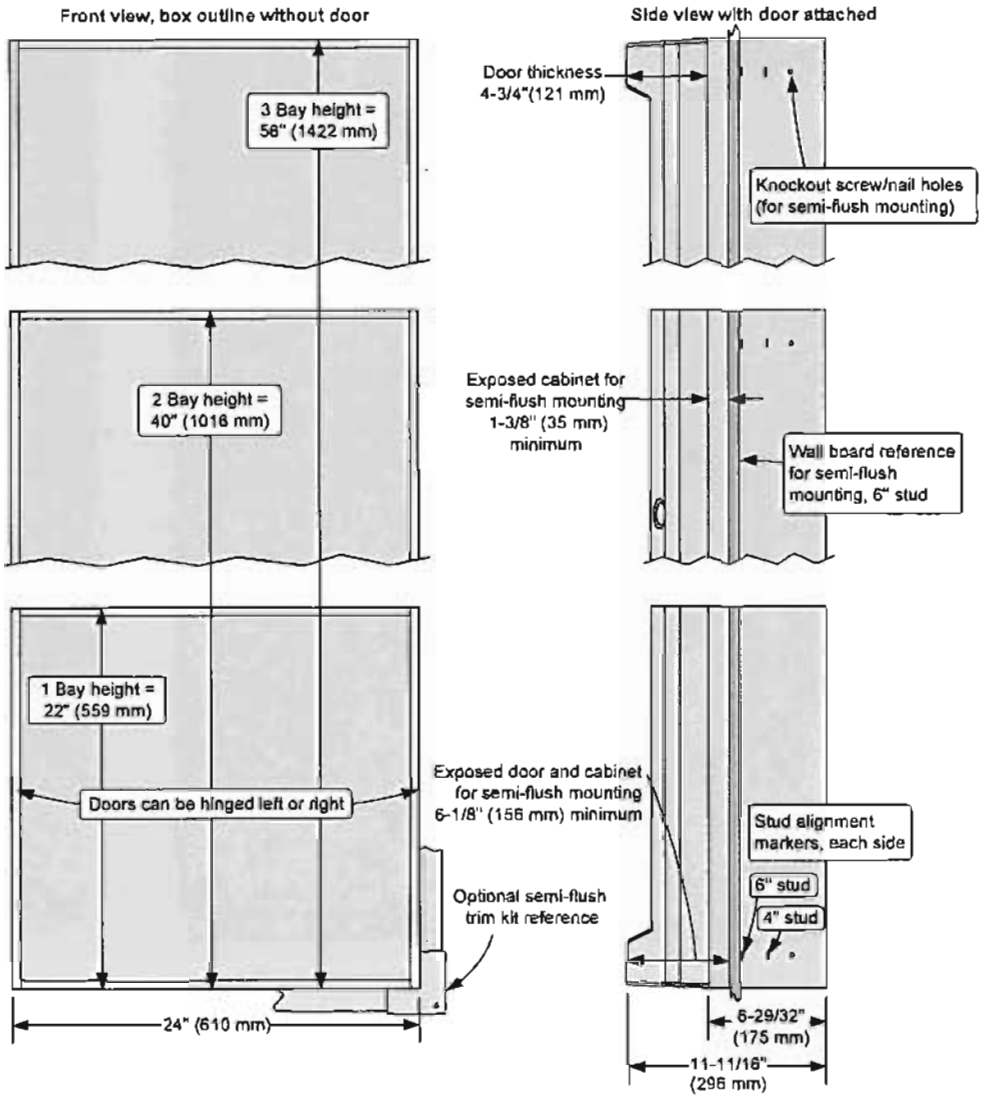
Additional Data Sheet Reference

Subject	Data Sheet	Subject	Data Sheet
4100ES Basic Panel Modules and Accessories	S4100-0031	Network Display Unit (NDU)	S4100-0036
LED/Switch Modules	S4100-0032	Remote Annunciators	S4100-0038
4100ES Audio/Phone Modules	S4100-0034	InfoAlarm Command Center	S4100-0045
MINIPLEX Transponders	S4100-0035	Remote Battery Charger	S4081-0002

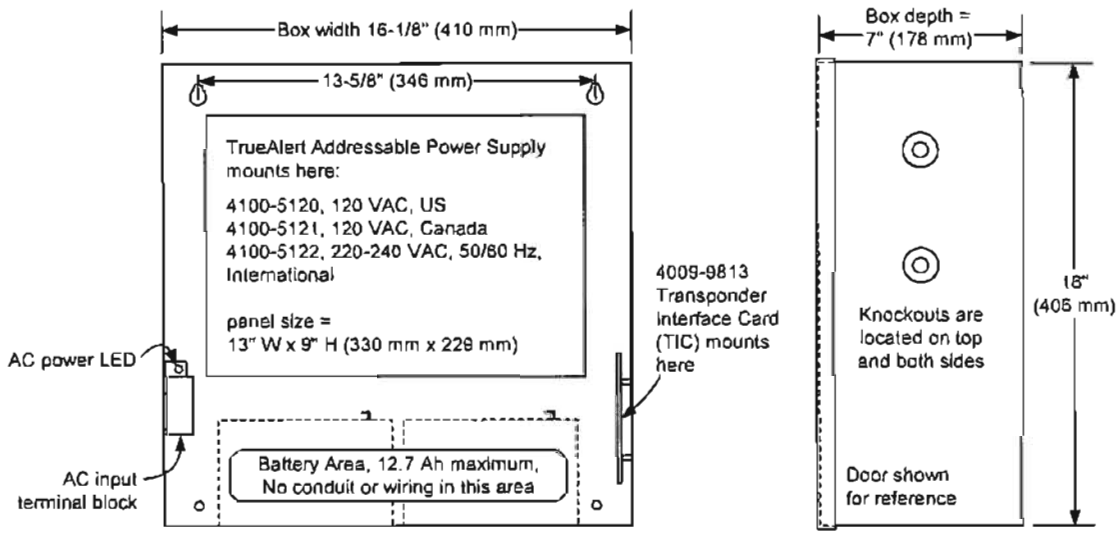
Wall Mounted Enclosure Installation Reference

NOTE:
A system ground must be provided for Earth Detection and transient protection devices. This connection shall be made to an approved, dedicated Earth connection per NFPA 70, Article 250, and NFPA 780.

For additional installation information refer to Installation Instructions 579-117.

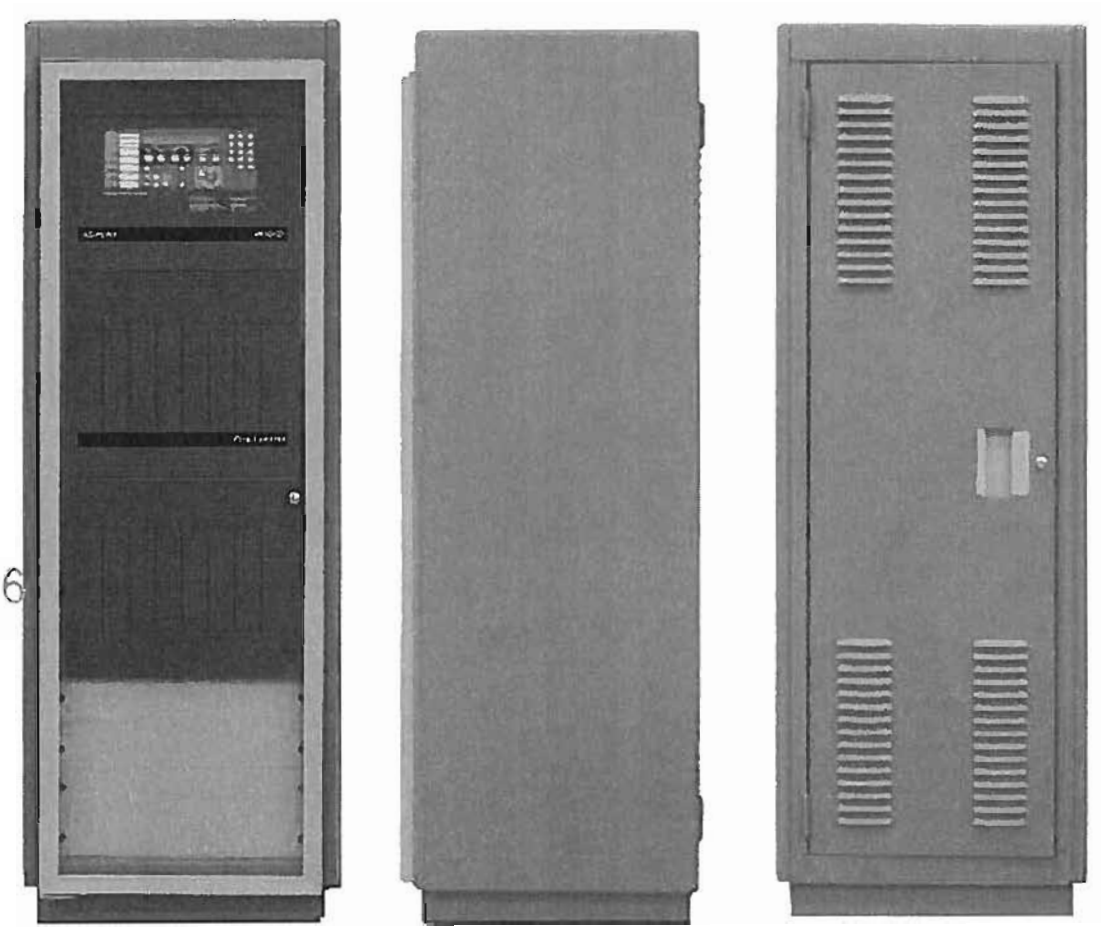


4009 TPS Cabinet Installation Reference



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Console Package Reference



Front View | Side View | Rear View

Cabinet Rack Specifications (refer to Installation Instructions 579-229 for additional details)

Type		Upright cabinet rack for exclusive use with Simplex 4100ES Fire Alarm Products
Supplier		Order from Bud Industries Inc. (www.budind.com)
Model Number		45964
Outside Dimensions	Height	69-7/8" (1775 mm)
	Width	24-1/16" (611 mm)
	Depth	22" (559 mm)
Color		Gray texture
Panel Space Width		19" E.I.A. (483 mm)
Front Door		Surface mount with 1/8" thick (3.18 mm) smoke gray polycarbonate, locked with Simplex "B" key, hinged on left of cabinet
Rear Door		Ventilated top and bottom, locked with Simplex "B" key
Sides		Side panels are removable from the inside for rack-to-rack mounting
Bottom		Pan attached for battery mounting
Levelers		Includes 4 stem levelers on bottom

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Simplex

*UL Listed**

System Accessories

4081 Series End-of-Line Resistor Harnesses

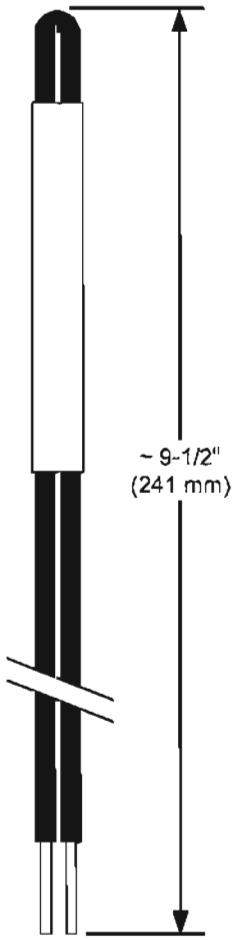
Features

For use as Class B end-of-line resistor:

- Connect these resistor harnesses where end-of-line resistors are required at remote locations to monitor wiring continuity
- Refer to specific circuit specifications for end-of-line resistor requirements

UL Listed to Standard 864

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Typical 4081 Series Resistor Harness Assembly
(full size except for lead length)

Product Selection

Model	Reference Number	Description**
4081-9001	733-892	2.2 kΩ, 1/2 W
4081-9002	733-893	3.3 kΩ, 1 W
4081-9003	733-896	4.7 kΩ, 1/2 W
4081-9004	733-886	6.8 kΩ, 1/2 W
4081-9005	733-984	1.8 kΩ, 1/2 W
4081-9006	733-890	560 Ω, 1 W
4081-9007	733-891	1.2 kΩ, 1 W
4081-9008	733-894	10 kΩ, 1/2 W
4081-9009	733-912	20 Ω, 1 W
4081-9010	733-973	1 kΩ, 1 W
4081-9011	733-974	100 Ω, 1/2 W
4081-9012	733-985	22 kΩ, 1/2 W
4081-9013	734-086	4.99 kΩ, 1/2 W, ± 1%
4081-9014	734-092	2.4 kΩ, 1/2 W
4081-9015	734-093	1.5 kΩ, 1/2 W
4081-9016	734-149	150 kΩ, 1/2 W
4081-9017	734-171	3.9 kΩ, 1 W
4081-9018	734-168	10 kΩ, 1 W

** ± 5% tolerance except as noted.

Specifications

Overall Length	Approximately 9-1/2" (241 mm)
Wire Length	7" (178 mm) ± 1" (25 mm)
Wire Size	18 AWG (0.82 mm^2)
Insulation	600 V, black
Leads	Stripped 0.5" (13 mm); tinned
Resistor Attachment	Resistor leads are crimped to wires and covered with heat shrink tubing

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Simplex

System Accessories

*UL, ULC Listed; FM, CSFM, and MEA (NYC) Approved**

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LCD Annunciators
Model 4603-9101

Features

Remote LCD annunciator for use with Simplex® model:

- 4100U, 4100, 4120, and 4020 fire alarm control panels
- 4100/4120 Universal Transponders

Information display features:

- Wide viewing angle, super-twist LCD technology with green LED backlighting
- Two lines of 40 characters each
- LED status indicators
- During battery backup, backlighting is disabled until there is switch activity

Controls include:

- Switches for system acknowledge, alarm silence, and system reset
- Four programmable control switches
- Lamp/LCD test

Wiring information:

- RUI (Remote Unit Interface) communications require a single twisted, shielded wire pair
- Separate wiring is required for 24 VDC control panel power

Flush mount on standard electrical boxes

Options

- 2975-9206, Surface mount box
- 4603-9111, Brushed stainless steel trim

UL Listed to Standard 864

Description

Remote Control and Annunciation is provided using an 80 character, back-lit, alphanumeric display. Information is presented in clear, descriptive English language and includes: **Point Status** (alarm, trouble, etc.); **Alarm Type** (smoke detector, manual station, etc.); **Number of System Alarms, Supervisory Conditions,** and **Trouble Conditions**; and a **Custom Location Label.**

Wiring. A single twisted, shielded wire pair provides serial RUI communications that also supports other Simplex serial annunciators on the same wire pair.

Multiple Indications. Alarm, Supervisory, and Trouble conditions are also indicated by dedicated LEDs and a tone-alert audible sounder. Each condition has a dedicated acknowledge push-button switch that silences the tone-alert but leaves the LED on until all conditions in that category are restored to normal. Switch operation is either globally or individually acknowledgeable, determined by the control panel operation.



4603-9101 LCD Annunciator

Description *(Continued)*

Repeated operation of the appropriate acknowledge switch will scroll the LCD display showing activity in the sequence of occurrence. The tone-alert also pulses to indicate the operation of any of the push-button switches.

Consult local code requirements for guidance in determining applications and location of the 4603-9101 LCD annunciator.

Operation

System Controls. Notification appliances can be deactivated by pressing the "ALARM SILENCE" switch. (Exact operation is determined by the host control panel such as visible appliances remaining on until system is reset.) Pressing the "SYSTEM RESET" switch restores the system to normal operation. When system activity is normal, the LCD displays the time, date, and "SYSTEM IS NORMAL."

Control Switches. Four programmable "CONTROL" switches and associated LEDs are included. Typical applications include manual evacuation, door holder release bypass, and elevator capture bypass.

Keyswitch Enable. All switches on the annunciator are controlled by the "ENABLE" keyswitch with a key that is removable only in the disabled position. A brief lamp/LCD test is performed whenever the keyswitch is changed from enabled to disabled.

Battery Backup Operation. During battery backup, the LED backlighting is disabled to conserve battery power. When an annunciator switch is activated, the backlighting is automatically enabled. After approximately 30 seconds of inactivity, the backlighting will again be disabled.

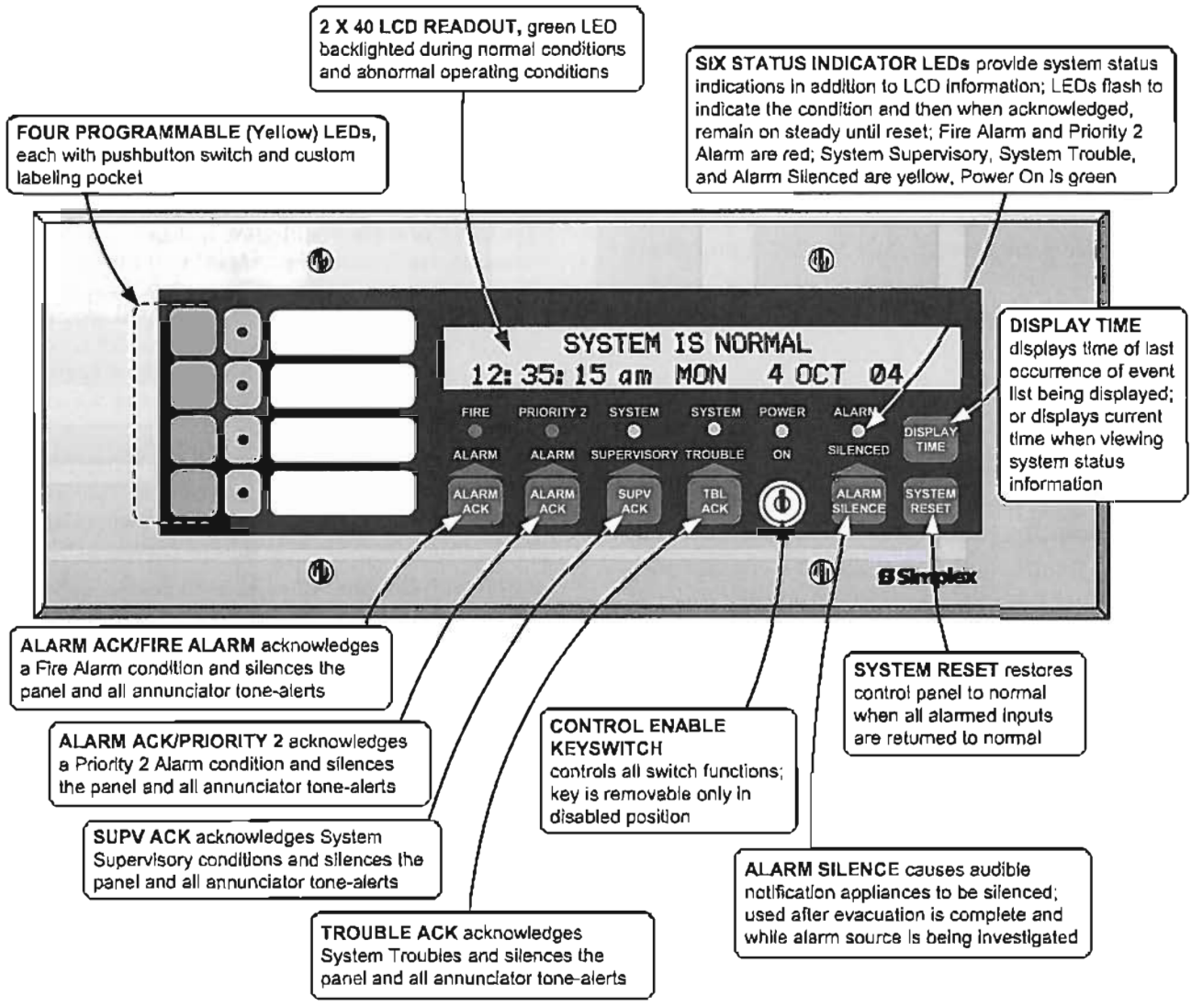
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Product Selection

Model	Description	
4603-9101	Remote LCD Annunciator with beige trim	Refer to specifications on page 3 for additional details
4603-9101C	Remote LCD Annunciator with beige trim, for Canada	
4603-9111	Brushed stainless steel trim option	
2975-9206	Matching surface mount box; ivory finish	
2081-9044	Overvoltage protector; required where annunciator communications and power wiring exits and enters a building; refer to data sheet S2081-0016 for details	

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4603-9101 Operator Information



General Operating Specifications

Voltage		20.4 to 32 VDC, system supplied
Normal Operating Current		170 mA, backlighting enabled
Battery Standby Current	Supervisory	30 mA, backlighting disabled
	Alarm	170 mA, backlighting enabled
Operating Temperature Range		32° to 120° F (0° to 49° C)
Operating Humidity Range		10% to 90% from 32° F to 104° F (0° C to 40° C)

Communications

4100U Capacity, Per RUI Output	Type	RUI (Remote Unit Interface) external annunciator communications line SLC (signaling line circuit)
	Capacity	Up to 31 remote annunciators/MINIPLEX® transponders per channel including the 4603-9101 LCD Annunciator, the 4602-9101 Status Command Unit (SCU), and 4602-9102 Remote Command Unit (RCU); refer to data sheet S4100-0031 for additional 4100U information
Wiring Requirements	Data	Single twisted, shielded pair, 18 AWG (0.82 mm^2)
	Power	18 to 12 AWG (0.82 mm^2 to 3.31 mm^2) wires for 24 VDC system power
	Earth	A dedicated earth ground connection to the electrical box is required for proper ESD and EMI protection; wire in accordance with NFPA 70 (*National Electrical Code®*) Article 250

Mounting Information

NOTE: General Conduit Entrance Requirement	Conduit entrance must be located a minimum of 2-3/4" (70 mm) from the front of the box to clear assembly
Trim Dimensions	4-1/2" H x 11-13/16" W (114 mm x 300 mm)
Standard Trim Finish	Steel, painted beige
4603-9111, Optional Trim	Brushed stainless steel (ordered separately)
Trim Hardware	Supplied with both slotted and tamper resistant screws
Boxes for Flush Mounting (supplied by others)	6-Gang, 3-1/2" (89 mm) deep: RACO 965, 6-gang masonry box; RACO 590, gangable switch box, 6 required; or equal

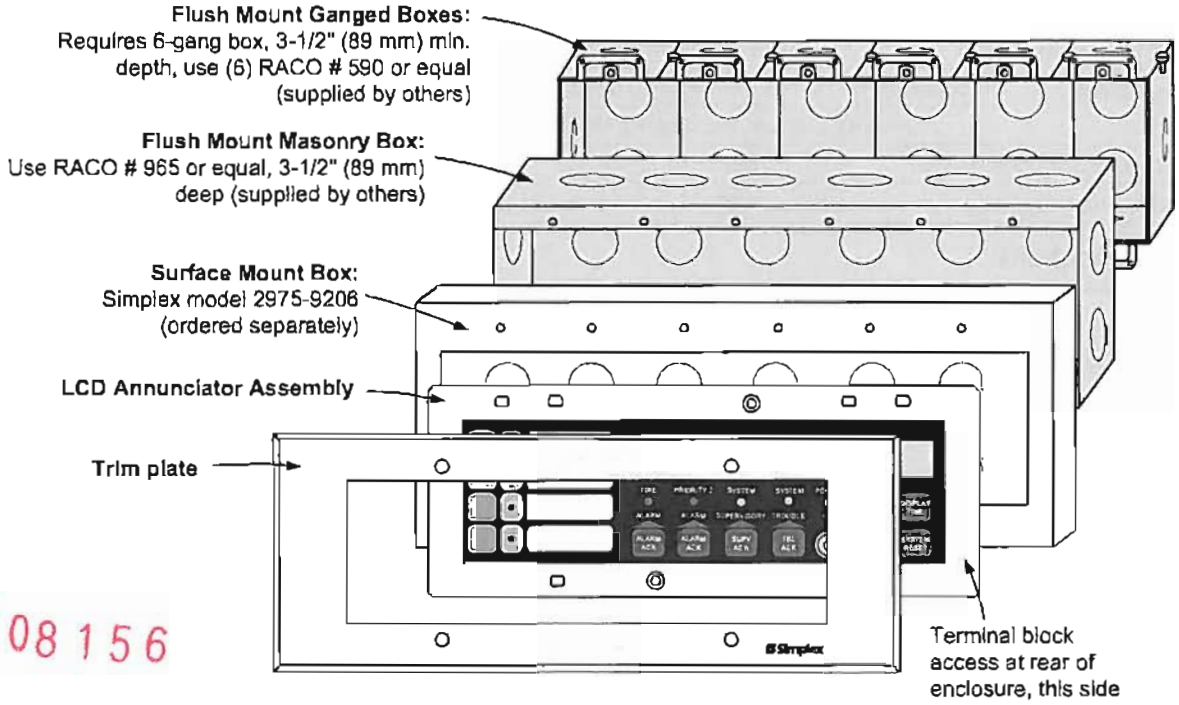
2975-9206, Surface Mount Box Option (ordered separately)

Dimensions	11-31/32" W x 4-5/8" H x 2-3/4" D (304 mm x 117 mm x 70 mm)
Finish	Painted steel, ivory finish

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Mounting Information

NOTE: Conduit entrance must be located a minimum of 2-3/4" (70 mm) from the front of the box to clear assembly. Review box choice with assembly layout before selecting conduit entrance location.

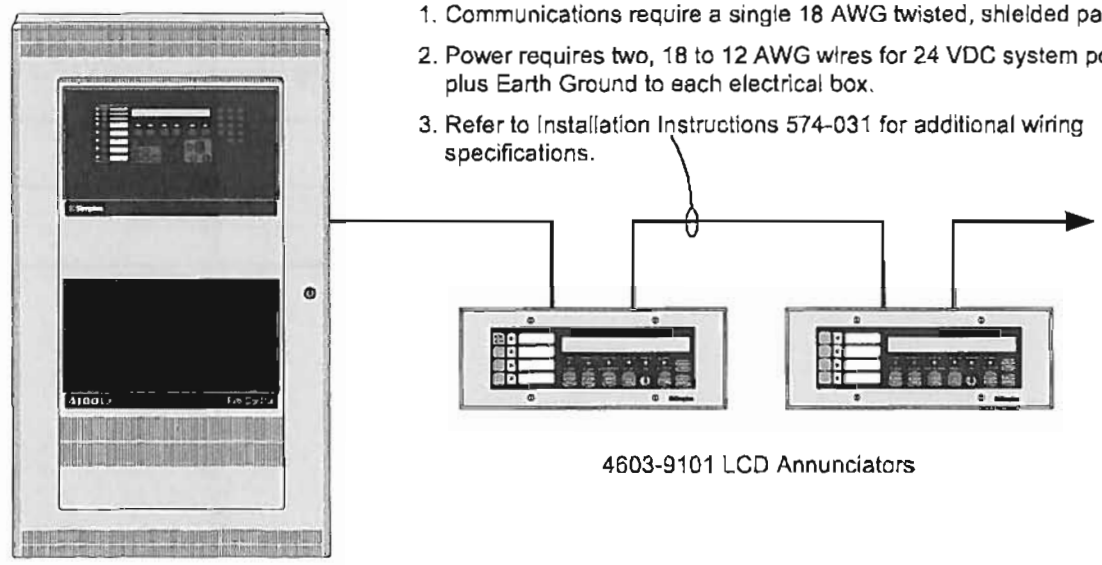


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Wiring Reference

Wiring Notes:

1. Communications require a single 18 AWG twisted, shielded pair.
2. Power requires two, 18 to 12 AWG wires for 24 VDC system power, plus Earth Ground to each electrical box.
3. Refer to Installation Instructions 574-031 for additional wiring specifications.



4603-9101 LCD Annunciators

4100U Fire Alarm Control Panel

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